ERDC Technical Report 2012-01 July 2012

Employment Data Handbook

A Guide for Incorporating Employment Information from a State Unemployment Insurance (UI) Program into a P-20 Longitudinal Data System

Introduction

Every state in the nation is involved in some way in the development of longitudinal student information systems that allow student progress through the education "pipeline" to be evaluated and related to various student characteristics including demographic characteristics, school and community characteristics, and student course-taking patterns and assessment results along the way. Although various dual enrollment opportunities in high school and diverse enrollment patterns throughout life by postsecondary enrollees can blur the linearity of the path through education, educational attainment can generally be viewed as a progression through a series of progressively more advanced levels.

Overlapping the mostly linear education pathway, starting when the student reaches working age, is the world of work. There is no set point at which an individual enters the workforce. Many students start their employment during high school or college. There are advantages gained through experience and development of workplace skills when periods of enrollment and employment overlap, but there are also the accompanying time conflicts, which, for many students, most assuredly result in compromises in their educational progress, in either participation or performance. Within the education realm, a student's employment characteristics can be used to characterize the student, just as demographic or course-taking might.

Many students wait until the completion of high school or college to enter the workforce. Many who have worked during enrollment periods find that once they have left school, new employment opportunities are presented.

While employment during periods of enrollment is of interest in longitudinal education studies, employment as the outcome of educational attainment is also of key interest, since preparation for the world of work is the ultimate goal of most students in the long run.

Why connect education and employment?

In recent years, many researchers have begun to explore the potential of using the Unemployment Insurance (UI) wage record to help analyze both longstanding and emerging issues related to how well education and training programs, workforce supports and public assistance programs are

The Washington State Education Research & Data Center (ERDC) is charged with conducting analyses of early learning, K-12, and higher education programs and education issues across the P-20/Workforce system. ERDC focuses on longitudinal education studies, particularly those that involve transitions across education sectors and those that involve education-to-workforce connections. This study is funded by Washington's ARRA Statewide Longitudinal Data Systems Grant.

achieving their goals. Since employment is a key outcome measure, it seemed logical to look toward this administrative data file as a potential source of information.

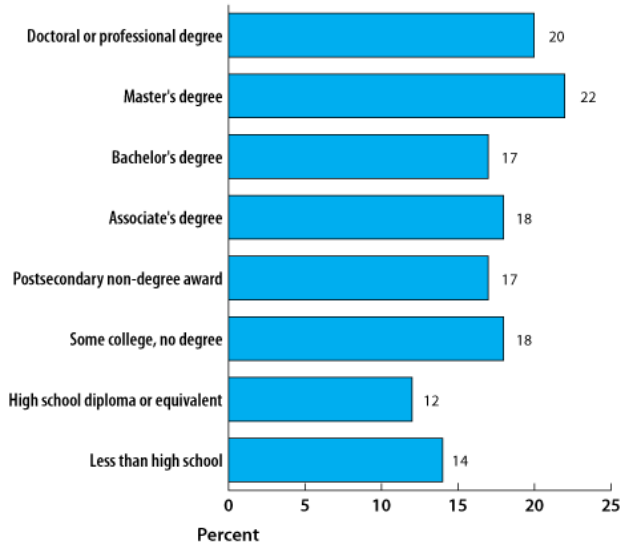
The UI wage file has several advantages. First, it is very complete. Approximately 97%[1] of the employees on nonfarm payrolls nationally are included in these files, which constitutes a virtual census of employment. Second, it can also be linked to other employment characteristics such as industry of employment and size of firm. Third, it is a very cost-effective source of data. As the data is collected for the administration of the UI wage program, only the costs associated with activities around responding to data requests and various data quality and research activities usually need to be funded through non-UI sources.

Not only do the low costs associated with obtaining the data make it a good investment, but also utilizing the data in employment-related outcomes or measures informs policy and investment discussions about education and employment programs.

For individuals, this information can be used to help provide indicators relating to employment and wage outcomes of participants in a particular program. This can provide valuable insight to help guide education and career decisions, as demonstrated in Washington's Career Bridge website at careerbridge.wa.gov.

According to the U.S. Bureau of Labor Statistics, occupations requiring a doctoral degree or master's degree are projected to increase by 20% and 22% from 2010 to 2020. Occupations requiring only a high school diploma or equivalent are expected to increase by only 12 percent, indicating an increase in the percent of jobs that require higher education.

