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Colorado Economy and Employment Data Through May 2017

Colorado-based Business and Economic Research
Prepared
June 22, 2017

Overview of Economic Review

This chartbook provides a series of charts, graphs, and discussions that review the Colorado wage and salary employment data published by the Bureau of Labor Statistics for the first 5 months of 2017. On average, Colorado employment through May indicates the state is on track to add 50,600 jobs this year, a number that appears to be understated. This report is slightly different from other monthly reports because it deals strictly with employment data for the United States and Colorado.

U.S. Economy

- The United States Economy
 - Employment, Unemployment, Occupations
 - ADP Private Sector Employment by Company Size
 - Summary

The Colorado Economy

- Gross Job Gains and Gross Job Losses
- Employment and Unemployment by MSA and Select County
- QCEW Private Sector Employment by Size Category
- Occupations
- Employment in Strong Growth, Solid Growth, Volatile Categories
- Summary

The complete 2017 cber.co forecast can be found at <http://cber.co/economic-forecasts/>



The U.S. Economy

Employment, Unemployment, Occupations

Gross Job Losses and Gross Job Gains

In addition to publishing the “headline” employment series, BLS tracks gross job gains and gross job losses. During periods of expansion the gross gains exceed the gross losses and during periods of contraction, the gross losses exceed the gross gains.

The following chart shows gross gains and losses for the U.S.

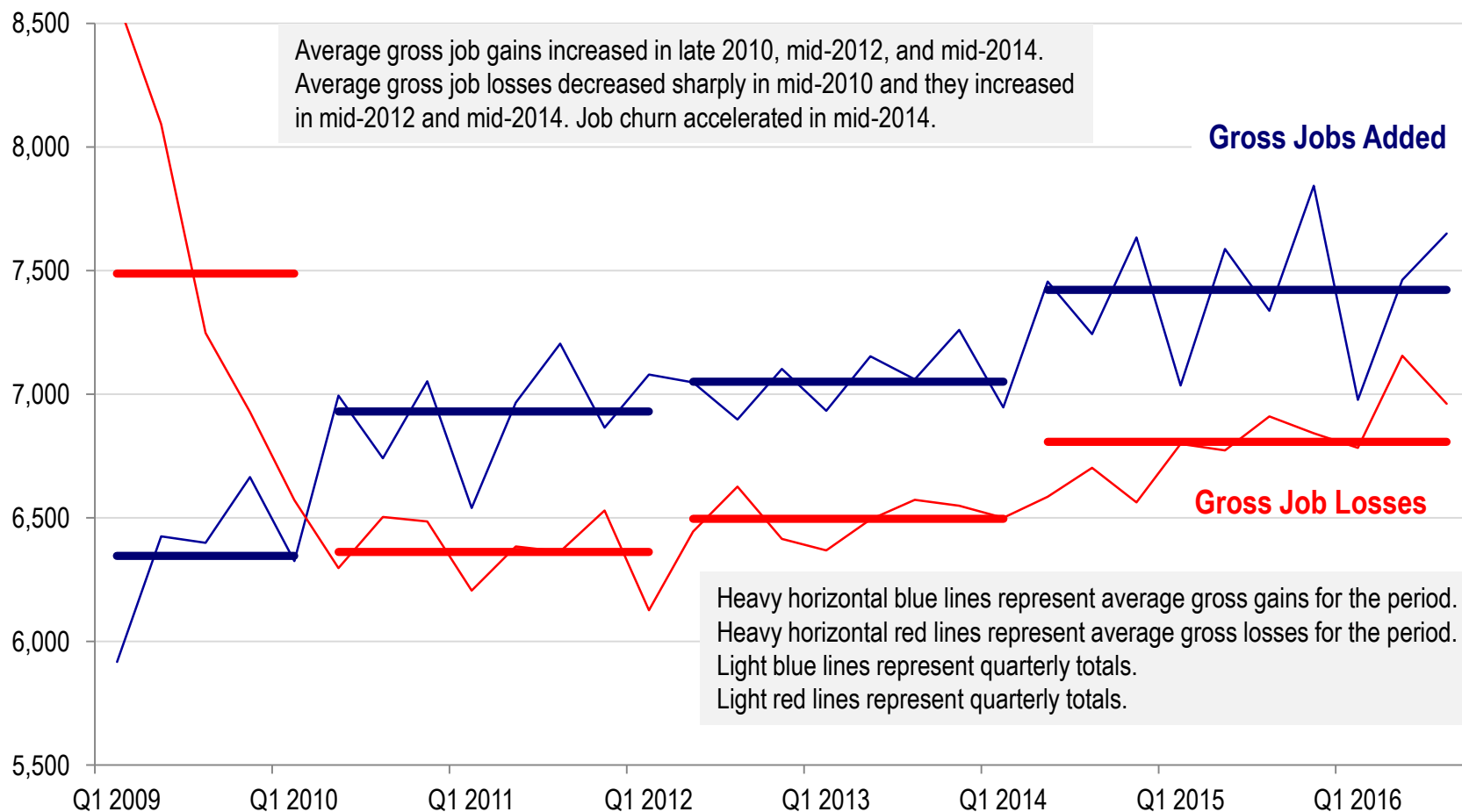
In the Colorado section of this chartbook a similar chart is shown for Colorado. That chart is accompanied by two additional charts that show the following:

- Gross job gains = new employees from companies that are expanding + new employees from new companies.
- Gross job losses = employees who leave companies that are contracting + employees who leave companies that are closing.

In these cases, gross gains from expanding companies account for about 80% of the total gross gains. Similarly, gross losses from contracting companies account for about 80% of total gross losses.

U.S. Gross Job Gains and Gross Job Losses

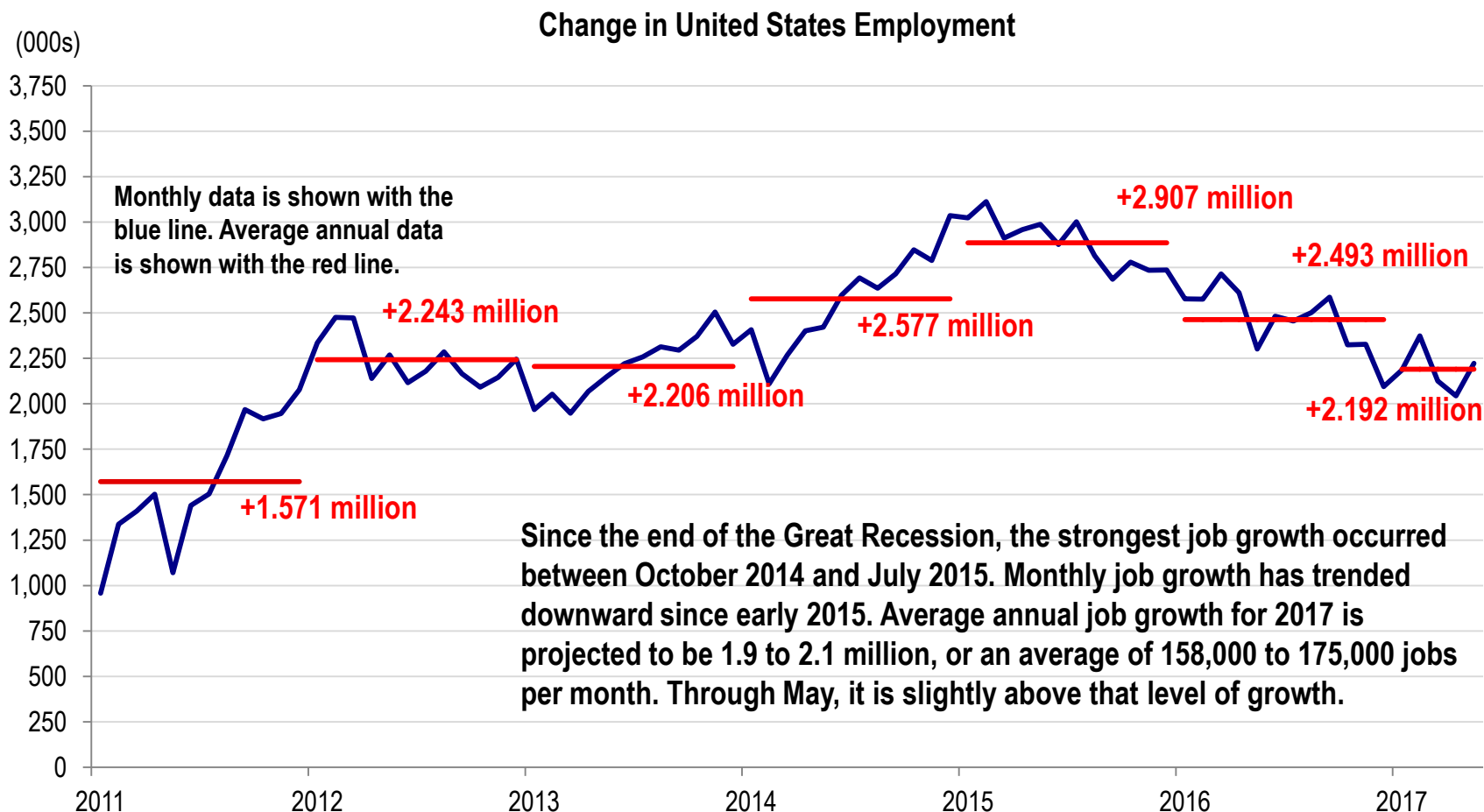
Thousands



Source: Bureau of Labor Statistics, cber.co.

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Change in United States Employment Year-Over-Year



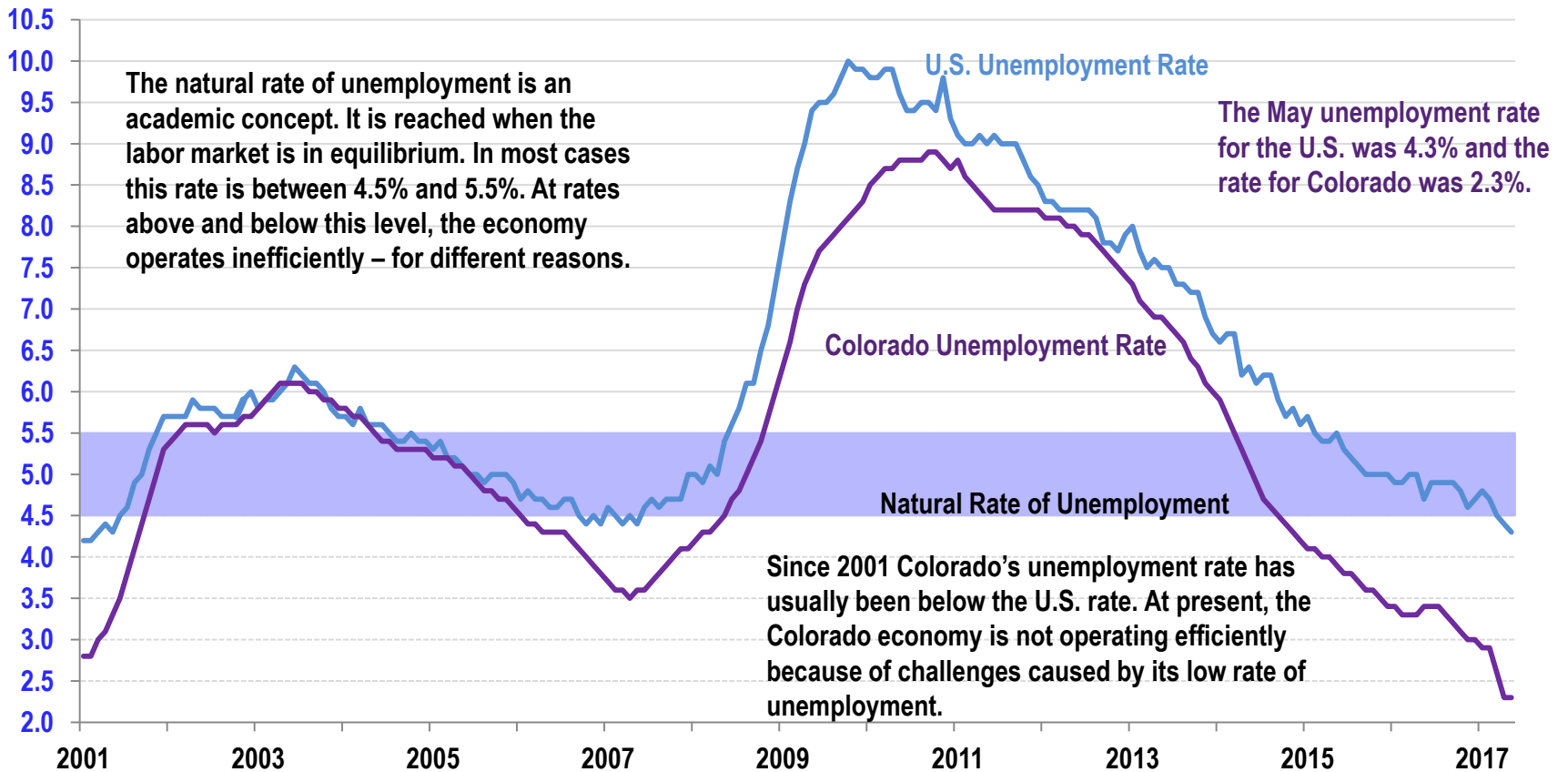
Source: Bureau of Labor Statistics, NSA; cber.co.

Unemployment Rate

United States vs. Colorado

Percent

United States vs. Colorado Unemployment Rate



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



Occupations

In a perfect world, monthly data would be produced that allows economists to evaluate changes to both employment and occupation by industry. If that data existed, economists could produce analysis and forecasts that looked at both employment and occupation growth by industry.

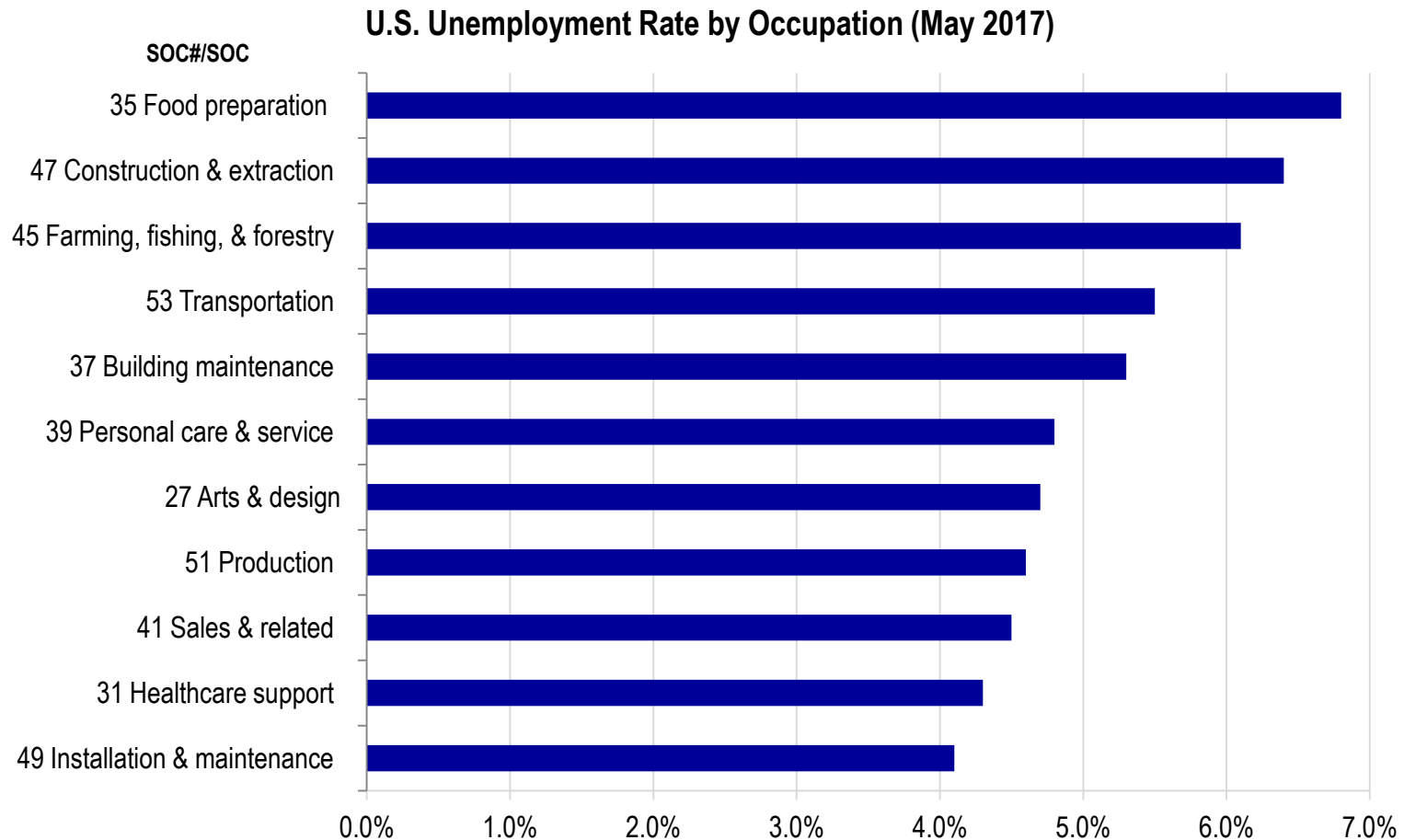
The following charts are based on BLS data that provides the U.S. unemployment rate for 22 SOC occupations at the national level. Such data is not available at the state level.

The first chart shows the unemployment rate for 11 SOC codes that have an unemployment rate of 4.1% or greater.

The second chart shows the unemployment rate for 11 SOC codes that have an unemployment rate less than 4.1%. Eight of the occupation codes have unemployment rates below 3.0%, i.e. companies may have difficulties filling these occupations. Many of these occupations require on the job training, plus certification, or advanced degrees, which makes it more difficult to fill these positions.

