Masterclasses in Academic Program Evaluation:

II. Understanding Employer Needs

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Goals for Today's Session

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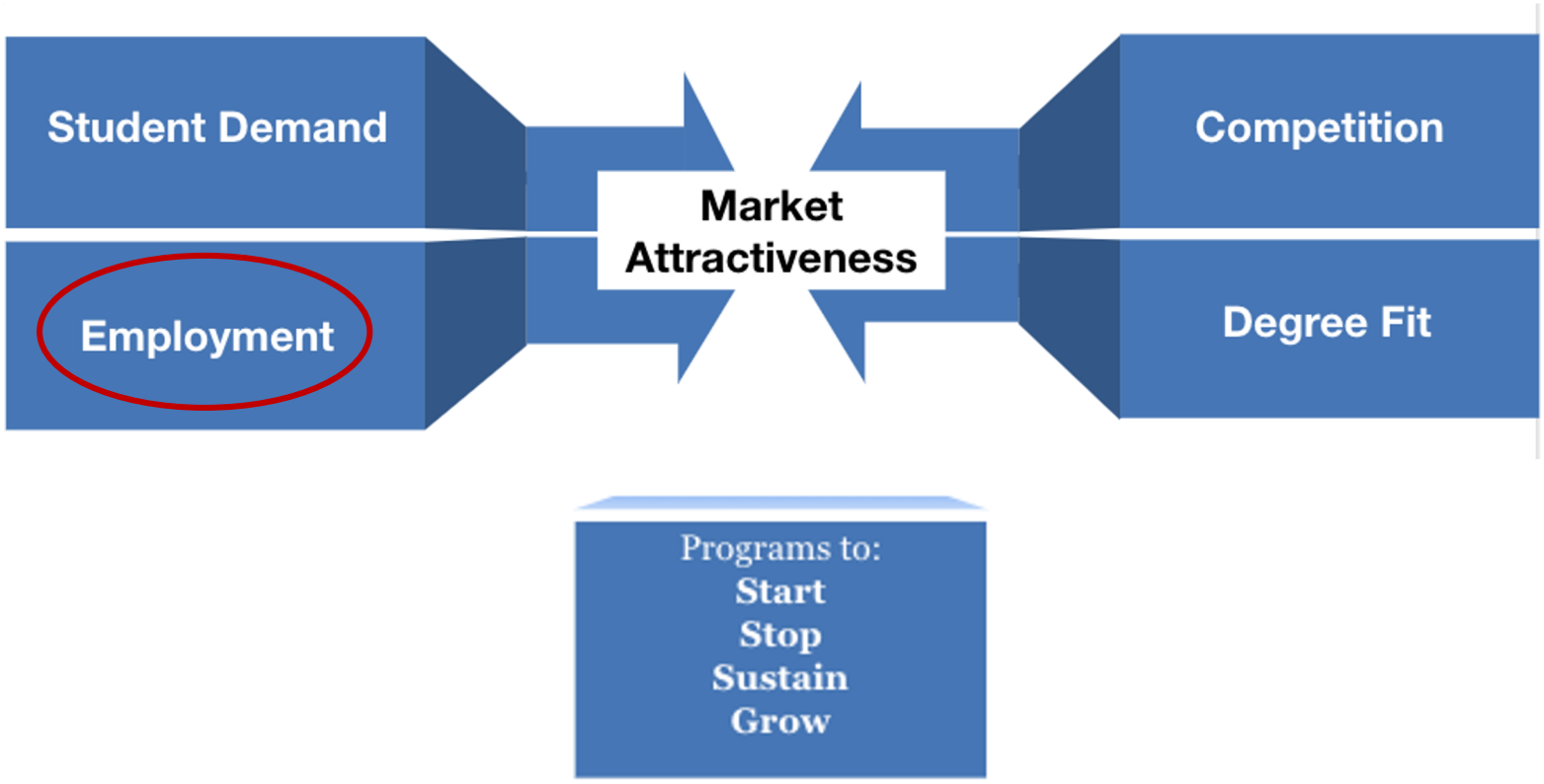
Today, we will share Gray's perspective on employment markets and related data.

- Identify employment data sources, uses, and limitations
- Discuss current employment trends
- Provide an example of employment market analysis for a program


Student Demand
Employment
Market Attractiveness
Competition
Degree Fit
Programs to:
Start
Stop
Sustain
Grow

- Matching Academic Programs and Employment Data
- Direct-Preparation Data: BLS
- Direct-Preparation Data: Job Postings
- Career Paths: Bureau of the Census
- Initial Earnings: College Scorecard
- Other Employment-Related Data
- Example of Integrated Employment Data Analysis

Most employment data is organized by Standard Occupation Code (SOC).

SOCs are assigned to all people who do similar work.

29-1065.00
Pediatrician

49-9052.00
Telephone Line Installers and Repairers

To plan academic programs, you must match employment data to program codes.

SOCs

Standard Occupation Codes

?

CIPs

Classification of Instructional Programs

Crosswalks are typically about "direct preparation" for an occupation.

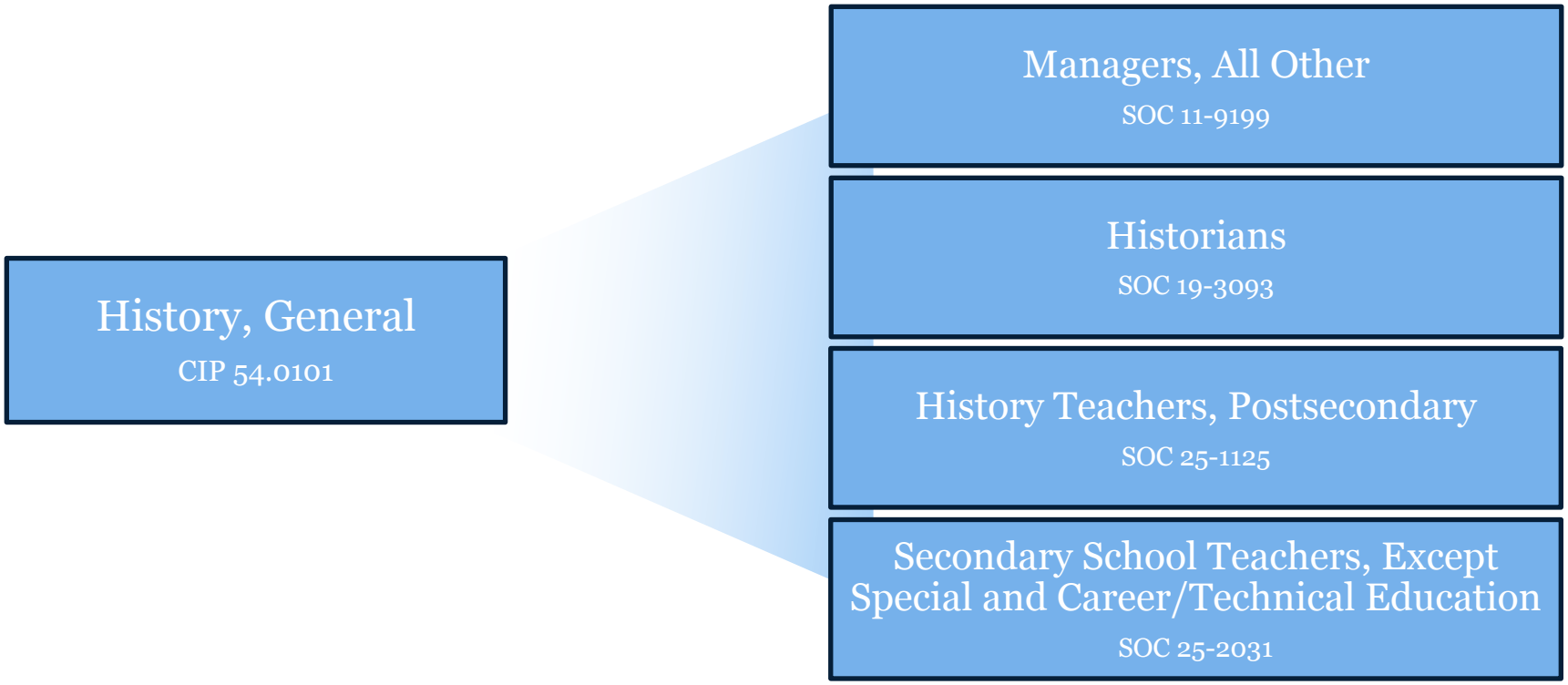
- Many academic programs function primarily as direct preparation.
  - 85% of employed Bachelor's-degree Nursing graduates work as nurses.
  - 80% of employed Bachelor's-degree Special Education graduates work in teaching.
  - Typically, students in graduate programs and career-focused Associate's-degree and certificate programs think of their education as direct preparation for a job.

- However, many other programs prepare students for generalist work or graduate school.
  - 132,000 people earn a Bachelor's degree in Psychology every year, but just 2% will work in the field.
  - Fewer than 1% of International Relations graduates work in diplomacy – 58% get graduate degrees.
  - 11% of history majors go on to become lawyers.

- It is important to consider career paths into both "generalist" and "direct prep" jobs.
  - Typically, BLS and job postings data are most relevant for direct-preparation career paths.

NCES crosswalks link programs and direct-preparation SOCs.

