

---

# Occupational Employment Statistics

Federal Economic Statistics Advisory  
Committee

Laurie Salmon

June 13, 2014



# USING OES DATA TO MEASURE INEQUALITY

# OES data overview

---

The Occupational Employment Statistics program:

- Sample
  - ▶ 1.2 million business establishments
  - ▶ Employing 76 million workers (unweighted)
- Establishments are asked to provide the occupation and wages of each employee by Standard Occupational Classification and wage range
- Sample is stratified by industry and area

# Advantages of OES Data

---

- Employment and wage estimates:
  - ▶ For over 800 occupations
  - ▶ For the nation as a whole
  - ▶ For individual states
  - ▶ For nearly 600 metropolitan and nonmetropolitan areas
  - ▶ For over 400 industry classifications
  - ▶ Provides employment and mean, 10<sup>th</sup>, 25<sup>th</sup>, median, 75<sup>th</sup>, and 90<sup>th</sup> percentile wages

# Disadvantages of using OES data for measuring inequality

---

- Wage and salary workers only, not self-employed
- Wages are measured in intervals, with lowest and highest intervals below \$9.25 and over \$100 per hour, respectively
- Not designed to be a time series
  - ▶ It takes 3 years to collect the data
  - ▶ Breaks in series
  - ▶ Sometimes time series comparisons can be made when there are no breaks in series and data are at least three years apart

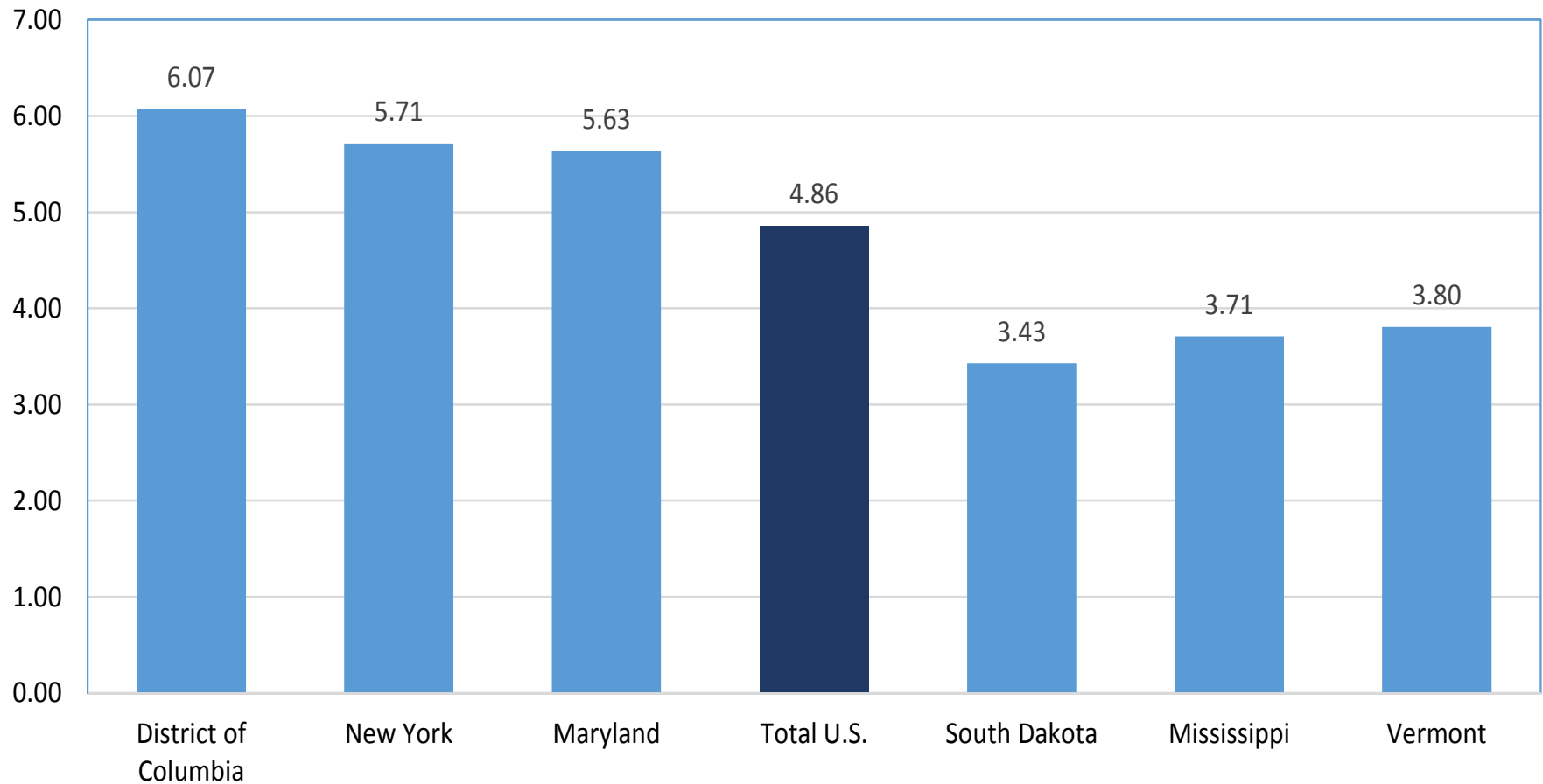
# Measures

---

- OES economists John Jones, Elizabeth Cross, and Chris Cunningham are looking at:
  - ▶ Differences by states and metropolitan areas
  - ▶ Differences by industry and occupation
  - ▶ Changes in percentile wages over time

**MEASURING  
THE RATIO OF THE  
90<sup>TH</sup> PERCENTILE WAGE  
TO THE 10<sup>TH</sup> PERCENTILE  
AND 75<sup>TH</sup> TO 25<sup>TH</sup>**

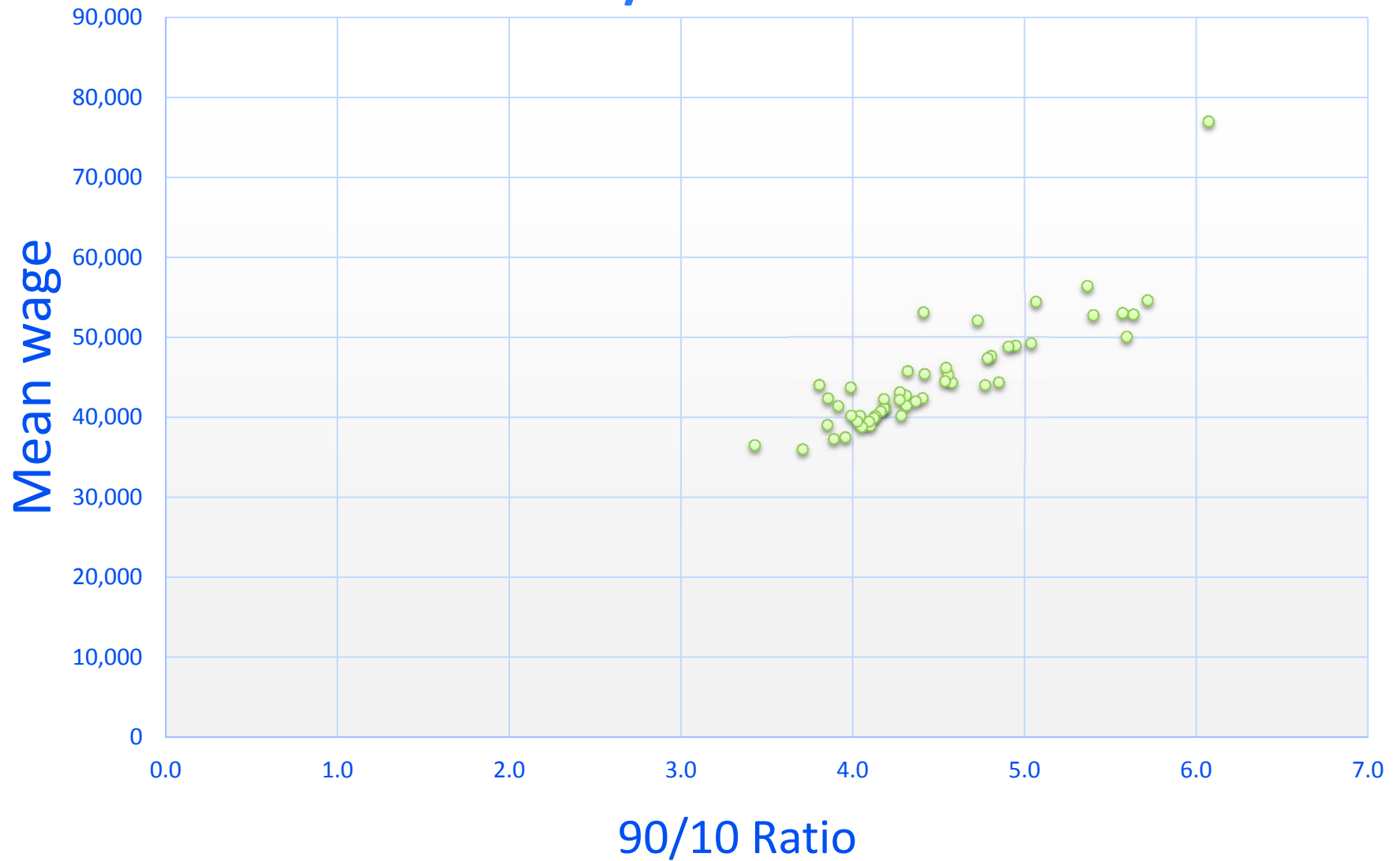
## States with largest and smallest 90th/10th percentile wage ratios, May 2013



- Ten states and DC had 90/10 ratios above U.S. ratio
- Ten states had 90/10 ratios below 4.0



## States with higher mean wages have higher 90/10 ratios



# 90/10 Ratios, Selected Metropolitan Areas

---

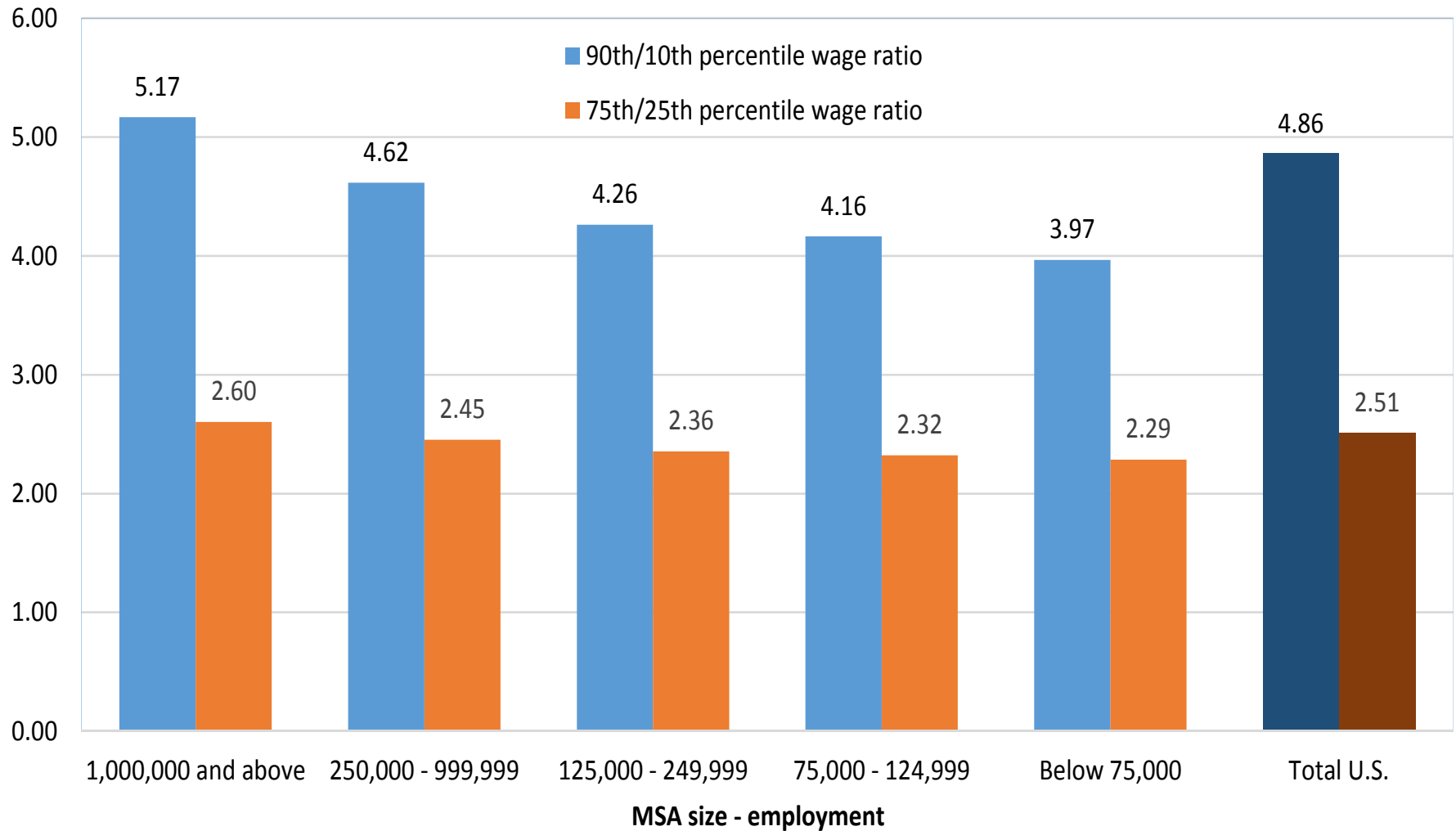
## Above 6:

