



CAAL-Skills Workforce Metrics Dashboard Report 2022

Chapter 11: California Community Colleges Chancellor's Office (CCCCO) – Career Technical Education (CTE) Program

The California Workforce Development Board (CWDB) assists the Governor in setting and guiding policy in the area of workforce development. The CWDB is responsible for assisting the Governor in performing the duties and responsibilities required by the federal Workforce Innovation and Opportunity Act (WIOA) of 2014. California's [Unified Strategic Workforce Development Plan](#) directs its work in providing guidance to the statewide workforce development system.

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This document can be found on the CWDB's website at cwdb.ca.gov

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11 California Community Colleges Chancellor's Office (CCCCO) – Career Technical Education (CTE) Program

Program Overview – California Community Colleges lead the state and nation in providing postsecondary career technical education (CTE) and training. Serving more than 2.1 million students, the 115 community colleges provide workforce training, basic skills education, and transfer preparation. Students can enroll in associate degree and certificate programs in 350 fields of study. The colleges also offer apprenticeship programs, short-term training aligned to third-party credentials, and incumbent worker training to upgrade skill sets in various industry sectors.

California's community colleges, which is not only the nation's largest system of higher education but is also its largest workforce development trainer, supply the means for a skilled workforce by providing certificate and degree programs in more than 350 different fields of study. The community colleges offer approximately 8,000 certificate programs—including over 200 programs in CTE which operate under the purview of the Chancellor's Office—and 4,500 associate degree programs.¹ Apprenticeship programs, short-term training aligned to third-party credentials, and incumbent worker training to upgrade skill sets in various industry sectors are also available. Colleges also deliver contract education to provide employer-supported, customized instruction for incumbent workers.²

CTE refers to a sequence of courses that integrate core academic knowledge with technical and occupational knowledge in order to provide students with a pathway to both postsecondary education and careers.³ CTE instruction is offered in ten priority and emerging industry sectors, as well as five major "career cluster" areas.⁴ CTE objectives include teaching academic subjects in a hands-on manner that is linked to areas of career interest. CTE courses may also emphasize instruction in soft skills, such as teamwork, time management, and communication; providing students with technical skills leading to postsecondary education or jobs; and helping the state to meet workforce goals of producing more workers trained for middle-skill careers (i.e., careers requiring training beyond high school but less than a four-year degree⁵) within the next decade.⁶

¹ California Community Colleges. [Key Facts](#).

² [California Community Colleges Task Force on Workforce: Job Creation and a Strong Economy \(2015\)](#).

³ California Department of Education. "[Career Technical Education](#)."

⁴ Legislative Analyst's Office, "[Overview of High School Career Technical Education](#)," February 21, 2018. The areas are: Agriculture and Natural Resources; Arts, Media, and Entertainment; Building and Construction Trades; Business and Finance; Education, Child Development, and Family Services; Energy, Environment and Utilities; Engineering and Architecture; Fashion and Interior Design; Health Science and Medical Technology; Hospitality, Tourism, and Recreation; Information and Communication Technologies; Manufacturing and Product Development; Marketing, Sales, and Service; Public Services; Transportation.

⁵ Public Policy Institute of California. [Career Technical Education in California](#).

⁶ Legislative Analyst's Office, "Overview of High School Career Technical Education," October 2, 2017.

State-wide, in 2016-2017 772,350 high school students and 414,951 community college students were enrolled in CTE programs.⁷

Participant Definition – The CCCCCO defines a CTE student as any student in a given academic year who completed at least one higher level CTE course defined as ‘clearly occupational’, ‘advanced occupation’ or ‘apprenticeship’. Examples would include a course in advanced manufacturing; or, a course in public and protective services.

Eligibility Criteria – Eligibility for CTE is program-specific, however it is generally contingent upon preparedness in basic skills.

Participant Characteristics –A 2014 assessment determined that in California’s community colleges, about two-thirds of the students who complete a CTE course are of traditional college age (17–22 years old). A third are older (23–50 years old). As a result, most often enter college with some work experience. Some of these students also already hold a credential, such as an associate’s or bachelor’s degree, third-party or community college certificate, or journey status in a trade. Given the scale of the California community college system, the number of older students being served is significant. Among students who started community college between 2002–2006, well over a quarter of a million (272,008) “non-traditional” students took CTE coursework—accounting for one-sixth (17 percent) of all students who began community college during that time period.⁸

Exit Definition - A participant who, in the specified fiscal year, left the CTE program and did not return, transfer, or enroll in a CA community college for at least one (1) year.

Exit Date – The date of participant entry and exit are derived in order to define semester-based entry and exit dates at different community colleges consistently, as well as to take into account the possibility that a single student may enroll in CTE coursework at multiple community colleges. Exit dates were reported according to consistent notation: for Spring semester, the exit date is reported as May 31st; for summer term, it is reported as August 31st; for fall semester, it is reported as October 30th; and for winter, date of exit is reported as January 31st. Both CWDB and the Chancellor’s Office are increasingly sensitive to the fact that many community college students will take non-linear paths to completion and success within CTE that may involve completion of course credits in one period at one institution, and resumption of training following a brief departure.⁹ In order to take non-linearity of student

⁷ Public Policy Institute of California. “[Career Technical Education in California](#),” data from California Department of Education, 2016–17. California Community College Chancellor’s Office Data Mart, 2016–17

⁸ Kathy Booth. [The Ones That Got Away: Why Completing a College Degree Is Not the Only Way to Succeed \(wested.org\)](#) September 2014.

⁹ Kathy Booth and Peter Bahr (2012) [What’s Completion Got to do with it? Using course-taking behavior to understand community college success](#). Berkeley, California: Research and Planning Group for California Community Colleges; Kathy Booth (2015) “[Moving the Needle: Data, Success, and Accountability for Workforce](#)

access and completion into account in data reporting, students departing from a CTE program at one institution for any reason and later resuming CTE at the same or another institution later on only had the exit date associated with departure from the second program/institution counted, as long as the period between enrollments was less than one (1) year.

Completion Definition & Date - Training completion is not directly reported by CCCCO, but is defined in CCCCO's own reporting as equivalent to student credential attainment. In this program narrative, a participant who attained a recognized credential within the same fiscal year that they exited the program is reported as having "completed" their program.

Participants attaining recognized credentials after the fiscal year of exit but within a one-year window are still counted under the "credential attainment" metric, but are not counted as completing a program. This reporting choice ensures that a participant who left CTE training in FY 14-15 but did not attain a credential until FY 15-16, for instance, is not erroneously counted in FY 15-16 completion numbers.

11.1 Participant Demographics

11.1.1 Participant Ethnicity

Please see the Appendix for detailed discussion of concepts of ethnicity and race, along with program-specific information about how participant information is collected and reported, and how program reporting values have been accommodated to the federal classification system utilized in this report.

11.1.1.1 Table Set – Participant Ethnicity

FY 2014-2015											
Participant Ethnicity	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Hispanic / Latino	392,891	119,918	14,571	80,069	66.8	\$5,725	18,428	15.4	80,979	67.5	\$6,299
Not Hispanic / Latino	478,427	171,471	23,037	101,820	59.4	\$6,666	28,154	16.4	102,590	59.8	\$7,310
Participant did not self-identify	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	71,315	30,648	3,271	15,578	50.8	\$7,744	4,079	13.3	15,545	50.7	\$8,484
TOTAL	942,633	322,037	40,879	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016											
Participant Ethnicity	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Hispanic / Latino	442,074	163,638	20,691	109,835	67.1	\$5,698	24,612	15.0	110,980	67.8	\$6,226
Not Hispanic / Latino	520,094	217,838	28,505	129,220	59.3	\$6,509	33,645	15.4	130,256	59.8	\$7,140
Participant did not self-identify	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	73,877	33,777	3,998	16,798	49.7	\$7,775	4,620	13.7	16,748	49.6	\$8,470
TOTAL	1,036,045	415,253	53,194	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

11.1.1.2 Figure – Program Participation by Participant Ethnicity

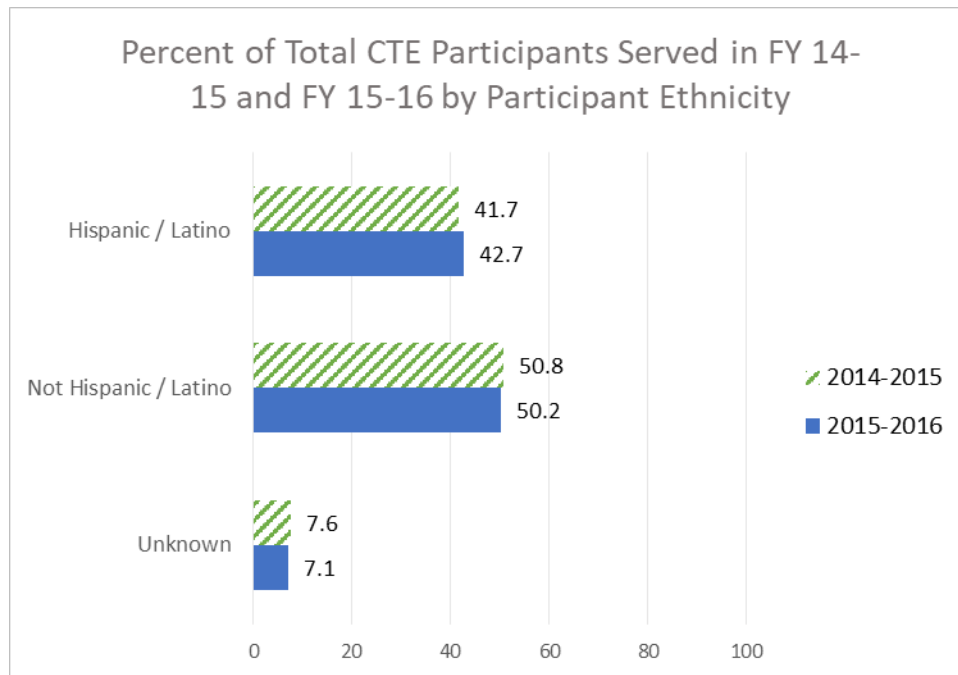


Figure 11.1.1.2 displays the percentage distribution of participants served by participant ethnicity.¹⁰

Hispanic or Latino participants made up 41.7% of all CTE participants served during FY 14-15, and 42.7% of the total served during FY 15-16.¹¹

In comparison with the share of the statewide labor force that was Hispanic/Latino (36.6% and 35.6% in each of the two fiscal years), shares of Hispanic/Latino participants in CTE programs appeared somewhat larger, by 5 and 7 percentage points in FY 14-15 and FY 15-16 respectively.¹²

¹⁰ Percentage values were calculated by dividing the total of participants served in a given ethnic category (e.g., Hispanic/Latino) by the overall total of participants enrolled in CTE programs during the noted fiscal year. The same methodology is used throughout this chapter.

¹¹ A participant who identified with one or more of the five Hispanic categories and sub-categories was identified as "Hispanic/Latino," while all participants who did not (but who had selected at least one non-Hispanic race category) were identified as "not Hispanic/Latino". Participants for whom neither racial nor ethnic identification was available were identified as Unknown. Percentage values shown in Figure 11.1.1.2 reflect shares of the total number of CTE program participants by ethnicity, according to the following formula (using Hispanic/Latino as example):

- Share of CTE participant population that was Hispanic/Latino in FY 14-15: count of Hispanic/Latino participants in CTE in FY 14-15/count of all participants in CTE in FY 14-15.

¹² Comparisons with statewide estimates are based on data provided in Chapter 3.

11.1.1.3 Figure – Training Completion by Participant Ethnicity

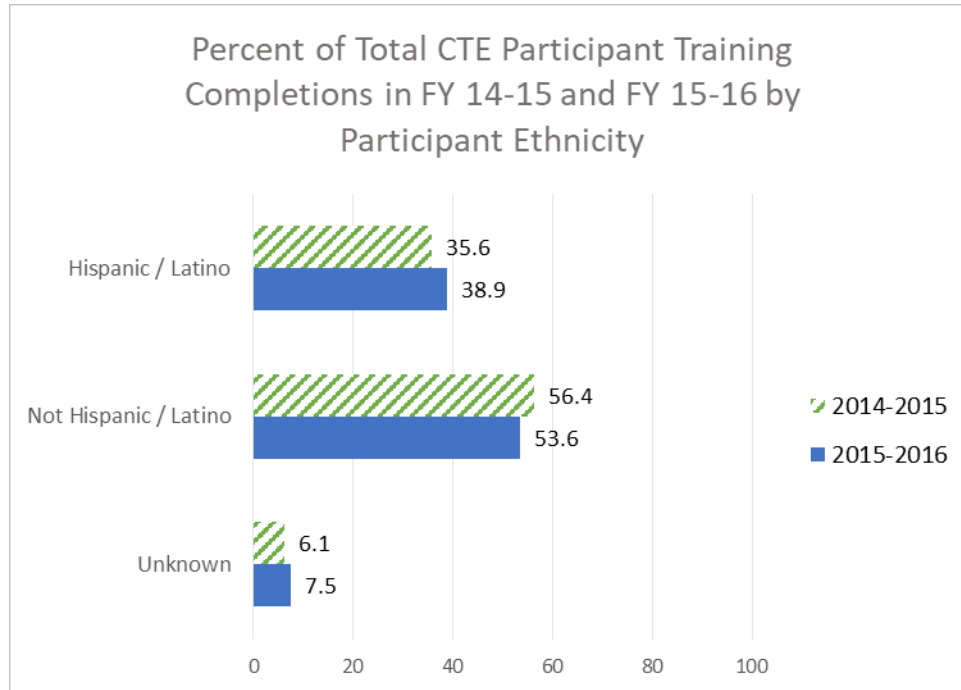


Figure 11.1.1.3 displays a percentage distribution of completion shares by ethnicity.¹³

While CCCCOC does not directly report on “completion” as an outcome, whether or not a student completed a CTE program was derived based upon a student’s attainment of either a program certificate (e.g. Medical Assistant, Auto Mechanic, Early Child Development Specialist, Landscape Designer) or an academic degree (AA or BA).¹⁴

There are reasons to believe that program completion itself may be undercounted in data from the noted fiscal years for the CTE program which if occurring could mean that the apparent prevalence of exit-without-completion is itself exaggerated in the data.

Completion of a degree or a certificate may not be a goal of all students. Research by Peter Bahr (2014) identified “skills-builders,” or students whose goal was to take a few courses in

¹³ Percent values shown in Figure 11.1.1.3 are *not* completion rates for individual ethnic groups. (Such a statistic would be computed with all completing participants from a noted group in the numerator and all exited participants from the group in the denominator). However, in parallel to the analysis performed by comparing relative shares by group of total program exiters to group representation in the program overall, by comparing group completion numbers to group representation in the program, it is possible to determine whether certain groups are under- or overrepresented in program completion relative to their program representation. The same method explained here is used to calculate completion shares throughout the chapter.

¹⁴ A participant who earned a credential during the fiscal year in which they exited was defined as having completed CTE training. For further information on types of credentials, see: California College Pathways. “[Career Technical Education \(CTE\)](#)”.

order to supplement their existing skill set, rather than the achievement of an academic degree or credential. It is possible that focus on “completion” may overlook achievements of such students.

Hispanic/Latino participants represented the largest shares of total completions in both fiscal years, 56.4% of all completions in FY 14-15 and 53.6% of all completions in FY 15-16.

11.1.1.4 Figure – Credential Attainment Rate by Participant Ethnicity

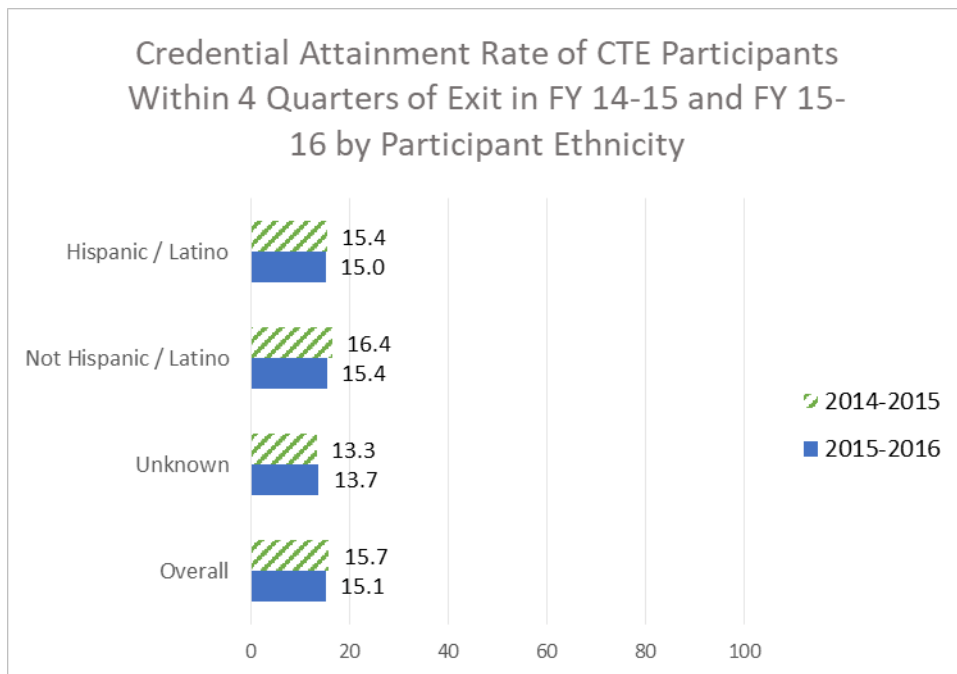


Figure 11.1.1.4 displays rates of credential attainment by participant ethnicity.¹⁵

Rates of credential attainment appeared similar among Hispanic/Latino and non-Hispanic/Latino participants in both years, with credential rates among the latter somewhat higher (about one percentage point) following exit in FY 14-15, and less than one-half of one percentage point higher among the following year’s exit cohort.

¹⁵ In Figure 11.1.1.4 and throughout the chapter, credential attainment is calculated as a rate using the following formula:

- Count of participants in a category who attained a credential within four years of exit in the specified fiscal year/count of all participants in the category who exited the program in the same fiscal year.

11.1.1.5 Figure – 2nd Quarter Employment Rate by Participant Ethnicity

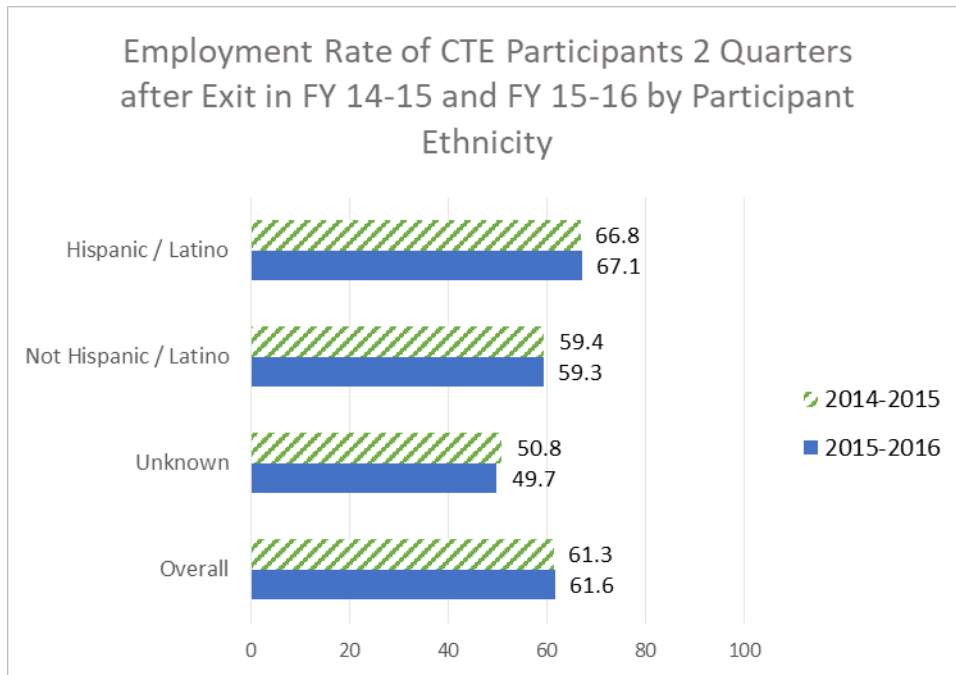


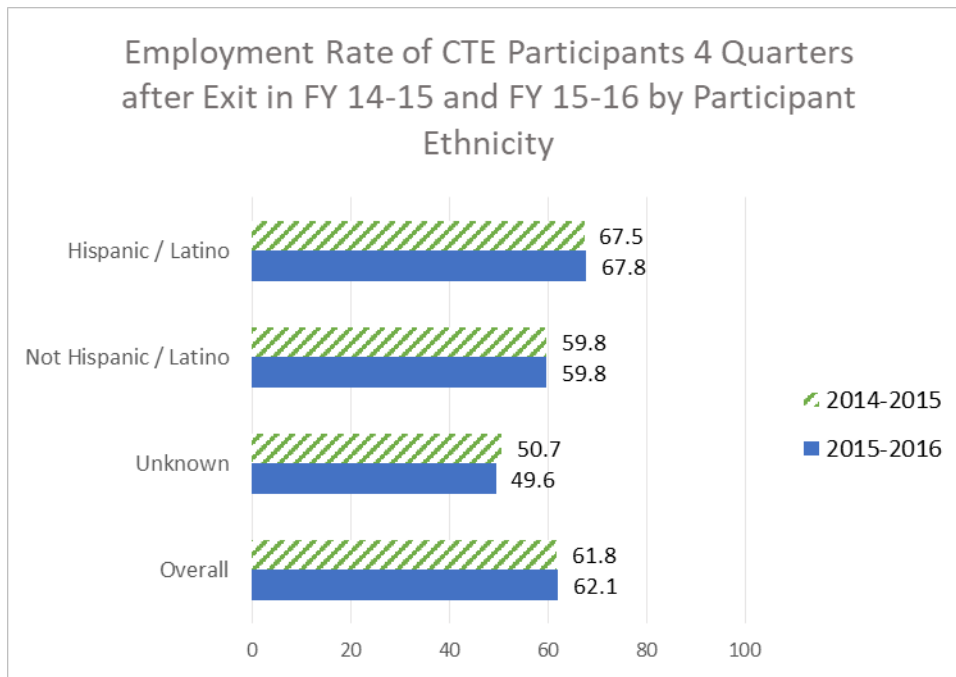
Figure 11.1.1.5 displays employment rates two quarters after program exit in FY 14-15 and FY 15-16, broken out by participant ethnicity.¹⁶

In the second quarter after exit in both FY 14-15 and FY 15-16, employment rates among Hispanic/Latino participants were higher than those of non-Hispanic participants by about 7 percentage points, at 66.8% (compared with non-Hispanics' 59.4%) and 67.1% (compared with non-Hispanics' 59.3%).

¹⁶ In Figure 11.1.1.5 and throughout the chapter, employment is calculated as a rate, according to the following formula:

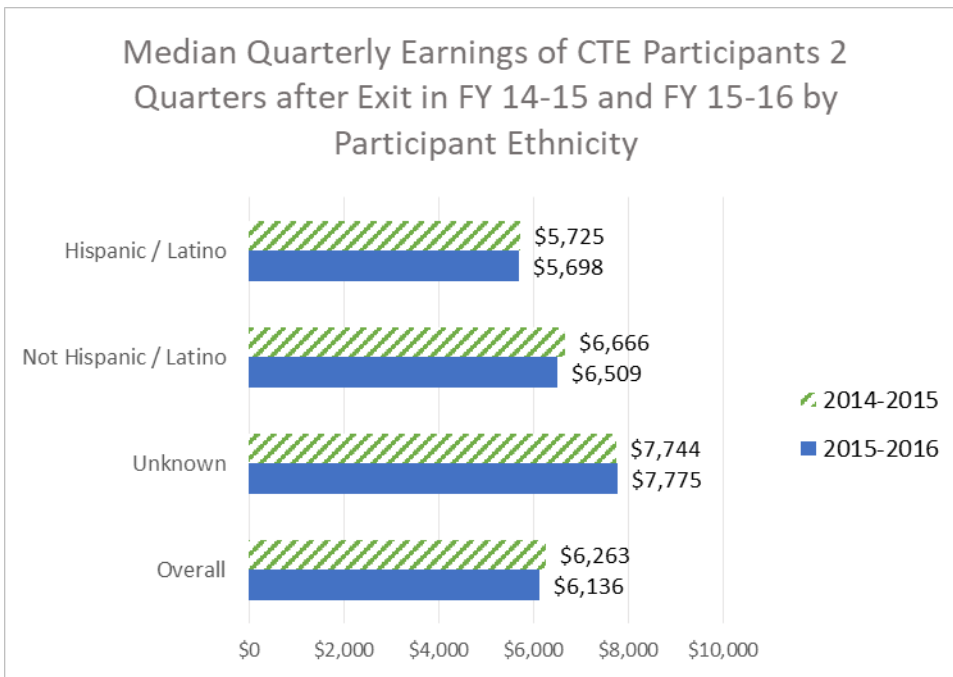
- Count of participants in a category to be employed 2 (4) quarters after exit in the specified fiscal year/count of all participants in the same category who exited in the specified fiscal year.

