



# Preparing the Workers of Today for the Jobs of Tomorrow

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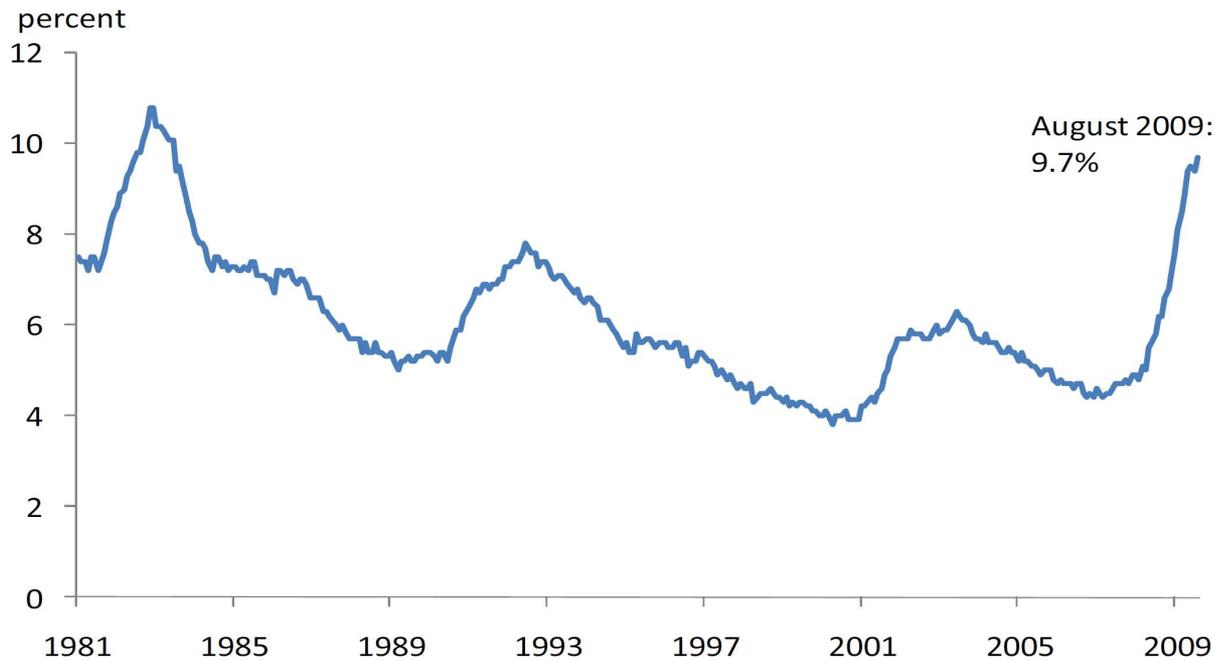
Member, Council of Economic Advisers

September 15, 2009

# The Recession....

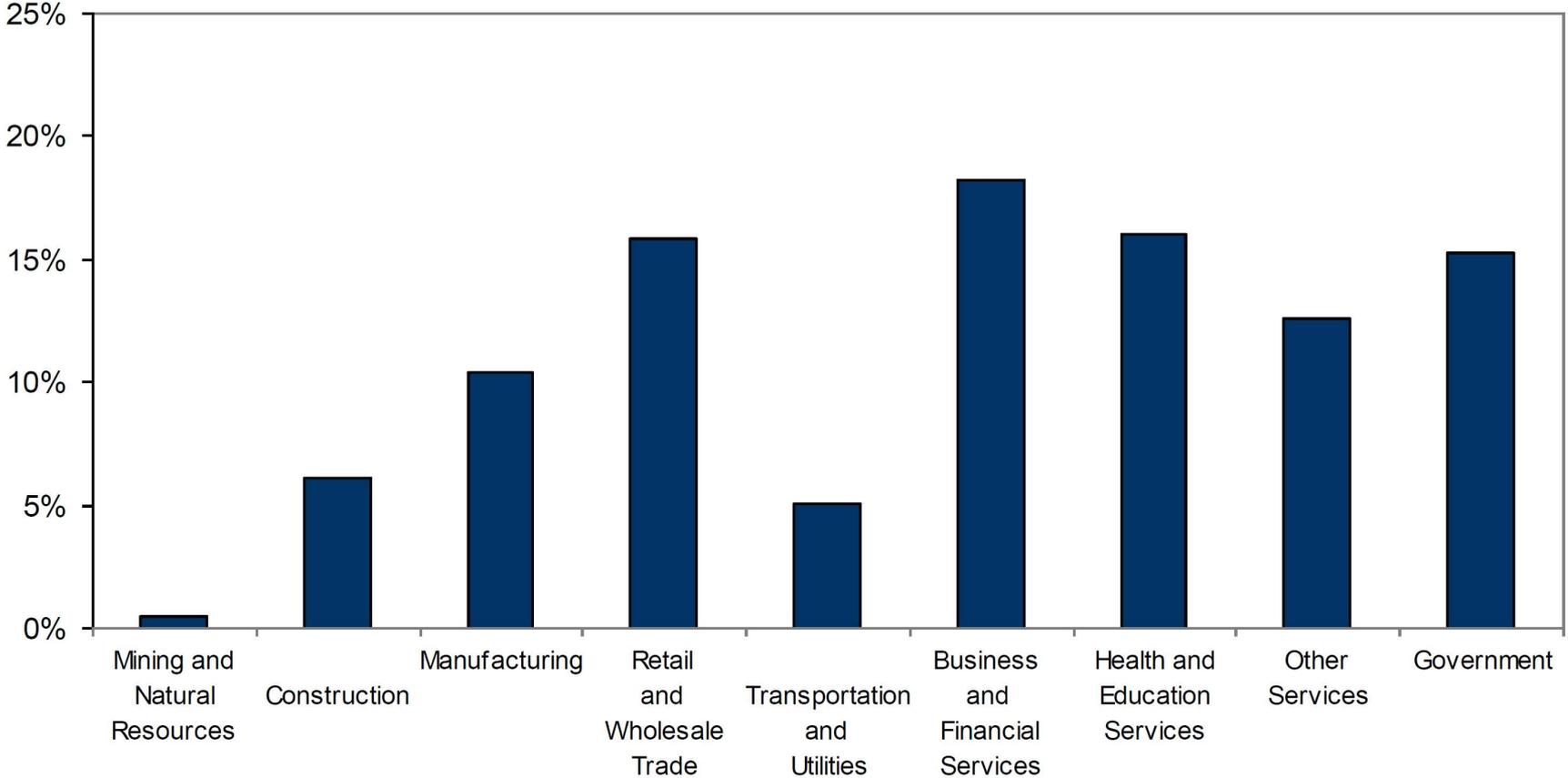
- The economy has lost 6.9 million jobs since the recession began in December 2007.
- The unemployment rate has reached 9.7%.

