



COLORADO INDUSTRIES, OCCUPATIONS, COMPLETIONS WORKFORCE SUPPLY AND DEMAND

Funded by
National Governors Association and the
Colorado Department of Higher Education

Prepared by Gary Horvath

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Purpose

The purpose of this study was to collect, review, and analyze:

- Economic conditions and outlook
- Industry changes
- Occupation changes
- Completions (degrees, certificates, awards)

The goal was to provide a foundation for understanding the:

- Workforce needs in Colorado (demand).
- How those needs are met.

This report will be used to foster continued dialogue between workforce, business, and higher education leaders that will lead to a better balance between job supply and demand.

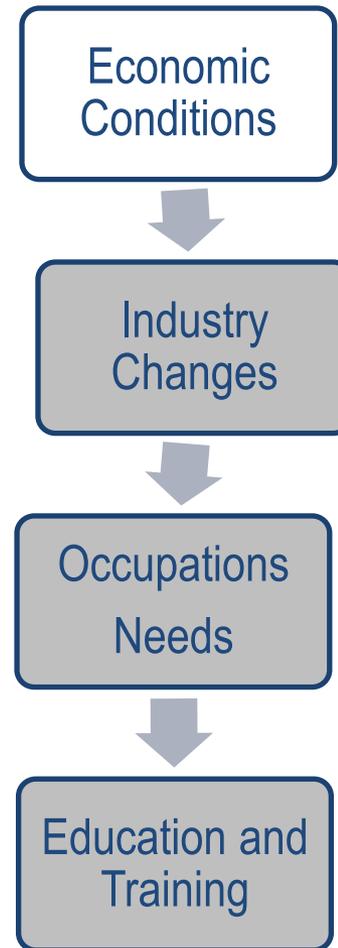


Economic Conditions

The Challenge

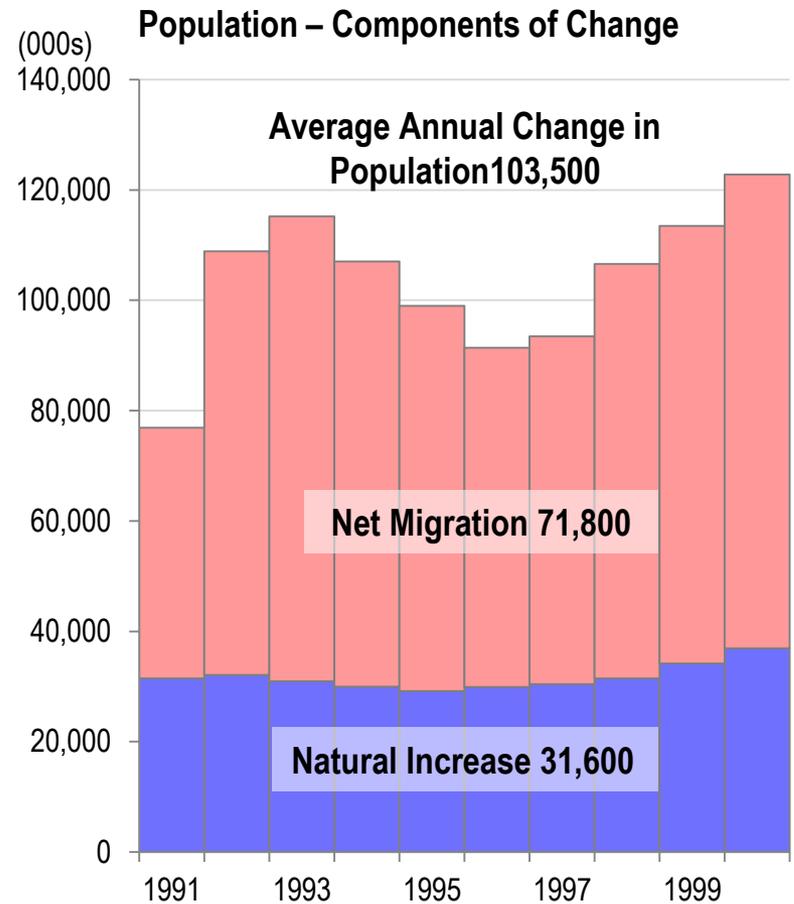
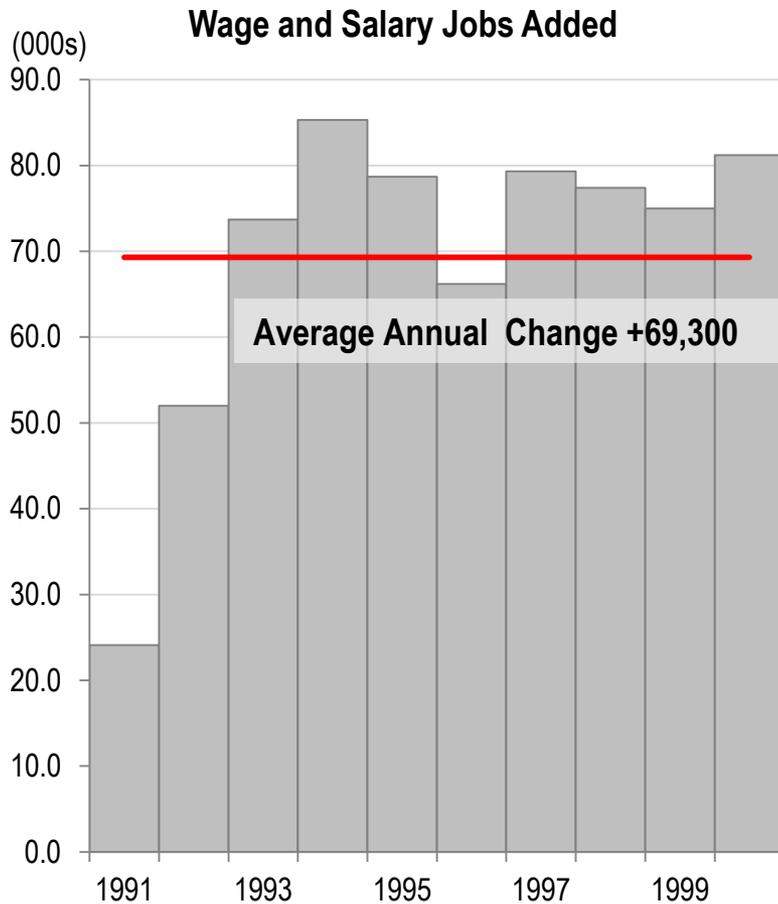
The challenge of providing educational programs and workforce training in a volatile economy

- Population and workforce change
 - 1990s
 - 2000s
- Volatility
- Awards vs. Net Jobs added