Chart 7. Percent change in employment, by education category, 2010–20 (projected)



Source: BLS Division of Occupational Outlook

[1] "Employment and Wages Online Annual Averages, 2010," Bureau of Labor Statistics. <www.bls.gov/cew/cewbultn10.htm>

Critical questions related to employment and education

Employment information associated with education participants can help provide characteristics and data about participants as well as outcomes associated with a cohort group. Several questions about cohort characteristics or outcomes can be answered through the use of employment information. Those questions include:

Employment status of students while enrolled (high school and postsecondary):

- How many students are employed during the school year?
- How many hours per week do they work?
- How much do they earn?
- How does workforce participation relate to grades, postsecondary enrollment, and persistence in postsecondary enrollment?
- How many employers do people have within a certain time period?

Employment as an outcome:

- Do graduates enter the workforce immediately upon graduation?
- How many college graduates remain in the state for work?
- How do employment and enrollment after high school relate to employment patterns established during high school?
- What are the workforce outcomes for completers of a particular program within a school or group of schools? (Career/Technical Education, for example)
- What are the characteristics of the employers, including industry and size?

Data Sources

The most widely used data about employment generally comes from a state's Unemployment Insurance program. Unemployment Insurance program data includes information about workers and their employers, and about the previous occupations and industries of employment for those who are unemployed.

UI wage data and related employer information

The Unemployment Insurance (UI) Program is a federal-state program financed by payroll taxes paid by employers, and in a few states paid by the employee. The U.S. Department of Labor sets broad criteria for the eligibility and coverage, but states determine the specifics of the implementation. In Washington State, the Employment Security Department is responsible for the administration of the UI Program.

Nearly all employers with employees are required to participate in the UI Program if they pay wages to employees, regardless of the dollar amount. Participation includes registering with the

state, submitting quarterly reports, and paying unemployment taxes or reimbursing the department for benefits paid for all part-time or full-time employees. There are exceptions to this. In Washington, those exceptions include the following:

- Spouse, children under 18 and student workers of small farm operators – those with payroll less than $20,000 and fewer than 10 employees.
- Employees performing domestic services in a private home, college club, fraternity or sorority, if the total wages paid are less than $1,000 per quarter. If payroll exceeds $1,000 in any quarter, wages must be reported for the entire year and the following year.
- Non-profit preschool staff, if fewer than four staff.
- Business owners are not reported. Sole proprietors do not report themselves, their spouses or unmarried children under 18.
- Corporate officers are required to cover themselves for UI unless they opt out by January 15th each year.

There are additional types of employees that an employer may not be required to report, depending upon the circumstances. They include the following:

- Self-employed workers
- Church employees
- Work-study students, as long as the employer is a non-profit 501(c)(3), state government or local government
- Licensed insurance agents
- Licensed real estate agents, brokers, and investment company agents

Additional information regarding the Unemployment Insurance Program in Washington is available from the Employment Security Department.[2]

In addition to the above categories, federal employment, such as U.S. Postal Service (USPS), federal civilian employees, and active duty and retired military are not reported in the state-level UI Program administrative records. They are covered under a federal unemployment insurance system, and not the state UI system. Also, railroad employees are covered under their own system, which was established under the Railroad Unemployment Insurance Act.

Employers are required to submit two files quarterly; one file at the employee level (wage file), and a summary file at the employer level. The wage file contains the amount of wages each person was paid during the quarter. At the employer level, total counts of employees for each month, total wages paid for the quarter, and the industry and location of the employer are provided. This summary file is used widely for monitoring and forecasting employment and economic trends.

[2] "Unemployment Insurance Tax Information: A handbook for Washington state employers," January 2011, Employment Security Department. <www.esd.wa.gov/uitax/formsandpubs/tax-handbook.pdf>

What's in a wage record?

The wage file is provided by the employer and contains information at the employee level. In Washington state, the quarterly wage detail report filed by employers includes the following elements:

- Year
- Quarter
- Employer account number
- Employee social security number
- Employee Name
- Wages paid during quarter
- Hours worked during quarter

In most states, employers do not report the hours worked for employees. However, Washington employers are required to report hours because it is used in determining UI eligibility. A UI claimant must have 680 hours of covered employment in their base year to meet the initial requirements to qualify for a claim. The occupation of the employee is not reported in UI wage records, except in Alaska.

Some states use an employee ID number in the wage record rather than social security number.

The social security number and name are the fields most useful for linking with P-20 data from the education sectors. The social security number is used for the primary match and the name can be used to confirm or cast doubt on some matches on social security number.