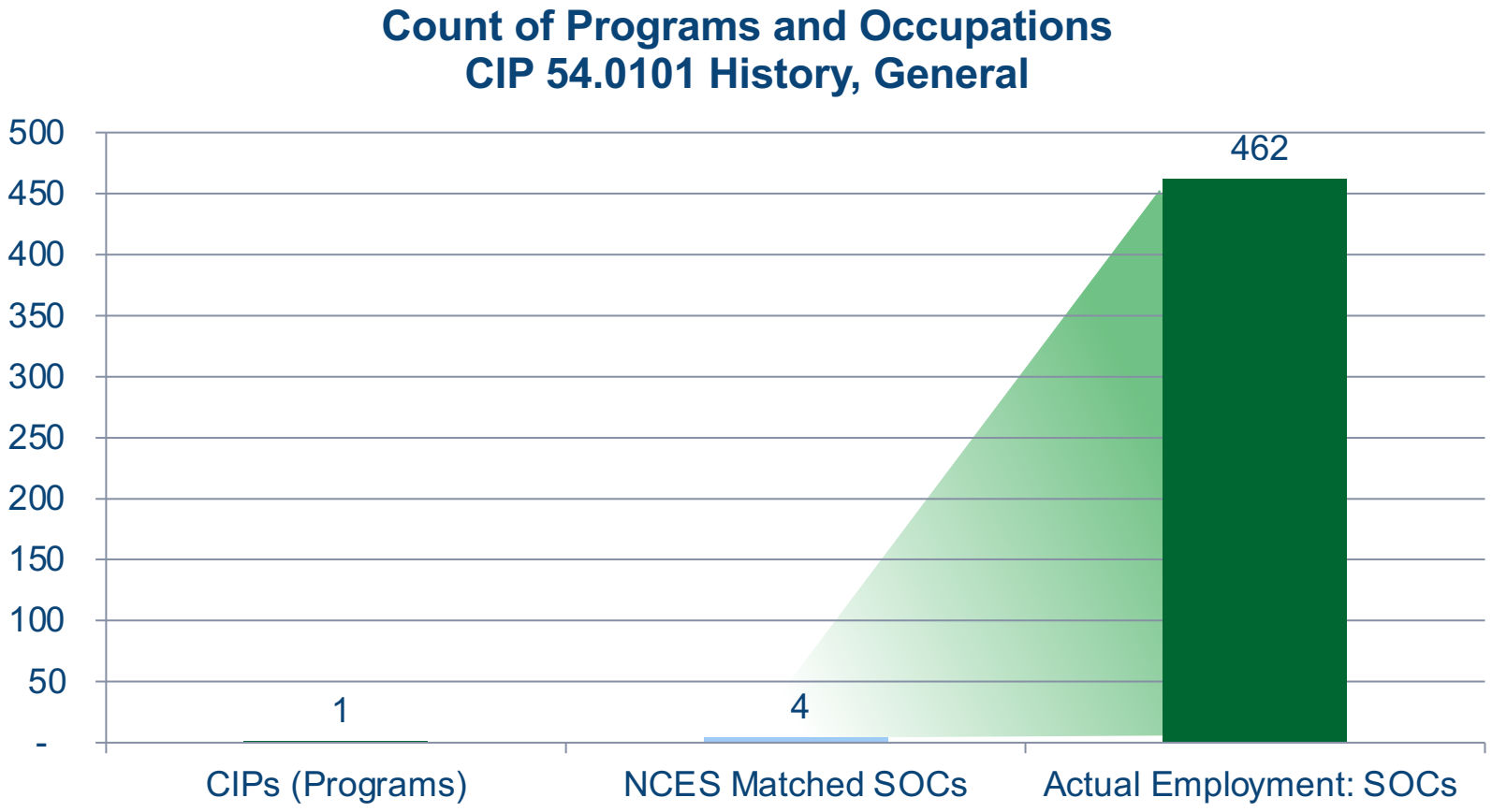
- For example, NCES crosswalks a B.A. in History to just four SOCs.



Source: National Center for Education Statistics: SOC 2010 mapped to CIP.

Reality: Loose alignment, especially for Liberal Arts.

- According to the U.S. Census, History majors are employed in over 400 SOCs.



Source: U.S. Census Bureau; Gray analysis of over 2.0 million records.

This matches academic programs with the jobs they directly prepare graduates for.

CIP-SOC Crosswalk

CIP	CIP Title	SOC Code	SOC Title	CIP share of SOC employees
52.0301	Accounting	11-3031	Financial Managers	Medium
52.0301	Accounting	13-1111	Management Analysts	Medium
52.0301	Accounting	13-2011	Accountants and Auditors	High
52.0301	Accounting	13-2031	Budget Analysts	Medium
52.0301	Accounting	13-2041	Credit Analysts	Medium
52.0301	Accounting	13-2051	Financial Analysts	Medium
52.0301	Accounting	13-2061	Financial Examiners	Medium
52.0301	Accounting	13-2081	Tax Examiners and Collectors, and Revenue Agents	Medium
52.0301	Accounting	25-1011	Business Teachers, Postsecondary	Medium
52.0301	Accounting	43-3031	Bookkeeping, Accounting, and Auditing Clerks	Medium

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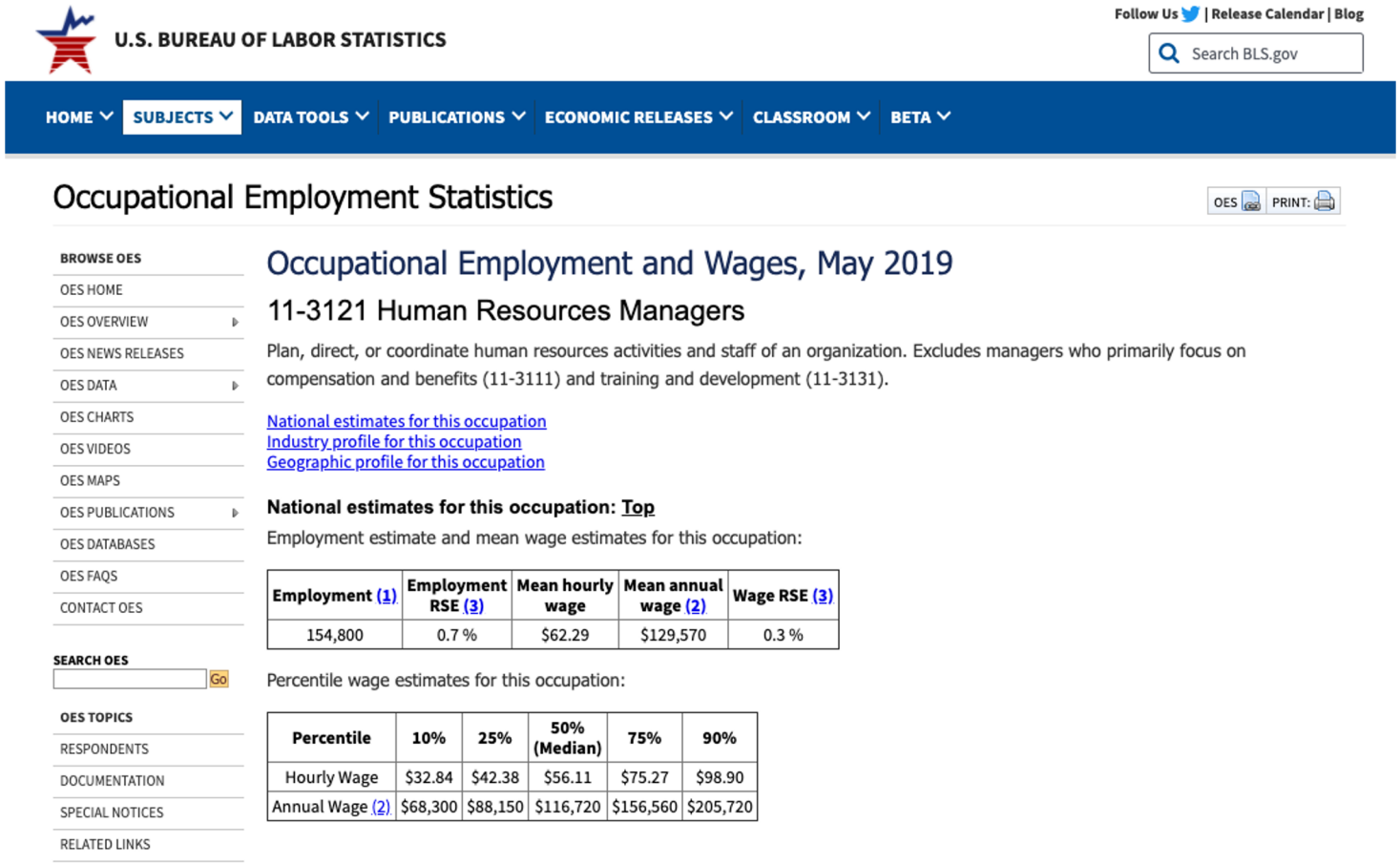
BLS is a frequently-used source on employment and trends.



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Occupational Employment Statistics

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Occupational Employment and Wages, May 2019

11-3121 Human Resources Managers

Plan, direct, or coordinate human resources activities and staff of an organization. Excludes managers who primarily focus on compensation and benefits (11-3111) and training and development (11-3131).

