



Using National Jobs Data to Measure Graduate Impact

New Census Bureau statistical pilot measuring earnings and employment for college graduates

March 2020

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Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the U.S. Census Bureau. All tables and figures use publically available PSEO data. The PSEO disclosure avoidance methodology was approved by the Census Bureau Disclosure Review Board in release memo CBDRB-FY18-103.

Value of Jobs Frame

Over the last 20 years, LEHD has assembled a frame of jobs (employer-employee links) to produce a number of data products:

- Quarterly Workforce Indicators (QWI)
- Job-to-Job Flows (J2J)
- LEHD Origin-Destination Employment Statistics (LODES)

Recently, we have worked to expand the number of possible statistics that can be produced using this jobs frame.

In 2018, we released the first estimates from the Post-Secondary Employment Outcomes.

Post-Secondary Employment Outcomes (PSEO)

A new collaboration between university systems and the Census Bureau

A joint pilot project between university systems, state higher education systems, and the Census Bureau, the **Post-Secondary Employment Outcomes (PSEO)** are experimental tabulations providing national earnings statistics for graduates of post-secondary institutions.

Goal:

- Provide students and parents better data on the return on investment to post-secondary degrees.

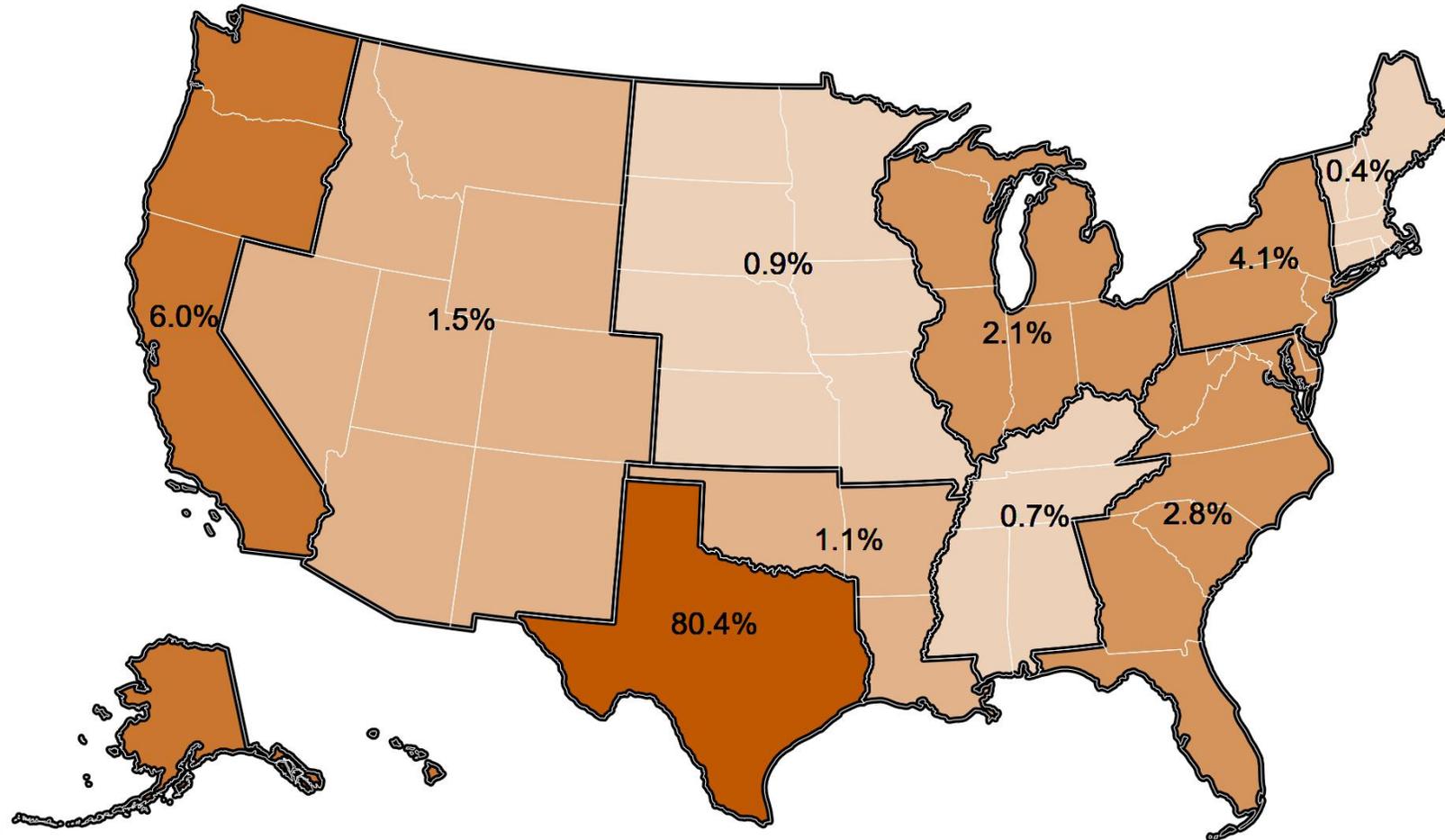
The PSEO provides:

- 25th, 50th, and 75th percentiles of annual earnings for college and university graduates.
- Employment by industry and region of the country.
- By degree level, degree major, and post-secondary institution.
- One year, five years, and 10 years after graduation.