- San Jose
- Washington
- New York
- Huntsville, AL
- San Francisco
- Oakland

## Below 4.5:

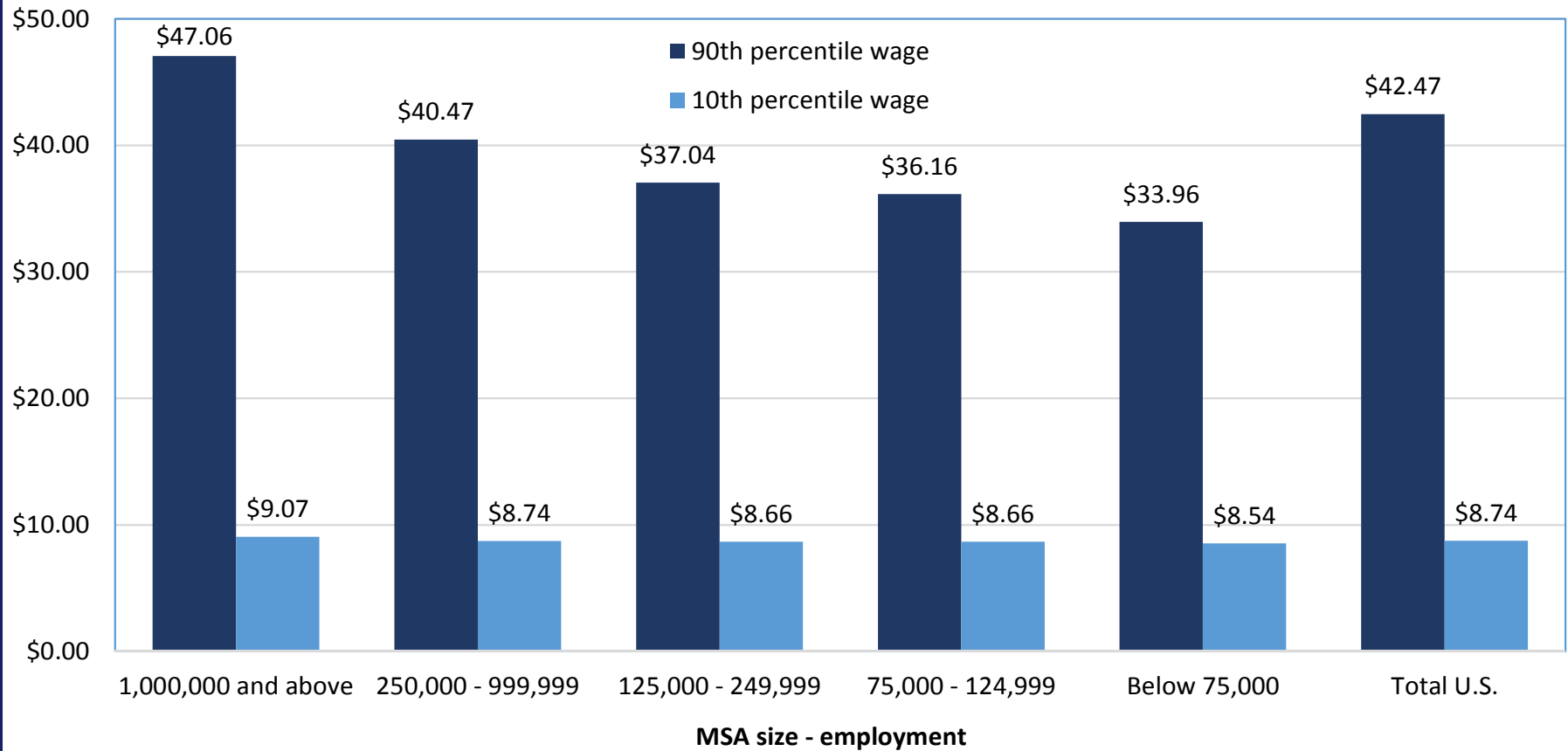
- Orlando
- Tampa
- Cleveland
- Pittsburgh
- Miami
- Scranton
- Myrtle Beach, NC
- Morristown, TN

Chart 1. Average wage ratios by MSA size, May 2013



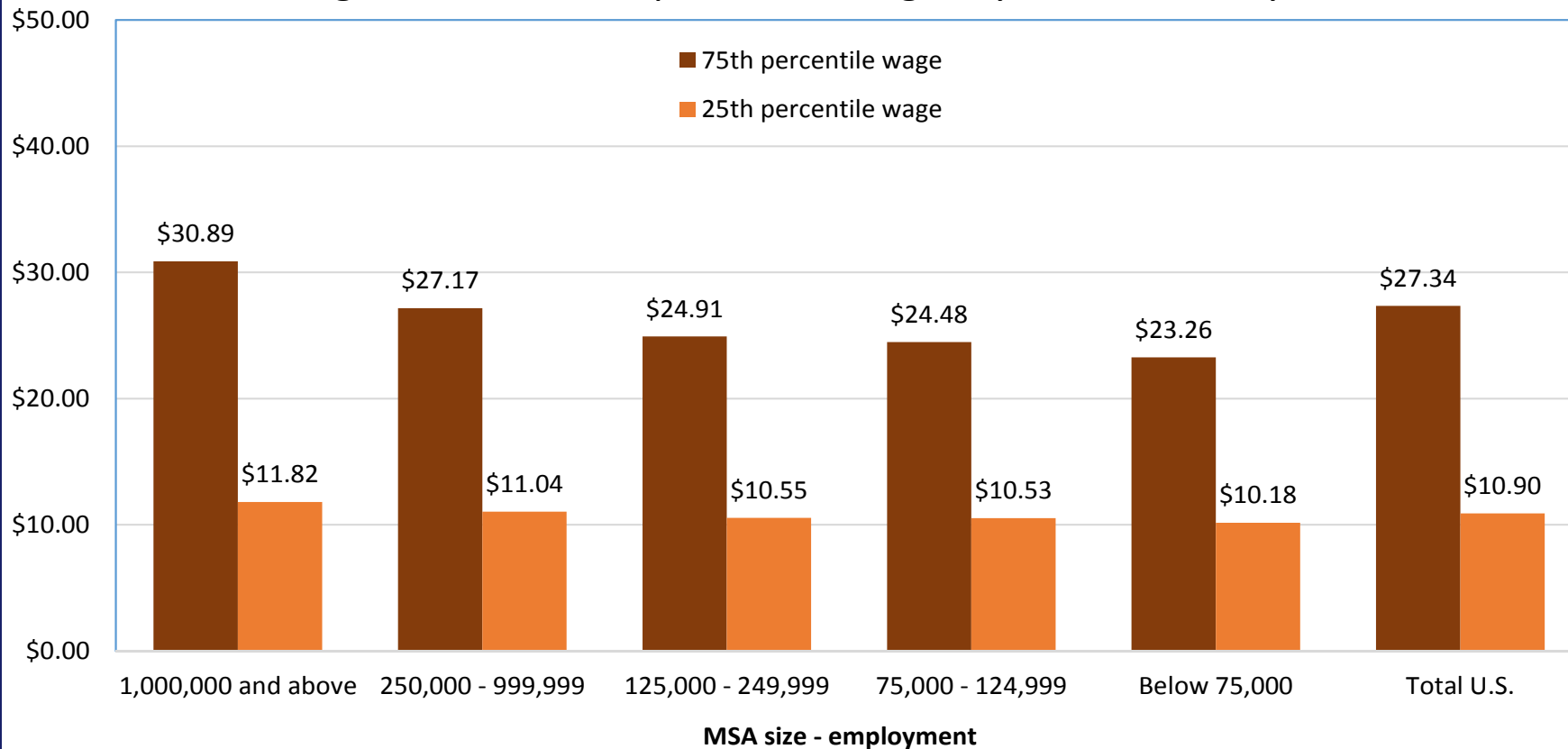
- 90/10 wage ratio increases as MSA size increases
- 75/25 wage ratio is more stable

Average 90th and 10th percentile wages by MSA size, May 2013



- Substantial increase in 90<sup>th</sup> percentile wages as MSA size increases
- Small increase in 10<sup>th</sup> percentile wages as MSA size increases

Average 75th and 25th percentile wages by MSA size, May 2013

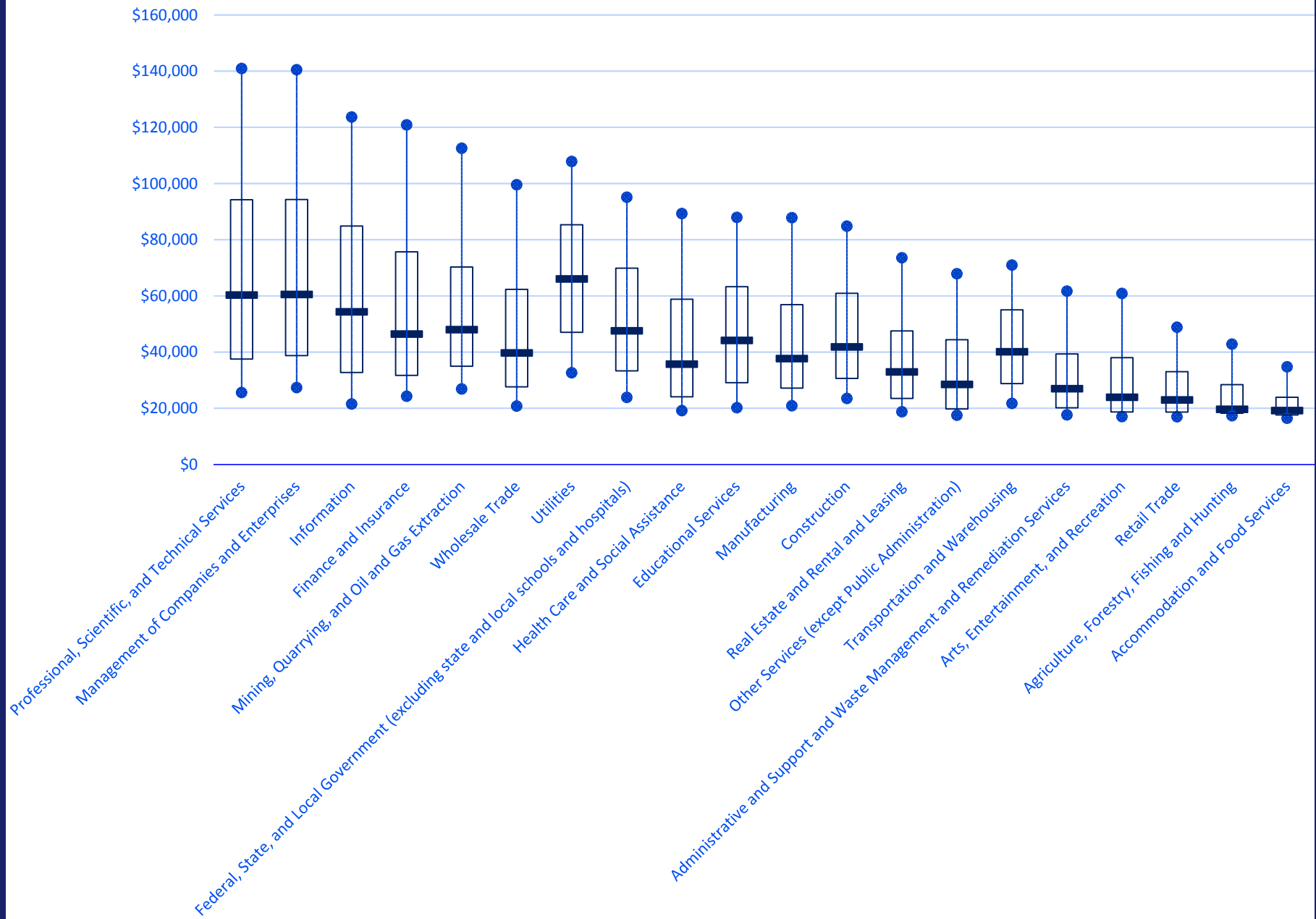


- Noticeable increase in 75<sup>th</sup> percentile wage as MSA size increases
- Small increase in 25<sup>th</sup> percentile wage as MSA size increases, but larger than the 10<sup>th</sup> percentile wage increase