Wages paid and *hours worked* are reported for the entire quarter. It is not possible to break them out by month, or determine when an employee worked during the quarter. Hours and wages can be expressed as averages per week within a quarter, but there is no way to determine how the hours and wages are distributed throughout the quarter. For example, if an employee earns $5,000, the data does not indicate if those wages were paid by the employer in the first month, in the last month, or spread amongst all three months of the quarter. Hourly wage can also be calculated by the simple division of total wages for the quarter divided by the hours reported by the employer.

What employer characteristics are available?

Employers are also required to submit a summary file for each quarter. By linking the wage files and the employer summary data, characteristics of the employer can be associated with each of the employees of the employer provided in the wage file. Characteristics available for employers include:

- Industry – North American Industry Classification System (NAICS) code
- Ownership – Private or public (federal, state, local governments)
- Size of firm – number of employees (available for each month within the quarter)
- Location of the firm

The employer information other than account number is not contained in the wage record, but it is possible to append selected employer information to the wage record. It should be noted that multi-industry and multi-site employers are not required to break out their employment and wage data by site and industry. Even when employers do provide these breakouts, it is not clear which employees are working in which locations/industries. In Washington, only 1 percent of private firms report data for multiple locations. Though the percentage of firms involved is relatively small, they account for approximately 30 percent of the employment.

What job is the person doing at the employer?

The information provided by the employer does not include the occupation of the employee. It does include the industry of the employer, however. The industry is based on the North American Industrial Classification System (NAICS) and is kept up to date through industry verification surveys to capture changes in business activity.[3]

NAICS is a hierarchical classification system expressed with 2- through 6-digit codes. The 2-digit level, shown in Table 1, is the most general level. In many instances, the 2-digit categories are grouped into "supersectors," patterned after those used by the U.S. Bureau of Labor Statistics (BLS) in statistical summaries.[4]

[3] NAICS was adopted by the U.S. Office of Management and Budget to replace the Standard Industrial Classification (SIC) system. The U.S. Census Bureau website contains detailed information about the NAICS industry classification system. <www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2007>

[4] The U.S. Bureau of Labor Statistics (BLS) uses groupings of NAICS sectors called "Supersectors." <http://www.bls.gov/ces/cessuper.htm>

Table 1: North American Industry Classification System*

Supersector	NAICS 2-digit code	NAICS description
Natural resources and mining	11	Agriculture, Forestry, Fishing and Hunting
	21	Mining, Quarrying, and Oil and Gas Extraction
Construction	23	Construction
Manufacturing	31-33	Manufacturing
Trade, transportation, and utilities	42	Wholesale Trade
	44-45	Retail Trade
	48-49	Transportation and Warehousing
	22	Utilities
Information	51	Information
Financial activities	52	Finance and Insurance
	53	Real Estate and Rental and Leasing
Professional and business services	54	Professional, Scientific, and Enterprises
	55	Management of companies and Enterprises
	56	Administrative and Support and Waste Management and Remediation Services
Education and health services	61	Educational Services
	62	Health Care and Social Assistance
Leisure and hospitality	71	Arts, Entertainment, and Recreation
	72	Accommodation and Food Services
Other services	81	Other Services (except Public Administration)
	92	Public Administration

*Replaced the Standard Industrial Classification (SIC) beginning in 1997.

While the industry sector does not explicitly indicate the job a person holds, it does provide useful information about the nature of work being done. The typical occupational staffing pattern for an industry is available through Bureau of Labor Statistics.[5] These help identify the major occupations in an industry and the percent of employment for that industry for those occupations. State and local area estimates of staffing patterns are also available.

How timely is the data?

There is a lag between the time the employer files the report and the time the associated administrative data become available for research use. Both UI tax payments and wage reports are due by the last day of the month following the last day of each quarter. Incorporating the wage data into administrative databases takes the remaining two months of the quarter. Data are ready for

[5] These estimates are available at www.bls.gov/oes/2011/may/oessrci.htm#61.

use for research purposes early in the subsequent quarter. The process and availability of data for Washington is summarized in Table 3.