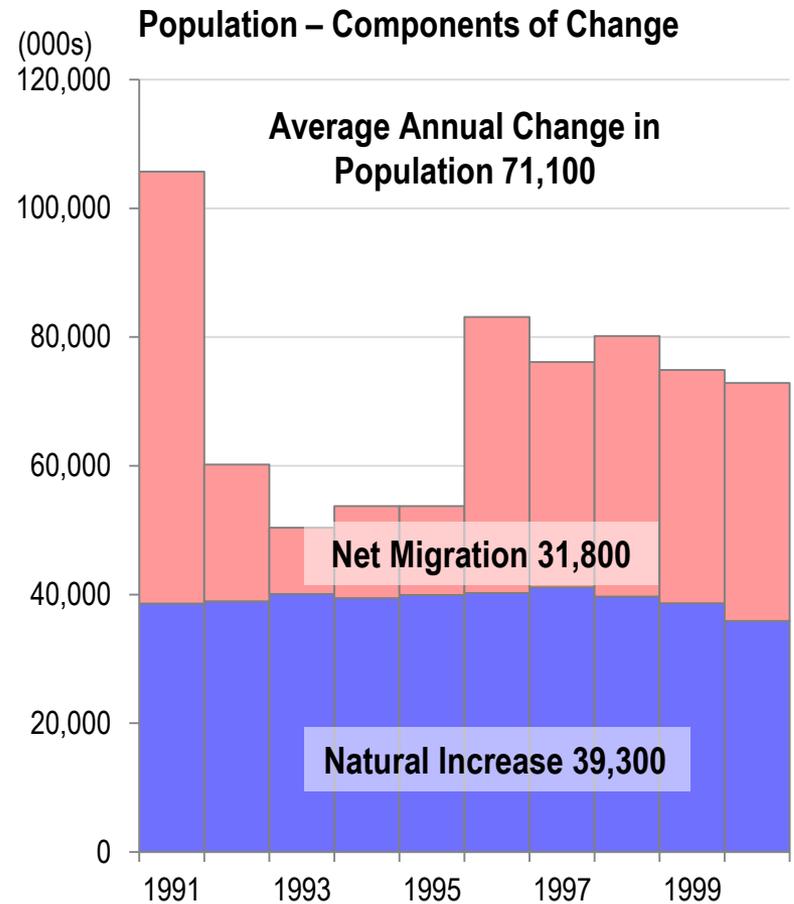
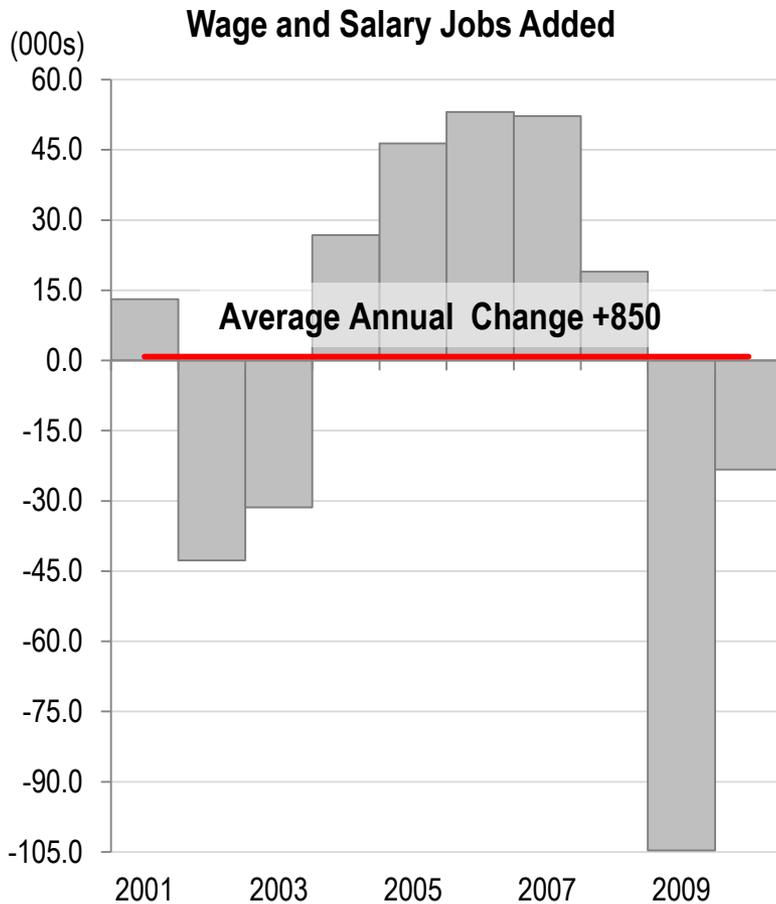
Go-Go '90s