National estimates for this occupation
Industry profile for this occupation
Geographic profile for this occupation

National estimates for this occupation: Top

Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
154,800	0.7 %	$62.29	$129,570	0.3 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	$32.84	$42.38	$56.11	$75.27	$98.90
Annual Wage (2)	$68,300	$88,150	$116,720	$156,560	$205,720

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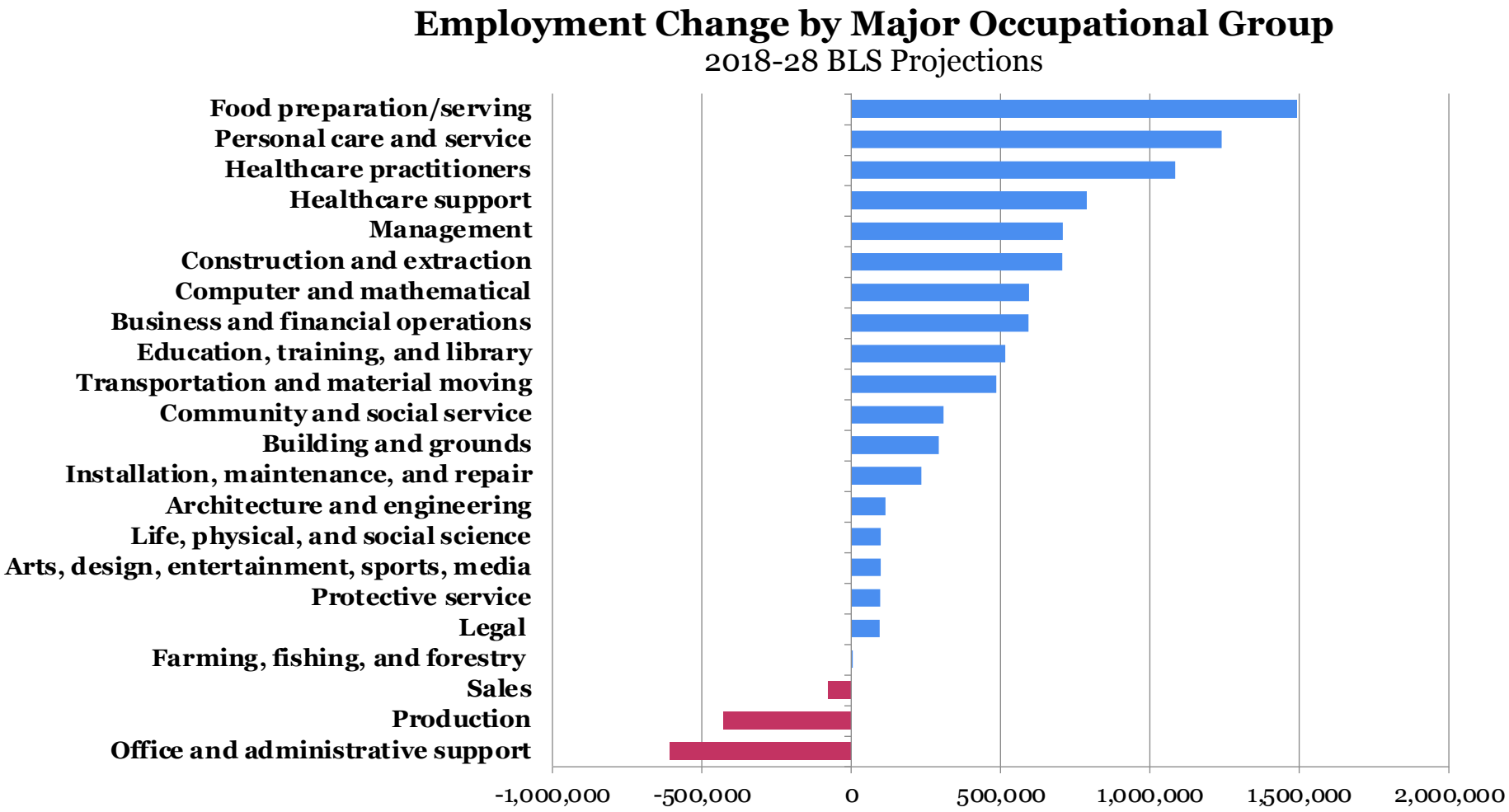
The largest occupations are in traditional fields, such as Administrative Support.

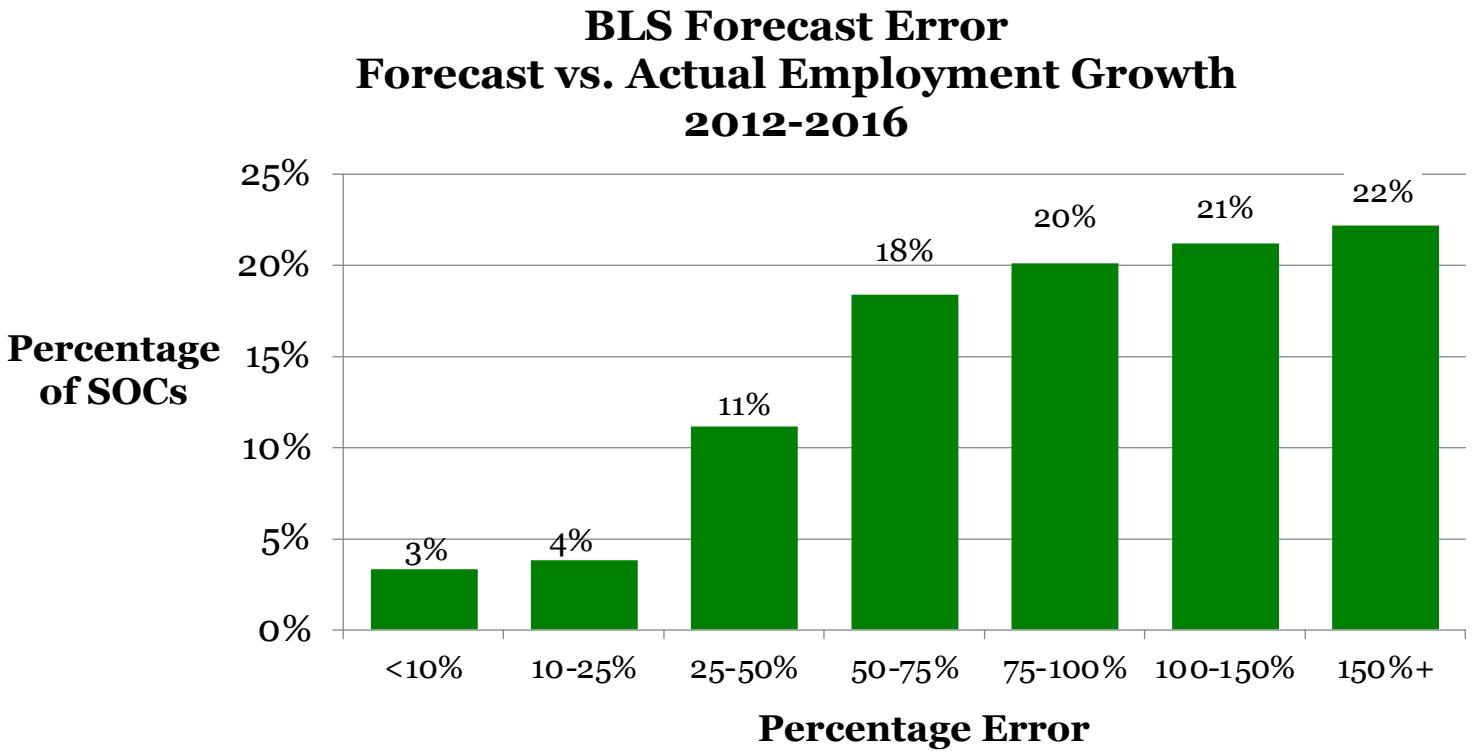
BLS predicts that Food Preparation and Personal Care will add the most jobs.



Source: Employment Projections program, U.S. Bureau of Labor Statistics

However, 82% of BLS growth projections are off by 50% or more.

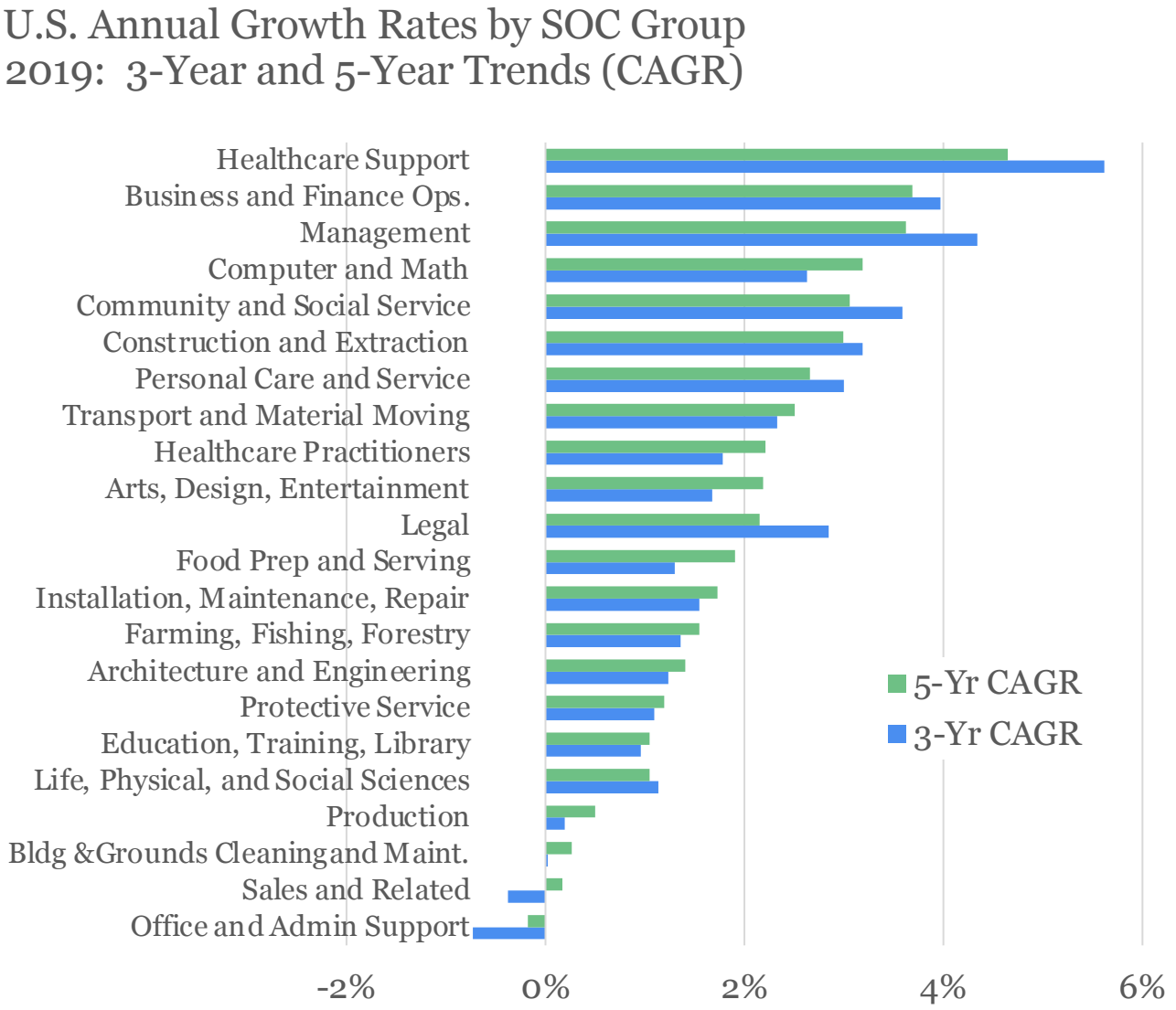
- So, when you see those articles about the fastest-growing occupations …



Source: BLS Occupational Employment Statistics and BLS Employment Projections 2012-2022.