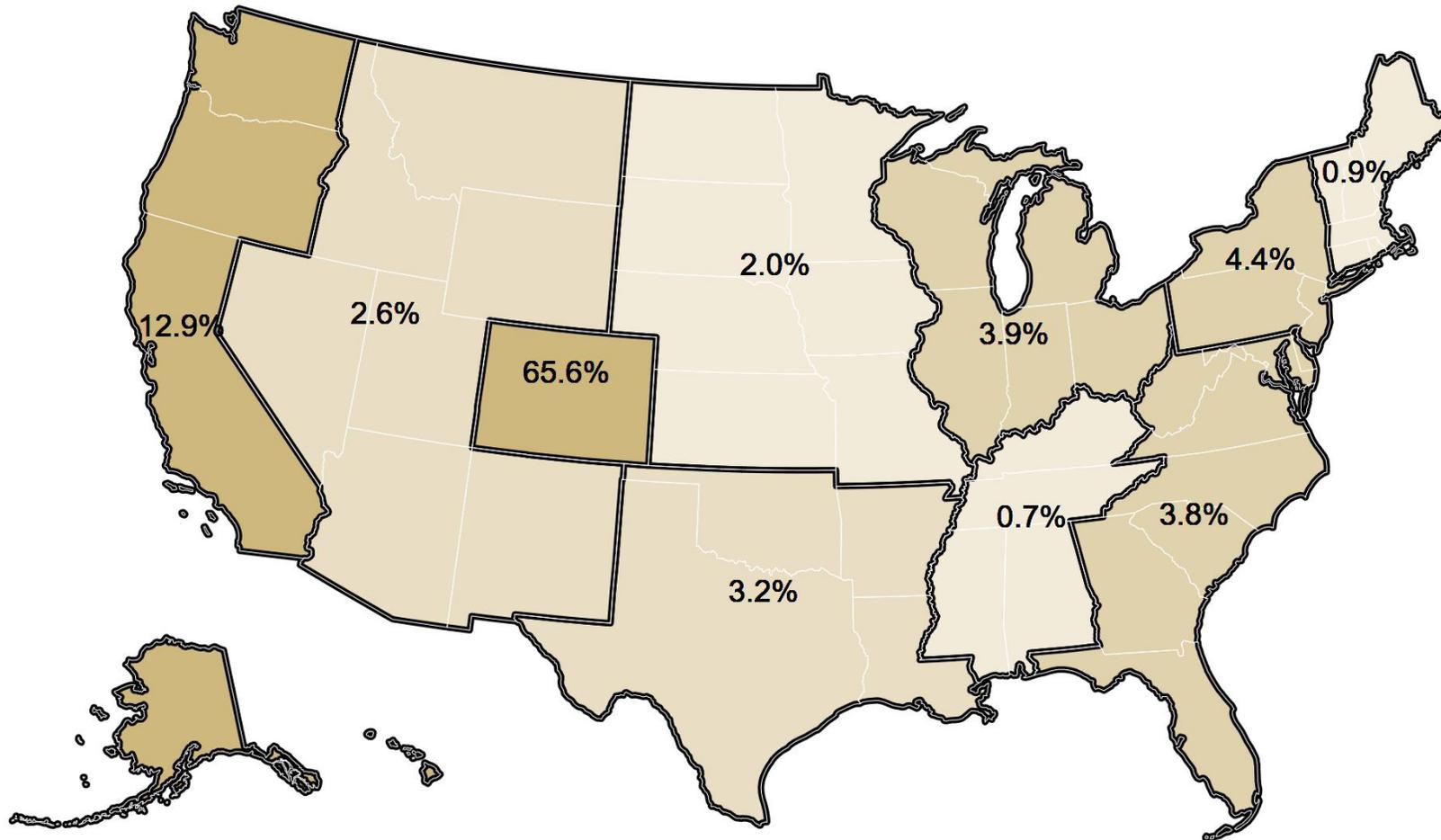
Where are Graduates Employed?