The Challenge – Rapid Growth



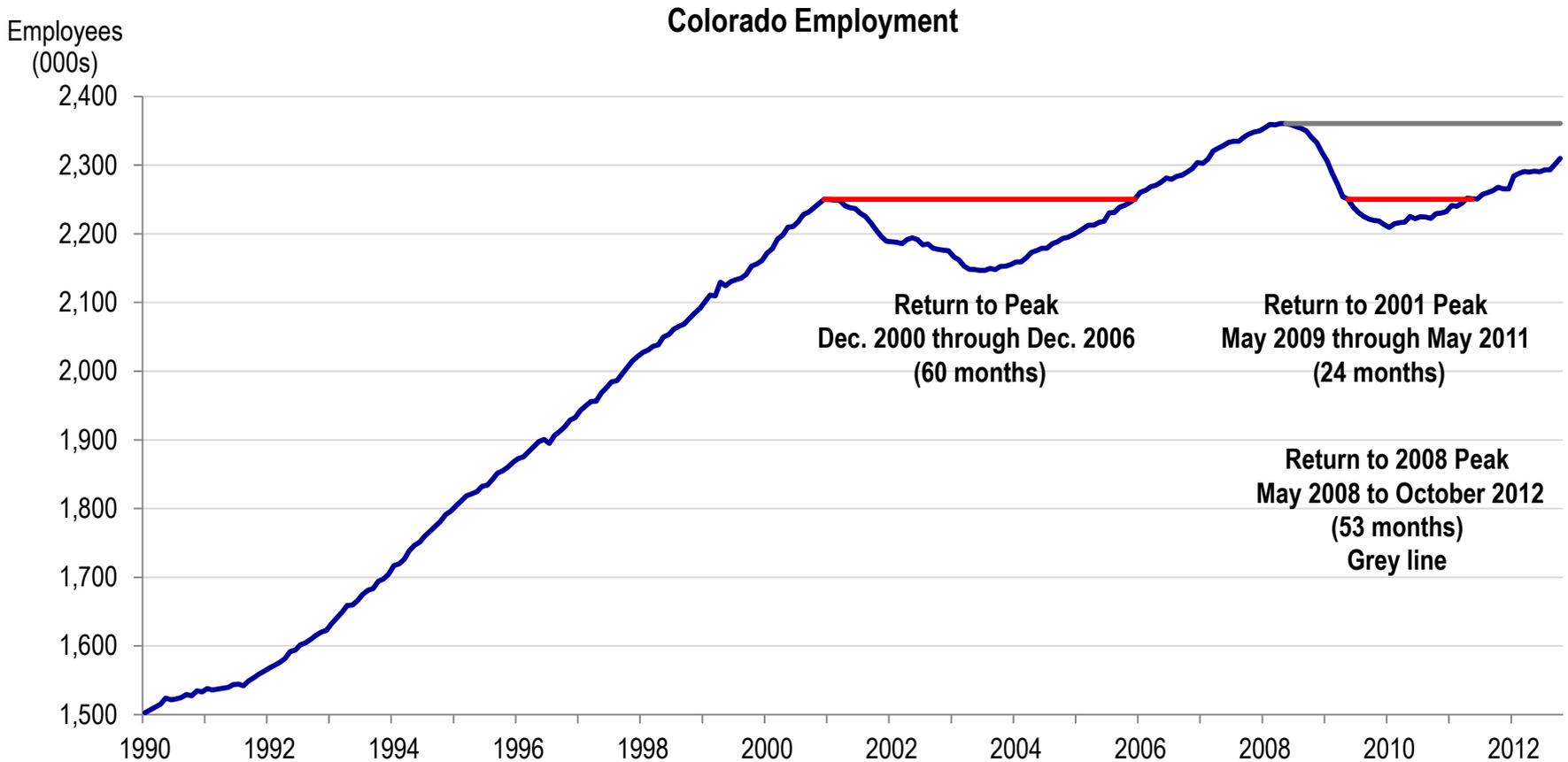
Lost Decade

The Challenge – No Growth



Colorado Employment - The Lost Decade

The Challenge – Volatility, Training, and Education

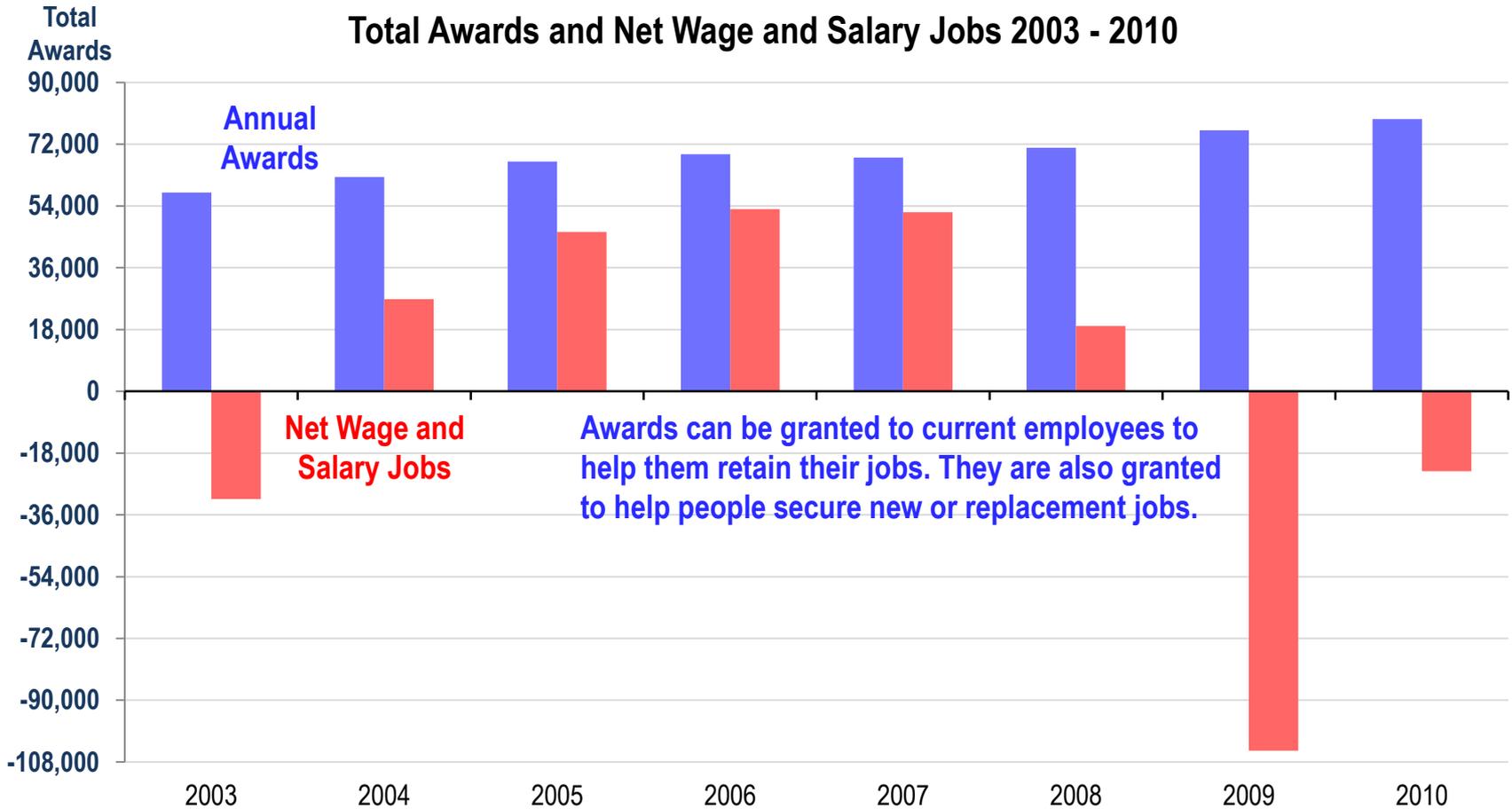


Source: Bureau of Labor Statistics, SA.