**Civilian Unemployment Rate, 1981-2009**



# Distribution of Workers Across Major Industries in 2008

Percent of total

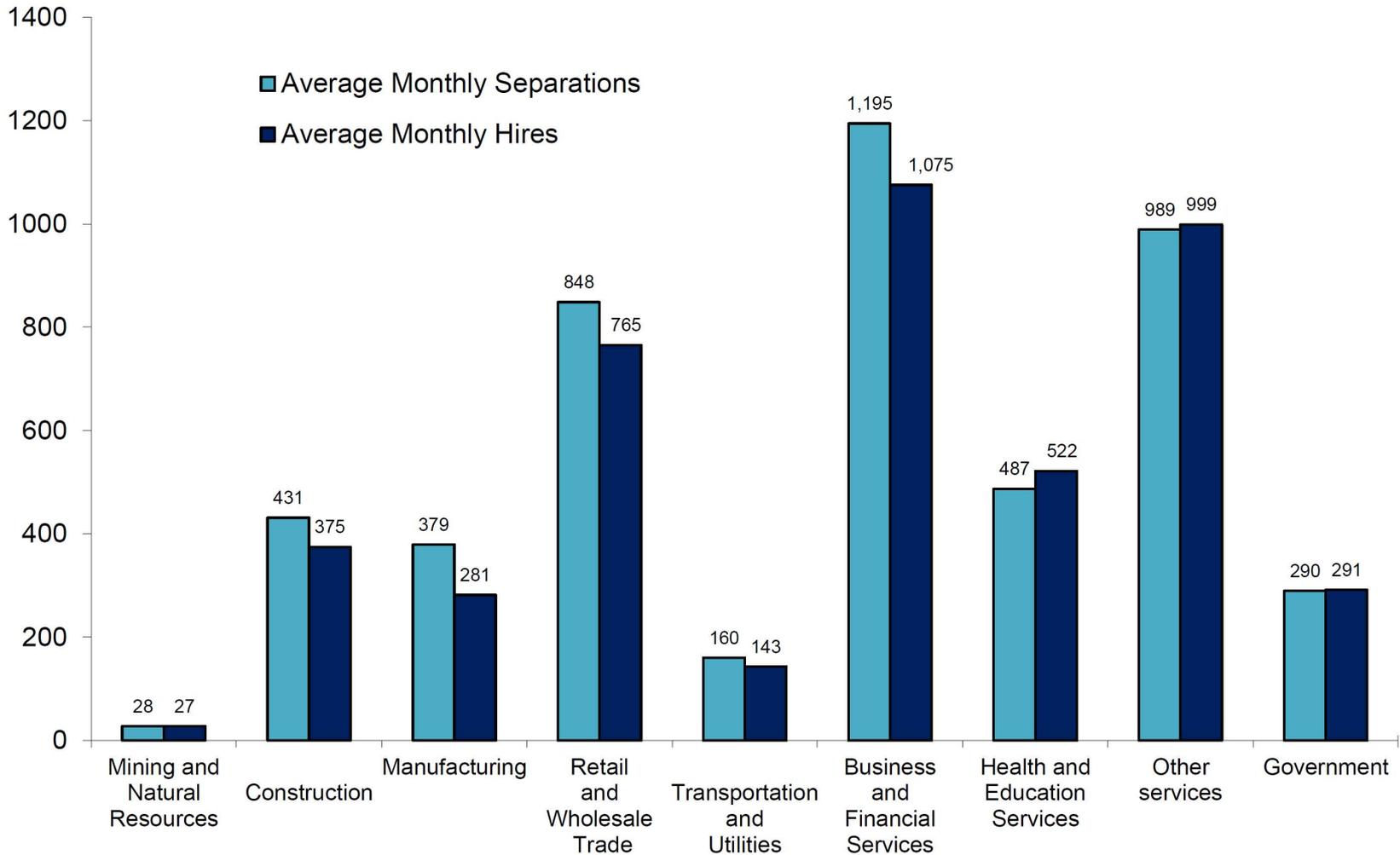


Source: Inforum LIFT Model industry estimates using Bureau of Labor Statistics data.

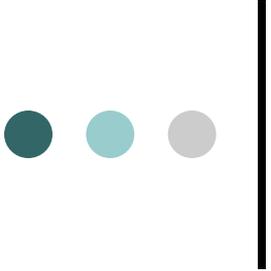
Note: Total does not include jobs in agriculture, forestry, and fisheries.