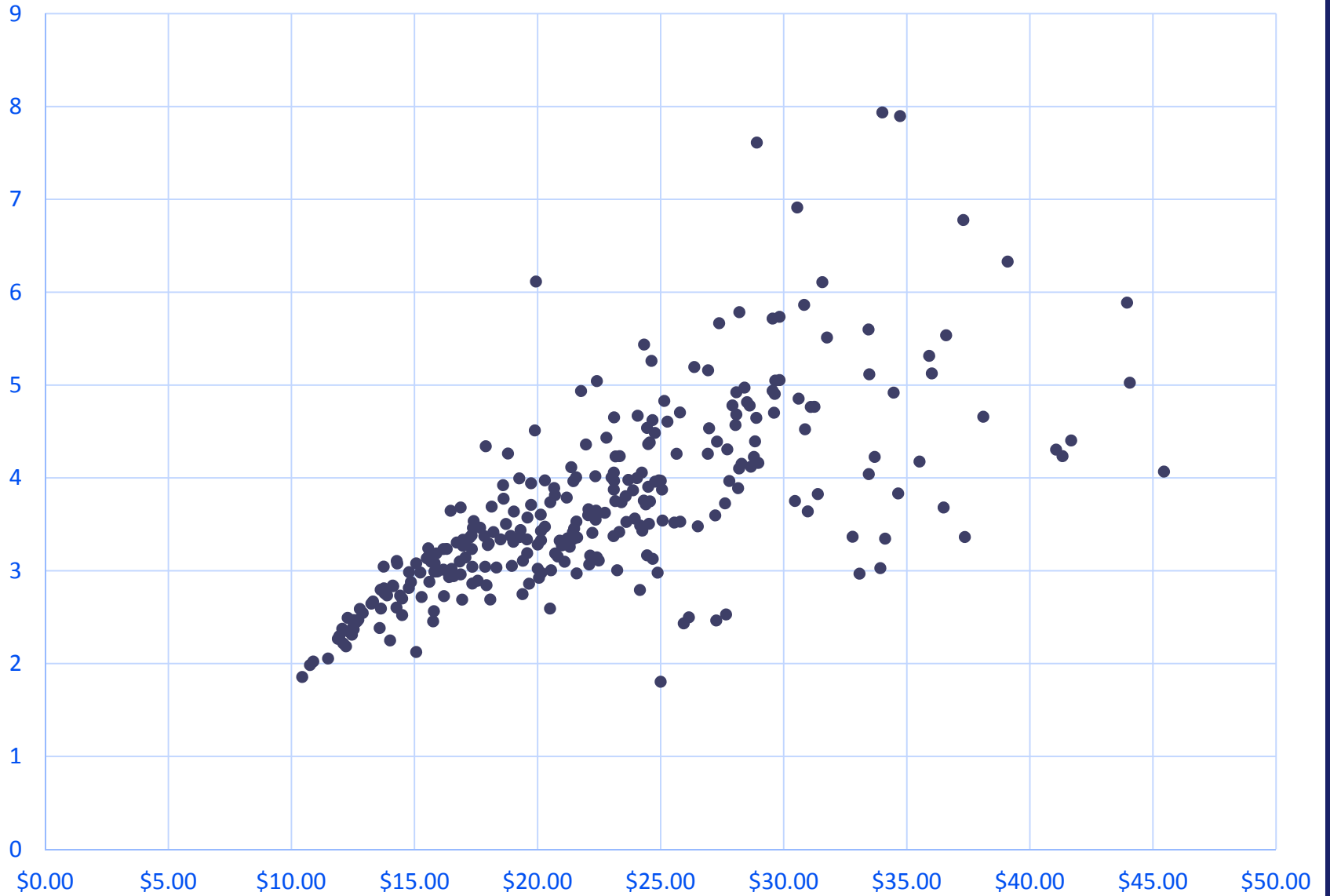
# 90/10 Ratio by Industry Sector



## Wage Percentiles by Industry Sector, 2013

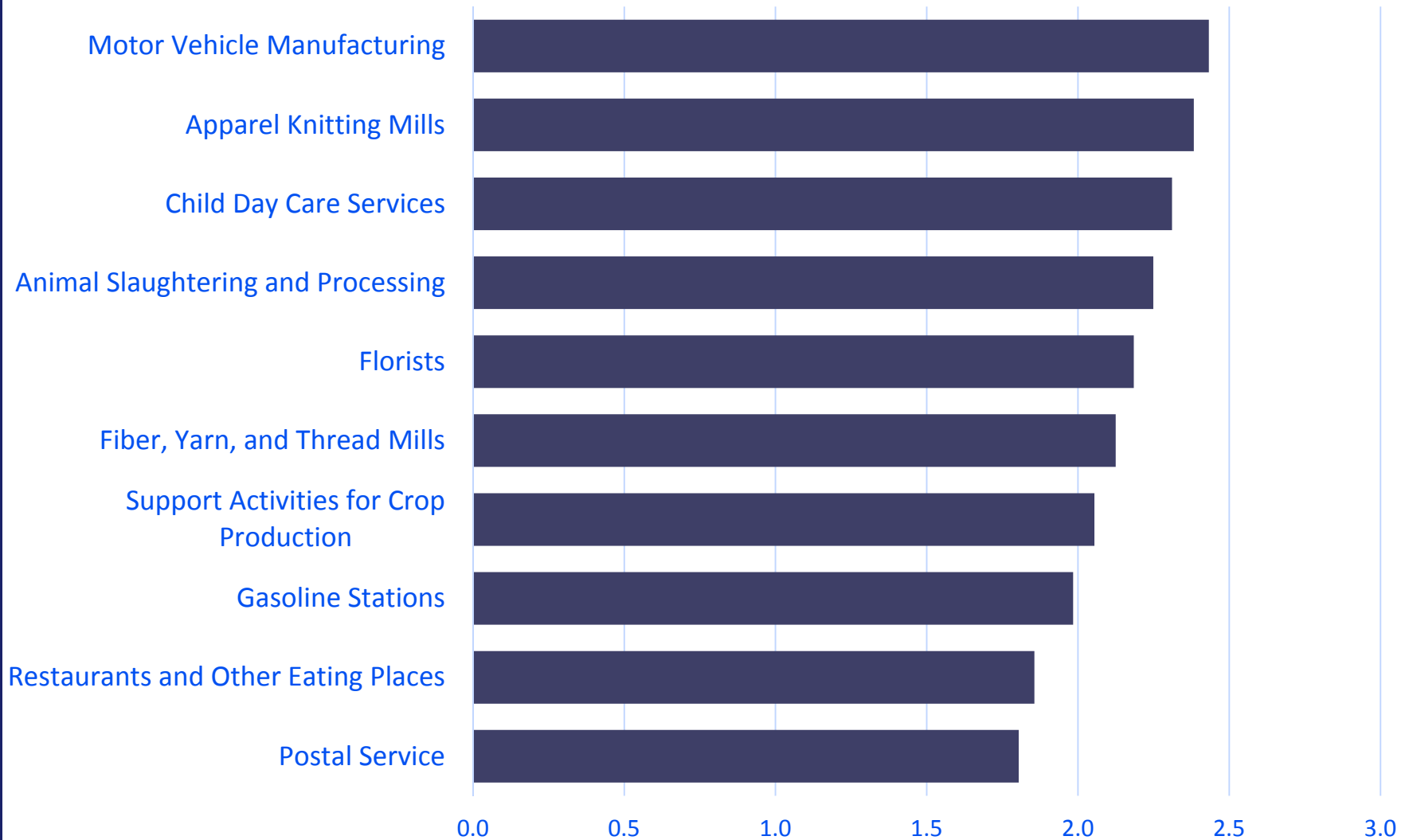


## NAICS 4-digit industry hourly mean wage and 90/10 ratio





## Selected industries with 90/10 ratios below 2.5, May 2013



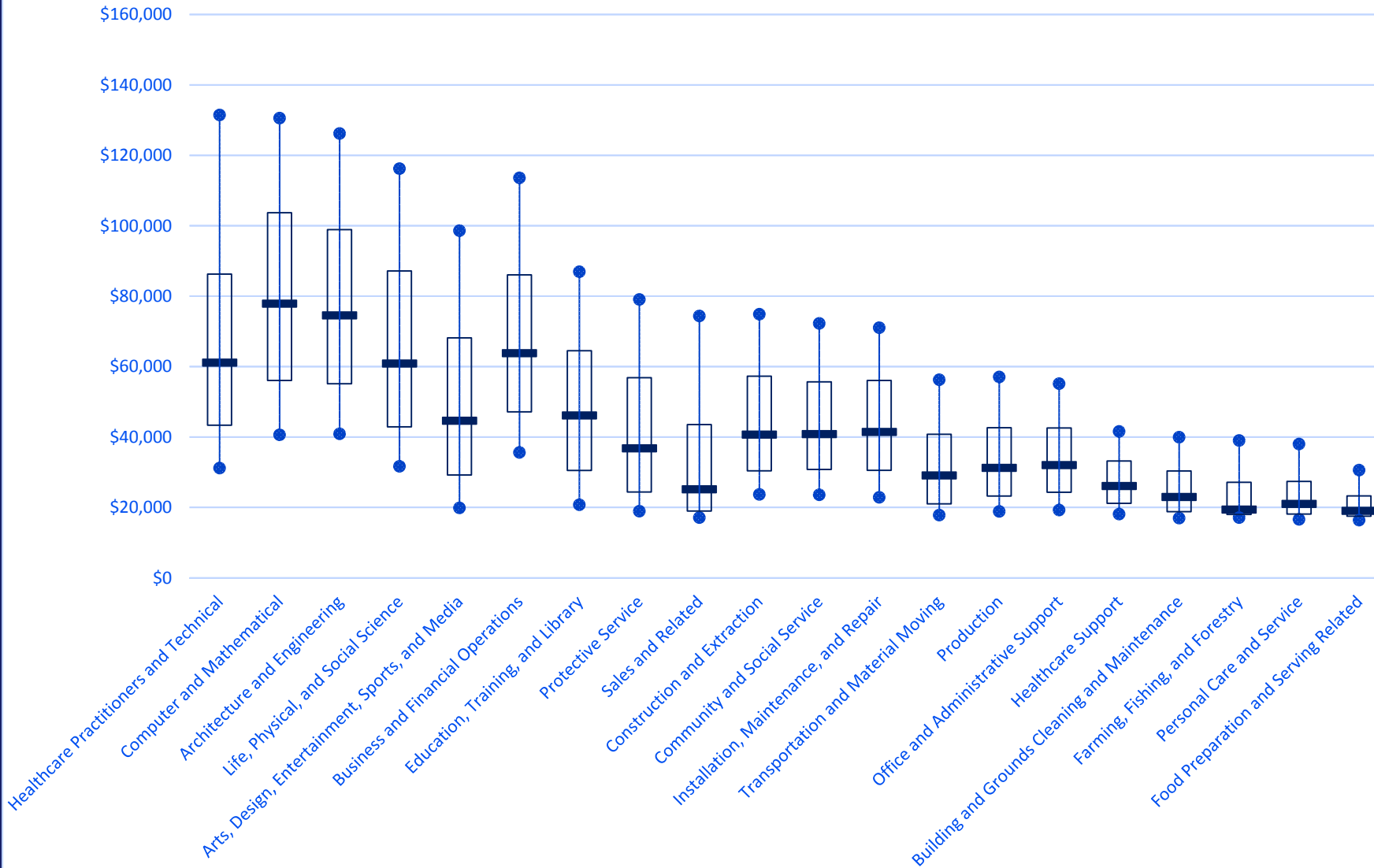
## Industries with highest 90/10 ratios



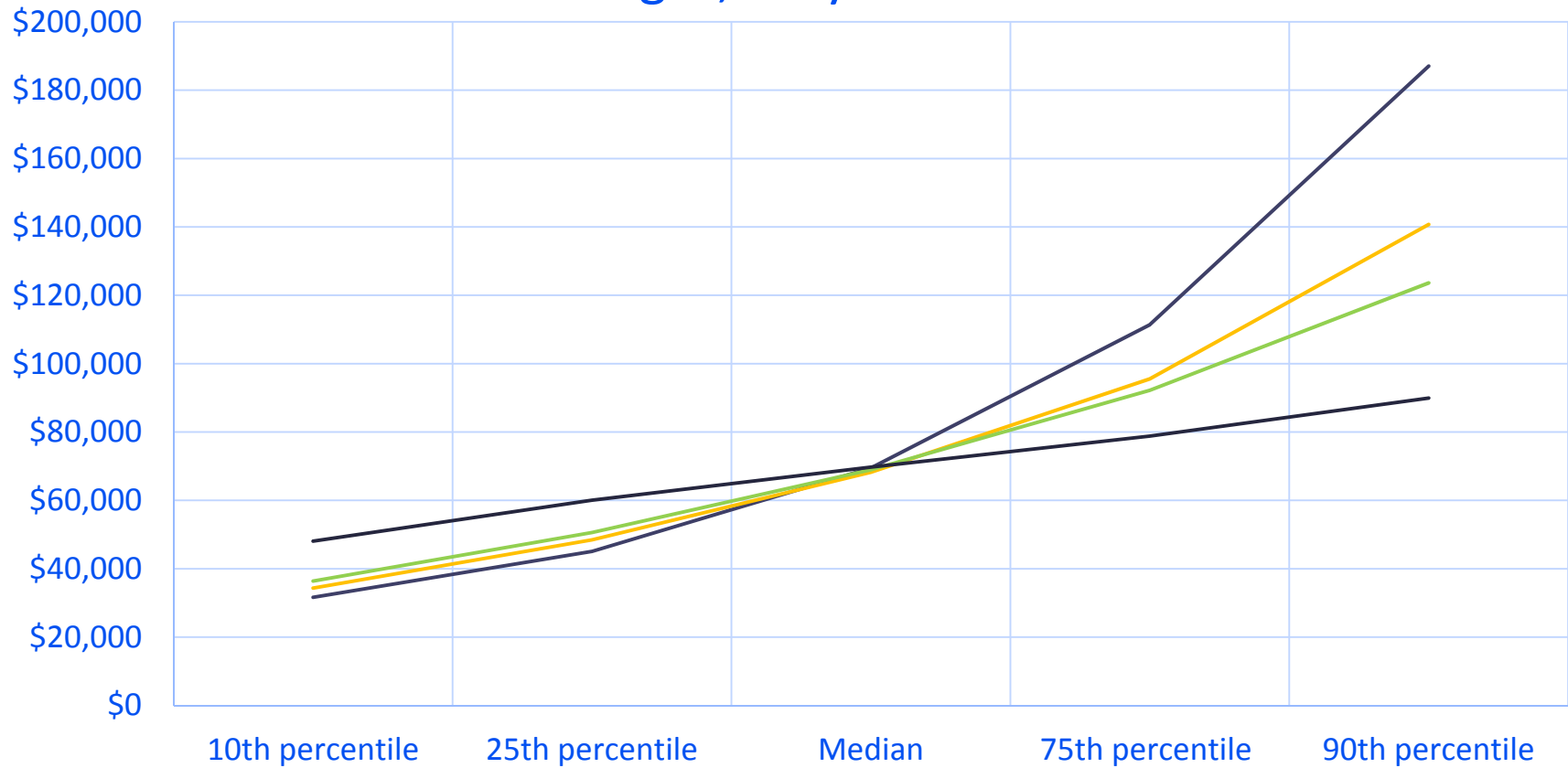
---

