

ENVISIONING THE NATIONAL POSTSECONDARY DATA INFRASTRUCTURE IN THE 21ST CENTURY

Classroom to Career:

Leveraging Employment Data to Measure Labor Market Outcomes

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This paper is part of the larger series *Envisioning the National Postsecondary Data Infrastructure in the 21st Century*. In August 2015, the Institute for Higher Education Policy (IHEP) first convened a working group of national postsecondary data experts to discuss ways to move forward a set of emerging options for improving the quality of the data infrastructure in order to inform state and federal policy conversations. The resulting paper series presents targeted recommendations, with explicit attention to related technical, resource, and policy considerations. This paper is based on research funded in part by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the author(s) and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation or the Institute for Higher Education Policy.

Executive Summary

Introduction

The nation's students, educators, and policymakers are increasingly calling for better information to demonstrate that postsecondary education provides people from all backgrounds with opportunities to join and remain in the middle class. Labor market outcomes are certainly not the only—or even most important—measure of the value of postsecondary education. However, information about postcollege labor market outcomes is critical to help the following:

- ▶ Students make wiser choices about their education and careers.
- ▶ Postsecondary institutions ensure and demonstrate that their offerings are effectively preparing students to succeed in the job market.
- ▶ Policymakers monitor the results of student aid and education programs.
- ▶ Promote socioeconomic equity and battle generational poverty.

Vision for Employment Data in the Postsecondary Data Ecosystem

Multiple administrative datasets—at both the state and federal levels—contain employment data that can be matched with student records to determine labor market outcomes for postsecondary programs and institutions. Employment data can be linked or incorporated into many other pieces of the postsecondary data ecosystem, including state longitudinal data systems, multistate data exchanges, and a national student record data system.

There is value in building employment data infrastructure at both the state and federal levels. Matching a federally based employment dataset with student records to analyze labor market outcomes is an efficient solution for producing comparable and reliable nationwide data, and is therefore the best choice for calculating key metrics for a student audience. However, because of political hurdles, it is unlikely that a federal data-matching arrangement would include the wide array of student, program, and employment data needed to conduct the breadth and depth of analysis desired by individual states and institutions. Authorizing and funding such a comprehensive federal data system is probably not feasible given the current political climate, but policymakers should not wait years or decades to enable this important field of analysis. Therefore, a vision for an ideal national data infrastructure that can measure labor market outcomes should do the following:

1. Include a mechanism for federal data matching that can calculate the aggregate employment outcomes, which are critical information for students and federal policymakers.
2. Allow flexibility and support capacity for states (and their agents) to use wage records to conduct more detailed research to improve policy and practice.

Major Issues: Sources and Uses of Employment Data

There is widespread interest among policy and political leaders in harnessing administrative data to measure employment outcomes, as demonstrated by comments from President Obama and congressional leaders on both sides of the aisle,¹ as well as the passage of legislation in several states like Maine² and Arkansas³ that requires public reports on postcollege workforce outcomes. Multiple employment datasets provide basic information on employers and employees, including identifying information that may be used to match employment data with student records. **Table 1** notes differences in the datasets that should be considered when determining the ideal source for particular performance measurements and research. Another consideration is the feasibility of data access for federal agencies, states, and postsecondary institutions. Multiple federal and state laws and regulations, such as the Family Education Rights and Privacy Act (FERPA), the Privacy Act of 1974,⁴ and wage record confidentiality regulations at 20 C.F.R. Part 603, govern the sharing of personally identifiable education and employment data. All of these mandates have ramifications for making linkages with employment data part of the national postsecondary data infrastructure.

All of these options for accessing employment data are currently being explored to implement state or federal postsecondary policies. States are using their unemployment insurance (UI) wage records to create performance scorecards for postsecondary programs and determine employment outcomes to enable performance-based funding. Federal leaders are trying to improve transparency and accountability for employment outcomes by requiring states to produce Workforce Innovation and Opportunity Act (WIOA) training provider scorecards, and by using Social Security Administration data to calculate earnings for Gainful Employment rule implementation and the College Scorecard.

Technical Enhancements and Resources to Improve Employment Data

Several enhancements would improve state and federal employment datasets to positively contribute to the postsecondary data infrastructure.

TABLE 1: EMPLOYMENT DATA SET CHARACTERISTICS

	Agency	Data Source	Geographic Coverage	Worker Coverage	Frequency	Industry/ Occupation	Data Retention Period
State Unemployment Insurance (UI) Wage Records	State UI agencies, usually the workforce agencies	UI wage records	Single state; some multistate regional exchanges	Employees in UI-covered jobs Excludes self-employed, federal employees, military Estimated 80% of civilian labor force	Quarterly	Industry codes	Varies by state, but at least three years required in archives; some states have 10+ years of data
Wage Record Interchange System (WRIS/ WRIS2)	UI wage data is held by states, and US Department of Labor operates exchange system through cooperative agreement with Maryland	UI wage records	WRIS is nationwide; WRIS2 covers 39 states, District of Columbia, Puerto Rico	UI-eligible workers	Quarterly	Industry codes	Exchanges data for past two years
Federal Employment Data Exchange System (FEDES)	US Department of Labor operates exchange system through cooperative agreement with Maryland	US Department of Defense and Office of Personnel Management files	43 states and District of Columbia	Federal employees except US Postal Service; military employees	Quarterly	No	Exchanges data for past two years
National Directory of New Hires (NDNH)	US Department of Health and Human Services, Office of Child Support Enforcement	UI wage records; federal agencies	Nationwide	UI eligible workers + federal workers (including military)	Quarterly	No	Two years
Longitudinal Employer-Household Dynamics (LEHD)	US Department of Commerce, Census Bureau	UI wage records; Office of Personnel Management files; tax data for self-employed	Nationwide (except Wyoming)	UI eligible workers + civilian federal workers + self-employed	Quarterly	Industry codes	Key data goes back over a decade; continually augmented
Internal Revenue Service (IRS) Data	US Treasury Department, Internal Revenue Service	W-2 and self-employment form tax data	Nationwide	Essentially all workers	Annual	Industry codes (subset of records)	Key data goes back over a decade; continually augmented
Social Security Administration (SSA) data	Social Security Administration	W-2 and self-employment form tax data	Nationwide	Essentially all workers	Annual	Industry codes (subset of records)	Key data goes back over a decade; continually augmented

Adding data fields to UI wage records. Requiring employers to report on the occupation and hours worked by employees would enable more precise reporting of whether postsecondary graduates obtain training-related employment and full-time jobs. A handful of states collect one or both of these additional pieces of information, and researchers are examining the costs and benefits of requiring these data fields for all states. The Congressional Budget Office recently estimated that a federal mandate to collect this additional information would cost the federal government over \$200 million over the next five years.⁵

Improving multistate data sharing. Currently, state agencies and institutions have mechanisms for using only state-based wage records to measure postsecondary labor market outcomes. State UI wage records have limited geographic coverage and are missing federal workers. These pieces of missing data are especially troubling because they create inequity when comparing institutions, as some schools have larger portions of graduates moving out of state or taking federal jobs. This problem may be addressed by improving state data exchanges, either through the Wage Record Interchange System (WRIS) or by expanding regional data sharing

arrangements, such as the exchange operated by the Western Interstate Commission for Higher Education. For select purposes, states may also tap into the Federal Employment Data Exchange System (FEDES) to access records for federal employees. Some expense would be needed to improve multistate exchanges, but the most significant resource required is political will within states to participate in data sharing arrangements.