11.1.1.6 Figure – 4th Quarter Employment Rate by Participant Ethnicity



One year after exit as shown in Figure 11.1.1.6, Hispanic/Latino participants' employment rates continued to exceed those of non-Hispanic participants, by about the same margin as the earlier stage: 67.5% of all Hispanic/Latino participants who exited a CTE program during FY 14-15 had reported earnings from the fourth quarter after exiting, compared with 59.8% of all non-Hispanic participants. A year after exit in FY 15-16, the rate was 67.8% among Hispanic/Latino participants and 59.8% among their non-Hispanic peers.

11.1.1.7 Figure – 2nd Quarter Median Earnings by Participant Ethnicity



Despite higher employment rates among Hispanic/Latino participants in CTE, median quarterly earnings among these participants were about \$1,000 lower than earnings of non-Hispanic participants.¹⁷

In other words, larger numbers of Hispanic/Latino CTE participants found employment, however the employment they found paid on average less compared with non-Hispanic participants. This might be due to differences in type of employment or occupation, hours, duration, or more overt forms of hiring bias.

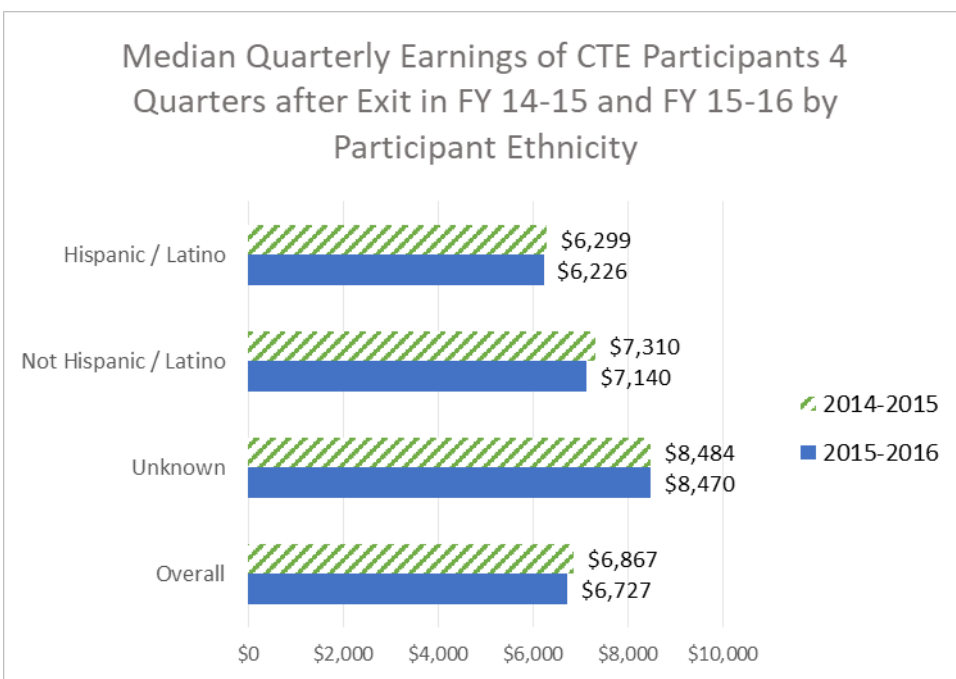
Given that recent CTE program graduates may be going on to further training (e.g. apprenticeship programs, AA degrees), it is also possible that it could reflect differences in post-CTE trajectories. However, without further information, this cannot be determined.

¹⁷ The median is the middle value when all values in a dataset are arranged in ranked order. Therefore, the median earnings value is found by placing earnings of all employed participants (all individuals with earnings >\$0) in ranked order and identifying the middle value. The median earnings value for a participant subpopulation (here, by race category) is similarly found by placing earnings of all participants in that subpopulation into ranked order and finding the middle value. When the total number of observations is an even number, the median is found by averaging the two middle values. Comparison of an outcome for a participant subpopulation with the program-wide median provides a way to determine the degree to which outcomes for participant subpopulations differ from overall outcomes.

However, since pay is obviously a key consideration in overall job quality, sources of this disparity should be investigated.

Highest overall earnings were seen among the relatively small population of participants who did not identify an ethnicity.

11.1.1.8 Figure – 4th Quarter Median Earnings by Participant Ethnicity



While earnings rose across the board from the second to the fourth quarter following program exit in both years, non-Hispanic participants' earnings continued to exceed those of Hispanic participants by about the same margin.

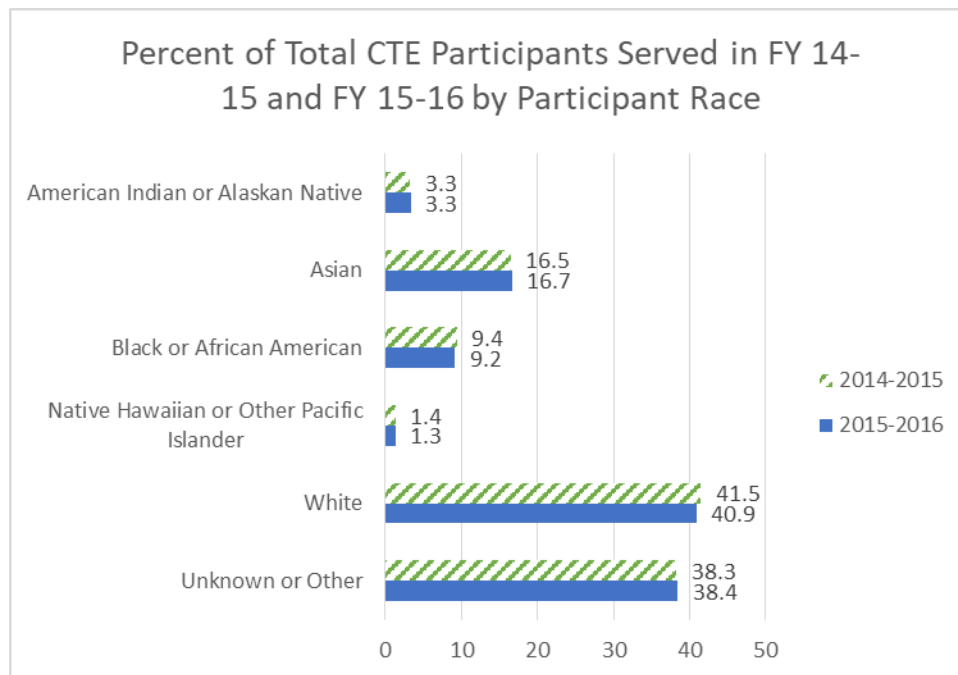
11.1.2 Participant Race

11.1.2.1 Table Set – Participant Race

FY 2014-2015														
Participant Race	# Served	% of Total Served	# Exited	% of Total Exited	# Completed Training	% of Total Completed Training	2 Quarters After Exit			4 Quarters After Exit				
							# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
American Indian or Alaskan Native	31,218	3.3	10,735	3.3	1,182	2.9	6,551	61.0	\$5,337	1,258	11.7	6,586	61.4	\$5,801
Asian	155,643	16.5	50,887	15.8	7,542	18.4	28,792	56.6	\$6,464	8,170	16.1	29,416	57.8	\$7,224
Black or African American	89,048	9.4	32,170	10.0	2,688	6.6	18,330	57.0	\$5,118	2,963	9.2	18,531	57.6	\$5,592
Native Hawaiian or Other Pacific Islander	12,792	1.4	4,551	1.4	439	1.1	2,804	61.6	\$5,811	477	10.5	2,853	62.7	\$6,373
White	391,146	41.5	140,942	43.8	19,117	46.8	88,070	62.5	\$6,516	20,485	14.5	88,183	62.6	\$7,146
Participant did not self identify	0	0.0	0	0.0	0	0.0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown or Other	360,985	38.3	119,020	37.0	14,003	34.3	74,765	62.8	\$6,072	15,050	12.6	75,519	63.5	\$6,646
TOTAL	942,633	N/A	322,037	N/A	40,879	N/A	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

2015-2016														
Participant Race	# Served	% of Total Exited	# Exited	% of Total Exited	# Completed Training	% of Total Completed Training	2 Quarters After Exit			4 Quarters After Exit				
							# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
American Indian or Alaskan Native	34,612	3.3	13,933	3.4	1,477	2.8	8,615	61.8	\$5,374	1,596	11.5	8,606	61.8	\$5,861
Asian	172,543	16.7	65,393	15.7	9,612	18.1	36,305	55.5	\$6,190	10,354	15.8	36,999	56.6	\$6,901
Black or African American	94,829	9.2	40,264	9.7	3,470	6.5	23,739	59.0	\$5,231	3,848	9.6	23,742	59.0	\$5,675
Native Hawaiian or Other Pacific Islander	13,729	1.3	5,529	1.3	584	1.1	3,528	63.8	\$5,943	632	11.4	3,492	63.2	\$6,525
White	423,875	40.9	179,545	43.2	24,149	45.4	112,212	62.5	\$6,353	25,974	14.5	112,801	62.8	\$6,976
Participant did not self identify	0	0.0	0	0.0	0	0.0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown or Other	398,179	38.4	152,389	36.7	18,970	35.7	96,713	63.5	\$6,001	20,496	13.4	97,626	64.1	\$6,546
TOTAL	1,036,045	N/A	415,253	N/A	53,194	N/A	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

11.1.2.2 Figure – Program Participation by Participant Race

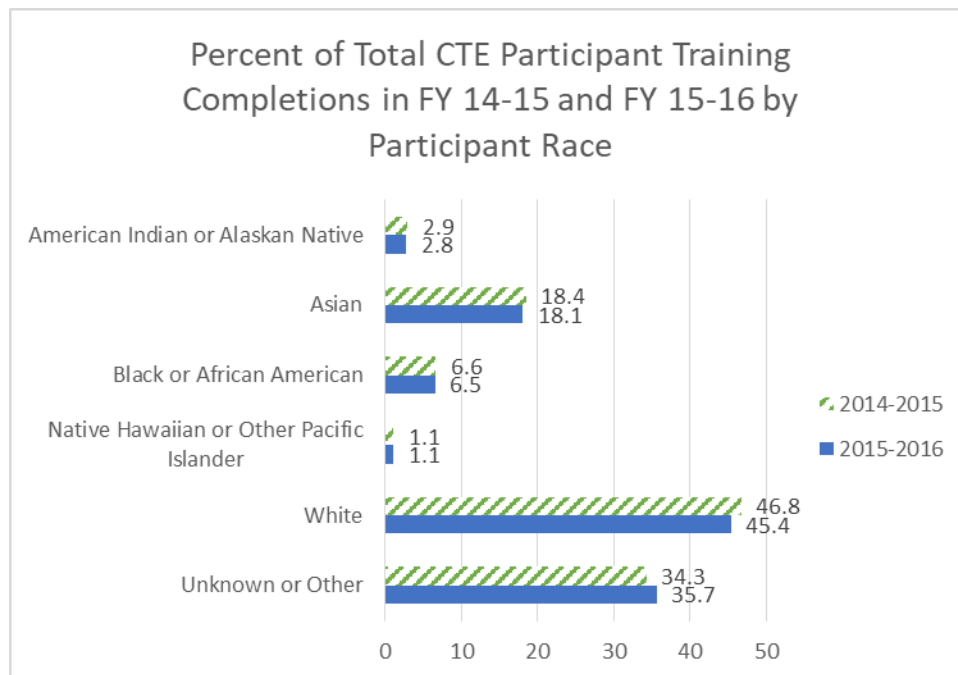


The largest share of each year's CTE participant total identified as white, 41.5% of all FY 14-15 and almost 41% of FY 15-16's total. The noticeably smaller shares in comparison with the statewide labor force are likely explained by differences between CCCCO's ethnicity/race data collection methods versus those used by federal surveys (including the Current Population Survey, from which statewide labor force benchmark data is derived).¹⁸

Native Hawaiian or Other Pacific Islanders represented the smallest shares of CTE participants, 1.4% of the FY 14-15 total and 1.3% of the FY 15-16 total. Members of this population made up just under 1% of the labor force in both fiscal years, suggesting that they are not being underrepresented in CTE programs.

¹⁸ CCCCO demographic categories treat a participant's ethnicity (whether Hispanic/Latino or not Hispanic/Latino) and race in a combined manner. This is distinct from the methodology of the Census and Current Population Survey, both of which ask about an individual's ethnicity separately from the same individual's racial identity. Research findings suggest that when racial and ethnic identity questions are combined, Hispanic/Latino respondents may be less likely to select additional racial categories than when the categories are treated as distinct. (See, for instance, results of [experimental research](#) with a combined race/ethnicity questionnaire conducted by the U.S. Census Bureau). The similarity of participant shares with white non-Hispanic labor force shares (respectively, 41.2% and 40.9% of California's labor force in FY 14-15 and FY 15-16) suggests that this category represents mostly white non-Hispanic CTE participants.

11.1.2.3 Figure – Training Completion by Participant Race

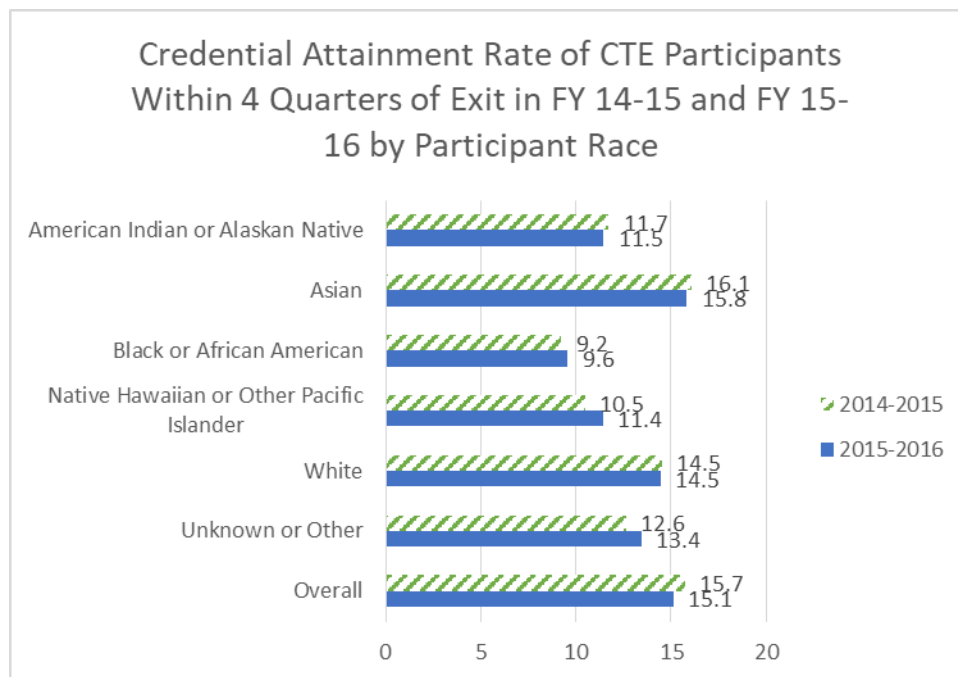


White—again, assumed to be mainly white non-Hispanic—participants made up the largest share of participants to complete CTE in both fiscal years, representing 46.8% of all training completions by CTE participants that took place in FY 14-15, and 45.4% of all completions in FY 15-16.¹⁹

Native Hawaiian/Other Pacific Islander participants represented the smallest shares of training completions, which (at approximately 1% of each fiscal year's total) appeared similar to enrollment shares.

¹⁹ For discussion of the data supporting this assumption, please see footnote no. 34. As a rate, this value is computed for each racial group according to the following formula (shown here as computed for Black/African American participants who exited during FY 14- 15): all Black or African American participants to attain a recognized credential within four quarters of exit during FY 14-15 divided by all Black or African American participants who exited during FY 14-15.

11.1.2.4 Figure – Credential Attainment Rate by Participant Race

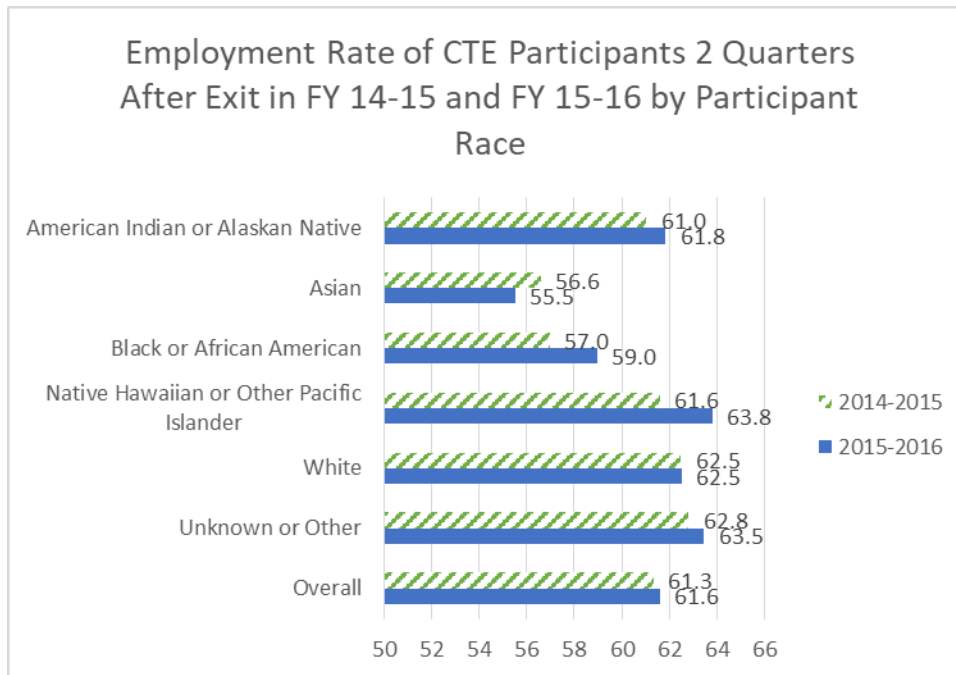


Credential attainment rates were highest among Asian participants, 16.1% of whom earned a recognized credential within one year following exit in FY 14-15, 15.8% within a year of exit in FY 15-16. These rates were marginally (< 1 percentage point) higher than overall rates among all participants to exit in FY 14-15 and FY 15-16.²⁰

Credential attainment was lowest among Black or African American participants at 9.2% within a year of exit in FY 14-15 and 9.6% within a year of exit in FY 15-16. Rates among these participants were lower (6.5 and 5.6 percentage points) than overall rates. Outcomes appear to suggest that Black/African American CTE participants may be facing barriers to credential attainment. Given the expectation that earning a recognized credential contributes to competitiveness for better-paying jobs, further research should be performed to identify and attempt to alleviate impediments to completion.

²⁰ Because an individual participant in CTE is able to identify with more than one race category, denominators used to calculate outcome measures may contain some of the same participants. This does not affect the validity of cell values, because formulas are calculated on the basis of disaggregated race-based totals.

11.1.2.5 Figure – 2nd Quarter Employment Rate by Participant Race

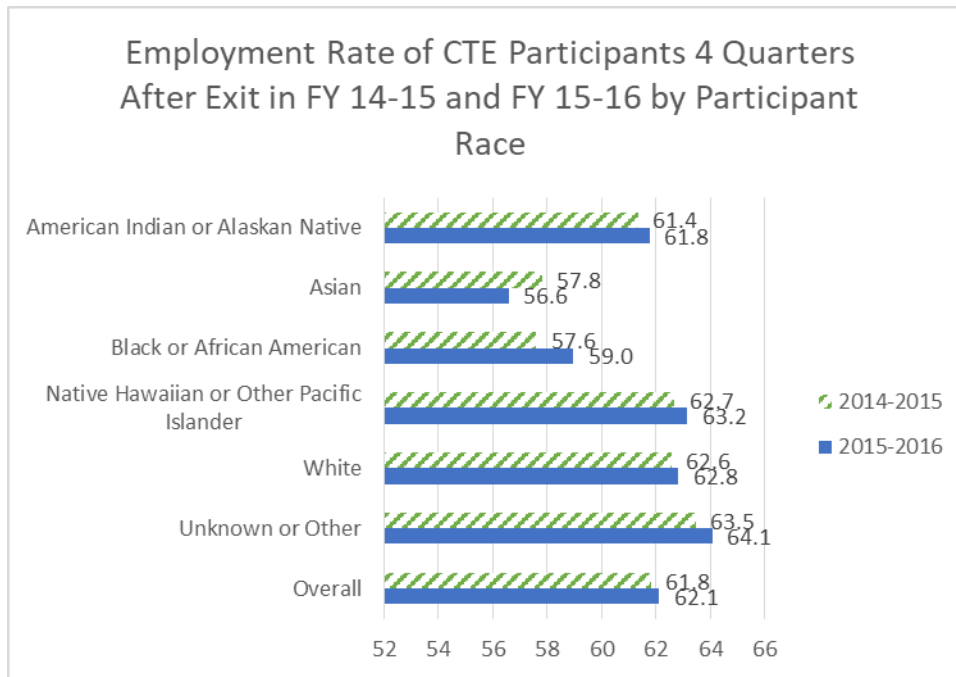


Two quarters after exit in FY 14-15, employment was highest among participants whose race was unknown or other, at 62.8% (1.5 percentage points higher than the overall rate). This category includes individuals for whom no racial/ethnic information was provided, along with individuals who identified only as Hispanic. At the same stage after exit in FY 15-16, Native Hawaiian/Other Pacific Islander participants had the highest rate of employment, 63.8% or 2.2 percentage points higher than the overall rate.

Employment was lowest among Asian participants, at 56.6% two quarters after exit in FY 14-15 and 55.5% after exit in FY 15-16. These rates were 4.7 and 6.1 percentage points lower than the overall rate.

Given that many CTE participants may be going on to further education or training, it also appears possible that post-exit employment rates may be providing only a partial picture of outcomes.

11.1.2.6 Figure – 4th Quarter Employment Rate by Participant Race

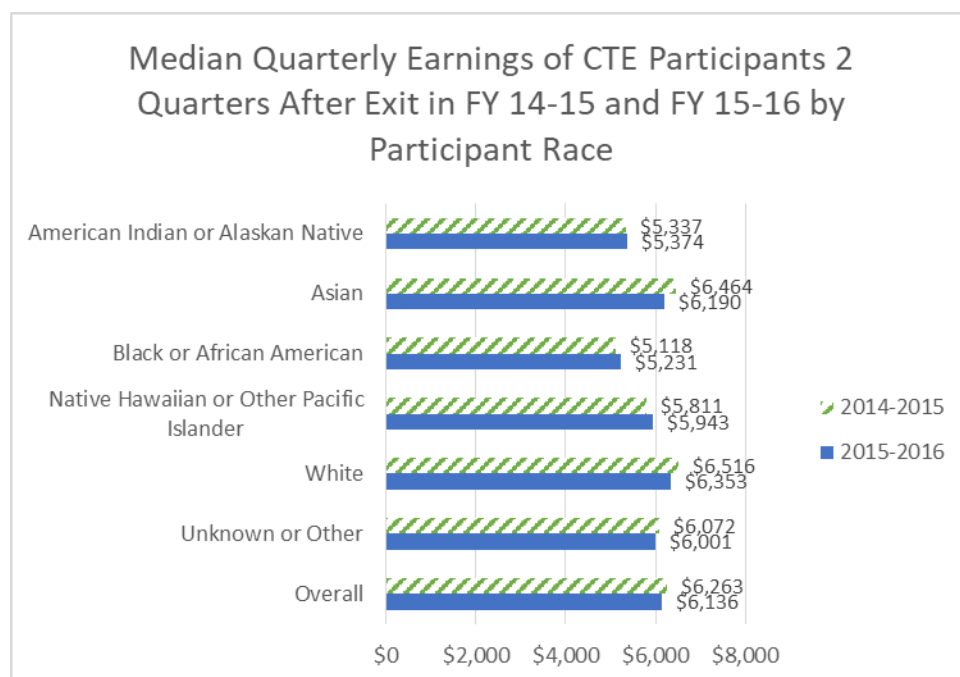


Four quarters after exit, participants of unknown or other race had highest employment rates (63.5% following exit in FY 14-15 and 64.1% after exit in FY 15-16). Employment rates among participants who were Native Hawaiian or other Pacific Islander remained second-highest in each year, closely followed by rates among white participants.