# Differences within and between occupations

## Wage percentiles by major occupational group, May 2013

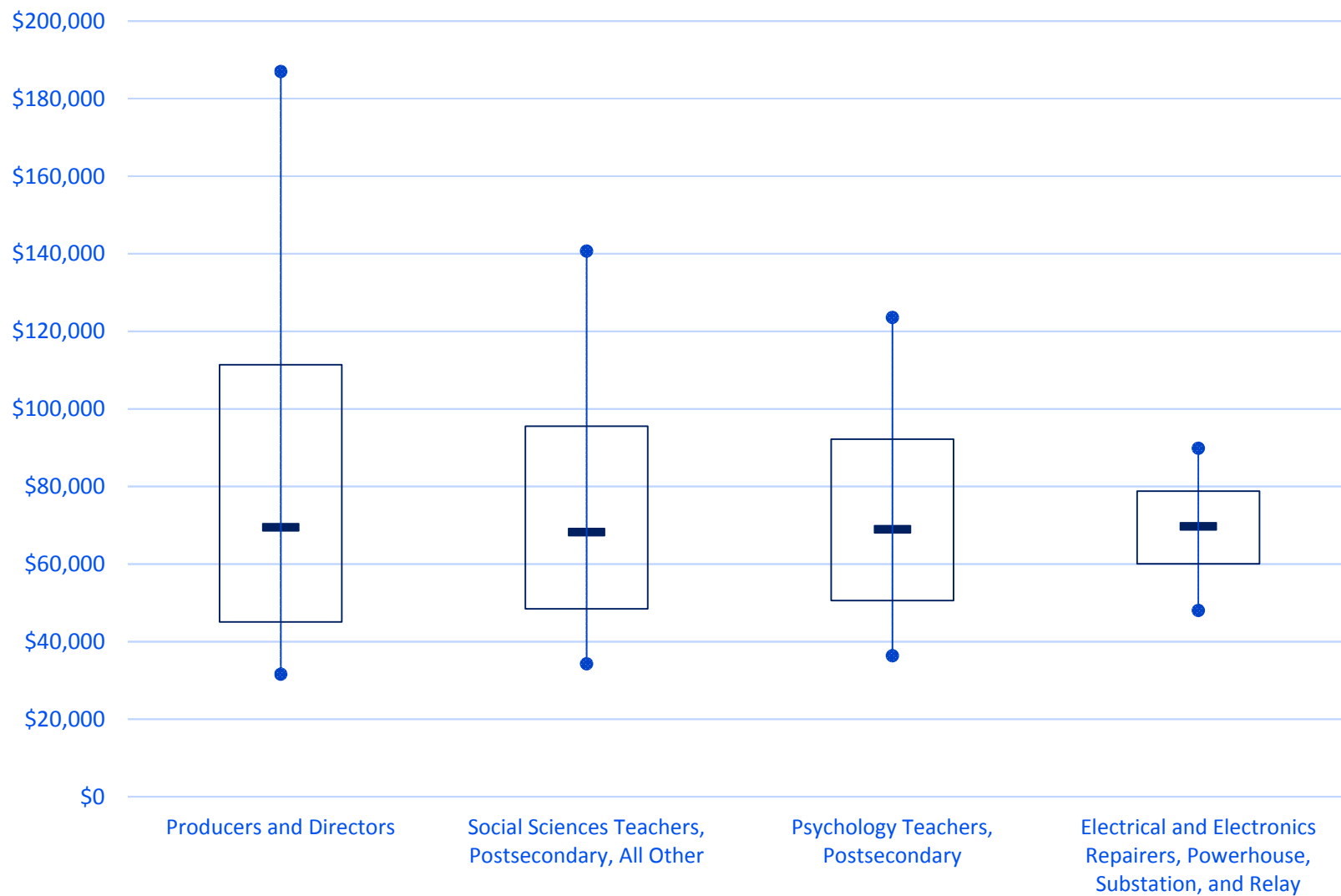


## Percentile wages of occupations with similar median wages, May 2013

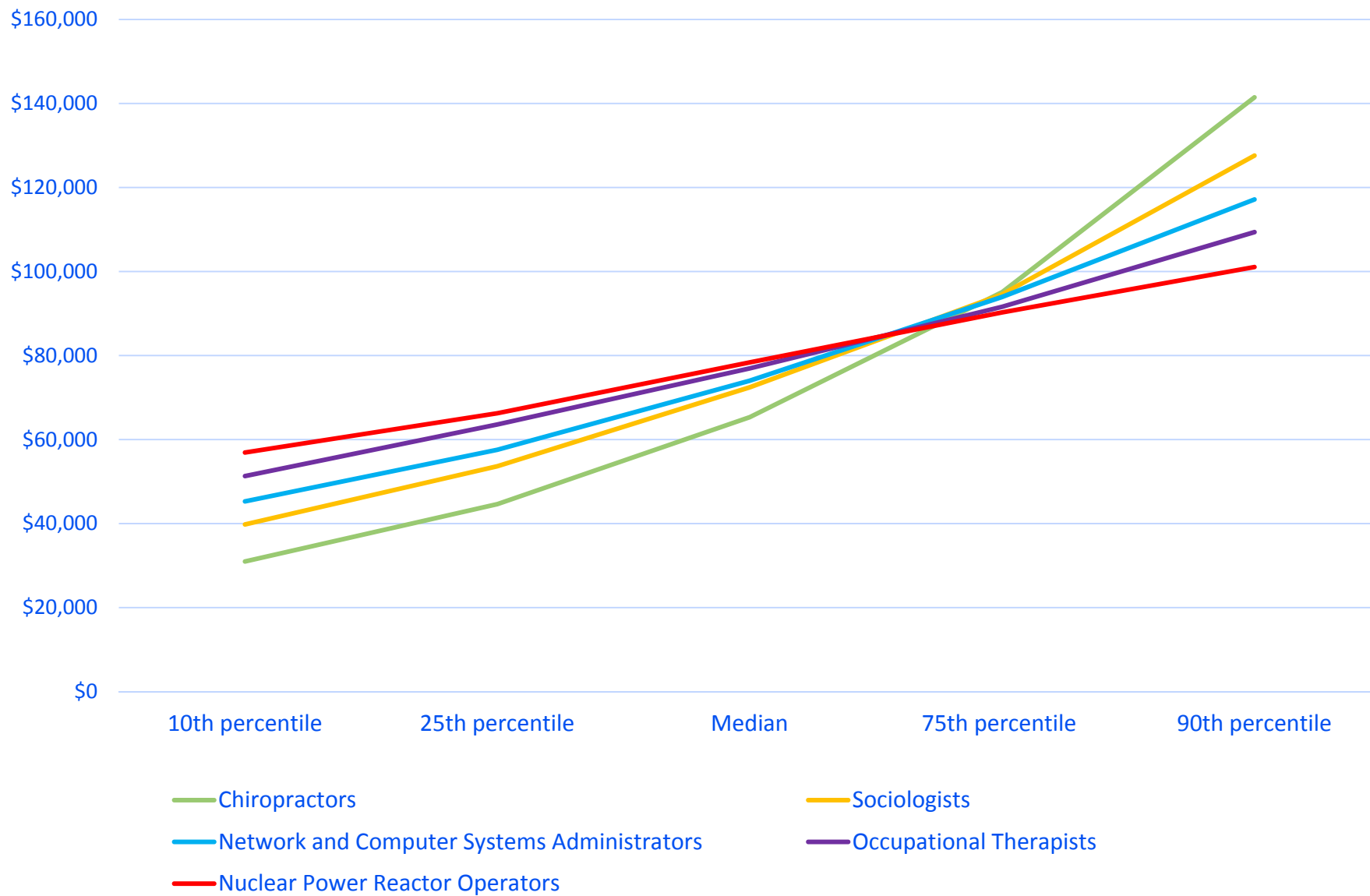


- Producers and Directors
- Social Sciences Teachers, Postsecondary, All Other
- Psychology Teachers, Postsecondary
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay

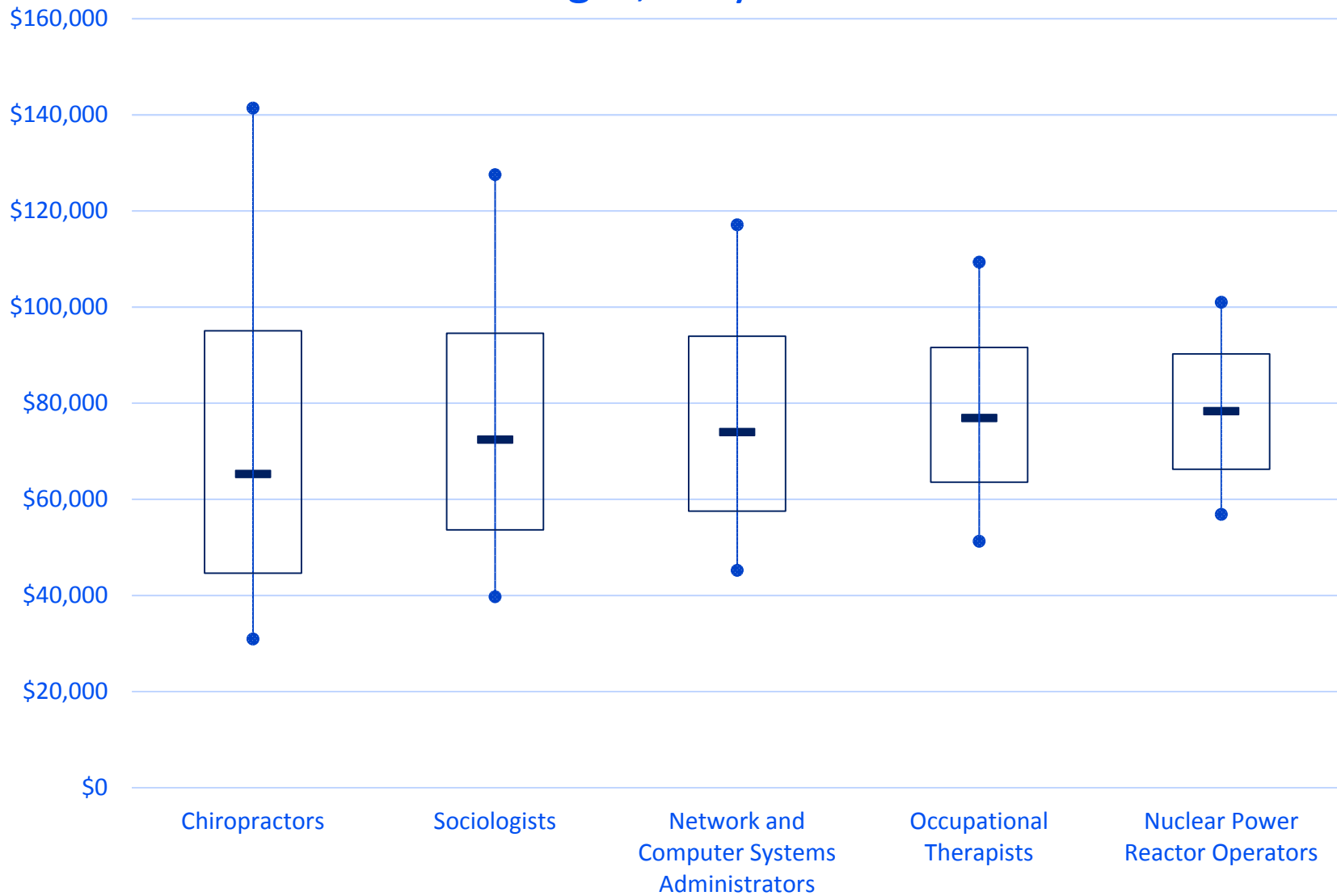
## Percentile wages of occupations with similar median wages, May 2013