- Using matched employer-employee data linked with university transcript data, we can learn where graduates are employed
- From employer data, we know employment location and employer industry sector (2-digit NAICS)
- Public tables report location by Census Division and institution state
- We also report those who are non-employed or insufficiently attached to the labor market

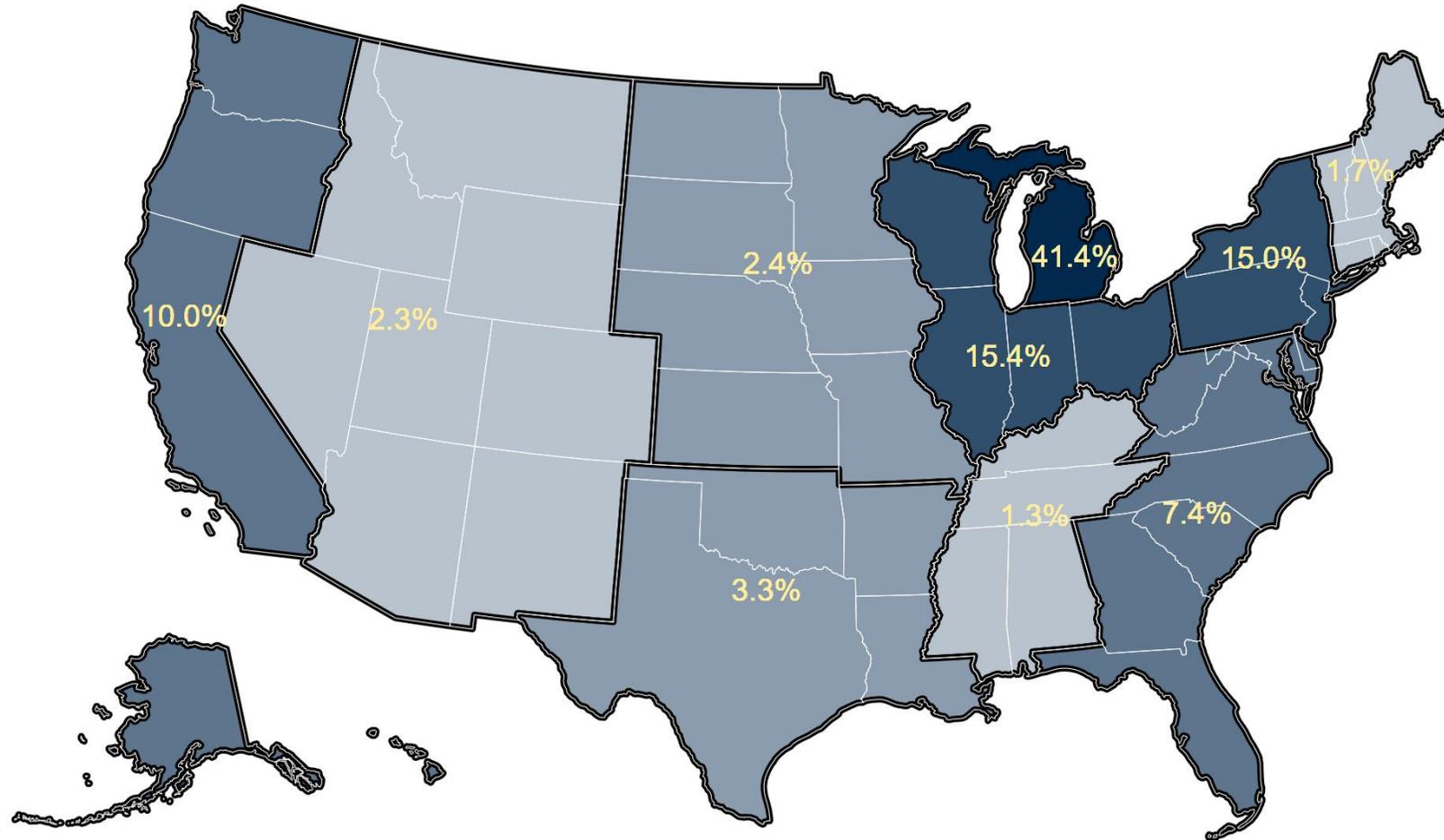
University of Texas, Austin



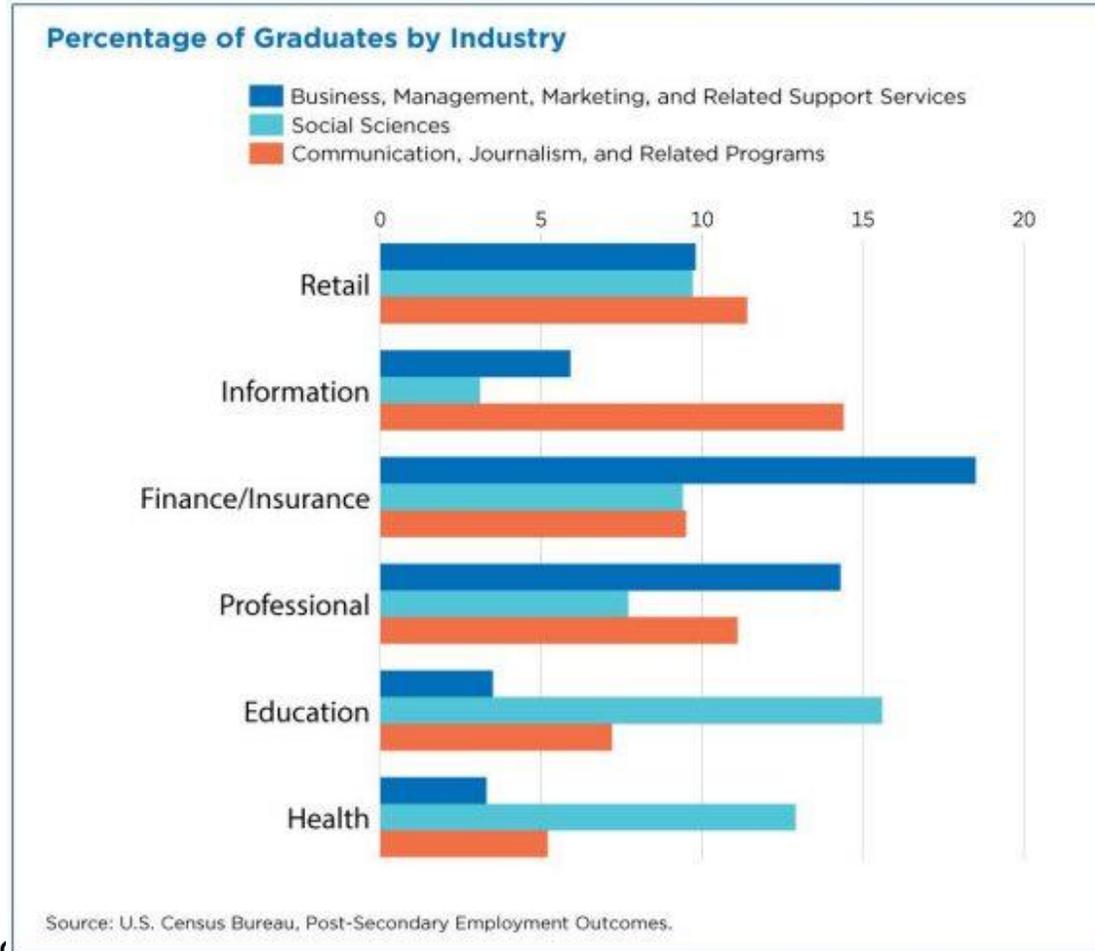
University of Colorado - Boulder



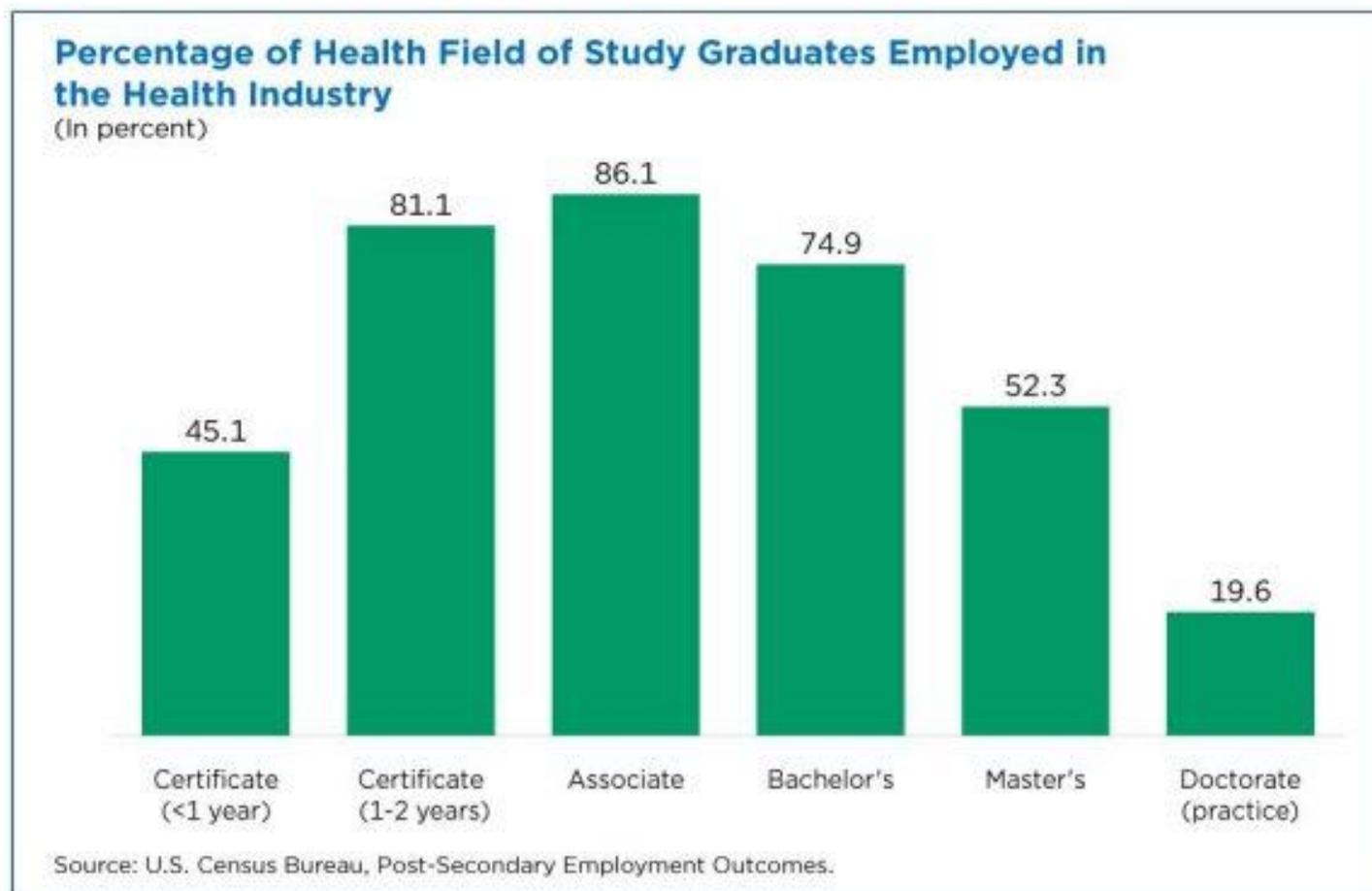
University of Michigan – Ann Arbor



Major Fields and Industry Sector, 1 year post-graduation

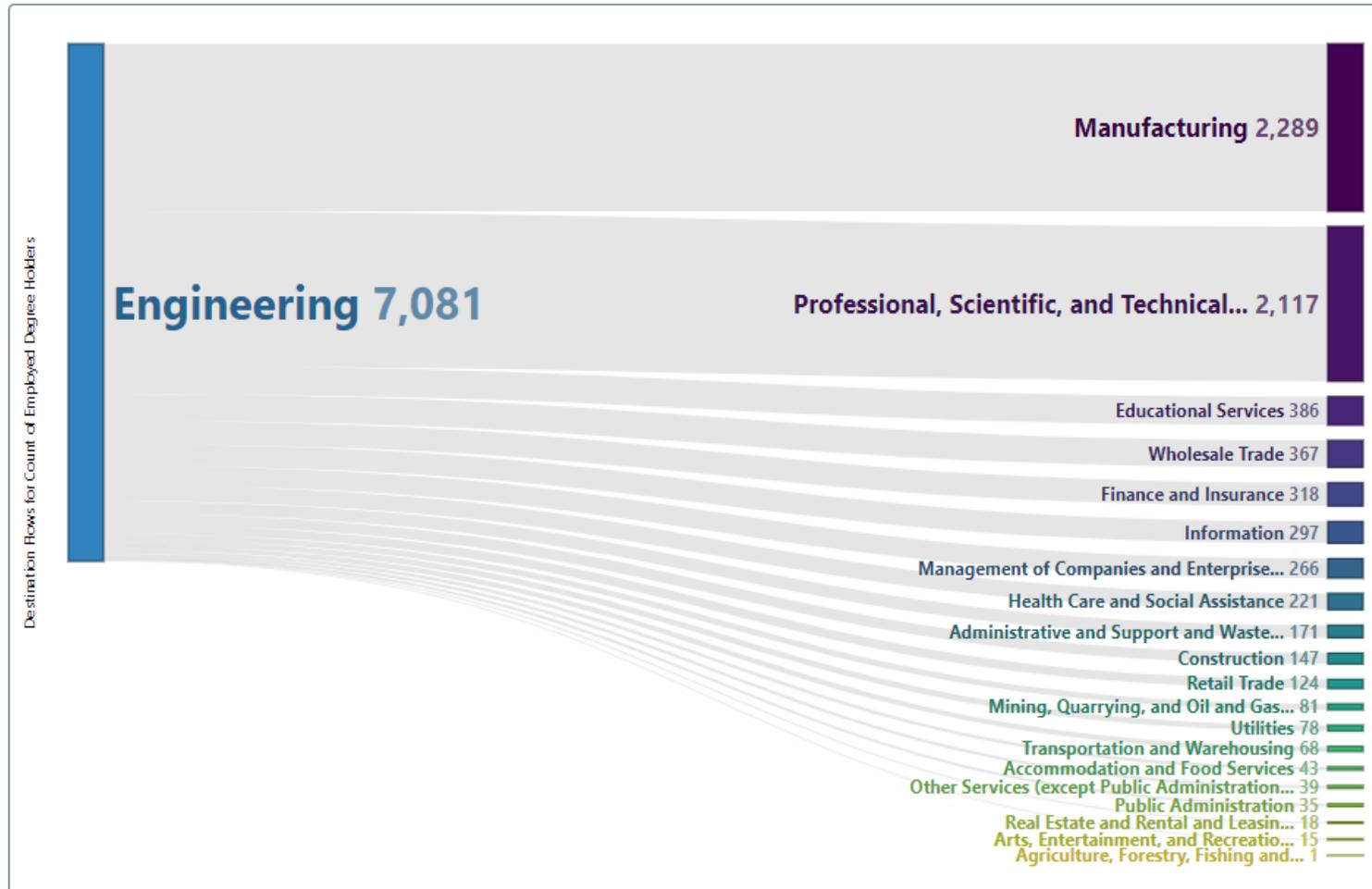


