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New Data Show How Far Graduates Move from Their College, and Why It Matters

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EMPLOYMENT RESEARCH

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College, and Why It Matters*Johnathan G. Conzelmann, Steven W. Hemelt, Brad Hershbein, Shawn Martin, Andrew Simon,
and Kevin M. Stange*

ARTICLE HIGHLIGHTS

■ Policymakers debating greater investment in colleges and universities need to know where each institution's graduates live and work, but such data have been lacking.

■ We develop new data on the geographic mobility of graduates based on colleges' LinkedIn pages and quality-checked against government sources.

■ We find that the labor markets where a college sends its graduates help explain how colleges affect economic outcomes for students from low-income families.

■ We quantify "brain drain" across states and metro areas.

■ Regional public universities tend to produce more graduates who stay local than do state flagships.

Colleges have many goals, but a central one is to equip students with knowledge, skills, and connections that lead to their labor market success and future well-being. Another is to produce educated citizens who contribute to economic growth, innovation, and broader prosperity. To assess how these goals are being met, researchers and policymakers need a clear understanding of the labor markets where a given college's graduates end up working. Do students—or colleges—change majors and coursework to adjust to the skill needs of the places in which students tend to take jobs? Does economic mobility for college graduates, especially those from low-income families, depend on the communities where specific colleges have strong job ties? How concerned should state and local governments be about the loss of homegrown graduates to other labor markets when making decisions about how much to invest in different types of colleges?

Unfortunately, policy discussions related to these questions too often have taken place in the absence of data on how specific colleges contribute to economic mobility of their students or where those students choose to work and live afterward. Although the government collects data on the state origins of undergraduate students at each college, no publicly available data exist for where graduates of specific colleges end up, even though this information is vital for local economic and workforce development and estimating the state and local return on public funding of higher education.

To address these questions, we used data from LinkedIn to develop a new dataset of the destinations of graduates for most colleges and universities in the United States. We use these

data to characterize how labor markets vary across types of colleges based on ownership (public vs. private non-profit), sector (community college vs. baccalaureate-offering), and selectivity. However,

Many college graduates stick around. About half work in the same metro area as their college, while two-thirds work in the same state.

we have also made the labor market data for each college publicly available through the OpenICPSR archive at <http://doi.org/10.3886/E170381>, and we hope it is a useful resource for college officials, students, policymakers, and researchers.¹

New Data to Understand the Mobility of
College Graduates

We draw on information from the business networking site LinkedIn, which contains a page for almost every U.S. college. Each college page automatically compiles information from individual LinkedIn users who specify that college as their alma mater, so we do not need to examine individual users' pages. By scraping the data on the college pages, we can identify the geographic distribution of each college's recent alumni by both local labor markets (akin to metropolitan areas) and states. We observe the top 15–20 metro areas for each college, as well as the share living in the same state as the college. We focus on alumni who attended these colleges between 2010 and 2015, so the locations represent average early-career destinations.