## Percentile wages of occupations with similar mean wages, May 2013

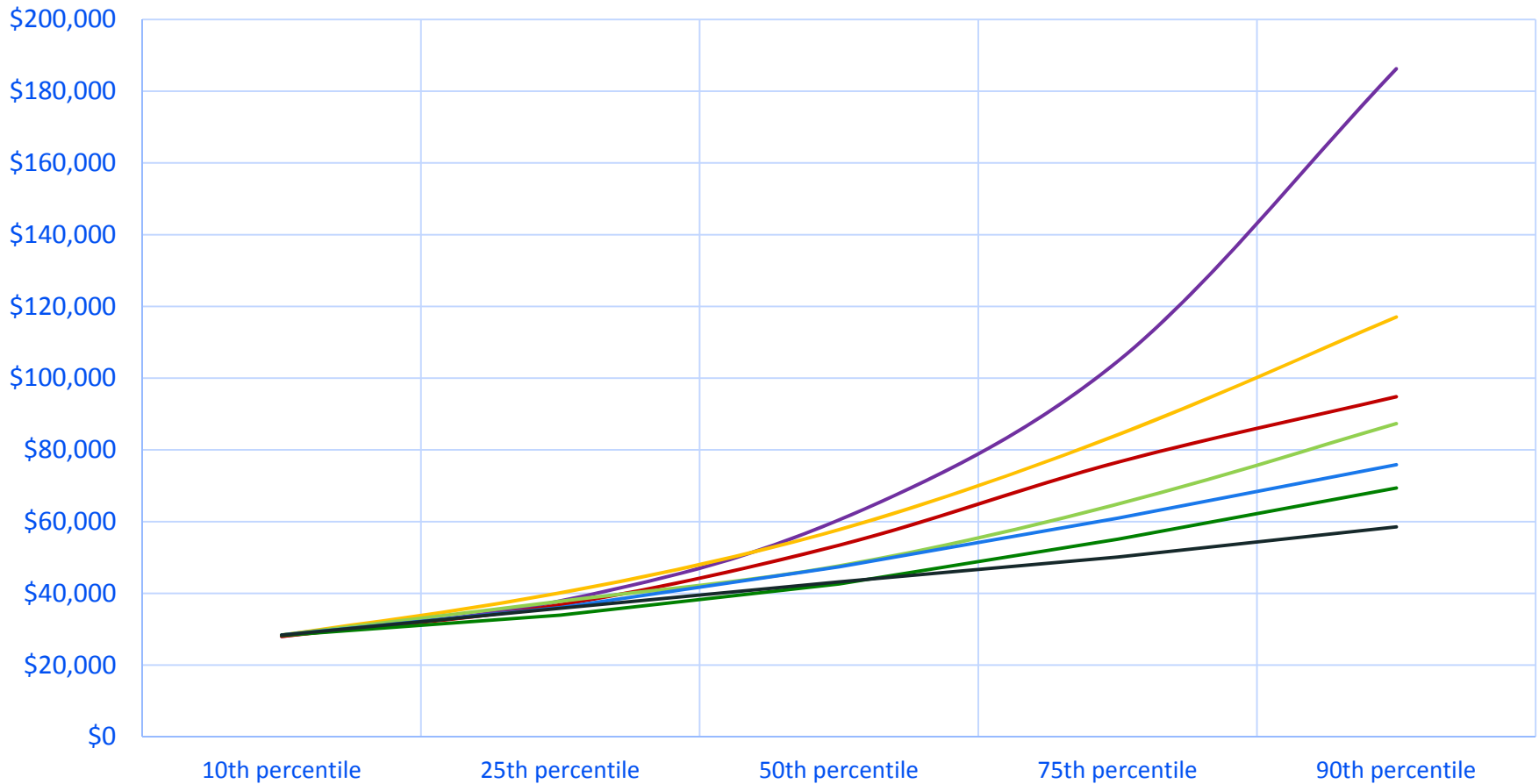


## Percentile wages of occupations with similar mean wages, May 2013



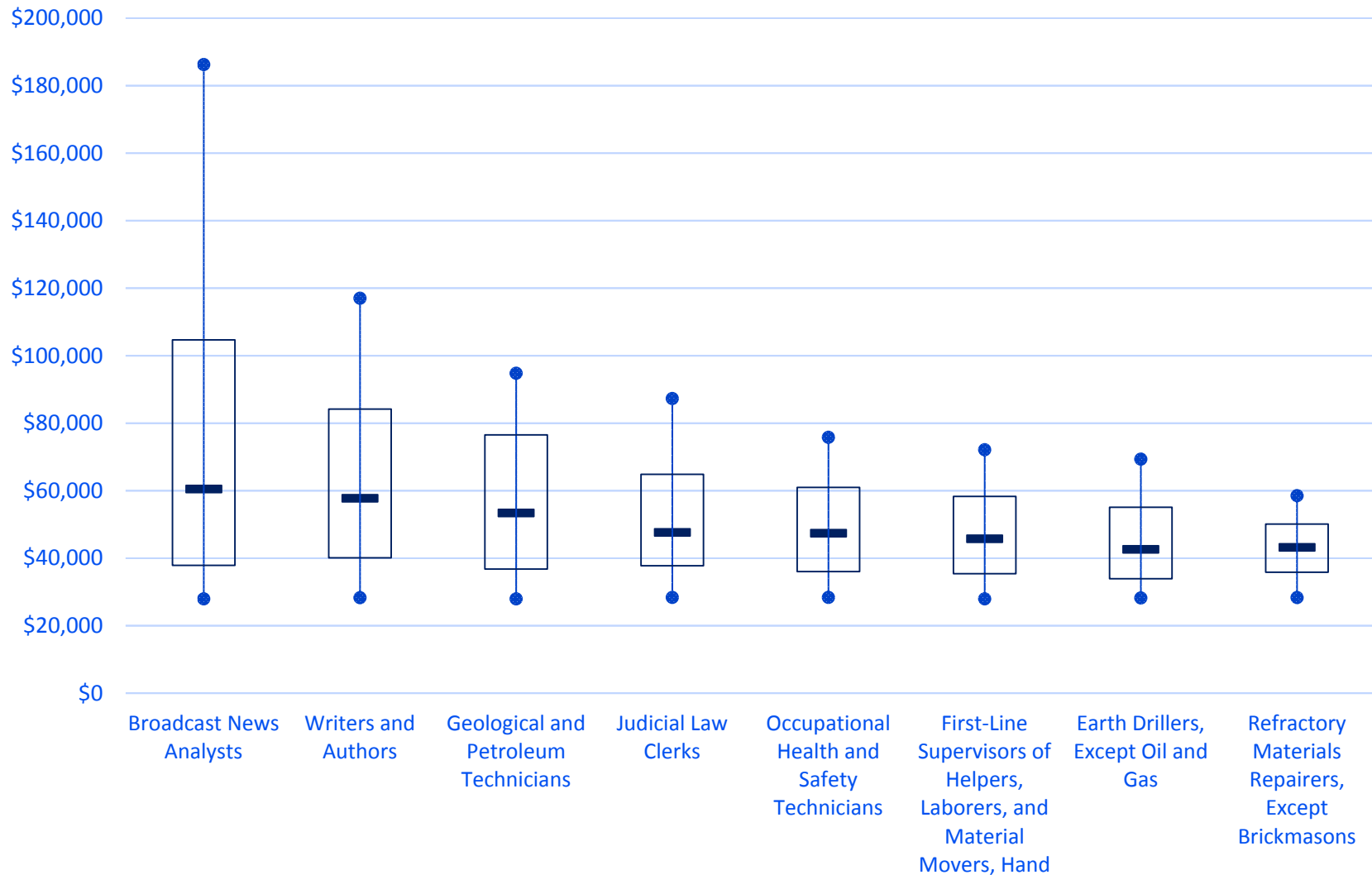


## Percentile wages of occupations with similar 10th percentile wages, May 2013



- Broadcast News Analysts
- Geological and Petroleum Technicians
- Occupational Health and Safety Technicians
- Refractory Materials Repairers, Except Brickmasons
- Writers and Authors
- Judicial Law Clerks
- Earth Drillers, Except Oil and Gas

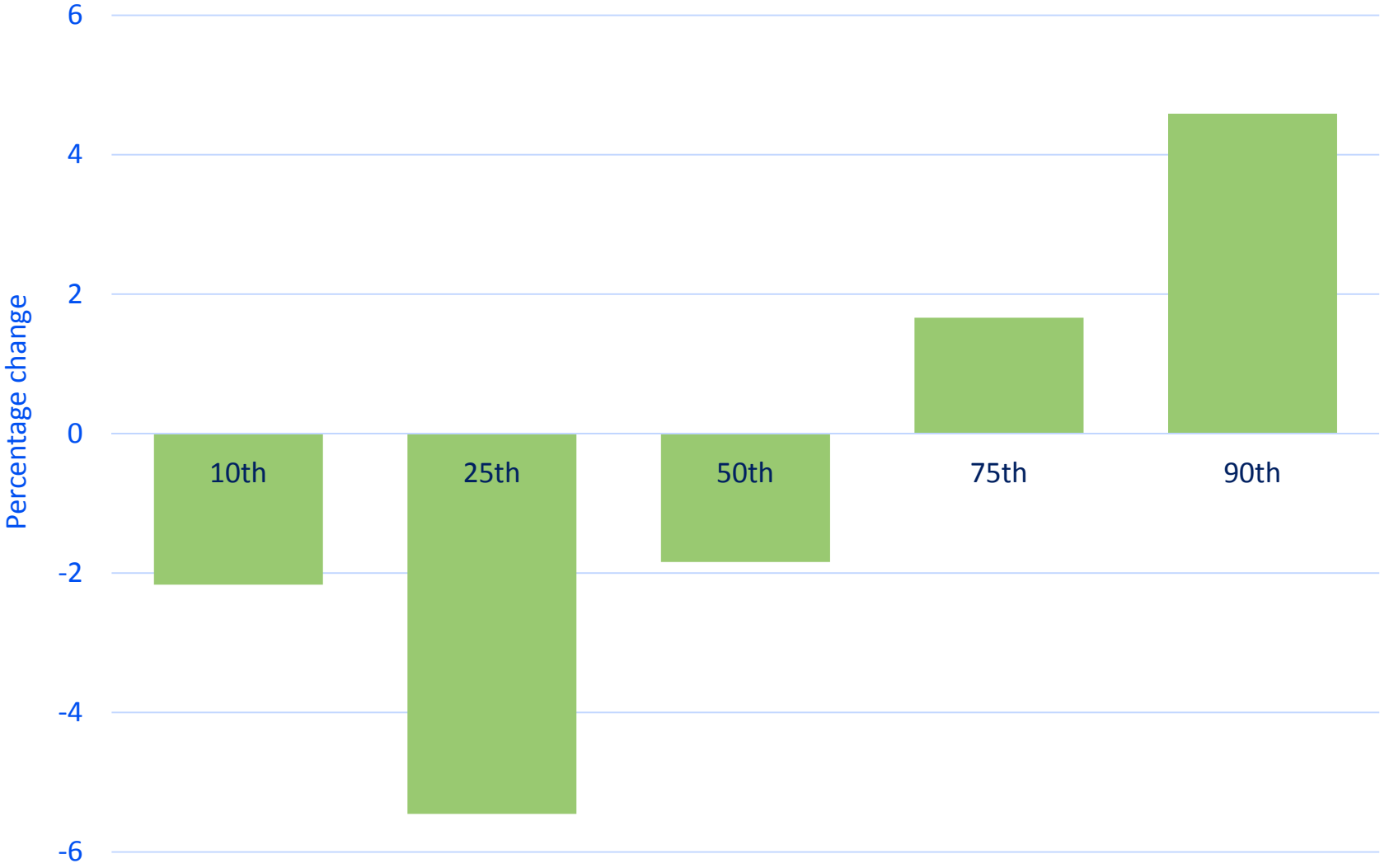
## Percentile wages of occupations with similar 10th percentile wages, May 2013