Table 3: Timing of collection and availability of UI wage data

Current Year											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Quarter 1			Quarter 2			Quarter 3			Quarter 4		
Prior year Quarter 4 data submitted by employer and processed by ESD			Current year Quarter 1 data submitted by employer and processed by ESD			Current year Quarter 2 data submitted by employer and processed by ESD			Current year Quarter 3 data submitted by employer and processed by ESD		
Prior year Quarter 3 data available for research			Prior year Quarter 4 data available for research			Current year Quarter 1 data available for research			Current year Quarter 2 data available for research		

Updates to the UI wage data may occur outside the timeframe described here when corrections are submitted by employers and when employers file their reports late. Over time, the completeness and accuracy of the UI wage data continues to improve. The tradeoff between timeliness and completeness/accuracy of the data is more of an issue for the most recent quarter available, as adjustments to previous quarters of data begin to diminish.

Additional data sources

The previous discussion has focused on the single-state UI wage record for information about employment patterns within a state. Several data sources exist that provide information beyond that included in this source. These include:

- Federal Employment Data Exchange System (FEDES) – contains federal civilian employees, U.S. Postal Service employees, and Department of Defense active duty personnel. FEDES is operated by the Jacob France Institute at the University of Baltimore. Most of this information can be used for satisfying or contributing to federal performance measurement activities required by the United States Office of Management and Budget. This includes the Carl D. Perkins Vocational and Technical Education Act of 1998, Workforce Investment Act, and Wagner-Peyser Act as well as others. Some of this information can also be used for state-required performance measurement activities. FEDES has a quarterly submission schedule for state partners to submit and receive data. Additional information about FEDES can be found at www.ubalt.edu/jfi/fedes.
- Wage Record Interchange System (WRIS) – WRIS has been developed to facilitate the interstate exchange of wage data between participating states for the purpose of assessing and reporting on state and local performance for programs authorized under the Workforce Investment Act of 1998 (WIA), under other statutory provisions authorizing programs identified as One-Stop partners in the WIA, and for other purposes allowed under law.

Additional information about WRIS can be found at: www.doleta.gov/performance/WRIS.cfm.

- Administrative Data Research and Evaluation (ADARE) – a multi-state alliance (currently 9 state partners covering 43 percent of the U.S. civilian labor force) that facilitates access to administrative data for authorized research and evaluation purposes. Though data is not typically shared by ADARE, several publications, reports and presentations using state workforce data are available. Additional information about ADARE can be found at: www.ubalt.edu/jfi/adare/index.cfm
- Local Employment Dynamics (LED) program is a partnership between states and the U.S. Census Bureau that provides summary information on employment and earnings at local level. Though no opportunity is currently available to access record-level data, reports provide detailed employment indicators by age and gender for each industry. Additional information can be found at: lehd.did.census.gov/led/led/led.html.

Besides helping in the formation of workforce characteristics, the wage records can also be used for such activities as to identify new hires and separations from a company. By themselves, these data provide a wealth of information, but used in the P-20 longitudinal database environment, these data complete the ability to address potential research questions and workforce-related outcomes.

Unemployment Insurance Claimant Data

Another dimension of employment information is that available about the unemployed. When employees covered under the Unemployment Insurance Program become unemployed, they may receive benefits from the program. The initial eligibility requirements for an individual include:

- 680 hours of covered employment in a base year
- earned wages in Washington
- have a reason you became unemployed, such as lack of work or business closed
- physically able to work, available to work, and actively seeking work

Based on the reason provided for an individual's unemployment, additional information may need to be gathered from both the individual and the employee.

This information can be used to fill gaps in the employment history. It can also be used to identify additional workforce program participation an individual may have attained. Some of the items available in this data include:

- SSN
- Name
- Date of birth
- Occupation
- Industry
- Initial date of claim
- Number of weeks claiming
- Total amount of benefits collected

How to get the data

Across the country, the state employment security administrator is the custodian of the UI data. Both federal and state privacy laws govern the use and ability to share confidential data collected to administer the UI programs. The federal guidelines outline acceptable uses for which the data can be shared, and with which types of organizations. State law may also provide guidance, insight and further restrictions on acceptable uses of the data.

In many cases, the state labor market information (LMI) unit is located within the same agency as the Unemployment Insurance program. Though they do not typically exercise control of the data, the LMI units are typically knowledgeable about the data, requirements to use the data, and any constraints around the accessibility of the information.