Colorado-based Business and Economic Research

<http://cber.co>

Total Awards by Year and Jobs Added





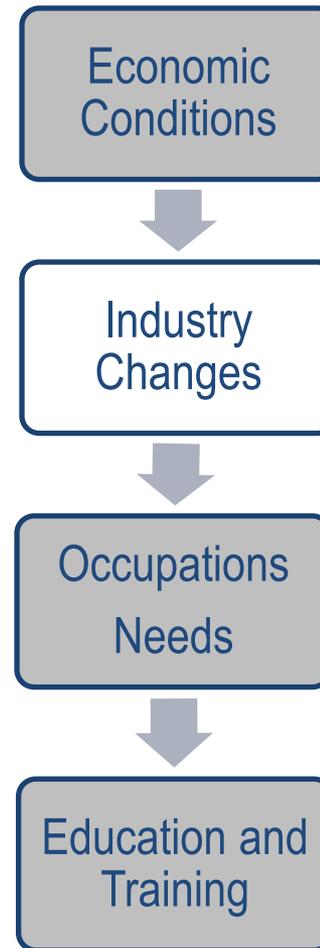
Key Points

The following are key points

- Growth occurs in some industries during bad economic times.
- It is difficult to match awards (degrees, certifications, etc.) with new and replacement jobs.
 - Is this because economic developers fail to create enough jobs?
 - Is this because the education and workforce system failed to train the right type of workers?
 - Can the gap between the awards (supply) and jobs (demand) be minimized.
- The 8 regions of the state have distinct economies with different industries and occupational needs.
- Although the 8 regions have different competencies, there are commonalities in the occupations needed to drive their economies.
- During volatile economic times, it is a challenge to provide education and workforce training.

Industry NAICS Codes

- Changes in Key Industries
 - Mining
 - Health Care
 - Professional, Scientific, and Technical Services
 - Information
 - Manufacturing
 - Construction
- Colorado Industries



Which Colorado Industry is most important?

All Industries Contribute in a Different Way

- Number of employees - retail
- Average wages – corporate headquarters
- Rate of job growth rate – health care
- Location quotient (concentration) – high tech and breweries
- Number of firms - restaurants
- Contribution to output - telecom
- Contribution to tax base – manufacturers and retailers
- Day-to-day services - barbershops
- Quality of life – ski area and national parks
- Training – public and private education

Change in Employment and Output 2000 to 2011 Key Industries

2011 Colorado Employment

- Total 2,255,300
- Private Sector 1,862,600

2011 Real GDP

- State GDP \$234.3
 - Private Sector GDP \$206.2
- (billions of chained 2005 dollars)

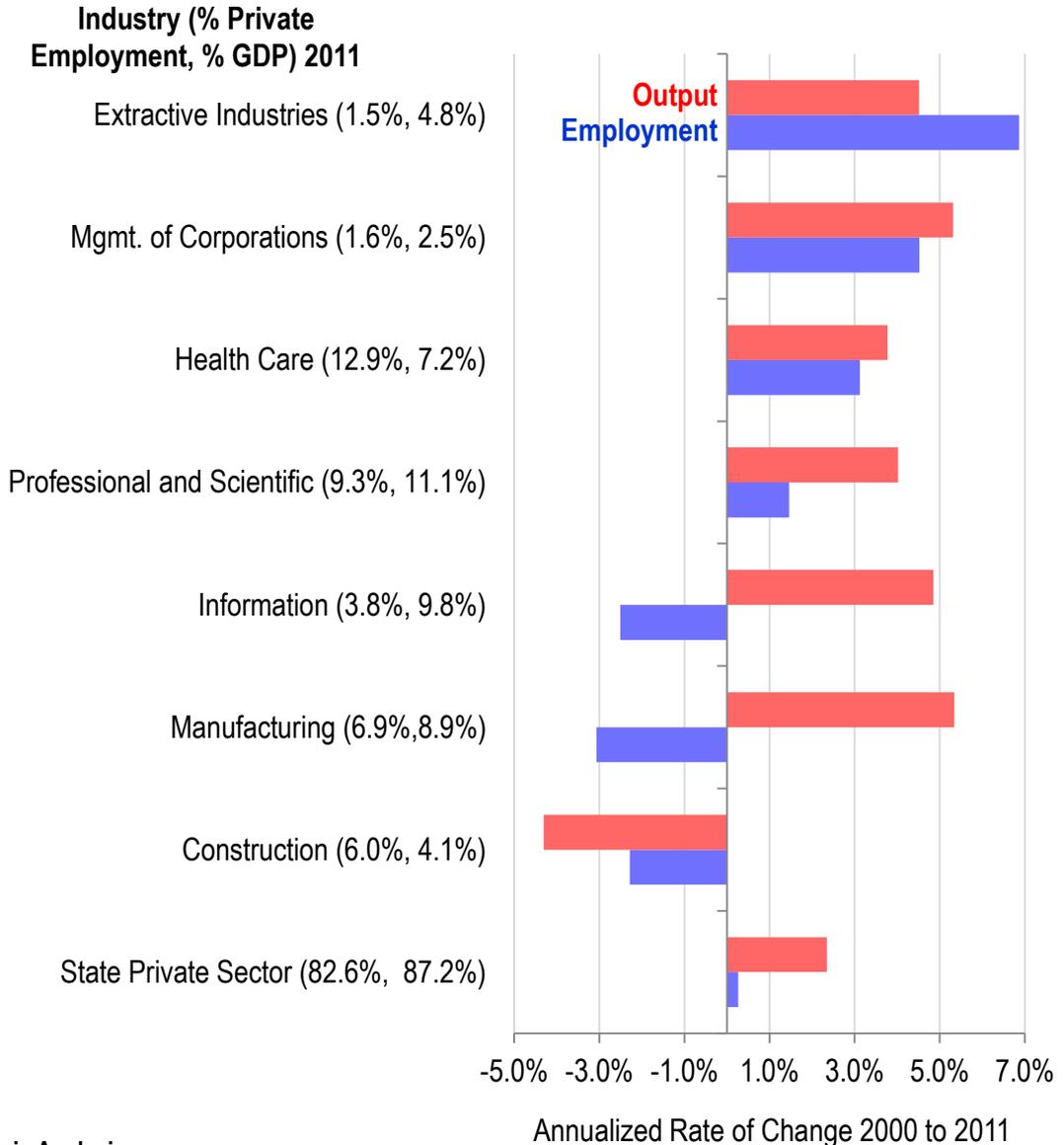
Change in Employment, 2000-2011

- State 0.5%
- Private Sector 0.3%

Change in Output, 2000-2011

- State 2.2%
- Private Sector 2.3%

Annualized Change in Employment and Output





Colorado Industries

Industries with most employees

- At the state level, Government, Retail, and Healthcare account for 32.7% of total employment. These are not primary job creators.
- The Government sector is the top industry in 7 of 8 regions. In the NW it is second behind Accommodations and Food Services.
- Retail is ranked 2nd or 3rd in 6 of the 8 regions.
- Healthcare is ranked third in 5 of the 8 regions.