# CHANGE IN PERCENTILE WAGES, 2003-2013



# Percentage change in real wages by percentile wage, 2003 to 2013

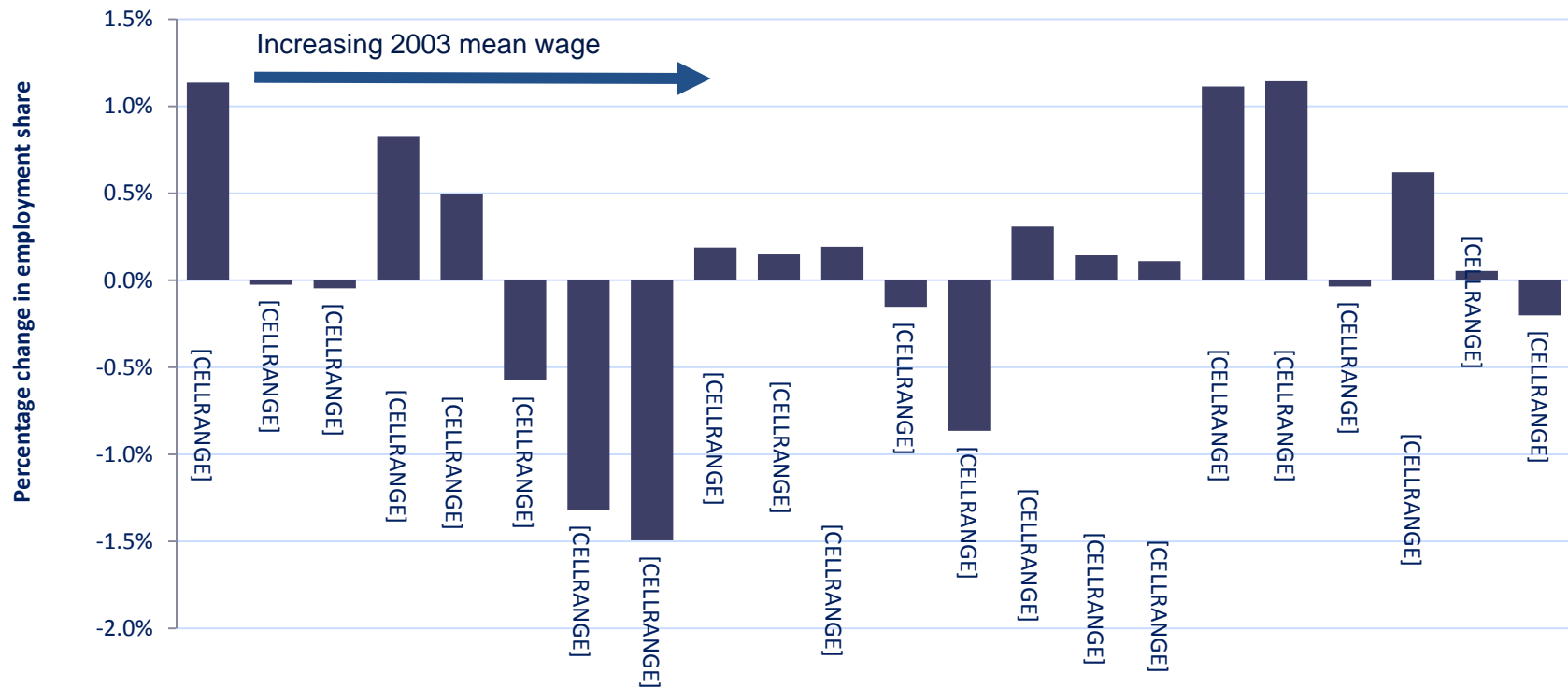


# Real wages fell for low-wage occupational groups and rose for high-wage occupational groups

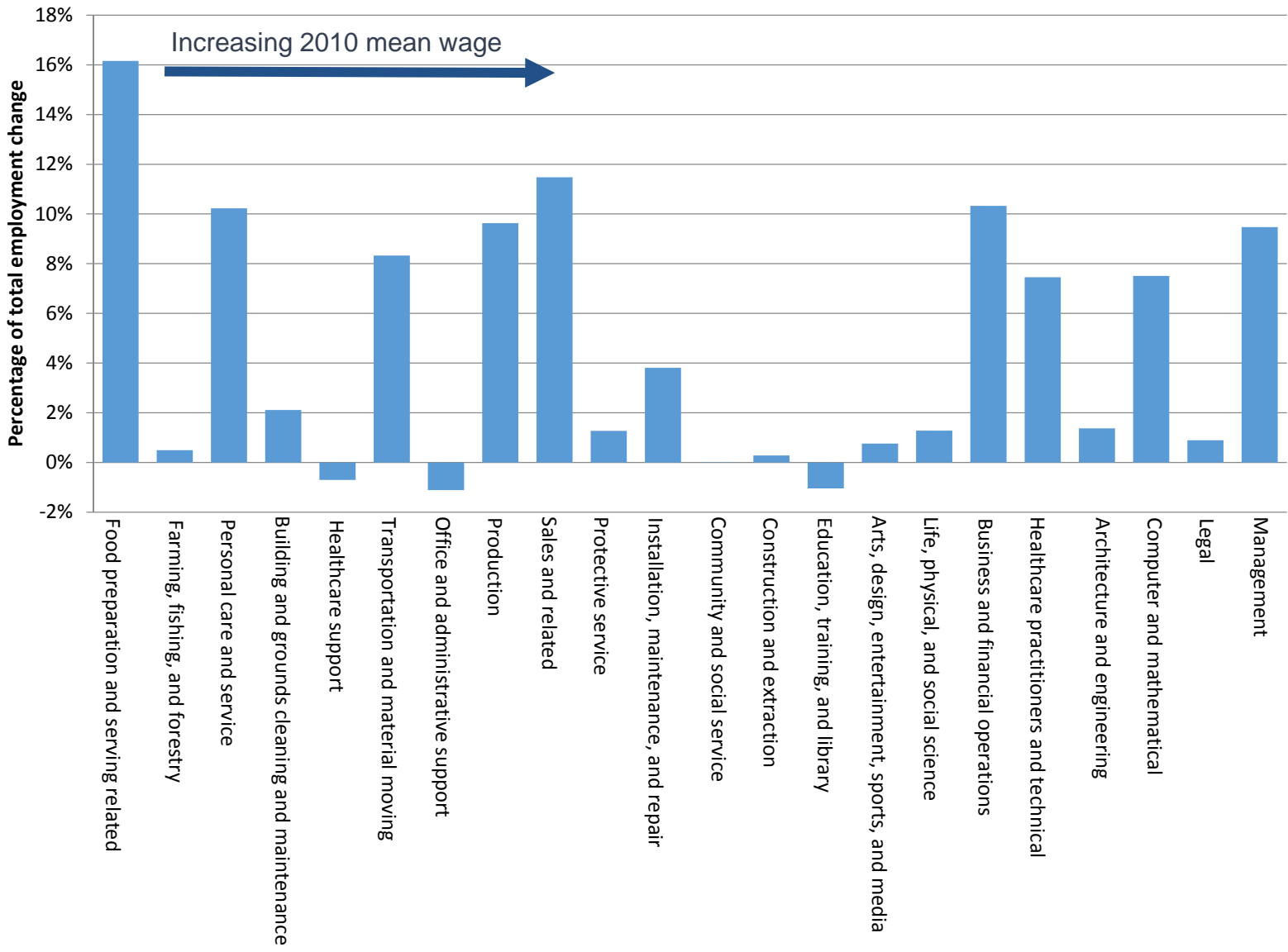


# Growth in employment was concentrated in high- and low-wage occupations, with a hollowing out of the middle

Percent change in employment share from 2003-2013, by occupational group, ranked by initial mean wage



### Percent of total 2010-2013 employment growth in each occupational group, ranked by initial mean wage



# Change in metropolitan areas by size of area

---

- MSA sizes divided into 5 categories based on May 2013 employment
  - ▶ 1,000,000 or greater
  - ▶ 250,000 – 999,999
  - ▶ 125,000 – 249,999
  - ▶ 75,000 – 124,999
  - ▶ less than 75,000
- Wage ratios averaged across each MSA size category

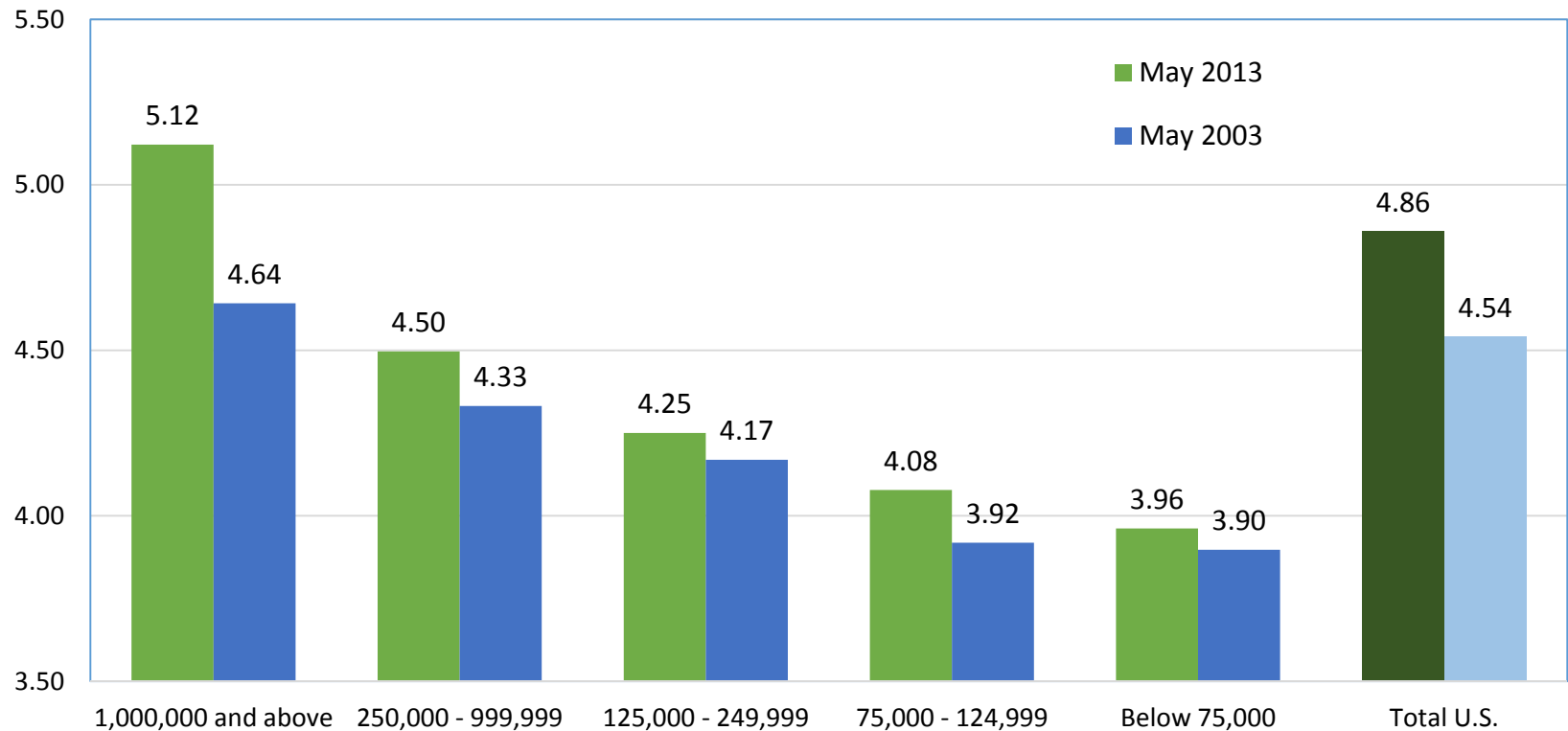


# 2013 to 2003 MSA Comparison

---

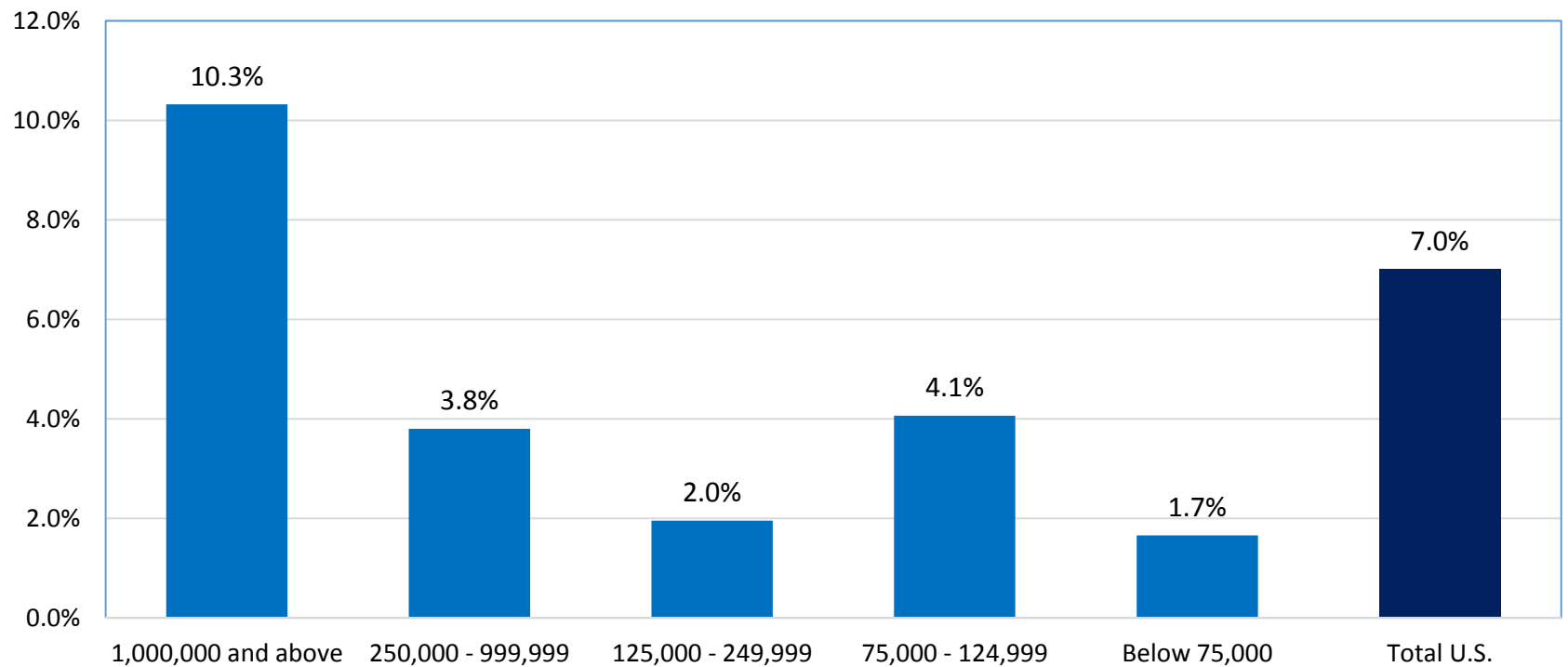
- Chose MSAs with no geographical difference between 2013 and 2003 definitions
- 137 MSAs, May 2013 employment
  - ▶ 13 with 1,000,000+
  - ▶ 13 with 250,000 – 999,999
  - ▶ 32 with 125,000 – 249,999
  - ▶ 25 with 75,000 – 124,999
  - ▶ 54 with less than 75,000