Current Federal confidentiality and disclosure regulations pertinent to Unemployment Insurance are available at the Federal Electronic Code of Federal Regulations website.[6]

Establishing a Data-Sharing Agreement

Accessing workforce data will likely require a data-sharing agreement between a P-20 longitudinal data system and the state employment security agency. To help provide the necessary information about your project, be prepared to provide or discuss:

- Your organization structure (private, public, nonprofit)
- Any legislation that authorizes you to access this data
- Proposed research and the role of UI wage data in the research
- Data items and time parameters needed to conduct the research
- Timeline of research deliverables

An informal inquiry is typically a great way to gauge the temperature and receptiveness to your data needs. It may also lead to additional information and requirements to include into a formal request. The LMI director or senior-level researcher is a great starting point. They should have familiarity with the data and the processes necessary to move to the next step. In most cases, the state website should provide you with a solid starting point. The list of websites and LMI Directors can be found at lmiontheweb.org/?page=8. The goal of the initial discussion is to identify any concerns that may come up and also to establish the next step in submitting the formal request.

In the establishment of the data-sharing agreement, a more formal review of the data needs typically occurs. The intent is to validate the need for data, and review the purpose of the research against activities authorized in federal and state statutes and regulations. An updated timeline for the research project will also be required.

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[6] http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=c9444a2af507a54f883f9c8bf710ec5a&rgn=div5&view=text&node=20:3.0.2.1.3&idno=20

Additional components of a data-sharing agreement include sections on:

- Redisclosure of information
- Physical safeguards
- Limitations on access and use
- Indemnification
- Data format and transfer protocol

It is also common for each person who has access to UI data to sign a "Notice of Nondisclosure" and also submit to a UI fraud check.

Putting it all together

P-20 data systems depend largely upon administrative data, collected for specific purposes, and not originally collected for serving research needs that require a cross-sector longitudinal analysis. When incorporating employment data into P-20 data collections, it is important to become familiar with linking methods and with steps that can be applied to improve data quality.

Requirements for linking

The nearly universal linking field for matching education records to employment records is the social security number (SSN). In many cases, linkages between employment and education are solely based on this data element. However, an individual's name can also be used to evaluate links based on SSN. In some cases, where the SSN matches but the name fields have clear differences, one can use this difference to exclude the matches, even though the SSNs are identical. Going a step further, additional lookup tables can be used to validate name changes, such as marriage-divorce records, and SSN validation using driver license information. Each of these sources would help validate and perform matching using the name field.

Data cleaning

As with most administrative data, it is important to be familiar with each data item, the mechanics of how the data is collected, and the purpose for which it is collected to help understand potential repercussions caused by undetected anomalies in the data. This will help determine what to look at during a review phase, and also ways of detecting potential data issues or conflicts. Some key things to investigate are:

- Records that have the same SSN, but different names. If no name validation is performed and matching is done by comparing the SSN fields, then these records will be accepted as matches and input into the linked dataset. However, using the name field as a validation tool identifies cases where the same SSN is assigned to two or more names. In some instances this is acceptable, in some it is not. The point here is that the more tools you use to perform the linkage, the more complete and accurate it will be.

- Review the history. Look at the particular person with a particular company over time. By looking at this, any wide variations of data over time should be identifiable, and also any missing data would stand out.
- Look at the number of records for each employee by an individual employer in the quarter. Conceptually, there should be one. However, it is possible for adjustments to be made to information filed by an employer, and that might account for duplicate entries.
- Look for SSNs that are known to be incorrect. See how many are contained in the data.
- Confirm the SSN and name across one sector. Executing some overall data validation routines will help improve the quality of your matched dataset. It will also help in the matching process, ensuring the best matching results are achieved and the data has been reviewed for completeness and consistency.
- Looking for excessive number of different employers, locations or hours in a quarter for SSNs possibly used by multiple persons.

Imputation

There are several alternatives as to how to handle any missing data or data values that are out of range. Depending on your research requirements, there may be some constraints as well. The number of observations is one of the key drivers on how important this is.

The easiest methods to use are to either accept a data record "as-is," with no imputation or cleaning, or to not accept it and discard it. Though these methods are the easiest to execute, it may limit what you can do with your findings. Smaller the cell sizes are associated with greater variance and less confidence in the results. As you begin to drill down to participants by year, by gender, and by program, the cohort size may become increasingly important, and hence the more matches and the more accurate the data, the better.

There are several ways of imputing missing data. The most accurate is to examine the quarter before and the quarter after for the same individual with the same employer. If data exists, then an estimate can be made based on the relationships between hours and earnings of these two quarters.

Another way to fill in missing gaps is to use the industry-based median calculation. Depending on the research, it may be more accurate if you're able to measure that indicator at the same timing related to graduation. If there is not enough information contained in the wage series for an individual-employer combination, then a median for the whole industry (ideally for the geographic area as well) can be used.

