



PSEO
COALITION

Program Productivity Metrics: Integrating PSEO Data at a Public University System

Best Practices and Limitations Guide



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This document highlights characteristics of the Post-Secondary Employment Outcomes (PSEO) data with notes specific to usage for UNC System institutions.

Overview of Post-Secondary Employment Outcomes (PSEO)

The U.S. Census Bureau partners with universities and other state agencies to provide national earnings and employment statistics for college and university degree or certificate completers via the Post-Secondary Employment Outcomes (PSEO) data. It matches university transcript data with the Census Bureau's national jobs database to help stakeholders analyze the return on investment of specific degrees. As of January 2026, PSEO includes data from the UNC System; the UNC System Office provides data on completers to the Census Bureau for all 16 public universities within the system.

PSEO has a strict threshold suppression rule that hides group counts less than 30. PSEO has also introduced statistical noise into the counts such that no published count matches the exact number of people in a cohort; rather, the count preserves statistical validity while masking the exact number. A similar noise is added to earnings data.

PSEO provides data for "all time" starting with graduates in 2001 through 2021. PSEO also provides data aggregated in either 3-year (baccalaureate) or 5-year (masters and doctoral) cohort groups to mitigate small counts for single-year cohorts and smooth any single-year anomalies e.g. the cohort group labeled 2001 includes graduates from the 2001, 2002, and 2003 academic years for baccalaureate degrees or the 2001, 2002, 2003, 2004, and 2005 academic years for masters or doctoral degrees.

PSEO provides data on wage-earning degree completers though there are some types of wage earners who are specifically excluded from reporting: self-employed, independent contractors, military personnel, federal employees in specific security/intelligence agencies, postal service workers, individuals in informal or agricultural work, and completers with inconsistent wage data (see Employment Rates below for additional details). PSEO data does not distinguish between non-earners who are unemployed/underemployed and non-earners who are seeking an additional post-secondary credential. Likewise, a completer's wages and outcomes are reported

by completion cohort regardless of any additional post-secondary credential or training received before or after the degree completion. PSEO does not include data on non-completers.

Not all data are available at the CIP Broad Subject Area (2-digit) or CIP Specialization Group (4-digit) and currently no data for the UNC System are available at the CIP level (6-digit). [Classification of Instructional Programs](#) (CIP) taxonomy are developed and maintained by the U.S. Department of Education's National Center for Education Statistics (NCES).

Outcomes are reported at the 1-year, 5-year, and 10-year post-completion point, which is the outcome measure's value as of the first, fifth, or tenth year following the degree completion. Outcomes for each cohort group are available only if all cohorts in the group have reached the post-completion point in time. For example, the baccalaureate cohort group for 2019-2021 only has 1-year post-completion data available as of Spring 2026.

Population Groups

All PSEO Employment (PSEOE) data are aggregated in multiple attributes: cohort, discipline, degree level, and institution. Each crosswise combination of cohort, discipline, degree level, and institution granularity can be identified in the data file using the Aggregation Level. Additionally, PSEO Job Flow (PSEOF) data are aggregated by either location or industry via the Geography Level or Industry Level field, respectively. Cohort groups are aggregated as all cohorts (2001-2021) or groups of 3- or 5-year cohorts (depending on degree level). Discipline are aggregated as all programs or by academic program CIP at either the 2-digit or 4-digit level. Degree levels are aggregated by NCES [Integrated Postsecondary Education Data System](#) (IPEDS) degree levels. Institutions are aggregated at the state-level or individual institution level. Currently, the UNC System institutions are the only institutions from North Carolina who are reporting to PSEO so state-level aggregation represent system-wide aggregation. Location is aggregated at the national or regional level. Industry sector is aggregated as all industries or by [North American Industry Classification System](#) (NAICS) Sectors at the 2-digit level.

Each population group has additional data points: either employment counts and wages for the PSEOE file or location/geography and industry for the PSEOF file.

Employment Rates

PSEO limits earners in the cohort groups to individuals who reported at least 2 quarters of income with an annual average income above the poverty line. In addition to excluding non-earners or underperforming earners like completers who are pursuing

additional degrees/credentials, PSEO does not provide data for self-employed individuals (see above for full list of exclusions).

Some percentages exceed 100% e.g. the count of earners within a cohort group exceeds the count of degree completers reported to IPEDS for that same cohort group. These data should be reviewed further and may be due to the data confidentiality rules, but will be capped at 100% or excluded from analysis in this report.

Records are suppressed for cohorts that are too small. For the UNC System, at the institutional CIP Broad Subject Area level, there are 15-17% of baccalaureate records, 22-29% of masters records, 37-46% of doctoral-research/scholarship, and up to 18% of doctoral-professional practice records suppressed per cohort per post-completion year.

Wages

Earnings data are reported as group-wise median (50th percentile) and interquartile range (25th percentile and 75th percentile) annual wages at a point in time post-completion.

When dollars are reported (as of Spring 2026), PSEO has used an inflation factor to report wages in their 2023-equivalent dollars to make longitudinal reporting reflective of true changes rather than conflating with inflation over time. PSEO documentation noted using the Consumer Price Index annual average to report 2023-equivalent dollars; any comparison calculations should also use this methodology e.g. for UNC System cost data and related ROI calculations.

Employment Location

PSEOF provides data on where completers are earning wages (location of employer) using the official U.S. Census Bureau divisions. North Carolina is within the South Atlantic Division. There are also separate counts for in-state that identifies whether the UNC System employment is in North Carolina within the South Atlantic Division (likewise applicable for other states within their respective divisions).

PSEO provides the cross-section of location and industry. PSEO does not provide the cross-section of wages by location, rather the location data reports count of completers earning wages by region.