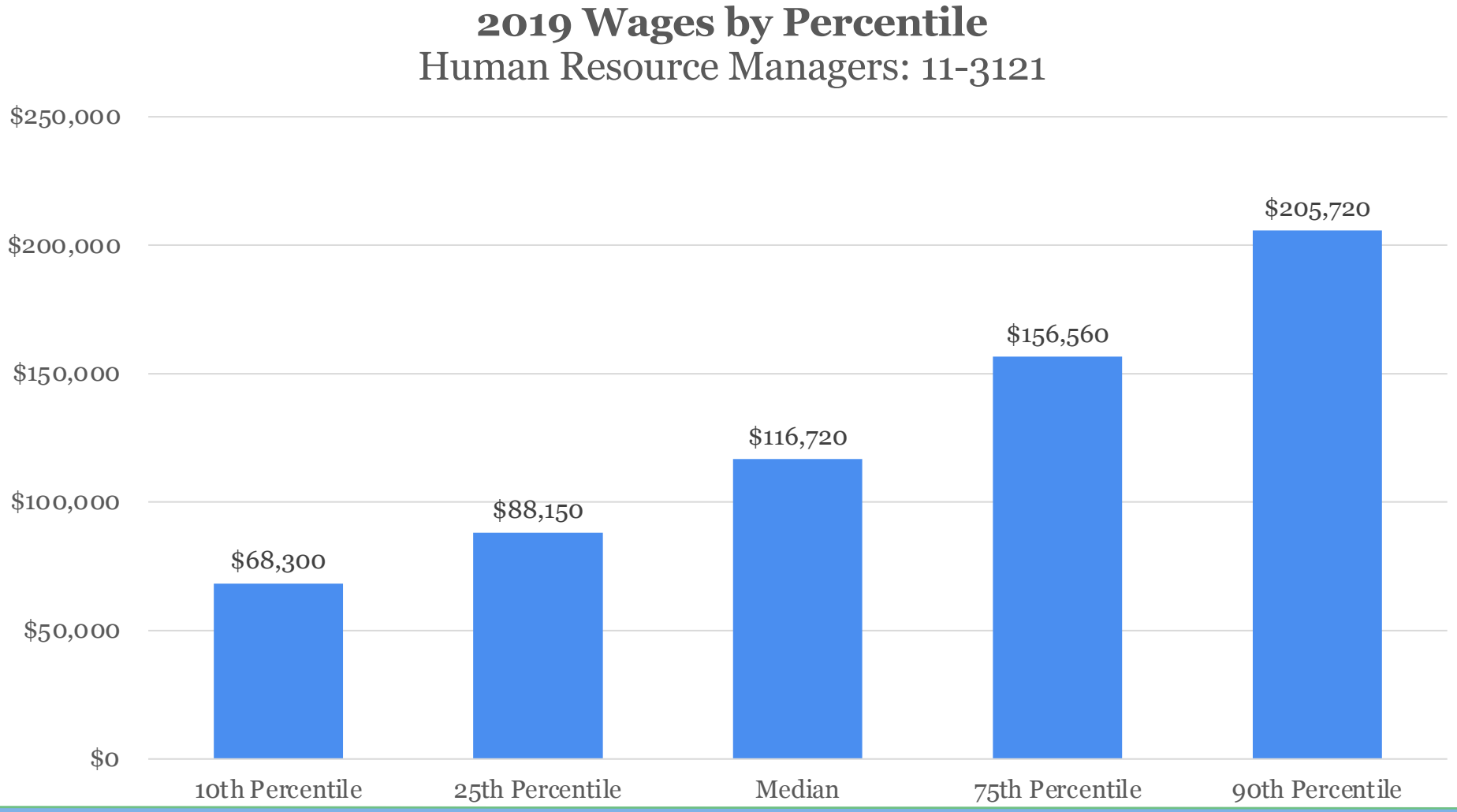
Note: BLS forecasts are for 2022. Gray used the 2012 base and the BLS annual growth rate to estimate 2016 employment.

We recommend looking at recent trends as well as forecasts.



Wage profiles by occupation are available from BLS.

- Source: BLS Occupational Employment Statistics: http://www.bls.gov/oes



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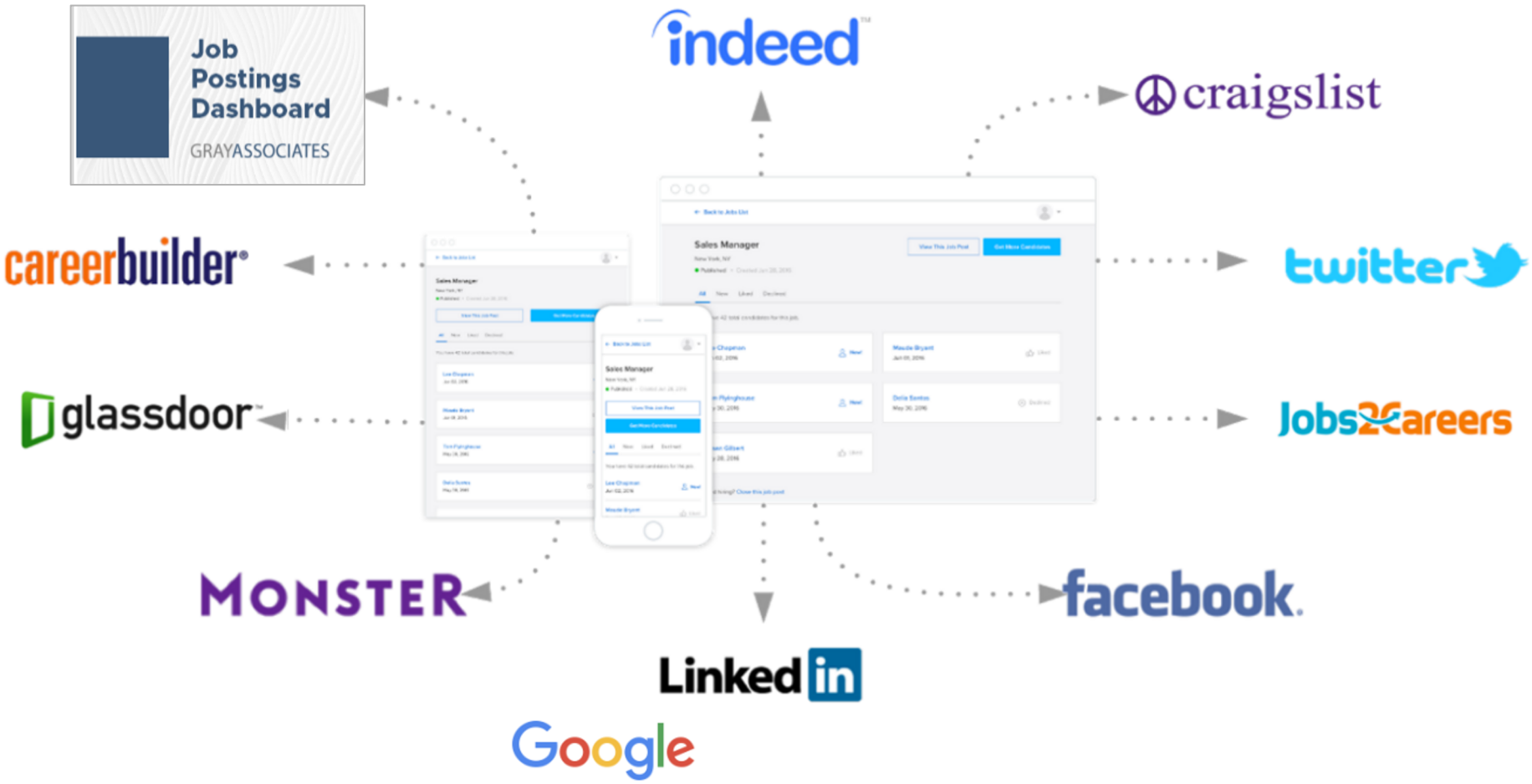
Job Postings Data

Job postings are available from Burning Glass, TalentNeuron, and others.



Job Postings: Employer-Site or Total?

