

Connecticut State Colleges & Universities Employment & Wages

Outcomes for five years of graduates



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Introduction

This report contains summary employment and wage data for five years of graduates from the Connecticut State Colleges and Universities System (CSCU). Data used in this analysis was obtained through Connecticut's Preschool through Twenty & Workforce Information Network (P20 WIN, <http://www.ct.edu/initiatives/p20win>) and is provided here to: 1) supply definitions and descriptions about the five data tables that underpin this summary, 2) document limitations and boundaries for this data and most importantly, 3) demonstrate the value of CSCU credentials and degrees through the articulation of six key findings.

CSCU information about individuals who graduated from a Connecticut Community College (CCC), State University (CSU) or the Charter Oak State College (COSC) were matched to unemployment insurance (UI) data from the Connecticut State Department of Labor (DOL). Graduates were included if they completed a credential or degree of any time during academic years 2009-10 through 2013-14. The data tables and summary analysis contain wage and employment data at the system and institution levels with detailed data by program of study, using the Classification of Instructional Program Codes (CIP codes) and by degree type (e.g. Associates, Bachelor's, etc.). Counts of individuals found to be employed in Connecticut, their average quarterly wages and difference in wages over time are provided at four points in time: one quarter prior to the beginning of the program of study (Pre-Q1), one quarter after graduation (PQ1), three quarters after graduation (PQ3) and eight quarters after graduation (PQ8).

It is necessary to keep in mind that these reports provide only a high level view of CSCU institutions and student outcomes. On their own, this report and the underlying data tables do not justify action. Rather, this information opens the doorway for further discussion and analysis. There are critical limitations to the source data sets which need to be considered; therefore more nuanced questions should be asked and answered to for greater understanding before planning future action.

Overview of Key Findings

1. Average wages for graduates increase over time – across programs for all sectors and COSC

For each set of graduates in this study, the average quarterly wages received increases when one compares average wages at four points in time: 1 quarter prior to the start of the education program (Pre-Q1), 1 quarter after program graduation (Q1), 3 quarters after program graduation (Q3) and 8 quarters after the quarter of graduation (Q8). This finding demonstrates that wages received immediately after graduation do not represent the full earning potential of graduates; rather returns are found over time. It also shows the value of CSCU credentials for increasing earning capacity.

2. Average wages for graduates increase over time – by program area

While some programs lead to more lucrative careers than others, average quarterly wages increase over time from Pre-Q1 to Q8 for nearly every education program area across all seventeen CSCU institutions. These data points would be useful to institution program review teams and students as they look for information about the marketability of their degrees in Connecticut.

3. Employment rates of graduates increased between 2009-10 and 2013-14

The percentage of students found working in Connecticut one quarter after their graduation compared to the percentage working one quarter prior to the beginning of their education program has increased steadily between 2009-10 and 2013-14 for community college and state university graduates.

4. 75% of CSU graduates, 71% of CCC graduates and 53% of COSC graduates were found employed in Connecticut in the first and third quarters after graduation.

These employment rates include only those individuals for whom an employment record was found by DOL in the Unemployment Insurance (UI) wage record data. Given that the UI wage records do not contain information about individuals who are self-employed, who work for employers in other states or who are excluded from UI law, the actual rates of employment are likely higher. This is especially true for COSC since this institution enrolls a high proportion of students from outside Connecticut.

5. Average quarterly wages increase with more advanced credentials, but there are exceptions.

In general, students with doctoral degrees earn higher wages than those with master's degrees, and they in turn have higher wages than those with a bachelor's degree. However, the relationship loosens when average wages for bachelor's and associate degrees are compared especially for initial earnings (Q1 and Q3 after graduation). The difference between the relative values of credentials is also softer at Charter Oak State College where average wages of certificate holders can match that of individuals completing associate and bachelor's degrees. These differences may demonstrate that prior work experience and the alignment of the program of study with local workforce needs affects wages earned.

6. Average wages increase in all demographic categories over time.

For graduates in all sectors, Connecticut Community College, State Universities and Charter Oak State College, average wages increase over time for each category of race, ethnicity and gender in 2012-2013 and 2013-2014. This increase is found when comparing Pre Quarter 1 (Pre-Q1) earnings with the most recent quarter of post graduate earnings, eight quarters post-graduation (Q8) for 2012-13 and three quarters past graduation (Q3) for 2013-2014. Further analysis on a program by program basis may reveal differences in parity, but the overall trend is consistently up.

Important Limitations

- **Who is counted:** Individuals are counted as graduates if they completed a credential during academic years 2009-10, 2010-11, 2011-12, 2012-13 or 2013-14. The count of graduates includes all students regardless of whether they were enrolled as full-time, part-time, 1st time or any other typical enrollment category. All credentials offered were included and identified: certificates (both undergraduate and graduate), associates, bachelor's, master's and doctoral degrees.
- **Who is not counted:** The employment and wage record data only includes employees who are covered by Unemployment Insurance (UI) law in Connecticut. Major exclusions from these data include those who are self-employed, all members of the Armed Forces, elected officials in most states, most agricultural workers on small farms, most employees of railroads, some domestic workers, most student workers at schools and employees of some types of non-profit organizations¹. According to the Connecticut Department of Labor, UI covered jobs generally include approximately 95% of wage and salary positions in the labor market.
- **Employment counts under-represent reality:** Employment counts underrepresent the true number of employed graduates for several reasons: 1) Unemployment Insurance data exclude some classes of employees (see note above for 'Who is not counted'), 2) Unemployment Insurance data to which DOL

¹ "Frequently Asked Questions." *U.S. Bureau of Labor Statistics*. U.S. Bureau of Labor Statistics, n.d. Web. 20 Oct. 2014. <http://www.bls.gov/cew/cewfaq.htm#Q14>

has access does not include Connecticut residents who are employed in other states, and 3) matches between education and UI records cannot be made for students who do not have valid Social Security Numbers (SSNs) on file. CSCU System Office staff estimate that 1.5% of records used for these reports have missing or invalid SSNs.

- **Level of wages under-represent reality:** The wage data DOL receives from employers do not include information about how many hours or weeks an individual worked within a given quarter. Therefore, the total average wages for any given quarter are lowered by the combination of wages from individuals who work part-time, were employed only for a portion of the quarter (e.g. someone who starts or stops a job mid-quarter) and by those who worked intermittently.
- **One cannot calculate ‘Unemployed’ from these data:** It is not accurate to calculate the number of individuals who are unemployed by subtracting the number of employed from the number of graduates. Individuals who are actively working may not be captured as employed because they are either working out of state or because their job is not covered by the Unemployment Insurance (UI) law which is the source of wage and employment data for this report. In addition, those not working may be doing so voluntarily and therefore would not be counted in the labor force.
- **Small variations:** The sources for student data used in these reports were the Community College Institutional Research Database (IRDB) and the Connecticut State University Institutional Research Repository (IR Repository). Occasionally there are minor differences between the number of graduates reported to the Integrated Postsecondary Education Data System (IPEDS) and the number recorded in the IRDB and IR Repository. These differences stem from variations in institutional processes for reporting completion data.
- **There are significant differences in data between this and last year’s report:** A change in methodology and additional improvements in process resulted in a data set for this year’s report that contains many differences from last year. There are differences in both the number of individuals found working and the amount of average wages earned at each point in time included in the reports. Short descriptions of the primary reasons for these differences are as follows:
 - Last year, the data used for Program Start Date was a calculated field based upon the type of the degree. This year, data used for the Program Start Date was either the ‘Catalogue Start Date’ for community college students, or the ‘First Semester Term Code’ for State University graduates where available. When one of these dates was missing, DOL calculated the Program Start Date in the same manner as last year’s report. *See Appendix A for details.* Because the Program Start Date was determined differently this year, all of the data points in the underlying data tables that reference the Program Start Date are different this year. This includes values for Pre-quarter one (Pre-Q1) which is the quarter before the quarter of the Program Start date, and values for Post Quarters 1, 3 and 8 where the value is a calculation of the difference between Pre-Q1 and the Post Quarter (e.g., all wage differences in Tables 2 and 4).
 - Some Social Security Numbers that were missing in the primary query were subsequently identified. This affected approximately 116 records
 - Eighty community college records did not have a CIP code attached to the degree earned. Manual adjustments were made based on the description of these programs and their alignment to descriptions of national standard codes. 18 records were left with blank CIP codes.
 - Additional CIP codes classified as unknown (99*) last year, were resolved this year. This improvement affected approximately 35 records.
 - Charter Oak State College submitted data about credentials earned that were not available for last year’s report.

