



Tracking Wages of California Community College Completers

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The earnings or wages of students after completing an award at a California Community College has always been of interest to administrators and policy makers. The increasing cost of education over the past decade has expanded this interest to students and families. The estimated earnings potential after completing an award at a California Community College is valuable information when making decisions about which educational pathway to pursue, although it should not be the sole determiner.

The recent focus of the Student Success Task Force on student progress and success metrics has also brought renewed interest in using wages to track student outcomes (California Community Colleges Student Success Task Force, 2012). In addition, several states (Florida, Washington, Virginia, Arkansas, Tennessee and Texas) now have the ability to examine student wage outcomes through systems of linked wage and student record data. Although not easily accessible to the public, the Chancellor's Office has been using wages to track student outcomes for several decades.

Friedlander (1993) was one of the first to examine wage gains for community college students in California earning certificates and associate degrees by matching wages to students for several colleges. Sanchez, Laanan and Wiseley (1999) followed with a systemwide examination of wage gains for several groups of California Community College students, including completers and leavers. Median wages were examined the first year out of college to the third year out. The pioneering work of these and other studies laid the groundwork for the development of a new system to track wages of California Community College completers.

The Chancellor's Office followed similar methods used by the other states and incorporated the five guiding principles for an effective labor market outcomes system which included: 1) follow all matriculated students over time, 2) use standard data sources, 3) create standard, easily understood labor market outcomes, 4) disaggregate data to the campus and program level, and 5) make results publicly available (Moore, Chapman, Huber, & Shors, 2013).

Structure

The system for estimating the annual earnings of those who completed an award uses the student records of completers from the Chancellor's Office Management Information System (COMIS) and joins those records with the California Employment Development (EDD) Unemployment Insurance (UI) wages. Several different methodologies for aggregating cohorts were used to create four tools, with each tool or application targeting a different audience or user:

- *Salary Surfer* is a web application designed for students and families that provides an estimate on the potential median wages to be earned after completing an award or certificate in 179 of the most widely enrolled disciplines. Median wages, or the middle wage value, was used instead of average to compensate for outliers. The application also provides information on which colleges are offering programs in that specific discipline.
- *System Wage Tracker* is one of the two wage tools available on the [Datamart](#). The Datamart is an existing web application created a decade ago and mostly used by college researchers, faculty and administrators. This system wage tracker tool duplicates the results of the Salary Searcher but has some additional features and information for an audience familiar with the California Community College system.
- *College Wage Tracker* is the second wage tool available on the Datamart. This wage tool allows one to estimate median wages by discipline and by college. In order to increase the number of cases or student matches, the methodology and display are different from the two previous tools.
- *College Wages by Program* is the fourth tool and provides the ability for researchers to download for their particular college the median wages of completers aggregated by program. Programs (identified by program codes) are unique to each college, where disciplines (identified by TOP codes) are similar across colleges. These datasets are only available through Data-on-Demand, a password protected site.

Methodology

The four wage tools use cohorts of students who completed a credit award at one of the California Community Colleges. The type of award for the Salary Surfer was limited to Associate Degrees and Chancellor's Office Approved Certificates, the Datamart and the Data-on-Demand wage tools also capture Locally Approved Certificates. In order to assure that students are in the workforce, the cohorts were limited to students who had not transferred to a four-year

institution, were not enrolled anywhere in the community college system after receiving the award and were older than 21 at the time of the award.

Completers are matched using Social Security Numbers (SSNs) with EDD's Unemployment Insurance wage data, which are reported quarterly (three months) by employers for unemployment insurance tax payment purposes. If there is at least one quarter of positive earnings in a year for a student, the wages are summed up for that person and reported for that particular year. The systemwide tools (Salary Surfer and System Wage Tracker) combine five cohorts (or years) of completers and the College Wage Tracker aggregates eight cohorts of completers. The College Wages by Program in Data-on-Demand is unique and does not aggregate cohorts but reports the wages for each year.

The wages for each of these cohorts are adjusted for inflation to constant dollars using the Consumer Price Index (CPI-U) for California before being combined into a single dataset. Wage data are limited to those students with matching records in the EDDUI data system. This system contains wages for those who were employed in an occupation covered by Unemployment Insurance in California. Therefore, this excludes individuals who were employed by the military or federal government, self-employed, employed out of state or not in the workforce after completion of an award.

The single dataset of students is then sorted by the discipline associated with each of the awards which is defined by the Taxonomy of Programs (TOP) code. In 1979, The Chancellor's Office designed the Taxonomy of Programs (TOP) system of numerical codes to categorize, collect and report information for instructional courses. These numerical codes are used consistently across the system and also identify the specific discipline of the awards. The programs identified in the Data-on-Demand datasets uses a Program code which is unique to each college.

It is important to note that the students are not followed over time. In other words, the reported wages are snapshots in time of the student's wages during various time frames as sorted by discipline and type of award.

Display of Results

Depending on the tool, the wages are calculated for different time frames. The Salary Surfer and the System Wage Tracker calculates earnings at two years prior to receiving the award, and two years and five years after the completion of the award. The College Wage Tracker only reports wages three years after the award (Appendix A). Award categories with less than 10 students having wages were excluded to ensure confidentiality and maximize reliability.

The Data-on Demand tool is unique in that it does not aggregate cohorts and reports individual years, beginning at two years before the award through five years after the award. Since the

Data-on-Demand is password protected and only available for one’s own college, categories with less than 10 students having wages are not suppressed.