Some overarching principles include:

- Make sure your cell size is adequate. The number of observations in a cell is directly related to the ability to detect "real" differences.
- Use the data closest in time as a basis for imputation. Start with adjacent quarter data, and then begin by using industry averages based on time from graduation, then industry totals.

- Quantity of cohort matches become important as you begin analyzing characteristics and attributes.

Adjusting for inflation

What is inflation?

Inflation has been defined as a process of continuously rising prices, or equivalently, of a continuously falling value of money. In other words, inflation causes the buying power of a dollar to decrease over time. A 15-cent hamburger in 1966 seems to us a lot cheaper than the 79-cent hamburger of today. But when the price of that 1966 burger is adjusted for inflation, the price is comparable.

How is inflation measured?

Various indexes have been devised to measure different aspects of inflation. Two commonly used indexes are the Consumer Price Index (CPI) and the U.S. Implicit Price Deflator for Personal Consumption (IPD). The CPI measures inflation as experienced by consumers in their day-to-day living expenses. The method used to construct the CPI compares the current and base-year cost of a basket of goods and services of fixed composition. For the CPI the base is a fixed "market basket" or bundle of goods and services representative of the purchases of urban consumers. The index is the ratio of today's cost of the fixed bundle to the base-year cost of the same bundle.

The alternative index to the CPI is the IPD. This price index uses current period quantities as the weights rather than some fixed bundle. Current personal consumption is measured in today's prices and then compared to current personal consumption at prices from a base year. This price index method assumes that the consumer has made allowances for changes in relative prices.

There are a number of other indexes of price changes beyond the CPI and IPD: the Producer Price Index (PPI) measures inflation at earlier stages of the production and marketing process; the Employment Cost Index (ECI) measures it in the labor market; the Bureau of Labor Statistics' International Price Program measures it for imports and exports; and the Gross Domestic Product Deflator (GDP-Deflator) measures combine the experience with inflation of governments (federal, state and local), businesses, and consumers. Finally, there are specialized measures, such as measures of interest rates and measures of consumers' and business executives' inflation expectations.

What measure of inflation should I use?

The "best" measure of inflation for a given application depends on the intended use of the data. The CPI is the most commonly used measure for adjusting payments to consumers when the intent is to allow consumers to purchase, at today's prices, a market basket of goods and services equivalent to one that they could purchase in an earlier period. It is widely used to index wages, benefits, taxes and transfers. There is a derivative of the CPI-U called the “chained” price index that that is based on the CPI, which tracks better over time with IPD, but does diverge from the regular CPI.

The IPD measures the prices of a much wider group of goods and services than the CPI. For example, the IPD includes all consumption of health care rather than just out of pocket expenses and consumer-purchased insurance measured in the CPI. The IPD is based on current economic conditions and consumer expenditures, tastes and preferences. It is frequently used to adjust state economic and revenue data. The state expenditure limit is based on the IPD as well as inflation adjustments in the state's biennial budget.

How do I make the adjustments?

Adjusting the wage data based on the CPI or the IPD is a simple process. The process involves comparing the index values for two time periods, and adjusting the wage data by either inflating them to one time period (typically to current dollars) or deflating them to a previous time period. Each data point will need to be adjusted differently, as monthly or quarterly indexes are usually available.

Conclusions:

This paper was intended to provide an overview of how to obtain and incorporate information from the state Unemployment Insurance program into a P-20 longitudinal data system. The major points covered included:

- Wages from the state Unemployment Insurance Program are of significant importance when performing longitudinal analysis of cohorts over time. The information can be obtained through the state employment security administrator once the required data-sharing requirements have been met.
- The data can be linked with education data using the SSN, and improved matching results can be obtained by using the name field. Once linked, information about employment, earnings, industry of employment, and size of firm can be obtained by linking other employer attributes.
- Techniques to identify data outliers and also to fill in missing data will help add value to the outcomes.
- Adjusting data for inflation will allow for a consistent evaluation of wage measures.