U.S. Unemployment Rates by Occupation

- Occupations with Unemployment Rates at or Above 4.1% (U.S. rate)

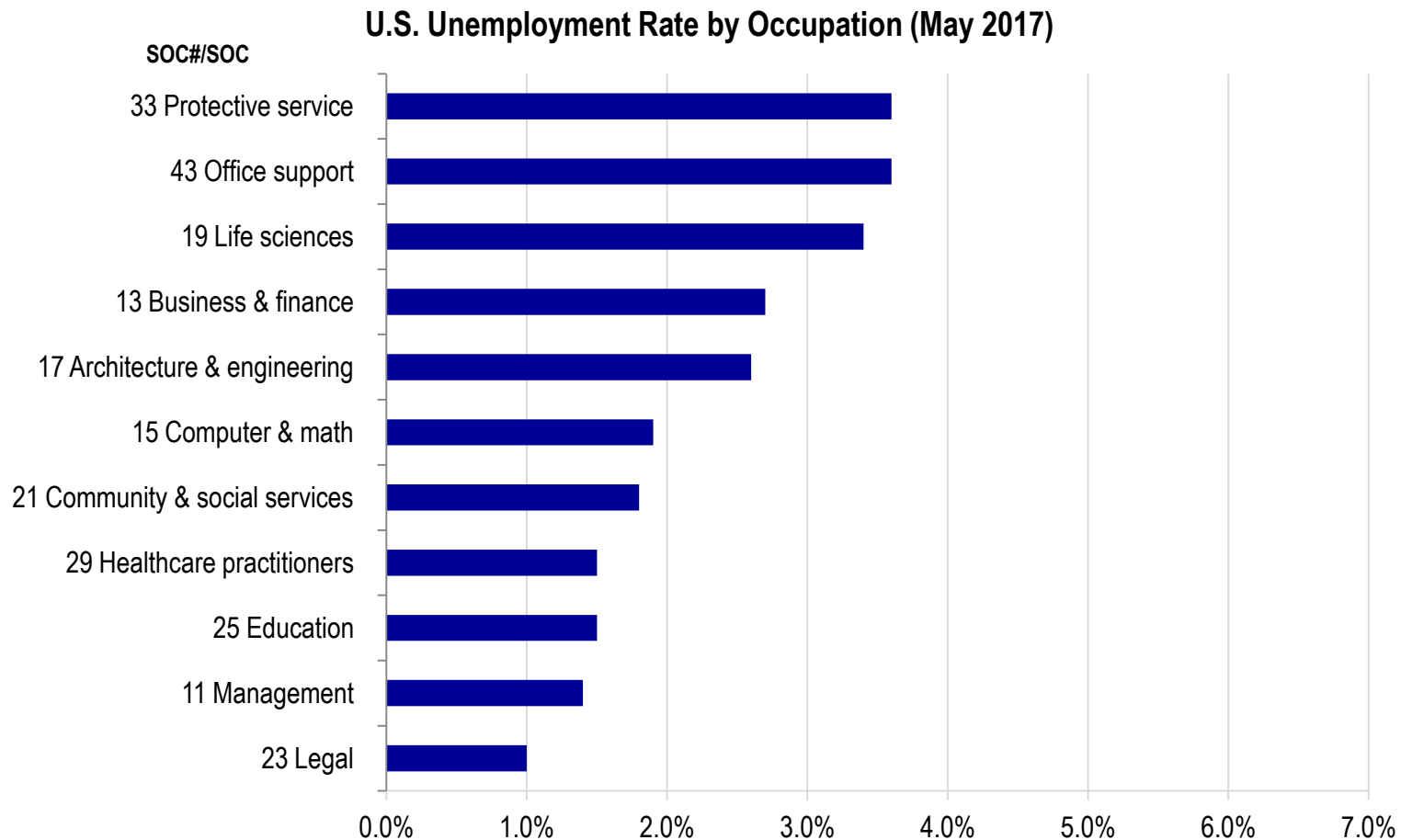


Source: Bureau of Labor Statistics, NSA, cber.co.

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U.S. Unemployment Rates by Occupation

Occupations with Unemployment Rates Below 4.1% (U.S. rate)



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

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The U.S. Economy

ADP Private Sector Employment by Company Size

ADP Private Sector Employment

Company Size

ADP produces an employment series for the private sector. From time-to-time, there are significant differences from the BLS data; however, the series are similar over the long run. The ADP produces breakdowns of employment by company size. This helps identify the growth rate of the different sizes of companies. The following charts look at job growth trends, based on company size, since 2009, i.e. the recovery from the Great Recession.

Size Categories

The size categories are:

- 1-19 employees
- 20-49 employees
- 50-499 employees
- 500-999 employees
- 1,000+ employees

The following information includes the May 2017 employment by size category and the percentage of total private sector employment.

- 1-19 employees, 31.2 million, 25.2%
- 20-49 employees, 20.1 million, 16.2%
- 50-499 employees, 44.7 million, 36.0%
- 500-999 employees, 8.4 million, 6.8%
- 1,000+ employees, 19.8 million, 15.9%

Highlights

All size categories contribute to the growth of the economy. They contribute to growth in different ways.

Annualized rate of growth

- Overall, 1.6%
- Fastest rate, 2.0%, 1,000+ employees
- Slowest rate, 1.2%, 1-19 employees

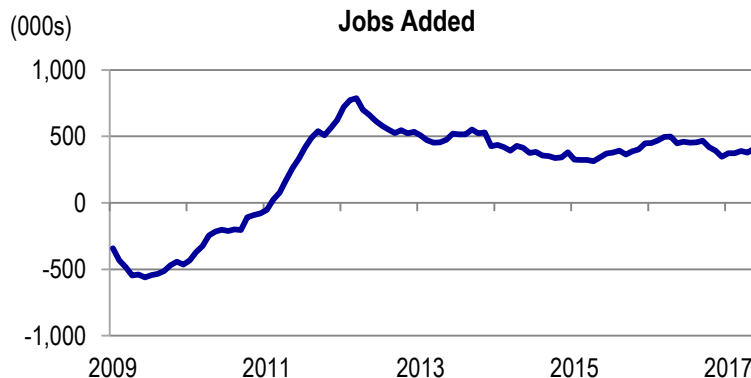
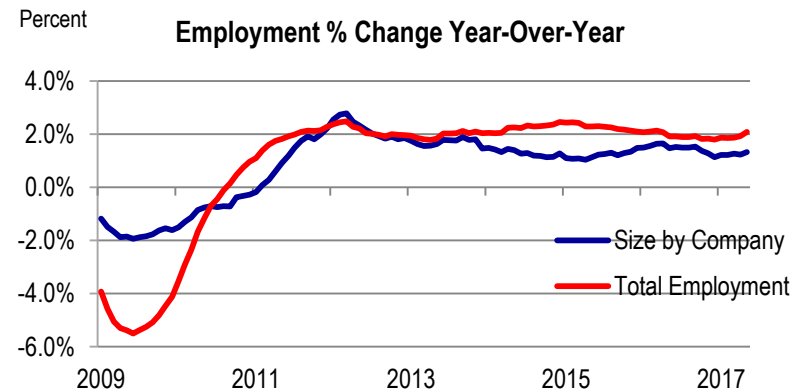
Absolute job growth

- Overall, 15.2 million
- Largest, 5.8 million, 50 to 499 employees
- Smallest, 1 million, 500 to 999 employees

It should be noted that these categories are also the largest and smallest categories.

ADP Private Sector Employment

Company Size: 1 to 19 Employees



Eight Year Growth

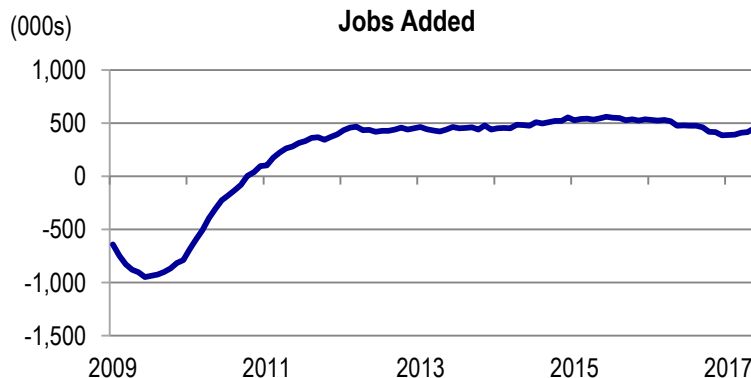
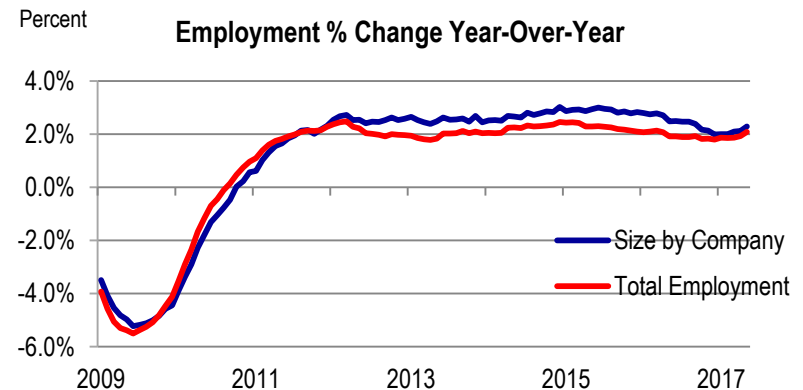
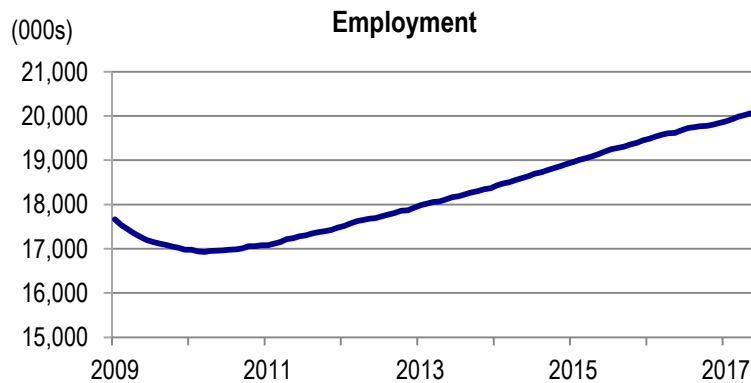
- 2.790 million jobs added
- 18.3% of total jobs added
- 1.2% annualized rate of growth

Source: ADP, cber.co.

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

ADP Private Sector Employment

Company Size: 20 to 49 Employees



Eight Year Growth

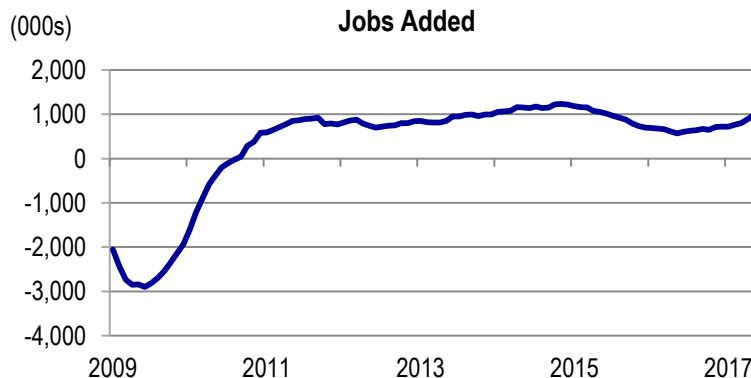
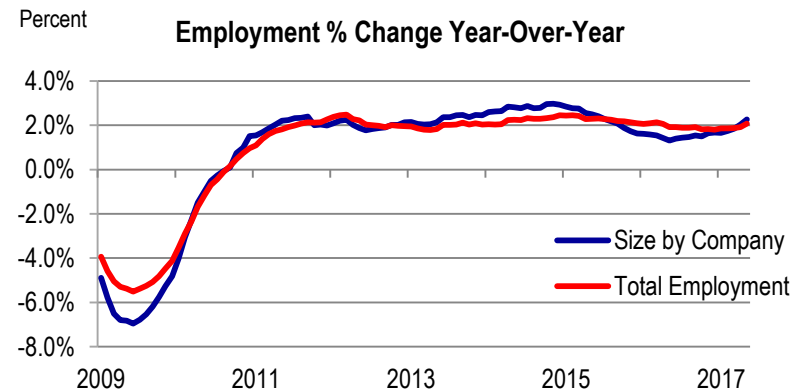
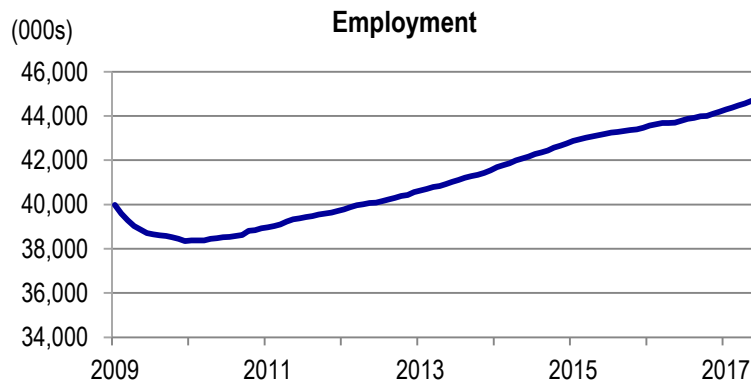
- 2.797 million jobs added
- 18.4% of total jobs added
- 1.9% annualized rate of growth

Source: ADP, cber.co.

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

ADP Private Sector Employment

Company Size: 50 to 499 Employees



Eight Year Growth

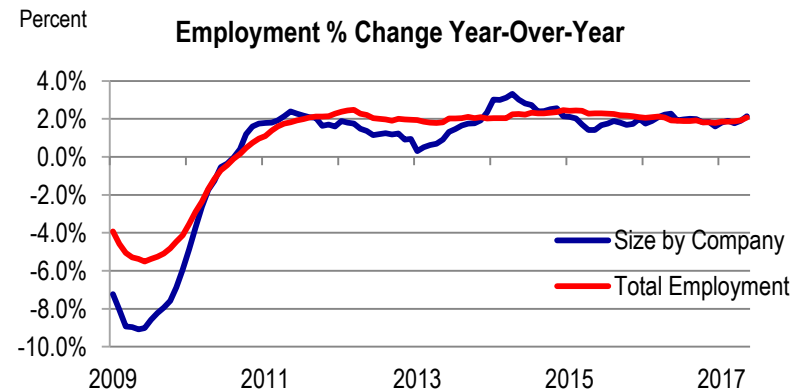
- 5.820 million jobs added
- 38.2% of total jobs added
- 1.9% annualized rate of growth

Source: ADP, cber.co.

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

ADP Private Sector Employment

Company Size: 500 to 999 Employees



Eight Year Growth

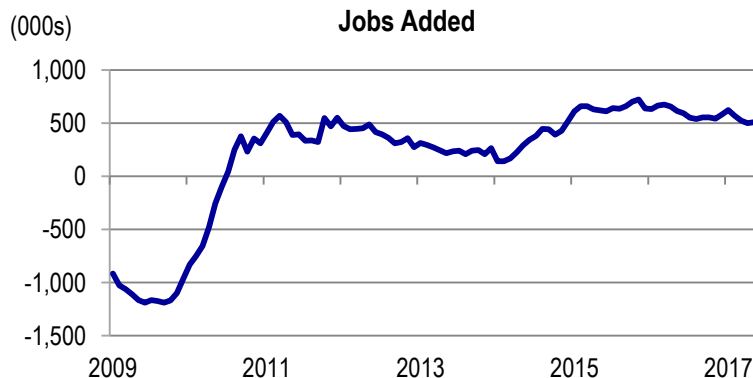
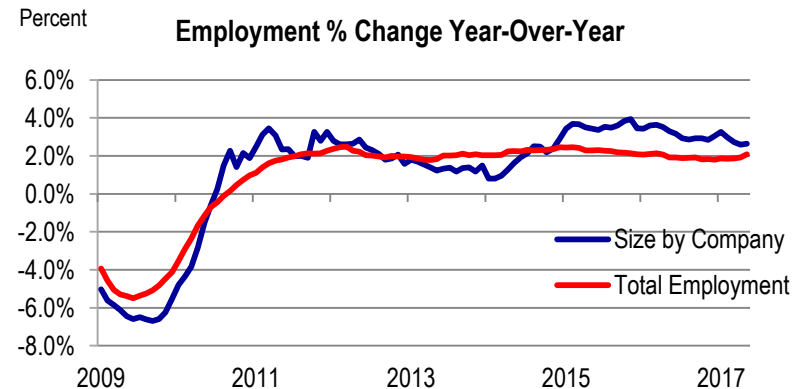
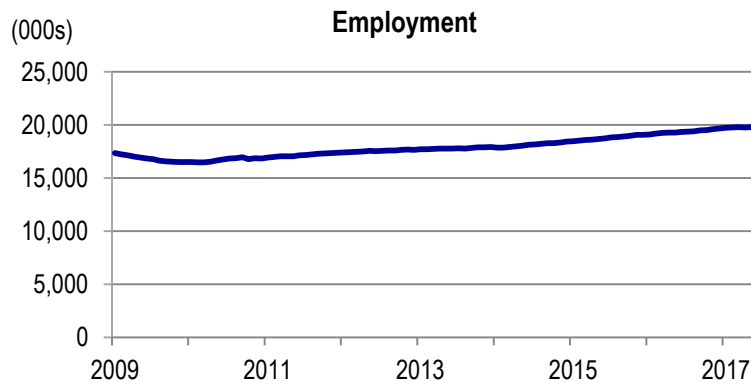
- 0.963 million jobs added
- 6.3% of total jobs added
- 1.5% annualized rate of growth

Source: ADP, cber.co.

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

ADP Private Sector Employment

Company Size 1,000+ Employees



Eight Year Growth

- 2.872 million jobs added
- 18.8% of total jobs added
- 2.0% annualized rate of growth

Source: ADP, cber.co.

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



The U.S. Economy

Summary



U.S. Economy

Summary

Gross Job Gains and Losses

Since Q2 2010 gross job gains have exceeded gross job losses. As a result, net jobs have increased. In Q2 2012 and Q2 2014 gross job gains and job losses experienced strong gains, i.e. job churn increased.

U.S. Employment

The U.S. is on track to add 2.2 million jobs in 2017.

U.S. Unemployment

The U.S. unemployment rate for May was 4.3% and the Colorado rate was 2.3%. Both rates are below the range for the natural rate of unemployment. This means the economy is operating inefficiently.

Occupational Unemployment

Half of the 22 SOC occupation categories have unemployment rates below the May NSA unemployment rate of 4.1% for the U.S. Eight of these categories have unemployment rates less than 3.0%. Many of these occupations require on-the-job training, certification, or advanced degrees.