Methodology and Data Security

The employment and wage outcome reports referenced in this report were produced by CSCU and DOL to provide information about the degree to which students completing credentials from public postsecondary institutions in Connecticut are working in Connecticut during the first couple years after program completion. Data show employment rates and wages earned by students completing undergraduate and graduate education programs by institution and by academic program from 2009-2010 through 2013-2014 as data were available.

Data were shared and linked using Connecticut's Preschool through Twenty and Workforce Information Network (P20 WIN) and the P20 WIN Data Request and Management Procedure. This procedure is a component of the data sharing agreement between BOR and DOL and can be found on the P20 WIN website at:

<http://www.ct.edu/files/pdfs/P20-WIN-Data-Management-Procedure.pdf>. Agreements specific to this analysis are located under 'Data Request 0006' at the Requests and Reports page within the P20 WIN website: <http://www.ct.edu/initiatives/p20win#request>.

A critical standard of the P20 WIN process for linking data is to ensure data security. There are three key characteristics of the network that maximize data security and student privacy. First, there is no centralized data warehouse where linked data are stored. Each agency retains ownership of the source data, responsibility for its management and control over how it is used. Second, a two-step process is used for linking data that retains separation between information that might identify an individual (such as name) and information about that individual (such as program studied). These different types of data are never brought together during the data exchange, matching or analytical processes; therefore, no-one can easily determine identities of specific individuals from the data. Third, there is a high degree of control over data requests. Only designated authorized representatives of state and local educational agencies or other federal officials can be approved to conduct analysis on the redacted data.

According to the Family Education Rights and Privacy Act (FERPA), a written data sharing agreement must be established when data from student records are shared. Each of these agreements sets a timeline for data destruction and provides for additional securities such as how data are to be secured and managed. In addition to restrictions that pertain to education data, additional limitations are required by state law for wage and employment data from unemployment insurance records (UI). P20 WIN data sharing agreements, procedures and policies are in full compliance with both state and federal law for education and UI data.

Description of Reports

The Department of Labor produced a set of five reports for the Connecticut Community Colleges and Universities. Each of the five reports include data aggregated at the system Level (summary data across all seventeen institutions), at the sector level (Connecticut Community Colleges, Connecticut State Universities, and Charter Oak State College), and at the institution level for all five academic years (2009-10 through 2013-14).

Data are provided for individuals for whom the DOL has employment records through the Unemployment Insurance (UI) program. Employers who are covered by UI law provide DOL with the total number of wages an individual received during each quarter. Number of hours worked or part-time, full-time status are not available. In addition, individuals who are employed in jobs not covered by the UI program are not available to DOL and so are not included in the analysis. For these reasons, counts in the data tables provide the best available data but likely underrepresent the number of graduates who are truly employed.

Descriptions of the reports and detailed definitions of the column headers in each type of report are below.

- * **Table 1: Quarterly Employment and Wage Results, by Program of Study.**
This report shows employment and wage outcomes at different points in time for individuals who completed credentials in academic years 2009-10 through 2013-14. These data are provided by program of study (2 and 6 digit CIP codes). Counts of those with employment records and average wages are provided for four points in time: one quarter prior to the quarter in which the individual started their education program (i.e. Pre-Quarter 1, or Pre-Q1), and one quarter, 3 quarters and 8 quarters after the quarter of graduation (i.e. Post-Quarter 1, or Q1, Q3, Q8). On Table 1, data at each point in time are snapshots in time, representing different groups of graduates at each point. For example, someone employed prior to beginning their academic program would be counted in '1 quarter prior', but this individual might not be counted in 'quarter 3' data if they had a break in employment, and they might be counted again in quarter 8 data if employment in Connecticut began again.
- * **Table 2: Wage Results and Differences for those employed in both PreQ1 and Post Quarter, by Program of Study.** This table provides average quarterly wages received for graduates who worked in *both* the quarter prior to the start of their academic program and a point in time after graduation (e.g. 1, 3 or 8 quarters past the quarter of graduation). The difference in wages is for that specific set of graduates who were employed at both points in time. Individuals included in the three comparison groups are not the same.
- * **Table 3: Quarterly Employment and Wage Results, by Program of Study, by Degree Type.** Table 3 is the same as Table 1 except that data are provided by degree type instead of by institution. For the Connecticut Community Colleges, employment counts and average wages at each point in time are shown for certificates and associate degrees. The reports for Connecticut State Universities include associates, bachelor's, master's, doctorate, post-baccalaureate and post-master's certificates. The Charter Oak State College includes certificates, associates, and bachelor's degrees.
- * **Table 4: Wage Results and Differences for those employed in both Pre-Q1 and Post Quarter, by Program of Study, by Degree Type.** Table 4 is the same as Table 2 except that the data are provided by degree type instead of institution. For the Connecticut Community Colleges, employment counts and average wages are shown for certificates and associates degrees. The reports for Connecticut State Universities include associates, bachelor's, master's, doctorate, post-baccalaureate and post-master's certificates. The Charter Oak State College includes certificates, associates, and bachelor's degrees.
- * **Table 5: Quarterly Employment and Wage Results, by Demographics**
The final table has the same structure as tables 1 and 3. Data are provided by demographic category across the CSCU System, by sector and by institution. Demographic categories used are the same that institutions currently use for reporting for federally required reporting to the Integrated Postsecondary Education Data System (IPEDS).

Definitions: Tables 1, 3 & 5

- **School Year:** The school year is the same as that used for IPEDS reporting. Each year includes summer, fall, winter and spring terms (July 1st through June 30th of the following year).
- **Program of Study:** The description of the program of study is based on the Classification of Instructional Programs Code (CIP code) which is a national standard for program identification. Data are provided at the two digit or 6 digit levels of specificity depending on data suppression rules.

- **Grads:** Grads is short for ‘graduates’. This is a count of those who graduated with a credential in the given school year. This number should be close to, but may not match what institutions provided for IPEDS reporting. *Note:* Differences are attributed to the fact that institutions provide data to IPEDS directly; whereas data about graduates for this analysis were pulled from the central institutional research data repositories. Because there are variations in institutional processes, these sources can sometimes be out of sync. Occasionally there are minor differences between the number of graduates reported to IPEDS and the number recorded in the IRDB and IR Repository. These differences stem from variations in institutional processes for reporting completion data.
- **Pre-Quarter 1 (Pre-Q1):** The quarter before the quarter in which a graduate began the academic program from which they graduated. If an individual began their program in fall of 2011 (e.g. 3rd quarter 2011), ‘Pre-Quarter 1’ would be the 2nd quarter 2011.
- **Post-Quarter 1 (Q1):** The first quarter after the quarter in which a graduate completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Post-Quarter 1’ would be 1st quarter 2012. For May graduates in 2012 (e.g. 2nd quarter 2012), ‘Post-Quarter 1’ would be 3rd quarter, 2012.
- **Post-Quarter 3 (Q3):** The third quarter after the quarter in which a graduate completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Post-Quarter 3’ would be 3rd quarter 2012. For May graduates in 2012 (e.g. 2nd quarter 2012), ‘Post-Quarter 3’ would be 1st quarter, 2013.
- **Post-Quarter 8 (Q8):** The eighth quarter after the quarter in which a graduate completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Post-Quarter 8’ would be 4th quarter 2013. For May graduates in 2012 (e.g. 2nd quarter 2012), ‘Post-Quarter 8’ would be 2nd quarter, 2014.
- **Emp:** ‘Emp’ is short for ‘employed’ and is a count of those graduates for whom DOL had an employment record at the given point in time. *Note:* Given the source for employment data is Unemployment Insurance records, there are individuals who are employed but for whom data are not available to DOL.
- **Avg Wage:** ‘Avg Wage’ means ‘average quarterly wage’ and is an average of the thirteen week quarterly wages of all individuals for whom CT DOL has an employment record during the given quarter. This figure is specific to the institution, year and program referenced in the table.