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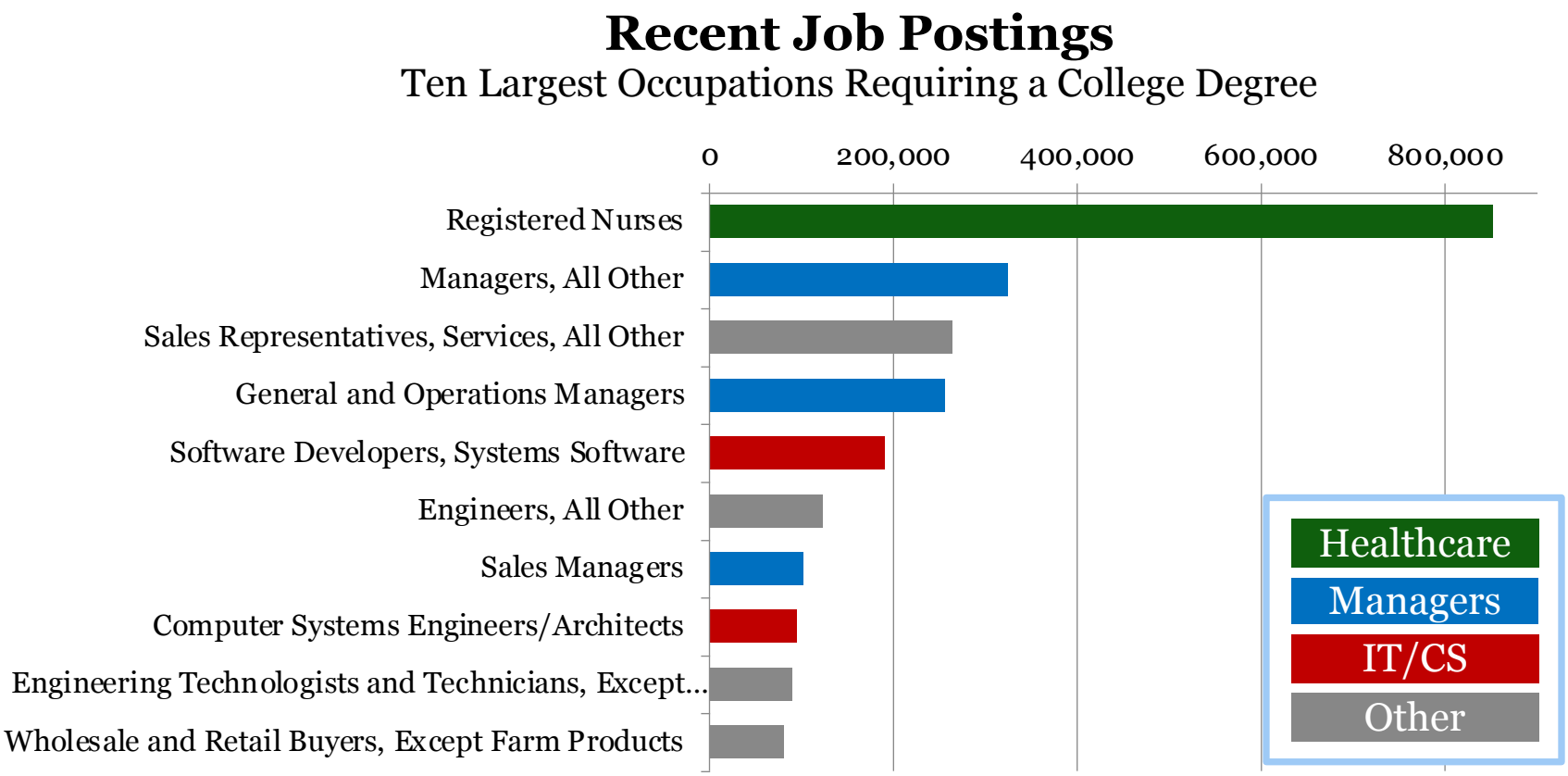
Some providers of job-posting data enable you to filter their postings by source.

- Employer websites
  - Most robust data (far fewer duplicates, more current)
  - But only 20%-25% of total postings
- Job boards
  - Largest source of job postings – more than half the total sample
  - Susceptible to hard-to-remove duplication across sites
  - Some boards may not remove postings that are no longer active
  - Trends tend to include sharp increases and be more extreme
- Staffing services
  - Similar volumes as employer websites
  - Typically, different jobs than employer websites
  - Not clear how closely these postings match the underlying demand for employees

Among jobs requiring a college degree, Registered Nursing has the most job postings.



Source: Gray Associates Job Postings Dashboard; Gray analysis of occupations requiring a college degree for entry.
Data are job postings from employer job sites. Timeframe: Calendar year 2020.

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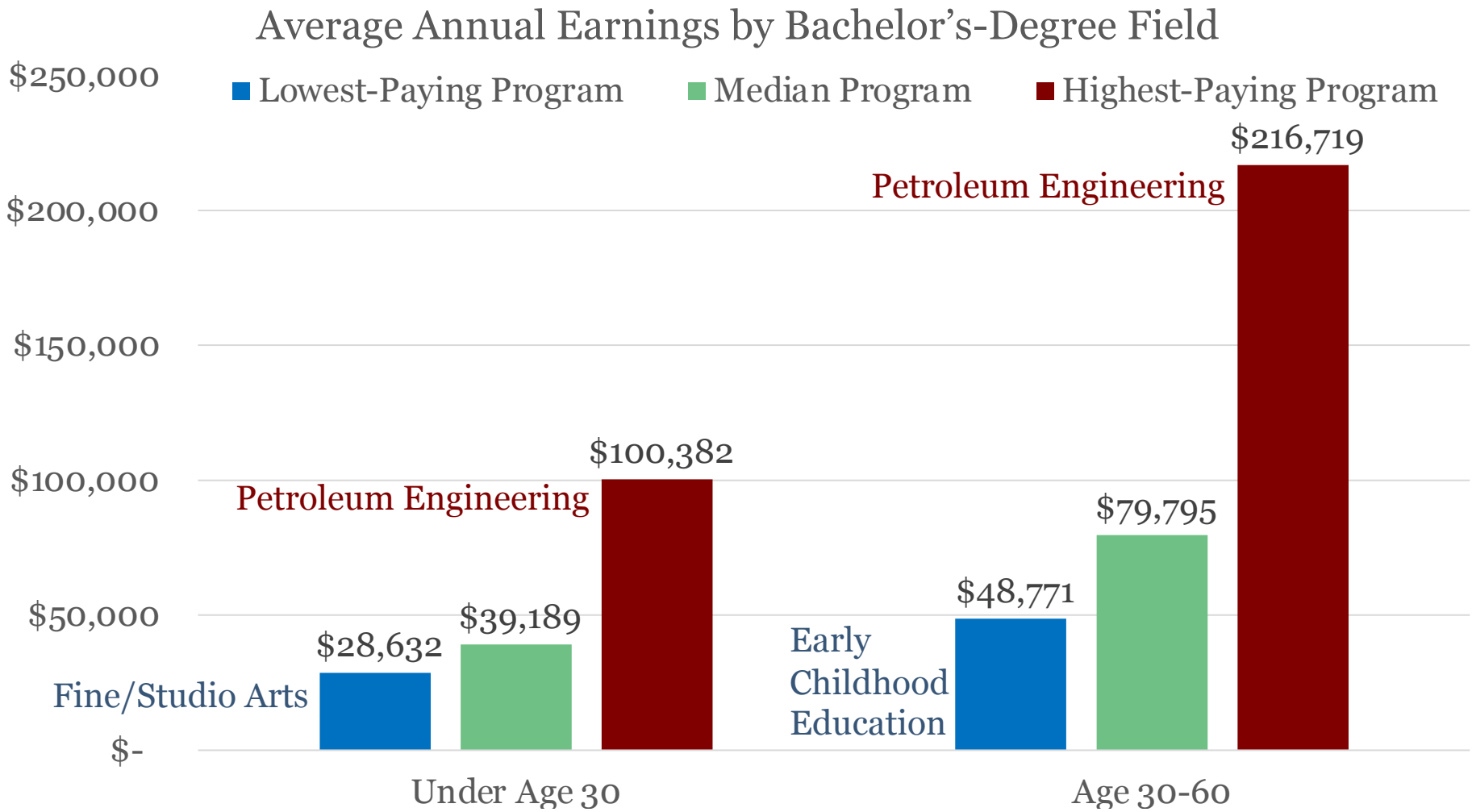
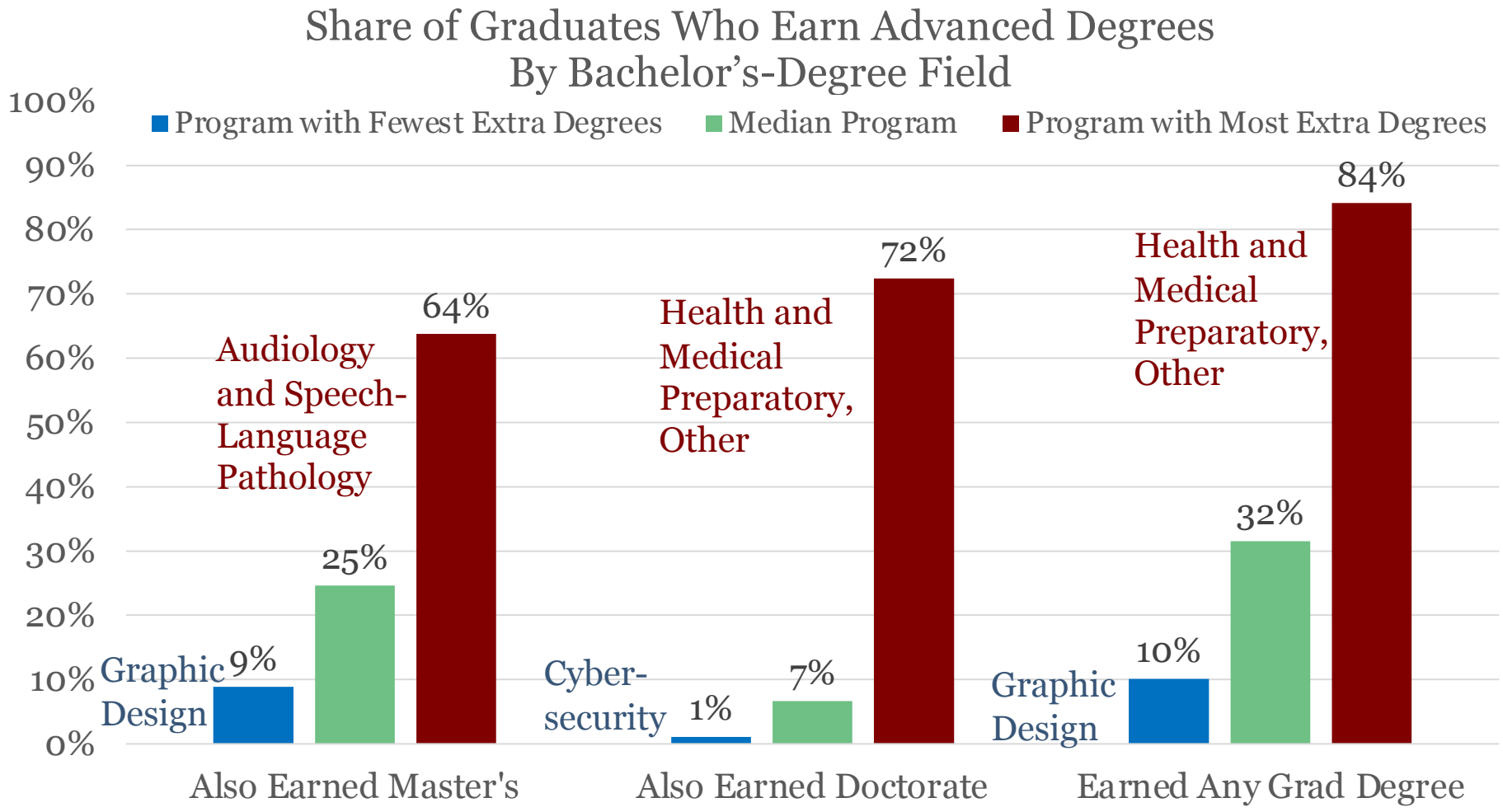
What will students earn after graduation? Mid-career?