Creating legal frameworks and capacity for data linkages.

Linking employment data with student records is done by matching personally identifiable information like Social Security Numbers, and first and last name. While this type of matching presents some technical challenges, the larger problems are legal prohibitions and capacity limitations at state and federal agencies. State interagency linkages could be promoted with clearer guidance from the federal government and explicit state policies on data sharing. Some federal data matching may be conducted under current law, as evidenced by the new College Scorecard. However, federal legislation that specifically authorizes or mandates the use of federal employment data for evaluation of education and workforce programs would strengthen these efforts and make it more likely that they will persist. Major and sustained advocacy efforts are needed to cultivate political support for legislative changes, and building federal and state agency capacity to conduct more data matching would require additional funding.

Building trust to facilitate data linkages. Trust between agencies and individual staff is essential to develop and maintain data linkages. Whether through law, regulation, or data sharing agreements, trust is enhanced when agencies have clear and transparent guidance on their roles. Templates for data sharing agreements that clearly enumerate agency responsibilities, as well as standardized courses that teach proper confidentiality and security procedures to those working with the data, could facilitate interagency cooperation. The Departments of Education and Labor spend over \$5 million annually on technical assistance for state longitudinal data systems. Well-funded technical assistance, provided by both federal agencies and nonprofit organizations, is important to continue developing a culture that supports data sharing.

Policy Recommendations

Federal Action

1. Institutionalize a process for federal agencies to match student records with employment data and regularly publicize aggregate employment and earnings outcomes by program of study, ideally through legislation.
2. Amend FERPA to include the provisions currently in the federal regulations to allow an “authorized representative” to evaluate education programs, broadly defined as including job training. The “authorized representative” clause is critical to allowing education and workforce data linkages at both the state and federal levels.
3. Use WIOA regulations to clarify permissible purposes and parties, including state education agencies and colleges, to access UI wage records. The final regulations should enable education agencies and institutions to use UI wage records to assess labor market outcomes for a broad range of postsecondary programs.
4. Issue joint Department of Education/Department of Labor guidance to promote data linkages and uses, and clearly explain how state data systems may link education and wage data in compliance with FERPA and UI rules.
5. Congress should support federal funding for states to enhance their data systems, including linkages of education and wage data.

State Action

1. Enact state policies that promote transparency on employment outcomes of postsecondary programs and the data systems required to calculate those outcomes.
2. Amend state laws and restrictive legal opinions that unnecessarily inhibit wage data access.
3. Improve WRIS, WRIS2, and FEDES data sharing agreements to include all states and expand the terms of data usage to facilitate more comprehensive evaluation of postsecondary employment outcomes.
4. Create interagency data governance councils and detailed, transparent data sharing agreements and staff training protocols to build trust, ensure confidentiality and security, and develop a culture of data sharing and use.
5. Allocate state funds to maintain and improve employment data linkages and support the use of linked state data.
6. Pilot efforts to enhance UI wage records, including hours worked and occupational codes, to make the data more valuable for assessing labor market success.

Classroom to Career:

Leveraging Employment Data to Measure Labor Market Outcomes

Introduction: Why Measure Labor Market Outcomes?

The 2008 recession ushered in years of high unemployment and sluggish job growth, and thus prompted numerous questions among both policymakers and the public as to whether postsecondary education guarantees people from all backgrounds the opportunity to enter and remain in our nation's middle class.

Research to date generally suggests that even in periods of high unemployment, individuals who have more education fare better on average than those who have less. For example, in February 2010, people with less than a high school diploma had an unemployment rate of 15.8 percent, while those with a bachelor's degree or higher had an unemployment rate of 5.0 percent.⁶ However, this overall trend masks considerable variations in employment rates and earnings across different programs of study (e.g., liberal arts versus "hard" sciences) within the same education level. To wit, the Georgetown University Center on Education and the Workforce (CEW) in 2015 calculated a \$3.4 million difference in lifetime earnings between the lowest- and highest-paying college majors.⁷

In addition to the growing body of research on the variations in labor market returns relative to postsecondary education, several other factors are stimulating calls for more information about the connections between education and careers:

Rising education costs. College tuition costs continue to rise and average student debt for those who borrow to complete a bachelor's degree has increased 56 percent from \$18,550 in 2004 to \$28,950 in 2014.⁸ With these skyrocketing costs, students and parents are now seriously questioning the return on investment for a college education. Policymakers also have a particular interest in ensuring that students do not use publicly funded grants or loans to pay for programs of study that have few job prospects and generate significant debt that students will be unable to repay.

Focus on career preparation. Multiple surveys of students, parents, and the general public consistently show that postsecondary education is valued as a way to enhance job prospects and increase earning potential.⁹ Recent research from New America¹⁰ shows that the top three reasons that prospective and recently enrolled students cite for going to college all relate to employment. The number one reason—"to improve my employment opportunities"—was rated as "very important" by 73 percent of survey respondents and "import-

ant" by another 18 percent. Part of this emphasis on future employment may be due to shifting student demographics. In 2012, 40 percent of undergraduates were 25 or older, and about a quarter of undergraduate students were parents.¹¹ Many of these students are pursuing postsecondary education specifically to improve their labor market prospects, so they are strongly motivated to select educational programs that lead to better employment opportunities.

Skills gap. Even when unemployment rates were peaking, employers continued to report difficulty filling openings with qualified applicants, and some of these challenges continue today. The most recent annual ManpowerGroup survey shows that 32 percent of American employers have trouble filling positions.¹² This issue is most visible in particular industries, as evidenced by a 2015 report from Deloitte and The Manufacturing Institute that projects there will be 3.5 million job openings over the next decade, of which 2 million will not be filled because of skills gaps.¹³ To address this ongoing problem, employer groups are advocating for more education systems that teach the knowledge and skills specifically required in the labor market.

Labor market outcomes are certainly not the only—or even most important—measure of the value of postsecondary education. However, there is a growing consensus that postcollege labor market outcomes are one critical component of information that should be available to students, institutions, and other stakeholders. This information can help the following:

- ▶ Students make wiser choices about education and careers. Research suggests that "earnings information influences both students' choices and subjective expectations about their earnings potential."¹⁴ Educators in states that publicize postcollege employment and earnings data (e.g., Minnesota) report that this information facilitates conversations with students about college attendance, choice of major, and decisions about student loans.¹⁵
- ▶ Postsecondary institutions ensure and demonstrate that their offerings are effectively preparing students to succeed in the job market. Community colleges in multiple states, including California, Kentucky, and Ohio, look at labor market outcomes when they consider expanding or adjusting their programs.¹⁶
- ▶ Policymakers monitor the results of student aid and education programs. Especially in times of scarce resources, state and federal leaders want to know that resources are supporting programs that produce positive results for students.

- ▶ Promote socioeconomic equity and battle generational poverty. Disaggregating labor market outcome data to show results for disadvantaged populations reveals which education programs provide a path to middle-class wages for students from varied backgrounds. This information can help students select programs with a track record of success serving students with similar characteristics, and assist educators and policymakers with identifying promising career pathways.