# Average Monthly New Hires and Separations Across Major Industries, December 2007 - July 2009

Thousands



Source: Job Openings and Labor Turnover Survey, Bureau of Labor Statistics

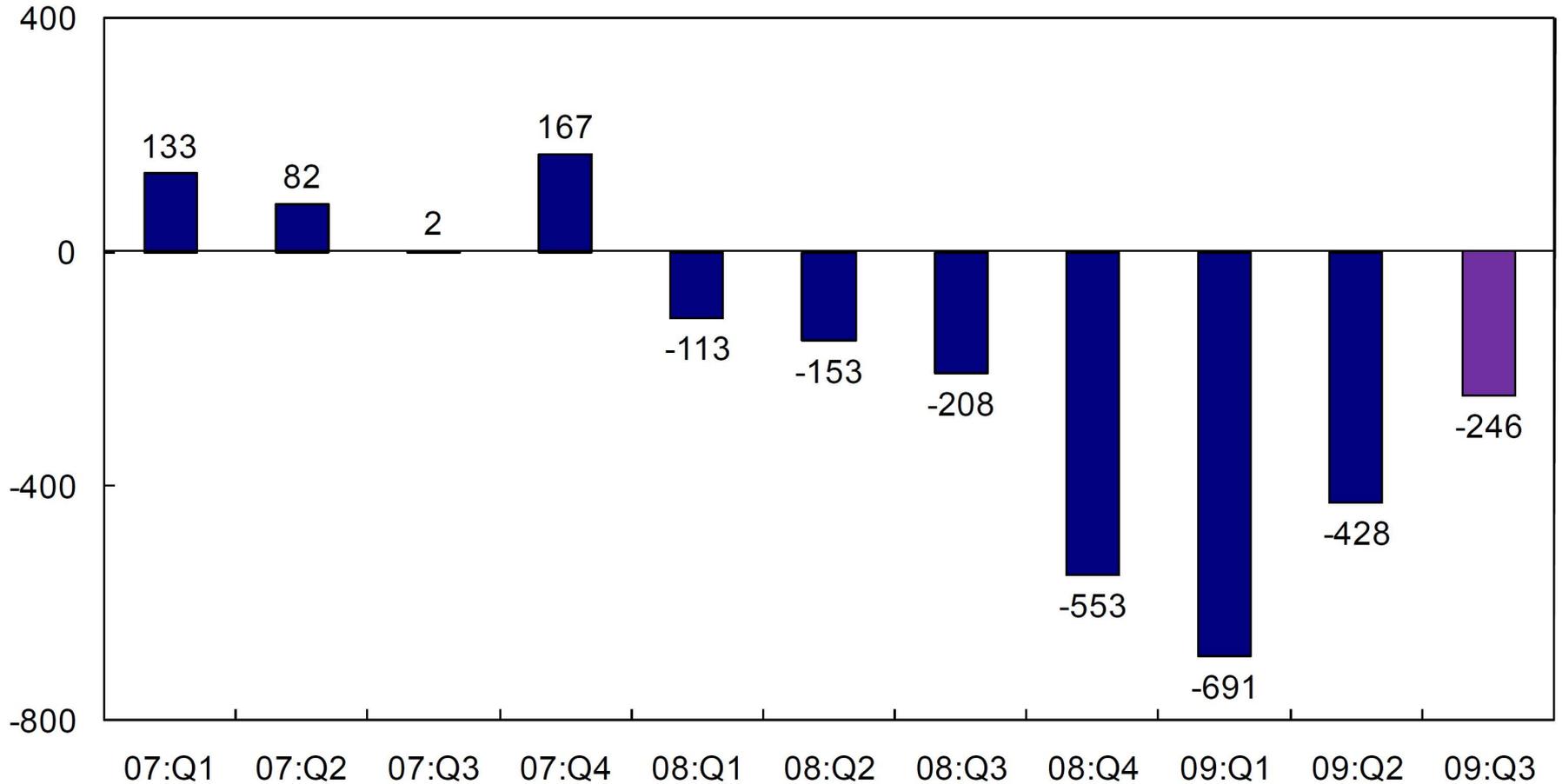


## The Economics of Recovery and the Return to Stable Growth

The CEA's recently released "The Economic Impact of the American Recovery and Reinvestment Act of 2009: The First Quarterly Report" sheds light on the (very) short-term impact of the ARRA on the composition of the economy.

# Payroll Employment Growth

Average monthly change from end of quarter to end of quarter, thousands

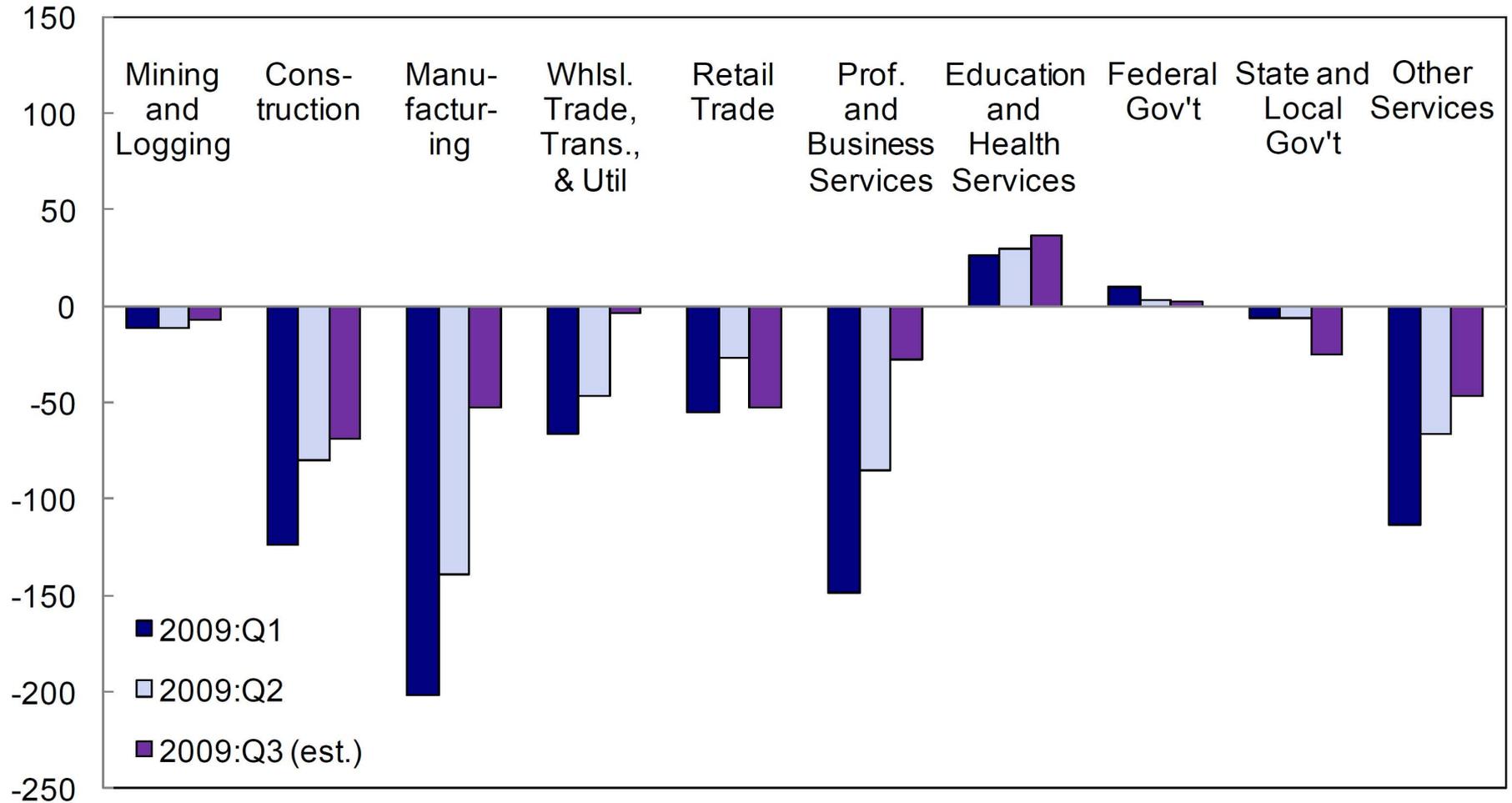


Source: Department of Labor (Bureau of Labor Statistics).

Note: 2009:Q3 datapoint reflects the average change in employment in July and August.