Industry Sector

NAICS classifies businesses for the purposes of federal reporting and groups industries by similarly produced goods or services. Within NAICS taxonomy, the 2-digit level is

referred to as Sectors. Sectors are not an alternative classification for occupations; a business typically employs a variety of occupations that either directly support its core mission or indirectly support it through business operations and other administrative functions.

PSEO provides the cross-section of location and industry. PSEO does not provide the cross-section of wages by industry, rather the industry data reports counts of degree completers earning wages by sector.

This analysis did not explore the industry sector data.

Using PSEO data for reporting

General Reporting

The UNC System is dedicated to data-driven reporting that is transparent, replicable, and consistent for all institutions in the system. When possible, reporting will use internally compiled resources or publicly available external resources. PSEO data are publicly available data that meet these tenants.

Not all disciplines have a large enough cohort size to have meaningful insights at the discipline level, particularly when the population of interest includes more detailed cross-tabulated aggregation. Similarly, some disciplines typically require advanced degrees or an apprenticeship period following degree completion that should be considered when reviewing outcomes. For example, there is typically a noticeable increase in medical professional doctorate completers' earnings following the completion of their residency period. Likewise, there is typically a noticeable increase in some pre-professional baccalaureate completers' employment following the completion of their graduate degree.

While the multi-cohort aggregation helps mitigate small counts and smooths single-cohort anomalies, analysts and stakeholders need to consider external factors that may impact results e.g. whether there was a change in programs offered or reclassification of programs (change in CIP code) at the institutions over the last 20+ years, change in technology/workforce trends, large social/economic events like The Great Recession (2007-2009) and the COVID-19 pandemic. The data PSEO reports accurately reflects employment outcomes for cohort completers, though the interpretation of the results should note that some impacts are not necessarily reflective of the program itself. Benchmarking against other similar programs can help provide broader context.

Cohort groupings also provide limited opportunity for trend analysis since data are already aggregated over time. There are more data points available for baccalaureate

than graduate level cohorts, particularly for data values at 1-year post-completion, though any trend analysis should be cautiously applied.

When possible, the most recently available cohorts should be used since their data are more relevant to the current program. Early career data, particularly within the first or two year post-completion, may not be indicative of career outcomes as completers navigate the workforce and set the stage for their careers; using five-year or ten-year post-completion data mitigates this concern, though it means using data for completers of programs that may have evolved since they initially enrolled. Any solution involves some benefits and concerns that should be considered during review.

Currently state-wide aggregation is the same as aggregating for the UNC System, though aggregation in this way will not be true when additional North Carolina institutions join PSEO. As a future enhancement, it would be beneficial for PSEO to add university systems as a selection for Institution ID that is cumulatively aggregated across all institutions within the system.

Consider the mix of programs included in the aggregation and whether aggregated data primarily tell the story regarding a subset of programs that are proportionally large within a given aggregation level. Alternatively, analysis should acknowledge that the aggregated value reflects the mix of programs at the time.

PSEO can include certificate completers in addition to the degree program completers. Depending on the reporting need, certificates may not be necessary to include in summary data; they have been excluded from summaries for this effort.

When evaluating outcomes, it is important to note that outcomes include results that reflect the choices of completers, not strictly the program or institution of the completer. These choices could be whether to pursue an additional degree, what jobs (including location of jobs) to apply for and accept, etc. In aggregate, individual choices that are not as reflective of the program or institution may be more easily identified as outliers and small counts, though additional surveying would be necessary to confirm these assumptions. As noted above regarding social/economic events, there may also be factors that are out of control of either the completers or the institutions. In these cases, a larger proportion of completers are impacted, and these individuals are also making choices based on workforce options available to them at the time.

Additionally, the [PSEO Coalition](#) includes many statewide, public university systems like the UNC System with applications of usage in areas of research and strategic planning.

Academic Program Planning

PSEO data is beneficial for academic program planning. UNC System academic program planning focuses on impact within North Carolina, though some programs offered additionally serve regional or national workforce needs. PSEO provides both employment and wage data nationally, which can be compared against the in-state employment and wage data available via the UNC System partnership with N.C. Department of Commerce and resources such as [NC Tower](#). Additionally, the location data available via PSEO allows for more explicit reporting on employment outside of North Carolina, previously unavailable as a free, public resource.

The UNC System focuses program review on four metric categories: Student Demand, Workforce Alignment, Education Premium, and Student Return on Investment (ROI). Each metric category addresses a different aspect of program success that should be reviewed together rather than only focusing on one category and/or a limited set of metric(s). PSEO data are best used in conjunction with other data points such as Student Demand metrics and Workforce Demand metrics when interpreting results for academic program planning efforts.

This effort did not utilize Employment Sector data, but the data would be helpful in assessing how well aligned are programs and the workforce. Relatedly, matching between sectors and disciplines could help with crosswalking between programs and occupations in the workforce focused on what positions degree completers take rather than what positions the program is intending to prepare students for. Further, given trends in workforce needs, consider what curricular or, more broadly, program planning changes should be included given the current pipeline of students to varying sectors. Of note, sector is not the same as occupation, and many support occupations are needed across all sectors e.g. Computer Science/IT graduates may work in an IT position at an IT company or in an IT position in a non-IT sector such as at an insurance company or hospital system or financial group, etc.

Academic Program Planning is typically reviewed at the 6-digit CIP level while PSEO provides data for the UNC System at the 2-digit level and in many cases at the 4-digit level, particularly for baccalaureate programs. While this higher level of aggregation is useful for planning purposes, it may be less effective when reviewing existing individual programs.