Vision for Employment Data in the Postsecondary Data Ecosystem

Multiple administrative datasets—at both the state and federal levels—that contain employment data can be matched with student records to determine labor market outcomes for postsecondary programs and institutions. Employment data can also be linked or incorporated into many other pieces of the postsecondary data ecosystem, including state longitudinal data systems, multistate data exchanges, and a national student record data system.

After examining the advantages and limitations of different employment datasets, this paper catalogs technical enhancements that would improve the utility of those datasets for measuring labor market outcomes. The paper concludes with policy recommendations to support these technical enhancements.

Although they address multiple datasets, the policy recommendations presented herein are not mutually exclusive. In particular, there is value in building employment data infrastructure at both the state and federal levels. A few different sources of employment data are available at the federal level, any of which could be matched with student records to analyze labor market outcomes. Because this is an efficient solution for producing comparable and reliable nationwide data, it is the best choice for calculating key metrics for a student audience. However, political hurdles make it unlikely that a federal data matching arrangement would include the wide array of student, program, and employment data needed to conduct the breadth and depth of analysis desired by individual states and institutions. Authorizing and funding such a comprehensive federal data system is probably not feasible given the current political climate, but policymakers should not wait years or decades to enable this important field of analysis. Therefore, a vision for an ideal national data infrastructure that can measure labor market outcomes should do the following:

1. Include a mechanism for federal data matching that can calculate the aggregate employment outcomes, which are critical information for students and federal policymakers.
2. Allow flexibility and support capacity for states (and their agents) to use wage records for more detailed research to improve policy and practice.

Current Status: Sources and Uses of Employment Data

Two standard methods are currently used to obtain information on employment outcomes: surveys and administrative data.

A variety of survey data collected by federal and state agencies reveal critical information about students, workers, and the labor market. The Current Population Survey (CPS) and American Community Survey (ACS), for example, have been used to compare the labor market experiences of groups with different demographic characteristics, education levels, credentials, and even college majors.¹⁷ The CPS, produced through a partnership between the federal Census Bureau and Bureau of Labor Statistics (BLS), surveys households each month and costs roughly \$90 million each year.¹⁸ The ACS, another household survey overseen by the Census Bureau, collects information from 3.5 million households and costs more than \$230 million per year.¹⁹

Administrative data is collected by government agencies in order to administer programs, but the data can also be analyzed in new ways to enable other research and evaluation efforts. Employment data are already collected by state and federal agencies for a number of purposes, such as managing the unemployment compensation system, enforcing child support orders, and calculating income taxes. This administrative employment data may also be used to determine the labor market outcomes of education and training program participants. State and federal agencies that have individual-level student records with personal identifiers, such as Social Security Numbers (SSNs), can match them with individual-level employment records to see the career trajectories of student cohorts.

Surveys Compared With Administrative Data

Research experts differ in their preferences for either survey or administrative data. Selecting the best data source often depends on the research topic in question, as well as weighing the privacy of individuals whose data was collected for administrative (rather than research) purposes. Some studies use a mix of administrative data and surveys to get more complete information or provide a check on data quality.

When calculating employment outcomes, using administrative data has notable advantages:

Data quality. Surveys rely on high response rates from a selected group of survey participants to accurately estimate the characteristics of an entire population. Unfortunately, response rates are currently declining, especially on survey questions that ask about income.²⁰ It is especially challenging to get accurate information from surveys about long-term career trajectories. That type of data requires longitudinal surveys on the same cohort, and people may drop out of the survey sample over

time, distorting the results.²¹ On the other hand, administrative data collected by multiple programs may be linked longitudinally to observe how groups move through varied education and career paths. These linkages can cover long periods of time, and answer questions like “What is the difference in average earnings between preenrollment and postcompletion for this degree program?” without relying on survey respondents to accurately report their income from several years ago.

Program-level data. There is emerging agreement among policy leaders that program-level data on employment outcomes are important because of the significant variations between schools and majors. Currently, no nationwide surveys provide data on postcompletion employment and earnings available for specific programs at each postsecondary institution. The CPS breaks down employment data by educational attainment, and the ACS gathers this type of information across college majors, but institution-level data are not collected. Given the small size of many schools’ programs, obtaining a statistically viable survey sample might prove difficult. In contrast, linked administrative data may be easily disaggregated by institution and program, as demonstrated by several states that already conduct this analysis and display results online.²²

Cost effectiveness. Many researchers report that the “cost of accessing the UI wage data is generally substantially less than alternative means of collecting employment and earnings data,” including surveys.²³ A 2004 study looked at the costs for measuring the performance of workforce development programs, estimating a cost of \$13.25 per participant for follow-up surveys as compared with a cost of \$0.05 per participant for automated matching of UI wage record data.²⁴

Given the widespread interest among policy and political leaders in harnessing administrative data to measure employment outcomes, as well as the advantages of administrative data over surveys (see sidebar), the rest of this paper discusses options for obtaining the desired information on employment and earnings from administrative datasets.

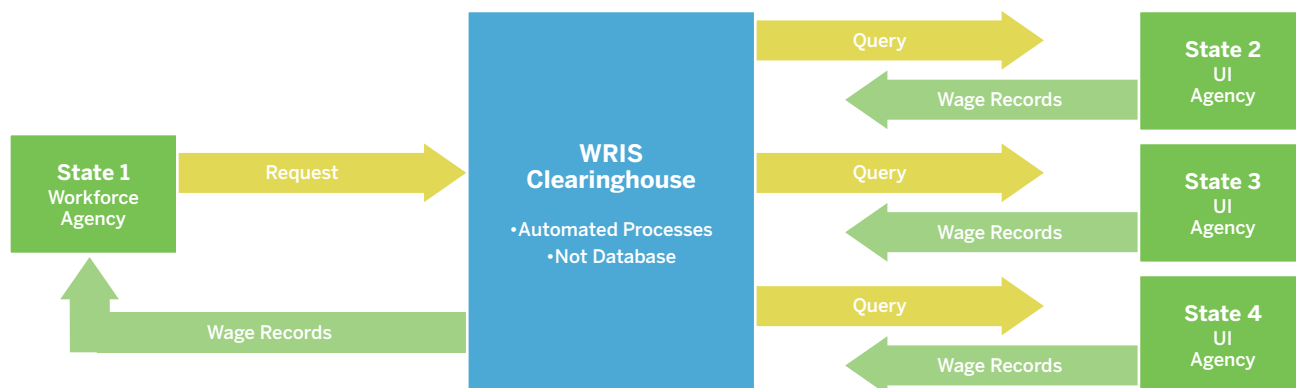
What Are the Sources of Employment Data?

Two administrative sources collect employment data: unemployment insurance (UI) wage records and tax records, which contain confidential data and are housed in various agencies at the state and federal levels.

State UI wage records are submitted quarterly by employers to the state agency that manages unemployment benefits, which is usually the state workforce agency. State wage record files include basic information about the employee and employer (including industry), and the wages that the individual earned in the most recent quarter. State agencies keep these records for at least three years and submit them quarterly to the federal government’s National Directory of New Hires (NDNH) and the Longitudinal Household-Employer Dynamics (LEHD) dataset operated by the Census Bureau. UI wage records do not include people who are self-employed or who are employed by the military or federal government. As of 2010, approximately 80 percent of the civilian labor force was employed in UI-eligible jobs.²⁵ For decades, states have used UI wage records to measure outcomes for workforce development programs.