## Average 90th/10th percentile wage ratio by MSA size



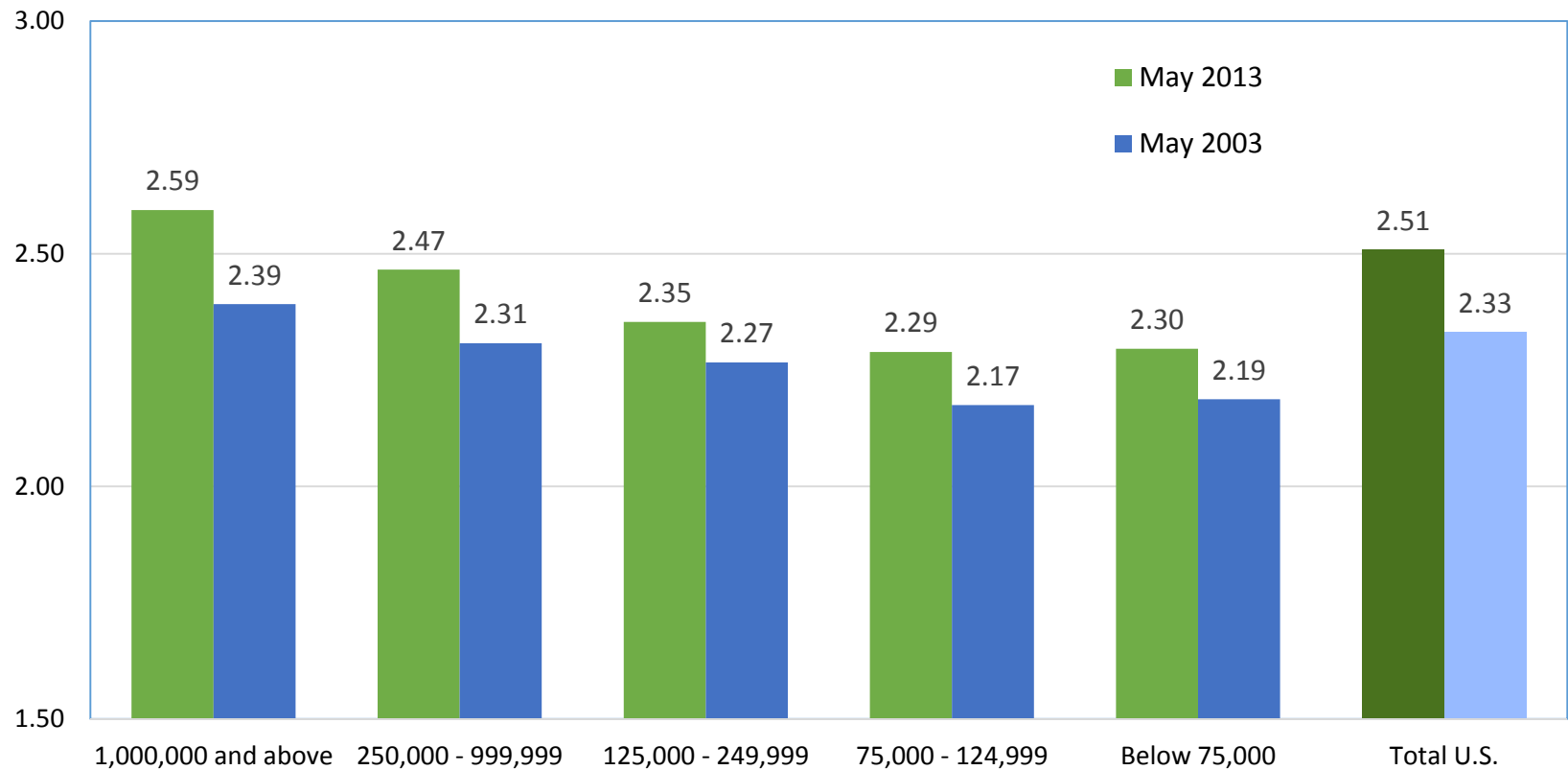
- Same wage ratio/MSA size relationship when averaging 90/10 gap ratios across MSA size categories
- Largest numerical increase for largest MSAs
- U.S. all occupations data reflect largest MSAs

## Percent change in average 90th/10th percentile wage ratio, by MSA size, May 2003 to May 2013



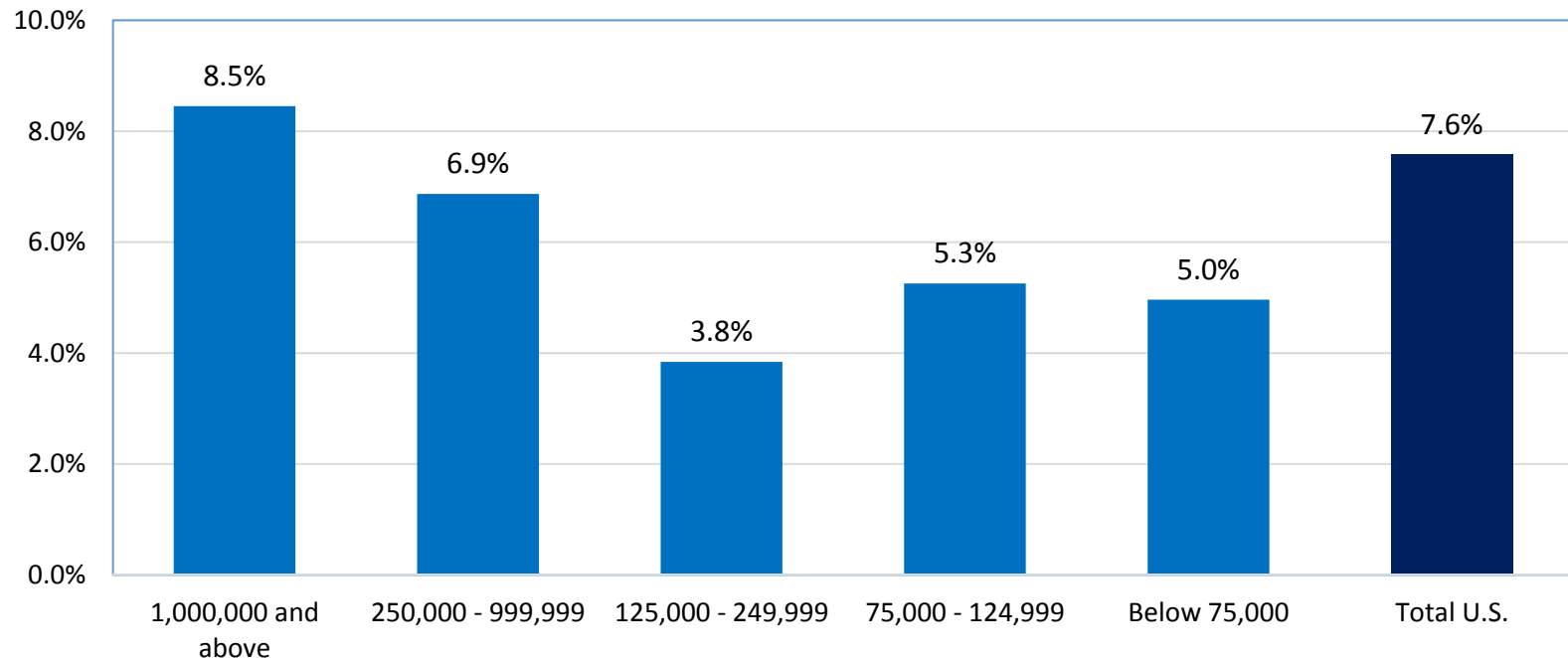
- Substantial increase in 90/10 wage ratio in largest MSAs
- All other MSA size categories show <5% increase
- Increase for U.S. all occupations between largest MSAs and all other MSA sizes

## Average 75th/25th percentile wage ratio by MSA size



- Similar wage ratio/MSA size relationship when averaging 75/25 gap ratios across MSA size categories
- Largest numerical increase for largest MSAs, but also fairly sizeable for other MSA size categories

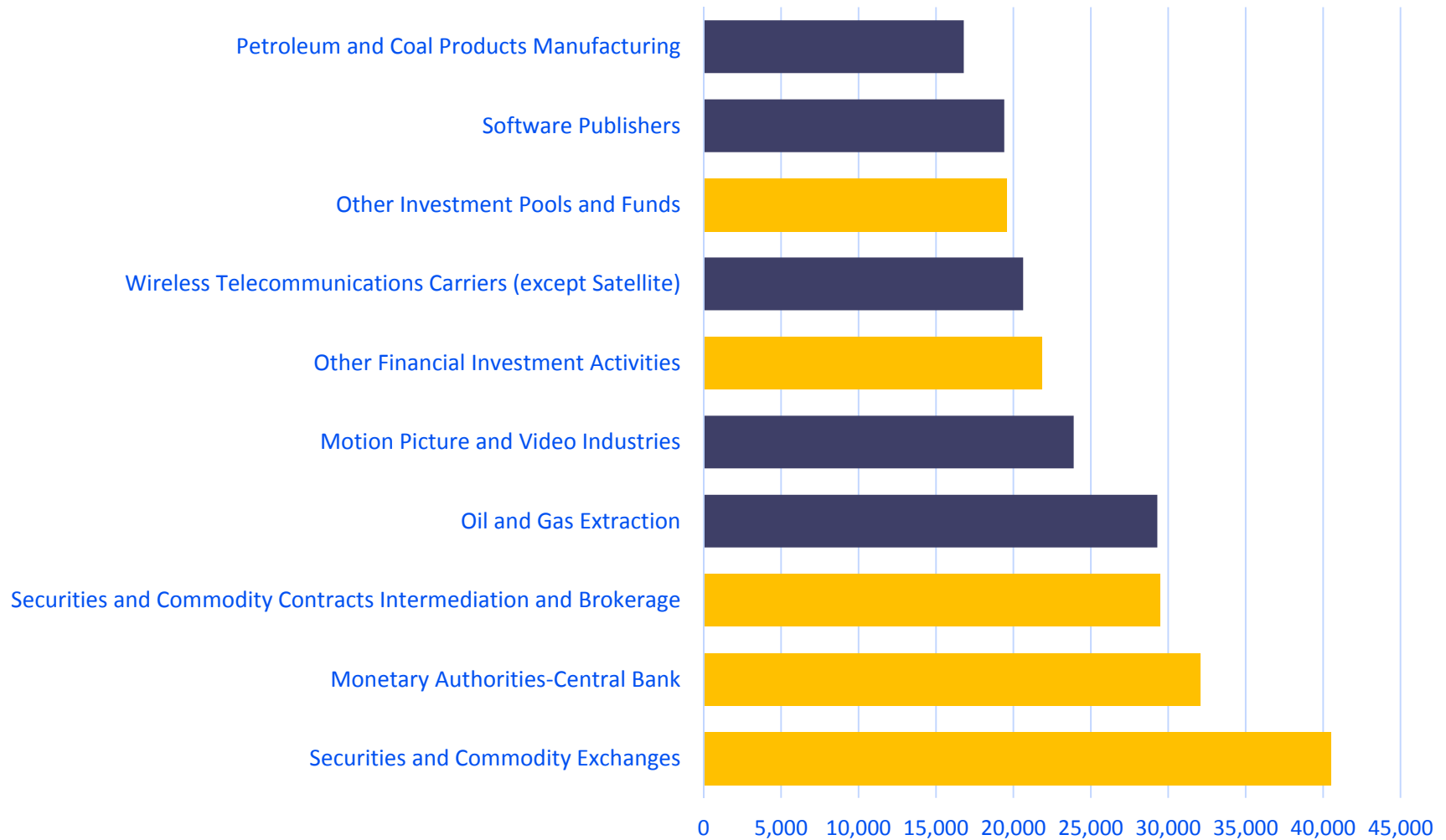
## Percent change in average 75th/25th percentile wage ratio, by MSA size, May 2003 to May 2013