- *The Salary Surfer* is the application for consumers and aggregates five years’ worth of student cohorts. The user of this tool chooses a program of study or discipline (2-digit TOP Code) resulting in the display of median wages at the system level by award type (degree or certificate) at two years before the award, and two years and five years after the award. The tool also provides information on which colleges currently offer such a program.
- *System Wage Tracker* is located on the Datamart and uses the same methodology as the Salary Surfer. Therefore it is also based on five years of student completers and displays two year before the award, and two and five years after the award. The additional feature in this application is the ability to download the dataset, view the number of students used in the calculation of median wages for each award type by discipline.
- *College Wage Tracker* on the Datamart is based on eight cohorts and shows median wages three years after students receive an award. This module also displays the number of students used in the calculation of median wage and allows the user to download the dataset.
- *College Wages by Program* is only available to researchers at the college.

Analysis

The two types of methodologies used, system and college level, allow for varying levels of analysis. The systemwide methodology allows for comparison by award among types of degrees and disciplines as well as change over time. The overall systemwide median (Table 1) for those who earned an award between 2002-03 and 2006-07 with wages five years after award was \$48,923. The median wages for those that received an Associate of Arts is \$46,217 and Certificates is \$46,216 five years after completing.

Table 1: Median Wages of Completers (2002-03 to 2006-07)

	Median Wages of Five Aggregated Cohorts		
	Two Year Before	Two Year After	Five Years After
Certificates	\$20,314	\$38,982	\$46,217
Associate Degrees	\$16,932	\$40,428	\$50,034
Total	\$17,888	\$39,958	\$48,923

This is higher than the median income of \$24,400 for Californians whose highest level of education was a high school diploma according to the 2011 Census American Community Survey.

Additional analysis revealed that nearly 45% of the students with Associate Degrees had median wages five years after earning the award of more than \$54,000. Another 25% had median wages five years after earning an associate degree of more than \$77,000. This was higher than the median income for those in California whose highest degree was a Master's Degree (\$72,000). It is also worth noting that median wages five years after an award for students with Associate Degrees in vocational disciplines was \$61,600 compared to \$39,300 for those with non-vocational associate degrees.

Associate Degrees with the highest median income five years after award include such disciplines as Electrical and Power Systems Transmission (\$96,200), Physician Assistant (\$95,700) and Radiation Therapy Technician (\$91,300). Certificates with the highest median earnings five years after completing include Electrical and Power Systems Transmission (\$123,200), Physician Assistant (\$92,700) and Fire Academy (\$87,100).

According to the 2011 Census American Community Survey, the median income for someone with a Bachelor's degree in California was about \$54,000. Median earnings five years after award for each of the top ten associate degrees and certificates in the California Community College System were higher than the median earnings for someone with a Bachelor's degree. Associate degrees such as Registered Nursing, Radiology and Waste Water Technology actually had median incomes higher than that of Californians whose highest level of education was a master's degree (\$72,000).

Limitations

For each of the tools discretion should be used when examining the wage data. Several of the restrictions are mentioned in the methodology, including that some of the wages are based on a small number of student matches. The Salary Surfer does not display these numbers, so referring to the Datamart tools might be important.

It is also essential to understand that the reported student wages are not necessarily from wages in an occupation associated with the student's award discipline. The type of occupation where these wages were earned was not available in the EDDUI wage data at the time the tools were constructed. In other words, the reported earnings include wages for any type of employment a student may have had regardless of the industry or occupation.

For the college wage tracker, it should be noted that wage outcomes for the same award type and discipline may vary significantly between colleges because of different local labor market

conditions. Wages may also vary among regions of the state because of the differential impact of economic factors like the cost of living.

Another problematic aspect of such award cohorts over an extended period of time is that the wage outcomes for these groups may not reflect the year to year labor market dynamics that occupations often experience during changing economic cycles. For example, consider a group of students who earned vocational awards in a construction-related trade in the 2008-09. These students get their awards and begin earning wages in 2010 which was a much different labor market environment than cohorts in the same program in previous years would have experienced. California's housing bubble collapse beginning in 2007-08 greatly reduced construction activity, creating less demand for employment in the industry which in turn could have had a negative impact on the cohort's wages.

Finally, the impact of student choice and other net benefits of an award should be noted when examining these wage outcomes. Many students may decide to earn an award for reasons other than solely financial gain, including aptitude or interest. Some students may seek other gains such as increased cultural knowledge and critical thinking skills. Literature has also shown that besides financial gain, attending college often also brings other societal benefits such as increased civic engagement (Franco, 2002; Levine, 2006; Newell, 2011).

Conclusion

This new online structure provides information on estimated earnings of graduates from the California community college system for different audiences and purposes. The wages and graduating cohorts for each of the tools will be updated annually in June. Any questions related to the data or methodology can be directed to wagetracker@ccco.edu

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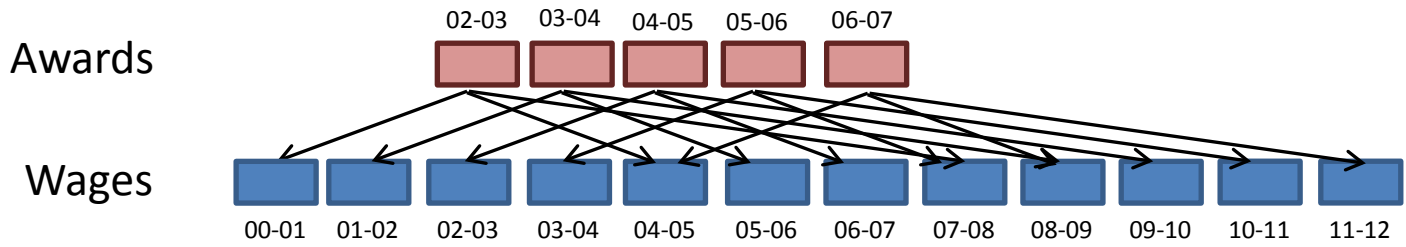
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Appendix A

System Wage Tracker (Salary Surfer)



College Wage Tracker