# Contributions to Changes in Employment

Average monthly change from end of quarter to end of quarter, thousands

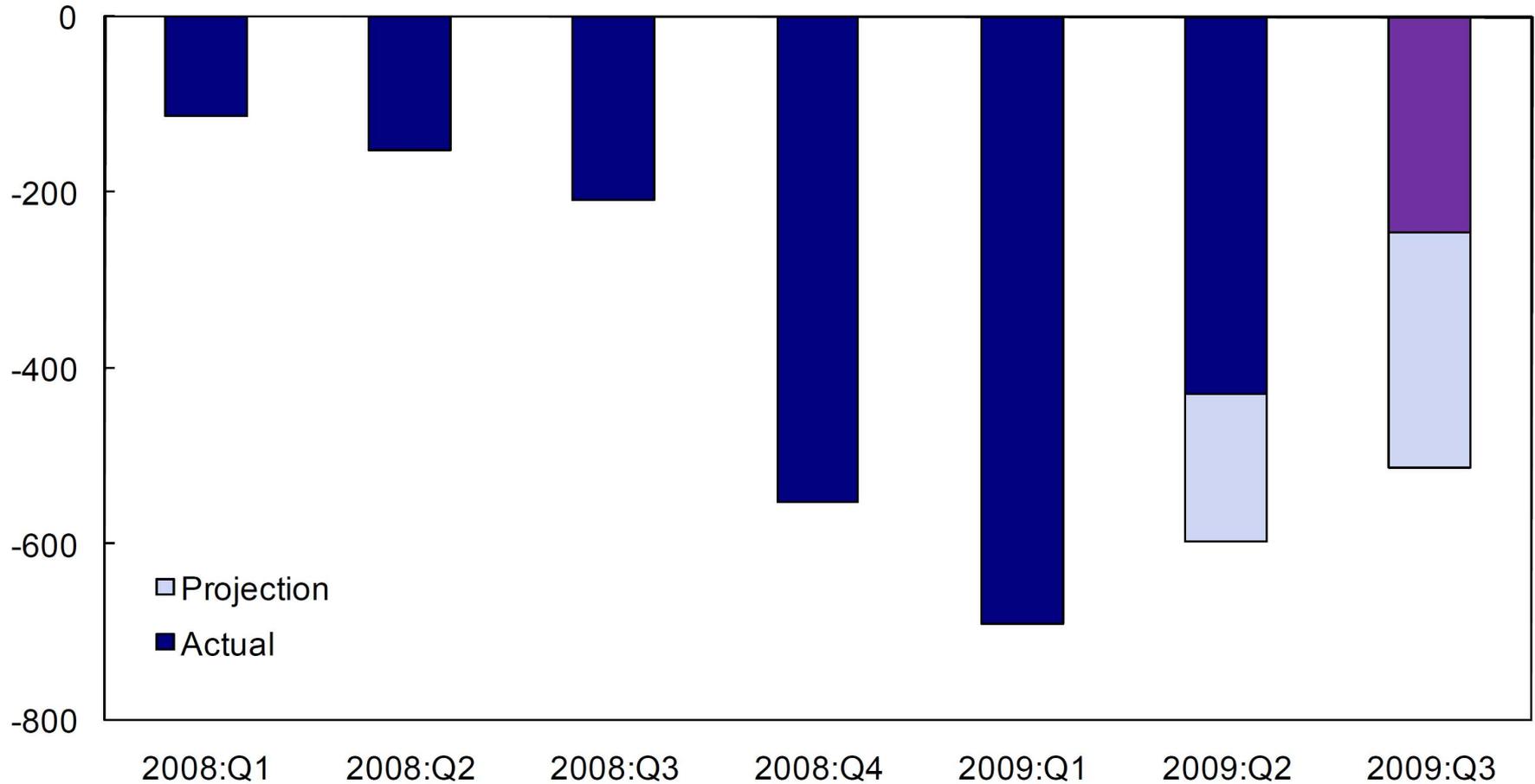


Sources: Department of Labor (Bureau of Labor Statistics); CEA calculations.

Note: Observations for 2009:Q3 are based on average change in July and August. Bars sum to average monthly change in quarter (-691,000 in Q1; -428,000 in Q2; -246,000 in Q3).

# Payroll Employment: Recent and Projected Changes

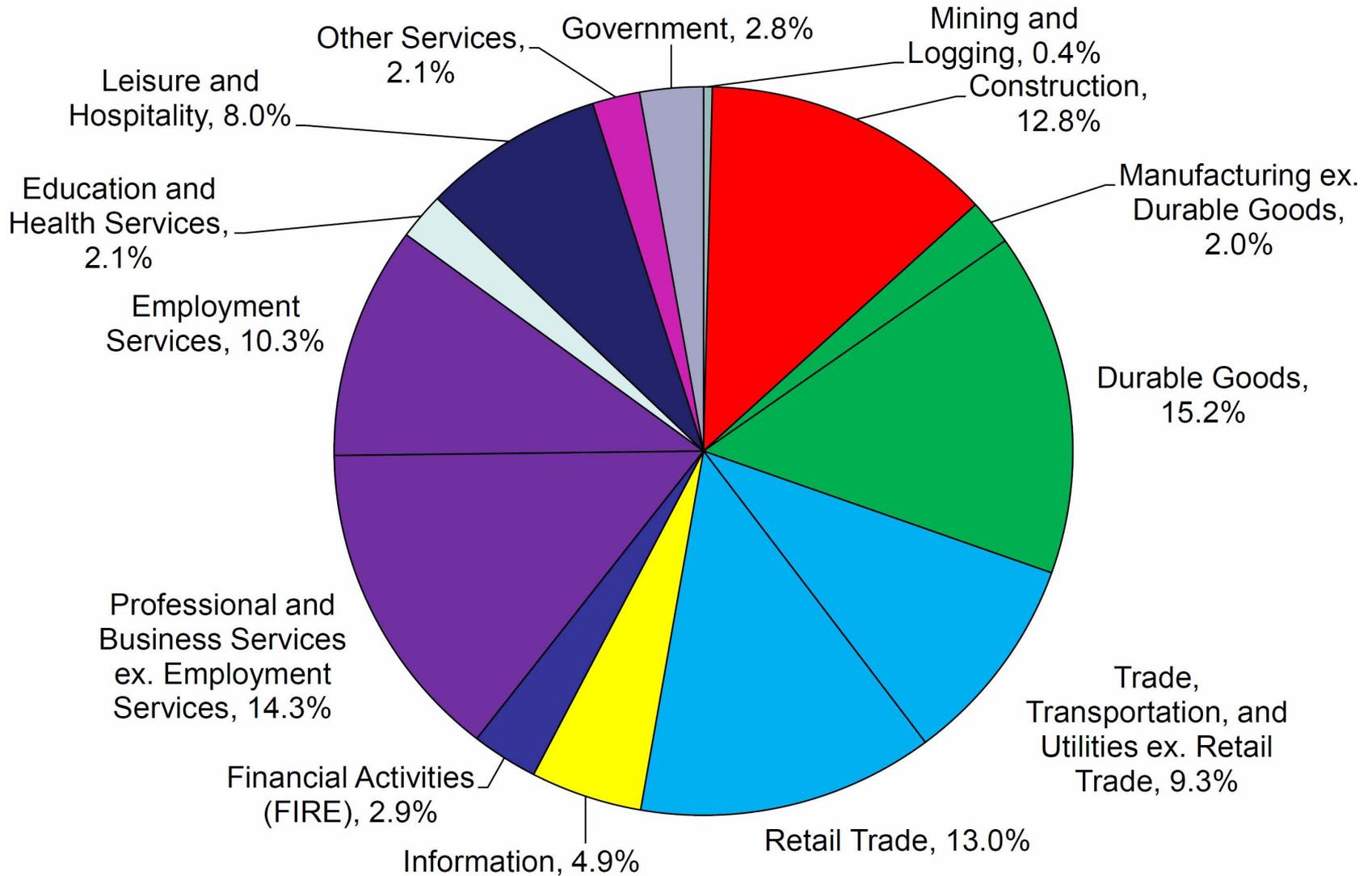
Average monthly change from end of quarter to end of quarter, thousands

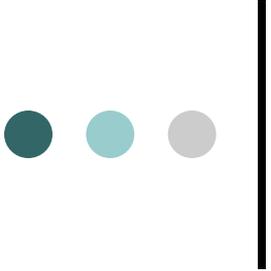


Sources: Department of Labor (Bureau of Labor Statistics); CEA calculations.