In both years, employment remained lowest among Asian participants.

While employment rose among all groups from the second to fourth post-exit quarter, Asian participants' employment rates showed less improvement compared with other groups.

11.1.2.7 Figure – 2nd Quarter Median Earnings by Participant Race



White participants had the highest earnings two quarters after exit in both years, of \$6,516 (FY 14-15) and \$6,353 (FY 15-16). Earnings of these participants only appeared slightly higher than the program-wide medians (by \$253 and \$217 following exit in FY 14-15 and FY 15-16, respectively). White participants were a large share of all CTE participants, meaning that statistics for this population will necessarily be similar to statistics for participants as a whole.

Lowest earnings were found among Black/African American participants. These participants' earnings of \$5,118 and \$5,231 were substantially lower (by \$1,145 following exit in FY 14-15 and by \$905 following exit in FY 15-16) than program-wide medians.

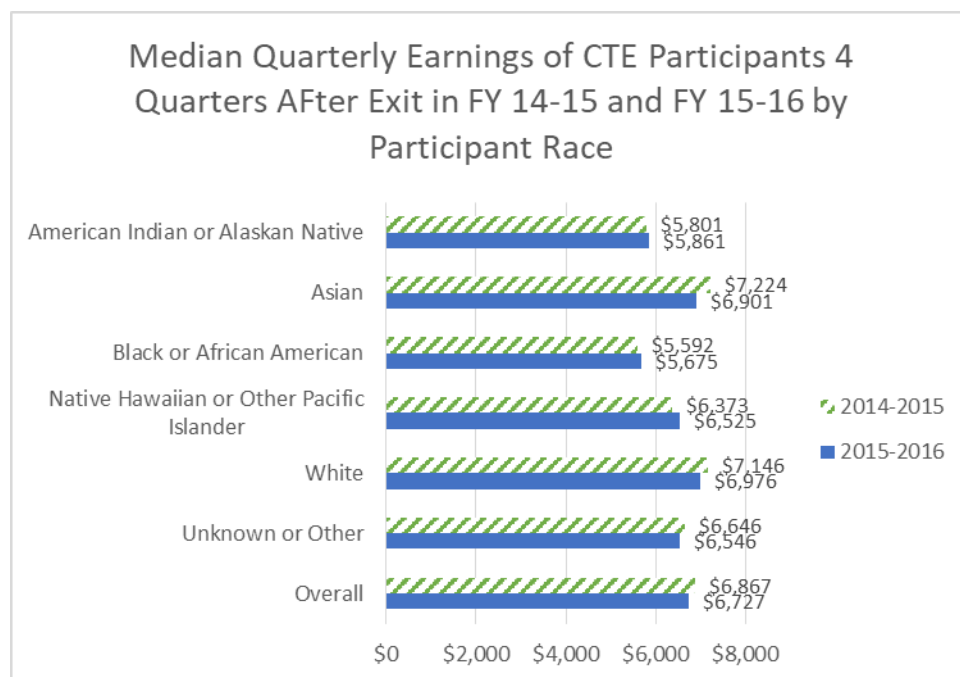
National research consistently finds evidence of ongoing racial stratification in income,²¹ whose causes include labor market discrimination (overt pay and hiring biases), occupational segregation, and impacts of structural inequalities (residential segregation, stratification in access to quality education, wealth stratification) upon opportunities encountered by individuals. A well-known study of discrimination in service industry hiring (relevant here given concentration of recent CTE exiters in this sector, see Section 11.4) found Black applicants of equal qualifications about one-half as likely to receive a call-back for a job compared with white counterparts.²² While any or all of these factors

²¹ Socioeconomic inequality by race and ethnicity has multiple, intersecting causes. Inequality in incomes by race and ethnicity (see: Rakesh Kochar and Anthony Cilluffo [2018] [“Key findings on the rise in income inequality within America’s racial and ethnic groups.”](#) Pew Research Center) is caused by [direct discrimination in hiring and pay](#), as well as inequalities of access to education and training.

²² As probably the best-known example, a 2009 experimental study by sociologists Devah Pager, Bruce Western, and Bart Bonikowski sent study confederates to apply for entry-level jobs with identical resumés and similar interview training. African-American applicants with no criminal record were offered jobs at a rate as low as white applicants who had criminal records. For an overview of studies from the past two decades identifying this type of racial hiring bias, see: Sendhil Mullianathan (Jan. 3, 2015) [“Racial Bias, Even When We Have Good Intentions,”](#) *New York Times*.

could be at play in observed outcomes, it is not possible to determine causes without further information such as participant pre-program earning and skill profiles, detail on occupational training received, and greater information about post-exit experiences. ²³

11.1.2.8 Figure – 4th Quarter Median Earnings by Participant Race



Asian participants saw highest median quarterly earnings during the fourth quarter after exit in FY 14-15. At \$7,224, these earnings were \$357 higher than the program-wide median for all participants. White participants continued to have highest earnings of all to exit in FY 15-16, \$6,976 (\$249 higher than the program-wide median).

Earnings of Black/African American participants continued to be lowest four quarters after exit in both fiscal years, and their difference from the program-wide median increased: Black participants' earnings from the fourth quarter after exit in FY 14-15 (\$5,592) were \$1,275 lower than the median among all exited participants, and the same population's earnings from the fourth quarter after exit in FY 15-16 (\$5,675) were \$1,051 lower than the program-wide median.

²³ As noted, the median earnings value for a participant subpopulation is found by placing earnings of all participants in that subpopulation into ranked order and finding the middle value.

- Participants in CTE may report more than one race category
This means that an individual's earnings may be counted in more than one median earnings calculation.
- For example: Participant A, with quarterly earnings of \$5,000, identified as both Asian and Black or African American. \$5,000 was included as a data point in calculating both the Asian participant's median earnings, and Black or African American participants' median earnings
- This in no way affects the validity of the median associated with each race category.

11.1.3 Participant Ethnicity/Race as Reported

11.1.3.1 Table Set – Participant Ethnicity/Race as Reported by Ethnicity/Race

FY 2014-2015														
Participant Ethnicity / Race	# Served	% of Total Served	# Exited	% of Total Exited	# Completed Training	% of Total Completed Training	2 Quarters After Exit			4 Quarters After Exit				
							# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
American Indian or Alaskan Native	31,363	3.3	10,741	3.3	1,183	2.9	6,551	61.0	\$5,337	1,258	11.7	6,586	61.3	\$5,801
Asian - Cambodian	4,066	0.4	1,301	0.4	199	0.5	809	62.2	\$6,266	211	16.2	818	62.9	\$7,287
Asian - Chinese	40,532	4.3	13,244	4.1	1,707	4.2	6,802	51.4	\$7,277	1,830	13.8	7,002	52.9	\$7,918
Asian - Filipino	40,274	4.3	12,876	4.0	2,138	5.2	8,546	66.4	\$6,208	2,318	18.0	8,667	67.3	\$7,088
Asian - Indian	13,560	1.4	4,550	1.4	487	1.2	2,450	53.8	\$6,460	523	11.5	2,510	55.2	\$7,129
Asian - Japanese	10,827	1.1	3,557	1.1	551	1.3	1,999	56.2	\$6,248	599	16.8	2,006	56.4	\$6,961
Asian - Korean	10,341	1.1	3,479	1.1	459	1.1	1,641	47.2	\$6,822	495	14.2	1,714	49.3	\$7,482
Asian - Laotian	2,547	0.3	821	0.3	109	0.3	503	61.3	\$5,747	129	15.7	523	63.7	\$6,607
Asian - Vietnamese	22,908	2.4	7,523	2.3	1,196	2.9	4,292	57.1	\$6,225	1,287	17.1	4,393	58.4	\$6,960
Asian - Other	23,360	2.5	7,285	2.3	1,186	2.9	3,973	54.5	\$5,762	1,300	17.8	4,051	55.6	\$6,629
Black or African American	89,632	9.5	32,199	10.0	2,688	6.6	18,330	56.9	\$5,118	2,963	9.2	18,531	57.6	\$5,592
Hispanic/Latino	369,142	39.2	110,746	34.4	13,336	32.6	73,994	66.8	\$5,745	14,543	13.1	74,823	67.6	\$6,319
Hispanic/Latino - Central American	37,166	3.9	10,418	3.2	1,229	3.0	6,946	66.7	\$6,215	1,315	12.6	7,014	67.3	\$6,713
Hispanic/Latino - Mexican/Mexican American/Chicano	275,532	29.2	82,269	25.5	10,146	24.8	56,391	68.5	\$5,665	11,023	13.4	56,994	69.3	\$6,243
Hispanic/Latino - South American	15,384	1.6	4,900	1.5	659	1.6	2,942	60.0	\$6,254	723	14.8	2,932	59.8	\$6,676
Hispanic/Latino - Other	88,582	9.4	28,374	8.8	3,301	8.1	19,117	67.4	\$5,565	3,594	12.7	19,354	68.2	\$6,173
Pacific Islander - Guamanian	2,131	0.2	626	0.2	56	0.1	418	66.8	\$5,683	61	9.7	414	66.1	\$6,693
Pacific Islander - Hawaiian	3,963	0.4	1,350	0.4	136	0.3	825	61.1	\$5,466	148	11.0	840	62.2	\$6,217
Pacific Islander - Samoan	2,127	0.2	748	0.2	54	0.1	438	58.6	\$5,402	58	7.8	452	60.4	\$5,746
Pacific Islander - Other	5,967	0.6	2,283	0.7	238	0.6	1,392	61.0	\$6,260	256	11.2	1,417	62.1	\$6,917
White	392,910	41.7	141,048	43.8	19,117	46.8	88,070	62.4	\$6,516	20,485	14.5	88,183	62.5	\$7,146

Participant did not Self-Identify	91,511	9.7	37,842	11.8	4,190	10.2	20,289	53.6	\$6,993	4,414	11.7	20,310	53.7	\$7,624
Total	942,633		322,037		40,879		197,467	61.3	\$6,263	50,661	15.7	199114	61.8	\$6,867

FY 2015-2016														
Participant Ethnicity / Race	# Served	% of Total Served	# Exited	% of Total Exited	# Completed Training	% of Total Completed Training	2 Quarters After Exit			4 Quarters After Exit				
							# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
American Indian or Alaskan Native	34,780	3.4	13,944	3.4	1,477	2.8	8,615	61.8	\$5,374	1,596	11.4	8,606	61.7	\$5,861
Asian - Cambodian	4,293	0.4	1,695	0.4	267	0.5	1,071	63.2	\$5,686	292	17.2	1,094	64.5	\$6,374
Asian - Chinese	45,447	4.4	17,008	4.1	2,191	4.1	8,269	48.6	\$6,787	2,349	13.8	8,544	50.2	\$7,443
Asian - Filipino	44,590	4.3	16,385	3.9	2,570	4.8	10,747	65.6	\$6,041	2,778	17.0	10,893	66.5	\$6,819
Asian - Indian	15,749	1.5	5,790	1.4	665	1.3	3,165	54.7	\$6,350	720	12.4	3,251	56.1	\$6,803
Asian - Japanese	11,948	1.2	4,621	1.1	805	1.5	2,519	54.5	\$6,000	848	18.4	2,563	55.5	\$6,671
Asian - Korean	11,529	1.1	4,528	1.1	634	1.2	2,066	45.6	\$6,923	669	14.8	2,105	46.5	\$7,468
Asian - Laotian	2,810	0.3	1,109	0.3	147	0.3	694	62.6	\$6,093	167	15.1	700	63.1	\$7,110
Asian - Vietnamese	24,990	2.4	9,292	2.2	1,495	2.8	5,230	56.3	\$5,945	1,613	17.4	5,354	57.6	\$6,649
Asian - Other	25,884	2.5	10,101	2.4	1,561	2.9	5,521	54.7	\$5,735	1,681	16.6	5,574	55.2	\$6,331
Black or African American	95,538	9.2	40,295	9.7	3,470	6.5	23,739	58.9	\$5,231	3,848	9.5	23,742	58.9	\$5,675
Hispanic/Latino	417,635	40.3	153,337	36.9	19,070	35.8	103,055	67.2	\$5,711	20,812	13.6	104,149	67.9	\$6,240
Hispanic/Latino - Central American	42,813	4.1	14,758	3.6	1,684	3.2	9,763	66.2	\$6,066	1,790	12.1	9,866	66.9	\$6,673
Hispanic/Latino - Mexican/Mexican- American/Chicano	312,570	30.2	113,023	27.2	14,443	27.2	77,816	68.8	\$5,674	15,705	13.9	78,703	69.6	\$6,184
Hispanic/Latino - South American	17,247	1.7	6,624	1.6	878	1.7	3,854	58.2	\$6,004	989	14.9	3,890	58.7	\$6,518
Hispanic/Latino - Other	97,067	9.4	36,677	8.8	4,734	8.9	24,648	67.2	\$5,530	5,173	14.1	24,881	67.8	\$5,986
Pacific Islander - Guamanian	2,484	0.2	898	0.2	100	0.2	592	65.9	\$6,270	106	11.8	596	66.4	\$6,727
Pacific Islander - Hawaiian	4,352	0.4	1,769	0.4	194	0.4	1,124	63.5	\$5,892	215	12.2	1,100	62.2	\$6,770
Pacific Islander - Samoan	2,360	0.2	979	0.2	80	0.2	621	63.4	\$5,202	88	9.0	590	60.3	\$5,801
Pacific Islander - Other	6,147	0.6	2,535	0.6	262	0.5	1,582	62.4	\$6,301	279	11.0	1,586	62.6	\$6,934
White	426,006	41.1	179,686	43.3	24,150	45.4	112,212	62.4	\$6,353	25,975	14.5	112,801	62.8	\$6,976
Participant did not Self-Identify	95,395	9.2	41,448	10.0	5,171	9.7	21,781	52.6	\$7,036	5,523	13.3	21,740	52.5	\$7,639
Total	1,036,045		415,253		53,194		255,853	61.6	\$6,136	62,877	15.1	257984	62.1	\$6,727

Table 11.1.3.1 displays participant outcomes according to categories of ethnic/racial reporting that that are used directly by the California Community Colleges’ Chancellor’s Office.

Presentation of this data provides access to participant numbers and outcomes at a more disaggregated level than that shown in the Participant Ethnicity and Participant Race tables, revealing greater nuance in outcomes and meeting state statutory requirements for the reporting and display of demographic data among Asian and Pacific Islander groups.

11.1.4 Participant Sex / Gender

11.1.4.1 Table Set – Participant Sex/Gender

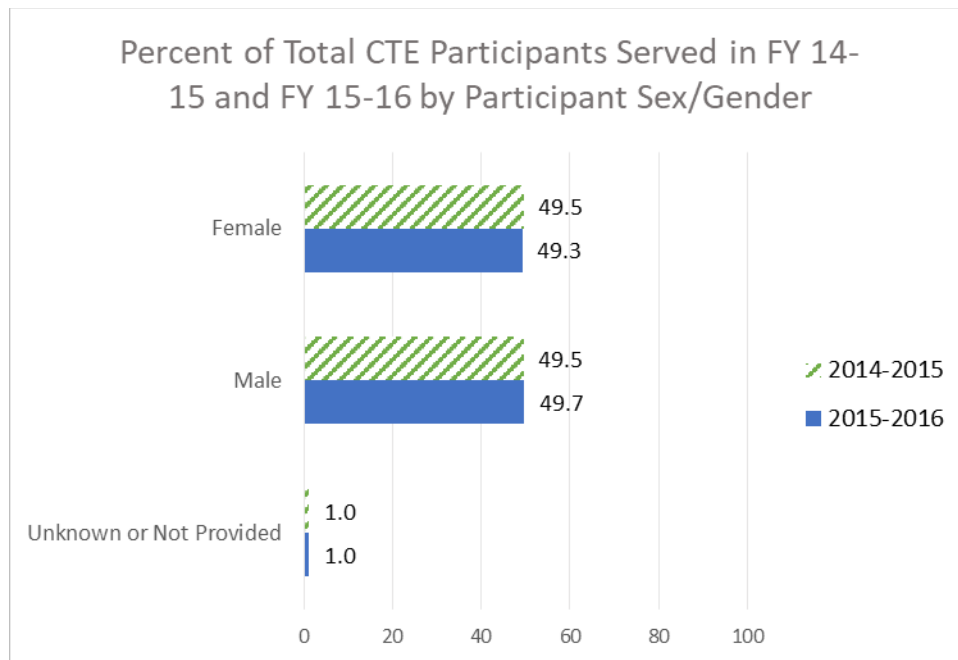
FY 2014-2015											
Participant Sex / Gender	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Male	466,666	164,918	17,568	101,533	61.6	\$7,181	21,816	13.2	102,156	61.9	\$7,837
Female	466,772	153,426	22,983	94,008	61.3	\$5,513	28,446	18.5	95,054	62.0	\$6,067
Unknown or Not Provided	9,195	3,693	328	1,926	52.2	\$7,742	399	10.8	1,904	51.6	\$8,206
TOTAL	942,633	322,037	40,879	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016											
Participant Sex / Gender	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Male	514,628	210,729	22,692	129,228	61.32	\$6,962	27,099	12.9	130,210	61.8	\$7,614
Female	510,626	199,669	30,062	123,994	62.10	\$5,494	35,265	17.7	125,118	62.7	\$6,002
Unknown or Not Provided	10,791	4,855	440	2,631	54.19	\$7,077	513	10.6	2,656	54.7	\$7,855
TOTAL	1,036,045	415,253	53,194	255,853	61.61	\$6,136	62,877	15.1	257,984	62.1	\$6,727

In the data used for this report, participant sex/gender was reported according to one of three options²⁴ male, female, or unknown/no response. The third option is recorded by CCCC if the participant failed to select one of the first two options.

²⁴ California Community Colleges Data Element Dictionary. SB04,

11.1.4.2 Figure – Program Participation by Participant Sex/Gender

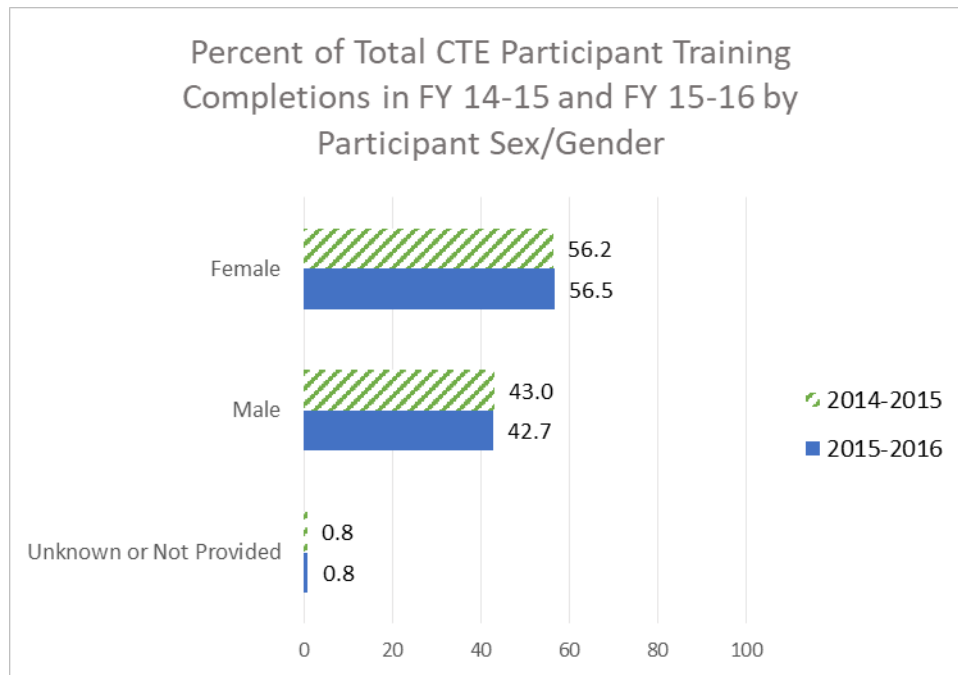


Male and female participants made up almost equal shares of CTE participants in both years.

Women make up a smaller share than men of California’s labor force (approximately 45% of total compared to men’s 54%), meaning that the share of female CTE participants is slightly larger than their labor force shares – and closer to their overall share of the state’s working-age population (of which they comprised about 51% in both years).

A small percentage (about 1%) of each year’s total represent participants in a third category (unknown or non-provided). This category currently includes both individuals of non-binary gender alongside those for whom gender information was unavailable. The addition of a non-binary option (effective 2019) should enable more reliable identification of students’ gender identity in future years’ reporting.

11.1.4.3 Figure –Training Completion by Participant Sex/Gender

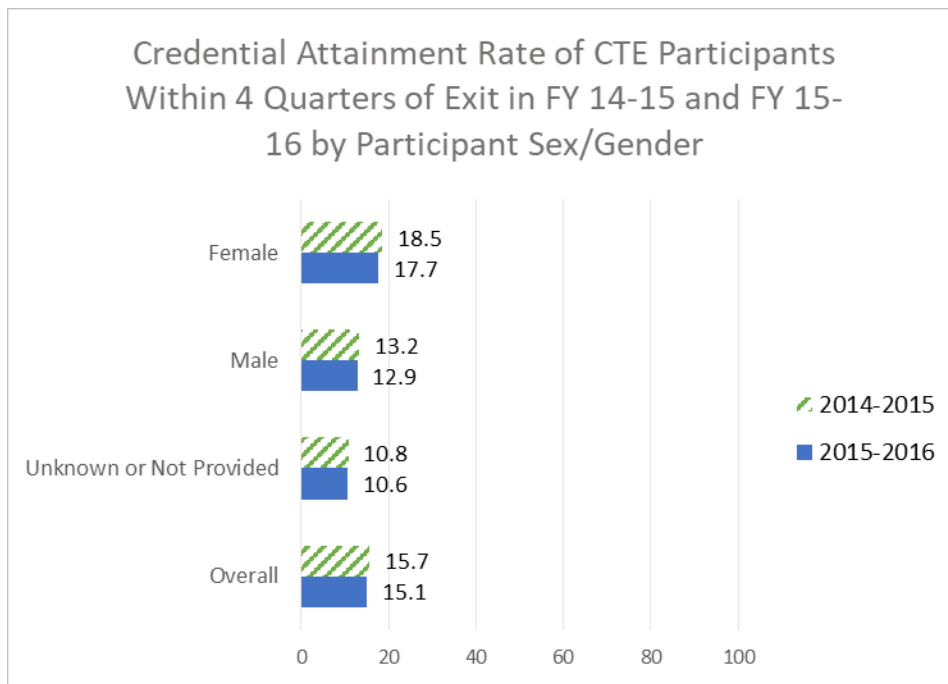


In contrast with program exit, women represented larger shares in program completion than did men: female participants were 56.2% and 56.5% of each year’s respective completions, compared with just 43.0% and 42.7% by male participants

Unlike exit, completion status is only granted to those participants attaining a recognized credential²⁵ that can be expected to confer job market advantages. Therefore, this outcome appears to be a more unambiguous indicator of female participants’ success advantage in seeing a CTE program through to the end.