Tourism

- At the state level, Tourism (Accommodations and Food Services and Arts, Entertainment and Recreation) account for 10.4% of total employment
- In the 8 regions the percentage of tourism employment ranges between 6.4% and 9.7% in five regions. In the West Central and Southwest regions it is 10.2% and 12.0% respectively, and it is 22.1% in the Northwest.

Manufacturing, Information, and Professional, Scientific, and Technical

- Many STEM related jobs are in these sectors. At the state level 16.7% of the jobs are in these areas. In the Denver area the percentage of MIPST jobs is 18.5%.

Earnings

- Average annual earnings for the state are \$51,628. The Denver MSA is \$57,627 and all other regions are below the state average.

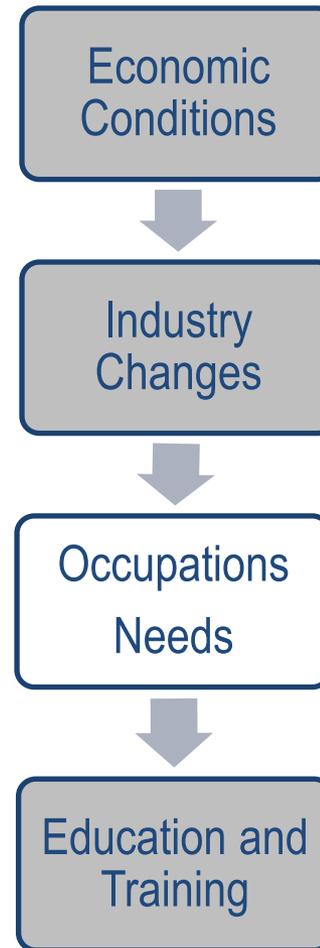
Key Points

The following are key points

- Growth occurs in some industries during down times.
- All industries are important to the economy in different ways, but some are more important than others in terms of job creation. Primary jobs matter.

Occupations SOC Codes

- SOC Codes
 - Top Occupations
 - Top Growth



Where do You Find Workers?

Typical Training Sources

- High schools – being educated to go to college, vo-tech school, or join the workforce
- Community colleges and trade schools – being trained to join the workforce
- Universities – being educated to go to graduate school or join the workforce

You Steal Them

- Other departments in your organization
- Competitors
- Within your state
- Out-of-state
- Out-of-country



SOC Occupations

SOC occupations

- There are 23 two-digit occupation categories
- Top occupations in Colorado
 - Sales
 - Office Support/Administration
 - Management
 - Business/Financial Operations
- Top openings 2011-2015
 - Business/Financial Operations
 - Personal Care
 - HC Practitioners
 - Food Preparation

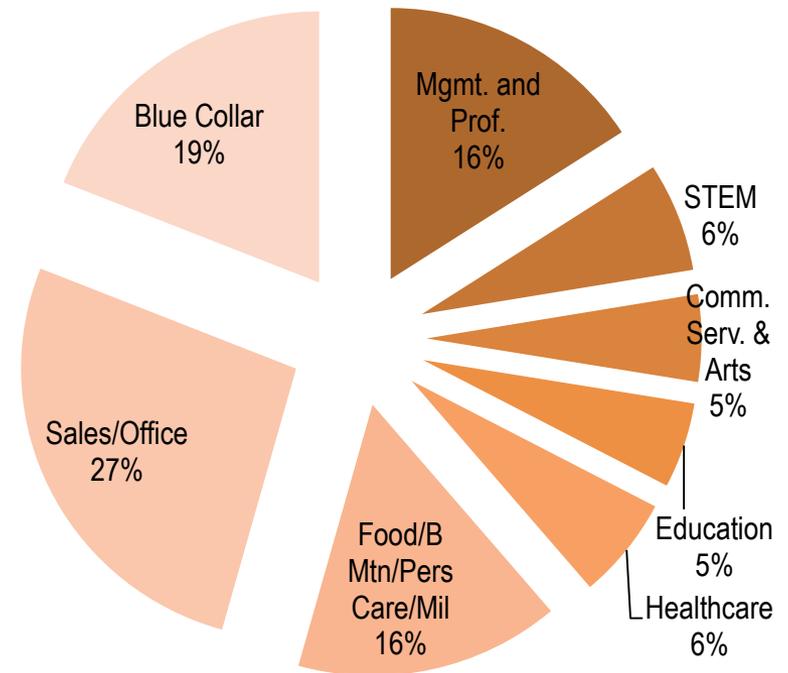
SOC Occupation Groups

Based on Work by George Washington University

Groups of SOC Codes

- 15.9% Managerial and Professional (SOC 11,13,23)
- 6.5% STEM (SOC 15,17,19)
- 5.2% Community Service and Arts (SOC 21,27)
- 5.1% Education (SOC 25)
- 6.1% Healthcare (SOC 29,31)
- 15.6% Food Preparation, Personal Service, Building Maintenance and Military (SOC 35,37,39,55)
- 26.7% Sales and Office Support (SOC 41,43)
- 19.0% Blue Collar (SOC 33,45,47,49,51,53).

Occupation Groups



Industry vs. Occupations

It is critical to understand the relationship between industries and occupations.

- Some occupations, such as Sales and Office/Administrative Support, cross all industries.
- Some occupations, such as Healthcare Practitioners, are limited to jobs in the Healthcare or Government sectors.
- Some occupations, such as teachers, work in the Government sector, yet there are also private sector education jobs in the Private Education, Healthcare, Recreation, and other sectors.