ADP Private Sector Employment by Company Size

Over an eight year period:

- The category growing at the fastest rate, 2.0%, is 1,000+ employees.
- The category growing at the slowest rate, 1.2%, is 1 to 19 employees.
- The 50 to 499 employee category added the largest number of jobs, 5.8 million. This category has the largest number of employees.
- The 500 to 999 employee category added the smallest number of jobs, 1.0 million. This category has the smallest number of employees.

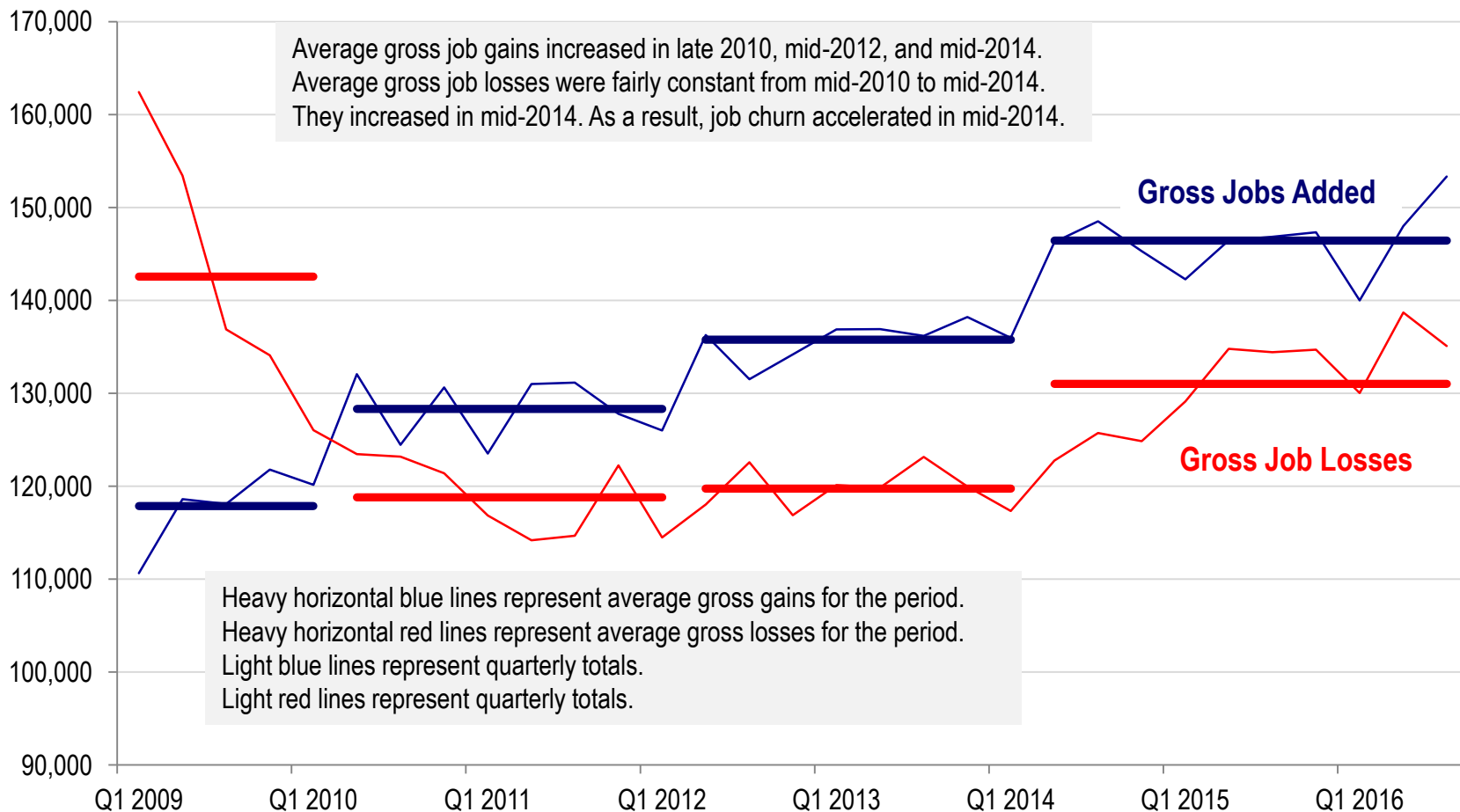


The Colorado Economy

Gross Job Gains and Gross Job Losses

Colorado Gross Job Gains and Job Losses

Employees

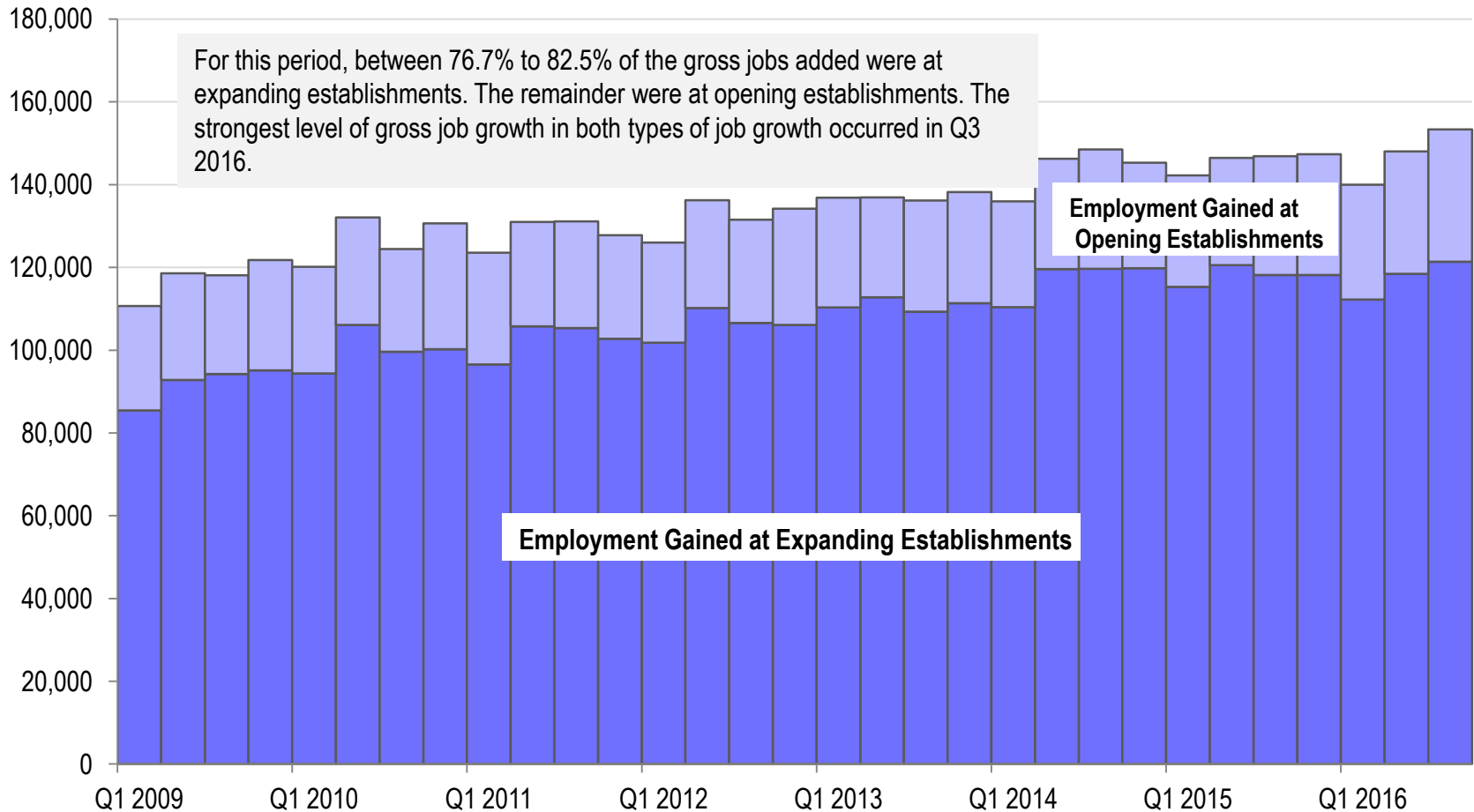


Source: Bureau of Labor Statistics, cber.co.

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

Colorado Gross Job Gains

Employees

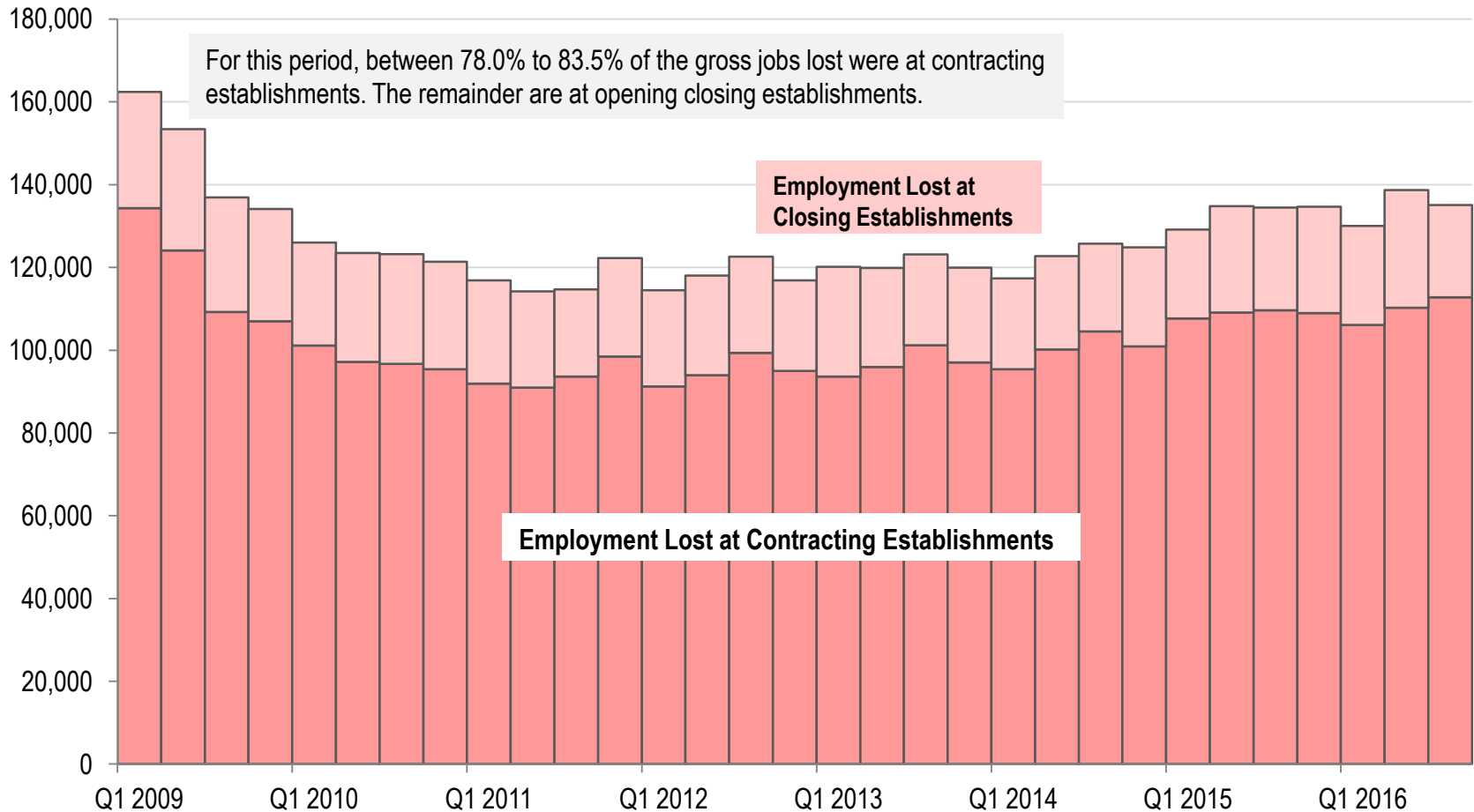


Source: Bureau of Labor Statistics, cber.co.

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

Colorado Gross Job Losses

Employees



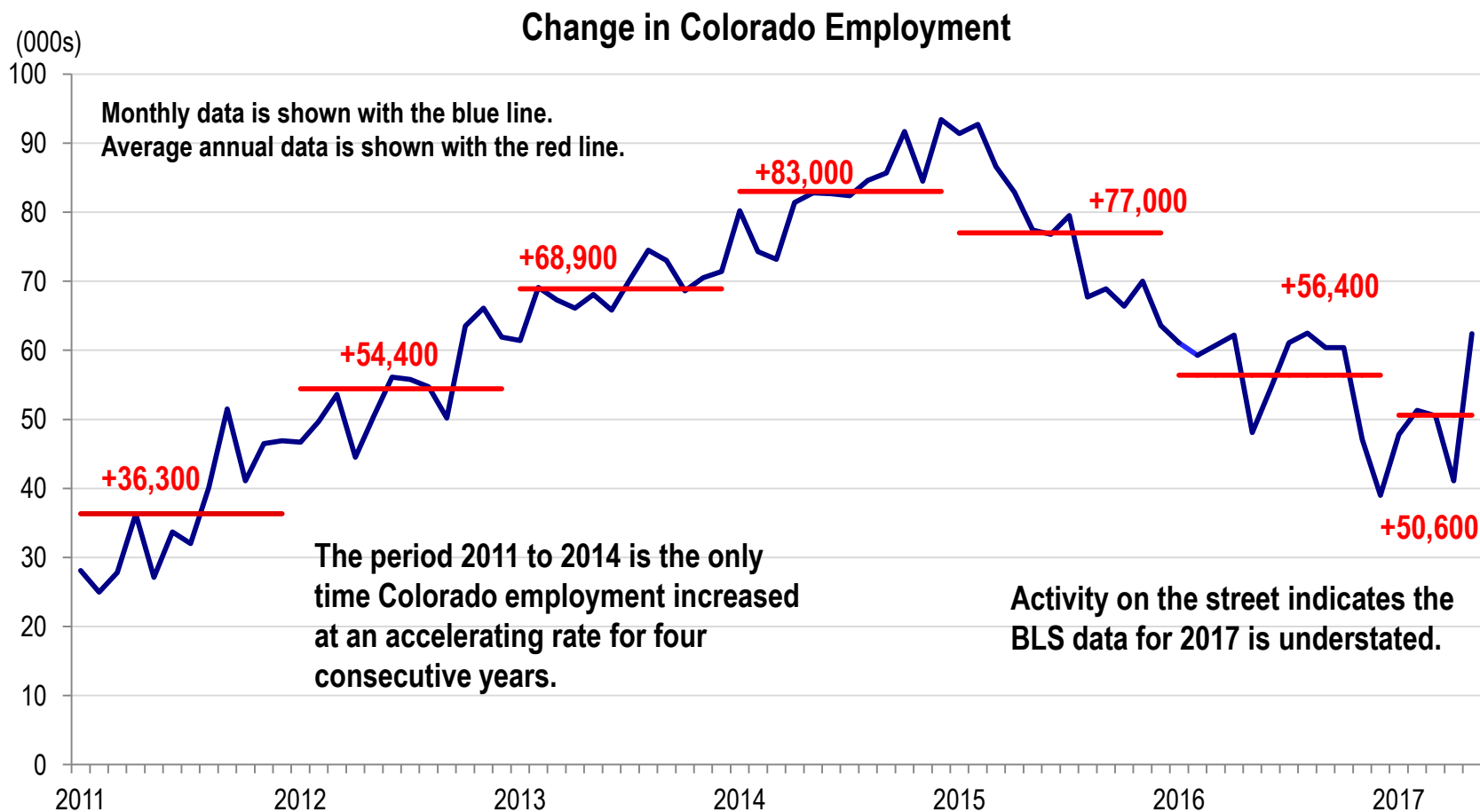
Source: Bureau of Labor Statistics, cber.co.