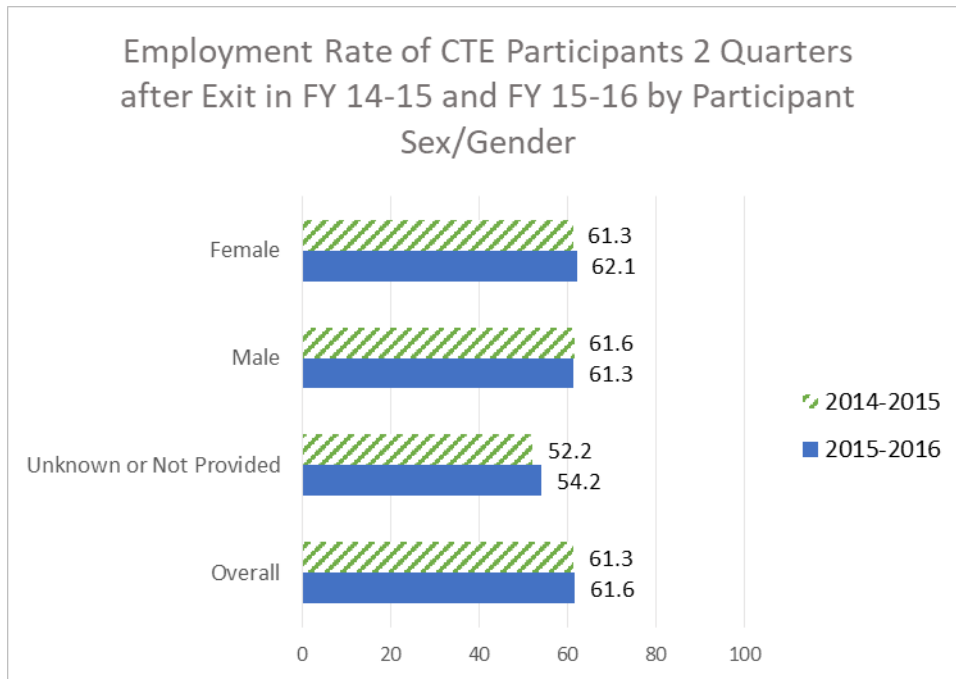
²⁵ As is discussed elsewhere in this chapter, credential attainment—and thus, completion—may be underreported for this program. Certain types of certification offered for completion of a CTE program may be issued locally by the specific college, and not formally recognized and/or tracked by the Chancellor’s Office. CTE certificates are offered by the community colleges in 142 fields of study, two-thirds of which can be earned in less than a year (Booth, Kathy [2015] “Moving the Needle: Data, Success, and Accountability for Workforce Programs.” Background paper prepared for the California Community Colleges’ Task Force on Workforce). However, many certificates associated with completion of these programs fall under the 12-unit cutoff above which approval is required to be obtained by the Chancellor’s Office, and are therefore not recognized by the Chancellor’s Office and not counted in statewide metrics (Ibid). Additionally, the capacity to thoroughly track attainment of third-party credentials is not well established (Ibid). In recognition of these areas of ongoing focus for data improvement, efforts are being pursued to develop a new metric that will better show outcomes for non-degree-earning students (“skill-builders”), such as showing earnings gains for students who passed higher-level CTE courses without program completion (Booth 2015). Reporting of non-credit certificates may have improved in FY 15-16, coinciding with implementation of the Strong Workforce Program. Additionally, the unit minimum at which colleges are eligible (though not required) to submit programs and associated certificates for formal Chancellor’s Office recognition has recently been lowered from 12 to eight (8). It is hoped and expected that both changes will improve the completeness and quality of data on both credentials and completion in future years’ data.

11.1.4.4 Figure –Credential Attainment Rate by Participant Sex/Gender



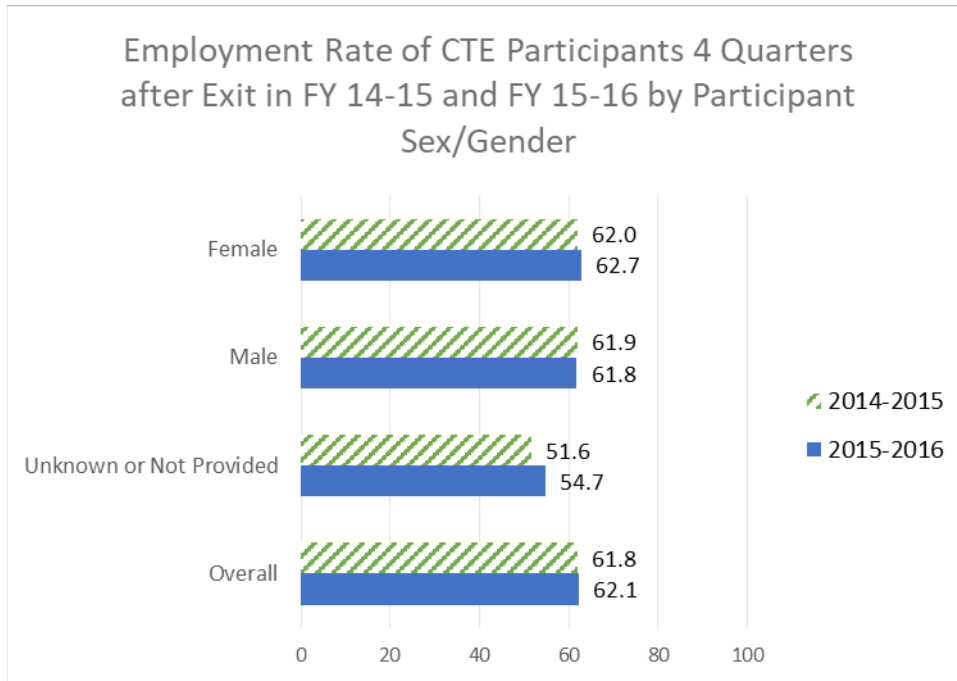
Consistent with their larger shares of program completion, female participants also displayed higher credential attainment rates of 18.5% and 17.7% compared with 13.2% and 12.9% among male participants. This was a difference of about 5 percentage points among each fiscal years' exit cohort.

11.1.4.5 Figure – 2nd Quarter Employment Rate by Participant Sex/Gender



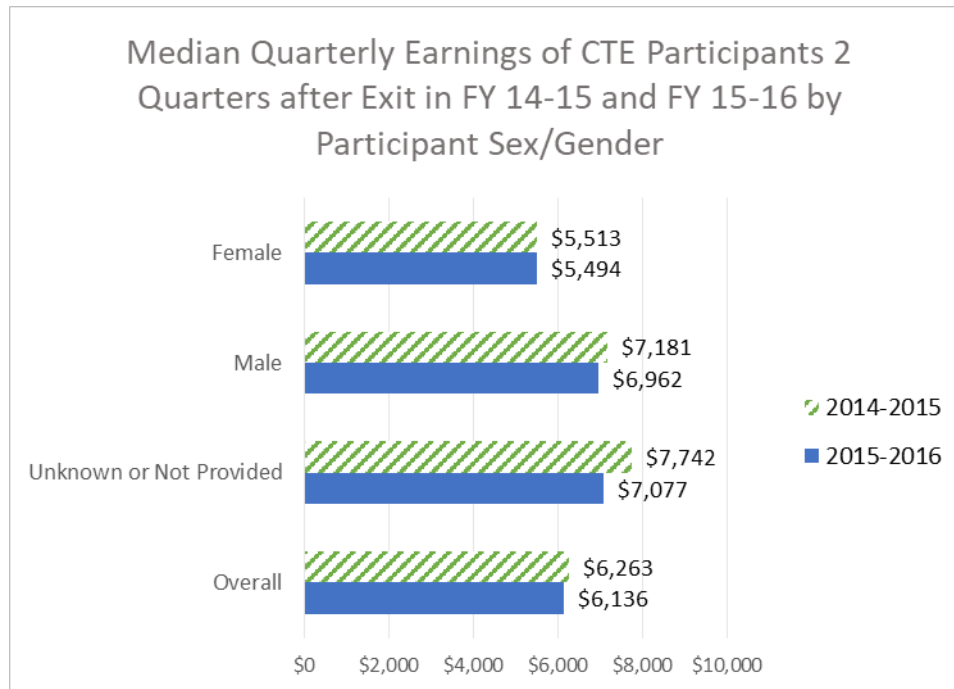
In the second quarter following program exit, male and female employment rates were within one percentage point of each other. Two quarters following program exit in FY 14-15, 61.3% of female and 61.6% of male participants had reported earnings. Among the following year's cohort, 62.1% of female participants and 61.3% of male participants were employed.

11.1.4.6 Figure – 4th Quarter Employment Rate by Participant Sex/Gender



Employment rates remained very similar among both male and female CTE participants a year following their exit, increasing slightly among both groups: 62.0% of female participants who exited in FY 14-15 and 61.9% of their male counterparts had reported earnings from the fourth post-exit quarter, as did 62.7% of female and 61.8% of male participants four quarters after exit in FY 15-16.

11.1.4.7 Figure – 2nd Quarter Median Earnings by Participant Sex/Gender



While employment rates were similar, male participants exiting from CTE programs out-earned their female counterparts, by a margin of \$1,668 (FY 14-15) and \$1,468 (FY 15-16).

The causes of female CTE participants' earnings disadvantage could reflect one or more of a number of larger, structural factors. In the aggregate, data reported by the Bureau of Labor Statistics demonstrate women's continued earnings disadvantage nation-wide, with women who were full-time wage and salary workers in 2017 earning 82% of the earnings of comparable male workers.²⁶

A comparison of earnings on a nation-wide level reveals that even when employed in the same industry sector or field, women earn less than men—while also demonstrating the variability of the magnitude of the gender pay disparity by sector.

Lower earnings among female participants might also indicate the effects of occupational segregation, if female exiters are going into lower-paying fields than men. Evidence of occupational segregation has been found at the career-training stage. A report prepared by Equal Rights Advocates for the Select Committee on the Status of Girls and Women of Color (California State Assembly) in 2016 found that women were disproportionately segregated with apprenticeships that lead to jobs in lower-paying occupations like cosmetology and home health care.²⁷ The same report cited findings that in the construction trades, which employ

²⁶ U.S. Bureau of Labor Statistics (August 2018). Highlights of women's earnings in 2017.

²⁷ See, e.g., National Women's Law Center (2013) "50 Years and Counting: The Unfinished Business of Achieving

approximately 70 percent of the more than 53,000 apprentices in California, the workforce is only 2.2% women.²⁸ It is possible that female participants are, similarly, entering and/or completing CTE programs in lower-paying fields as compared with male participants. Analysis of patterns in subfield enrollment by gender may help to determine the extent to which this is occurring. Without further data in this report, this discussion remains speculative.

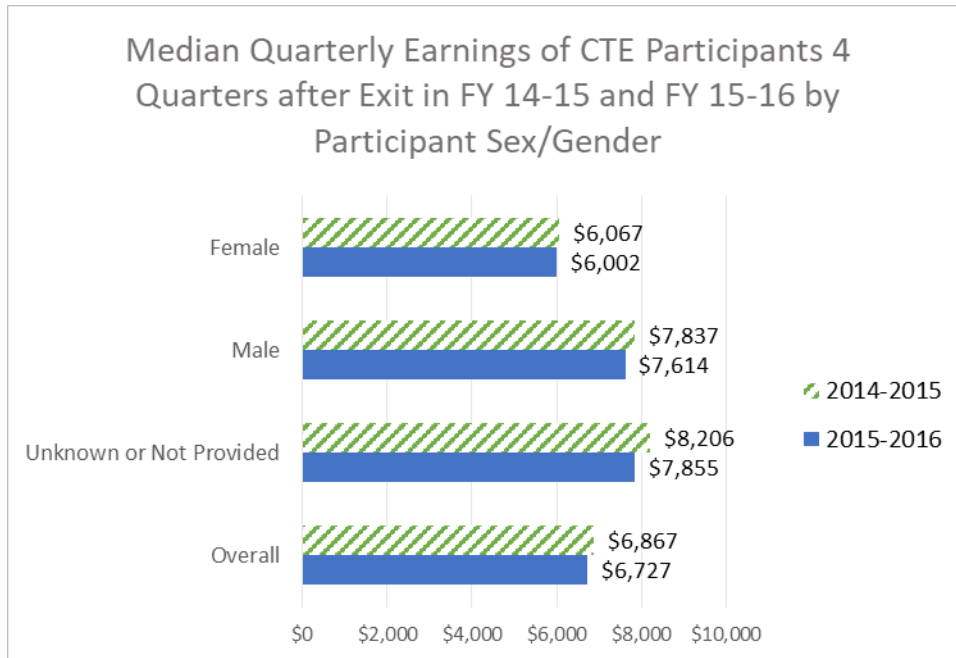
Additionally, unlike BLS-reported data that relies on survey methods, this report defines “employed” as an individual with any reported earnings in the period, which may not take into account potential variation in under-employment by gender. Evidence suggests that women are more likely than men to completely or partially exit the labor force in order to address familial obligations such as childcare.²⁹ Any or all of these issues might play a role in the observed earnings discrepancy by gender among participants in this and other programs covered in this report.

Fair Pay” (2013); Claudia Goldin. “Gender Gap”. In *The Concise Encyclopedia of Economics*; Francine D. Blau and Lawrence Kahn (2007) “The Gender Pay Gap: Have Women Gone as Far as They Can?” *Academy of Management Perspectives* (21): 7-23.

²⁸ California State Assembly. Informational Hearing (January 19, 2016) “Women of Color and the Gender Wage Gap in California”. Background Paper prepared by Equal Rights Advocates for the Select Committee on the Status of Girls and Women of Color.

²⁹ Pew Research Center (December 11, 2013) “[On Pay Gap, Millennial Women Near Parity- For Now](#)”; see also, Miller, Claire Cain and Liz Alderman) “[Why U.S. Women ae Leaving Jobs Behind](#)”. *New York Times* (December 12, 2014).

11.1.4.8 Figure – 4th Quarter Median Earnings by Participant Sex/Gender



Male CTE participants continued to out-earn female participants one year after exit. While both groups' earnings rose at this stage, males' advantage also increased to \$1,170 a year after exit in FY 14-15 and by \$1,612 a year after exit in FY 15-16.

11.1.5 Participant Age Group at Entry

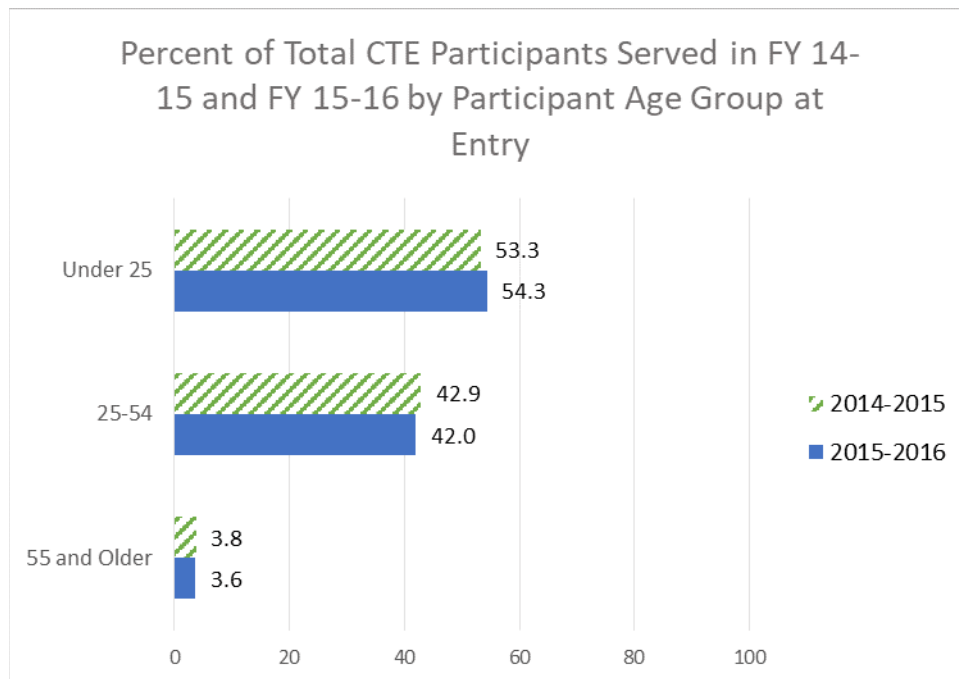
11.1.5.1 Table Set – Participant Age Group at Entry

FY 2014-2015											
Participant Age Group at Entry	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Under 25	502,549	142,531	18,328	86,252	60.5	\$4,123	23,604	16.6	87,833	61.6	\$4,627
25-54	404,323	163,642	21,262	104,387	63.8	\$9,380	25,502	15.6	104,570	63.9	\$10,150
55 and older	35,761	15,864	1,289	6,828	43.0	\$10,263	1,555	9.8	6,711	42.3	\$10,374
Unknown	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	942,633	322,037	40,879	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016											
Participant Age Group at Entry	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Under 25	563,076	200,693	27,174	122,444	61.0	\$4,299	32,584	16.2	124,726	62.1	\$4,791
25-54	435,312	196,167	24,610	125,524	64.0	\$9,393	28,657	14.6	125,525	64.0	\$10,116
55 and older	37,657	18,393	1,410	7,885	42.9	\$9,895	1,636	8.9	7,733	42.0	\$10,114
Unknown	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	1,036,045	415,253	53,194	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

Age is determined on the basis of the date of birth provided in participant records. Statistics shown in Table Set 11.1.5.1 are reported on the basis of a participant's age at the time of program entry.

11.1.5.2 Figure – Program Participation by Participant Age Group at Entry



The largest age group served in both fiscal years were those under 25 at the time of program entry, 53.3% of the FY 14-15 total and 54.3% of the FY 15-16 total.

Compared with shares of the statewide labor force, the youngest participants were substantially overrepresented in CTE, by between 42 and 43 percentage points. This may be explained by the fact that younger individuals are more likely to enroll in CTE as an education program.

A number of programs within California (Strong Workforce; CTE Incentive Grant) currently focus on K-12 CTE and connecting pathways to CTE at the community college level. Representation of younger participants in CTE might reflect success of these efforts.

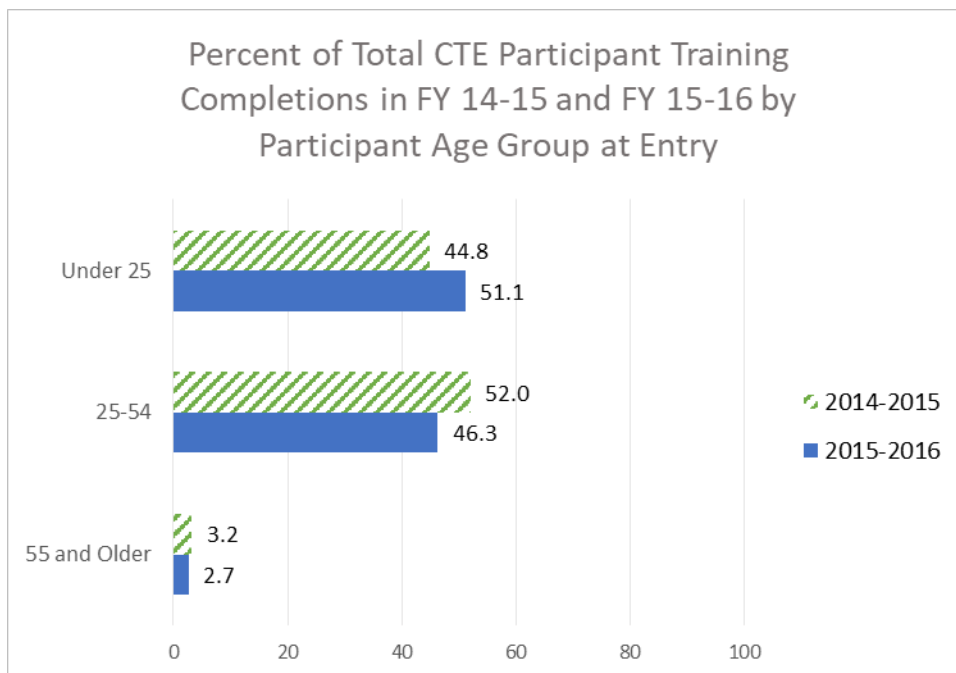
Participants 55 and older at entry were each year's smallest population served, just 3.8% and 3.6% of each year's total served. These shares were markedly smaller than the same population's share of the statewide labor force (which was 20.6% in FY 14-15 and 21.1% in FY 15-16).

Given the fact that workers in this age range are relatively closer than those in the two other age brackets to the end of their working lives and thus more likely to be established in a career, it is probably unsurprising that participants in this category should be represented at levels lower than the younger two groups.

Participants 55 and older made up larger shares (4.9% and 4.4% of each year's total) in comparison with their enrollment shares.

It is difficult to interpret differences between enrollment and exit shares without availability of further information. Based on research into "skill-builders," it is possible that older individuals are more likely to enroll in one or a few CTE courses in order to sharpen existing abilities or refresh knowledge. Younger individuals may be more likely to enroll in a two-year degree program, which might explain relatively smaller shares of yearly exits. However, without further information, this is speculative.

11.1.5.3 Figure – Training Completion by Participant Age Group at Entry



Participants in the middle age range were a larger share of all training completions in comparison with their share of enrollments. This was particularly pronounced in FY 14-15 data, where participants 25-54 at entry were 52.0% of completions (compared with 42.9% of enrollments). In the following fiscal year's data, the youngest participants represented the largest share of training completions (51.1%).

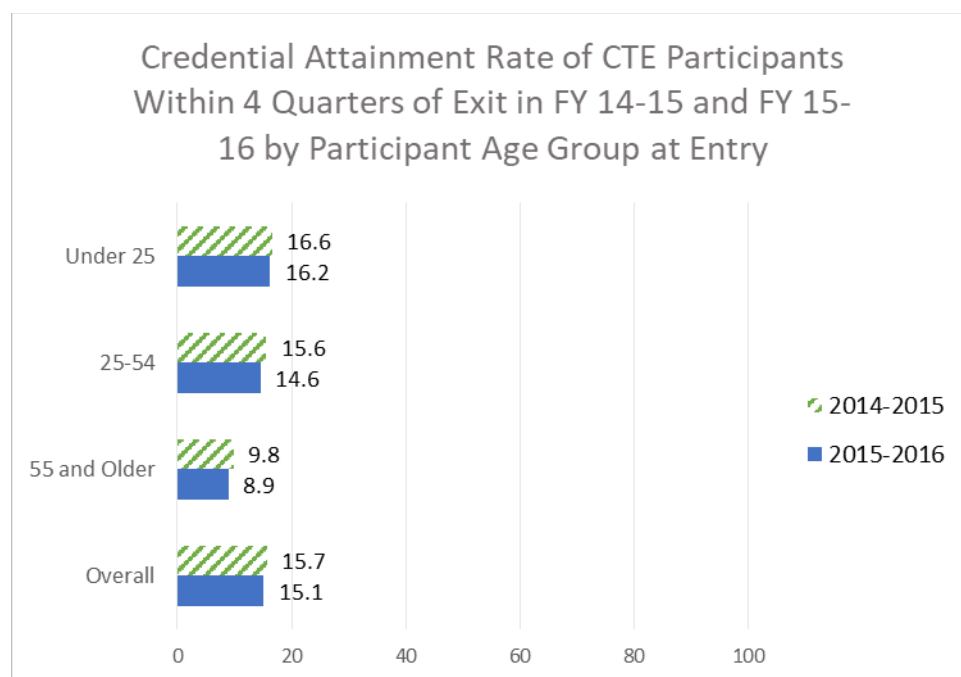
Shares of completions among the oldest age demographic (55 and older) were similar to

enrollment shares at 3.2% of FY 14-15's total completions and 2.7% of FY 15-16's total completions.

Observed exit-completion discrepancies among the oldest participants might reflect differentials in program enrollment consistent with skill-builder arguments: many older participants in CTE might be already-employed individuals looking to refresh specific skills, or retirees seeking to build knowledge. Either way, such individuals may be less likely to complete a recognized credential.

However, without further information, this speculation cannot be confirmed.

11.1.5.4 Figure – Credential Attainment Rate by Participant Age Group at Entry



Credential attainment rates were highest among the youngest participants, 16.6% of whom earned a recognized credential within one year after exit in FY 14-15, and 16.2% of whom did so following exit in FY 15-16. These rates were about +1 percentage point above the overall rate. (The fact that individuals under 25 made up the largest individual shares of all participants to exit explains why the overall rate is similar to the group-specific rate: because the youngest participants make up disproportionately large shares of each year's exit population).