Education and Training

Education and Training

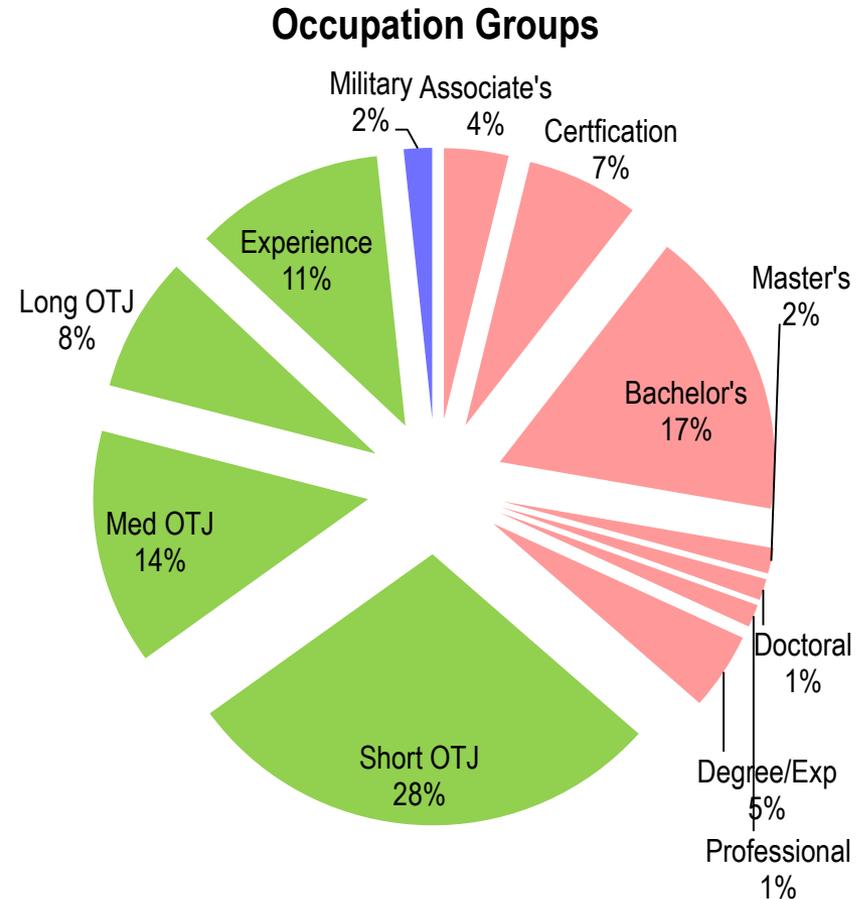
- Education Training Requirements
- Industry vs. Training Requirements
- Occupations vs. Training Requirements
- Awards by Occupation Group
- Top Awards
- Fastest and Slowest Changing Awards