To assist states in exchanging UI wage records to measure employment outcomes for those working across state lines, the U.S. Department of Labor (DOL) supports the Wage Record Interchange System (WRIS) and a similar platform called WRIS2. These systems are *not* national databases of earnings information. UI wage records remain in separate state databases, but WRIS and WRIS2 offer a process for states to share them through a partially automated system. State workforce agencies that want to obtain out-of-state wage records submit requests to a clearinghouse with SSNs. The clearinghouse uses a nationwide index to identify which states have the requested wage records and then sends queries to the right states. State UI agencies pull the queried wage records and send them back through the clearinghouse to the requesting state (see **Figure 1**).²⁶

FIGURE 1: WAGE RECORD INTERCHANGE SYSTEM PROCESS



For tax records, all businesses submit an annual W-2 form to the Social Security Administration (SSA) for each of their employees. The form has basic information about the business and the employee, including the employee’s earnings for the year. SSA annually collects 250 million W-2 forms, with an average of 1.5 forms per worker. Self-employed individuals submit Form 1040 annually to the Internal Revenue Service (IRS). Data are shared between the IRS and SSA, so both agencies hold earnings information on essentially all workers, including those employed by businesses and self-employed. This sensitive information is kept secure, with access to confidential information limited to select government employees.²⁷

Tax data are also kept at the federal level by the Census Bureau and held at the state level by various state agencies, but access is so tightly restricted that this paper will not address Census-held or state tax records as viable options for calculating postsecondary employment outcomes.

Table 2 provides a detailed comparison of options for accessing employment data. (Note that the Federal Employment Data Exchange System [FEDES] should not be considered as a stand-alone option. Rather, it is a mechanism to augment state datasets that are missing information on federal civilian and military employees.) All of these options provide basic information on employers and employees, including identi-

TABLE 2: EMPLOYMENT DATA SET CHARACTERISTICS

	Agency	Data Source	Geographic Coverage	Worker Coverage	Frequency	Industry/ Occupation	Data Retention Period
State Unemployment Insurance (UI) Wage Records	State UI agencies, usually the workforce agencies	UI wage records	Single state; some multistate regional exchanges	Employees in UI-covered jobs Excludes self-employed, federal employees, military Estimated 80% of civilian labor force	Quarterly	Industry codes	Varies by state, but at least three years required in archives; some states have 10+ years of data
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National Directory of New Hires (NDNH)	US Department of Health and Human Services, Office of Child Support Enforcement	UI wage records; federal agencies	Nationwide	UI eligible workers + federal workers (including military)	Quarterly	No	Two years
Longitudinal Employer-Household Dynamics (LEHD)	US Department of Commerce, Census Bureau	UI wage records; Office of Personnel Management files; tax data for self-employed	Nationwide (except Wyoming)	UI eligible workers + civilian federal workers + self-employed	Quarterly	Industry codes	Key data goes back over a decade; continually augmented
Internal Revenue Service (IRS) Data	US Treasury Department, Internal Revenue Service	W-2 and self-employment form tax data	Nationwide	Essentially all workers	Annual	Industry codes (subset of records)	Key data goes back over a decade; continually augmented
Social Security Administration (SSA) data	Social Security Administration	W-2 and self-employment form tax data	Nationwide	Essentially all workers	Annual	Industry codes (subset of records)	Key data goes back over a decade; continually augmented

Sources: See endnotes 28, 29, 30, 31

fyng information that may be used to match employment data with student records. Both state and federal agencies recognize the sensitive and personal nature of personally identifiable employment data, and have a long history of trying to implement strict security and privacy measures to protect such data from unauthorized use. Any data made public would be in aggregate form, showing information only about groups of students in order to protect information about particular individuals within those groups.

Using Employment Data to Measure Performance

In general, administrative wage data are viewed as a reliable source of information for performance management, research, and evaluation.³² Administrative employment data are reported by employers and individuals, and as such are subject to human error. Mistakes may occur at different points in the data collection process, including when information on paper wage or tax record forms is entered into electronic systems. However, since administrative employment data are connected to the relatively high-stakes activity of tax collection, there is an incentive for those reporting the data to get it right.

All of the employment data sources outlined above contain the data fields necessary to populate standard employment outcome metrics:

- ▶ Employment rate = the percentage of completers (students who have completed a credential program) or another specified student population that is employed during a designated period
- ▶ Earnings = the mean or median earnings for a specified student population that is employed during a designated period

These metrics can be calculated at different points in time and combined to create a variety of measures, such as short-term and long-term employment rates, changes in earnings before enrollment versus after completion, and the portion of students with annual earnings above a specified threshold. Metrics can also be disaggregated for particular demographic groups to assist in crafting policies to address equity concerns.

Although all employment datasets have most of the same data fields, important differences should be considered when determining the ideal source for measuring the performance of particular programs. Employment dataset options diverge on the following dimensions:

Geographic coverage. All federally housed datasets (i.e., NDNH, LEHD, and tax data at the U.S. Department of the Treasury and SSA) currently have nationwide coverage, but state UI wage records contain only information on people who are

employed in that state. This is a significant limitation when attempting to accurately measure postcollege labor market outcomes. Many people work in a state other than the one where they received a credential, especially as they move over time. Sharing data between just four states through a data exchange made it possible to determine where college students ended up for 7 percent more graduates on average than the states would have known about from just their own UI wage data.³³

Worker coverage. As noted earlier, tax records include essentially all workers, but UI wage records cover only about 80 percent of the civilian labor force. The primary missing workers are federal employees and the self-employed. UI wage records also lack information about military employees. States may fill in missing federal workers (both civilian and military) by using FEDES, a data exchange run by the state of Maryland under a contract with DOL. FEDES allows states to get information about employees from the Department of Defense and the Office of Personnel Management, and use the information for required federal and state reporting. At the federal level, NDNH and LEHD both augment their state UI source data. NDNH also includes most federal workers, and LEHD adds information on federal civilians and self-employed workers.

Frequency (quarterly versus annually). Workforce programs generally have performance measures based on quarterly periods. For example, programs authorized under the Workforce Innovation and Opportunity Act (WIOA), passed with bipartisan support in 2014, are accountable for employment rates two-quarters and four-quarters after program exit. Tax records, which show only annual earnings, would be difficult to use for these measures. For certificate and degree programs, which are usually more concerned with outcomes after one or several years, either tax records or UI wage records are feasible options.

Data retention. WRIS2, FEDES, and NDNH are the datasets most limited in the length of time they cover as they provide records going back only two years. This is most problematic for evaluating programs and calculating metrics that attempt to measure a change in earnings over time, such as pre- and postcollege.

All of these datasets would be limited in their ability to indicate whether students actually get jobs related to their fields of study. UI wage records (either in individual states, exchanged through WRIS/WRIS2, or housed at LEHD) provide industry codes, not occupation codes. SSA data do not have occupation codes either, and currently have industry codes for only a subset of their earnings records.