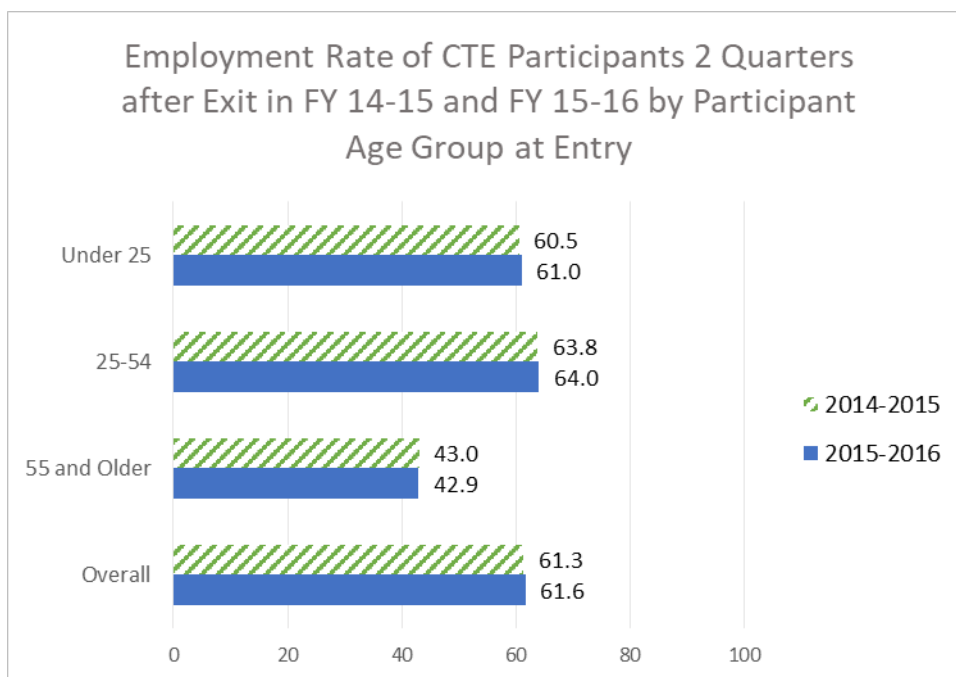
Credential attainment was lowest following both years of exit among participants aged 55 and older, at 9.8% following exit in FY 14-15 and 8.9% following exit in FY 15-16. These rates were about 6 percentage points below the overall rate.

Low reported credential attainment rates among the oldest student demographic may not,

necessarily, be a wholly negative outcome. Recent research on “skill-builder” students—students who enroll in a few courses in a focused subject area seeking to add to existing skill-sets—has revealed that some students entering programs in community colleges and specifically CTE may do so with a specific goal of completing one or a few courses to build upon earlier-acquired skills or knowledge, but without an overt goal of degree completion. Many students identified as skill-builders are older students, as these individuals are more likely to have acquired basic skills and/or academic or technical credentials earlier in their working lives.

The existence of skill-builders underscores the variation and diversity in student utilization of resources offered by community colleges, awareness of which is built into initiatives such as Strong Workforce, which seek to broadly interpret student success as well as determine how best to accommodate needs of the CCCs’ large and diverse student body.

11.1.5.5 Figure – 2nd Quarter Employment Rate by Participant Age Group at Entry



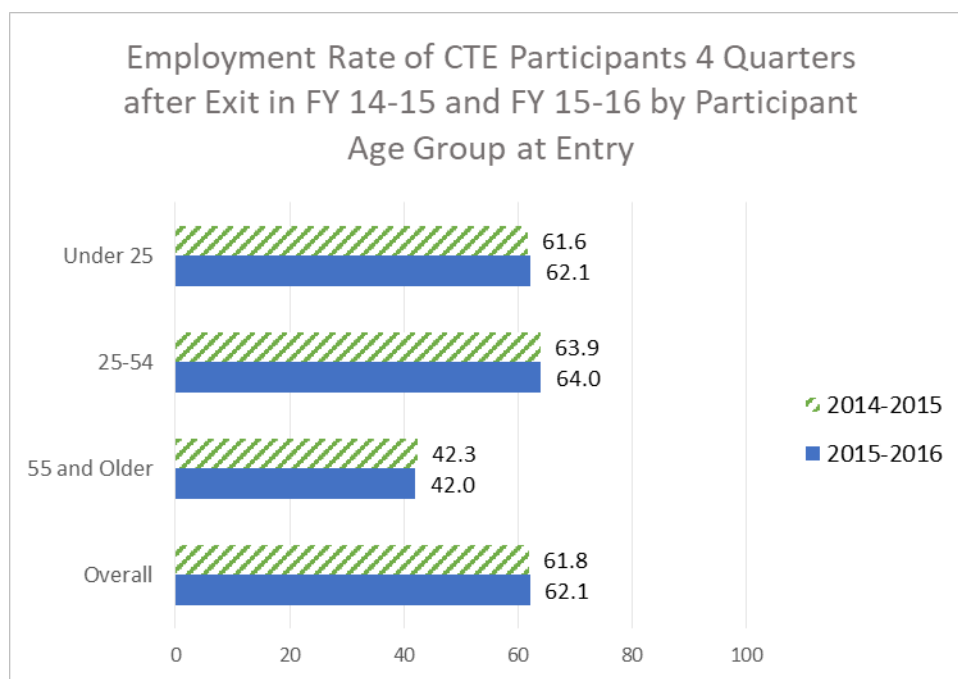
CTE participants in the middle age bracket had each year’s highest rate of employment in the second quarter following exit, 63.8% (FY 14-15) and 64.0% (FY 15-16) respectively. These rates were about 2.5 percentage points higher than each year’s overall rate.

Participants age 55 or older at the start of training had lowest rates of employment, which were strikingly lower than overall rates: just 43.0% of all CTE participants 55 and older at entry who exited in FY 14-15 were employed two quarters later, as were 42.9% of participants in the same age demographic who exited in FY 15-16.

These rates were respectively 18.3 and 18.7 percentage points below overall rates.

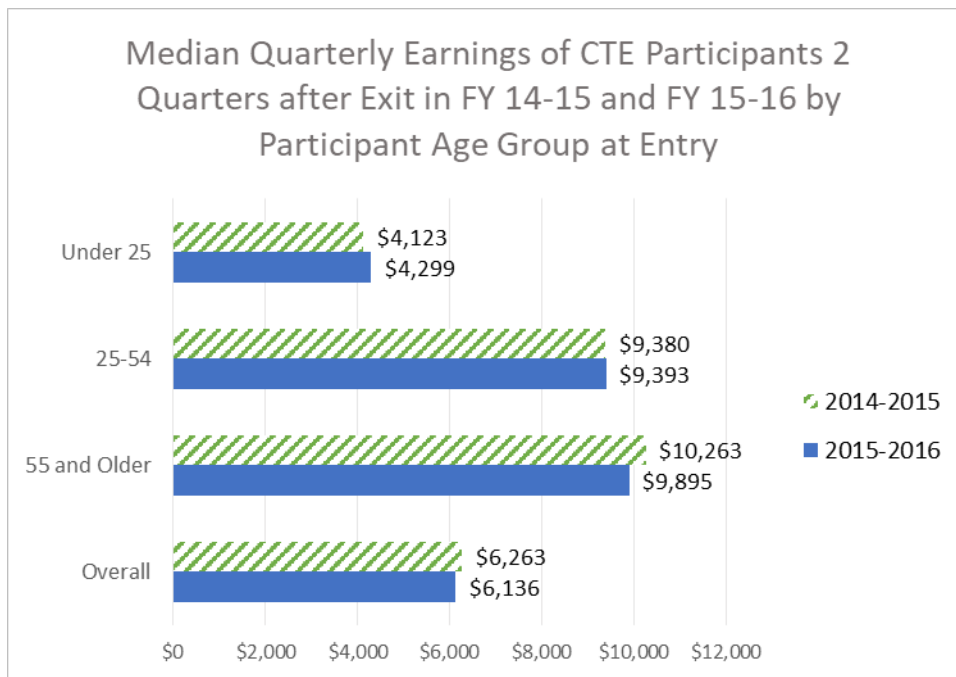
This outcome should be more thoroughly investigated to provide accurate understanding and interpretation. For instance, it seems possible that some participants in this demographic may be individuals who are retired or semi-retired and taking CTE courses out of interest and/or continuing education. If true, then low rates of employment would not be a cause for concern. On the other hand, if individuals in this category are actively seeking (and not finding) employment, this would be cause for greater concern and focus to identify and alleviate impediments to their success. Without this information, it is impossible to determine the correct interpretation.

11.1.5.6 Figure – 4th Quarter Employment Rate by Participant Age Group at Entry



Employment rates remained similar in the fourth quarter after exit in both years, with the rate among participants 25-54 at entry remaining highest (63.9% and 64.0% respectively after exit in FY 14-15 and 15-16) and employment among participants 55 and older at entry remaining lowest (42.3% and 42.0%).

11.1.5.7 Figure – 2nd Quarter Median Earnings by Participant Age Group at Entry



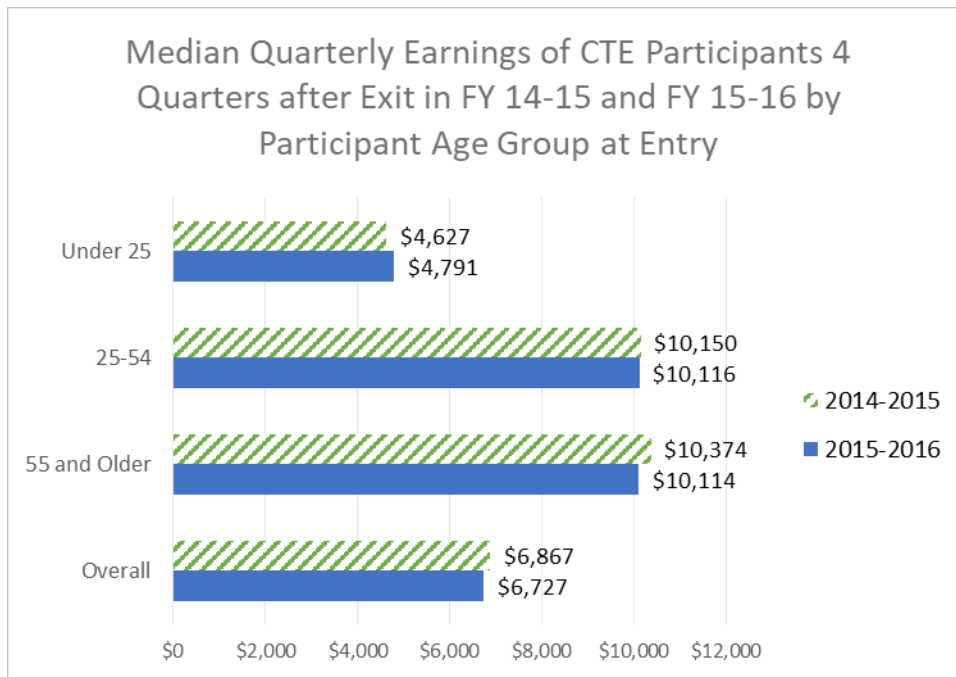
Median earnings were highest, during the second quarter after exit from CTE, among participants 55 and older. These participants' earnings of \$10,263 (FY 14-15) and \$9,895 (FY 15-16) were \$4,000 and \$3,257 higher than median earnings among all participants.

Participants 55 and older at the time of program entry also had the lowest second-quarter employment rate of all age groups. While fewer participants in the oldest age category were employed two quarters after exit, those who were earned on average more than those employed from the younger groups.

One possible interpretation is that older CTE participants—who may fit the “skill-builder” profile discussed just previously—are building upon years of previously-accumulated human capital (knowledge and skills) and associated earnings advantage, which would explain their edge in earnings over younger participant groups even in the face of their lower than average completion levels.

Earnings of the youngest participants, those younger than age 25 at the time of program entry, were lowest in each year of exit. Earnings among these participants were far below the level of the next-lowest group, at approximately one-half of their value at \$4,123 (FY 14-15) and \$4,299 (FY 15-16) respectively.

11.1.5.8 Figure – 4th Quarter Median Earnings by Participant Age Group at Entry



Four quarters after exiting a CTE program in both FY 14-15 and FY 15-16, participants in the middle age range made gains relative to those 55 and above: the former group's earnings of \$10,150 four quarters after exit in FY 14-15 were just \$224 lower than earnings of the oldest participants, compared with a difference of \$883 at the earlier stage. Among participants to exit in FY 15-16, earnings of these two populations were virtually identical, \$10,116 and \$10,114 respectively.

The youngest participants continued to lag both groups, with earnings falling about \$2,000 below each year's program-wide median.

11.1.6 Participant Veteran Status

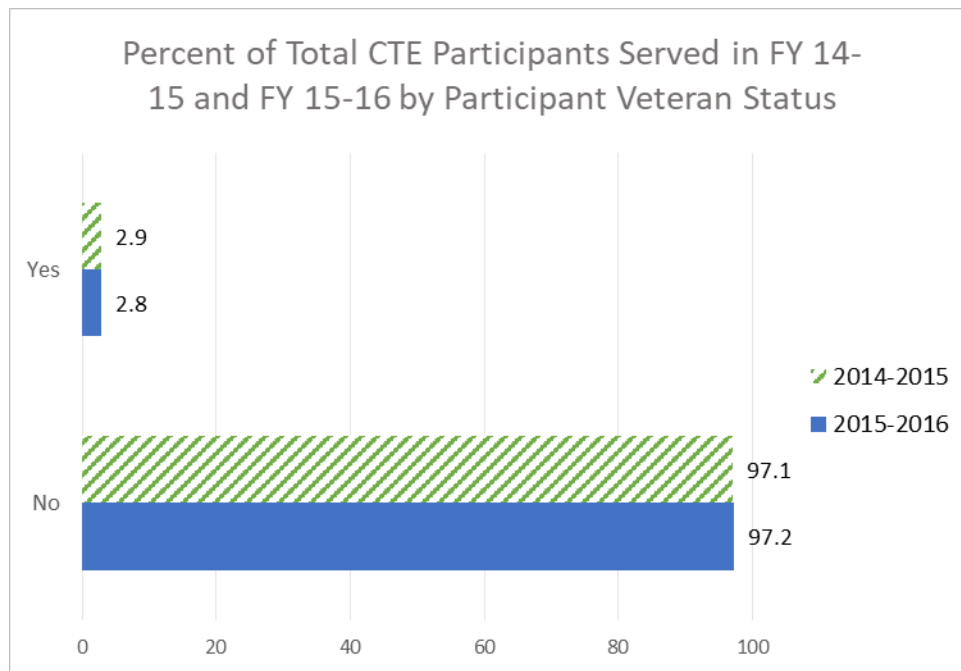
11.1.6.1 Table Set – Participant Veteran Status

FY 2014-2015											
Participant Veteran Status	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Yes	27,018	8,784	1,521	4,668	53.1	\$8,237	1,842	21.0	4,670	53.2	\$9,262
No	915,615	313,253	39,358	192,799	61.5	\$6,227	48,819	15.6	194,444	62.1	\$6,825
Not Applicable	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	942,633	322,037	40,879	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016											
Participant Veteran Status	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Yes	29,306	11,749	1,874	6,310	53.7	\$8,253	2,196	18.7	6,255	53.2	\$9,103
No	1,006,739	403,504	51,320	249,543	61.8	\$6,100	60,681	15.0	251,729	62.4	\$6,681
Not Applicable	0	0	0	0	0.0	0	0	0.0	0	0.0	0.00
Unknown	0	0	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	1,036,045	415,253	53,194	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

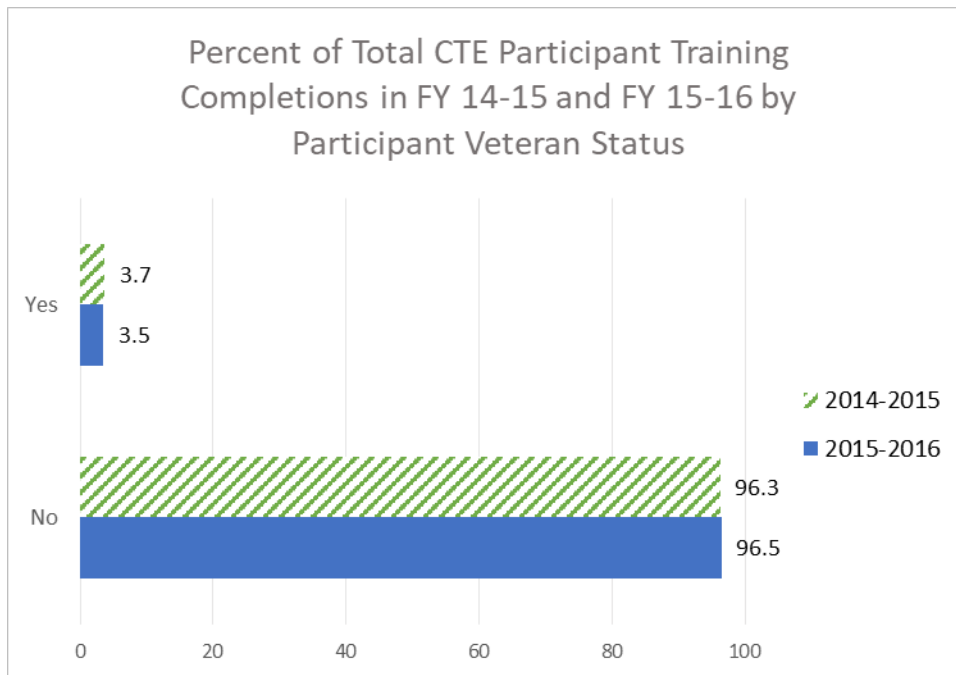
Participant veteran status was reported by the program using three options: yes, no, or unknown.

11.1.6.2 Figure – Program Participation by Participant Veteran Status



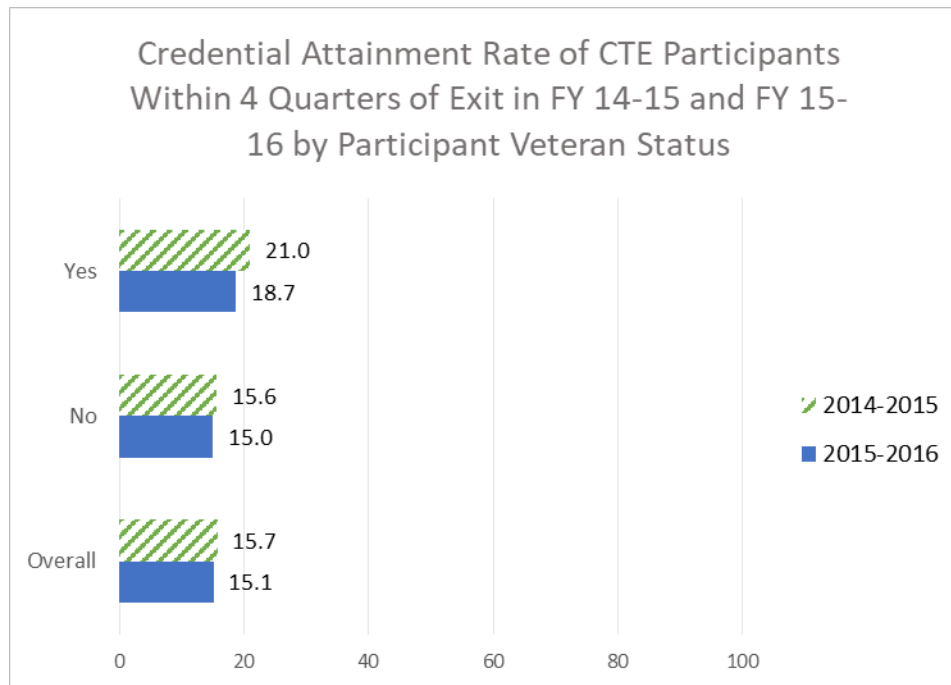
In both fiscal years, veterans accounted for slightly under 3% of all those served (2.9% in FY 14-15 and 2.8% of all served in FY 15-16). Shares of veterans in CTE programs appear slightly smaller than shares in the state’s labor force as a whole, by a margin of <2 percentage points. This might be an effect of the younger median of CTE participants compared with the general labor force population.

11.1.6.3 Figure –Training Completion by Participant Veteran Status



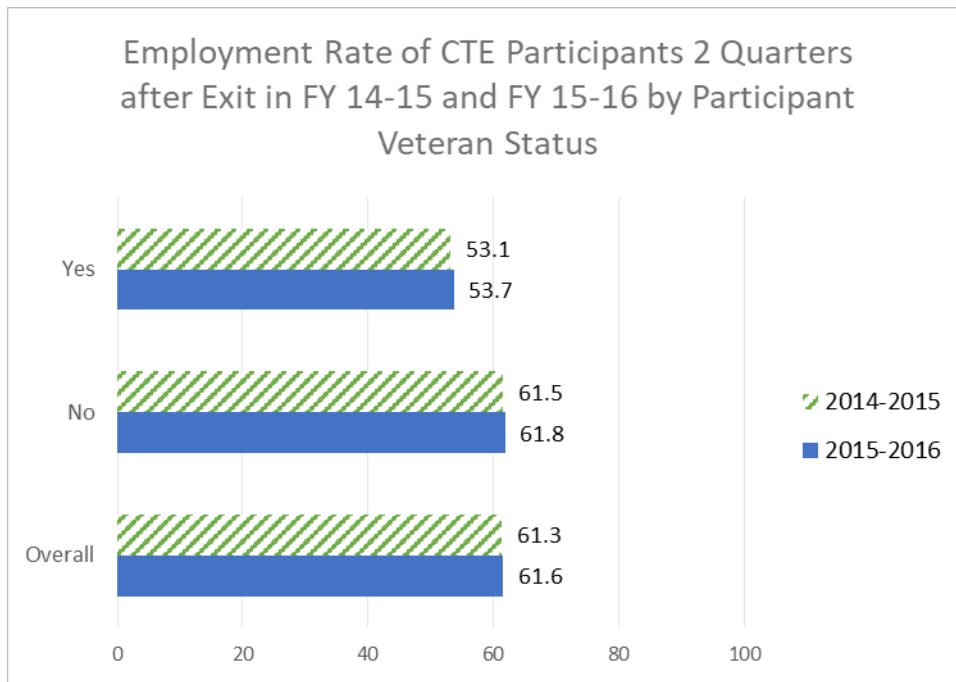
Veterans' shares of all training completions appeared similar to enrollment shares.

11.1.6.4 Figure – Credential Attainment Rate by Participant Veteran Status



Credential attainment rates were higher among veterans than among non-veterans. Twenty-one percent of veterans who exited during FY 14-15 earned a recognized credential, compared with 15.6% of non-veterans. Among CTE participants to exit the following fiscal year, 18.7% of veterans and 15.0% of non-veterans earned a credential within four quarters of exit.

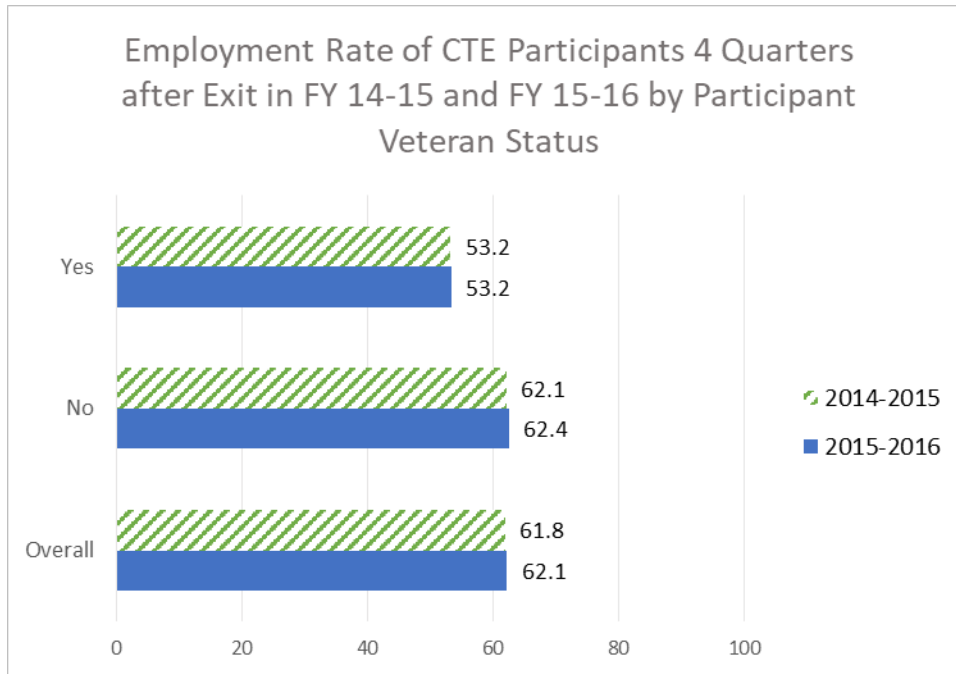
11.1.6.5 Figure – 2nd Quarter Employment Rate by Participant Veteran Status



Among both years' participants, non-veterans had a higher rate of employment compared with veterans: about 62% of non-veterans were employed two quarters after exit in both years, compared with just 53% and 54% of veterans.