Source: Gray analysis of American Community Survey PUMS data, matched to 6-digit CIPs.
Excludes CIPs with fewer than 1,000 2017 Bachelor's-degree graduates.

Is the Bachelor's degree primarily a step towards graduate school?



Source: Gray analysis of American Community Survey PUMS data, matched to 6-digit CIPs.
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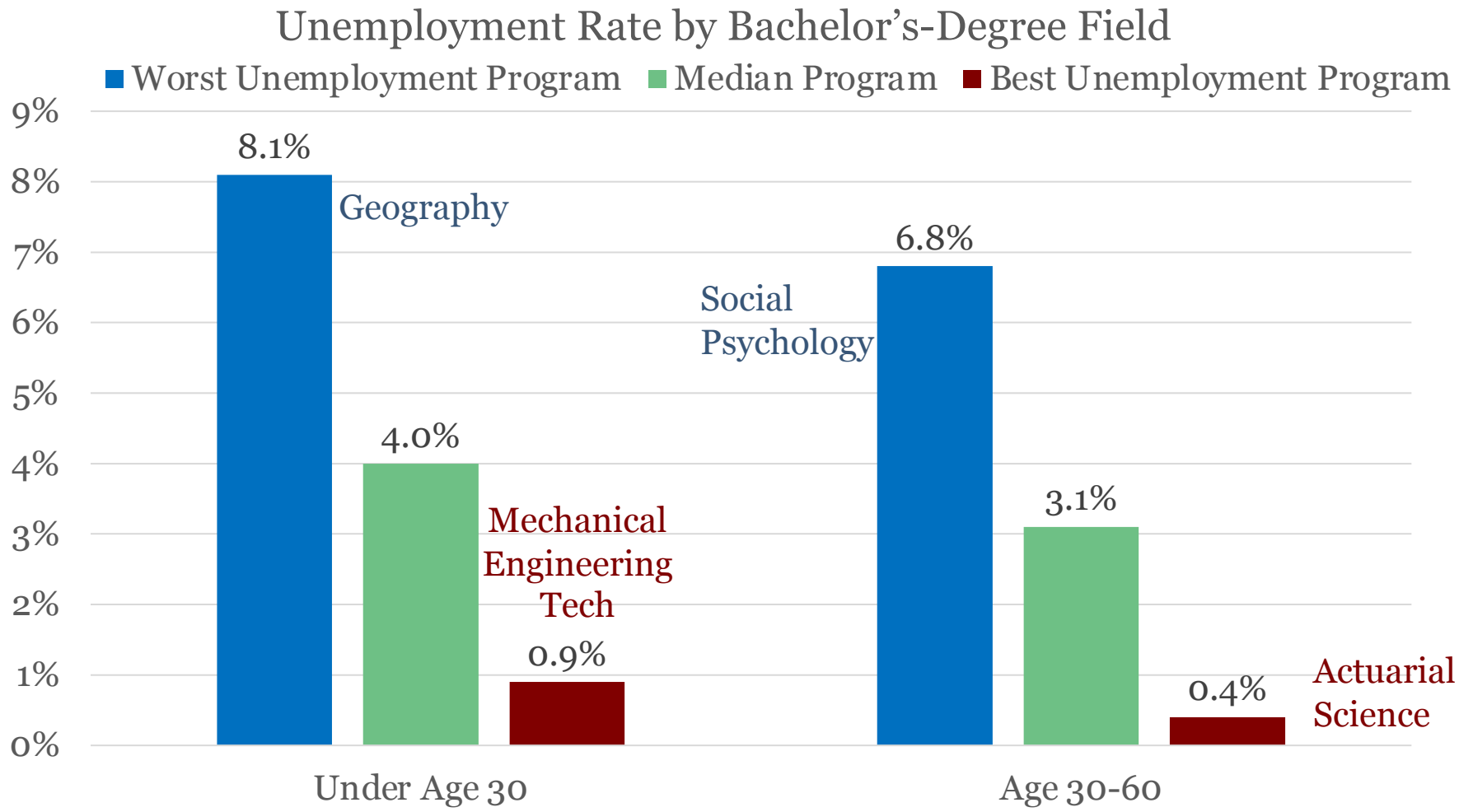
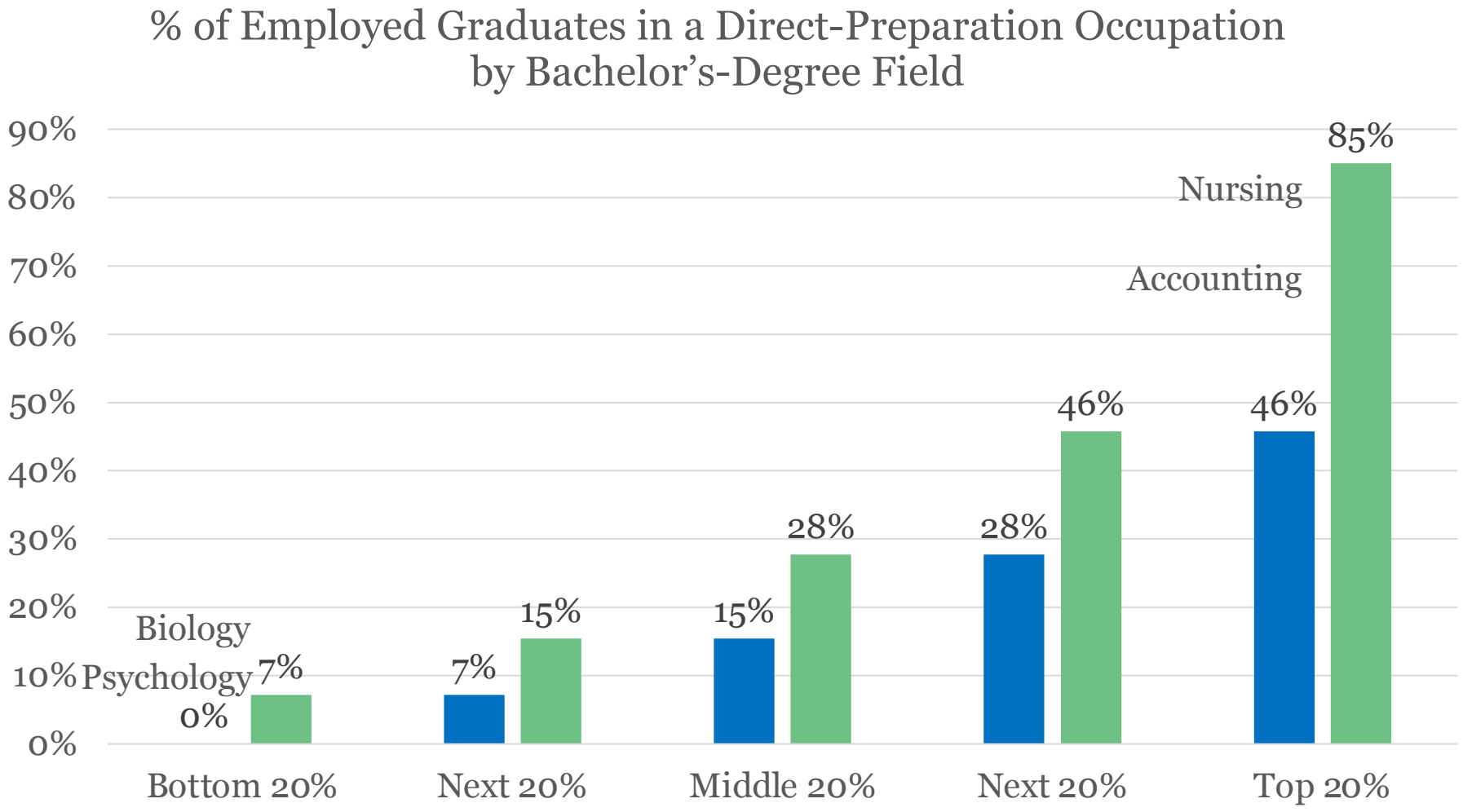
Are graduates likely to become unemployed?