Does industry of employment match training?



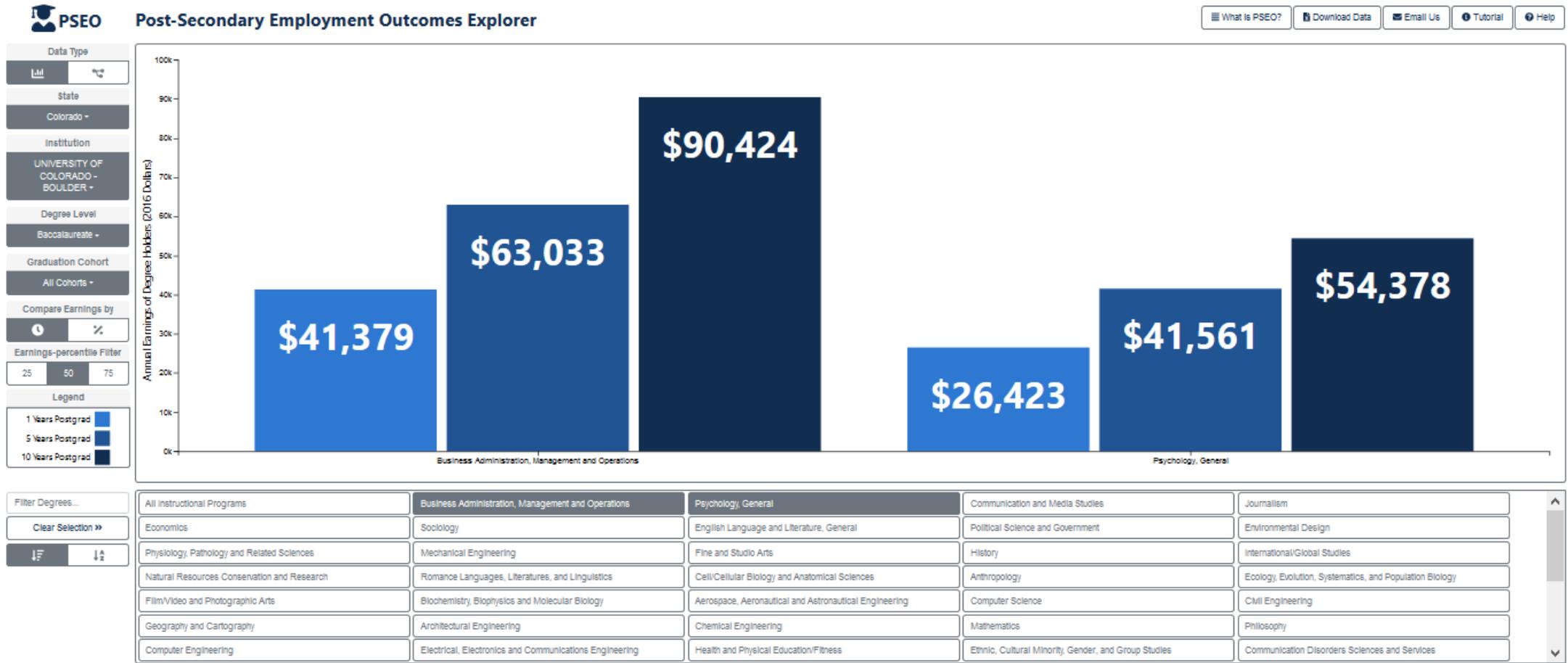
Post-Secondary Employment Outcomes (PSEO)

Where do engineering graduates from the University of Michigan work after graduation?



Source: Census Bureau PSEO data for University of Michigan - Ann Arbor, Engineering BA graduates. Industry is industry of employment five years after graduation.

Post-Secondary Employment Outcomes (PSEO) Explorer



https://lehd.ces.census.gov/data/pseo_explorer.html

Post-Secondary Employment Outcomes (PSEO)

Data partners

Current PSEO partners:

- The University of Texas system (2017),
- Colorado Department of Higher Education (2017),
- University of Michigan, Ann Arbor; University of Wisconsin, Madison (2018).