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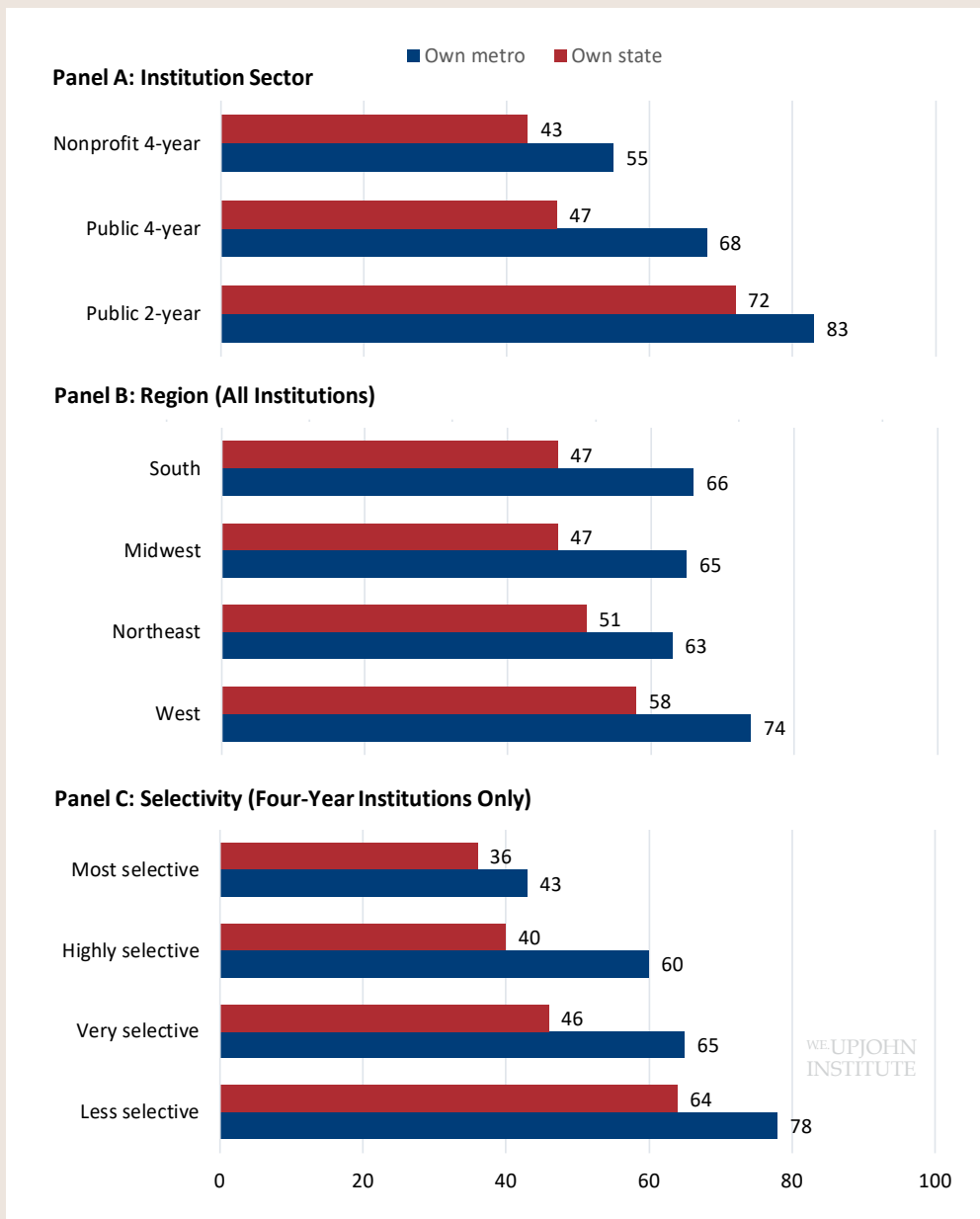
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Because these data are novel and derived from a social networking site, it is natural to have concerns about their quality. Not every college graduate creates a LinkedIn profile, and graduates occasionally stray from the truth when reporting the college(s) they attended (Kreisman, Smith, and

Arifin 2023). Among other quality checks, we compare our data to sources from the Department of Education and the Census Bureau and find that our data capture about two-thirds of all post-secondary graduates and correlate closely with government data on key measures. In particular, we vet the data

against an experimental Census Bureau data product, the [Post-Secondary Employment Outcomes](#), that provides state location and earnings data for graduates from a limited number of colleges in certain states, and show that our data match this source quite well. Our [paper](#) provides details about the construction of the data.

Figure 1 Geographic Mobility of College Graduates Varies by Sector, Region, and Selectivity



The Type of College Matters for Geographic Mobility

Many graduates stick around: on average, about half work in the same metro area as their college, while two-thirds work in the same state. As Figure 1 shows, these figures vary across college sector, region of the country, and college selectivity. Notably, geographic mobility is higher among graduates of 4-year institutions than among graduates of 2-year institutions (Panel A), and among 4-year college graduates, mobility is much higher among graduates of more selective schools (Panel C). Regional differences are more modest (Panel B), with the exception that graduates out West are more likely to stay close.

We can also quantify these patterns for specific schools. For example, the University of Michigan in Ann Arbor (UMAA), Eastern Michigan University (EMU), and Washtenaw Community College (WCC) are all located in the same Michigan county, but the proportion of alumni who still work in the state is 40 percent for UMAA, 76 percent for EMU, and 80 percent for WCC. Moreover, greater Detroit is home to 75 percent of WCC alumni and 71 percent of EMU alumni, but only 35 percent of UMAA alumni. Large contingents of UMAA graduates work in New York City (10 percent), Chicago (7 percent), and the California Bay Area (6 percent).

Economic Mobility

We also find that alumni location choices help to explain the economic mobility of college graduates, especially

NOTE: In Panel C, “Less selective” includes all categories below “Very selective,” with special-purpose institutions (e.g., art and music schools) excluded. Institutions not located in a metro area are assigned the nearest one based on driving distance to the metro area’s geographic center.