Definitions: Tables 2 & 4

- **School Year:** The school year is the same as that use for IPEDS reporting. Each year includes summer, fall, winter and spring terms (July 1st to June 30th of the following year).
- **Program of Study:** The description of the program of study is based on the Classification of Instructional Programs Code (CIP code) which is a national standard for program identification, <https://nces.ed.gov/pubs2002/cip2000/>. Data are provided at the two digit or 6 digit levels of specificity depending on data suppression rules.
- **Total Grads:** ‘Total Grads’ is used in the same manner as ‘graduates’ in the tables for Quarterly employment and wage results. This is a count of those who graduated with a credential in the given school year. This number should be close to, but may not match what institutions provided for IPEDS reporting. *Note:* Differences are attributed to the fact that institutions provide data to IPEDS directly; whereas data about graduates for this analysis were pulled from the central institutional research data repositories.
- **Employed Q1 after:** Data for those graduates in the three columns under this title (Pre, Post, Diff) include those who were employed both 1 quarter prior to the start of their academic program *and* 1 quarter after they completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Employed Q1 after’ would be 1st quarter 2012. For May graduates in 2012 (e.g. 2nd quarter), 2012 ‘Employed Q1 after’ would be 3rd quarter, 2012.

- **Employed Q3 after:** Data for those graduates in the three columns under this title (Pre, Post, Diff) include those who were employed both 1 quarter prior to the start of their academic program *and* 3 quarters after they completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Employed Q3 after’ would be 3rd quarter 2012. For May graduates in 2012 (e.g. 2nd quarter), 2012 ‘Employed Q3 after’ would be 1st quarter, 2013.
- **Employed Q8 after:** Data for those graduates in the three columns under this title (Pre, Post, Diff) include those who were employed both 1 quarter prior to the start of their academic program *and* 8 quarters after they completed their credential. For winter graduates in 2011 (e.g. 4th quarter 2011), ‘Employed Q8 after’ would be 4th quarter 2013. For May graduates in 2012 (e.g. 2nd quarter), 2012 ‘Employed Q8 after’ would be 2nd quarter, 2014.
- **Pre:** ‘Pre’ in this table refers to the point in time 1 quarter prior to the quarter in which a graduate began their academic program. For individuals starting in fall 2011 (e.g. 3rd quarter 2011), ‘Pre’ would be 2nd quarter 2011. For individuals starting in spring 2012 (e.g. 2nd quarter 2012), ‘Pre’ would be 1st quarter, 2012. The wages provided are average quarterly wages for the individuals during the quarter before the start of their academic program.
- **Post:** ‘Post’ in this table refers to the point in time listed above that column. For example, ‘Post’ under ‘Employed Q1 after’ would be 1 quarter after the quarter in which graduate completed their credential. The wages provided are average quarterly wages for the individuals who were employed *both* at the ‘Pre’ quarter and the ‘Post’ quarter for the given point in time after they completed their graduation (e.g. 1st, 3rd, or 8th quarter after the quarter of graduation).
- **Diff:** ‘Diff’ Stands for ‘difference’ and refers to the change in average quarterly wages for those individuals were employed at both the “Pre” quarter and “Post” quarter for a given point in time after they completed their graduation (e.g. 1st, 3rd or 8th quarter after the quarter of graduation).
- ***: An Asterisk** is used when data have been suppressed to comply with data confidentiality rules. The CT Department of Labor provided data where the number of individuals in a given cell are greater than six. When suppression occurs, they also suppress the next largest cell in order to avoid the possibility that basic math could be used to determine the smaller cell size.
- **++: A double plus sign** is used when there are insufficient quarters of wage records to report valid values. See *Appendix B* for a chart of quarters and explanation of the availability of UI data during those quarters.

Findings and Graphs

Findings in this summary report are provided at the CSCU system level. There is considerable value in the reports and underlying data for the individual institutions and students; however, review and analysis of institution level programs should be done by institution staff who understand campus level programming. Therefore, this analysis does not cover institution level data with the exception of Charter Oak State College.

1. Average wages for graduates increase over time – across programs for all sectors and COSC

For each set of graduates in this study, average quarterly wages received increases when one compares average wages at four points in time: 1 quarter prior to the start of the education program (Pre-Q1), 1 quarter after program graduation (Q1), 3 quarters after program graduation (Q3) and 8 quarters after the quarter of graduation (Q8). This finding demonstrates that wages received immediately after graduation do not represent the full earning potential of graduates; rather returns are found over time. It also shows the value of CSCU credentials for increasing earning capacity.

For Charter Oak State Colleges (COSC), the change over time is not as consistent as it is for community college and state university graduates. This may be because COSC students often already have work experience which contributes to increases both their initial and subsequent earnings.

Table 1a: CCC – Average Quarterly Wages over Time - Across all Programs

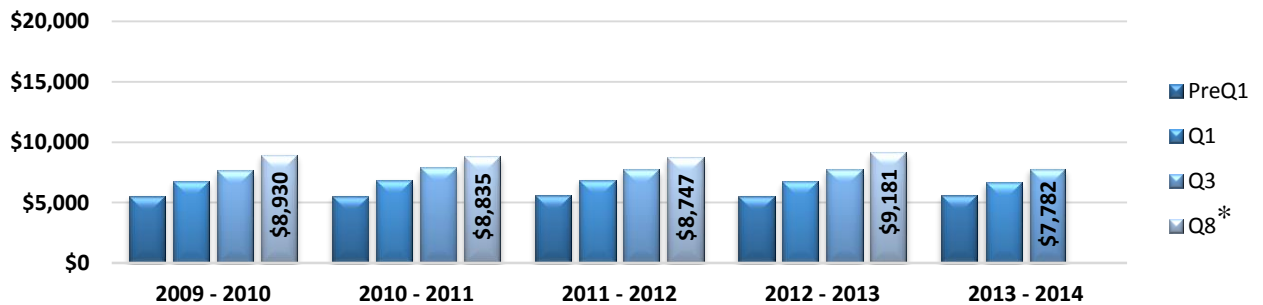
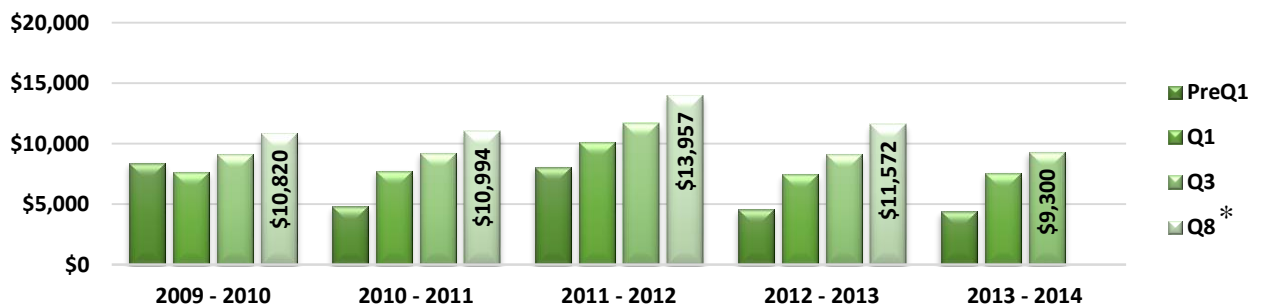
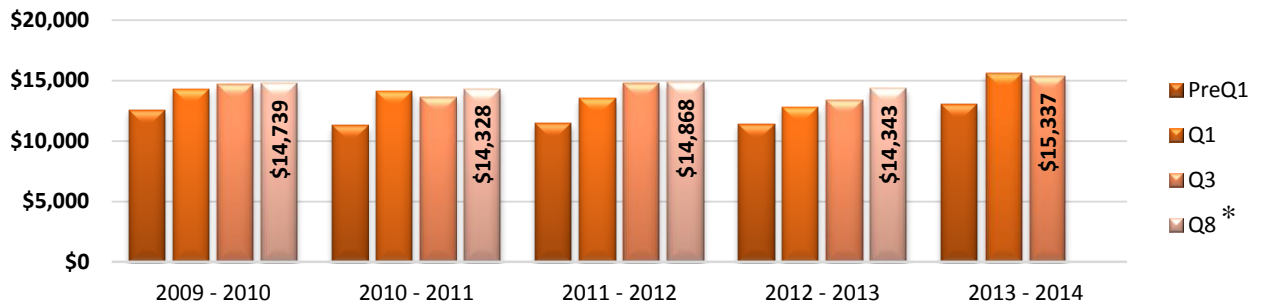