In many cases, the industry codes line up nicely with the occupations one would expect to see in them. For example, BLS estimates that 61 percent of “registered nurses” are employed in the Hospital industry category. However, even relatively straightforward occupations like registered nursing show up in unexpected industries. For instance, 3 percent of registered nurses work in the Federal Government industry category. For some programs of study, like computer science, relevant occupations (e.g., computer systems analysts) are spread throughout many different industries, so determining whether people actually had jobs related to their training or field of study based solely on industry codes would prove challenging. The industries where one would intuitively look for computer science occupations (e.g., Computer Systems Design, Data Processing, Management/Scientific/Technical Consulting Services) account for only about one-third of jobs held by these analysts. The rest are found in industries like State/Local Government and Colleges and Universities.³⁴

Looking at the mix of all of these dimensions, none of the dataset options emerge as a definitive “winner” that should be the sole focus of an effort to incorporate employment data into a national postsecondary infrastructure. Based on technical attributes, LEHD is probably preferable as a federal data source because it may be effectively used for a variety of purposes. It has the flexibility of quarterly wage data along with national coverage, substantial worker coverage, and long data retention. In addition, the long-term possibility exists that its source UI records will be enhanced to include occupations, as will be discussed in later in this paper in the section on improving data collection by adding data fields. However, the other federal sources of wage data also have sufficient information to be used effectively for calculating postcollege labor market outcomes.

Who Can Access Employment Data?

Several federal laws and regulations govern the sharing of personally identifiable education and employment data, and have ramifications for making linkages with employment data part of the national postsecondary data infrastructure.

The Family Education Rights and Privacy Act (FERPA) prohibits schools and state education agencies from sharing personally identifiable student information without the consent of parents or students, with a few exceptions. The most relevant exception for linking with employment data is the audit/evaluation exception, which allows an education entity to designate an “authorized representative” to evaluate education programs.³⁵ Many state education entities use this exception to share individual student records with state workforce agencies that hold UI wage records and can conduct data matching.

A number of statutes, including the Privacy Act of 1974,³⁶ govern how federal agencies may share personally identifiable data. Some of these laws enumerate allowable uses for employment information contained in specific federal data systems. For example, Section 453 of the Social Security Act explains the allowed uses of NDNH data, Internal Revenue Code Section 6103 lists the allowable uses of tax data, and confidential Census data is protected by U.S. Code Title 13. These laws strictly limit access to individual-level data, in most cases making it available only to other federal or state agencies for specified purposes, which do not currently include sharing individual-level employment data with the Department of Education (ED) to assess postsecondary outcomes. In a few cases, nongovernment researchers have been able to perform or request analyses on individual-level employment data by partnering closely with federal statisticians, but these are the exception rather than the rule.³⁷

Federal laws generally allow public release of aggregate information derived from tax records or UI wage data, as long as the information cannot be traced to a particular individual. Thus, it would be legally permissible for states or postsecondary institutions to submit student records with personal identifiers (e.g., names or SSNs) to federal agencies that have employment data, have those federal agencies match the education and employment data, and then return the aggregated labor market outcome information. The aggregate data would need to have large enough group sizes to prevent identification of particular individuals. However, federal agencies have limited capacity and no mandate to perform this matching service for states or institutions, and it is not a standard part of their operations.

State workforce agencies must follow federal UI confidentiality regulations (mostly contained in Title 20 of the Code of Federal Regulations, Part 603), which allow the release of personally identifiable UI wage records only to public officials acting in an official capacity. To receive individual-level UI wage records, other state agencies (including state education agencies) must have written data sharing agreements and reimburse the costs of providing data.³⁸ The current rules do not specifically permit disclosure to individual public postsecondary institutions, although some community college system offices, including California Community Colleges, do get individual-level UI wage records.³⁹

States may also pass their own laws to govern data sharing, as long as they are as strict or stricter than federal rules. While a few states, such as Louisiana, have specifically passed laws prohibiting data linkages, legal barriers to linking student records and employment data usually result from stringent interpretations of federal laws. A recent study from the Center for Regional Economic Competitiveness found that “decisions to disclose or withhold employment and wage data are

largely based on how state legal counsel choose to interpret UC [unemployment compensation] data confidentiality laws and regulations.”⁴⁰

The operational terms for sharing data are specified under the WRIS and WRIS2 data sharing agreements, which include multiple safeguards to protect confidential information about individuals and specify the circumstances in which the data may be accessed. For example, WRIS may be used to fulfill performance reporting requirements for programs authorized by WIOA, but the data sharing agreement does not allow access for calculating outcomes for other education or social service programs. However, WRIS2 may be used to track outcomes for all postsecondary programs, as long as the analysis is required by a state or federal mandate. For both WRIS and WRIS2, only specially designated state agencies (usually state workforce agencies) may have access to individual-level data. Other entities, such as postsecondary institutions, may receive only aggregate data packaged by the designated agencies.⁴¹

Joanna Lyn Grama’s paper, *Understanding Information Security and Privacy in Postsecondary Education Data Systems*, provides further information about security and privacy issues.

Public Policy: Developments in Using Employment Data

All of these options for accessing employment data are currently being explored to implement state or federal postsecondary policies. States are using their UI wage records to create performance scorecards for postsecondary programs and determine employment outcomes, to enable performance-based funding. Federal leaders are trying to improve transparency and accountability for employment outcomes through WIOA training provider scorecards, the Gainful Employment regulation, and the College Scorecard.

State policies

Roughly half of states report that they use their UI wage records to measure outcomes for a broad array of workforce and education programs, including higher education. More than 15 states publicize postsecondary data, including employment outcomes, on scorecards aimed primarily at students and counselors to assist with selecting between institutions and programs.⁴² In a handful of states, employment outcomes also are a key part of performance-based funding formulas for postsecondary institutions, particularly community and technical colleges. In Texas, a significant share of technical college funding is based on graduates’ average earnings above the minimum wage.⁴³ Florida’s performance funding considers employment outcomes for all colleges, including four-year institutions.⁴⁴

States match UI wage records with student records using

state longitudinal data systems, which allow for automated matching on a routine basis or by request. In addition, many states match data outside of longitudinal systems by simply exchanging files between agencies as needed. In several states, the creation of data sharing agreements and scorecards is facilitated by College Measures, a joint venture of the American Institutes for Research and Optivity Advisors.

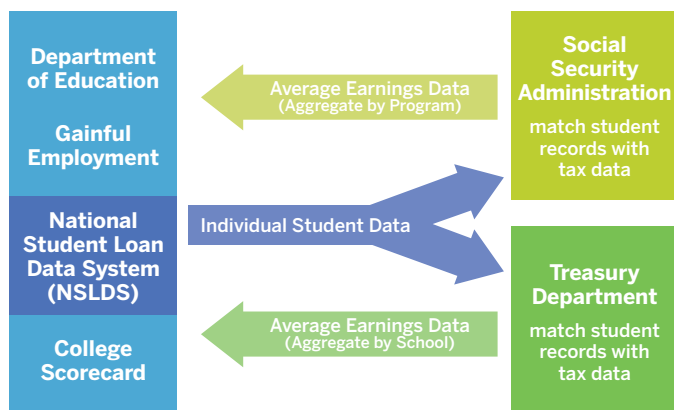
Most states rely only on their own UI wage records to determine postsecondary employment outcomes. Some use WRIS2 or another multistate data exchange to capture additional outcomes from graduates who move out of state, but the capacity needed to establish multistate agreements or to participate fully in WRIS2 limits this practice.