The Colorado Economy

Employment and Unemployment by MSA and Select County

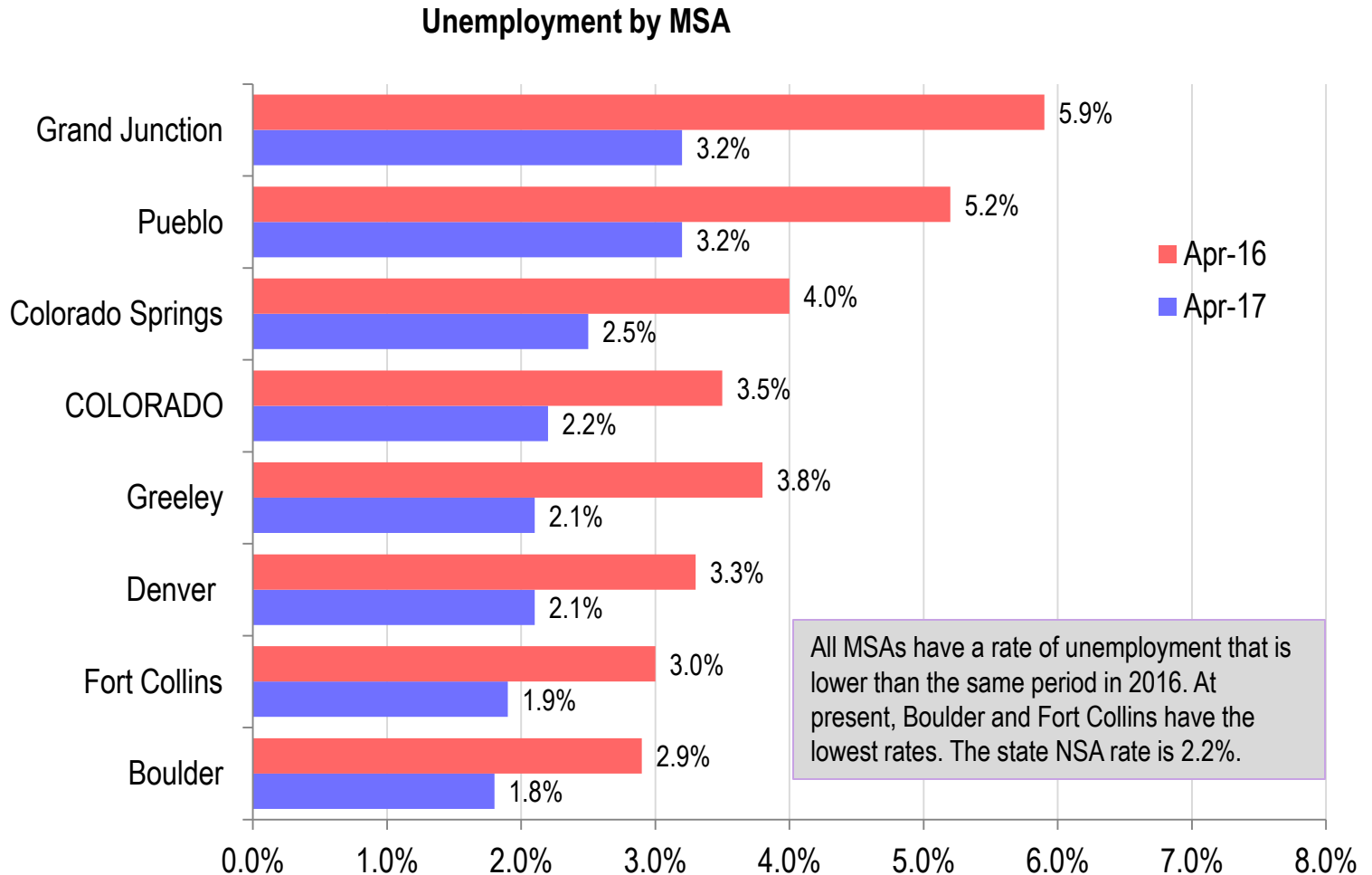
Change in Colorado Employment Year-Over-Year



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

Unemployment by MSA

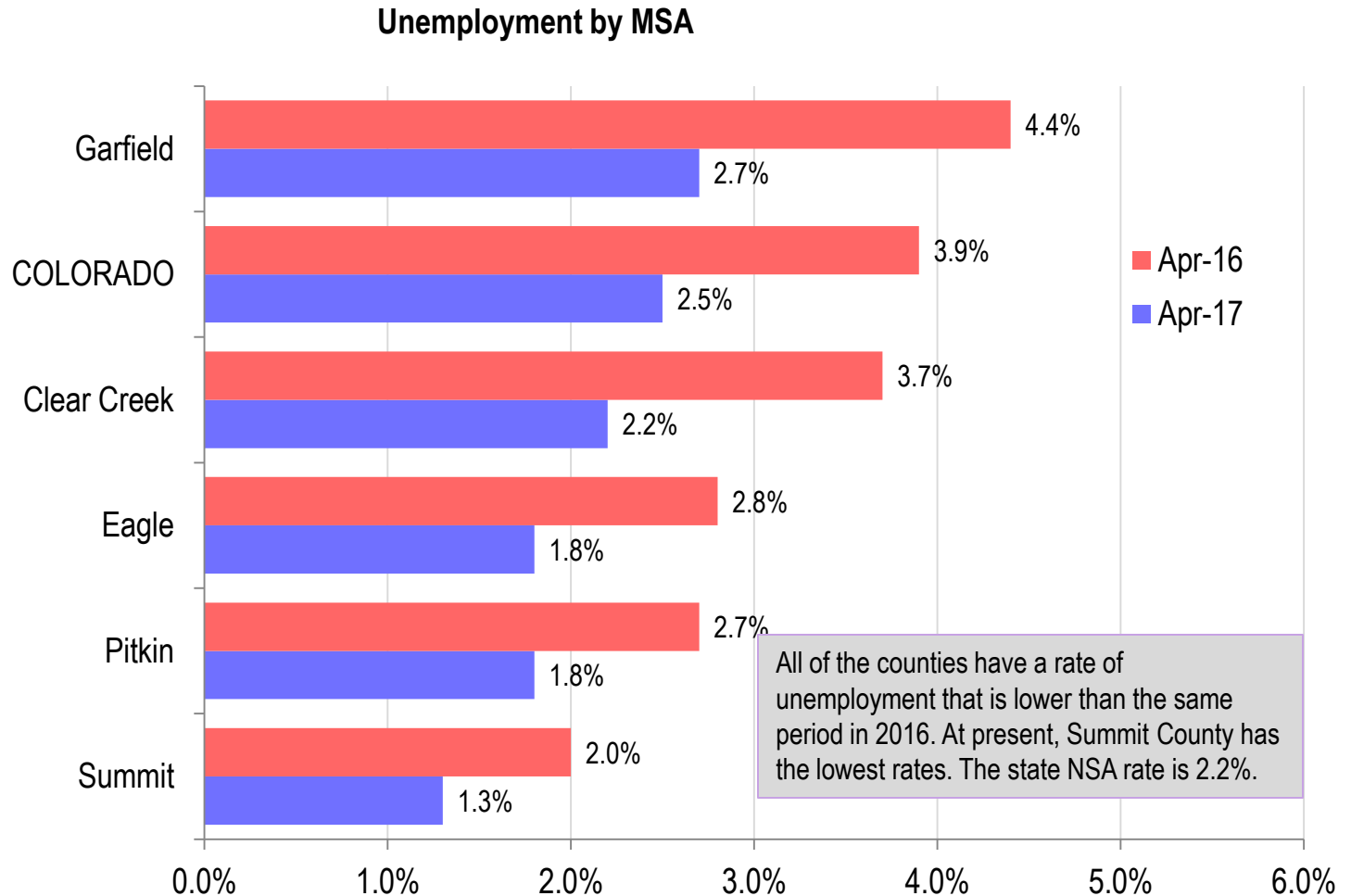
2016 vs. 2017



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

Unemployment by County (I-70)

2016 vs. 2017



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



Colorado Economy

QCEW Private Sector Employment by Size Category

QCEW Private Sector Employment

Company Size

The following charts used QCEW data, from BLS, to show employment trends by company size. BLS calculates trends for employment, number of establishments, and wages, based on Q1 data. There is an extremely high correlation between Q1 data and the year-end data. The following charts look at trends for job growth since 2009, essentially the end of the Great Recession.

Size Categories

BLS produces data for nine size categories. They have been combined into the five categories used by ADP:

- 1-19 employees
- 20-49 employees
- 50-499 employees
- 500-999 employees
- 1,000+ employees.

Highlights

1-19 employees

88.4% of the establishments are in this category. This group has the lowest average annual wages and the slowest rate of job growth.

50 to 499 employees

This is the largest employment category with 37.9% of total employment. It only had 3.8% of total establishments, and 39.5% of total wages. Over seven years, there were 118,997 jobs added in this category, or 46.1% of the total jobs added.

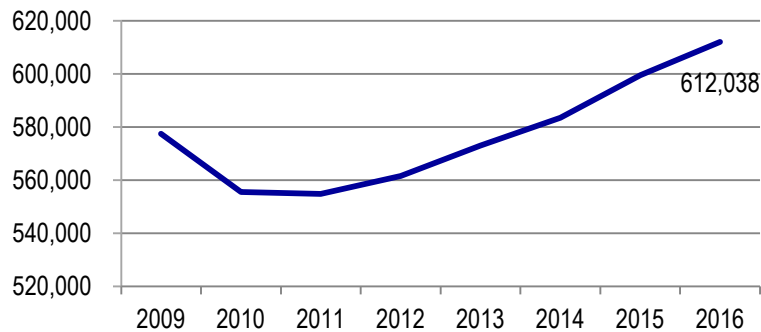
1000+ employees

There are only 85 establishments in this category, or .005% of the state total. These companies account for 7.3% of total employment, 4.8% of total jobs added, and 9.8% of total wages.

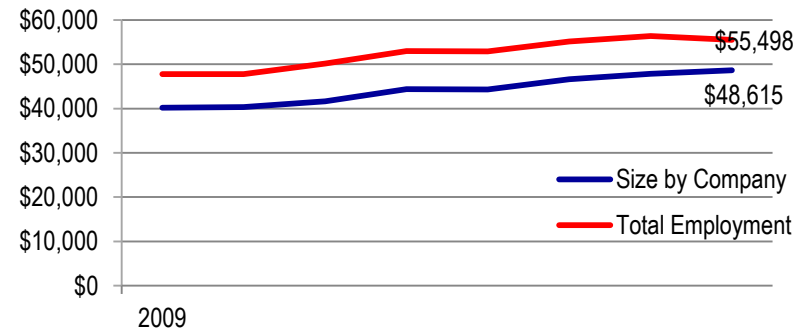
Colorado QCEW Private Sector Employment

Size by Company 1 to 19

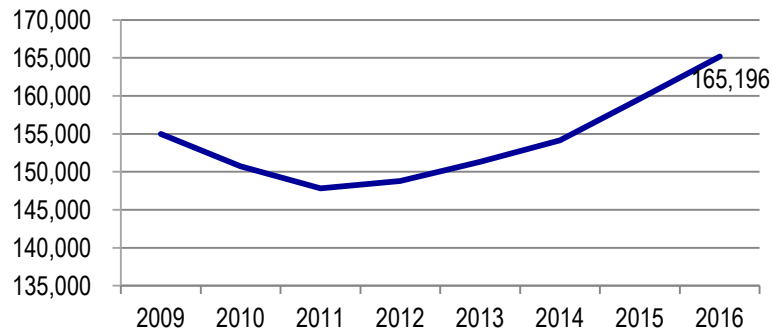
Estimated Employment



Estimated Average Annual Wages



Estimated Establishments



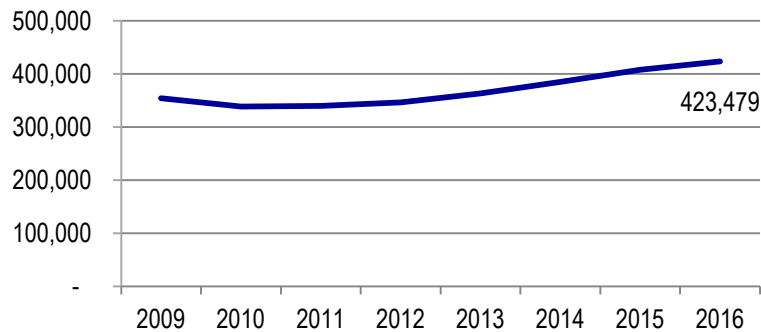
Category Analysis

- 29.1% of Q1 2016 employment
- 88.4% of Q1 2016 establishments
- 25.5% of Q1 2016 total wages
- 34,613 jobs added (7 years)
- 13.5 % of jobs added (7 years)
- 0.8% annualized rate of job growth

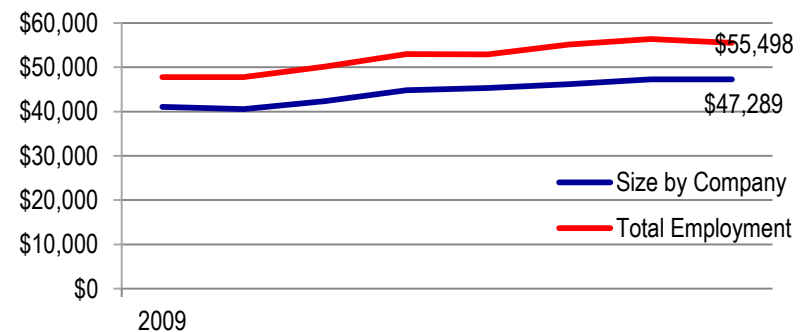
Colorado QCEW Private Sector Employment

Size by Company 20 to 49

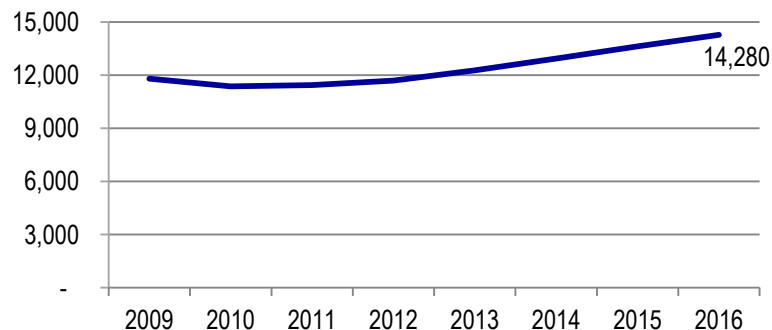
Estimated Employment



Estimated Average Annual Wages



Estimated Establishments



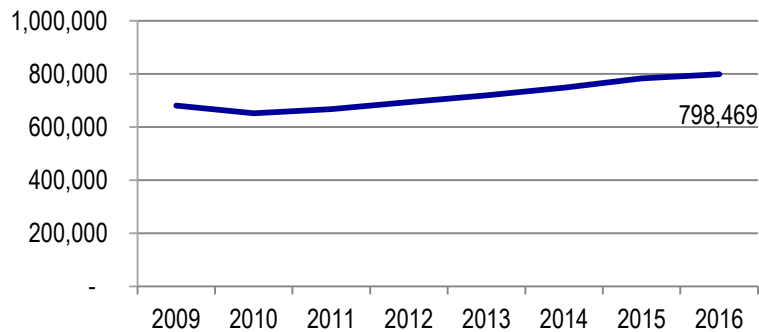
Category Analysis

- 20.1% of Q1 2016 employment
- 7.6% of Q1 2016 establishments
- 17.1% of Q1 2016 total wages
- 69,648 jobs added (7 years)
- 27.1 % of jobs added (7 years)
- 2.6% annualized rate of job growth

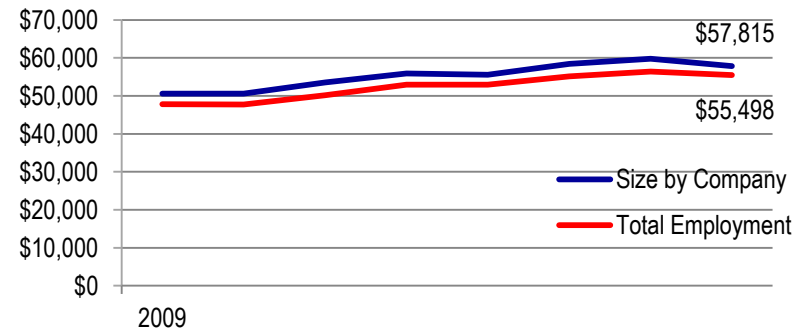
Colorado QCEW Private Sector Employment

Size by Company 50 to 499

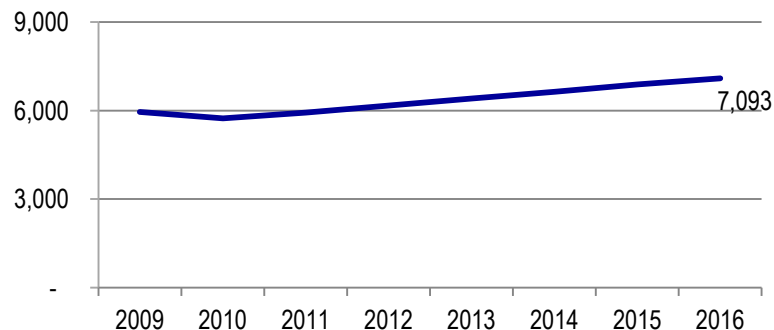
Estimated Employment



Estimated Average Annual Wages



Estimated Establishments

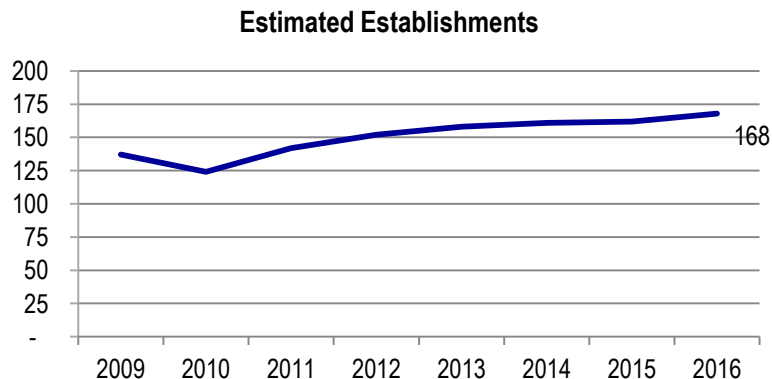
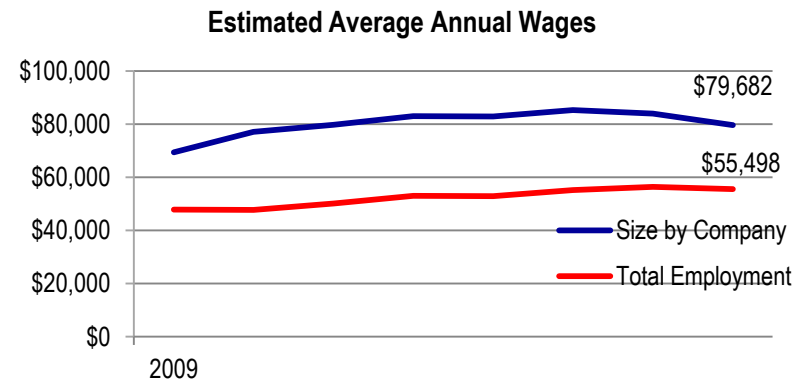
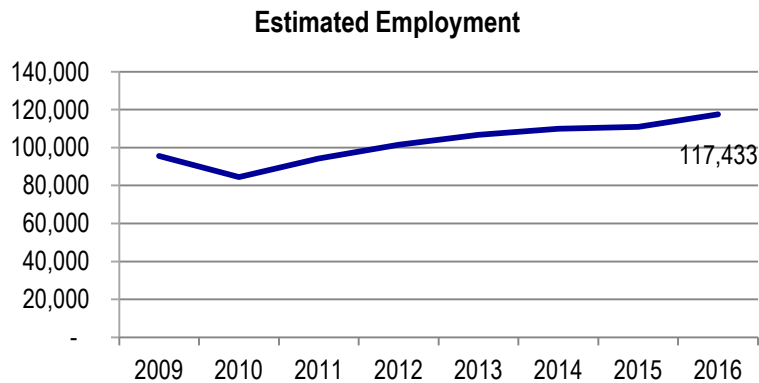


Category Analysis

- 37.9% of Q1 2016 employment
- 3.8% of Q1 2016 establishments
- 39.5% of Q1 2016 total wages
- 118,997 jobs added (7 years)
- 46.1 % of jobs added (7 years)
- 2.3% annualized rate of job growth

Colorado QCEW Private Sector Employment

Size by Company 500 to 999



Category Analysis

- 5.6% of Q1 2016 employment
- 0.1% of Q1 2016 establishments
- 8.0% of Q1 2016 total wages
- 21,814 jobs added (7 years)
- 8.5% of jobs added (7 years)
- 3.0% annualized rate of job growth

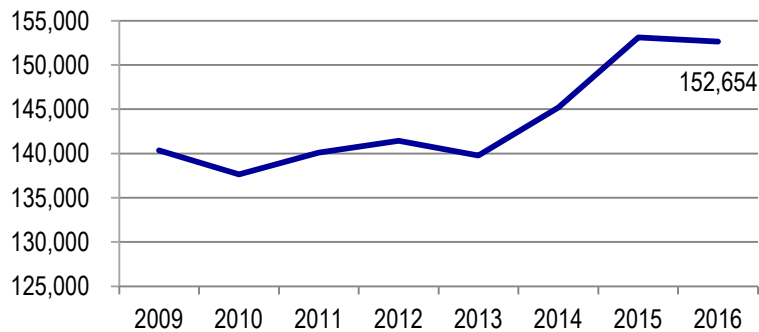
Source: Bureau of Labor Statistics, cber.co.