Table 1b: CSU - Average Quarterly Wages over Time – Across all Programs



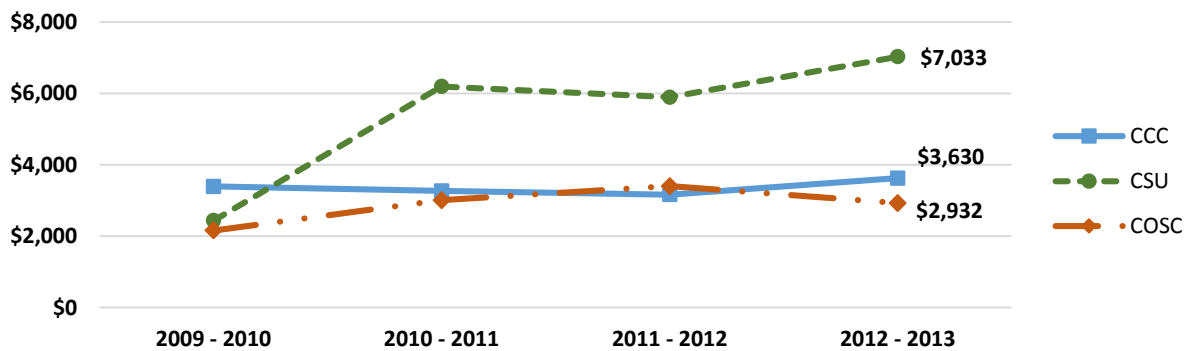
*Q8: Data for eight quarters after graduation are not available for individuals graduating in 2013-14 because not enough time has passed for the employment records to be reported to the DOL. See Appendix A.

Table 1c: **COSC** – Average Quarterly Wages over Time – Across all Programs



Tables 1a, 1b, and 1c show the steady increase in salaries over time. Table 1d shows the difference between average salaries earned two years after graduating and what individuals were earning one quarter prior to the beginning of the academic program from which the graduated. COSC graduates tend to increase their earnings by about \$3,000. Community Colleges see a typical increase of just over \$3,500 and State University Graduates have seen their wages increase more substantially in recent years, from \$6,000 to \$7,000 for 2012-13 graduates.

Table 1d: Difference between Pre-Quarter 1 and Post Quarter 8 Average Wages by Sector



2. Average wages for graduates increase over time – by program area

While the earning power of some programs is naturally greater than others (e.g. engineering compared to social work) average quarterly wages increase over time from Pre-Q1 to Q8 for nearly every education program area across all seventeen CSCU institutions. These data points should be useful to institution program review teams and students as they look for information about the marketability of their degrees in Connecticut.

The following graphs for community college and state university graduates show wages for 2012-13 graduates since this is the most recent year for which we have a full 2 years of data. These tables demonstrate that average wages for graduates from most programs begin increasing relatively quickly. For all graduates, and especially those from community colleges, it is important to keep in mind that many students may be continuing their education while working past the completion of their initial credential.

Note: The Community Colleges, State Universities and Charter Oak State College do not offer all of the same programs. The following key provides a definition for the two digit CIP code for programs offered across the CCC and CSU institutions.

CIPCode	CIPTitle
1	Agriculture, Agric Operations, & Rel Sciences
3	Natural Resources & Conservation
5	Area, Ethnic, Cultural, Gender, & Group Studies
9	Communication, Journalism, & Rel Programs
10	Communications Technologies/technicians & Support Svcs
11	Computer & Information Sciences & Support Svcs
12	Personal & Culinary Svcs
13	Education
14	Engineering
15	Engineering Technologies & Engineering-related Fields
16	Foreign Languages, Literatures, & Linguistics
19	Family & Consumer Sciences/Human Sciences
22	Legal Professions & Studies
23	English Language & Literature/letters
24	Liberal Arts & Sciences, Gen Studies & Humanities
25	Library Science
26	Biological & Biomedical Sciences
27	Mathematics & Statistics
30	Multi/interdisciplinary Studies
31	Parks, Recreation, Leisure, & Fitness Studies
32	Basic Skills & Developmental/Remedial Education
38	Philosophy & Religious Studies
40	Physical Sciences
41	Science Technologies/technicians
42	Psychology
43	Homeland Security, Law Enforcement, Firefighting & Rel Protective Svcs
44	Public Admin & Social Service Professions
45	Social Sciences
47	Mechanic & Repair Technologies/technicians
48	Precision Production
49	Transportation & Materials Moving
50	Visual & Performing Arts
51	Health Professions & Rel Programs
52	Business, Management, Marketing, & Rel Support Svcs
54	History
46	Construction Trades

Table 2a: CCC – Avg. Quarterly Wages over Time by Program CIP code for 2012-13 Graduates

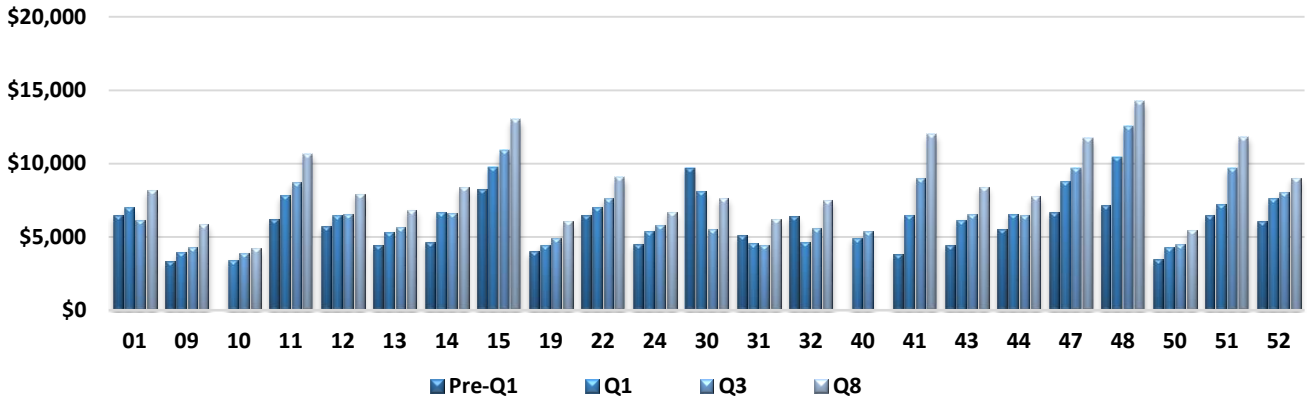


Table 2b: CSU – Avg. Quarterly Wages over Time by Program CIP code* for 2012-13 Graduates

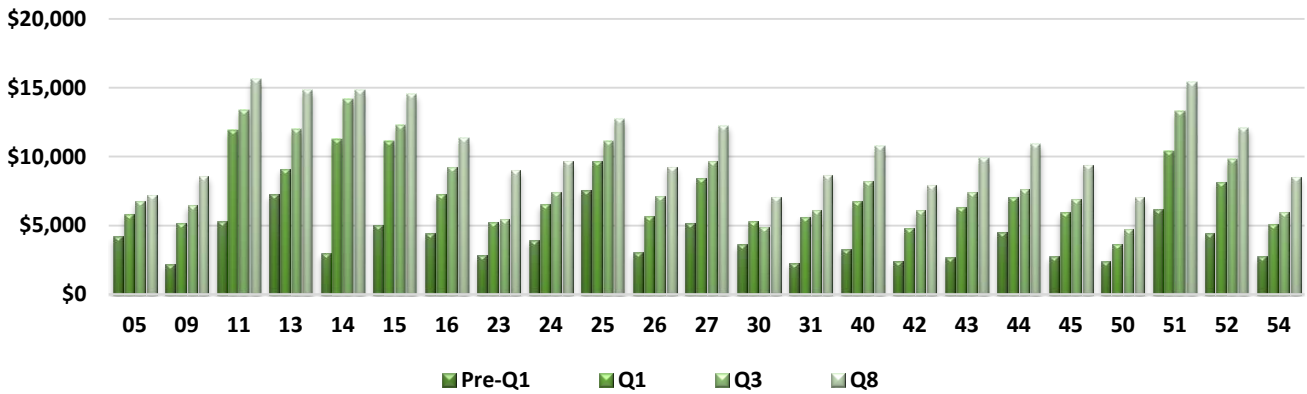
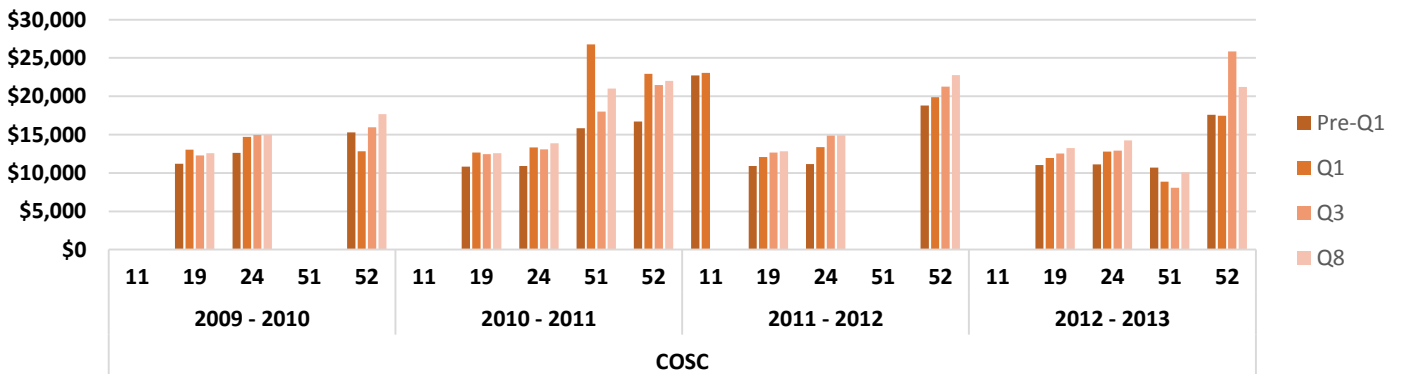