Note: 2009:Q3 datapoint for "actual" series reflects the average change in employment in July and August.

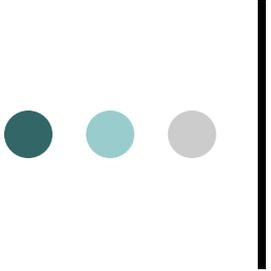
# Employment Effects of the Recovery Act by Sector





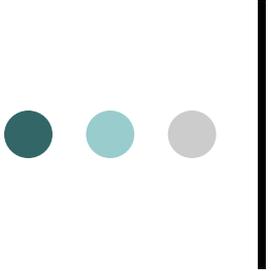
## The Economics of Recovery and the Return to Stable Growth

In the long run, we expect households to return to higher savings rates and more sustainable consumption. Net exports and business fixed investment will help fill gaps in aggregate demand.



# Data Used in Project

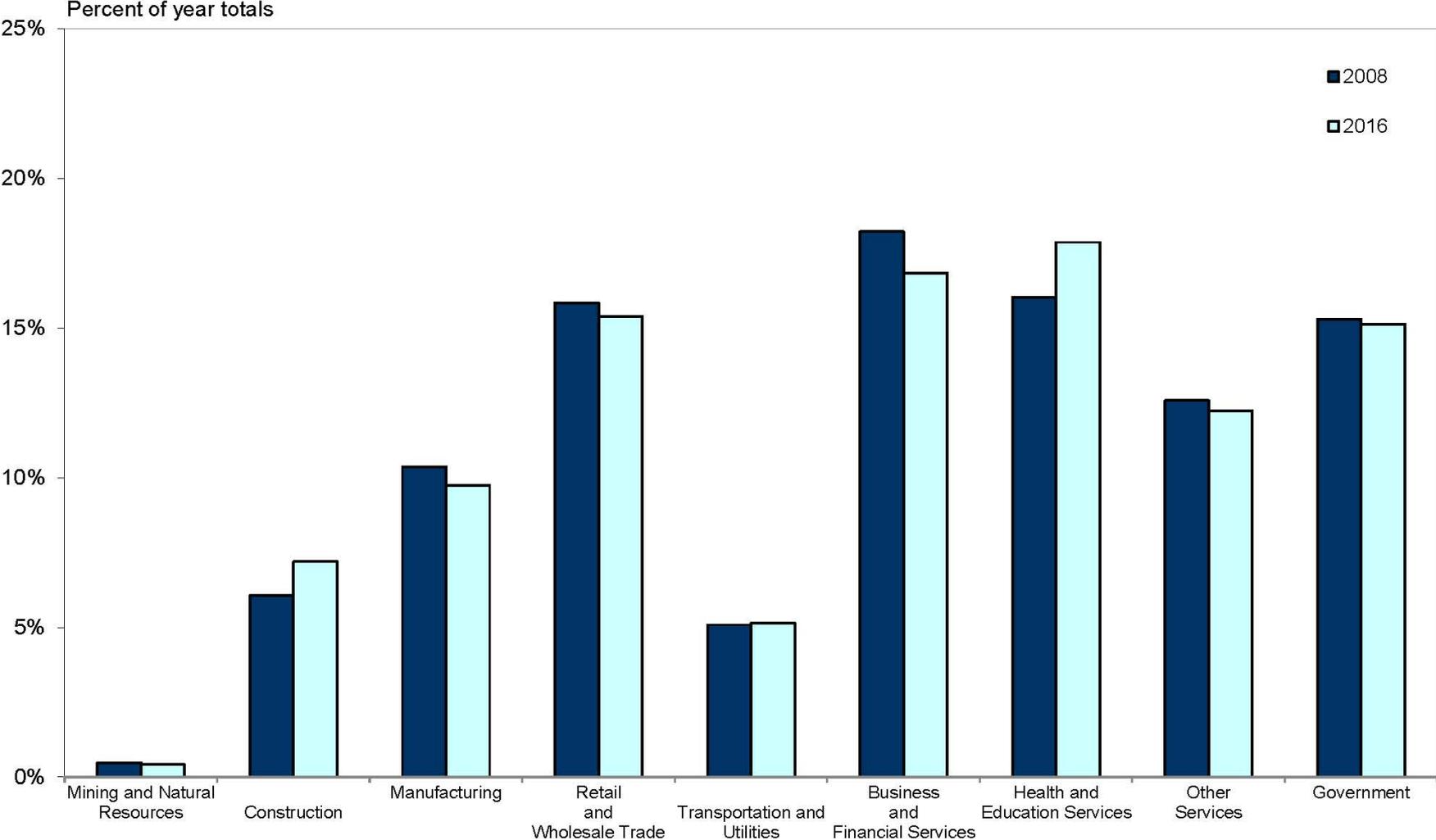
- **BLS:** The BLS publishes estimates for growth by industry and occupation, with details on the education and training requirements for all occupations—last published in 2007.
- **Inforum:** Interindustry Economic Research Foundation (Inforum) uses BLS employment data through 2008 to project growth at the industry level.



# Projections are Inherently Uncertain

- While they rely on the most recent data available, these projections are based on the jobs of today.
- Some of the fastest growing jobs over the next decade have yet to be identified.
  - In 2003 a quarter of the workforce had jobs that were not even listed among the Census Bureau's Occupation codes in 1967.
  - Environmental-related occupations did not exist in comparable data prior to 2000.