Now negotiating MOUs with:

- Ohio Department of Higher Education,
- State Council of Higher Education for Virginia,
- Texas Higher Education Coordinating Board,
- Arizona Board of Regents,
- New York SUNY and CUNY systems,
- Indiana Commission of Higher Education,
- Utah System of Higher Education.

Working on Wave 3 currently

Post-Secondary Employment Outcomes (PSEO)

More specifics on coverage, update schedule, applications

Current coverage:

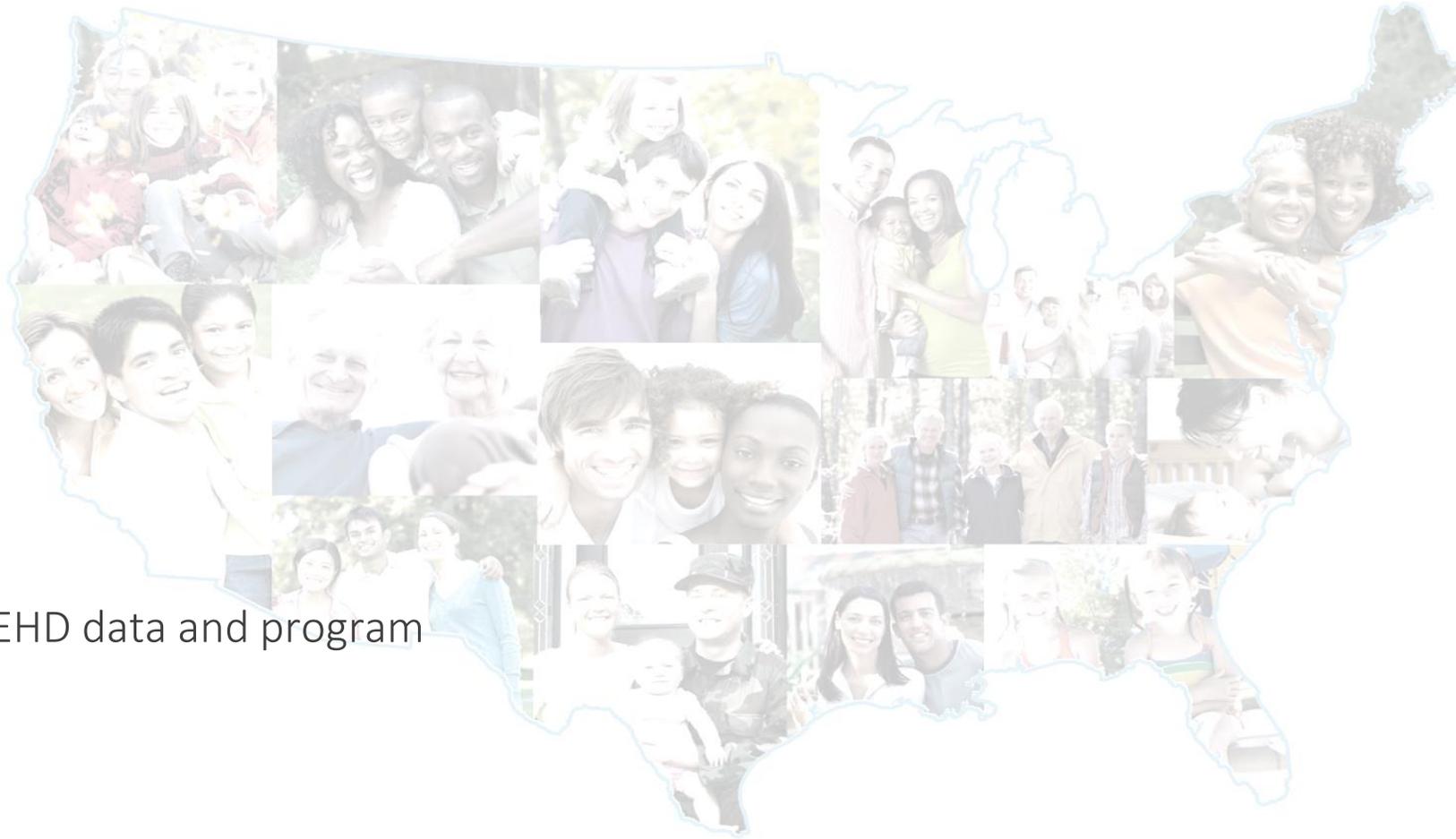
- 47 institutions
- 1.1 million students
- ~5% public post-secondary student population
- Wave 2 partners will take us to ~20-25% coverage
- Updated: annually (due to three/five year cohorts, some years there may be no new data to release)

Applications:

- Data visualization tool on Census website; code on Git so institutions can host their own
- API planned for wave 2 release

Next steps:

- Planning to incorporate W2 and 1099 (self-employment) earnings data into the PSEO for a future release. Research is ongoing.