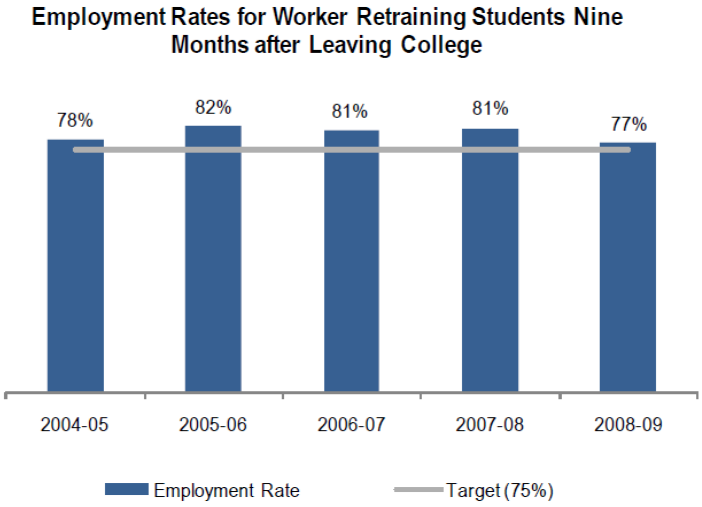
Putting it all together: Applying Workforce data to education program analysis

The following examples demonstrate the utility and uses for linking workforce information with education data. This is only a snippet of the possibilities and of the work already being done by organizations around the country. These examples are all from Washington state.

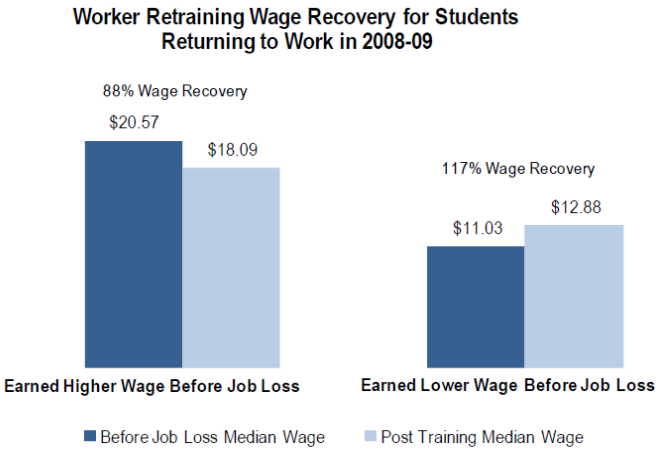
SBCTC Accountability Report

In 2010, the State Board for Community and Technical Colleges of Washington State published a report analyzing outcomes of the worker retraining program at Washington's community and technical colleges. The outcome measures were primarily based on data captured by linking college files to Unemployment Insurance wage records. The outcomes were for workers who re-entered the workforce in 2008-09 following training in 2007-08.

Looking at job placement, the 2008-09 placement rates fell slightly as the economy was worsening and jobs were becoming harder to find, but rates were still above the target level. Placements rates are calculated three quarters (approximately nine months) after training.



Wage Recovery Rates were also measured. Wage levels five quarters before entering training and three quarters after training were compared. For high wage earners before job loss, an 88 percent wage recovery rate exceeded the 85 percent target. For workers who earned a lower wage rate before job loss, a 117 percent recovery rate was obtained.



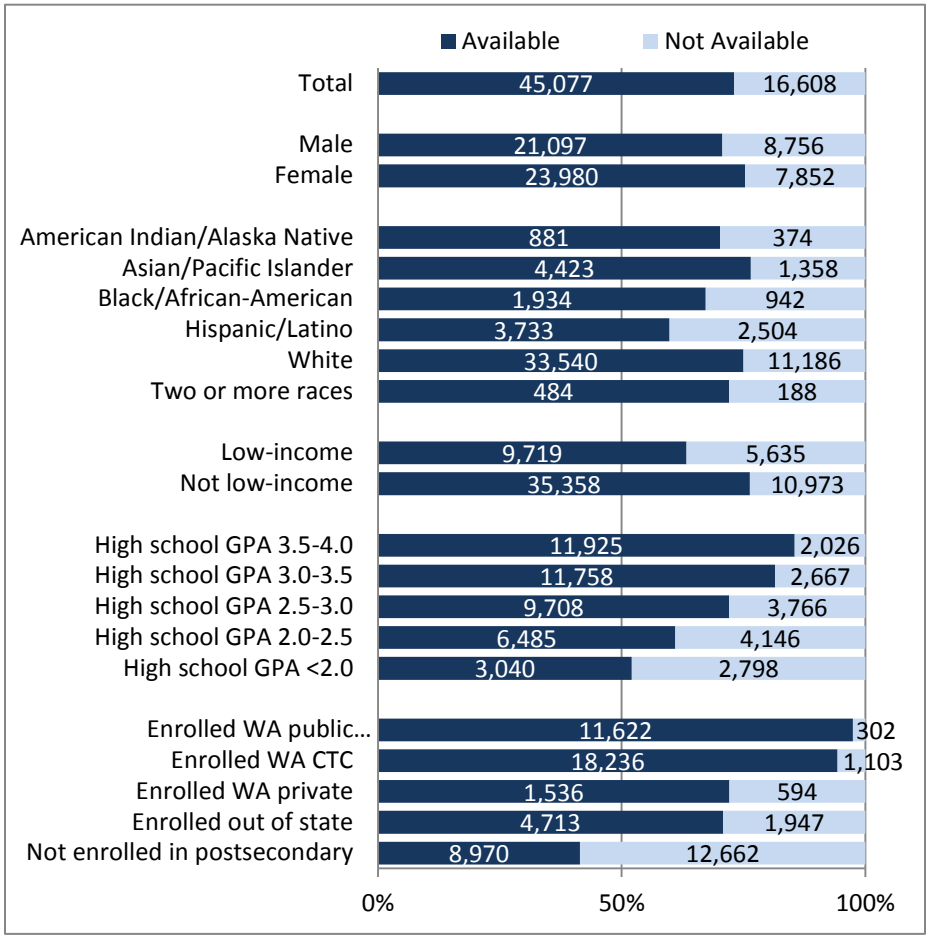
Source: Accountability Report for the Worker Retraining Program at Washington's Community and Technical Colleges, March 2010, sbctc.edu/college/education/resh_rpt_10_2_worker_retraining_report_000.pdf