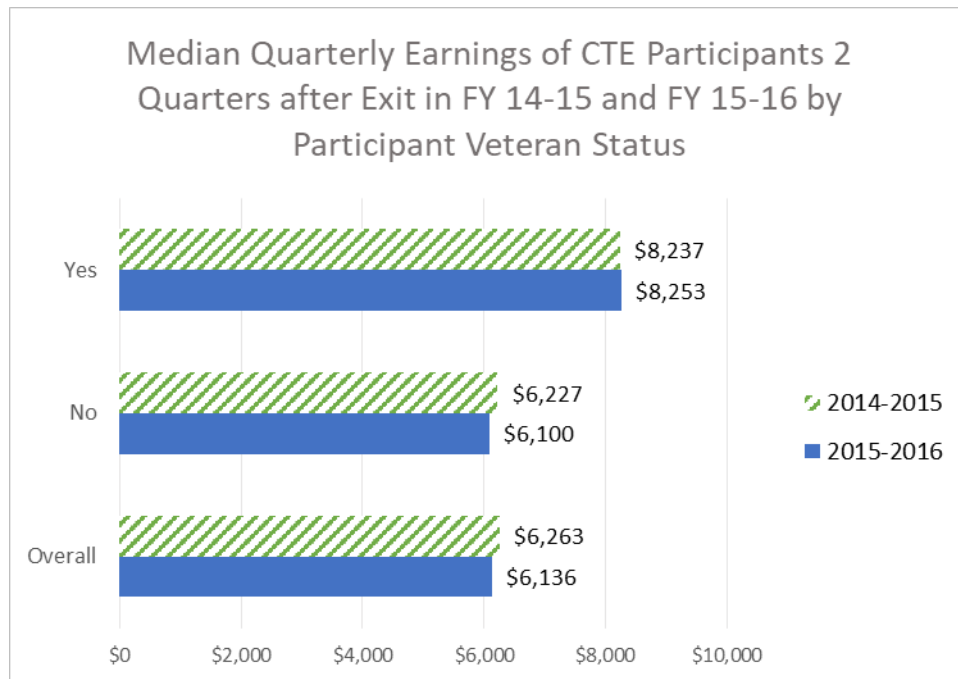
This contrasts with veterans' higher rates of credential attainment.

11.1.6.6 Figure – 4th Quarter Employment Rate by Participant Veteran Status



Employment rates continued to be higher among non-veterans than among veterans a full year after exit in both years. Actual rates remained virtually the same as in the second quarter after exit: 62% among non-veterans, and 53% among veterans

11.1.6.7 Figure – 2nd Quarter Median Earnings by Participant Veteran Status

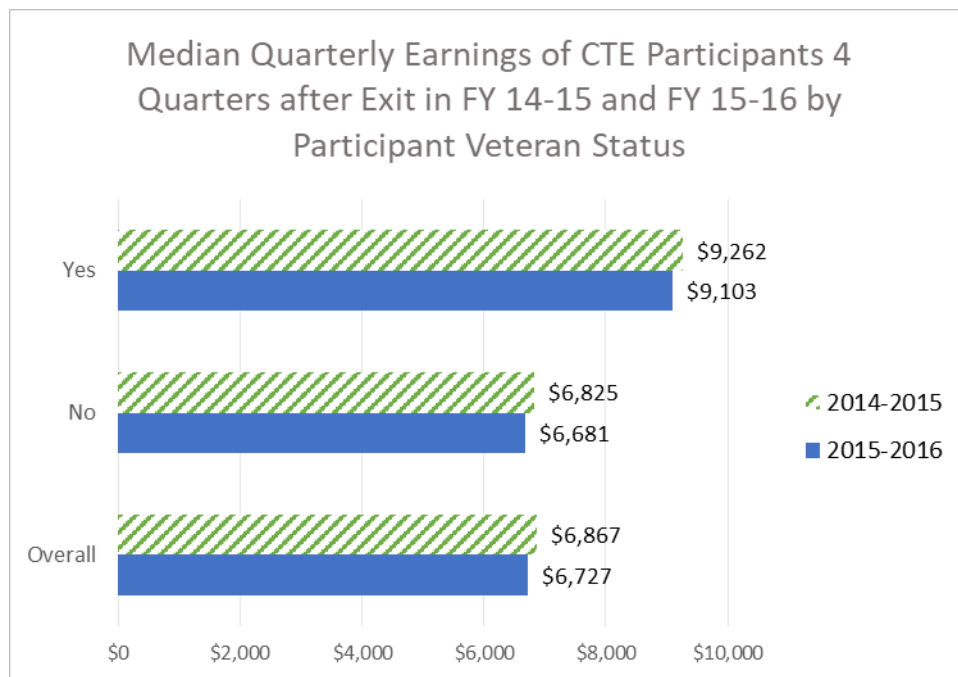


Although veterans were less likely than non-veterans to be employed, median earnings among veterans who were employed far outstripped those of non-veterans following program exit in both fiscal years.

Veteran median earnings of \$8,237 and \$8,253 two quarters following exit in FY 14-15 and FY 15-16 respectively were more than \$2,000 higher than earnings of non-veterans (the latter were \$6,227 following exit in FY 14-15 and \$6,100 following exit in FY 15-16).

Veterans, a relatively small percentage of all participants, might be a more internally homogenous group compared with the much larger and more diverse population of non-veteran participants. This homogeneity, especially if it includes similarity in skill background and/or in the occupational focus of their CTE program, might explain the differences in wage outcomes.

11.1.6.8 Figure – 4th Quarter Median Earnings by Participant Veteran Status



Veterans' earning advantage continued to be observed in data from four quarters after exit, with earnings of \$9,262 and \$9,103. While all participants' earnings showed second- to fourth-quarter increases, veterans who exited in FY 14-15 out-earned non-veterans by \$2,437, and those who exited in FY 15-16 out-earned non-veterans by \$2,422.

For this program, all participants exited with the same training service status, reflecting the program description: all participants exited having completed Career Technical Education, only.

Because no variation exists in training exit status, no comparative analysis may be performed.

11.2 Training Completion Status

11.2.1 Training Completion Status

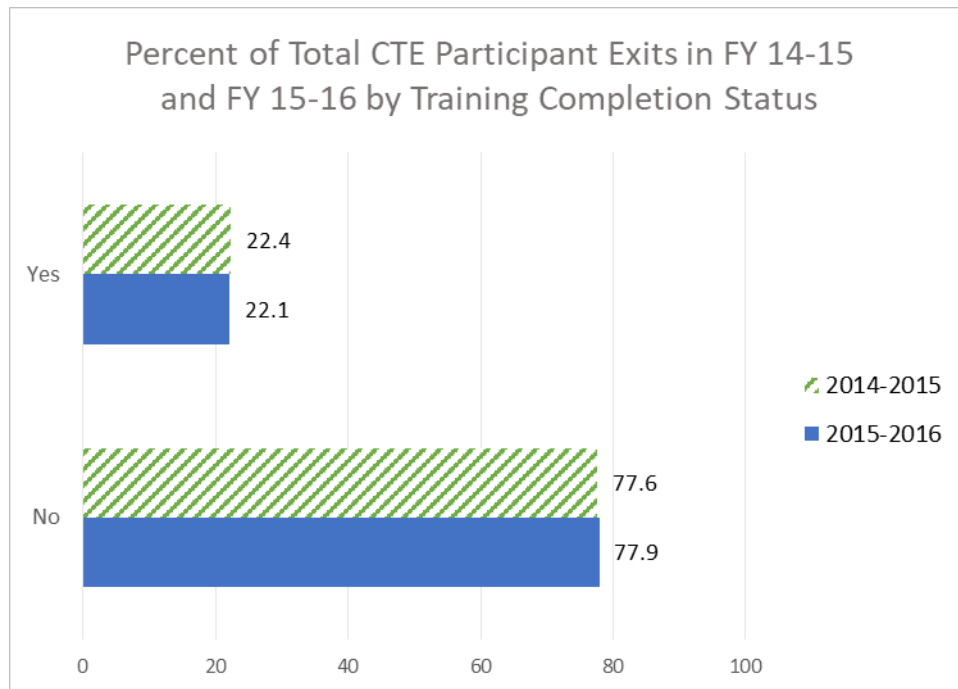
11.2.1.1 Table Set – Training Completion Status

FY 2014-2015									
Training Completion Status	# Exited	2 Quarters After Exit			4 Quarters After Exit				
		# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Yes	72,042	46,972	65.2	\$6,396	50,661	70.3	48,099	66.8	\$7,299
No	249,995	150,495	60.2	\$6,221	0	0.0	151,015	60.4	\$6,746
Other	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Not Applicable	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	322,037	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016									
Training Completion Status	# Exited	2 Quarters After Exit			4 Quarters After Exit				
		# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Yes	91,836	59,360	64.6	\$6,340	62,877	68.5	60,799	66.2	\$7,104
No	323,417	196,493	60.8	\$6,079	0	0.0	197,185	61.0	\$6,613
Other	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Not Applicable	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	415,253	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

Table Set 11.2.1.1 and associated figures display outcomes according to completion status at the time of participant exit from CTE. Service descriptions are available in Appendix E.

11.2.1.2 Figure – Program Exit by Training Completion Status



A majority of each year's CTE participants were classified as having exited without completion: 77.6% of all to exit in FY 14-15 and 77.9% of all to exit in FY 15-16.

Completions were a relatively small share of each year's participant exit total, about 22% in each year.

Program completion is not directly recorded by the CCCC for CTE programs. Rather, a participant is deemed to have completed CTE upon attainment of a credential in the form either of a program-specific certification or an academic credential such as an Associate's degree.

It should be noted that credential attainment may be an imperfect proxy measure for completion, for a few reasons. Firstly, a recent paper by an area expert noted data-reporting challenges that pertain to certain types of credentials CTE participants may receive:

- **Non-tracked low-unit credentials:** CTE certificates are offered by the community colleges in 142 fields of study, two-thirds of which can be earned in less than a year. However, many certificates associated with completion of these programs fall under the 12-unit cutoff above which approval is required to be obtained by the Chancellor's Office, and are therefore not recognized by the Chancellor's Office and not counted in statewide metrics

- **Non-tracked 3rd-party credentials:** CTE participants may seek to gain various types of certification awarded not by the program at all but by third parties whether governmental or industry-based. Currently, capacity to accurately track the issuance of such credentials to CTE participants is not well-established.³⁰

It is possible that one or both of the above data collection issues may be a factor in low observed rates of credential attainment among CTE participants (and, by extension, completion).

Additionally, some participants may have attained a credential prior to their recorded date of exit—or, during a period after the fiscal year in which they exited. In both of these cases, the individual would not be defined as having completed in the table above.

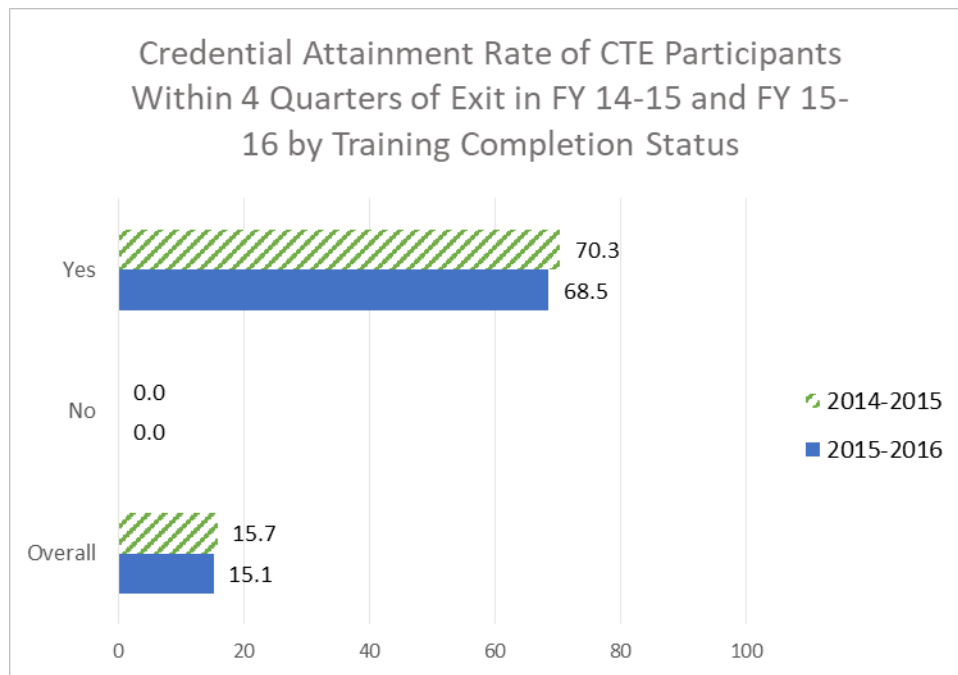
Finally, students may satisfy all or most requisites for a CTE program and never obtain the credential. This is because the onus is on the student to petition the college to audit their completion status and grant the associated degree. While an authoritative estimate of the number of CTE participants who may meet completion requirements yet fail to obtain a credential is not available, the National Center for Education Statistics notes that non-credential attaining community college students constitute the majority of all community college students.³¹ Given their preponderance, research from the past decade has begun to examine this population more critically with findings suggesting heterogeneity within this category (both “drop-outs” and students deliberately seeking to build skills through limited coursework).³²

³⁰ Kathy Booth (2015) “Moving the Needle: Data, Success, and Accountability for Workforce Programs.” Paper prepared for the California Community Colleges, Task Force on Workforce.

³¹ National Center for Education Statistics. (2014). Institutional retention and graduation rates for undergraduate students. Washington, DC: Institute of Education Sciences. Retrieved from: [http://nces.ed.gov/ipeds/data/graduationrates/](#); D. Shapiro, A. Dundar, J., Chen, J., M. Ziskin, E. Park, V. Torres, and Y. Chiang (2013). *Completing college: A national view of student attainment rates*. Herndon, Virginia: National Student Clearinghouse.

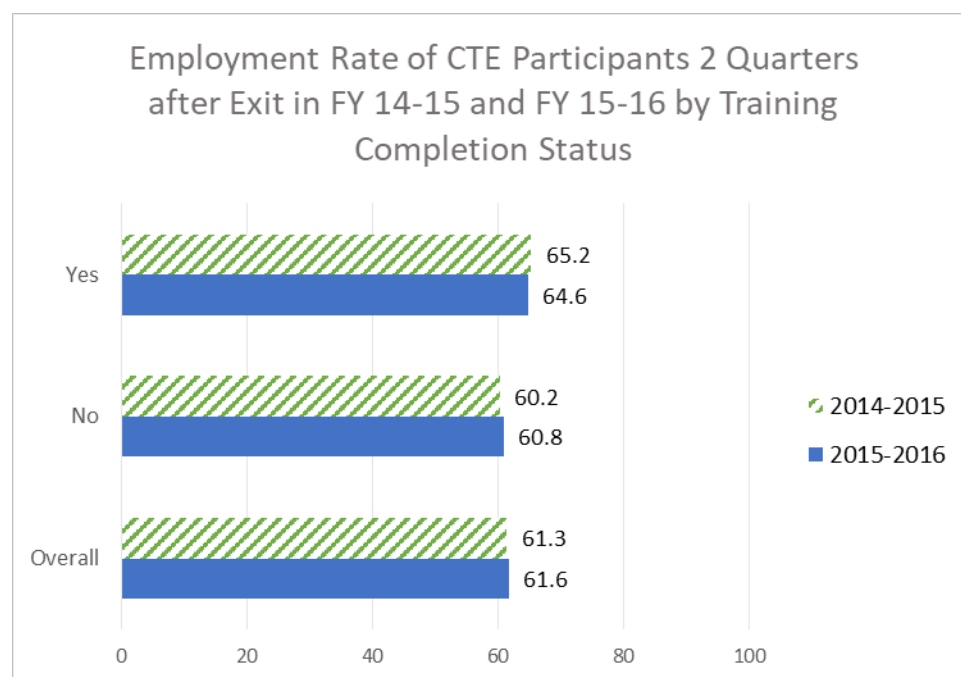
³² Peter Bahr (2010) “The bird’s eye view of community colleges: A behavioral typology of first time students based on cluster analytic classification” *Research in Higher Education* (51): 724-749; Peter Bahr (2011) “A typology of students’ use of the community college” *New Directions for Institutional Research* (S1): 33-48; P.M. Crosta (2013) “Intensity and attachment: How the chaotic enrollment patterns of community college students affect educational outcomes” CCRC Working Paper No. 60). New York, New York: Community College Research Center, Teachers College, Columbia University.

11.2.1.3 Figure – Credential Attainment by Training Completion Status



As expected given that completion status is derived from credential attainment, credential attainment rates were much higher among participants who completed CTE training than they were among participants as a whole: 70.3% of training completers in FY 14-15 and 68.5% of completers in FY 15-16 earned a recognized credential within four quarters after their exit compared with just 15.7% of all participants to exit in FY 14-15 and 15.1% to exit in FY 15-16.

11.2.1.4 Figure – 2nd Quarter Employment Rate by Training Completion Status



During the second quarter after exit in both fiscal years, employment rates were between 4 and 5 percentage points higher among those who had completed CTE than among those who had not. Two quarters after exit in FY 14-15, 65.2% of CTE completers had reported earnings compared with 60.2% of non-completers; two quarters after exit in FY 15-16, a similar 64.6% of completers and 60.8% of non-completers were employed.

While the employment advantage among participants who completed CTE over those who did not appears relatively modest, this may be linked with issues with the measurement of completion in CTE as previously discussed in this chapter.

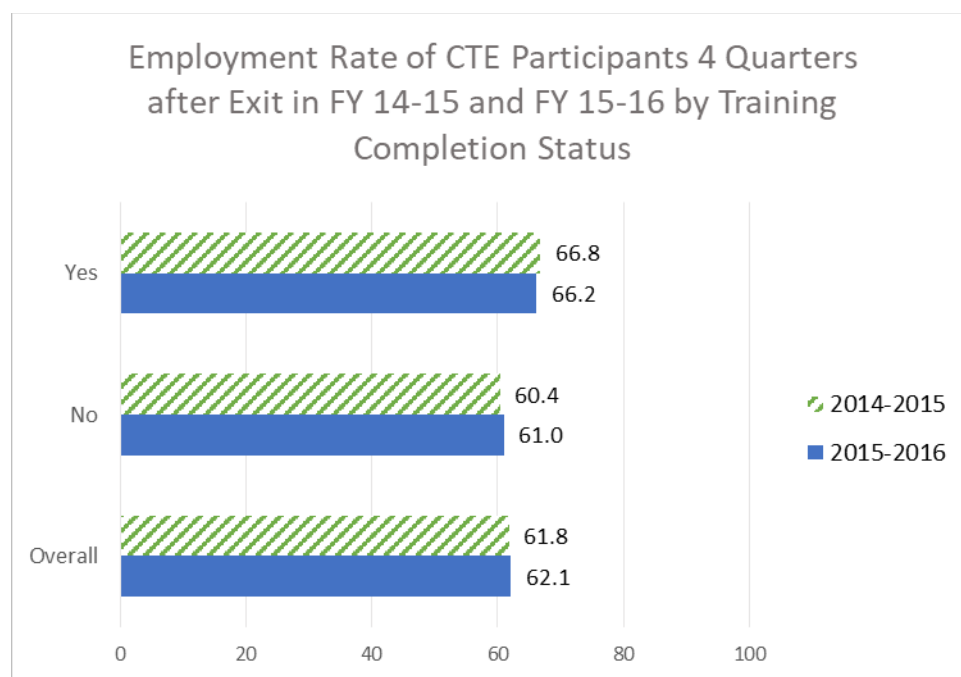
The same study cited in discussion of potential factors in low observed completion rates among CTE participants, and others, also discuss factors leading to heterogeneity of effects of “completion” on participant economic outcomes within CTE programs.³³ Experts note that the value of completion may vary by field, the type of credential valued by employers may vary by field—with industry-specific low-unit certificates yielding close to the same benefit as high-unit

³³ Ibid; see also Peter Bahr (2014). The labor market return in earnings to community college credits and credentials in California. Ann Arbor: Michigan: Center for the Study of Higher and Postsecondary Education, University of Michigan. Kathy Booth (2014). The ones that got away: Why completing a college degree is not the only way to succeed. Oakland, CA: LearningWorks & WestEd; Kathy Booth and Peter Bahr (2013). The missing piece: Quantifying non-completion pathways to success. Oakland, California: LearningWorks; A. Carnevale, S. Rose, S. & A. Hanson (2012) Certificates: Gateway to gainful employment and college degrees. Washington, DC: Center on Education and the Workforce, Georgetown University.

certificates and Associate's Degrees in some fields (e.g., according to one study engineering and industrial technologies) and low-unit certificates actually yielding more average earnings increase than associate's degrees in public and protective services. The same study found that, for some students and in some fields, attainment of a certificate may not confer specific advantages over simple course completion.³⁴

It is also possible that previously noted data collection challenges associated with CTE credentials have led to missing completion data, rendering the pool of completing participants whose employment outcomes are presented above in some way incomplete or biased.

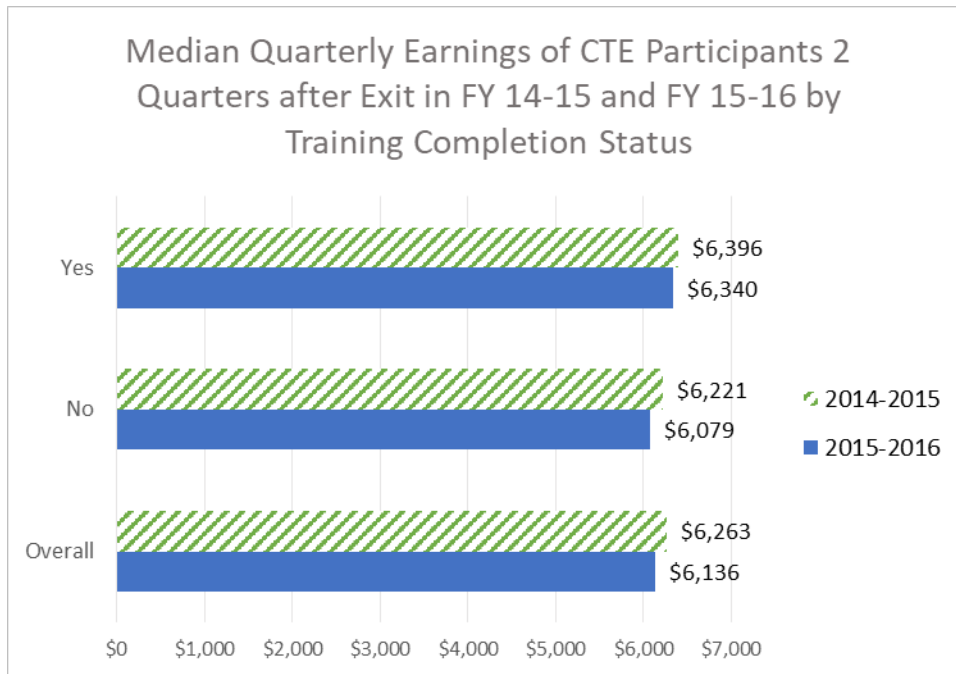
11.2.1.5 *Figure – 4th Quarter Employment Rate by Training Completion Status*



In the fourth quarter after exit, program completers again enjoyed an employment advantage, which modestly increased from the second quarter: four quarters after exit in FY 14-15, 66.8% of completers and 60.4% of non-completers were employed, a 6.4 percentage point advantage for completers; and four quarters after exit in FY 15-16, 66.2% of completers were employed compared with 61.0% of non-completers, a 5.2 percentage point advantage for completers.