Extra slides

More about LEHD data and program

Post-Secondary Employment Outcomes (PSEO)

Protecting student privacy

In the microdata:

Student record data is de-identified and PII data is destroyed; anonymous identifiers used to link graduates to jobs data.

Public use data disclosure avoidance:

- PSEO tabulations are protected using state of the art **formal privacy** disclosure avoidance methods.
- Mathematically provable information/privacy trade-offs. Conceptually, makes any one individual in a database used for analysis indifferent between being in the database or not.
- Methodology described in Foote, Machanavajjhala, and McKinney (JPC, 2019)

Post-Secondary Employment Outcomes (PSEO)

A brief history

It has long been recognized that we could substantially improve the post-secondary data infrastructure by combining existing systems.

One component of that system resides at the Census Bureau.

Workforce Data Sources:

- **U.S. Census Bureau (LEHD data)**
- IRS (W2, 1040, etc.)
- state Unemployment Insurance wage records



The University of Texas system undertook a seven-year effort to get national earnings data for their graduates. They approached Census last, after someone told them about LEHD at a conference.

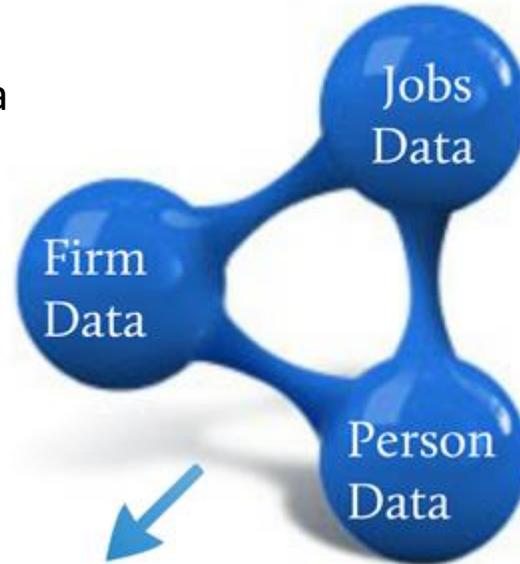
After many talks, we signed an agreement in 2017 to jointly develop what became the PSEO.

UT PSEO data was released to the public in March 2018.

Post-Secondary Employment Outcomes (PSEO)

Jobs Data -- Longitudinal Employer-Household Dynamics (LEHD) program at Census

Firm data: survey data on firms from both **Census economic programs** and state-provided **QCEW**.



Longitudinal database of jobs for the U.S.

Jobs data: administrative data on worker earnings from **state UI, OPM** personnel records, **W2** records from IRS (recently approved for PSEO).

Person data: demographics and residence of workers sourced from **Census surveys** and **SSA** and **IRS administrative data**.

LEHD program

Public use statistics

QUARTERLY WORKFORCE INDICATORS (QWI)

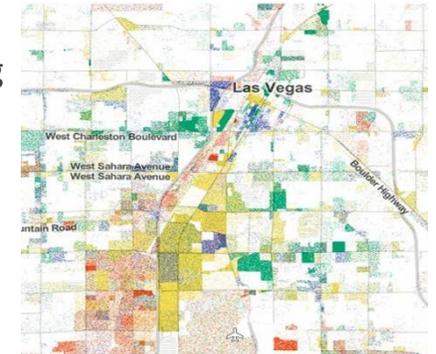
- Employment, Hires, Separations, and Wages by Worker Demographics
- Key uses:
 - Understanding the aging workforce
 - Examining hiring trends in local labor markets
 - Identifying where wages are high or where wages are growing in local labor markets

JOB-TO-JOB FLOWS (J2J)

- Hires and separations by worker origin and destination employment characteristics
- Key uses:
 - What labor markets are we losing workers to?
 - What industries are we attracting workers from?
 - Who is hiring workers from unemployment?

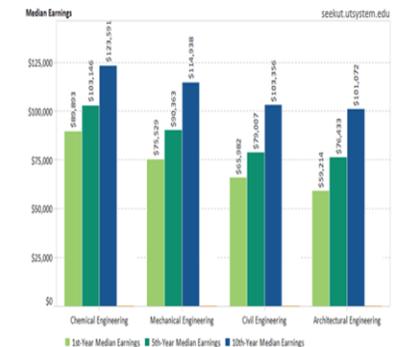
LEHD ORIGIN-DESTINATION EMPLOYMENT ESTIMATES (LODES)

- Block-level employment by where workers live and work
- Key uses:
 - Local economic development planning
 - Emergency planning
 - Business site selection



POST-SECONDARY EMPLOYMENT OUTCOMES (PSEO)

- New pilot statistics on earnings for college graduates by institution and major:
- Key uses:
 - Estimating returns to degree
 - Short run and long run returns
 - Industries and regions graduates work



Questions?

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General PSEO Questions: CES.PSEO.Feedback@census.gov