Exploratory Research between K-12 and P-20 Systems:

The Education Research and Data Center (ERDC) in Washington recently analyzed the characteristics and connections between the K-12 and the P-20 systems. In doing so, they also looked at the characteristics of high school graduates and the availability of key linking identifiers. They documented the availability based on gender, ethnicity, income, high school GPA, and enrollment status in postsecondary education. The table below identifies their findings.

Availability of Key Linking Identifier

2009 High School graduates



Industry supersector and time of employment was also looked at. Overall, thirty-seven percent of the students employed were in the Leisure and hospitality sector. Another twenty-nine percent in the Trade, transportation and utilities sector, and the third highest sector was Education and health services at 10 percent.

EMPLOYMENT BY INDUSTRY
DURING LAST TWO YEARS OF HIGH SCHOOL
WASHINGTON STATE HIGH SCHOOL GRADUATES, 2009

INDUSTRY SUPERSECTOR	PERCENT OF STUDENTS EMPLOYED		
	TOTAL	DURING SCHOOL YEAR	SUMMER ONLY
Natural resources and mining	3.4%	2.7%	10.5%
Construction	2.0%	1.7%	5.0%
Manufacturing	1.9%	1.8%	3.0%
Trade, transportation, and utilities	28.9%	30.1%	17.3%
Information	2.3%	2.4%	1.7%
Financial activities	1.9%	1.9%	1.5%
Professional and business services	4.6%	4.4%	6.4%
Education and health services	10.2%	10.0%	12.3%
Leisure and hospitality	37.5%	38.3%	29.8%
Other services and public administration	7.3%	6.8%	12.4%

Source: erdc.wa.gov/presentations/pdf/20110221_nces.pdf

WTECB Net Impact Studies

The Workforce Training and Education Coordinating Board performs a comprehensive net impact study for workforce development programs every four years. The goal is to estimate the effect of a program measured through comparison with individuals who had similar characteristics who did not participate in the program who faced the same regional labor market at the same time. Short-term (three quarters after exit) and long-term (3rd year after exit) of employment, earnings, hours, and wage rates are measured.

Net Impact of Workforce Development Programs on Employment

(in percentage points)

Program	Short-Term	Long-Term
Workforce Investment Act		
Adults	12.8%	10.8%
Dislocated Workers	10.1%	4.7%
Youth	8.0%	4.3%
Community and Technical Colleges		
Job Prep	6.6%	10.1%
Worker Retraining	8.8%	7.5%
Adult Basic Education	-a	-a
IBEST	3.9%	N/A
Private Career Schools	-a	3.4%
Apprenticeship	7.8%	9.8%
Secondary CTE	6.0%	N/A
Vocational Rehabilitation	12.8%	12.4%

-a: No statistically significant positive impact

N/A: IBEST did not yet have enough participants with long term follow-up; Data matching problems with Secondary CTE long-term cohort.

Source: wtb.wa.gov/Documents/WTR2010RevisedResults.pdf