SOURCE: Authors’ calculations; [Conzelmann et al. 2023](#).

those coming from lower-income backgrounds. Previous research shows that the likelihood that low-income students—those from the bottom fifth of parental income—will make it to the top fifth of their own earnings distribution in their early 30s depends on what college they attended (Chetty et al. 2020). We use our data to show that this bottom-fifth-to-top-fifth movement is strongly associated with the strength of the labor markets where graduates of a given college work, even after we account for the location of the college itself, other characteristics of the institution, and its student body. Specifically, we document that a 10 percent increase in the average bachelor’s degree wage of an institution’s labor markets is associated with a 14.2 percent increase in the rate of students moving from the bottom fifth to the top fifth of the income distribution.

The Payoff for Retaining College Graduates

The places that attract graduates may be outside the local area or state where their college was located. Some states may experience “brain drain” if they end up exporting many of their college graduates, while others import graduates educated in other states. Brain drain may be a particular concern for policymakers who hope to see a return on state investments in public institutions.

We find that only nine states plus Washington, D.C., import more graduates than their colleges produce. Figure 2 shows the net export or import status of each state. States in shades of blue—disproportionately rural states—are net exporters; they have more college graduates leaving than arriving from other states. States in shades of orange—which contain the bustling cities of Atlanta, Boston, Chicago, Denver, and Seattle, among others—are conversely the states that import more graduates than their colleges produce.

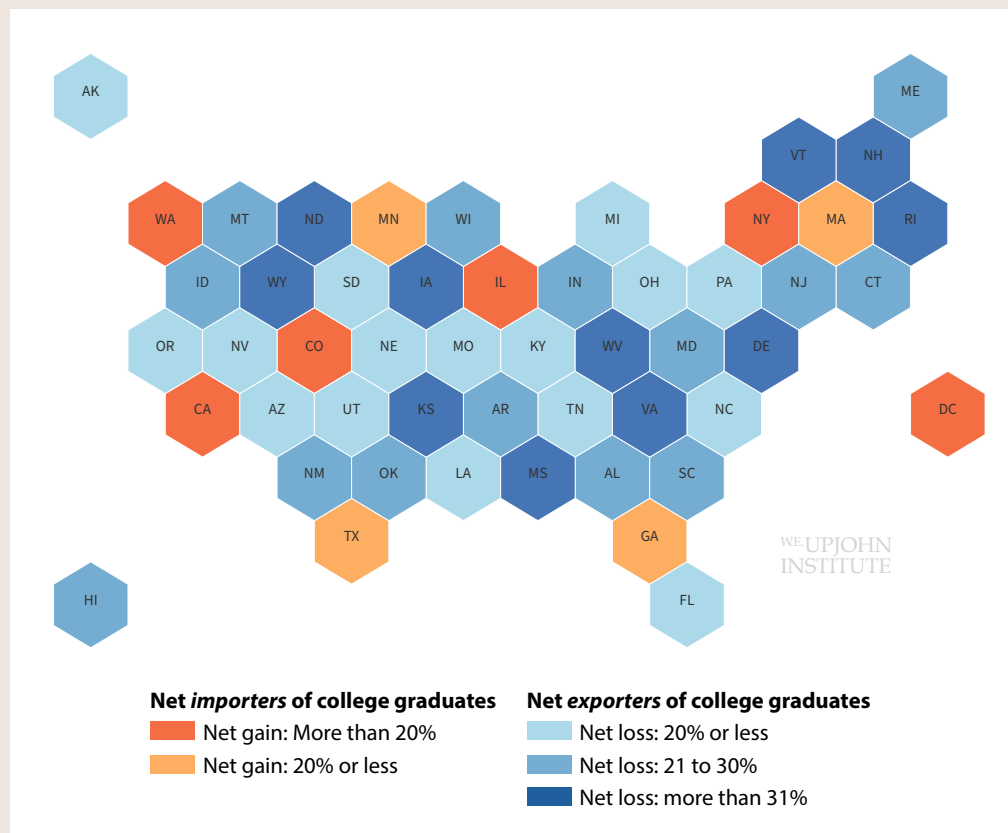
We can also estimate the return on state funds for each college as the number of graduates retained in-state per \$100,000 of state spending in appropriations and grants for these colleges. Figure 3 presents the distribution of these returns across public 4-year colleges nationwide. On average, this return is 1.49, implying that the average college retains about three graduates in-state for every \$200,000 in state funds. The range, however, is considerable. Some colleges have a return less than 1, while others have a return greater than 4. Interestingly, the return for state flagships, at 1.14, is substantially less than the return for selective regional universities. Although the former have slightly higher graduation rates, they tend to cost more to educate graduates,

who are also more likely to leave the state for farther-flung labor markets. Alumni of regional public colleges are more likely to stay and work close by, and those with relatively high graduation rates yield a high return on

Only nine states plus Washington, D.C., import more graduates than their colleges produce.

state funds. Considering that economic developers often see \$100,000 as a reasonable cost to create one new job (Pew Charitable Trusts 2022), a public cost of roughly half that for an additional college graduate worker seems like a steal.