³⁴ In the study (2014), Bahr examined labor market outcomes among first time California community college students entering between the early 1990s and mid-2010s, in which he sought to isolate the effects of credential attainment from completion of the underlying requisite course credits in a variety of CCC subfields. Bahr found strong positive effects for credit completion in all CTE fields, yet more variable efficacy of attainment of a credential itself dependent on credential type and subfield.

11.2.1.6 Figure – 2nd Quarter Median Earnings by Training Completion Status

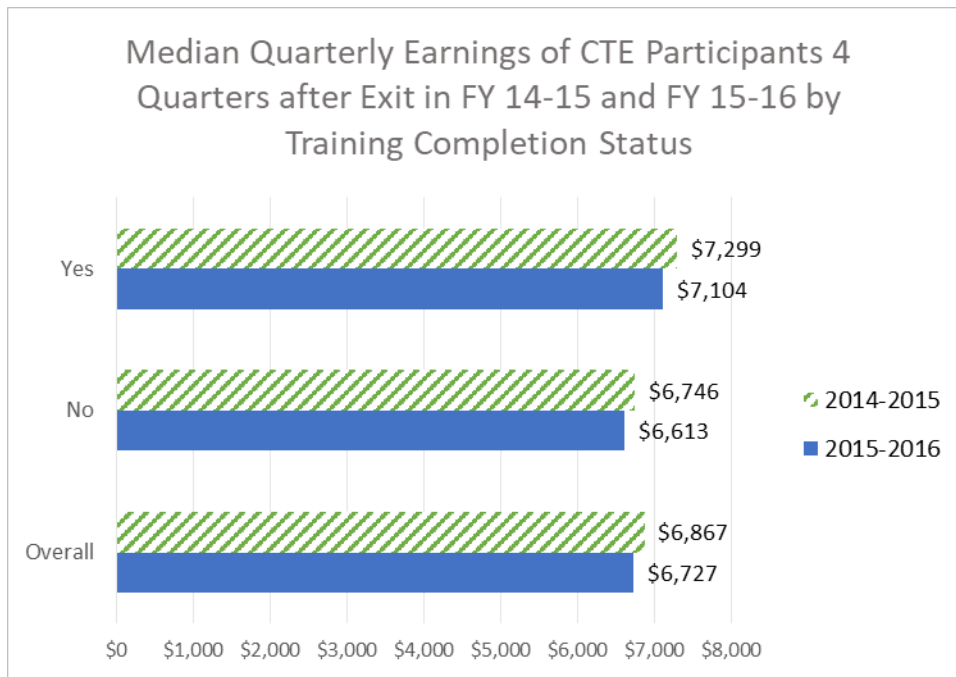


Second quarter post-exit median quarterly earnings were higher among those who completed CTE training, compared with earnings of those who did not complete. Following FY 14-15, completers' median earnings of \$6,396 were \$174 higher than the \$6,221 earned by non-completers. Two quarters after exit in FY 15-16, completers' earnings of \$6,340 were \$261 higher than the \$6,079 earned by non-completers.

The advantage seen by individuals who completed training—and thus, earned a certificate or credential—falls in line with research on human capital development that finds credentials confer labor market advantages.³⁵

³⁵ Besides research previously discussed on credential attainment in the context of community college career education, see, for an overview of related concepts (in the context of workforce funds) [“To Train or Not to Train: Is Workforce Training a Good Public Investment?”](#) (Daniel Rounds, CA Senate Office of Research. May 2013).

11.2.1.7 Figure – 4th Quarter Median Earnings by Training Completion Status



CTE completers' earning advantage increased relative to non-completers in the fourth quarter after exit in each year. Median earnings of \$7,299 (FY 14-15) and \$7,104 (FY 15-16) among completers were \$553 (FY 14-15) and \$491 (FY 15-16) greater than respectively earnings among non-completers of \$6,746 (FY 14-15) and \$6,613 (FY 15-16).

Some research on workforce training s finds that earnings advantages conferred by training take time to become apparent (an effect of initial foregone earnings due to the time trade-off represented by investing time in training) and may continue to accrue for years following program completion.³⁶

³⁶ For a discussion of "lock-in effects" in the context of vocational training programs, see: Andersson, Fredrik, Harry J. Holzer, Julia Lane, David B. Rosenblum, and Jeffrey Smith (2012) "Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms" Working paper; Caliendo, Marco, Steffen Künn, and Ricarda Schmidl (2011) "Fighting Youth Unemployment: The Effects of Active Labor Market Policies", IZA Discussion Paper 6222; Card, David, Jochen Kluve, and Andrea Weber. (2010) "Active Labor Market Policy Evaluations: A Meta-Analysis." *The Economic Journal*, 120, F452-F477; Decker, Paul.(2011) "Ten Years of WIA Research" In *The Workforce Investment Act: Implementation Experiences and Evaluation Findings*, edited by D. Besharov and P. Cottingham. Kalamazoo, Michigan: W.E. Upjohn Institute; Heinrich, Carolyn J., Mueser, Peter and Kenneth R. Troske.(2008) *Workforce Investment Act Non-Experimental Net Impact Evaluation*. Final Report to U.S. Department of Labor, December; Schochet, Peter, John Burghardt, and Sheena McConnell. 2006. *National Job Corps Study and Longer-Term Follow-Up Study: Impact and Benefit-Cost Findings Using Survey and Summary Earnings Records Data, Final Report*. Washington, DC: Mathematica Policy Research

11.3 Type of Recognized Credential

11.3.1 Type of Recognized Credential

11.3.1.1 Table Set – Type of Recognized Credential

FY 2014-2015									
Type of Recognized Credential	# Exited	2 Quarters After Exit			4 Quarters After Exit				
		# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
No Recognized Credential	249,501	150,458	60.3	\$6,220	0	0.0	150,977	60.5	\$6,744
High School Diploma or Equivalency	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Associate's Degree	30,528	19,687	64.5	\$5,739	22,964	75.2	20,327	66.6	\$6,760
Bachelor's Degree	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Post-Graduate Degree	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Skills License	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Skills Certificate	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Certification	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Other Recognized Diploma, Degree, or Certificate	12,939	8,384	64.8	\$7,172	10,009	77.4	8,492	65.6	\$7,962
Other Award (Non-Credit or Credit)	10,475	7,053	67.3	\$8,332	7,090	67.7	7,100	67.8	\$9,036
More than One Type of Recognized Credential	18,594	11,885	63.9	\$6,054	10,598	57.0	12,218	65.7	\$6,864
Other	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Not Applicable	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	322,037	197,467	61.3	\$6,263	50,661	277.3	199,114	61.8	\$6,867

FY 2015-2016									
Type of Recognized Credential	# Exited	2 Quarters After Exit			4 Quarters After Exit				
		# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
No Recognized Credential	322,841	196,450	60.9	\$6,078	0	0.0	197,139	61.1	\$6,613
High School Diploma or Equivalency	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Associate's Degree	38,825	24,799	63.9	\$5,807	29,042	74.8	25,746	66.3	\$6,634
Bachelor's Degree	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Post-Graduate Degree	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Skills License	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Skills Certificate	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Occupational Certification	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Other Recognized Diploma, Degree, or Certificate	15,794	10,302	65.2	\$7,280	11,378	72.0	10,362	65.6	\$8,132
Other Award (Non-Credit or Credit)	12,234	8,063	65.9	\$8,147	7,827	64.0	8,019	65.5	\$8,741
More than One Type of Recognized Credential	25,559	16,239	63.5	\$5,816	14,630	57.2	16,718	65.4	\$6,504
Other	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Not Applicable	0	0	0.0	\$0	0	0.0	0	0.0	\$0
Unknown	0	0	0.0	\$0	0	0.0	0	0.0	\$0
TOTAL	415,253	255,853	61.6	\$6,136	62,877	268.1	257,984	62.1	\$6,727

For CTE participants, credential attainment may mean one or more of a variety of things. The Community Colleges recognize a variety of certificates (e.g., an industry-recognized credential such as an early childhood education certification), both credit (appears in student's transcript) and non-credit (does not appear in student's transcript). Additionally, CCCC recognizes awarding of academic degrees (an associate's degree). In some cases (as with early childhood education), CTE certification also satisfies state licensure requirements.

Local community colleges operating CTE programs are able to issue their own program-specific certificates, which may be associated with completion of programs that fall below mandated academic unit levels for required inclusion/recognition in statewide data. Historically, non-reporting of such local certificates may contribute to low-appearing aggregate credential attainment (and, therefore, completion) rates associated with the CTE program.

Recently, there has been an uptick in reported issuance of non-credit certificates which may reflect improved reporting, incentivized by the Strong Workforce Program which provided funding beginning in FY 14-15 to expand the availability of quality community college career technical education and workforce development courses, programs, pathways, credentials, certificates, and degrees consistent with the Workforce Innovation and Opportunity Act (WIOA) and CWDB State Plan, and in alignment with local labor market needs.

However, in the present data, tracking and reporting of low-unit and non-credit certificates remains imperfect.

Finally, CTE participants may also seek to gain various types of certification awarded not by the program but by industry or other governmental bodies. Tracking of student attainment of third-party credentials has been highly challenging, given the decentralized nature of these credentials' issuing and tracking.³⁷

³⁷ Kathy Booth (2015) "[Moving the Needle: Data, Success, and Accountability for Workforce Programs](#)"; CWDB Unified State Plan for 2016-2019.

11.3.1.2 Figure – Credential Attainment Share by Type of Recognized Credential

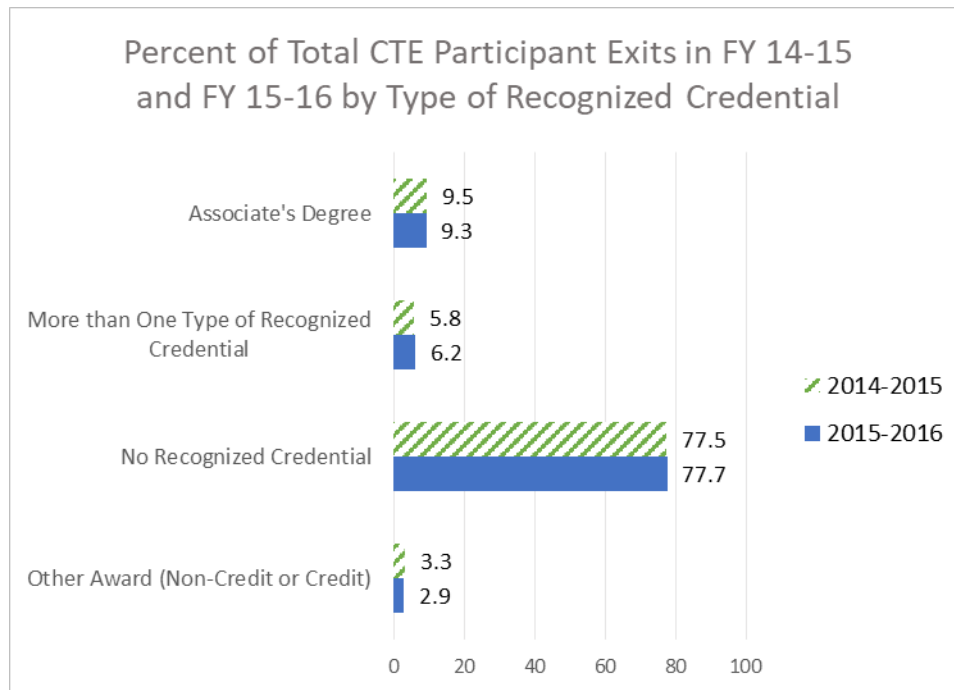


Figure 11.3.1.2 displays a percentage distribution by credential type of all credentials earned by CTE participants within a year following program exit.

A majority of participants to exit did so without earning a credential of any kind (about 78% of all to exit in each year). The most commonly-earned credential was an Associate’s Degree, earned by 9.5% of all participants in CTE to exit in FY 14-15 and 9.3% to exit in FY 15-16. This translates to nearly one-half (45.3%) of all credentials earned following exit in FY 14-15 and over half (57.3%) earned following exit in FY 15-16.

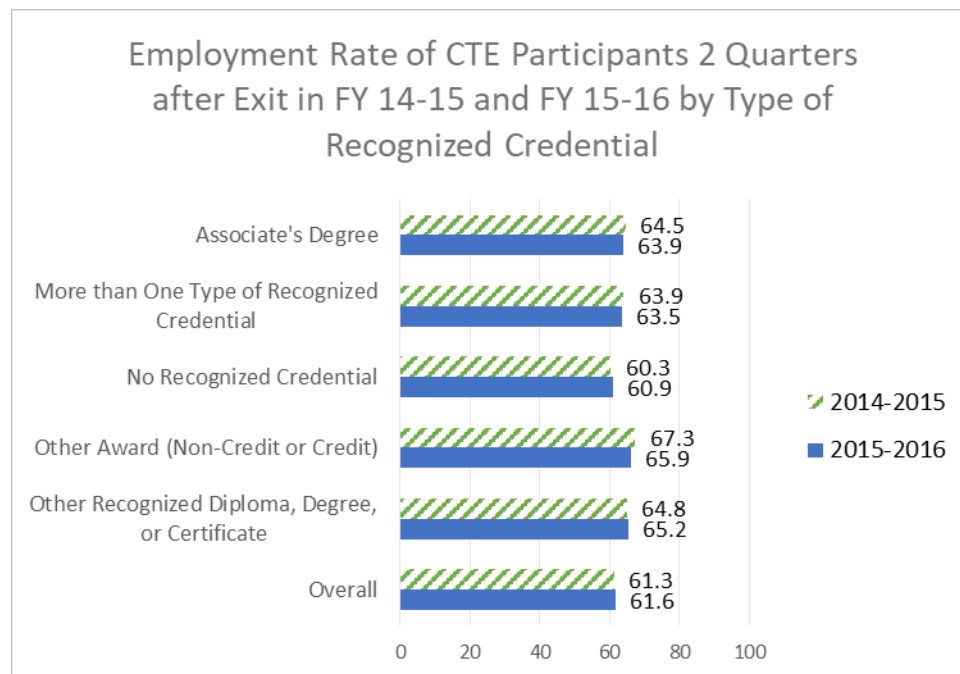
Given that an Associate’s Degree is the terminal community college credential, this is an expected outcome.

Credentials classified as “other award (non-credit or credit), earned by about 3% of participants to exit in each year, may may represent smaller-unit or noncredit awards awarded to students who complete CTE courses.³⁸

³⁸ Credentials in this category refer to any of the following: Noncredit award < 48 hours; Noncredit award 48 to 95.9 hours; = Noncredit award 96 to 143.9 hours; J = Noncredit award 144 to 191.9 hours; K = Noncredit award 192 to 287.9 credits; O = Other credit award (under 6 credits); P = Noncredit award 288 to 479.9 hours; Q = Noncredit award 480 to 959.9 hours; R = Noncredit award > 960 hours.

The remainder of participants, about 6% to exit in each year, earned more than one credential type.

11.3.1.3 *Figure – 2nd Quarter Employment Rate by Type of Recognized Credential*



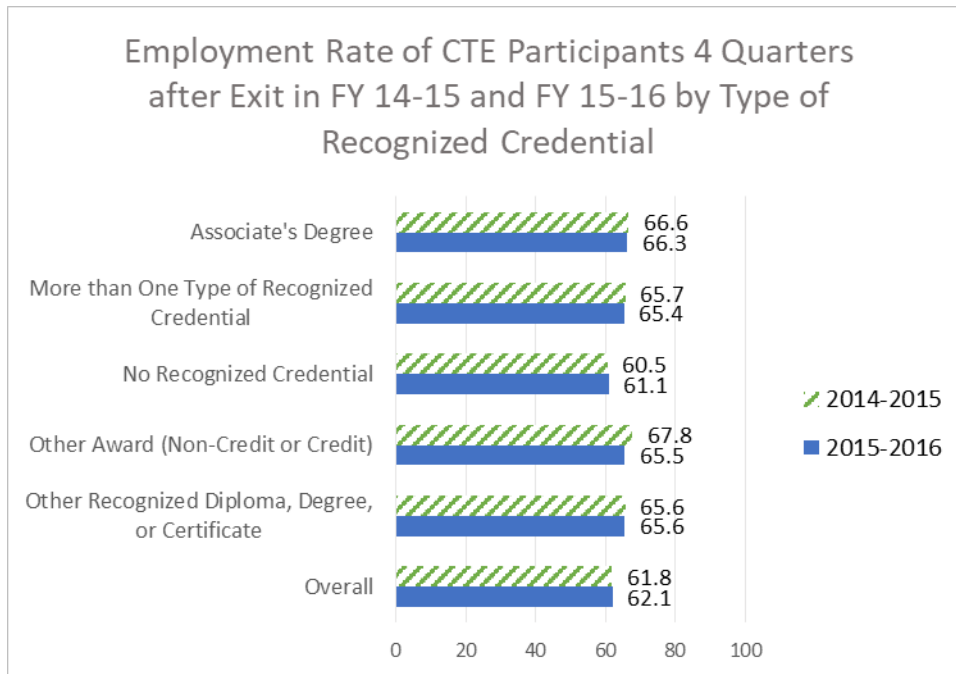
During the second quarter after exit in both fiscal years, employment rates were highest among participants earning an “other award (non-credit or credit)” as described in the section above. Sixty-seven percent of these participants were employed in the second quarter after exit in FY 14-15 (6 percentage points higher than the overall employment rate), as were about 66% of CTE participants exiting in FY 15-16 (4.3 percentage points above the overall rate).

This outcome is noteworthy, given that this was also credential type most rarely attained. Credentials in this category include multiple forms of noncredit awards (< 48 hours; 48 to 95.9 hours; 96 to 143.9 hours; 144 to 191.9 hours; 192 to 287.9 credits; 288 to 479.9 480 to 959.9 hours; > 960 hours) and low-unit credit awards (under 6 credits).

It appears that the “other (non-credit or credit)” category encompasses types of either non-credit or low-unit credit certificates, of the variety discussed above for which tracking (and therefore finer-grade classification) has historically been lacking.

Two quarters after exit in both years, CTE participants who did not earn a credential had the lowest employment rates, 60.3% (FY 14-15) and 60.9% (FY 15-16). While not very distant from the overall rate, it is important to remember that non-credential earners made up a large share of each year’s total to exit.

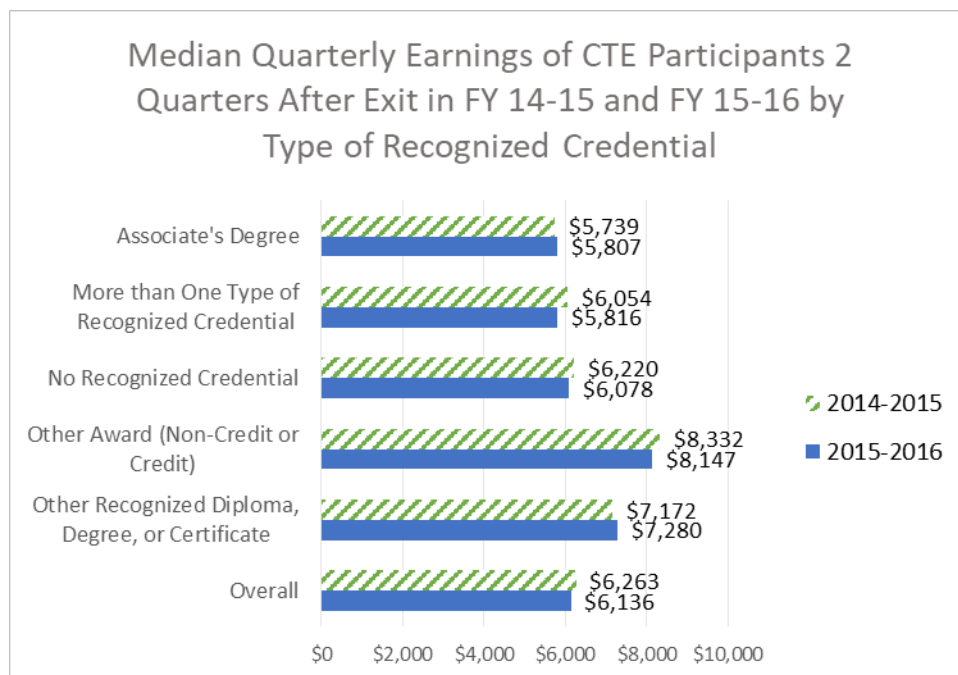
11.3.1.4 Figure – 4th Quarter Employment Rate by Type of Recognized Credential



Four quarters after exit in FY 14-15, employment continued to be highest among participants who received an “other (non-credit or credit) award, 67.8%, while at the same stage after exit in FY 15-16, Associates’ Degree earners were most likely to be employed (66.3%).

The lowest rates of employment continued to be found among participants who did not earn a credential, 60.5% and 61.1%.

11.3.1.5 Figure – 2nd Quarter Median Earnings by Type of Recognized Credential



CTE participants who exited the program having earned an “other award (non-credit or credit)” also enjoyed the highest earnings during the second quarter after exit. Median earnings among these participants were \$8,332 following exit in FY 14-15, \$2,069 higher than the program-wide median. Two quarters after exit in FY 15-16, median earnings of participants in this category of \$8,147 were \$2,010 higher than the program-wide median.

One possible interpretation is that individuals earning this type of credential – which is likely associated with a shorter-term program or course—may be older participants with preexisting skills or experience returning to the classroom with the goal of honing or expanding their skill base. If true, both higher employment and higher earnings among such individuals could reflect pre-program differences in the profile of these participants versus younger individuals who may be completing two-year degrees.

Earnings were lowest among participants who earned an Associate’s Degree, a median of \$5,739 in the second quarter after exit in FY 14-15 (\$524 less than the overall median) and \$5,807 among those to exit in FY 15-16 (-\$329 below the overall median).

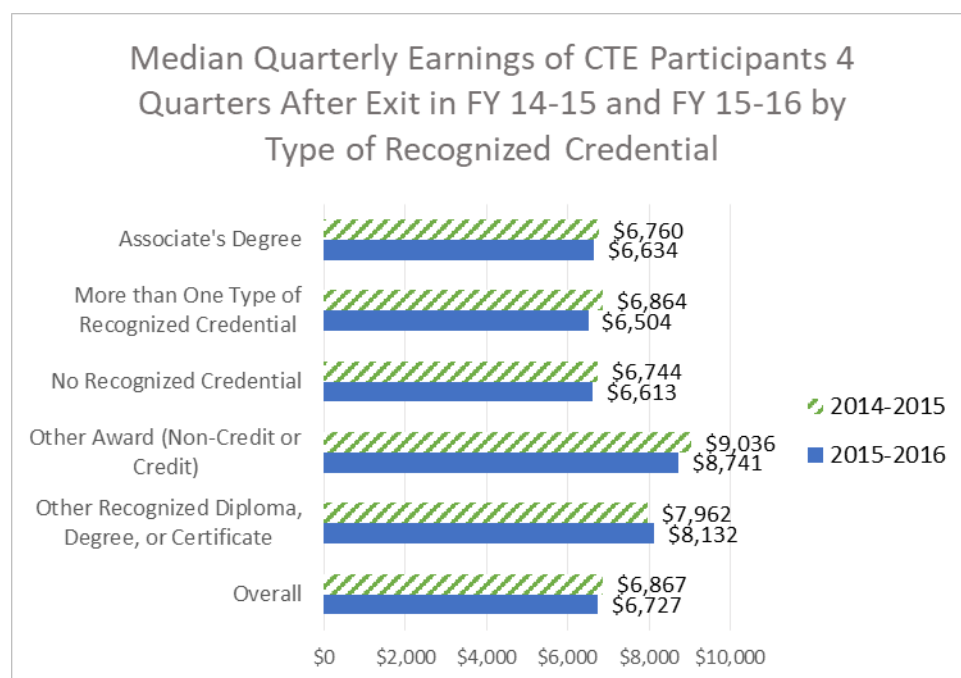
This outcome seems to merit further discussion and possibly investigation. On the one hand, some recent research on CTE, credential attainment, and employment outcomes has found improved labor market outcomes in some sub-fields associated with program-specific certificates.³⁹ Since these certificates characterize completion in many CTE programs, this

³⁹ Peter Bahr (2014). “The Labor Market Returns in Earnings to Community College Credits and

outcome may indirectly support such findings. The CWDB State Plan underscores the need to ensure that credentials are industry-recognized, in assessing their value to participants.