Source: Gray analysis of American Community Survey PUMS data, matched to 6-digit CIPs.
Excludes CIPs with fewer than 1,000 2017 Bachelor's-degree graduates.

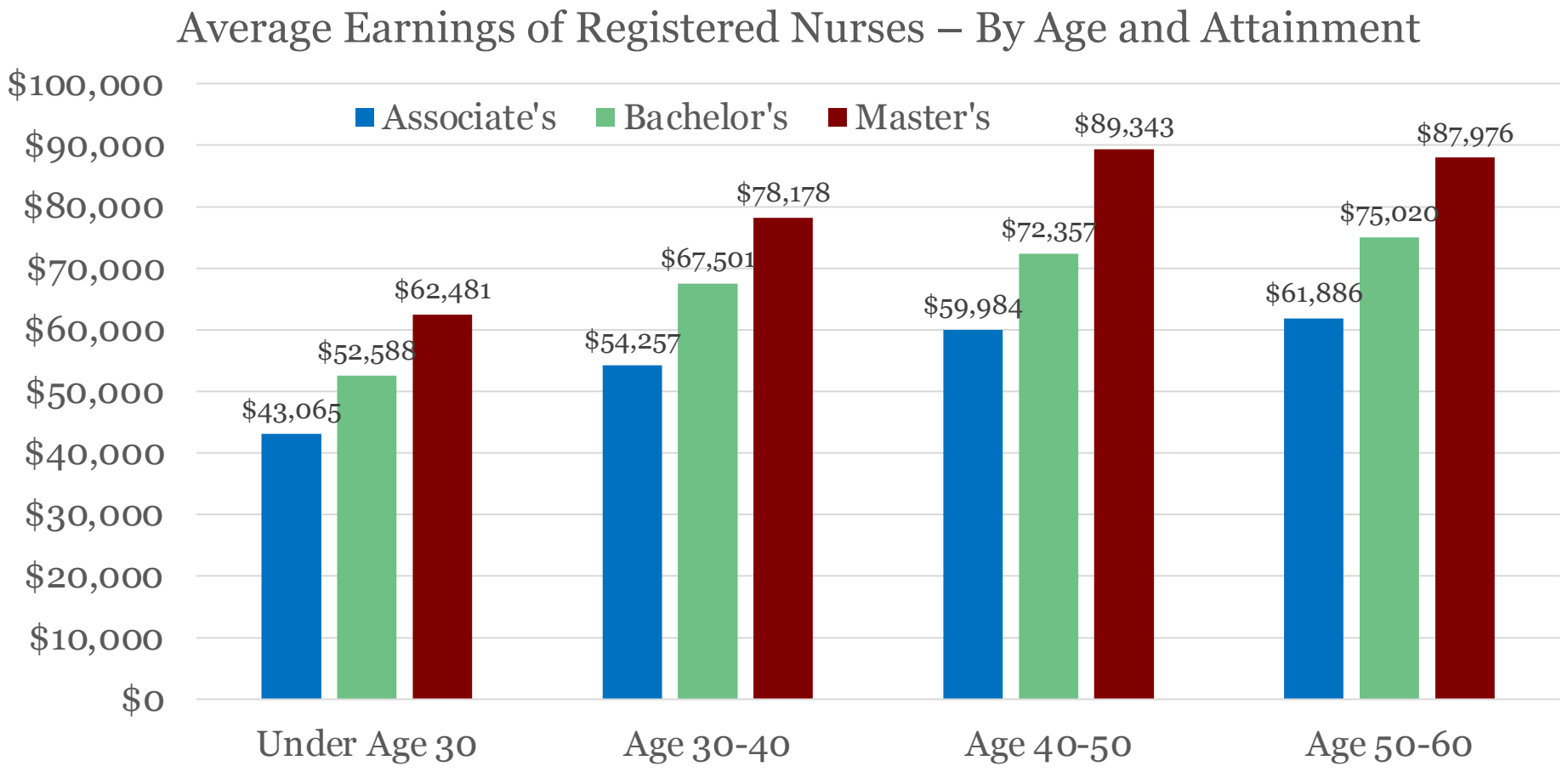
Are graduates likely to work in a direct-preparation field, or are they likely to go into occupations that don't require highly specialized undergraduate training?



Source: Gray analysis of American Community Survey PUMS data, matched to 6-digit CIPs.
Excludes CIPs with fewer than 1,000 2017 Bachelor's-degree graduates.

An MSN is worth $10,000-$17,000 per year over a BSN for a Registered Nurse.

- The premium for a BSN over an ADN is $9,000-$13,000 per year, after controlling for age.



Source: Gray analysis of American Community Survey PUMS 2014-19 data, for SOC 29-1141 Registered Nurses.

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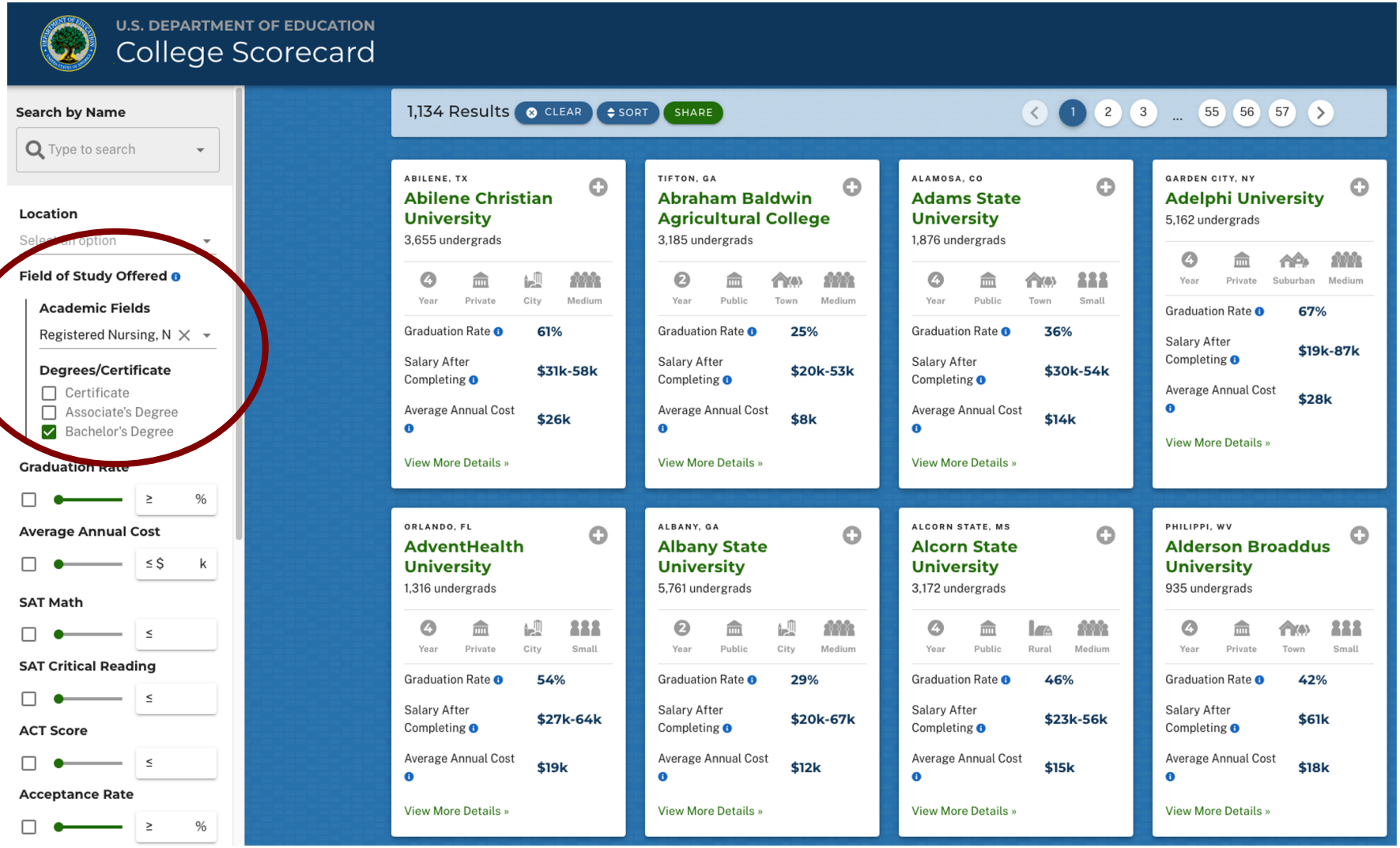
College Scorecard tracks first-year salaries by institution, major, and degree level.



Source: College Scorecard, March 2021.