- Increase in 75/25 wage ratio less than 90/10 for largest MSAs, higher for all other MSA size classes
- Increase for U.S. all occupations still between largest MSAs and all other MSA sizes but difference is less pronounced

## Industries with increases in 75-10 wage spread, 2005-2013

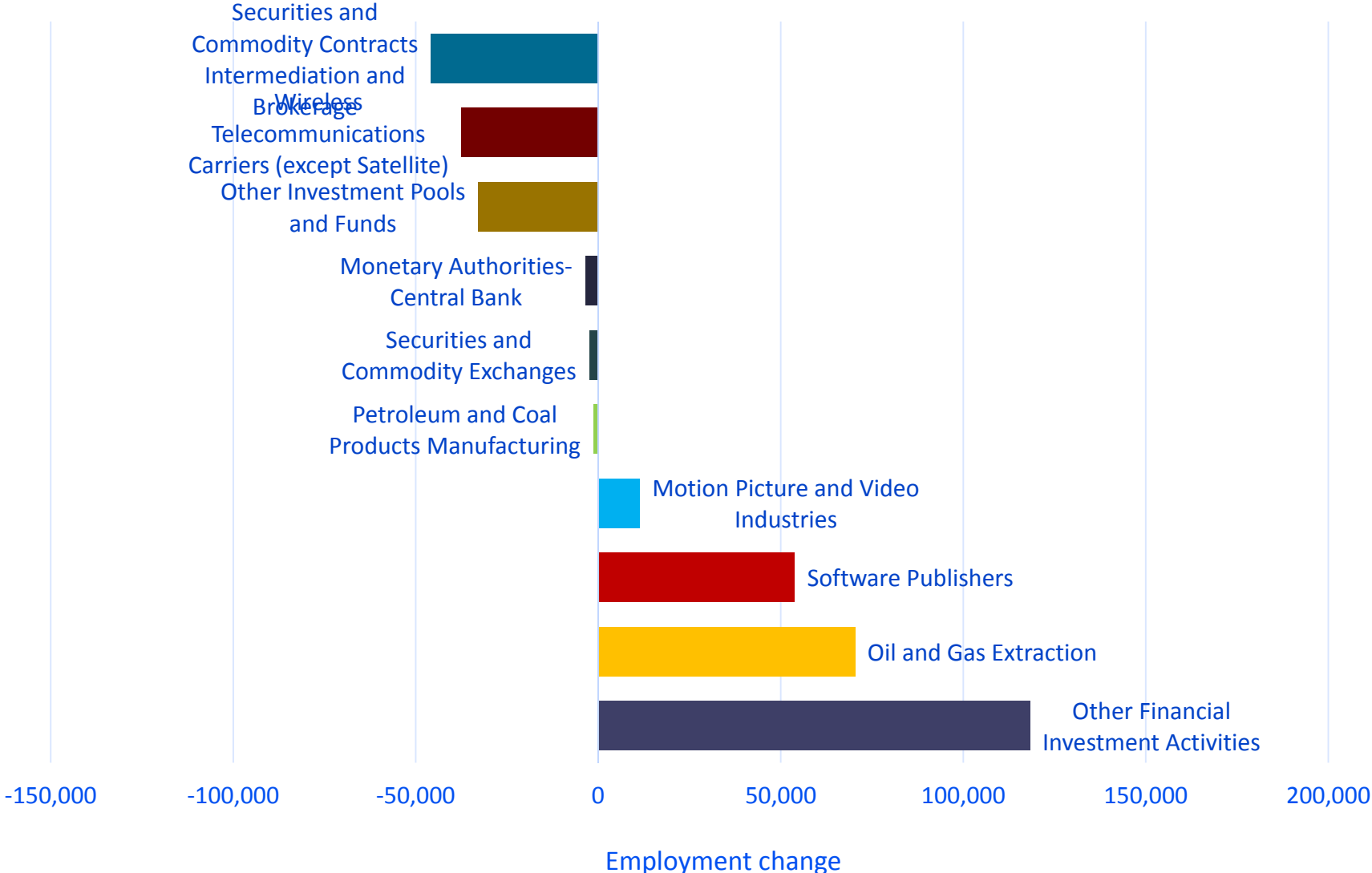
(Chart shows increase in spread)



- Employment declined in 6 of these industries

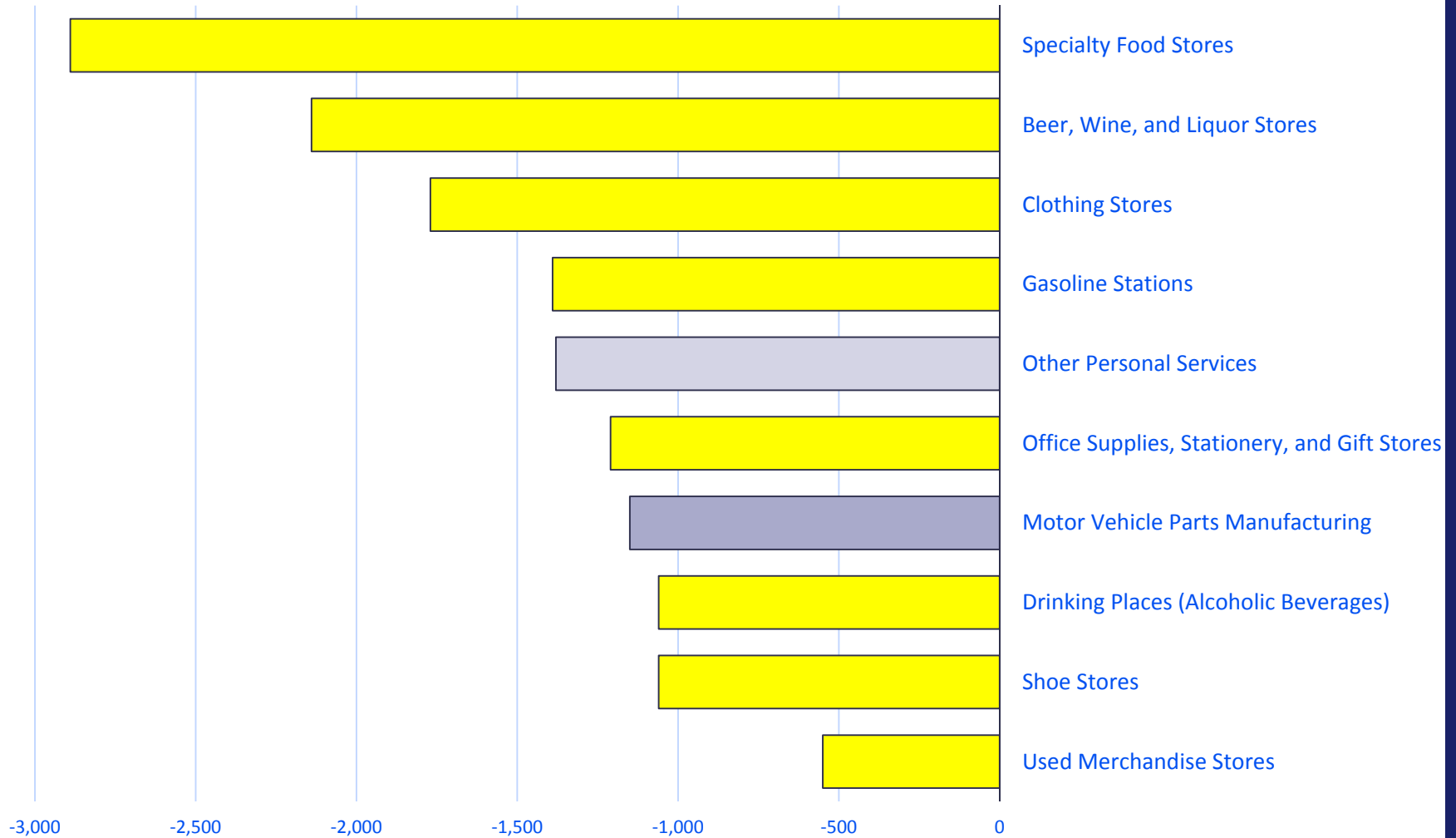
Orange indicates finance industries

# Employment change for industries with increasing wage disparity, 2005 to 2013



## Industries with decreases in 75-10 wage spread, 2005-2013

(Chart show decrease in spread)

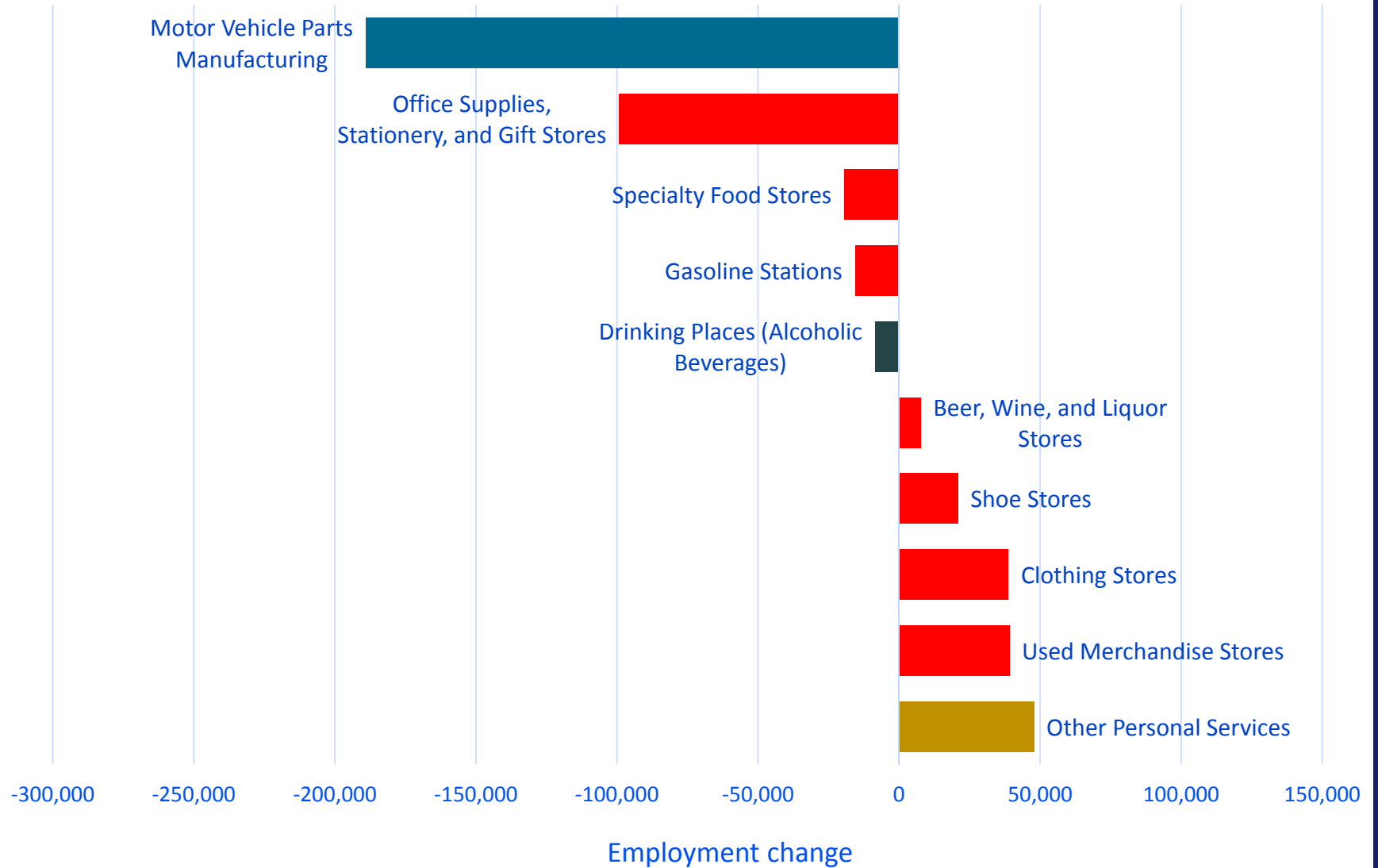


- Employment declined in 5 of the 10 industries

Yellow indicates retail trade industries



## Employment change for industries with decreasing wage disparity, 2005 to 2013



# Questions

---

- Are OES data useful for measuring inequality?
- How might we improve the OES wage data?

# Contact Information

---

Laurie Salmon  
Bureau of Labor Statistics

202-691-6511

[Salmon.laurie@bls.gov](mailto:Salmon.laurie@bls.gov)