Required Training and Education Levels

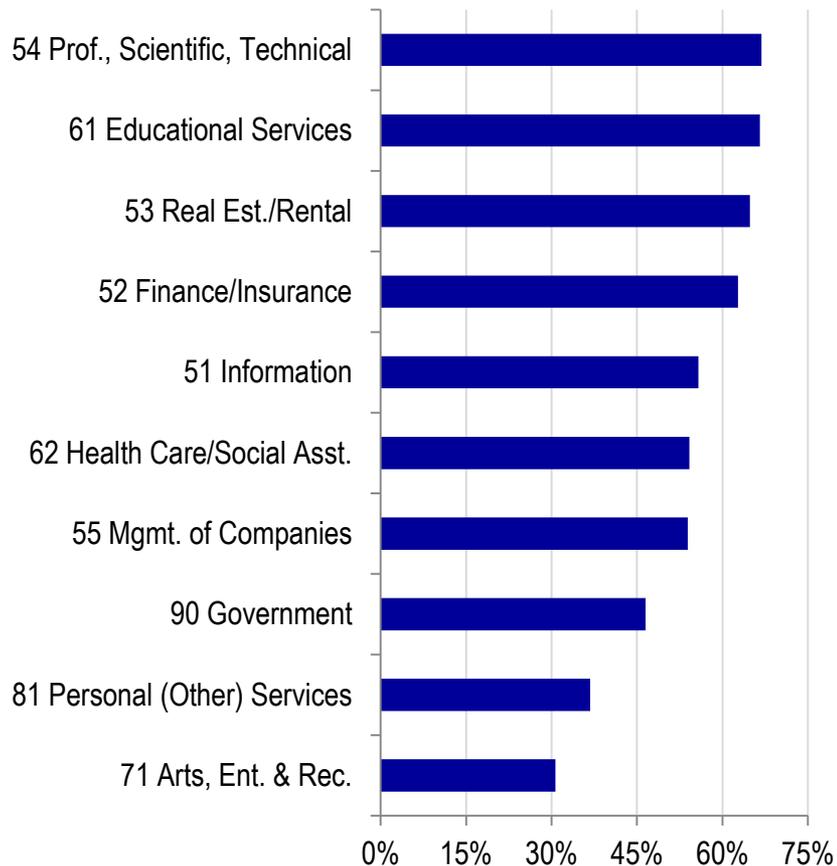
Required Training and Education

- On the Job Training or Experience 61%
- Military 2%
- Degree or Award 37%

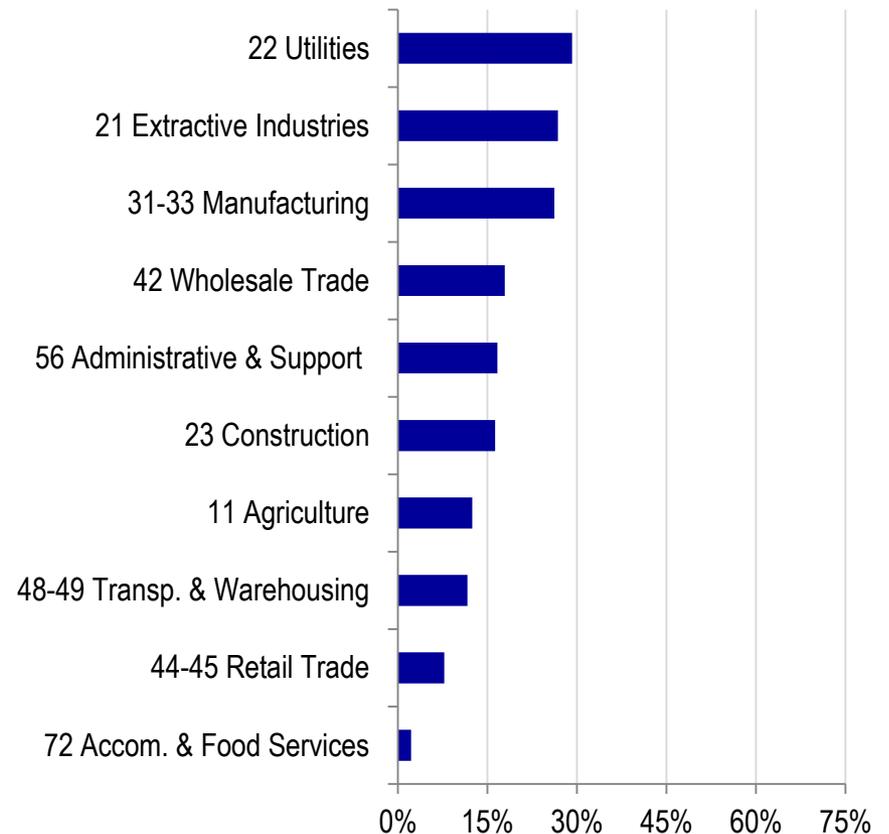


Percentage of Employees Requiring Education Certification or Degree by Industry

Percent Requiring Awards Top 10 Industries

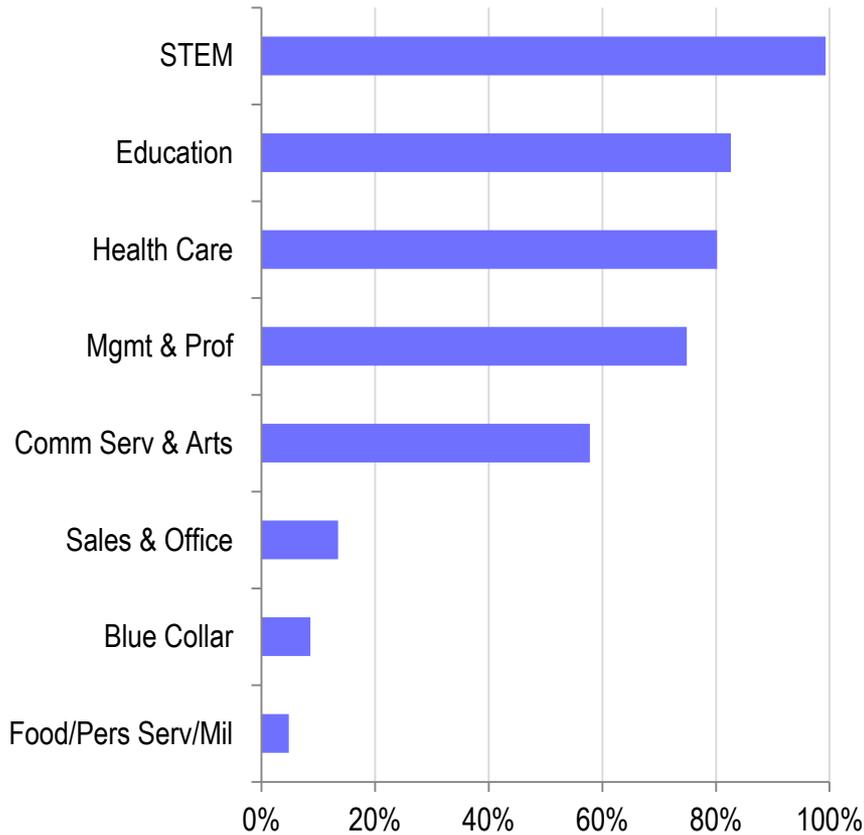


Percent Requiring Awards Bottom 10 Industries

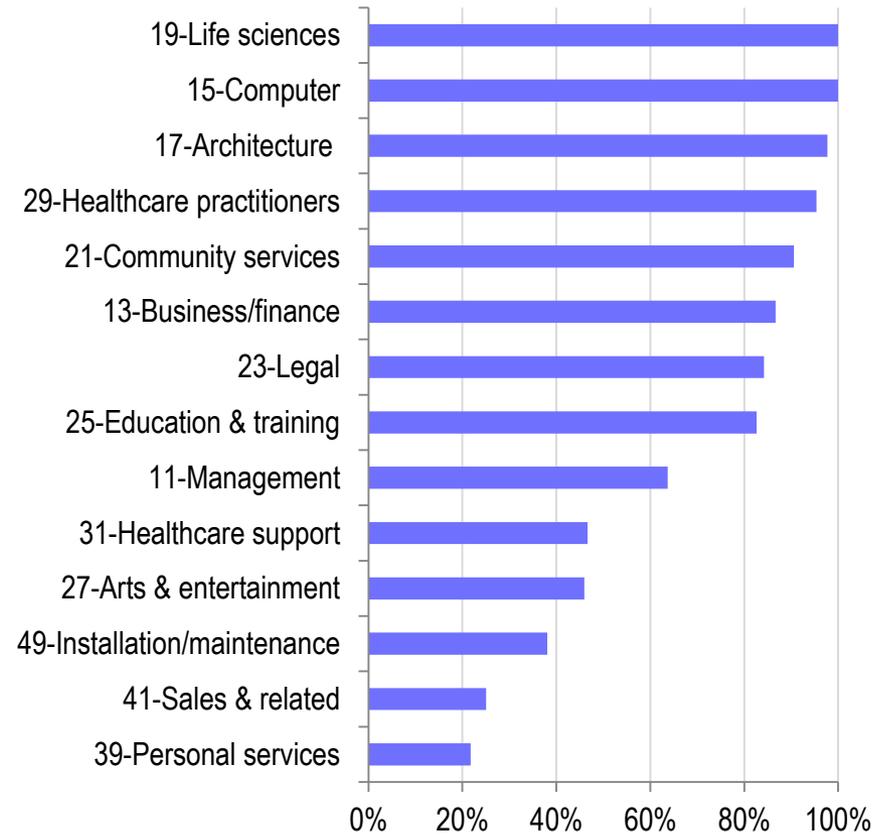


Percentage of Employees Requiring Education Certification or Degree by Occupation Group