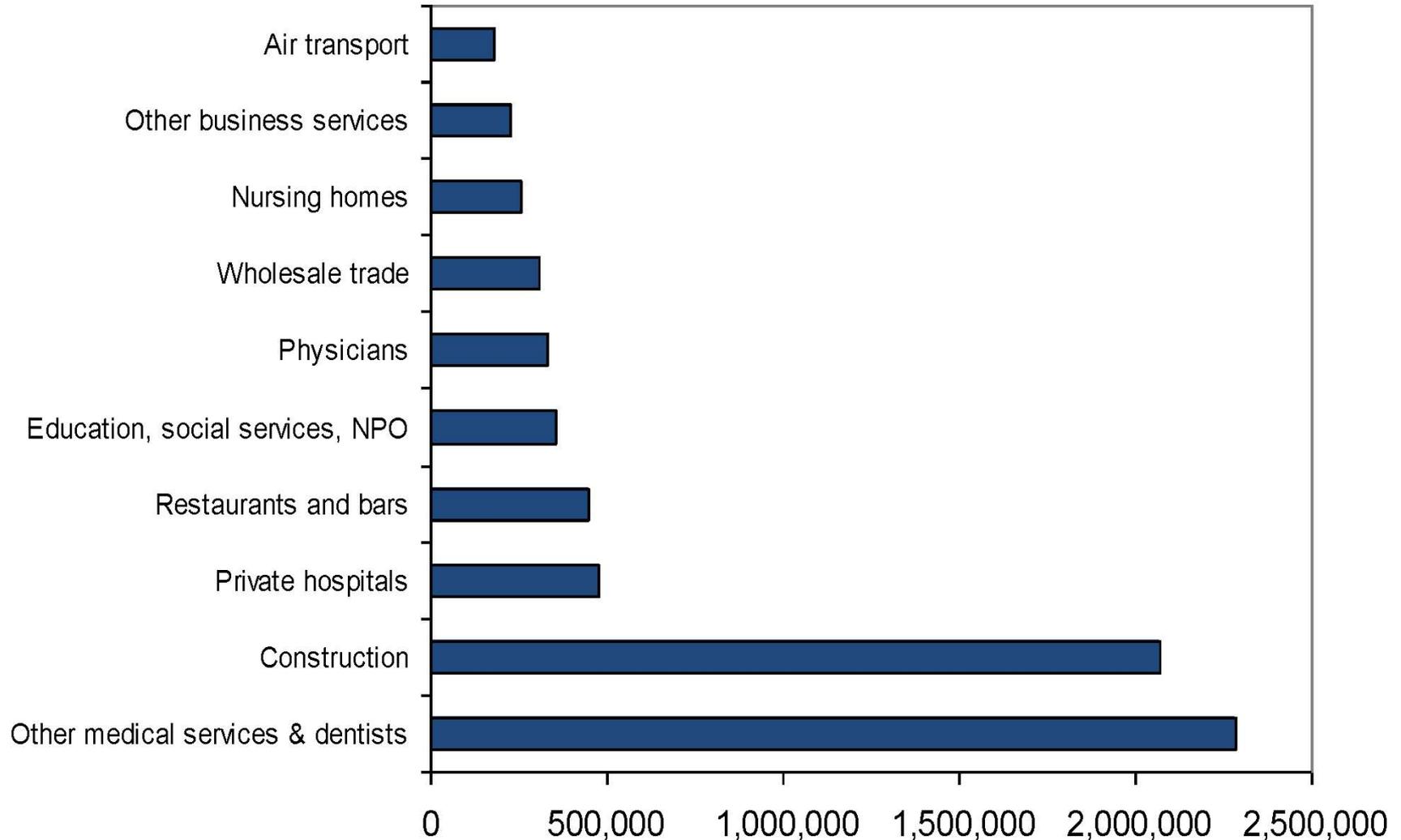
# Projected Distribution of Workers Across Major Industries, 2008 and 2016



Source: CEA aggregations of Inforum LIFT Model Industry Projections.  
Note: Totals do not include jobs in agriculture, forestry, and fisheries.

# Projected Employment Changes in Industries Adding the Most Jobs, 2008-2016

Annual number of additional jobs projected

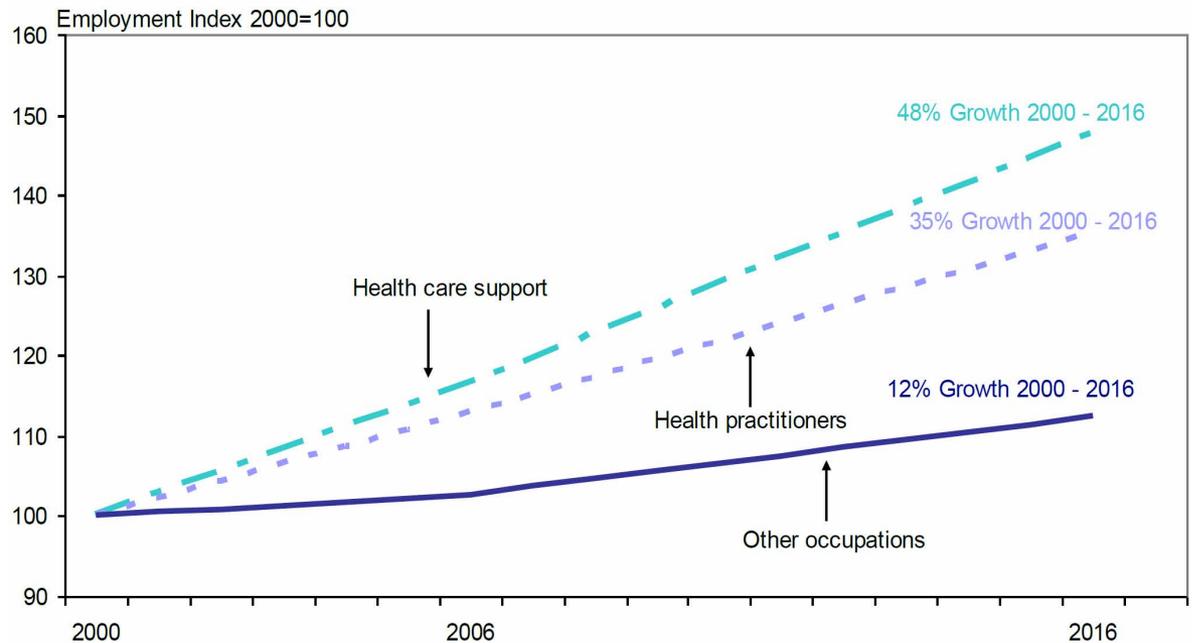


Source: Inforum LIFT Model

# Health Care Will Employ a Growing Number of Workers

- An aging population will increase the demand for care providers and support staff.
- Even if health reform contains spending, it will expand insurance coverage, sustaining demand for medical services.
- Medical records and health information technology could emerge as high-growth sectors.