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

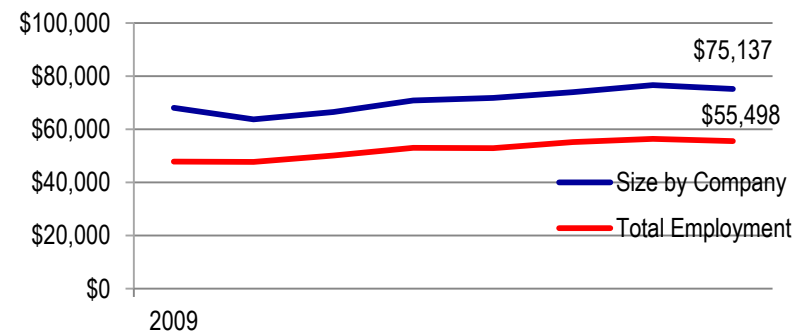
Colorado QCEW Private Sector Employment

Size by Company 1,000+

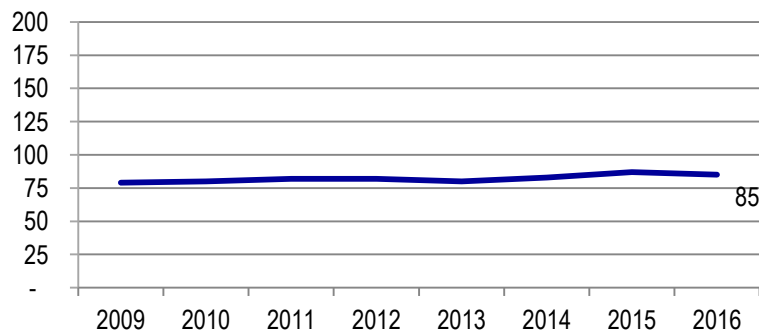
Estimated Employment



Estimated Average Annual Wages



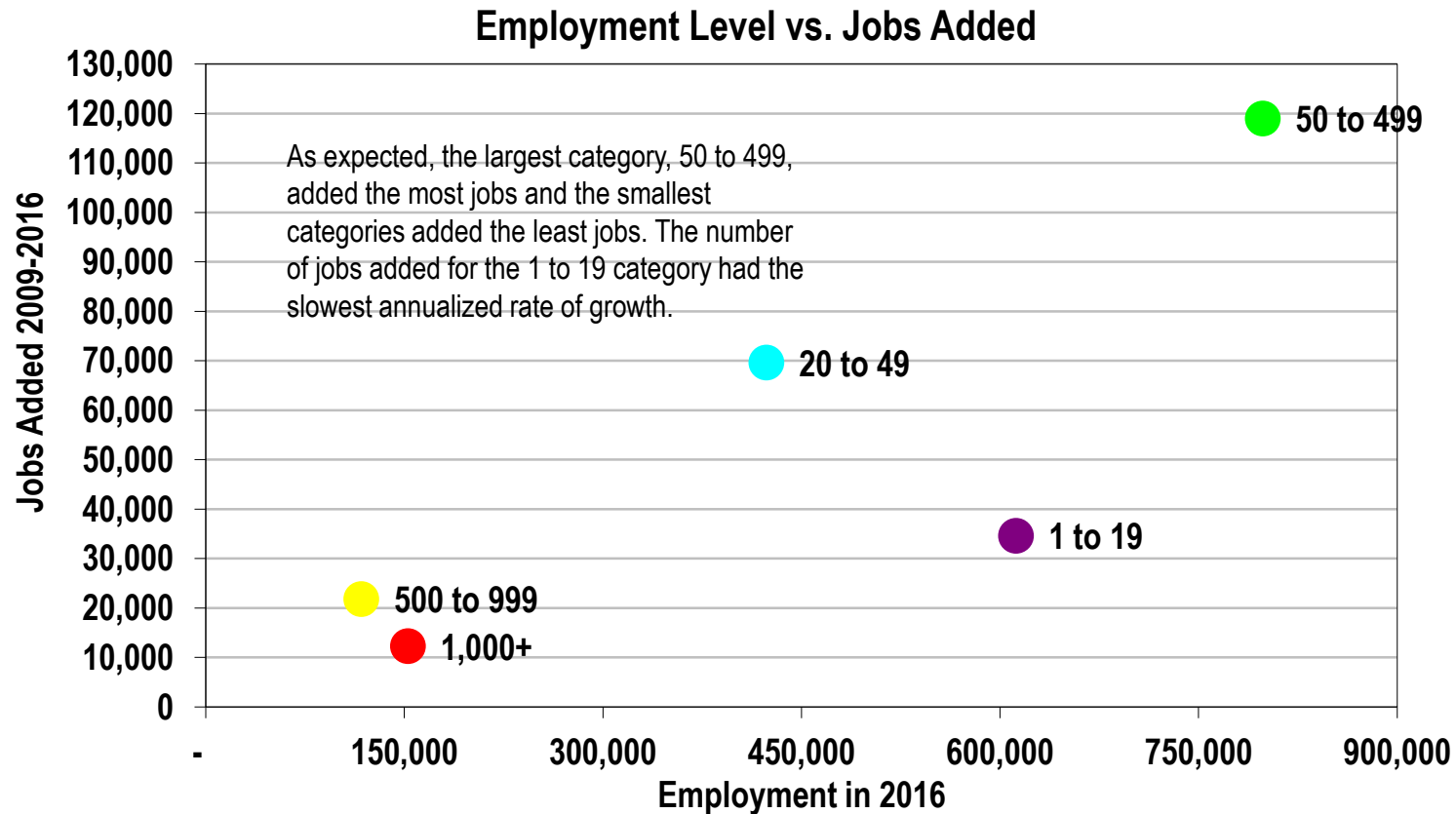
Estimated Establishments



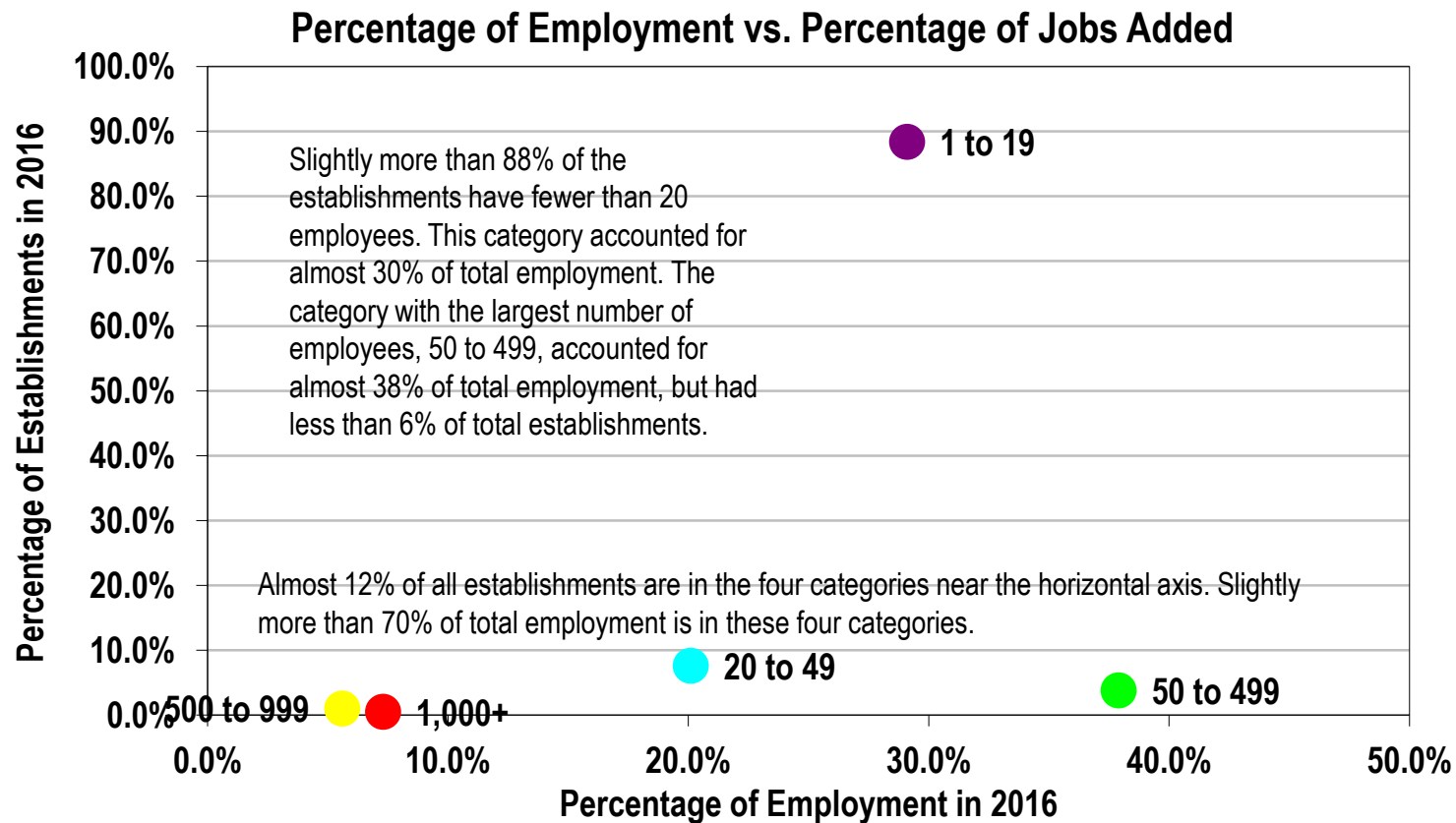
Category Analysis

- 7.3% of Q1 2016 employment
- 0.05% of Q1 2016 establishments
- 9.8% of Q1 2016 total wages
- 12,302 jobs added (7 years)
- 4.8% of jobs added (7 years)
- 1.2% annualized rate of job growth

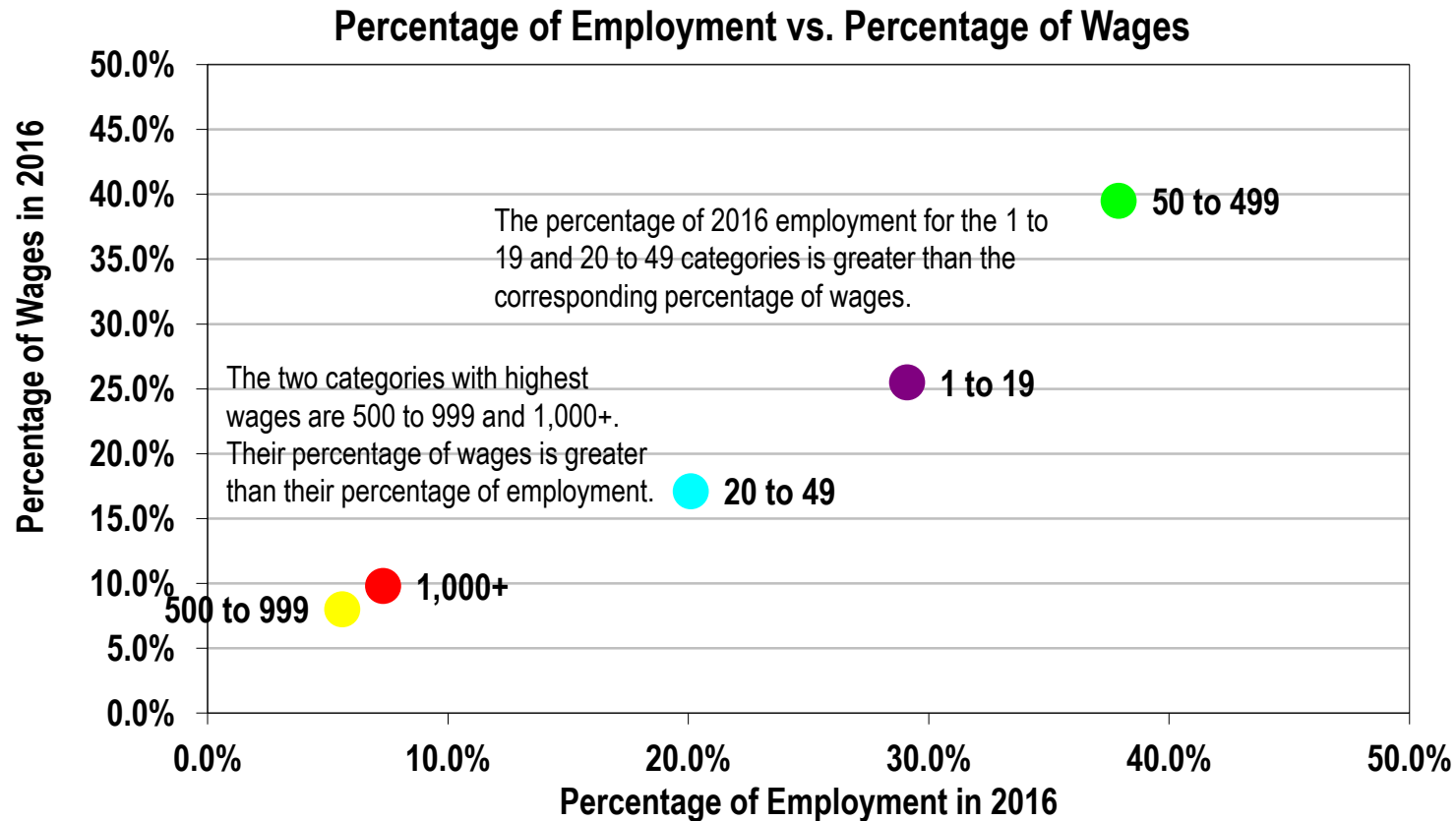
QCEW 2016 Employment vs. Jobs Added (2009 to 2016)



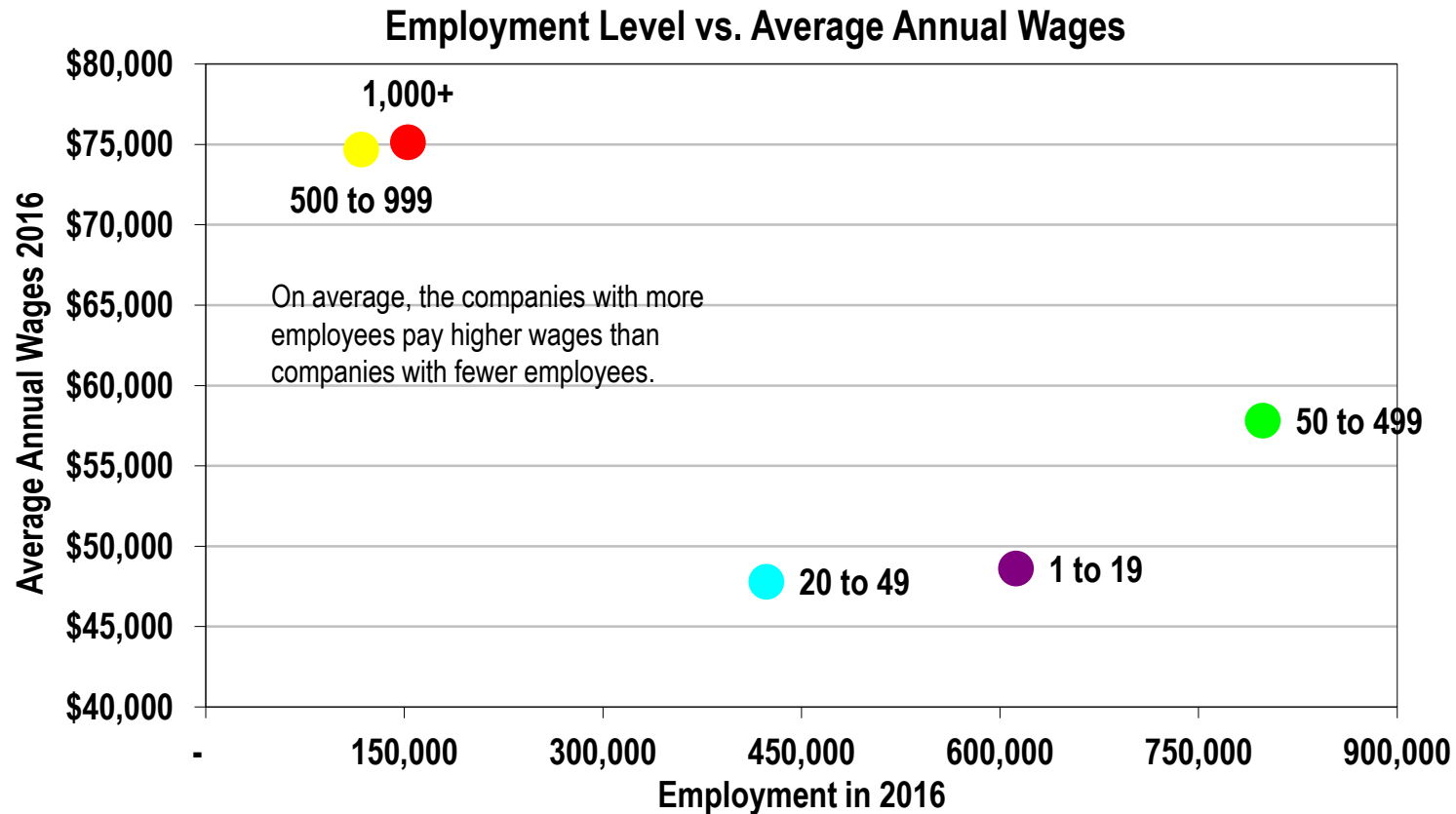
Percentage of QCEW 2016 Employment vs. Percentage of 2016 Establishments



Percentage of QCEW 2016 Employment vs. Percentage of 2016 Wages



QCEW 2016 Employment vs. 2016 Average Annual Wages



Source: Bureau of Labor Statistics, cber.co.