Table 2c: COSC – Avg. Quarterly Wages over Time by Program for 2009-10 through 2012-13

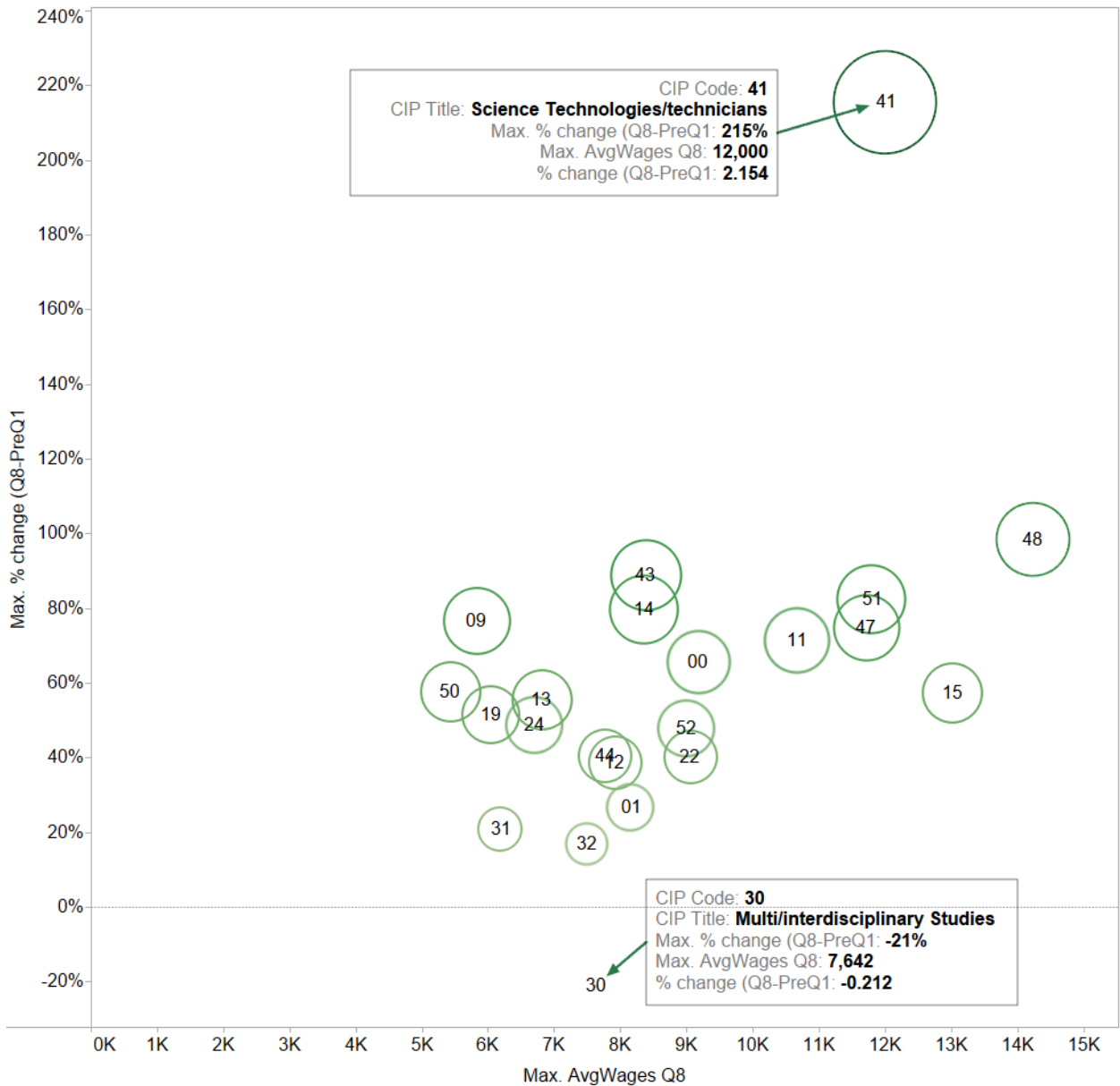


Tables 2a, 2b and 2c show wages rising over time across all education programs within each sector. There are a few anomalies to this pattern in Table 2c for COSC yet the overall trend remains up. Even for students who may have substantial prior work experience or who may be shifting careers, wages earned after completion have typically increased after the completion of their credential or degree.

Prior tables are distinct for the CSCU’s sectors. They contain information only community colleges or the state universities or Charter Oak State College. Table 2d shows data aggregated across the system for individuals completing credentials of any type in the 2012-13 academic year. The number in each circle is the two digit CIP code. Refer to the table on page 11 for definitions of these codes. The vertical axis shows the percent change in average wages between Pre-Quarter 1 and Post Quarter 8, and the circles get larger or smaller depending on that change. The horizontal axis shows the average wages earned for individuals who completed a credential at any level within that CIP code.

Viewing the data in this manner highlights that there is a greater than average return for individuals who complete credentials in Science Technologies and a lower than average return for individuals who complete credentials in Multi/interdisciplinary studies.

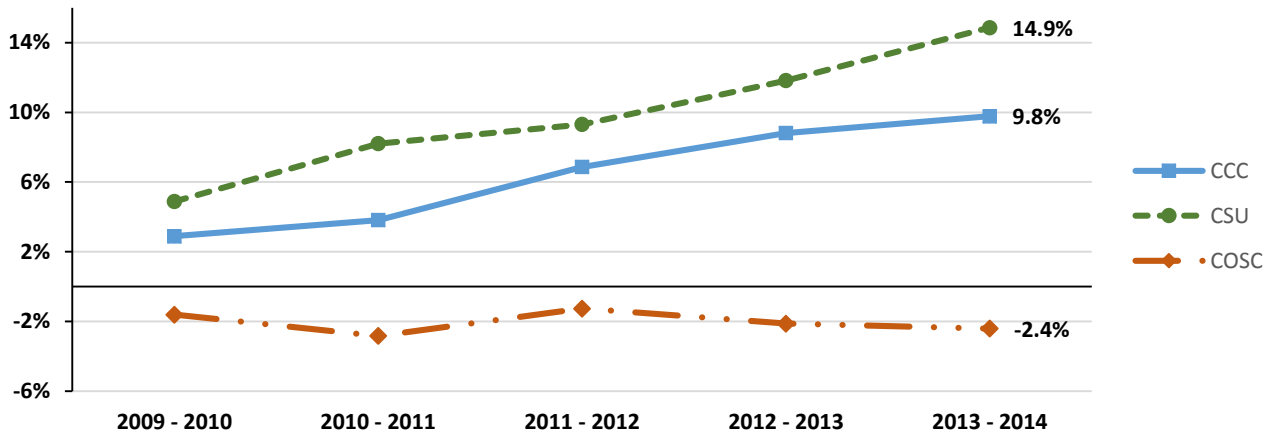
Table 2d: **CSCU – Percent change in wages (Y) compared to average wages earned at 8 quarters post (X)**



3. Employment rates of graduates increased between 2009-10 and 2013-14 for CC and CSU graduates

The change in the percentage of students found working in Connecticut one quarter after completing their credential compared to those employed one quarter prior to the beginning of their education program has increased steadily for community college and state university graduates. The change in employment rates for COSC graduates has been less which likely reflects the fact that approximately 20% of COSC students are not Connecticut residents.