**Actual and Projected Growth of Health-Related Occupations vs. All Other Occupations, 2000-2016**

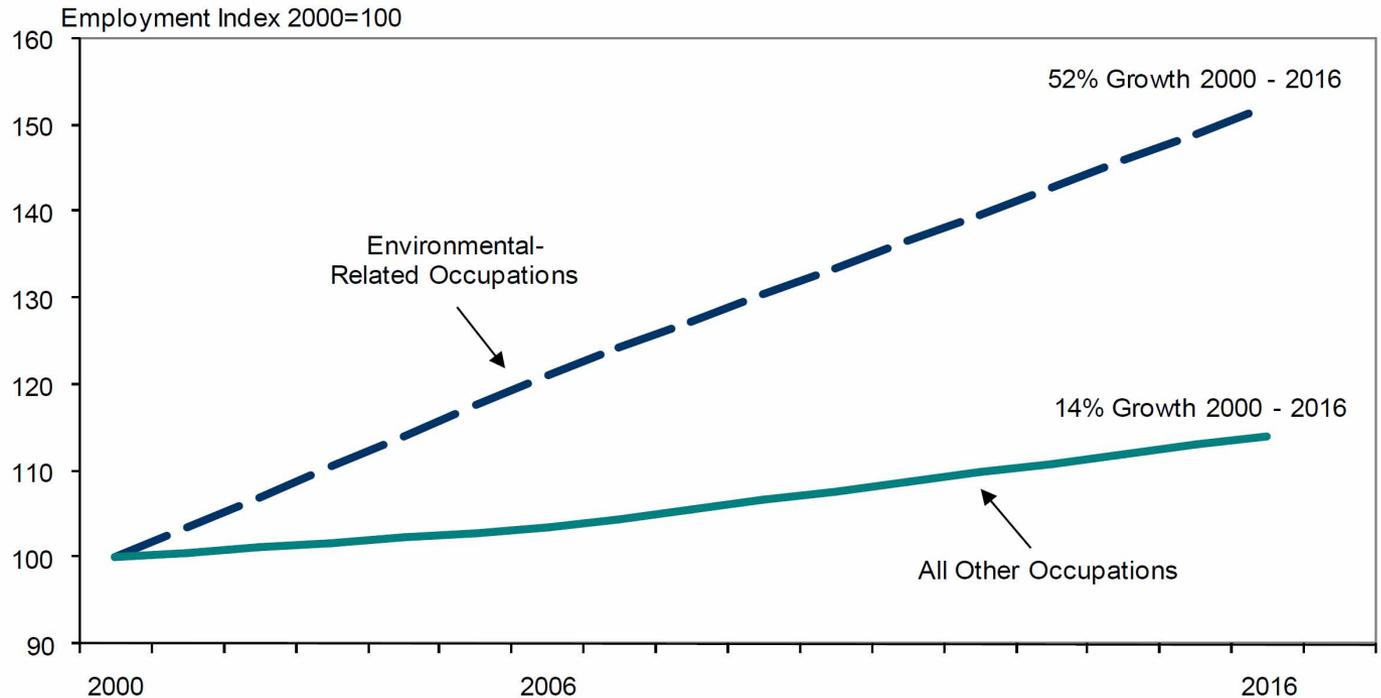


Sources: "Occupational Employment Projections to 2010." Bureau of Labor Statistics. *Monthly Labor Review*. November 2001. "Occupational Employment Projections to 2016." Bureau of Labor Statistics. *Monthly Labor Review*. November 2007.

# Green Jobs for Skilled Workers

- Our economy is transitioning from a reliance on fossil fuels toward a future of clean energy and energy efficiency.
- This will create jobs for environmental engineering technicians and environmental scientists.

## Actual and Projected Growth of Environmental-Related Occupations vs. All Other Occupations, 2000-2016

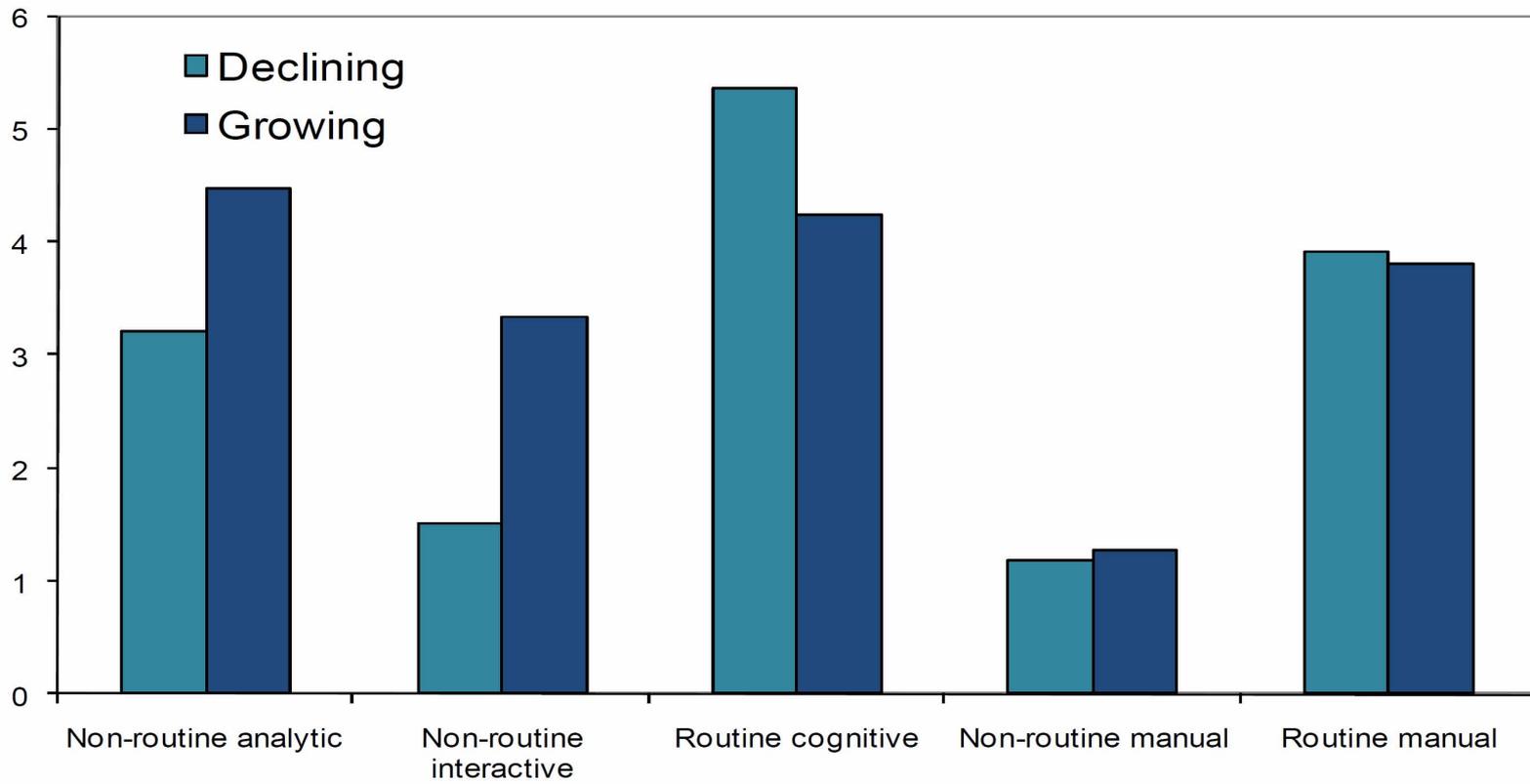


Sources: "Occupational Employment Projections to 2010." Bureau of Labor Statistics. *Monthly Labor Review*. November 2001. "Occupational Employment Projections to 2016." Bureau of Labor Statistics. *Monthly Labor Review*. November 2007.