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



The Colorado Economy

Occupations

Colorado Occupations

Colorado Occupations

Occupations with Most Employees

- Office support, 329,720
- Sales & related, 291,380
- Food preparation, 244,780
- Business and finance, 169,260
- Education, 144,710

Occupations with Highest Annual Mean Wages

- Management, \$126,970
- Legal, \$104,600
- Computer & math, \$94,320
- Architecture & engineering, \$89,580
- Healthcare practitioners, \$82,020

Occupations with Location Quotient > 1.25

- Life sciences, 1.46
- Computer & math, 1.40
- Architecture & engineering, 1.38
- Construction & extraction, 1.31
- Business & finance, 1.30

SOC Code	Employment	Percent	Location Quotient	Annual Mean Wage
43 Office support	359,720	14.34%	0.91	\$38,910
41 Sales & related	291,380	11.62%	1.12	\$44,880
35 Food preparation	244,780	9.76%	1.06	\$24,380
13 Business & finance	169,260	6.75%	1.30	\$76,810
25 Education	144,710	5.77%	0.94	\$52,480
53 Transportation	140,430	5.60%	0.81	\$40,180
29 Healthcare practitioners	136,200	5.43%	0.92	\$82,020
47 Construction & extraction	130,190	5.19%	1.31	\$46,340
11 Management	109,620	4.37%	0.87	\$126,970
15 Computer & math	104,170	4.15%	1.40	\$94,320
51 Production	103,290	4.12%	0.64	\$37,980
49 Installation & maintenance	97,010	3.87%	1.00	\$48,600
39 Personal care & service	83,330	3.32%	1.03	\$28,070
37 Building maintenance	83,310	3.32%	1.05	\$28,650
31 Healthcare support	63,140	2.52%	0.87	\$33,420
17 Architecture & engineering	61,700	2.46%	1.38	\$89,580
33 Protective service	55,520	2.21%	0.92	\$46,930
27 Arts & design	39,060	1.56%	1.15	\$52,410
21 Community & social services	35,150	1.40%	0.97	\$48,020
19 Life sciences	30,100	1.20%	1.46	\$75,350
23 Legal	20,370	0.81%	1.06	\$104,600
45 Farming, fishing, & forestry	5,260	0.21%	0.63	\$28,520
Total	2,507,680	100.00%	1.00	\$52,710

Source: Bureau of Labor Statistics (May, 2016), cber.co.

Colorado Percent of Occupations

Broad Occupation Categories

This chart assigns each occupation to one of five broad categories realizing that many occupations are important to a variety of industries. This breakdown shows that most occupations are basic business occupations.

Basic Business Occupations

Management (11), Finance (13), Protective Services (33), Cleaning (37), Office Support (43), Maintenance (49), Transportation (53)

Sales (41)

High Tech Related

Computers (15), Architects (17), Life Sciences (19), Production (51)

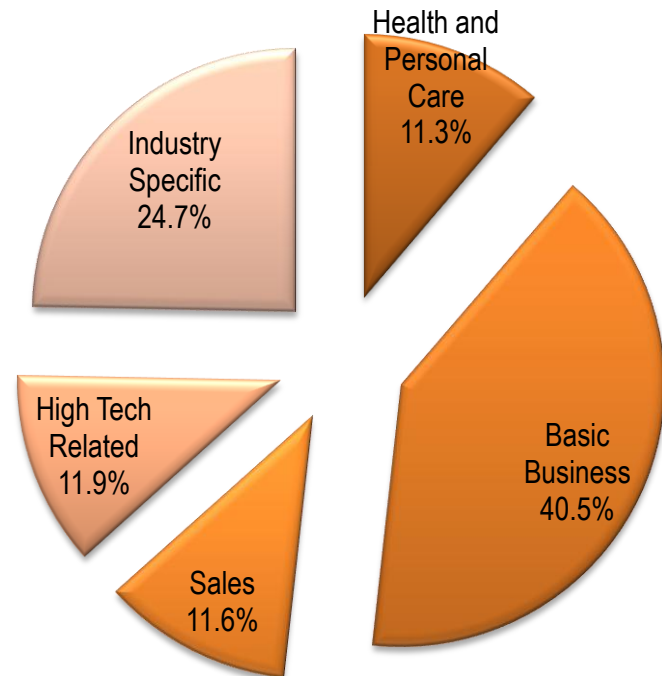
Health and Personal Care

Practitioners (29), Support (31), Personal Care (39)

Industry Specific

Social Services (21), Legal (23), Education (25), Design (27), Food Preparation (35), Farming (45), Construction (47).

Colorado Percent of Occupations



Source: Bureau of Labor Statistics, May 2016, cber.co.

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



Colorado Economy

Employment in Strong Growth, Solid Growth, Volatile Categories

Change in Employment Summary of Strong, Solid, and Volatile Growth Categories

Strong Growth Category – 22,600 jobs added, 2.7% growth rate.

Health care and professional, business, and personal (other) services are the major sectors.

Solid Growth Category – 21,300 jobs added, 2.1% growth rate.

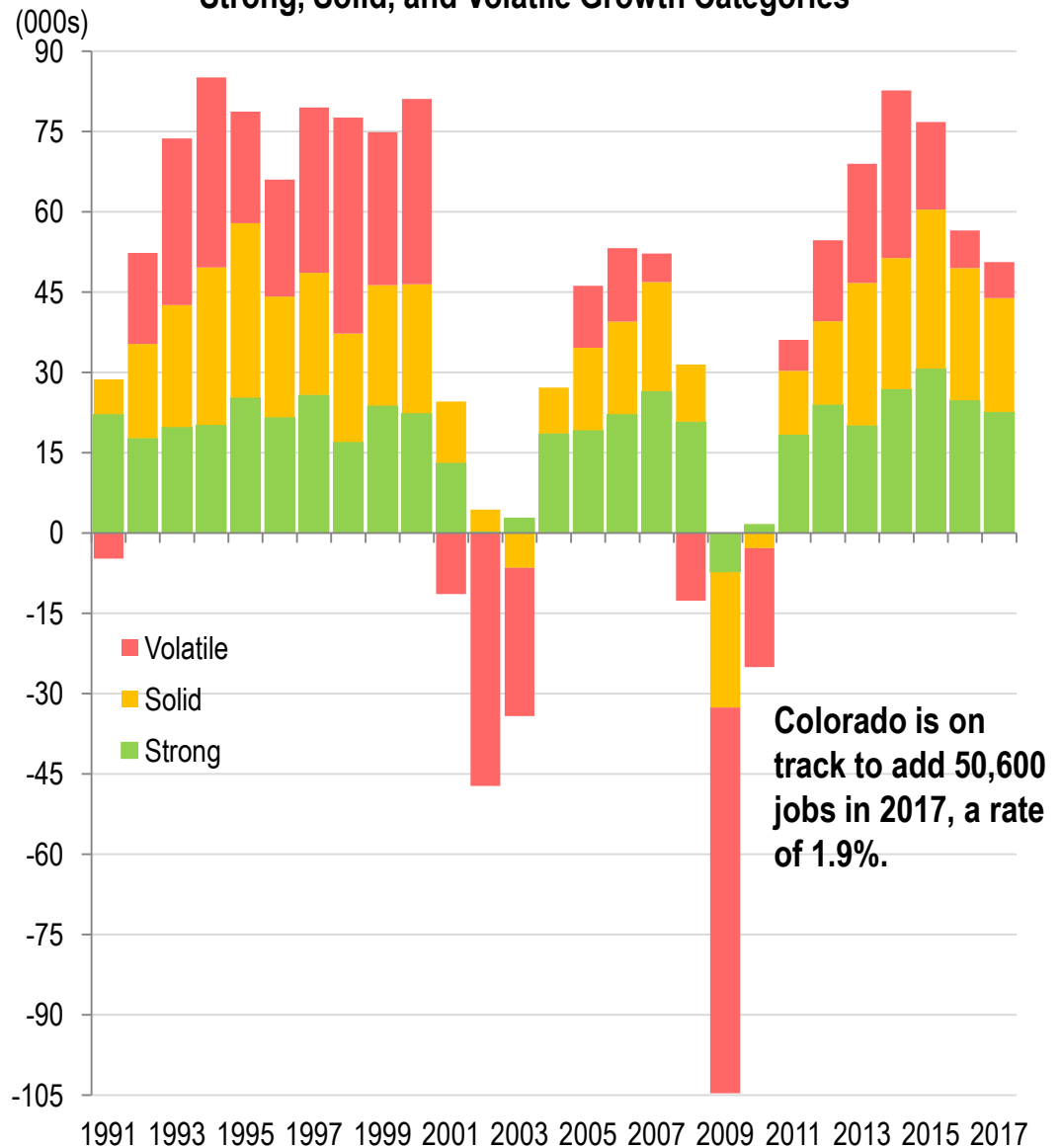
Accommodations and food services, trade, and state and local government are the major sectors.

Volatile Category – 6,700 jobs added 0.9% growth rate.

Boom or bust industries – such as the extractive industries, manufacturing, information.

Colorado is on track to add **50,600 jobs** in 2017, a rate of **1.9%**, based on employment data through May.

Strong, Solid, and Volatile Growth Categories

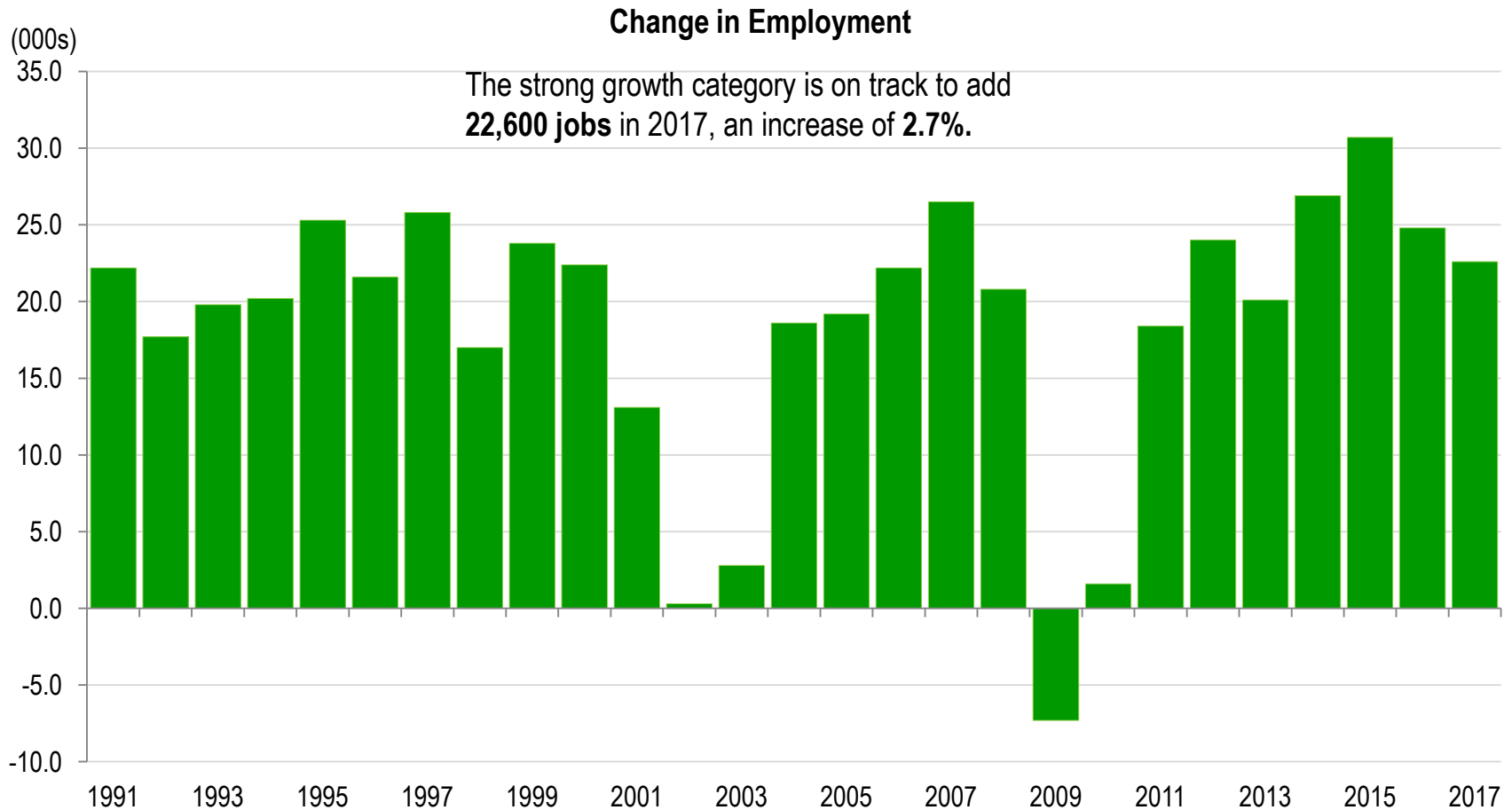


Source: Bureau of Labor Statistics, cber.co.

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

Change in Employment

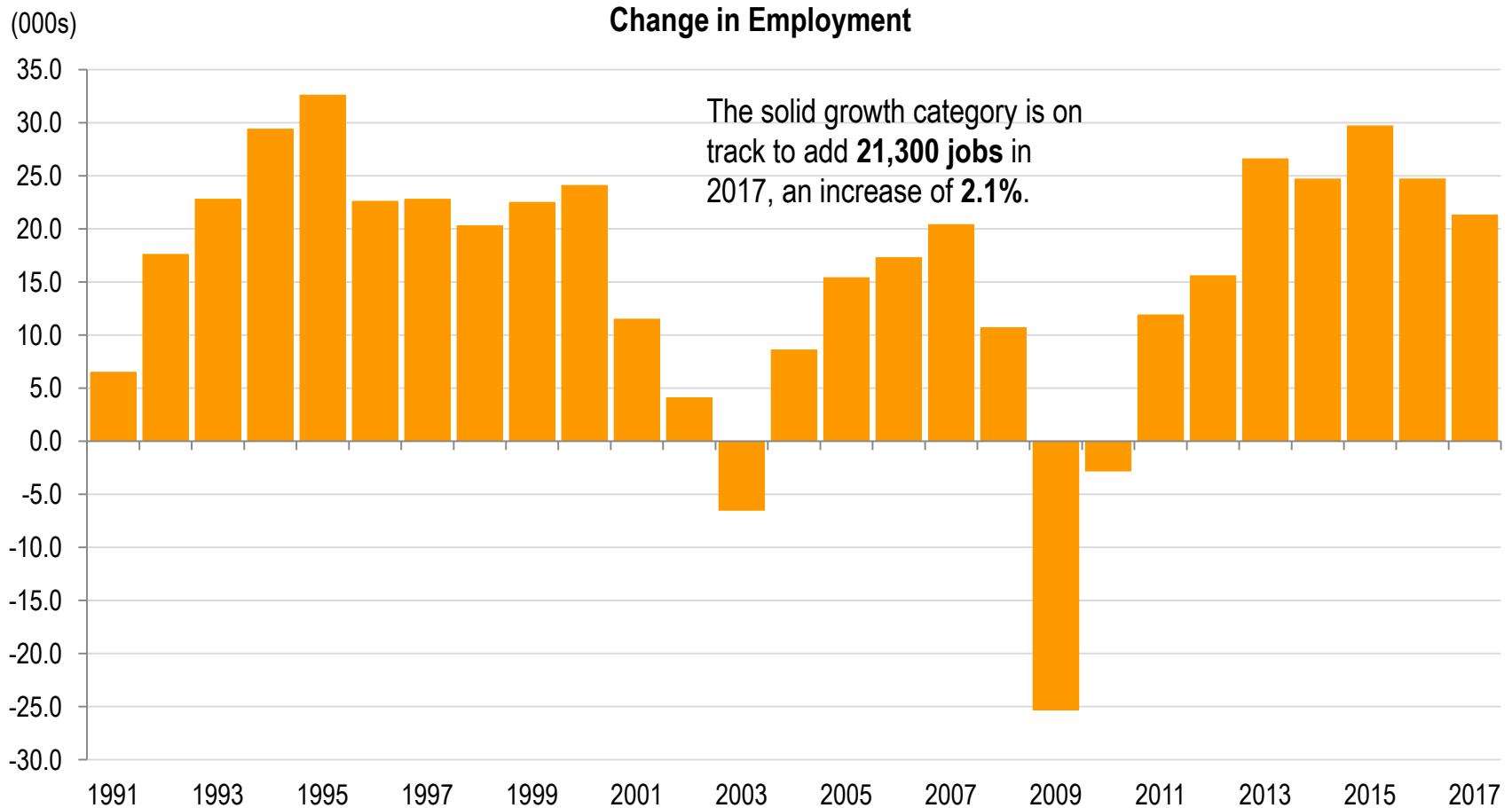
Strong Growth Category



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

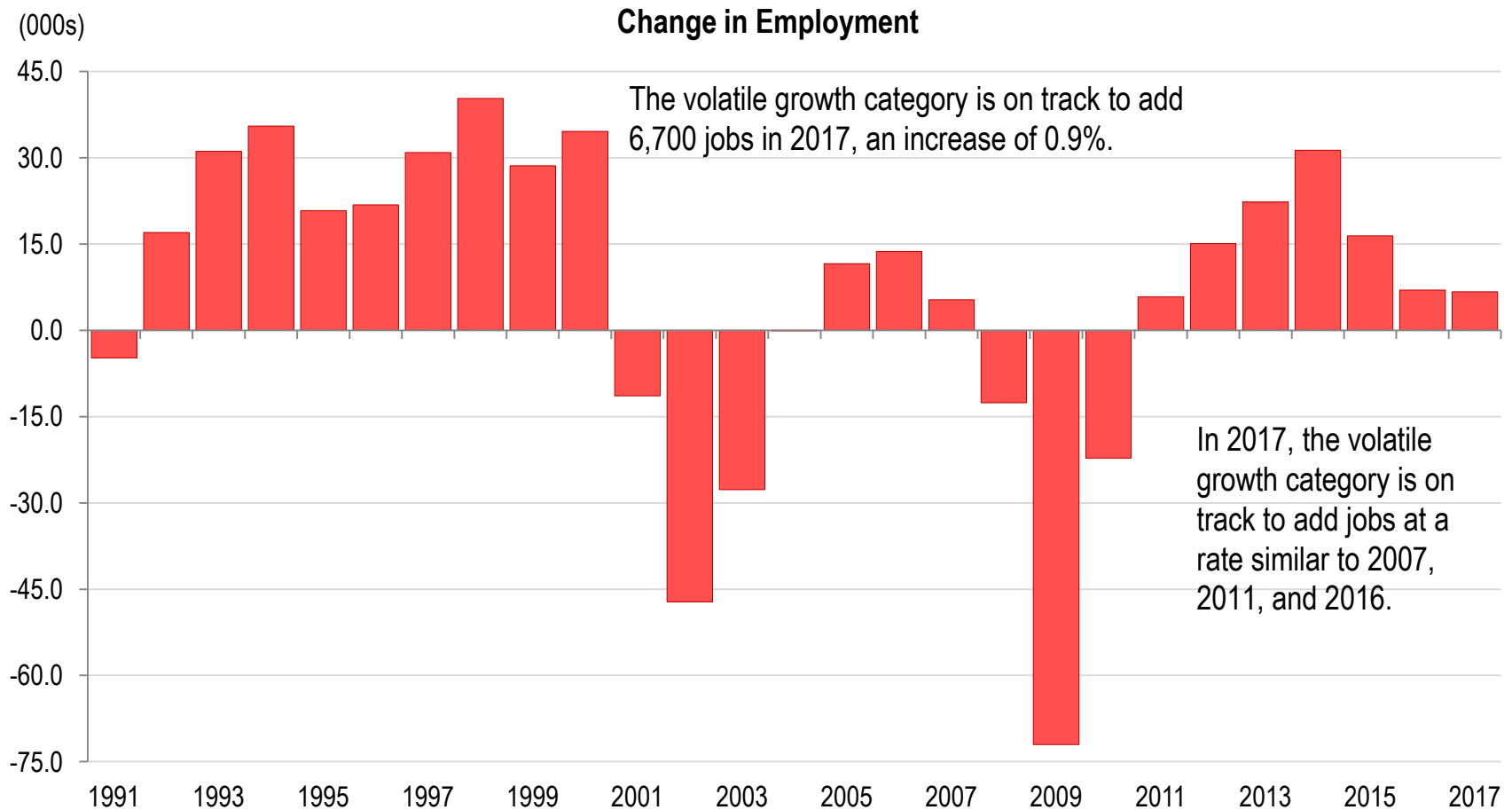
Solid Growth Category



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

Volatile Growth Category



Source: Bureau of Labor Statistics, cber.co.