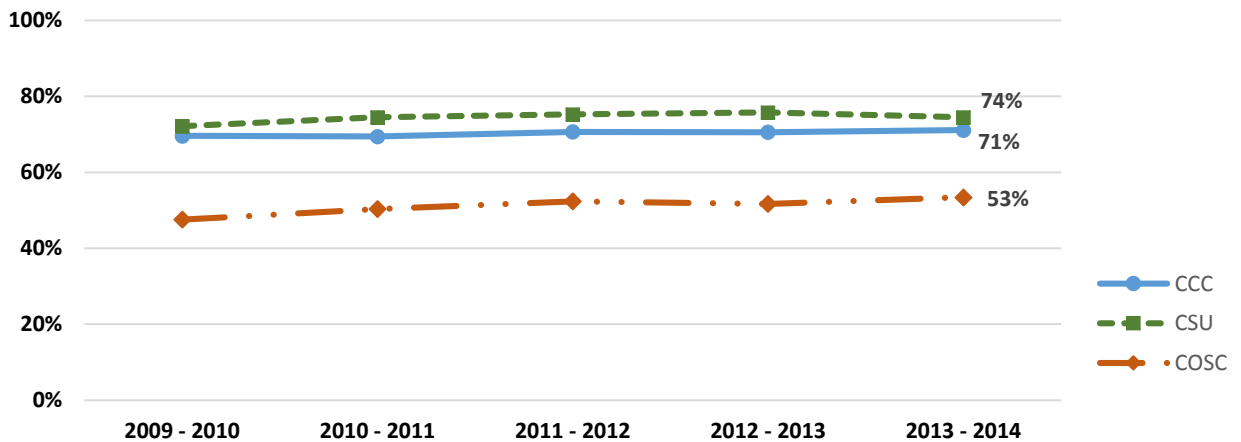
Table 3: Increase in Employment Rate from Pre-Q1 to Post Q1



4. 75% of CSU graduates, 71% of CCC graduates and 53% of COSC graduates were found employed in Connecticut in the third quarter after graduation.

These employment rates include only those individuals for whom an employment record was found by DOL in the Unemployment Insurance (UI) wage record data. Given that the UI wage records do not contain information about individuals who work for employers in other states or who are excluded from UI law, the actual rates of employment are higher. This is especially true for COSC since students not living in Connecticut are less likely to be found employed in Connecticut.

Table 4: Percent of Graduates Employed in Connecticut 3 Quarters after Graduation



5. Average quarterly wages increase with more advanced credentials, but there are exceptions.

In general, wages increase with more advanced credentials. Students with doctoral degrees earn higher wages than those with master’s degrees, and they in turn have higher wages than those with a bachelor’s degree. This standard pattern is most clear with data in Table 5b from the Connecticut State Universities. The relationship looks different at the community colleges, where those completing certificates earn more than those with an associates within the two years of this study. However, looking closely at the data shows that certificate holders had higher average wages prior to the start of their education program than those who were pursuing an associates. It is possible that those seeking certificates already have prior work experience to which the completion of the certificate provides value added in the short term. The relevance of a certificate may have immediate benefits in the workplace that are seen by those completing associates in the longer term, beyond quarter eight.

Table 5a: CCC – Avg. Quarterly Wages by Degree Type over Time

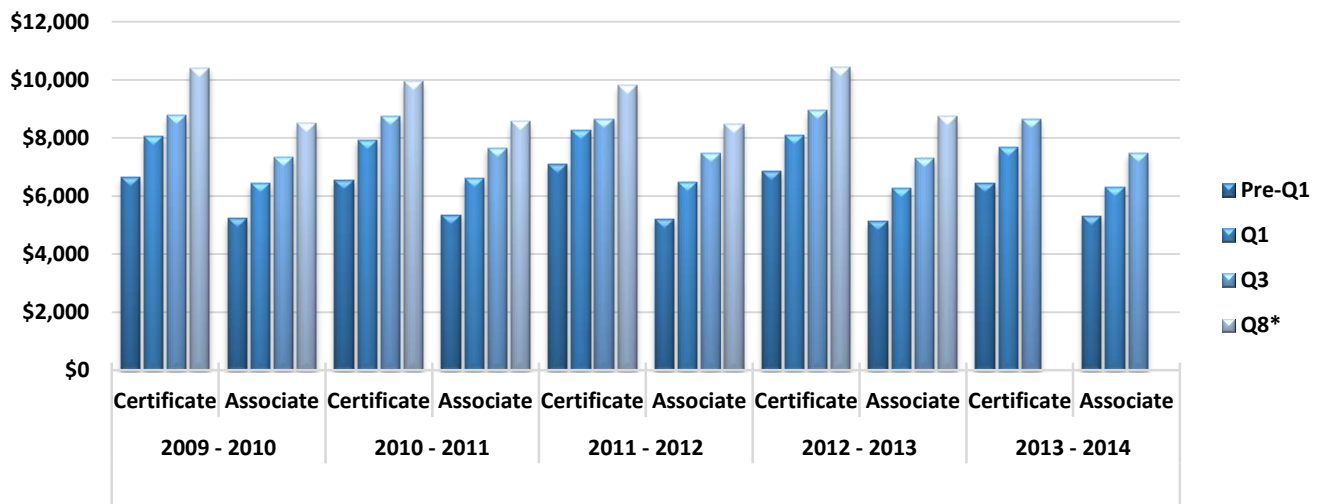
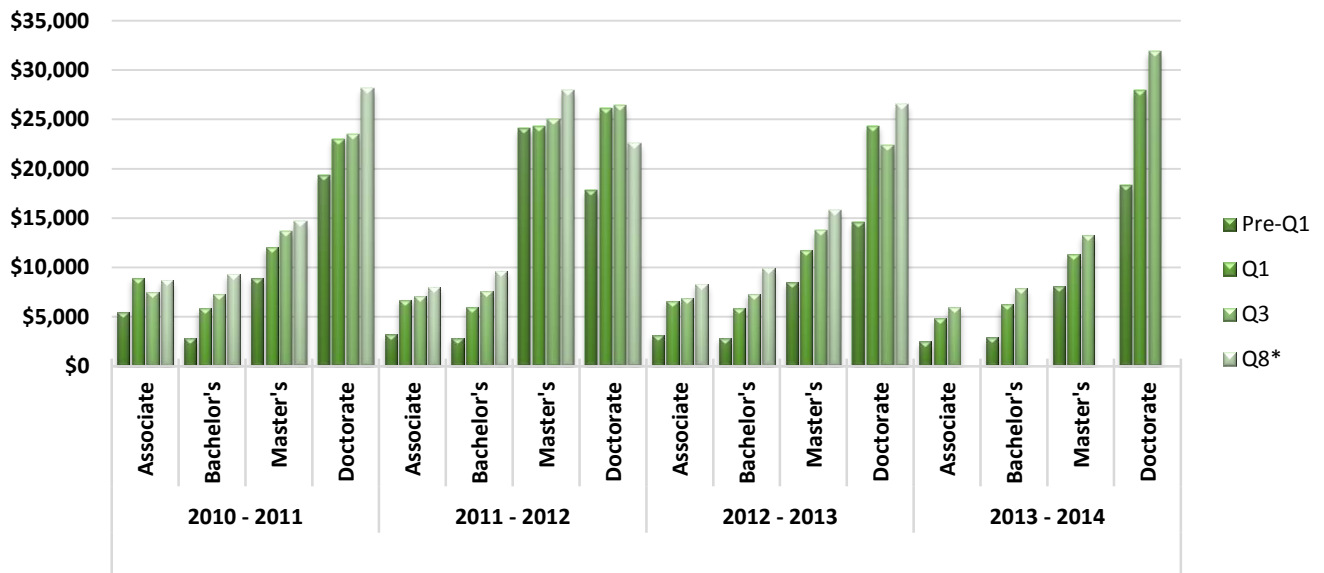
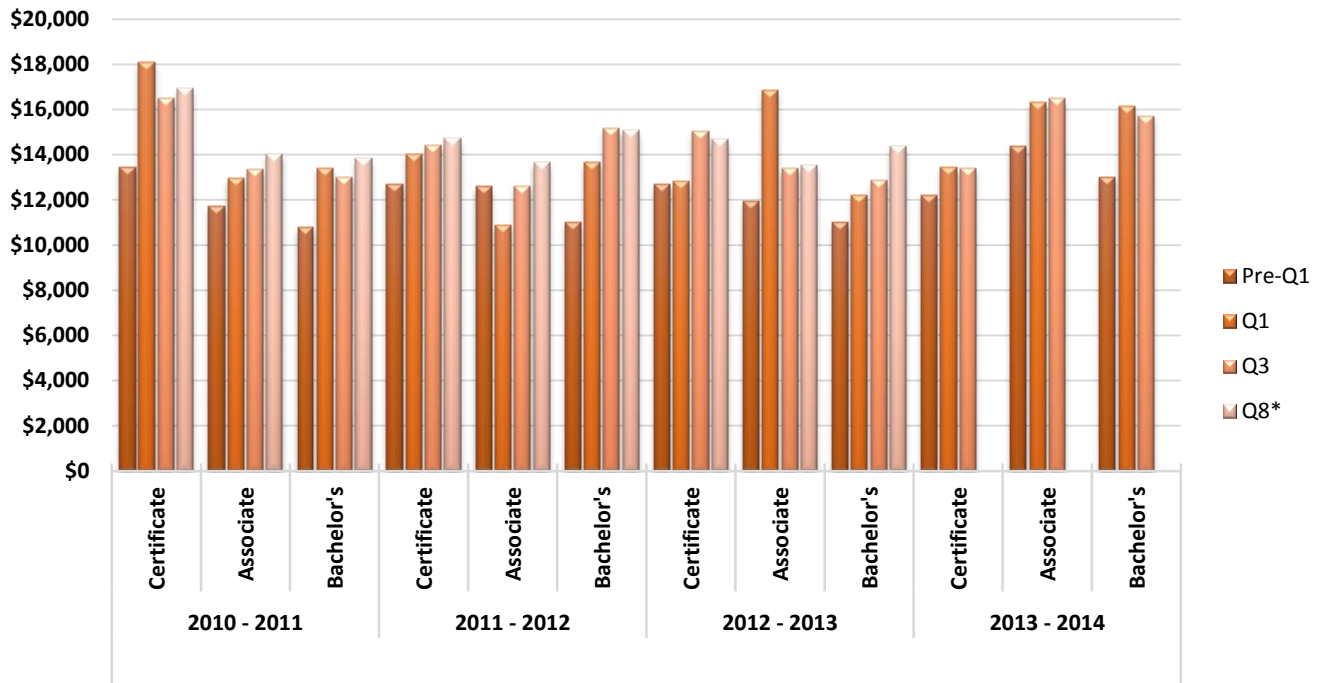