Federal policies

Both state and federal leaders are working on ways to access wage data to meet WIOA performance requirements, which include reporting on the employment outcomes of all students in programs eligible for WIOA funding. States like Washington and New Jersey already have comprehensive systems for reporting eligible training provider outcomes using UI wage records. But many other states are struggling with data matching due to restrictions on UI data sharing, as well as limited capacity to collect and manage data at state agencies and training providers. The 2017 President’s Budget⁴⁵ and proposed WIOA regulations⁴⁶ reference NDNH and LEHD as possibilities for nationwide wage datasets that could facilitate WIOA reporting.

In another example of federal policy utilizing wage data in new ways, ED relies on SSA’s tax data to calculate debt-to-earnings ratios that measure whether career-oriented postsecondary programs adequately prepare students for gainful employment. In October 2014, ED released a final gainful employment regulation. The rule is designed to ensure that students are not using Title IV federal student aid, like Pell Grants and loans, to enroll in programs that result in more debt than they will realistically be able to pay back. Programs that do not meet a specified debt-to-earnings threshold will not be eligible for federal financial aid.⁴⁷ To conduct the data matching, ED sent roughly 3 million records on federal student aid recipients to SSA. Each record included the student’s name, date of birth, SSN, and the requested year to report earnings. SSA conducted the data matching using tax data in its Master Earnings File and released the aggregate data on average earnings for each gainful employment program (see **Figure 2**). ED agreed to reimburse SSA about \$250,000 for initially setting up the matching capacity and for matching one round of data.⁴⁸ The original version of the gainful employment rule called for ED to collect data from colleges on all students in qualifying programs to match with SSA data for calculating average earnings. However, a federal court ruling prohibited such data collection, saying that it violated a

FIGURE 2: FLOW OF WORKFORCE DATA FOR GAINFUL EMPLOYMENT AND COLLEGE SCORECARD

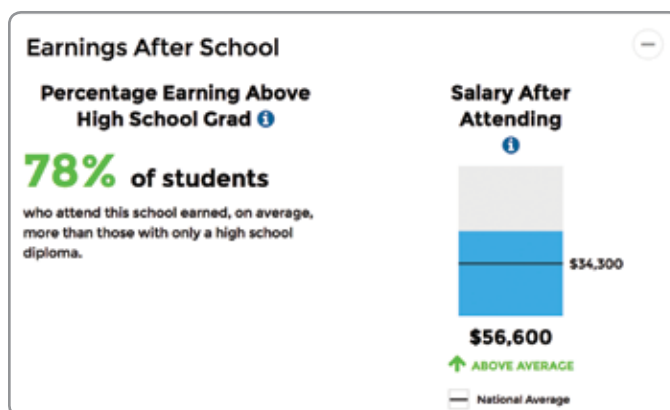


law prohibiting establishment of a federal student unit record system. Therefore, only students who receive federal aid are included in the measure.⁴⁹

While the Obama Administration pushed the gainful employment regulation to ensure accountability for career-oriented programs, it also developed a new College Scorecard to make outcomes more transparent for all postsecondary institutions. The College Scorecard website debuted a few years ago, showing a small set of common metrics on costs, debt, and graduation rates. It also included placeholder language noting that it is important to consider expected postgraduation earnings, and that the federal government may provide that data for schools at a later time. In September 2015, ED launched a revamped College Scorecard that includes two measures of earnings for each postsecondary institution: (1) the percentage of former students earning above \$25,000 annually, which is the average salary of a high school graduate, six years after enrollment, and (2) the median earnings of former students who were employed 10 years after enrollment (see Figure 3).⁵⁰

Like the debt-to-earnings measure for gainful employment programs, the College Scorecard earnings measures rely on linking administrative data between tax records in the Master Earnings File and ED’s National Student Loan Data System, which contains information on all students receiving Pell Grants and federal loans. However, instead of having SSA conduct the data matching and release aggregate institutional data, the Obama Administration relied on the U.S. Department of the Treasury to do the matching. In this case, ED sent postsecondary student records to Treasury for analysis and outcome aggregation (see Figure 2). According to policy officials, ED chose Treasury to assist with the Scorecard because it had greater analytical capacity at the time. ED is still assessing which agency should conduct the data matching for future updates of the College Scorecard data, and how frequently this data should be updated.⁵¹

FIGURE 3: EXAMPLE OF WORKFORCE DATA ON THE COLLEGE SCORECARD



The College Scorecard data release has prompted significant attention from the media and policy leaders. Several organizations, including the Brookings Institution, the Economist, and CEW, used the data to create rankings based on a school’s average postgraduate earnings adjusted for student characteristics and regional economic conditions.⁵² More than 25 advocacy organizations signed a Postsecondary Data Collaborative letter praising the revised College Scorecard and offering suggestions for improvement, including making data available by program (not just institution), calculating measures based on all students (not just those getting federal financial aid), and posting measures for institutions that grant both certificates and degrees.⁵³ In general, the advocacy community seems hopeful that the College Scorecard will illustrate the utility of employment and earnings metrics in helping students, policymakers, and educators make choices, and that it will help build a case to regularly match data to produce this type of information.

Technical Enhancements

The employment data sources cited above could be improved in several ways. This section catalogs a “menu” of potential improvements to both state and federal sources of employment data. These improvements are often cited as necessary by advocates and practitioners trying to measure the labor market outcomes of postsecondary programs. They are not mutually exclusive; strengthening both state and federal employment datasets would positively contribute to the postsecondary data infrastructure.

Data Collection: Adding Data Fields

Both UI wage records and tax records contain the data fields needed to answer the most fundamental questions about postcollege labor market outcomes: Are students employed, and what are they earning? However, two additional data fields could provide information to answer more nuanced questions.

First, adding a data field that specifies the individual's occupation could allow a more accurate analysis of whether students are moving on to employment that is related to their programs of study. (As previously noted, some sources of employment data include *industry* codes, but none include occupation codes.) Federal tax records do not include *occupation* codes, and only two states require employers to submit occupation codes for each employee as part of UI wage data quarterly reporting. Alaska has collected occupation codes for many years, and Louisiana started collecting them in 2016.⁵⁴

Second, adding a field that records the hours or weeks worked during the reporting quarter would aid the analysis of whether postcollege earnings are low because people are getting low wages or because they are only working part time. Federal tax data do not include this information, but the Virgin Islands and eight states (Minnesota, New Jersey, Ohio, Oregon, Pennsylvania, Rhode Island, Washington, and Wyoming) currently include it in their UI wage records.⁵⁵

To date, policy attention and research has been focused on augmenting UI wage records, rather than tax data, perhaps because the labor economists and workforce development professionals most interested in these data are more accustomed to using UI information.