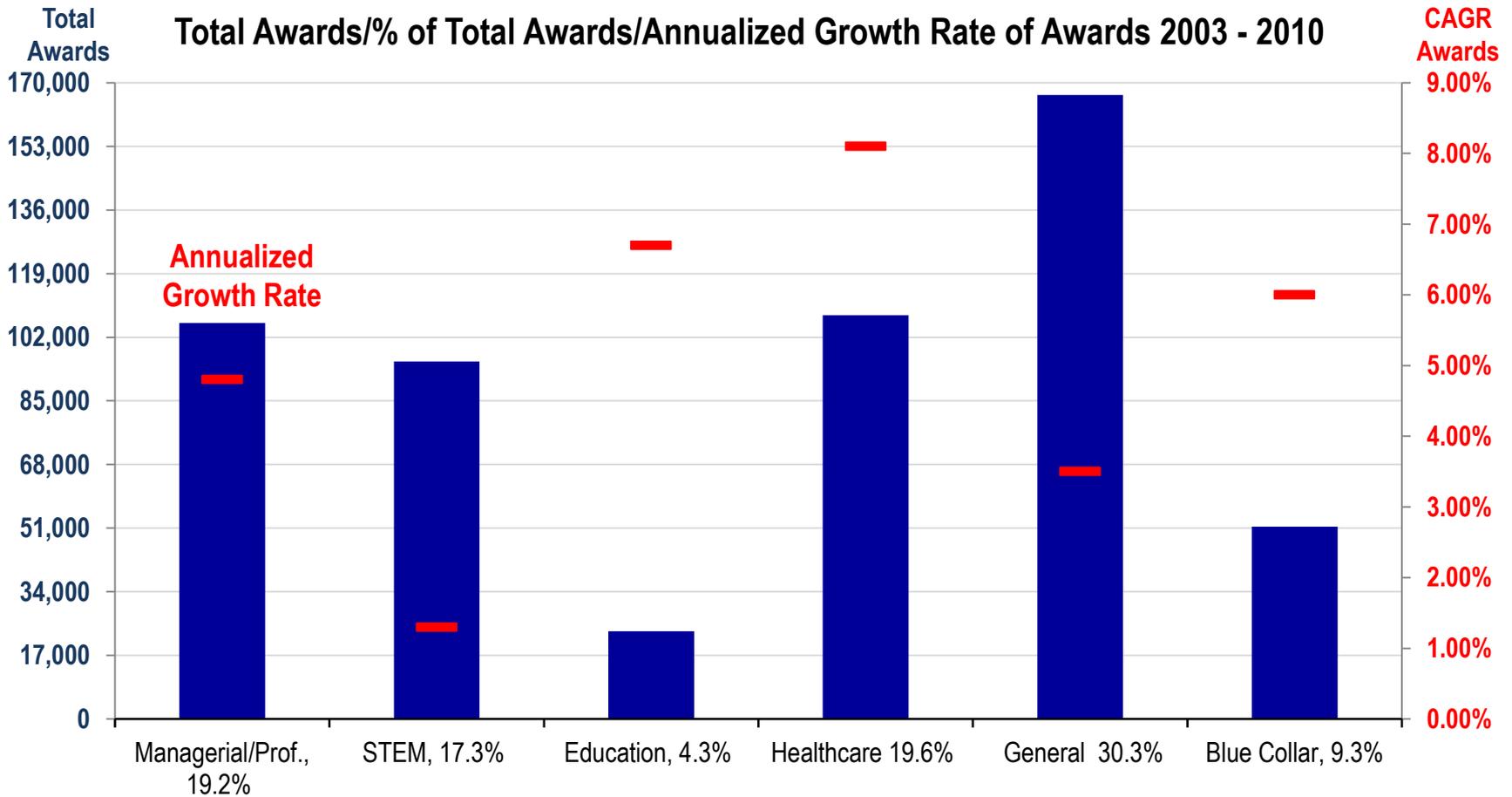
Groups Percent Requiring Awards



Top SOC Categories Percent Requiring Awards



Total Awards by Occupation Group



Top CIP Awards

Top CIP Awards

• 51 Health Professions and Related Programs	16,767	
• 52 Business, Management, Marketing, and Related	14,743	
• 24 Liberal Arts and Sciences, General Studies and Humanities	5,334	
• 45 Social Sciences		3,437
• 13 Education		3,244
• 14 Engineering		2,864
• 42 Psychology		2,566
• 43 Homeland Security, Law Enforcement, Firefighting and Related	2,541	
• 50 Visual and Performing Arts	2,434	
• 12 Personal and Culinary Services	2,280	
• 26 Biological and Biomedical Sciences	2,145	
• 09 Communication, Journalism, and Related Programs	1,923	
• 11 Computer and Information Sciences and Support	1,902	
• 46 Construction Trades		1,725
• 15 Engineering Technologies and Related		1,489

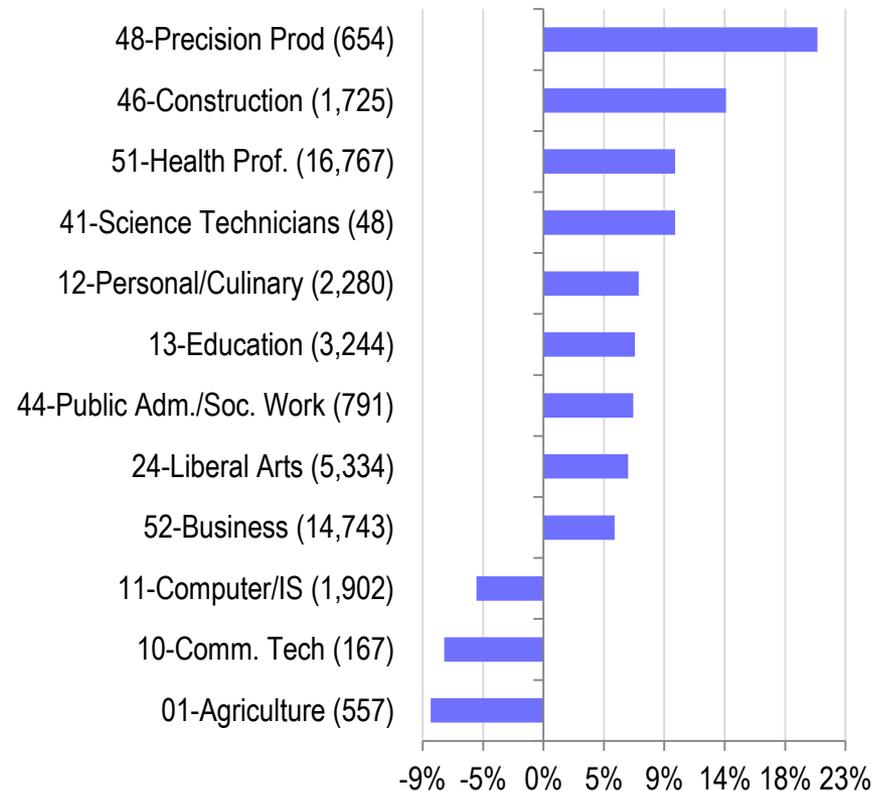
Select Degree Trends

By Two-Digit CIP

Comments

- The increase in Precision Production, Health Professions, Science Technicians is most likely a result of increased demand from industry.
- Demand for Construction has increased despite massive layoffs in the industry.
- Many technician training programs have low numbers.
- The decline in Computer/IS, Communication Technicians and Agriculture may be a function of technology improvements and increased efficiencies.
- The increases in Liberal Arts, Public Administration, Business, and Education may have created an oversupply in those occupations.

**Annualized Rate of Change/2010 Total in ()
by CIP Category 2003-2010**





Key Points

Key Points

- All industries have a need for awards (degree, certification, training). That need (demand) varies by industry.
- An educational award is required for about 35% of occupations in Colorado.
- 9 of 23 occupation categories require more than half of their workers to have an award.
- At a macro level there is evidence that the supply is addressing some of the industry demand.

Conclusion

There is value in understanding the following:

- Economic conditions and outlook
- Industry changes
- Occupation changes
- Completions (degrees, certificates, awards)

When these four items are considered there is evidence that efforts have been made to match the completions (supply) with the industry needs (demand).

Future dialogue between workforce, business, and higher education leaders should acknowledge:

- Areas of success as measured by data.
- Ongoing areas of success - informal partnerships between industry, education, and workforce system.
- How to fine tune efforts – if possible.





Conclusions

- Tie three together
- Put chart
- Acknowledge work of many who are working together.