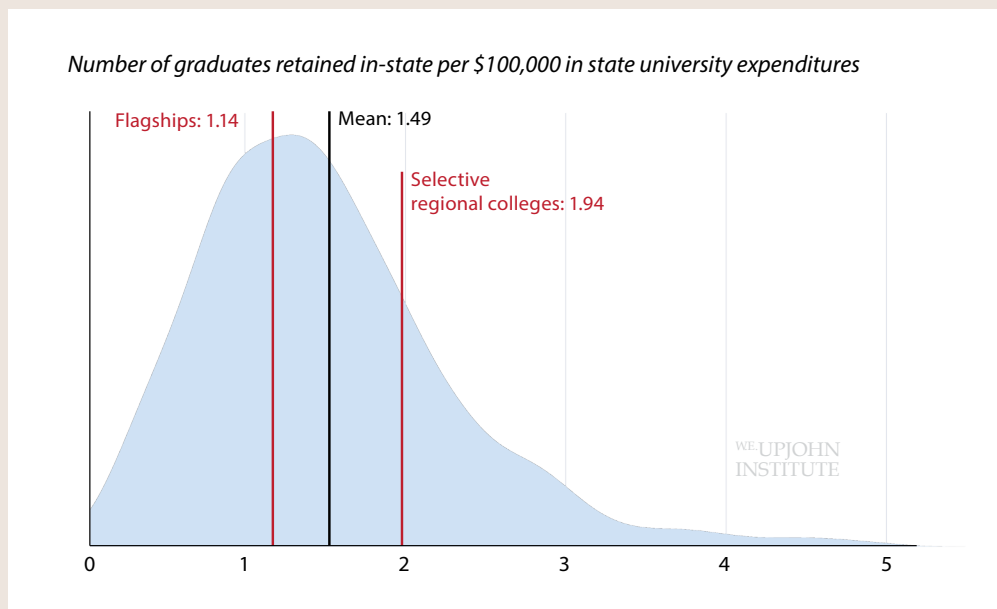
Figure 2 Only Nine States Import More Graduates Than Their Colleges Produce



NOTE: The map focuses on alumni from bachelor’s degree-granting institutions. For details, see Figure 5 in the working paper.
 SOURCE: Authors’ calculations; [Conzelmann et al. 2023.](#)

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Figure 3 Among Public 4-Year Institutions, Selective Regional Colleges Deliver Higher State-Level Returns than Flagships



NOTE: The graph is based on U.S. public 4-year institutions. “Flagships” are the most selective, research-intensive institutions in each state. “Selective regional colleges” are doctoral and master’s institutions within the top three selectivity categories (see Figure 1), excluding the “very high research activity” (R1) Carnegie classification. State expenditures include state appropriations and state grants from IPEDS.

SOURCE: [Conzelmann et al. 2023](#).

Conclusion

Colleges play an important role in labor markets, take in substantial public investment, and are crucial cultural and political institutions. Our new publicly available dataset helps answer both private questions about where in the country each college’s graduates find jobs as well as public policy questions about brain drain and the return on public investment for different types of colleges. Students may wish to use the data to understand which colleges have ties to preferred cities and how those cities may or may not help increase economic mobility. In

turn, policymakers may wish to reduce brain drain and educate their state’s residents by increasing appropriations for regional public colleges that graduate most of their students.

Note

1. Interested users can freely access the data on college graduate labor markets at [OpenICPSR](#). Data files are available for the statistical package Stata (which can be read into R using the foreign package and the read.dta command) as well as in .csv format.

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For additional details, see the working paper at https://research.upjohn.org/up_workingpapers/393/.

Data for each college are publicly available: <http://doi.org/10.3886/E170381>.

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INSIGHTS AND SUCCESSES: American Rescue Plan Act Investments in Unemployment Insurance Modernization

A new report from the Department of Labor details the use of the historic investment of \$1 billion in funding from the American Rescue Plan Act to the DOL and state unemployment agencies to modernize state UI programs. This act represents the first time the DOL has been provided major resources to work collaboratively with states to implement system improvements, including information technology–related upgrades. Read the full report at <https://www.dol.gov/agencies/eta/ui-modernization/arpa-success-stories>.