• Six Industries That Are Important to • Employment Growth for Different Reasons •

The following six charts look at two sectors that are contributing strong job growth to the strong growth, solid growth, and volatile job categories. Combined, these sectors are responsible for 72.1% of the jobs added in 2017.

Strong Growth Category

- Healthcare 17.0% of jobs added
- PST 12.3% of jobs added

Total 29.3% of jobs added, or 14,800 jobs.

Solid Growth

- AFS 19.8% of jobs added
- Retail 11.2% of jobs added

Total 31.0% of jobs added, or 17,700 jobs.

Volatile Growth

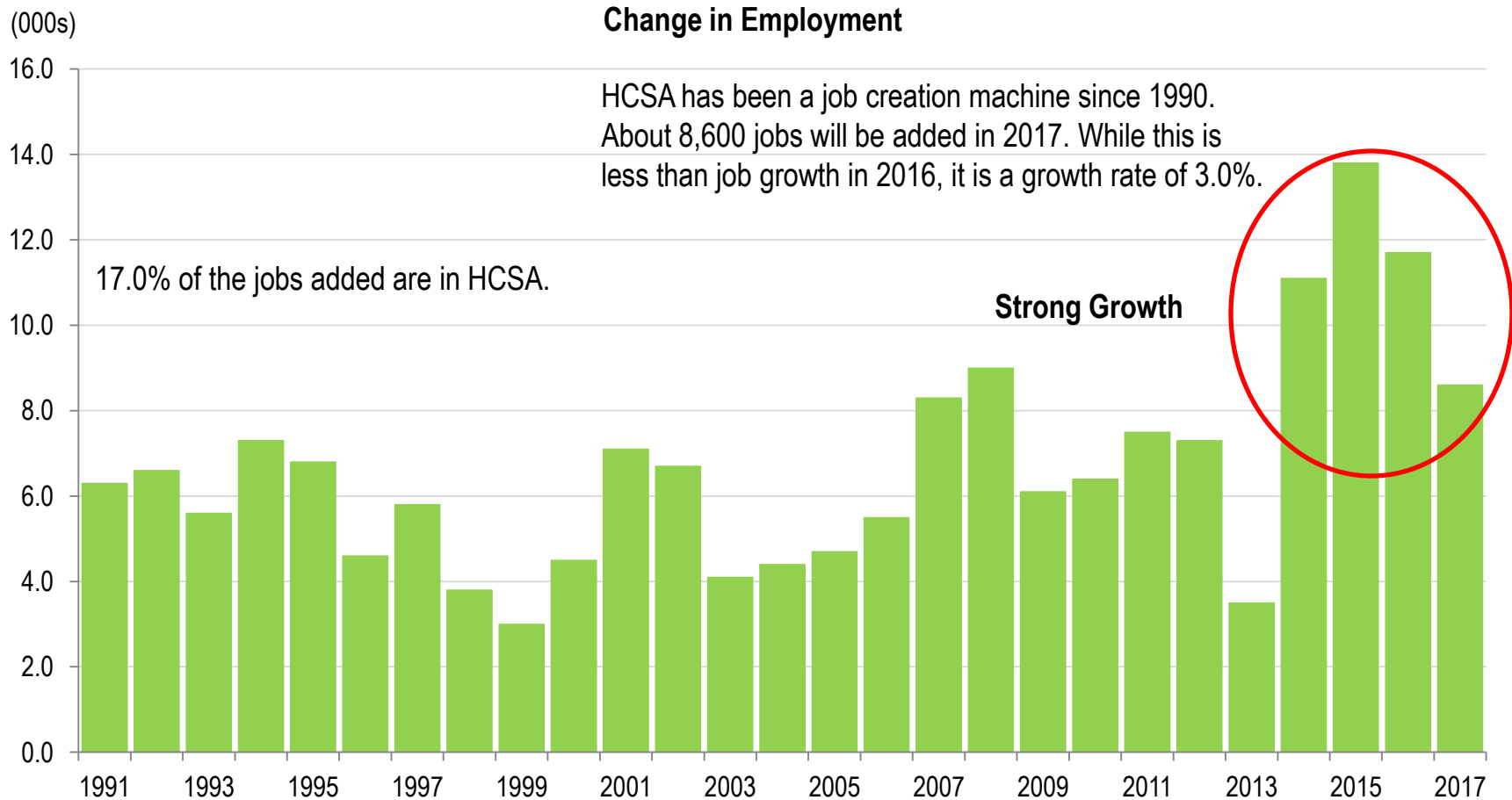
- Financial Activities 6.7% of jobs added
- Construction 5.1% of jobs added

Total 11.8% of jobs added, or 6,000 jobs added.

**Combined, these
six sectors are
responsible for
72.1% of jobs
added in 2017.**

Change in Employment

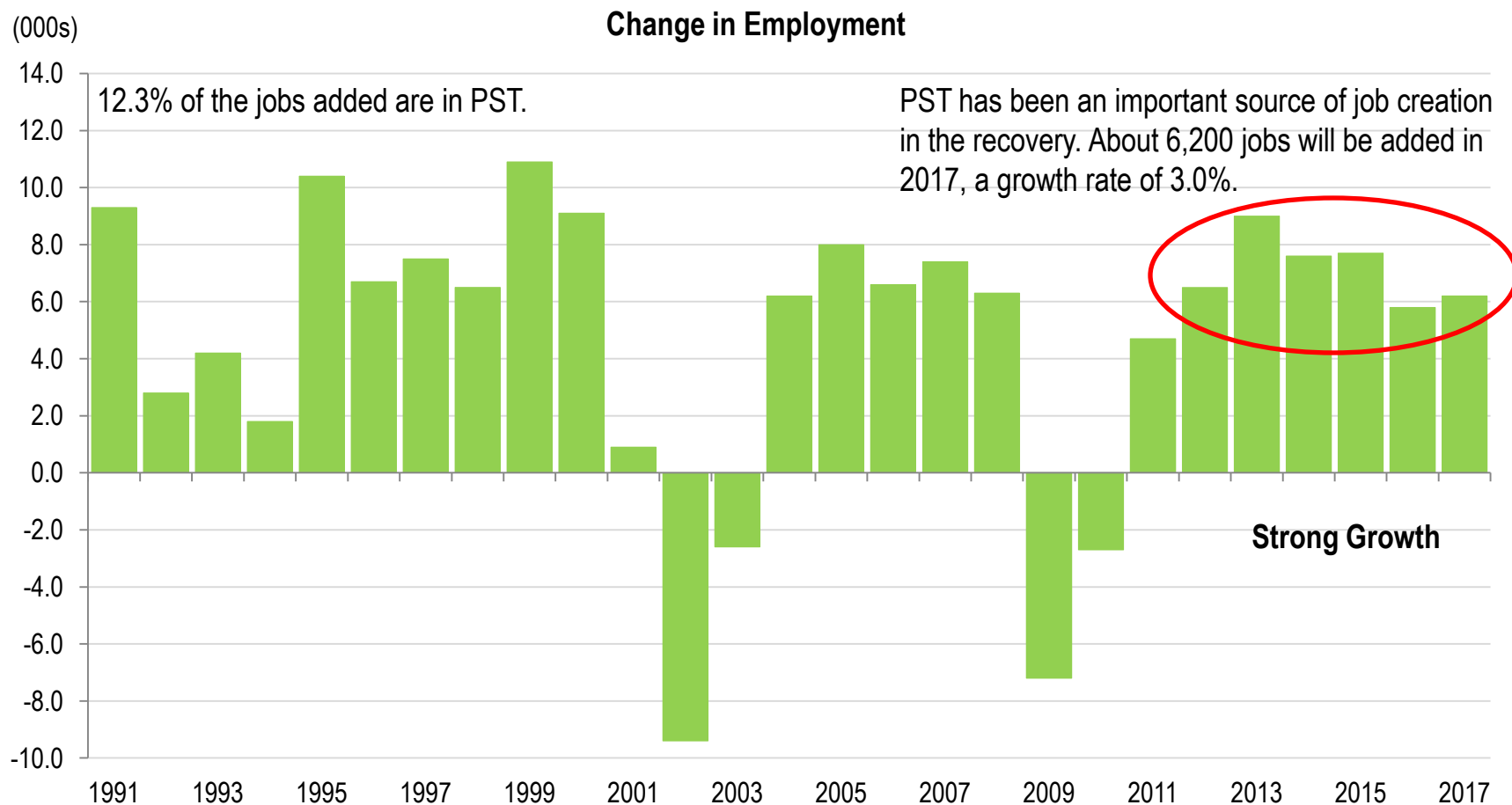
Health Care and Social Assistance



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

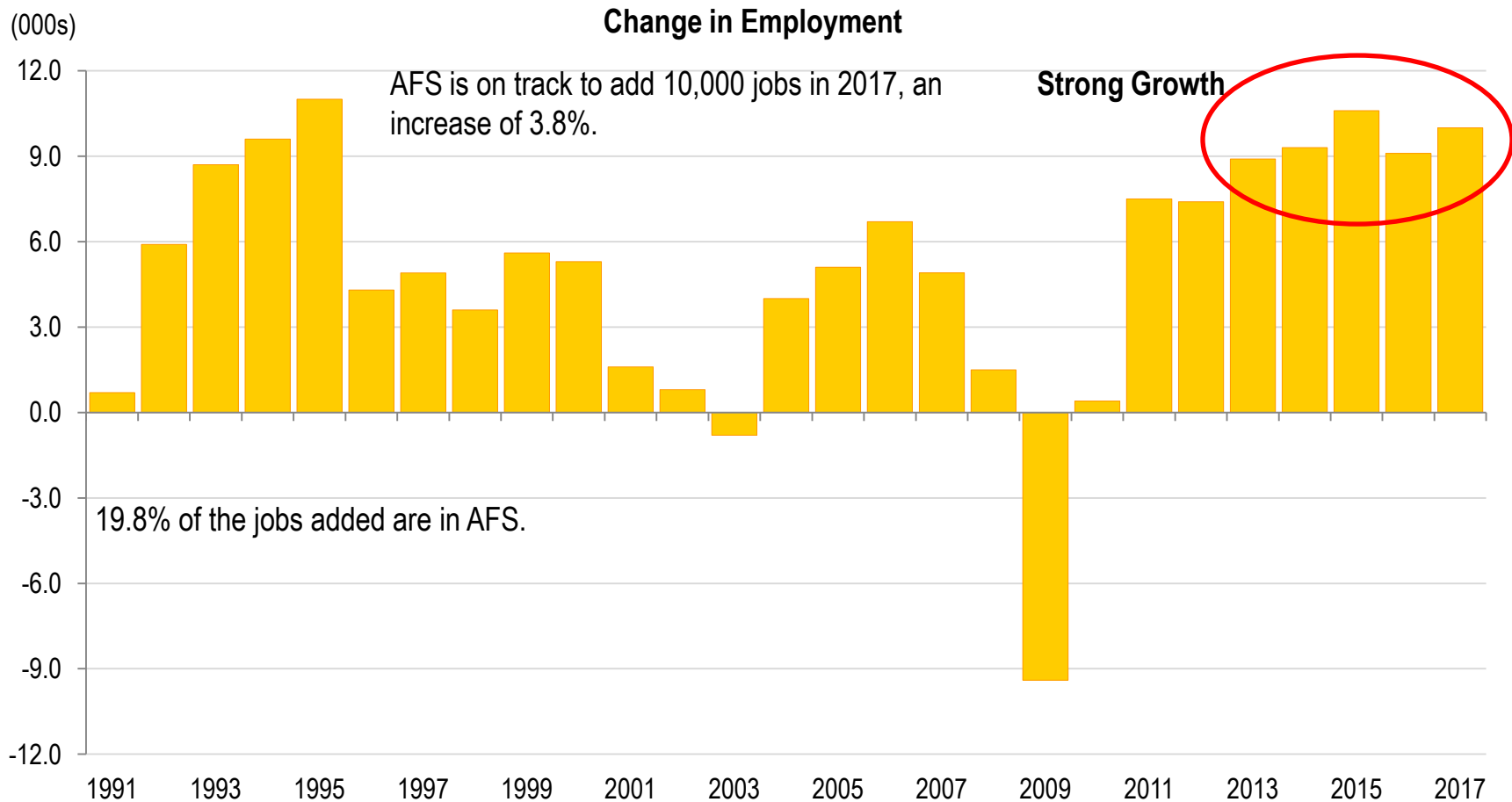
Professional, Scientific, and Technical Services