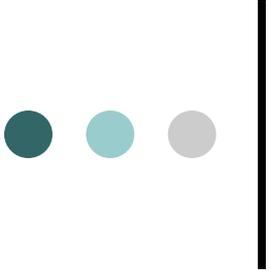
# The Skills We Will Need

## Task intensity of declining vs. growing occupations, 1992 - 2002

Task intensity scale



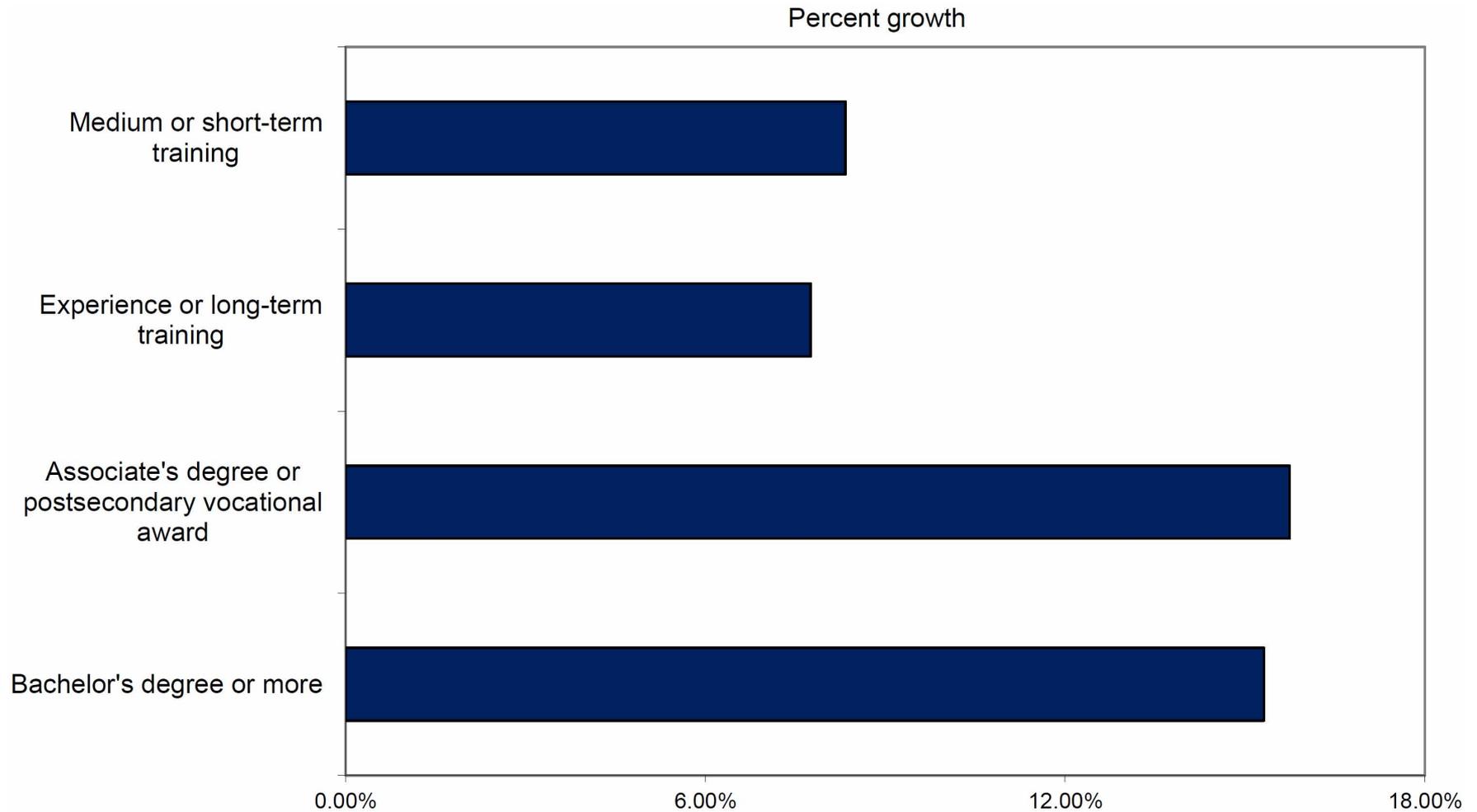
Source: CEA calculations using data on task intensity from Autor, Levy, and Murnane (2003) and CPS data



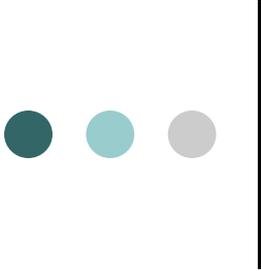
# Employers Need Analytic and Interactive Skills

- A 2006 survey of over 400 employers by The Conference Board identified several important skills for labor market entrants:
  - Skills include: professionalism / work ethic; teamwork / collaboration; oral communication and critical thinking / problem solving.
  - Respondents believed most recent high school graduates lacked necessary basic skills like reading, writing and math,
- One member of the President's Economic Recovery Advisory Board reported that one half of job applicants to his large company cannot do basic 8<sup>th</sup> grade math.

# Projected employment Growth from 2006-2016 by Occupations Education or Training Requirement



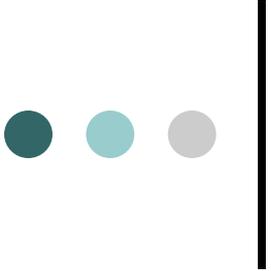
Source: BLS Occupational Employment Projections, press release (Table 9)



# We need an education and training system that provides skills to match employers' needs.

## Key components include:

- Strong institutions of early childhood, primary and secondary education that build a strong foundation in basic skills. Program goals must be aligned and curricula must be cumulative.
- Close collaboration between training providers and employers to ensure that curricula are aligned with workforce needs.
- Flexible scheduling, appropriate curricula, and financial aid designed to meet the needs of students.
- Incentives for institutions and programs to continually improve and innovate, with accountability for results.



## In sum

- The economy appears to be shifting toward jobs that require workers with greater analytical and interactive skills.
- We need a comprehensive strategy to ensure that our education and training system is strong and effective. This system should include:
  - solid institutions starting with early childhood;
  - institutions and programs with consistent and coherent goals and curricula;
  - coordination between training programs and employers and other workforce stakeholders;
  - flexible scheduling and adequate financial assistance and student support;
  - positive incentives and strong accountability.
- Projections of future jobs are inherently uncertain — but the evidence strongly suggests that high quality education and training is the best way to prepare the workers of today for the jobs of tomorrow