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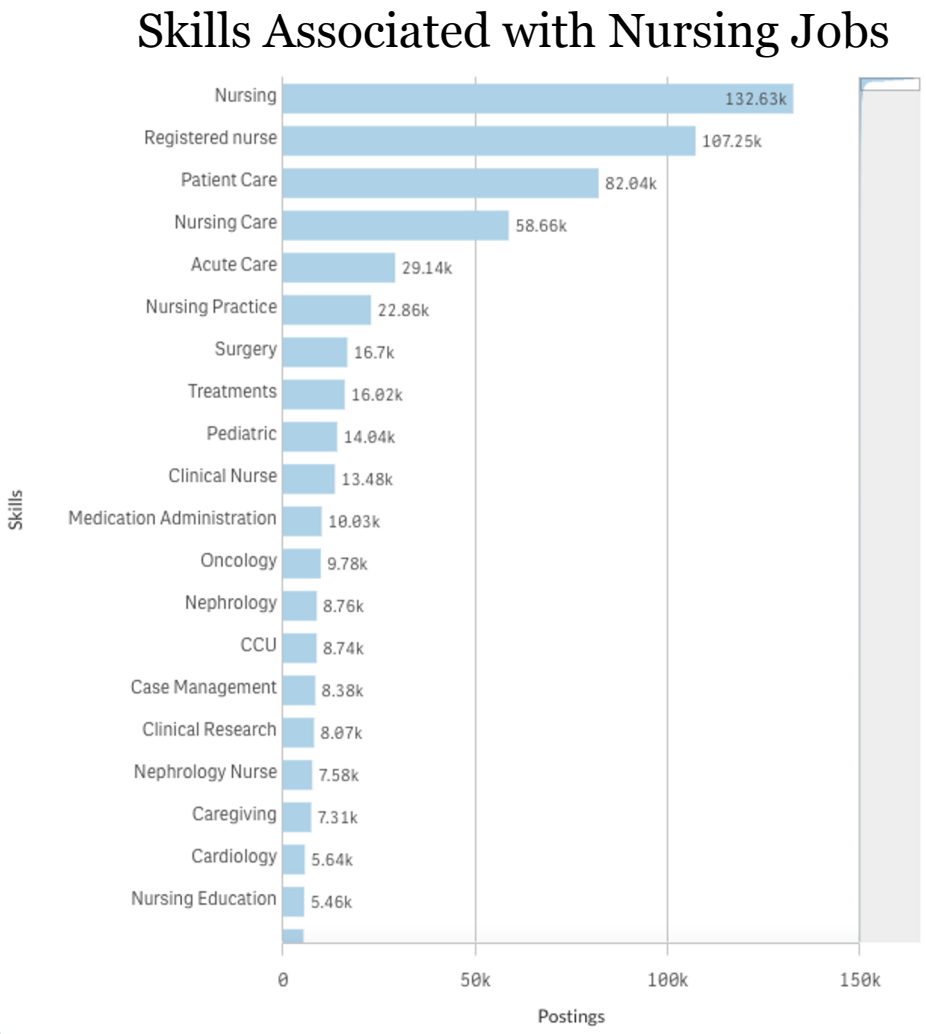
Gray's PES+ Job Postings Dashboard can help you identify critical skills to teach in current and new programs.



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Data for a single program is a challenge to interpret.

New Job Postings: 131,175

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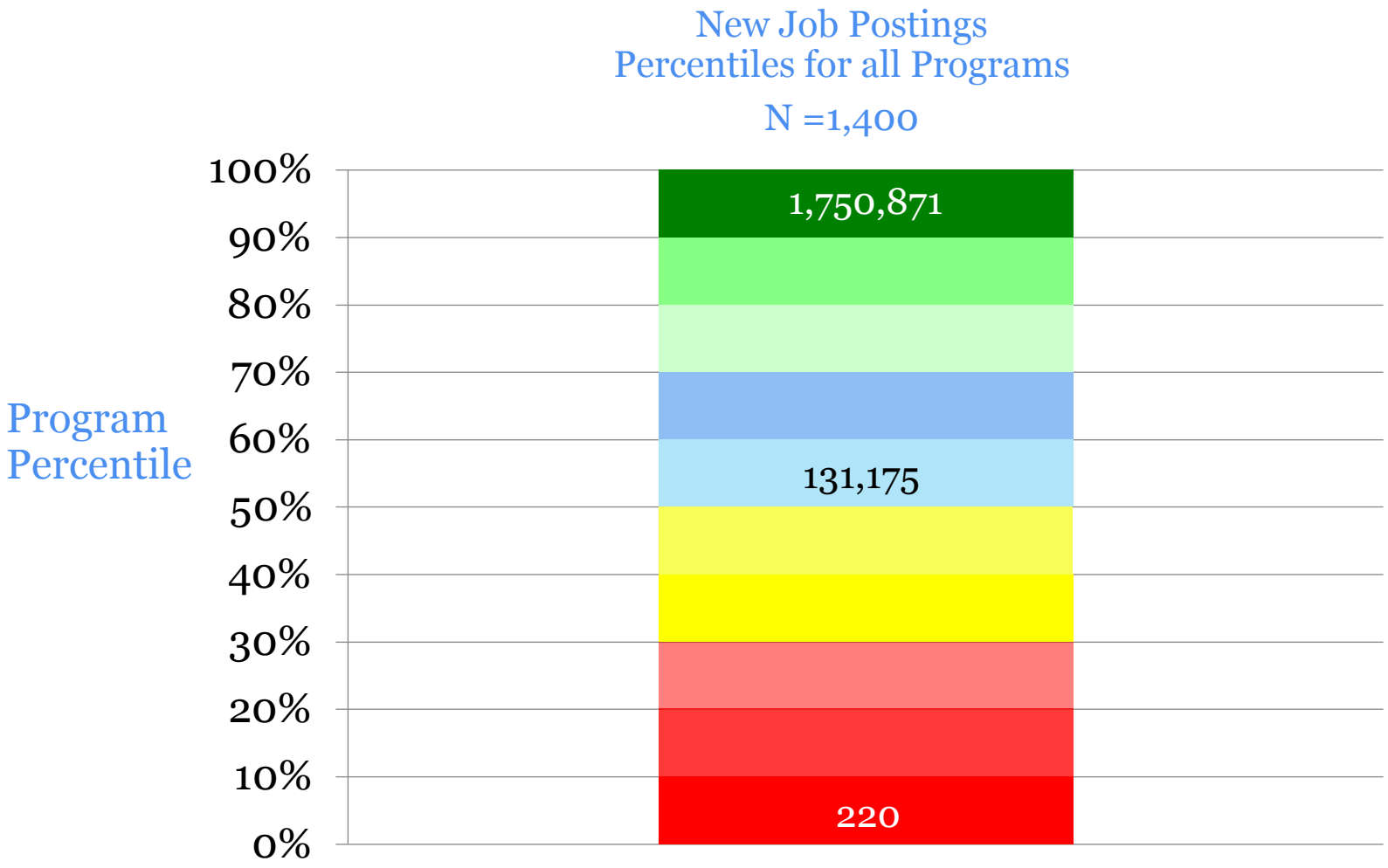
Percentiles and color codes aid interpretation.



Let's review the following employment information.

Employment*
Score: 18 Percentile: 99

Category	Pctl	Criterion	Value	Score
Size (Direct Prep)	99	Job Postings Total (12 Months)*	623,225	4
	99	BLS Current Employment*	2,802,884	4
	98	BLS Annual Job Openings*	194,780	2
Growth (Direct Prep)	30	BLS 1-Year Historical Growth*	1%	-1
	57	BLS 3-Year Historic Growth (CAGR)*	3%	0
	81	BLS 10-Year Future Growth (CAGR)*	1.2%	NS
Saturation (Direct Prep)	81	Job Postings per Graduate*	2.4	2
	56	BLS Job Openings per Graduate*	0.8	0
Wages (Direct Prep)	93	BLS 10th-Percentile Wages*	$58,890	NS
	79	BLS Mean Wages*	$81,869	NS
National American Community Survey Bachelor's Degree Outcomes	81	Nat'l ACS Wages (Age < 30)	$52,186	4
	42	Nat'l ACS Wages (Age 30-60)	$82,780	0
	31	Nat'l ACS % with Any Graduate Degree	28%	NS
	34	Nat'l ACS % with Masters	21%	NS
	47	Nat'l ACS % with Doct/Prof Degree	7%	NS
	11	Nat'l ACS % Unemp. (Age <30)**	2%	2
	8	Nat'l ACS % Unemp. (Age 30-60)**	1%	1
	100	Nat'l ACS % in Direct Prep Jobs	82%	NS

National Completions by Level
Score: 0

Award Level	Completions (National)	Completions (Market)	Inquiries (Market)
Certificate	1%	1%	1%
Associates	32%	32%	4%
Bachelors	59%	59%	67%
Postbaccalaureate Certificate	0%	0%	0%
Masters	7%	7%	14%
Post-masters Certificate	0%	0%	0%
Doctoral	0%	0%	0%
Unknown	0%	0%	14%

National Workforce Ed. Attainment
Score: 0

Award Level	BLS Educational Attainment
No College	1%
Some College	5%
Associates	31%
Bachelors	48%
Masters	12%
Doctoral	3%

Percentile	0	20+	40+	70+	90+	95+	98+	100
Overall Score	-58	-16	-10	4	17	21	29	59

Source: Gray Associates Program Evaluation System.

Summary

There is a lot of good employment data available – but all of it has limitations.

- Many stakeholders are emphasizing career-focused programs.
- However, many good careers are built in ways other than direct-preparation training.
- There are two major sources of employment data: BLS and job posting services.
  - BLS is an easy-to-access source of data on total employment and wages.
  - But BLS projections are weak indicators of employment trends.
  - Job postings can provide current data on hiring patterns, skills, and certifications.
- Occupation-focused data sources – like BLS and job postings – have two major limitations.
  - For many bachelor's-degree majors, most graduates do not go into direct-preparation occupations – making employment data that assumes such career paths inadequate or misleading.
  - Simplistic crosswalks between programs and jobs may not be data-driven and often double-count jobs.
- Program design should consider what students will do when they graduate.
  - Graduates of most Bachelor's programs will not work in the fields for which they directly prepared.
    - These programs should emphasize building a general set of skills and capabilities.
  - Graduates of some programs, like nursing, usually do go into jobs for this they directly prepared.
    - The curriculum in these programs should closely align with the skills needed on the job.
  - Programs that work best as pathways that require additional degrees should align with how likely an institution's students are to follow such pathways.

Gray's 2021 Master Classes in Academic Program Assessment

Webinar Topic	Date
Part 1: Understanding Student Demand	February 26, 1:00 PM
Part 2: Determine Employer Needs	March 18, 2:00 PM
Part 3: Competitive Intensity and Degree Fit	April 22, 2:00 PM
Part 4: Calculating Program Economics	May 20, 2:00 PM
Part 5: Curricular Efficiency	June 17, 2:00
Part 6: Inform and Engage Constituencies	July 22, 2:00 PM
Part 7: Integrate and Sustain	August 19, 2:00 PM