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

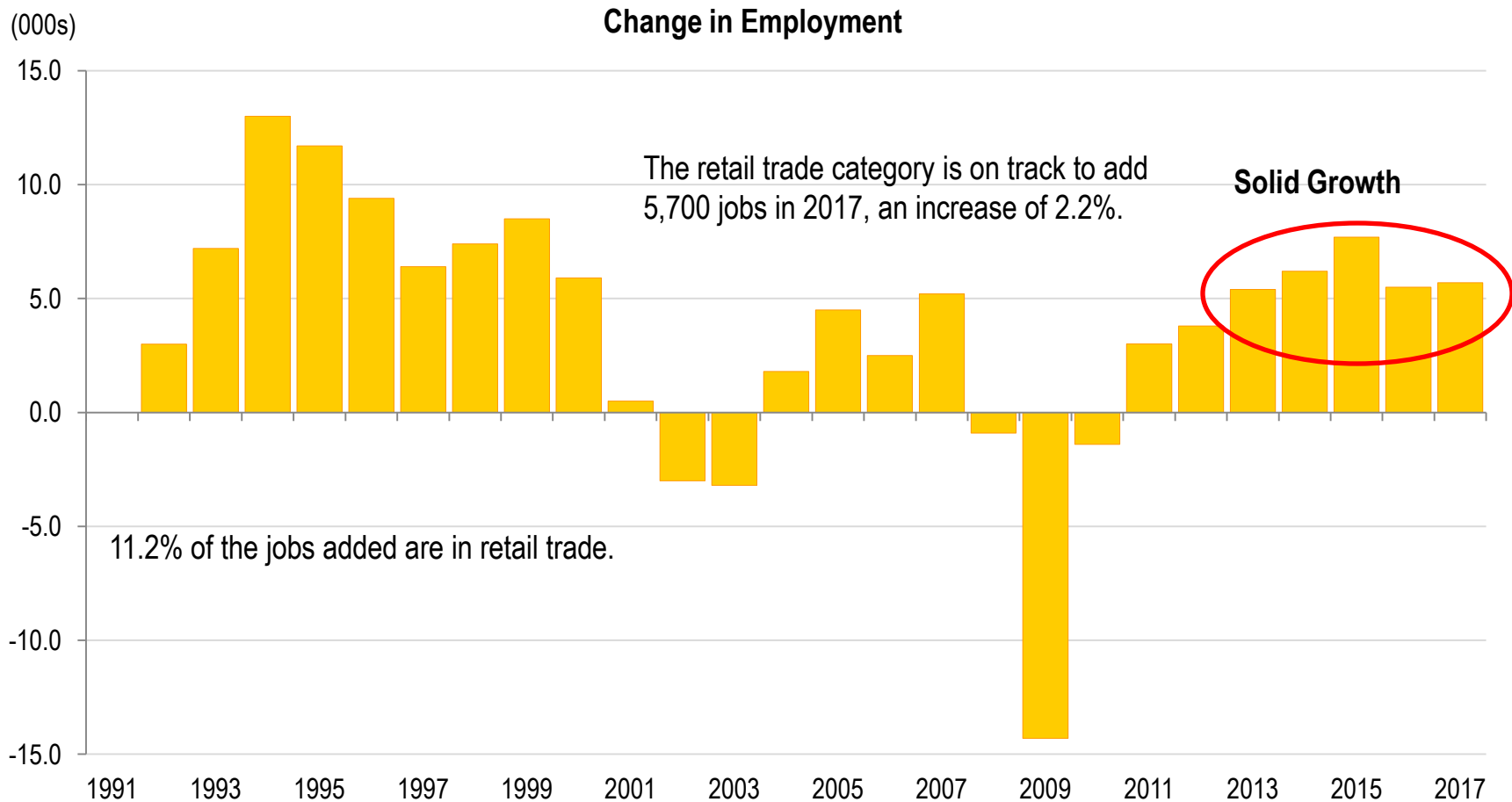
Accommodations and Food Services



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

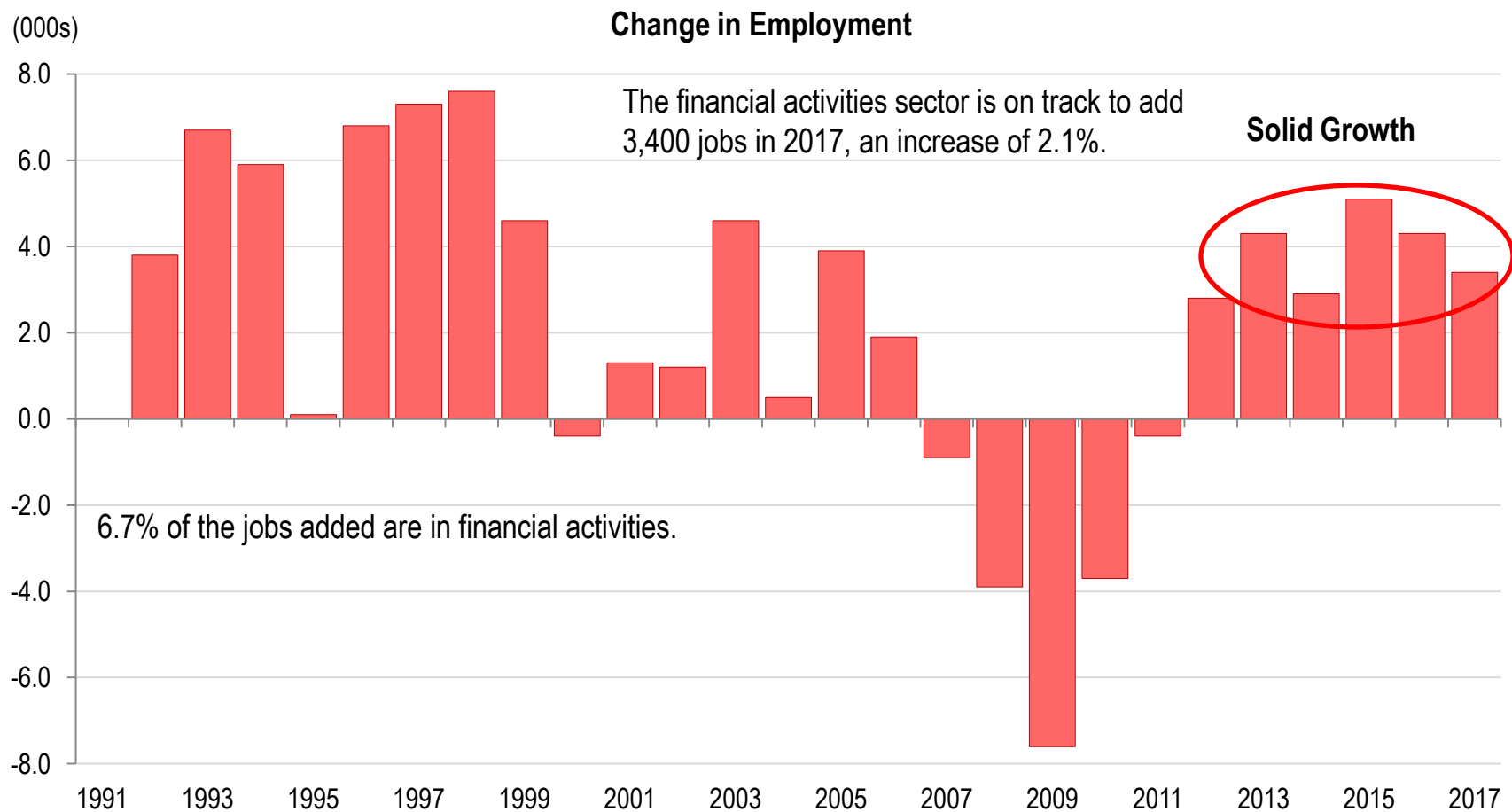
Retail Trade Category



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

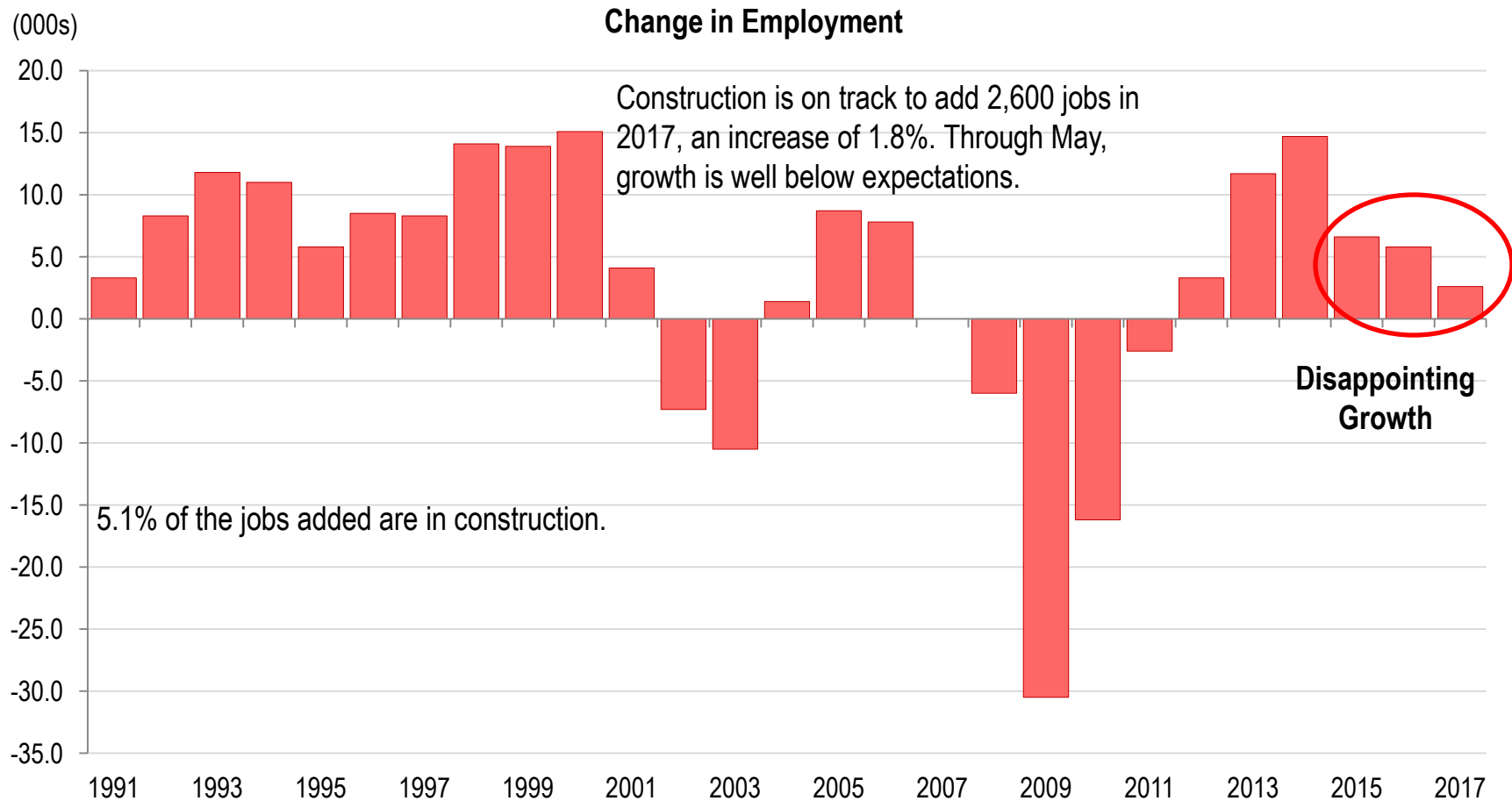
Financial Activities



Source: Bureau of Labor Statistics, cber.co.

Change in Employment

Construction Category



Source: Bureau of Labor Statistics, cber.co.



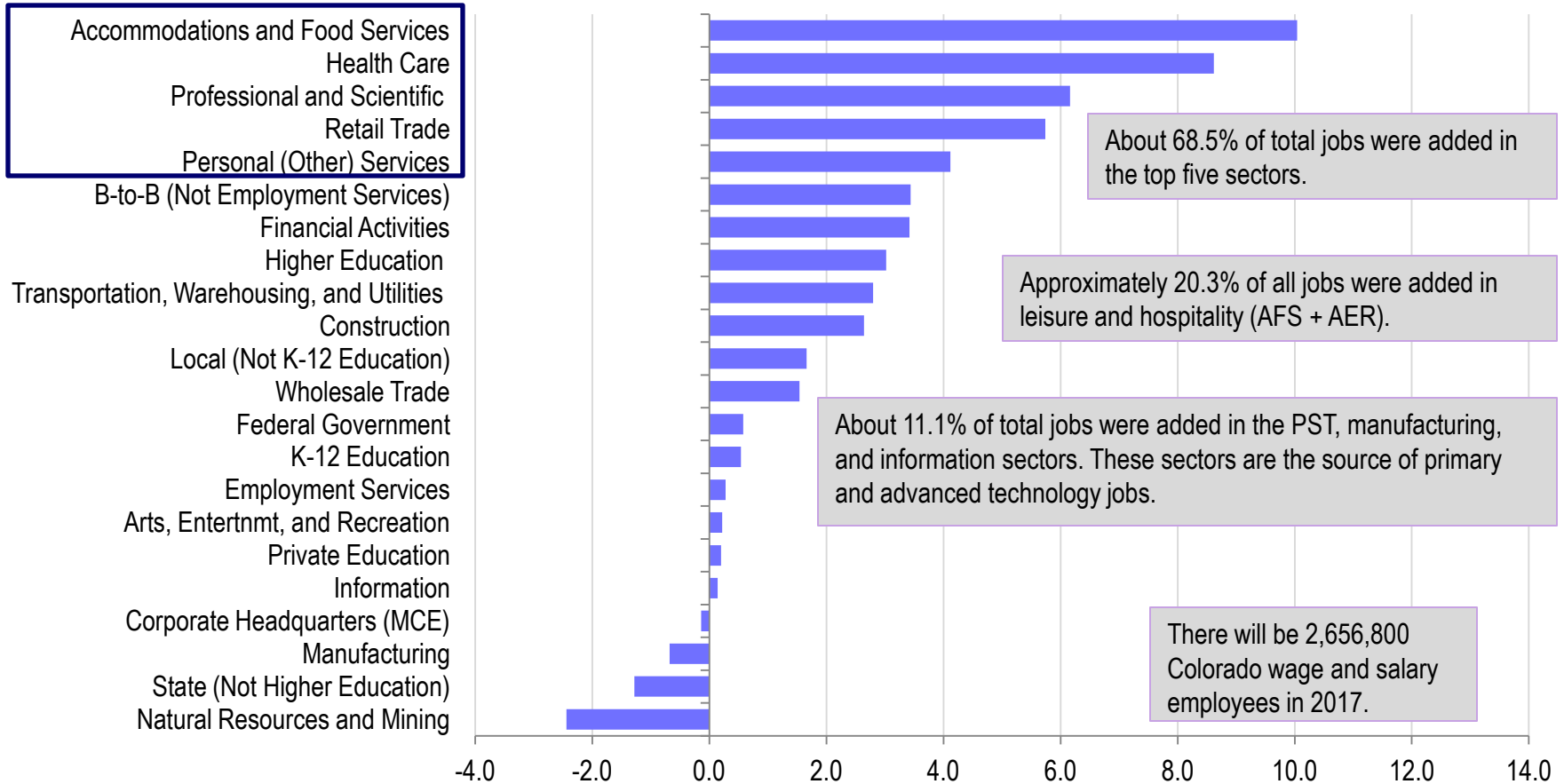
The Colorado Economy

Summary

Job Changes

2017 YTD Through May

Job Change All Sectors



Source: Bureau of Labor Statistics, cber.co.

Annual Employment Change in Colorado Employment

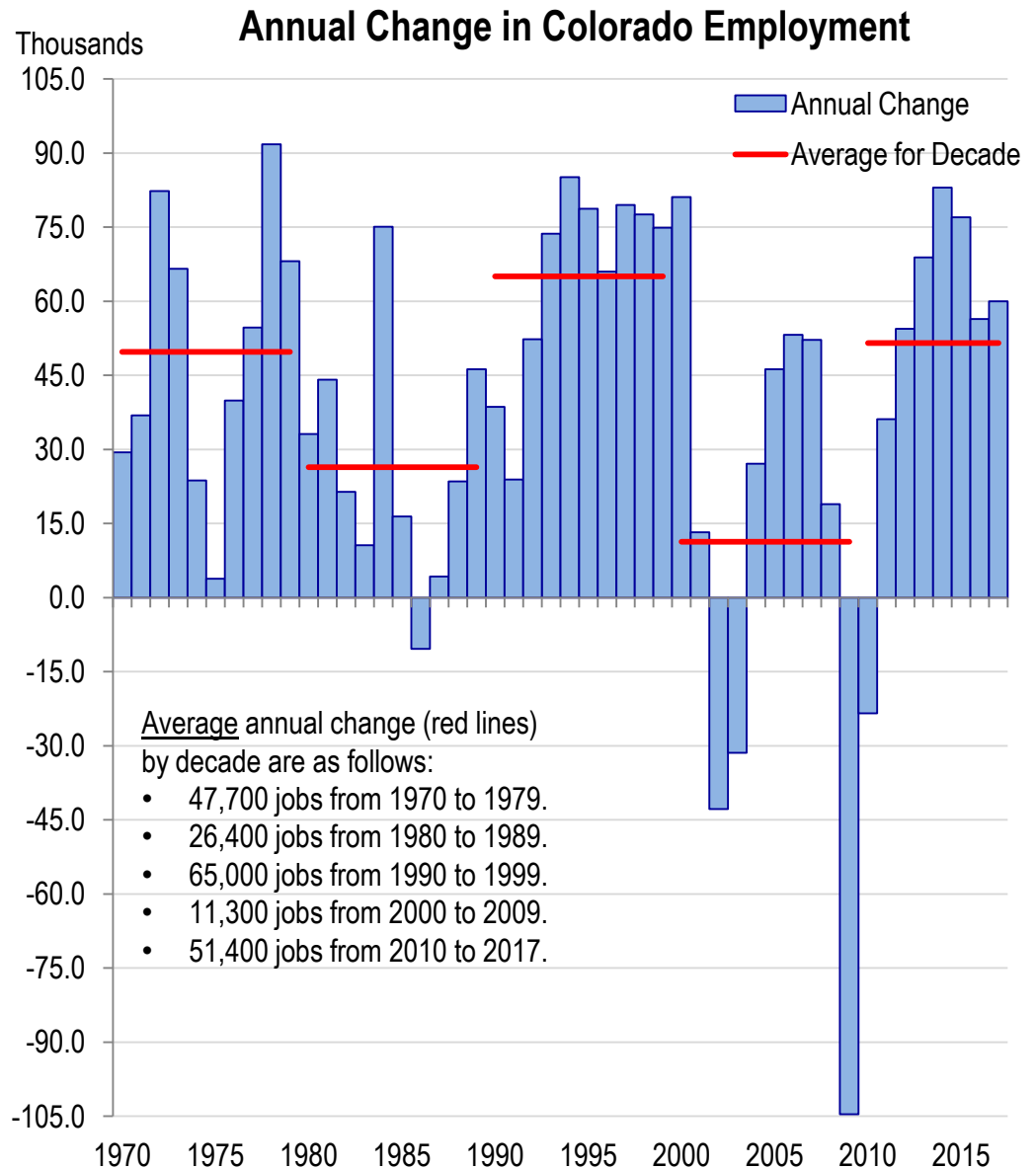
Colorado added 77,000 jobs in 2015 and 56,400 jobs in 2016.

For the first 7 years of this decade, Colorado has added an average of 50,400 jobs.

The state is projected to add 57,000 to 63,000 jobs in 2017. Colorado employment will increase by 2.2% to 2.4%.

Through May 2017, the state is on track to add 50,600 jobs, an increase of 1.9%.

Based on “activity on the streets”, the BLS employment data for Colorado appears to be understated.



Source: Bureau of Labor Statistics, cber.co.



Colorado Economy

Summary

Gross Job Gains and Losses

Since Q2 2010 gross job gains have exceeded gross job losses. As a result, net jobs have been added. In Q2 2012 and Q2 2014 gross job gains experienced strong gains. In Q2 2014 gross job losses increased significantly, i.e. job churn increased. About 80% of gross job gains are a result of new employees at expanding establishments and about 80% of gross job losses are a result of jobs lost at contracting establishments.

Colorado Employment

Colorado is on track to add 50,600 jobs in 2017.

Colorado Unemployment

The Colorado rate of unemployment was 2.3% in May. This is well below the natural rate of unemployment, which means the economy is operating inefficiently.

QCEW Private Sector Employment by Size Category

The largest number of establishments are in the 1 to 19 employee category. The largest employment category is 50 to 499 employees. This is where the largest number of jobs are added. Average annual wages are typically greater in larger companies than smaller companies.

Colorado Occupations

The largest SOC occupation codes are office support, sales, food preparation, and business and finance. The highest paying occupation codes are management, legal, and computer and math. The occupations with the top location quotients are life sciences, computer and math, and architecture and engineering.

Jobs in Strong Growth, Solid Growth, Volatile Categories

The strong growth category is on track to add 22,600 jobs and the solid growth category will add 21,300 jobs this year. The performance of the volatile category is disappointing and is on track to add 6,700 jobs this year.



Review of Colorado Economy and Employment Data Through May 2017

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.

For further information contact Colorado-based Business and Economic Research (cber.co).
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For additional information contact cber.co at cber@cber.co.

ABOUT THE AUTHOR

Gary Horvath has produce annual employment forecasts of the state economy for over 25 years. They have been supplemented by monthly economic updates and indices that track economic performance over the short term. In addition he has directed three statewide analyses that included reviews of all 64 county economies.

In addition, Horvath was the principal investigator for a state and federally funded project to prepare a nanotechnology roadmap for Colorado. As well, he was a co-founder of the Colorado Photonics Industry Association, a trade group for Colorado’s Photonics cluster. Horvath has been an active board member of the group since its inception.

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