Table 5b: CSU – Avg. Quarterly Wages by Degree Type over Time



Q8: Data for quarter 8 after graduation is not available for the 2013-14 academic year because not enough time has passed for the employment records to be reported to the DOL. See Appendix B*

Table 5c: COSC – Avg. Quarterly Wages by Degree Type over Time



Q8*: Data for quarter 8 after graduation is not available for the 2013-14 academic year because not enough time has passed for the employment records to be reported to the DOL. See Appendix B

6. Average wages increase in all demographic categories over time.

For Community College, State University graduates and Charter Oak State College, average wages increase over time for each category of race, ethnicity and gender in 2012-2013 (Pre-Q1 – Q8) and 2013-2014 (Pre-Q1 – Q3). Further analysis on a program by program basis may reveal differences in parity, but the overall trend is consistent.

Tables 6a, 6b and 6c provide average wages for demographic categories with data for at least two points in time. For this reason, CCC and CSU tables do not include: American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and the COSC table does not include: American Indian, Asian, Non-resident alien, or two or more races.

Table 6a: CCC – Average quarterly wages by demographics for 2012-13 graduates

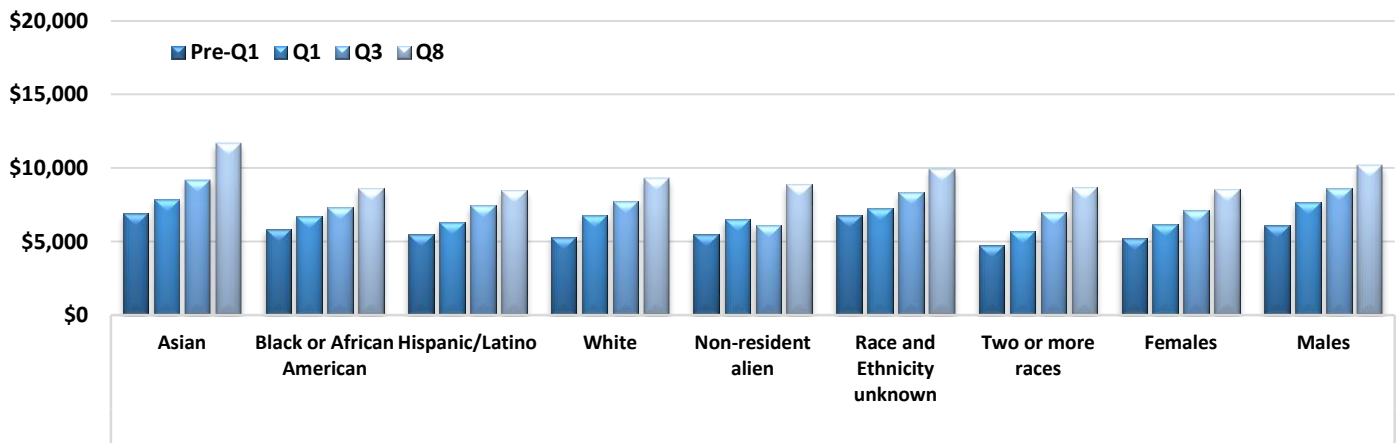


Table 6b: **CSU** – Average quarterly wages by demographics for 2012-13 graduates