Resources required for improvement

A group of more than 20 experts on labor market information recently examined the potential benefits and ongoing challenges associated with adding more data fields to UI wage records. After a year of research that included surveys of data users, state agencies, and payroll service companies, its report concluded the following:

The nation's employers and their agents, and the state UI shops are not yet prepared for universal enhancement of the wage records. A number of challenging factors, at least at present, hinder widespread enhancement...If we can find ways to support continued progress on the positive findings and work together to address the challenges, it is reasonable to foresee a not-too-distant point in the future when nationwide wage records enhancement, based on a common approach, is possible.⁵⁶

Adding data fields to state UI systems nationwide would likely take years to complete, according to the report, largely because about half of states are still operating with decades-old technology. Even in the 28 states that say their UI systems are or might be able to add new data, there would be a learning curve for employers and payroll service companies to adapt to reporting the new data. Many employers already collect information on occupation and hours worked, but they may not do so in a format that is easily reported or follows standard definitions.⁵⁷

The largest cost associated with wage record enhancement would be adapting state UI data systems to handle the extra information. In one specific example, Texas officials examined the possibility of adding job titles, hours worked, and county work site codes to the state's UI wage records, and estimated the one-time cost of system upgrades at roughly \$700,000.⁵⁸

The Senate version of the Trade Facilitation and Trade Enforcement Act of 2015 proposed federally mandating the addition of occupation codes to UI wage records, but the mandate was not included in the final law, which passed in 2016. The Congressional Budget Office estimated that the provision would have cost federal and state agencies roughly \$270 million to implement over the next five years.⁵⁹

DOL's BLS is conducting a pilot program that will collect UI wage data from seven states and enable data sharing for statistical analysis. Two of the seven participating states are Alaska and Louisiana, so BLS will analyze the quality of the occupational code data and demonstrate how this information can improve research efforts.⁶⁰ As state and federal pilot efforts provide more information on the costs and benefits of enhancing wage records, states continue to modernize their UI data systems, and employers increasingly shift to electronic rather than paper wage record reporting, it will likely become easier to make a compelling case for the widespread enhancement of UI wage records.

Data Quality: Improving Coverage Through Multistate Sharing

Currently, state agencies and institutions have mechanisms for using only state-based wage records to measure postsecondary labor market outcomes. As discussed earlier in this paper, state UI wage records have limited geographic coverage and do not include federal, military, and self-employed workers. These missing data are especially troubling because they create inequity when comparing institutions, as some schools have larger portions of graduates moving out of state or taking federal jobs. There are three paths to assist states and institutions that want a more comprehensive employment dataset for measuring postsecondary labor market outcomes: (1) Improve WRIS2 so that it includes more states and allows the use of WRIS2 data for broader purposes; (2) expand the Western Interstate Commission for Higher Education's (WICHE's) multistate exchange or a similar arrangement to be nationwide; or (3) develop a process for state agencies or institutions to submit requests to federal agencies with employment data for matching and returning aggregate data.

Resources required for improvement

WRIS2 has three shortcomings: state membership is incomplete, responses to queries by state workforce agencies are inconsistent, and data use is being limited to narrow purposes.

Even though WRIS2 includes 39 member states, the District of Columbia, and Puerto Rico,⁶¹ the populous states of New York and California are absent. Consequently, many analysts are concerned that a significant number of college graduates are not being accounted for, even with WRIS2. Analysts also report that even WRIS2 member states are slow and inconsistent when responding to data queries. Also, the multistate data sharing arrangements for WRIS/WRIS2 and FEDES set tight restrictions on data use. These systems may be used to report on an array of programs, but only if this reporting is required by federal or state laws or rules. For example, the federal government does not currently require reporting on employment outcomes for bachelor's degree programs, so if a higher education consortium wanted to use WRIS2 for this purpose, it would need to have state laws or regulations in place requiring this reporting. Wage data obtained through these systems also cannot be used for research and evaluation (i.e., analysis separate from mandated performance reporting) without the specific consent of each state or federal department contributing data.⁶²

The main obstacle to getting all states to join and consistently participate in WRIS2 is political will within the states. DOL has made notable progress in this area by making WRIS2 membership an eligibility requirement for its workforce data grants, providing a clear incentive for states to get on board. But researchers and the advocacy community must continue to demonstrate the value of labor market outcomes and explain the negative consequences of not being able to measure outcomes for graduates in all states. Likewise, renegotiating the WRIS2 and FEDES data sharing agreements to allow data to be used for broader purposes would likely take a few years of sustained advocacy to build political will and assure states that their data will be used appropriately. In addition, allocating more resources to DOL would allow the department to fund a single entity that could coordinate WRIS and WRIS2 data queries, which should make it easier for States to request wage data and help reduce the burden on UI agencies in responding to data requests, according to the 2017 President's Budget. An external coordinating entity would make membership a more attractive prospect for states and improve the system's functionality. The 2017 President's Budget requests \$1 million for this purpose.⁶³

Alternatively, the WICHE data exchange could be expanded nationwide. The initial WICHE data exchange between four states was supported by a grant from the Bill & Melinda Gates Foundation, and a second grant has funded the expansion to at least six additional states.⁶⁴ This funding is paying for a number of activities, including negotiating data sharing agreements, developing technical data exchange capacity, conducting research on graduate mobility, and disseminating information about the project.⁶⁵ As the project continues, WICHE aspires to make it financially sustainable, possibly

with funding from member states. Brian Prescott and Patrick Lane's paper, *Fostering State-to-State Data Exchanges*, provides more information about the resources required to build and sustain the WICHE exchange, and the benefits of a WICHE exchange as compared with WRIS2.⁶⁶

The third option, creating a process for states or institutions to harness a federal agency's nationwide employment dataset, is discussed in the following section on data linkages.

Data Linkages: Technical, Legal, and Capacity Challenges

Linking employment data with student records is done by matching personally identifiable information like SSNs, and first and last name. In general, matching based on multiple data fields is more reliable. UI wage records and tax records contain information needed for matching, but it can be challenging if student records do not include SSNs. Some states with schools that do not collect SSNs are experimenting with using motor vehicle records to triangulate data matches and improve accuracy, with encouraging results. However, legal and capacity limitations inhibit the linkages between employment data and student records more than the technical challenges do.

As noted earlier, multiple laws and regulations at both the state and federal levels restrict access to and usage of employment data. In addition, even when state and federal agencies have the legal framework in place to link education and employment data, the high turnover of policymakers and staff requires ongoing training about permissible data uses. Furthermore, agencies sometimes lack the capacity to meet the increasing demand for linked data. It requires staff time and expertise to assess requests, clean the data, create matching specifications, and bundle the data in the proper format for disclosure. A number of active proposals aim to expand access to state and federal wage data, and build capacity to facilitate data sharing.

Resources required for improvement

At the state level, both support from the federal government and strong state policy are important for enabling data linkages. WIOA requires states to move toward more complete reporting on postsecondary training outcomes using employment data. Forthcoming federal regulations will be key for states creating data linkages for WIOA implementation and other postsecondary program assessment. Proposed regulations released in December 2015 state that personally identifiable individual-level wage records may be shared with public officials at a variety of education entities for performance reporting. Entities qualifying as public officials include state education agencies, postsecondary commissions, Boards of Regents, and technical or community colleges. This critical provision should be included in the final regulations, scheduled for publication in June 2016. In addition to federal rules,

state legislative change can be a powerful tool for institutionalizing state data linkages. For instance, in California, a state law requires the state's workforce agency to share individual wage records with the Community College Chancellor's Office.⁶⁷ This law has enabled the community colleges to build an advanced longitudinal data system, along with tools that show students the average earnings associated with different programs of study, and allows educators to see how student cohorts fare in the labor market. To successfully implement new state policies requiring or enabling data matching, state agencies need additional capacity. For example, Kansas allocated an additional \$555,000 to the Board of Regents for 2015 to sustain the state's longitudinal data system and determine labor market outcomes for the state's postsecondary institutions.⁶⁸

At the federal level, proposals exist to more extensively use several employment datasets for calculating postsecondary labor market outcomes:

SSA employment data. The Student Right to Know Before You Go Act, introduced in both the Senate and House in 2015, would create a federal student record system to report on postsecondary students' progress and outcomes, including postcompletion earnings. Linkages between student records collected by ED's and SSA's employment data would calculate median earnings for postsecondary programs at two years, six years, and 15 years after completion. Earnings and other metrics would be disaggregated for different types of students, including Pell Grant recipients.⁶⁹ Ben Miller's paper, *Building a Student-Level Data System*, provides more information about ED's legal barriers to collecting education records for data matching.⁷⁰

NDNH employment data. The 2017 President's Budget contains a package of proposals to expand access to NDNH. One proposal, which mirrors legislation that was introduced in 2014 but never passed, would allow the use of NDNH data for "specified federal statistical agencies and units (including evaluation offices), and their designees for statistical, research, evaluation, and performance measurement purposes associated with assessing positive labor market outcomes."⁷¹ Another proposal would allow state workforce, education, and child support agencies to access NDNH employment data to help manage and evaluate their programs.⁷² The proposal package addresses the need for both state and federal agencies to have access to a nationwide employment dataset, and eliminates the need for WRIS, WRIS2, and FEDES. It also includes multiple provisions to protect privacy and security, including enactment of stricter felony penalties for unauthorized data disclosures. The Budget did not indicate that there are costs associated with these NDNH proposals.

Census LEHD data. Census officials are exploring new ways to use LEHD that would be allowed under current law, including the collection of student records from states and postsecondary institutions for matching with employment data. Pilots to test Census capacity to perform this matching are in the early phases.

Data Governance—Trust and Confidentiality

Trust between agencies and individual staff is essential to develop and maintain linkages between education and employment data. Agency leaders report that data sharing agreements are sometimes difficult to establish owing to concern over how well data confidentiality will be protected and how the data will be used.⁷³

Resources required for improvement

Whether through law, regulation, or data sharing agreements, trust is enhanced when agencies have clear and transparent guidance on their roles.

Data producers and users may rely on formal administrative rules as well as turning to more informal behavioral norms to find areas of agreement. Articulating clearly and in writing basic principles of confidentiality and intended use can ease data producers' concerns. It also may help to ensure that data users take every step necessary to maintain the security of confidential employment and wage data.⁷⁴

Templates for data sharing agreements that clearly enumerate agency responsibilities, as well as standardized courses that teach proper confidentiality and security to those working with the data, could facilitate interagency cooperation. Some of these tools already exist, and more can probably be produced and disseminated with existing resources, especially with national technical and advocacy organization assistance. ED allocated about \$5.3 million in 2014 for technical assistance on state longitudinal data systems,⁷⁵ and DOL set aside up to \$300,000 for technical assistance to recipients of its most recent round of workforce data grants.⁷⁶

Recommended Action

Many options should be considered when determining how to harness employment data to measure postcollege labor market outcomes. Multiple federally based employment datasets could serve as reliable and comprehensive sources, but it is politically unlikely that a federal data matching arrangement would have the research capacity and wide array of student, program, and employment data needed to conduct the breadth and depth of analysis desired by individual states and institutions. Therefore, action should be taken to simultaneously (1) develop a mechanism for federal data matching that can calculate the aggregate employment outcomes that are critical to assist with student choice, and (2) support capac-

ity for states (and their agents) to use wage records for more detailed research to improve policy and practice.

The following recommendations are not mutually exclusive, though if some were to be achieved, others would not be necessary. For example, expanding access to NDNH for state agencies as proposed by the 2017 President's Budget would negate the need for WRIS, WRIS2, and FEDES. Given the sensitivity and unpredictability of the current political climate, these recommendations should all be pursued in the short term, while constantly reassessing the landscape and adjusting strategy to achieve an optimal use of employment data in the national postsecondary infrastructure.

Federal Action

1. Institutionalize a process for federal agencies to match student records with employment data and regularly publicize aggregate employment and earnings outcomes by program, ideally through legislation like the proposed Student Right to Know Before You Go Act, which creates student-level data collection. LEHD is probably the most desirable dataset, since most workers are included and data are collected quarterly, but SSA and NDNH could also provide the necessary data. Whichever employment dataset is used, new mandates should include adequate funding to build and maintain this capacity.
2. Amend FERPA to include the provisions currently in the federal regulations to allow an "authorized representative" to evaluate education programs, broadly defined as including job training. The "authorized representative" clause is critical to allowing education and workforce data linkages at both the state and federal levels. Moving this provision from regulation to law would make it more likely that these linkages can continue, even through changes in federal agency leadership.
3. Use WIOA regulations to clarify permissible purposes and parties, including state education agencies and colleges, to access UI wage records. The final regulations should enable education agencies and institutions to use UI wage records to assess labor market outcomes for a broad range of postsecondary programs.
4. Issue joint ED/DOL guidance to promote data linkages and uses, and clearly explain how state data systems may link education and wage data in compliance with FERPA and UI rules. Guidance may be accompanied by technical assistance and tools, such as templates for data sharing agreements, provided by both federal agencies and nonprofit organizations.
5. Congress should support federal funding for states to enhance their data systems, including linkages of education and wage data. Federal funding should remain at least at its current level of about \$40 million per year, and would ideally match the 2017 President's Budget proposal to increase funding to about \$120 million annually in order to

support state capacity to link data and use the data more effectively for analysis and program evaluation.⁷⁷

State Action

1. Enact state policies that promote transparency on employment outcomes of postsecondary programs and the data systems required to calculate those outcomes. For example, Arkansas passed a new law in 2015 that requires the state to prepare brief regular reports, targeted at parents and prospective students, showing employment and earnings outcomes for graduates of public colleges.⁷⁸
2. Amend state laws and restrictive legal opinions that unnecessarily inhibit wage data access. For example, New York State adopted legislation in 2013 that makes wage records more accessible to public agencies for evaluating education and workforce development programs. Federal, state, and local government agencies, including public universities, can now ask for the state's UI wage records and use them for up to 10 years to conduct long-term evaluations.⁷⁹
3. Improve WRIS, WRIS2, and FEDES data sharing agreements to include all states and expand the terms of data usage to facilitate more comprehensive evaluation of postsecondary employment outcomes.
4. Create interagency data governance councils and detailed, transparent data sharing agreements and staff training protocols to build trust, ensure confidentiality and security, and develop a culture of data sharing and use.
5. Allocate state funds to maintain and improve employment data linkages and support the use of linked state data. Several states (e.g., Minnesota, Kansas, and Kentucky) recently devoted \$250,000 to \$900,000 in their annual state budgets for these purposes.
6. Pilot efforts to enhance UI wage records, including hours worked and occupational codes, to make the data more valuable for assessing labor market success.

Creating a national postsecondary data infrastructure that effectively uses employment data to measure workforce outcomes will not be easy. Philosophical objections remain in the higher education community to associating college with the labor market, and a variety of legal and capacity challenges must be overcome in order to link the necessary data for comprehensive and accurate measurement. But as students and policymakers continue to demand information about workforce results, and institutions demonstrate how this data may be used to align programs with labor market needs, this vision will continue to advance. Policy leaders should continue working toward developing and disseminating information needed to ensure that all students can access education programs that allow them to join or remain in the middle class.

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