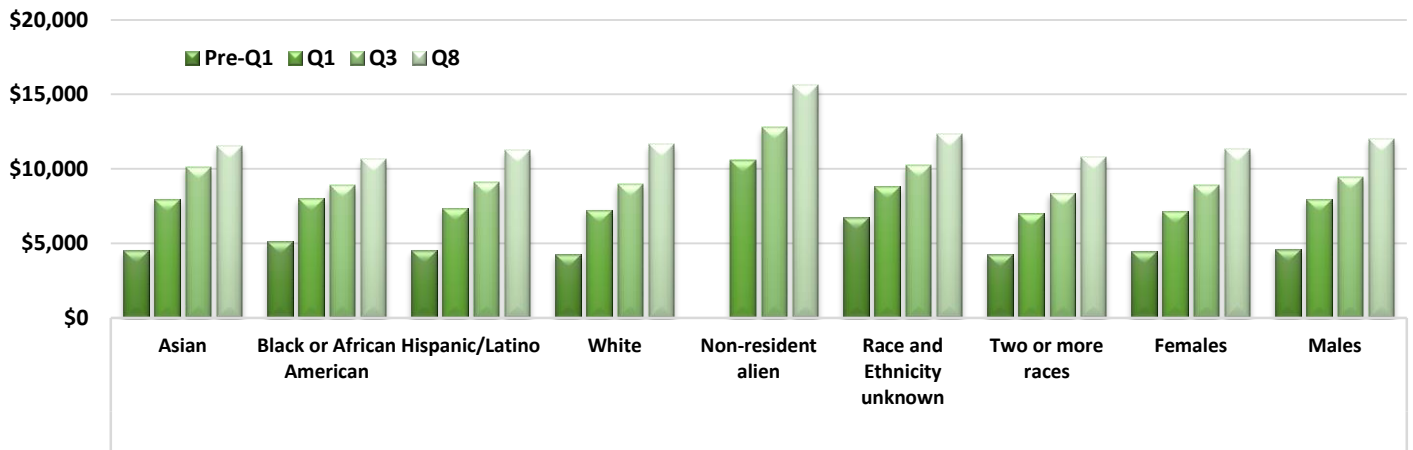
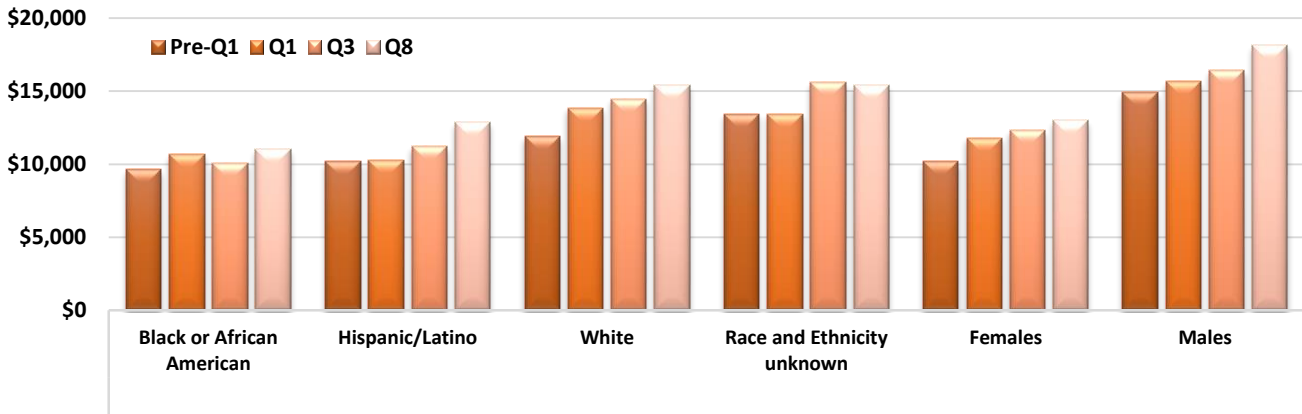


Table 6c: **COSC** – Average quarterly wages by demographics for 2012-13 graduates



Areas for Additional Exploration

The process of improving education programs requires an understanding of student outcomes. For CSCU leadership this includes analyzing employment and wage outcomes for program graduates. Institutions can review this report to understand the detailed outcome data that DOL has provided for them by institution, by degree level and by education CIP code. Beyond immediate program review with this data, additional research could be conducted to provide valuable feedback for program leadership. Suggestions include:

- The degree to which students are both working and pursuing education simultaneously and after completing their initial credential
- Long term employment and wage outcomes for liberal arts graduates
- The impact of length of history of employment on earnings after graduation
- Differences in employment retention over time by program
- Analysis of non-credit programs, such as advanced manufacturing
- Review of program areas where graduates with lower level credentials consistently earn higher average wages over time than graduates with higher level credentials.
- Median wages earned compared to state averages. Connecticut population earnings

Appendix A

This table was used to calculate a Program Start Date when a program entry date was unavailable. It is estimated that this formula was used for approximately 1,500 individuals over the 5 years of data included in this report.

Degrees_CSU		Timeframe – prior to graduation date to use for 'pre-credentialed wages and employment statuses. 150% of traditional completion time
CSU_DEGREE_CODE	CSU_DEGREE_NAME	
AS	Associate's degree	3 years
BA	Bachelor's degree	6 years
POST-BA-CERT	Post-baccalaureate certificate	1.5 years
MA	Master's degree	3 years
POST-MA-CERT	Post-master's certificate	1.5 years
DR	Doctorate's degree	6 years
Degrees_COSC		
degree_code	degree_desc	
AA	Associate of Arts	3 years
AS	Associate of Science	3 years
BA	Bachelor of Arts	6 years
BS	Bachelor of Science	6 years
CT	Certificate	1.5 years
Degrees_CC		
CC_DEGREE_CODE	CC_DEGREE_DESC	
AA	Associate in Arts	3 years
AAS	Associate in Applied Science	3 years
AS	Associate in Science	3 years
CERT	Certificate	1.5 years

Appendix B

This table provide information about the availability of unemployment insurance data through the Connecticut Department of Labor. Due to the schedule by which employers are required to report employment and wages, data are not available immediately resulting in a lag between when a quarter occurs and when data are available for that quarter. At the time when data were pulled for this report, the data were unavailable for the quarters which are shaded. This is why all of the data for Quarter 8 past graduation is unavailable for graduates from year 2013 (2013-14).

Year	Reporting Year	PS Graduation term	Quarter of PS Graduation	1 Quarter past Graduation		3 Quarters past Graduation		8 quarters past graduation	
				1 quarter past graduation	best by:	3 quarters past graduation	best by	8 quarters past graduation	best by
2008	2008-09	May, 2009	Q2 - 2009	Q3 - 2009	Q4 -2009	Q1 -2010	Q2 - 2010	Q2 - 2011	Q3 - 2011
2009	2009-10	Aug, 2009	Q3 - 2009	Q4 - 2009	Q1 -2010	Q2 -2010	Q3 - 2010	Q3 - 2011	Q4 - 2011
	2009-10	Dec, 2009	Q4 - 2009	Q1 - 2010	Q2 -2010	Q3 -2010	Q4 - 2010	Q4 - 2011	Q1 - 2012
	2009-10	May, 2010	Q2 - 2010	Q3 - 2010	Q4 -2010	Q1 -2011	Q2 - 2011	Q2 - 2012	Q3 - 2012
2010	2010-11	Aug, 2010	Q3 - 2010	Q4 - 2010	Q1 -2010	Q2 -2011	Q3 - 2011	Q3 - 2012	Q4 - 2012
	2010-11	Dec, 2010	Q4 - 2010	Q1 - 2011	Q2 -2011	Q3 -2011	Q4 - 2011	Q4 - 2012	Q1 - 2013
	2010-11	May, 2011	Q2 - 2011	Q3 - 2011	Q4 -2011	Q1 -2012	Q2 - 2012	Q2 - 2013	Q3 - 2013
2011	2011-12	Aug, 2011	Q3 - 2011	Q4 - 2011	Q1 -2011	Q2 -2012	Q3 - 2012	Q3 - 2013	Q4 - 2013
	2011-12	Dec, 2011	Q4 - 2011	Q1 - 2012	Q2 -2012	Q3 -2012	Q4 - 2012	Q4 - 2013	Q1 - 2014
	2011-12	May, 2012	Q2 - 2012	Q3 - 2012	Q4 -2012	Q1 -2013	Q2 - 2013	Q2 - 2014	Q3 - 2014
2012	2012-13	Aug, 2012	Q3 - 2012	Q4 - 2012	Q1 -2013	Q2 -2013	Q3 - 2013	Q3 - 2014	Q4 - 2014
	2012-13	Dec, 2012	Q4 - 2012	Q1 - 2013	Q2 -2013	Q3 -2013	Q4 - 2013	Q4 - 2014	Q1 - 2014
	2012-13	May, 2013	Q2 - 2013	Q3 - 2013	Q4 -2013	Q1 -2014	Q2 - 2104	Q2 - 2015	Q3 - 2015
2013	2013-14	Aug, 2013	Q3 - 2013	Q4 - 2013	Q1 -2014	Q2 -2014	Q3 - 2014	Q3 - 2015	Q4 - 2015
	2013-14	Dec, 2013	Q4 - 2013	Q1 - 2014	Q2 -2014	Q3 -2014	Q4 - 2014	Q4 - 2015	Q1 - 2015
	2013-14	May, 2014	Q2 - 2014	Q3 - 2014	Q4 -2014	Q1 -2015	Q2 - 2015	Q2 - 2016	Q3 - 2016
2014	2014-15	Aug, 2014	Q3 - 2014	Q4 - 2014	Q1 - 2015	Q2 - 2015	Q3 - 2015	Q3 - 2016	Q4 - 2016
	2014-15	Dec, 2014	Q4 - 2014	Q1 - 2015	Q2 - 2015	Q3 - 2015	Q4 - 2015	Q4 - 2016	Q1 - 2017
	2014-15	May, 2015	Q2 - 2015	Q3 - 2015	Q4 - 2015	Q1 - 2016	Q2 - 2016	Q2 - 2017	Q3 - 2017

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