On the other hand, many participants exiting with an AA may be seeking to pursue further education in the form of enrollment in a four-year college. For such participants, who may be more likely to be employed less than full-time, lower than average earnings at the second quarter following exit may be due to simple opportunity costs from devoting part of their time to further studies. Earnings of these participants, particularly those finishing a four-year or higher degree, would in this scenario be expected to catch up with and exceed those of other participant categories at a later date.

11.3.1.6 Figure – 4th Quarter Median Earnings by Type of Recognized Credential



Four quarters after CTE exit in both fiscal years, participants who had attained an “other award (non-credit or credit)” again saw highest earnings of \$9,036 following exit in FY 14-15, and \$8,741 following exit in FY 15-16. These participants’ earnings were \$2,169 and \$2,014 higher than overall median earnings of \$6,867 four quarters after exit in FY 14-15 and \$6,727 four quarters after exit in FY 15-16.

Credentials in California”. Ann Arbor: Michigan: Center for the Study of Higher and Postsecondary Education, University of Michigan. Kathy Booth (2015) “[Moving the Needle: Data, Success, and Accountability for Workforce Programs](#)”

A year after exit, it was participants without a credential who earned least, with median earnings of \$6,744 (FY 14-15) and \$6,613 (FY 15-16). While earnings of individuals in this category did not differ greatly from median earnings among all participants, it is important to note that most CTE participants who exited and became employed had not earned a recognized credential, meaning that these individuals' earnings represent a disproportionate share of all participants with earnings after exit in each year.

One interpretation for the decline in relative earnings of non-credential earners has to do with time to maturation of benefits for credential earners. As discussed, research suggests that full benefits from training may not become apparent until 18 to 24 months later and continue to accrue beyond that stage. As benefits are most likely to accrue to those who complete training, it might be that outcomes for credential-earners versus non-earners continue to diverge beyond the year mark. However, without further data this cannot be determined.

11.4 Industry / Sector of Employment

11.4.1 Industry/Sector of Employment

11.4.1.1 Table Set – Industry/Sector of Employment

FY 2014-2015						
Industry / Sector Description	2 Quarters After Exit			4 Quarters After Exit		
	# Employed	% Employed	Median Earnings	# Employed	% Employed	Median Earnings
Agriculture, Forestry, Fishing, and Hunting	2,676	1.4	\$4,516	2,788	1.4	\$5,408
Mining, Quarrying, and Oil and Gas Extraction	240	0.1	\$15,753	204	0.1	\$14,776
Utilities	790	0.4	\$16,397	836	0.4	\$17,080
Construction	8,406	4.3	\$9,840	8,838	4.4	\$10,151
Manufacturing	8,251	4.2	\$9,117	8,648	4.3	\$9,447
Wholesale Trade	5,167	2.6	\$7,734	5,366	2.7	\$8,149
Retail Trade	30,517	15.5	\$4,181	28,543	14.3	\$4,680
Transportation and Warehousing	4,467	2.3	\$6,376	4,910	2.5	\$6,668
Information	2,852	1.4	\$6,405	3,096	1.6	\$7,031
Finance and Insurance	4,608	2.3	\$8,340	4,955	2.5	\$8,741
Real Estate, and Rental and Leasing	2,417	1.2	\$7,238	2,482	1.2	\$7,682
Professional, Scientific, and Technical Services	9,739	4.9	\$8,945	10,078	5.1	\$9,440
Management of Companies and Enterprises	169	0.1	\$10,964	195	0.1	\$10,936
Administrative and Support and Waste Management and Remediation Services	15,506	7.9	\$5,219	15,183	7.6	\$5,530
Educational Services	12,005	6.1	\$5,641	12,437	6.2	\$5,983
Health Care and Social Assistance	24,382	12.3	\$6,806	26,309	13.2	\$7,448
Arts, Entertainment, and Recreation	4,789	2.4	\$3,572	4,769	2.4	\$3,847
Accommodation and Food Services	24,015	12.2	\$3,778	22,503	11.3	\$4,088
Other Services (except Public Administration)	6,192	3.1	\$4,724	6,157	3.1	\$5,110
Public Administration	20,368	10.3	\$20,374	20,839	10.5	\$21,260
Other	0	0.0	\$0	0	0.0	\$0
Not Applicable	0	0.0	\$0	0	0.0	\$0
Unknown	9,911	5.0	\$13,376	9,978	5.0	\$14,813
TOTAL	197,467	61.3	\$6,263	199,114	61.8	\$6,867

FY 2015-2016						
Industry / Sector Description	2 Quarters After Exit			4 Quarters After Exit		
	# Employed	% Employed	Median Earnings	# Employed	% Employed	Median Earnings
Agriculture, Forestry, Fishing, and Hunting	3,778	1.5	\$4,615	3,899	1.5	\$5,365
Mining, Quarrying, and Oil and Gas Extraction	348	0.1	\$16,122	358	0.1	\$16,837
Utilities	876	0.3	\$16,982	913	0.4	\$17,717
Construction	9,880	3.9	\$9,599	10,525	4.1	\$10,010
Manufacturing	10,156	4.0	\$8,942	10,965	4.3	\$9,309
Wholesale Trade	6,461	2.5	\$7,800	6,728	2.6	\$8,268
Retail Trade	40,284	15.7	\$4,266	37,750	14.6	\$4,695
Transportation and Warehousing	6,568	2.6	\$6,062	7,083	2.7	\$6,621
Information	3,963	1.5	\$5,793	4,018	1.6	\$6,428
Finance and Insurance	6,048	2.4	\$8,300	6,436	2.5	\$8,833
Real Estate, and Rental and Leasing	3,180	1.2	\$7,181	3,306	1.3	\$7,594
Professional, Scientific, and Technical Services	11,435	4.5	\$8,547	11,799	4.6	\$9,112
Management of Companies and Enterprises	222	0.1	\$10,658	273	0.1	\$10,739
Administrative and Support and Waste Management and Remediation Services	18,987	7.4	\$5,365	18,992	7.4	\$5,706
Educational Services	16,395	6.4	\$5,640	16,872	6.5	\$5,862
Health Care and Social Assistance	33,268	13.0	\$6,649	34,812	13.5	\$7,223
Arts, Entertainment, and Recreation	6,492	2.5	\$3,539	6,423	2.5	\$4,050
Accommodation and Food Services	33,163	13.0	\$3,985	31,350	12.2	\$4,328
Other Services (except Public Administration)	7,884	3.1	\$4,652	7,913	3.1	\$5,084
Public Administration	25,212	9.9	\$21,978	26,063	10.1	\$22,635
Other	0	0.0	\$0	0	0.0	\$0
Not Applicable	0	0.0	\$0	0	0.0	\$0
Unknown	11,253	4.4	\$13,191	11,506	4.5	\$13,878
TOTAL	255,853	61.6	\$6,136	257,984	62.1	\$6,727

Data in this section describe participant employment in specific industry sectors. Comparisons are made using benchmark statewide sector employment and earnings data presented in Chapter 3.⁴⁰

Different industries state-wide are associated with differing expected earnings, and different levels of demand and current and projected growth. In addition, evidence of participants' employment in specific sectors can help demonstrate whether or not a program is succeeding in participant placement into trained-for sectors.

Career Technical Education through the California Community Colleges provides a curriculum integrating academic knowledge with area-specific technical and occupational knowledge in ten distinct industry sector areas and five specific occupational clusters: Agriculture and Natural Resources; Arts, Media, and Entertainment; Building and Construction Trades; Business and Finance; Education, Child Development, and Family Services; Energy, Environment and Utilities; Engineering and Architecture; Fashion and Interior Design; Health Science and Medical Technology; Hospitality, Tourism, and Recreation; Information and Communication Technologies; Manufacturing and Product Development; Marketing, Sales, and Service; Public Services; and, Transportation.⁴¹

CTE sector areas encompass several of California's high-growth sectors: construction (projected to add 158,600 jobs by 2026, 20.5% growth), Educational Services (private), Health Care, and Social Assistance (projected to add 607,400 jobs by 2026, 23.9% growth), Information (projected to add 76,600 jobs by 2026, 14.6% growth), and Leisure and Hospitality (projected to add 252,300 jobs by 2026, 13.3% growth).⁴²

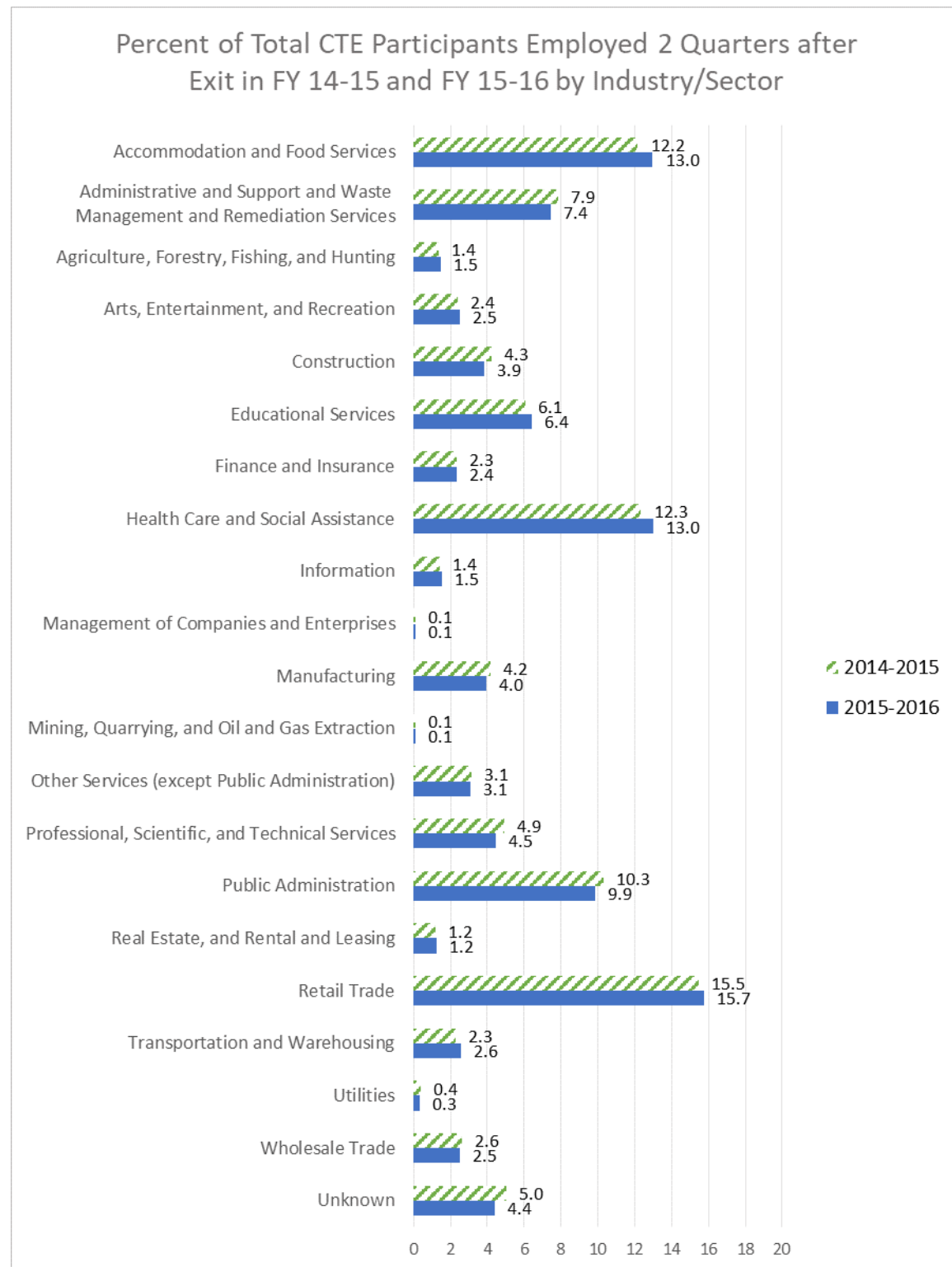
Outcomes shown include percent shares of total to exit, only (as is further described below), and do not include rates of participant employment within particular sectors.

⁴⁰ Please note that the statistic for statewide industry-specific earnings in Chapter 3 is (as discussed there in further detail) a mean, not a median. It is not possible to provide a median on the basis of employer-provided statewide earnings data in the QCEW, due to confidentiality constraints.

⁴¹ Legislative Analyst's Office, "Overview of High School Career Technical Education," February 21, 2018

⁴² EDD. Labor Market Information Division "2016-2026 Statewide Employment Projections Highlights".

11.4.1.2 Figure – 2nd Quarter Employment by Industry/Sector



During the second quarter following program in both fiscal years, retail was the largest

employer of CTE participants, employing 15.5% of all former participants with reported earnings in this quarter following exit in FY 14-15, and 15.7% of the same population to exit in FY 15-16.

Other large sectors were health care and social assistance and accommodation and food services, both employing between 12 and 13% of former CTE participants.

Overrepresentation of CTE participants in the retail and accommodation and food service sectors may be cause for concern, as jobs in these two sectors are frequently low-paying and non-full time, with median (national) hourly earnings among nonsupervisory employees in the Retail Trade sector (NAICS 44-45) standing at \$16.24 (December 2018), and average hours slightly over 30 a week.⁴³ Jobs in Accommodation and Food Services sector (NAICS 72) paid nonsupervisory employees an average of only \$13.52 (November 2018) an hour⁴⁴—now below many states' minimum wage⁴⁵—and offered an average of 24.9 weekly hours.

Alternatively, employment in these sectors may simply reflect that many former CTE participants have moved on to furthering their educations at four-year institutions and are working part-time while in school. To the extent that the latter is true, overrepresentation in sectors like retail and food service where part-time work is endemic would not be cause for concern but merely reflect students' employment patterns.

Health Care and Social Assistance is a growth sector in the state, employing just under 13% of the state's labor force in FY 14-15 and FY 15-16 respectively. Compared with statewide estimates of labor force participation, CTE participants appeared very slightly overrepresented in sector employment. During FY 2014-2015,⁴⁶ 12.7% of the state's labor force population worked in this sector, and in FY 2015-2016, 12.9% did so. However, in both years this sector was California's largest employment sector. According to the State Board's Unified State Plan for 2016-2019 and LMID projections, this is one of the sectors projected for highest job growth in the state.⁴⁷

Three sectors accounted for less than percent of each year's total: Management; Mining, Quarrying, and Oil and Gas Extraction; and Utilities. Each of these sectors employ relatively small shares of the statewide labor force and sector occupations may, in many cases, require more advanced training to access.

⁴³ Bureau of Labor Statistics. Industries at a Glance: Retail Trade (NAICS 44-45).

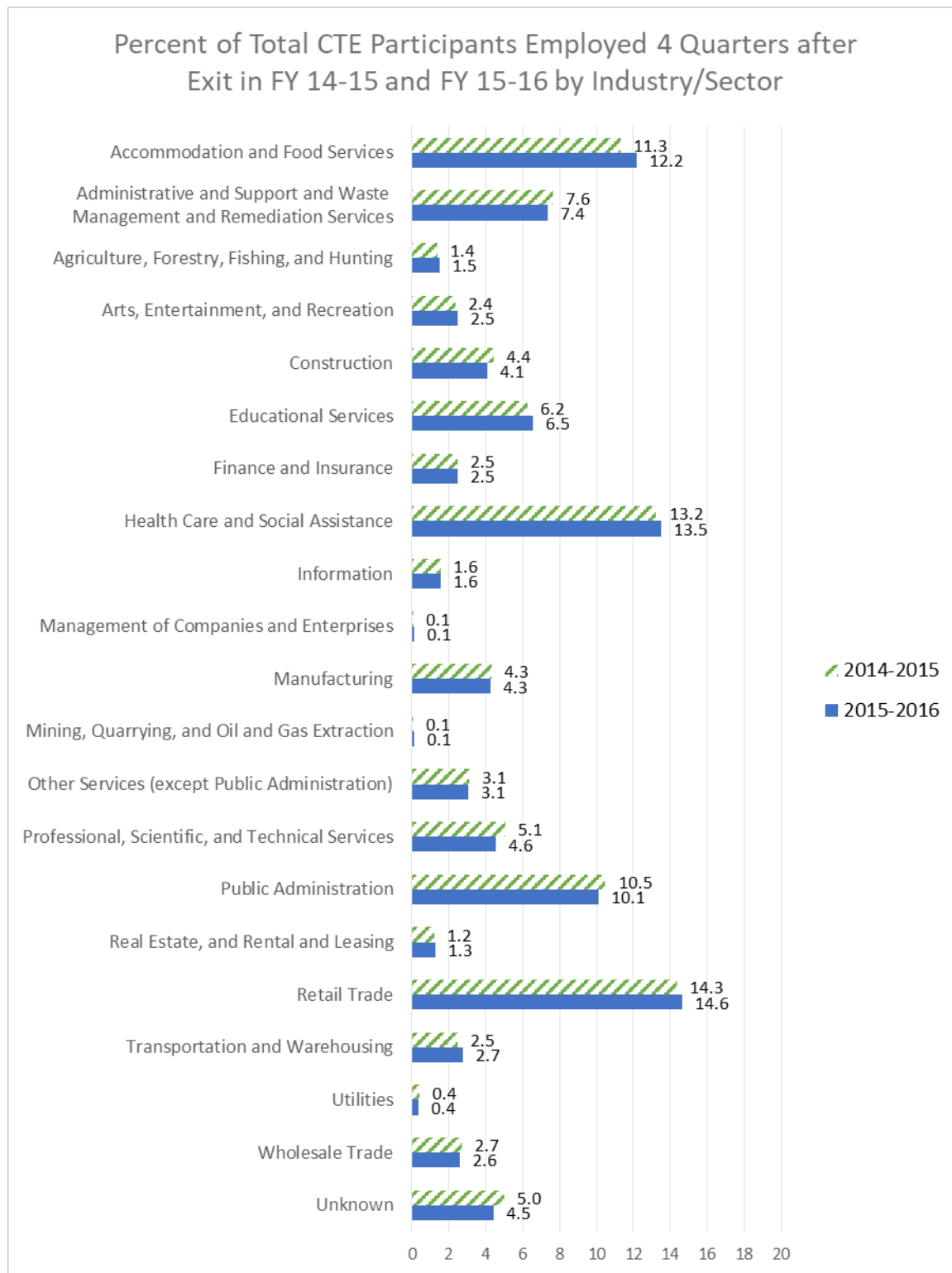
⁴⁴ Bureau of Labor Statistics. Industries at a Glance: Accommodation and Food Services (NAICS 72).

⁴⁵ Heather Long. "19 states are raising their minimum wage Jan. 1. Progressives plan even more for 2020." Washington Post (December 21, 2018).

⁴⁶ As is discussed in Chapter Three, this report utilizes estimates of statewide sector employment that are compiled by the Labor Market Information Division based on data in the Quarterly Census of Employment and Wages. These data are estimates for the actual fiscal year periods in question. Participant employment outcomes, on the other hand, are slightly lagged because they are based on date of exit in the noted fiscal year. This discrepancy means that the benchmark provided by the QCEW estimate may not precisely match the time period during which participant employment outcomes were reported.

⁴⁷ Unified State Plan Program Years 2016-2019, p. 27-28.

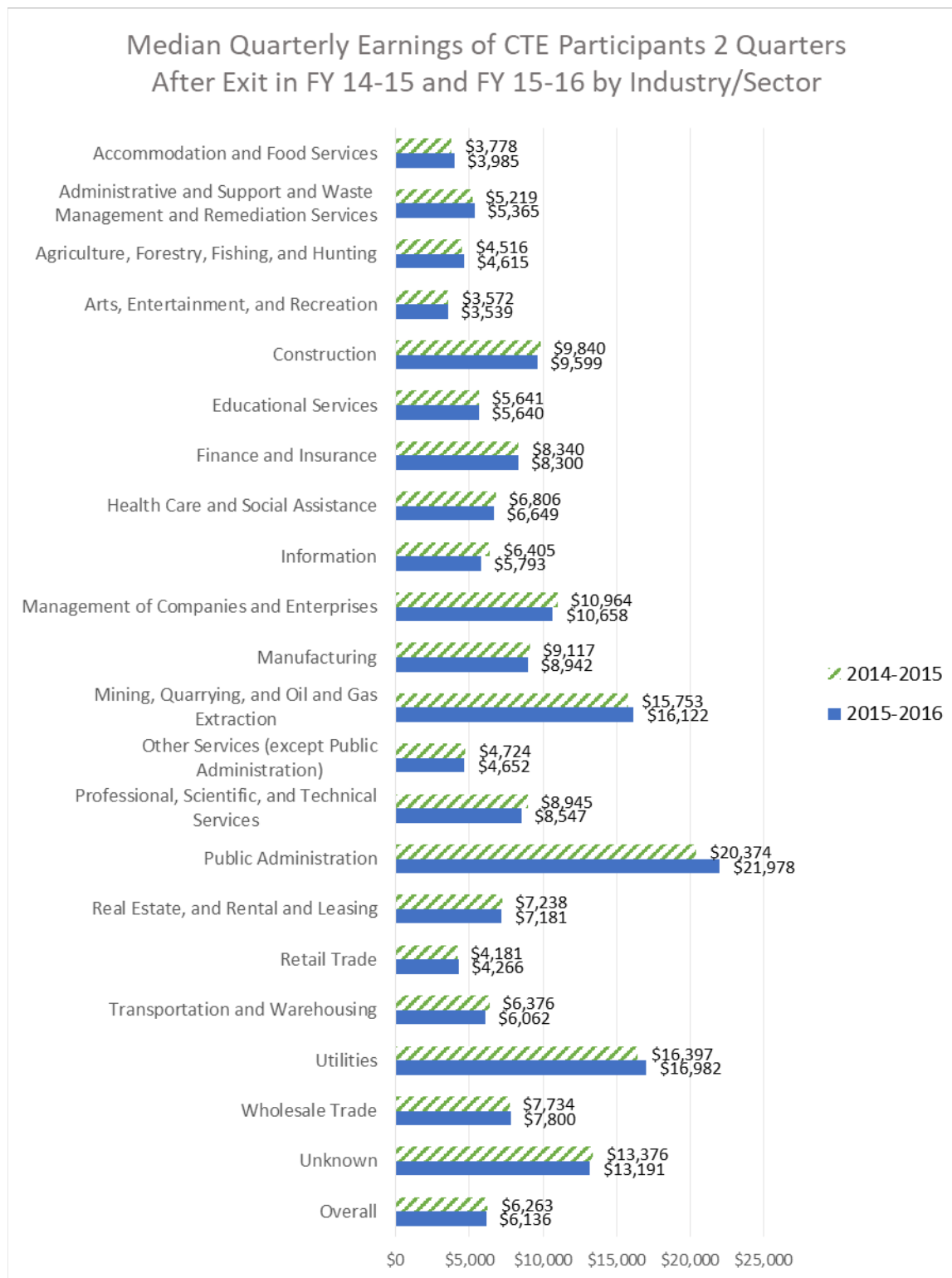
11.4.1.3 Figure – 4th Quarter Employment by Industry/Sector



Sectors of highest and lowest CTE participant employment were consistent from the second to

the fourth quarter after program exit in both years.

11.4.1.4 Figure – 2nd Quarter Median Earnings by Industry/Sector



Two quarters after exit in both fiscal years, median earnings were highest in Public Administration.⁴⁸ Median quarterly earnings for individuals in this sector were \$20,374 (FY 14-15) and \$21,978 (FY 15-16). These earnings were respectively \$14,111 and \$15,842 or over 200%--higher than overall medians of \$6,263 (FY 14-15) and \$6,136 (FY 15-16).

The lowest earnings two quarters after exit in both years were seen in Arts, Entertainment, and Recreation. The sector median among CTE participants employed in this sector in the second quarter after exit in both years (\$3,572 and \$3,569) was about \$2,700 lower than the overall median among all participants.

Earnings of CTE participants employed in this sector were substantially—about \$10,000 — below the statewide mean among all Californians employed in this industry, which was \$13,569 in FY 14-15 and \$13,589 in FY 15-16.

This is likely explained by the occupational diversity of this sector, which includes a variety of professions in artistic, cultural, and entertainment-related fields. Low-paying sector jobs include attendants at amusement parks and recreation facilities, which may also be part-time.⁴⁹ Based on earnings profile, it seems likely that CTE participants working in this sector are finding this type of occupation.

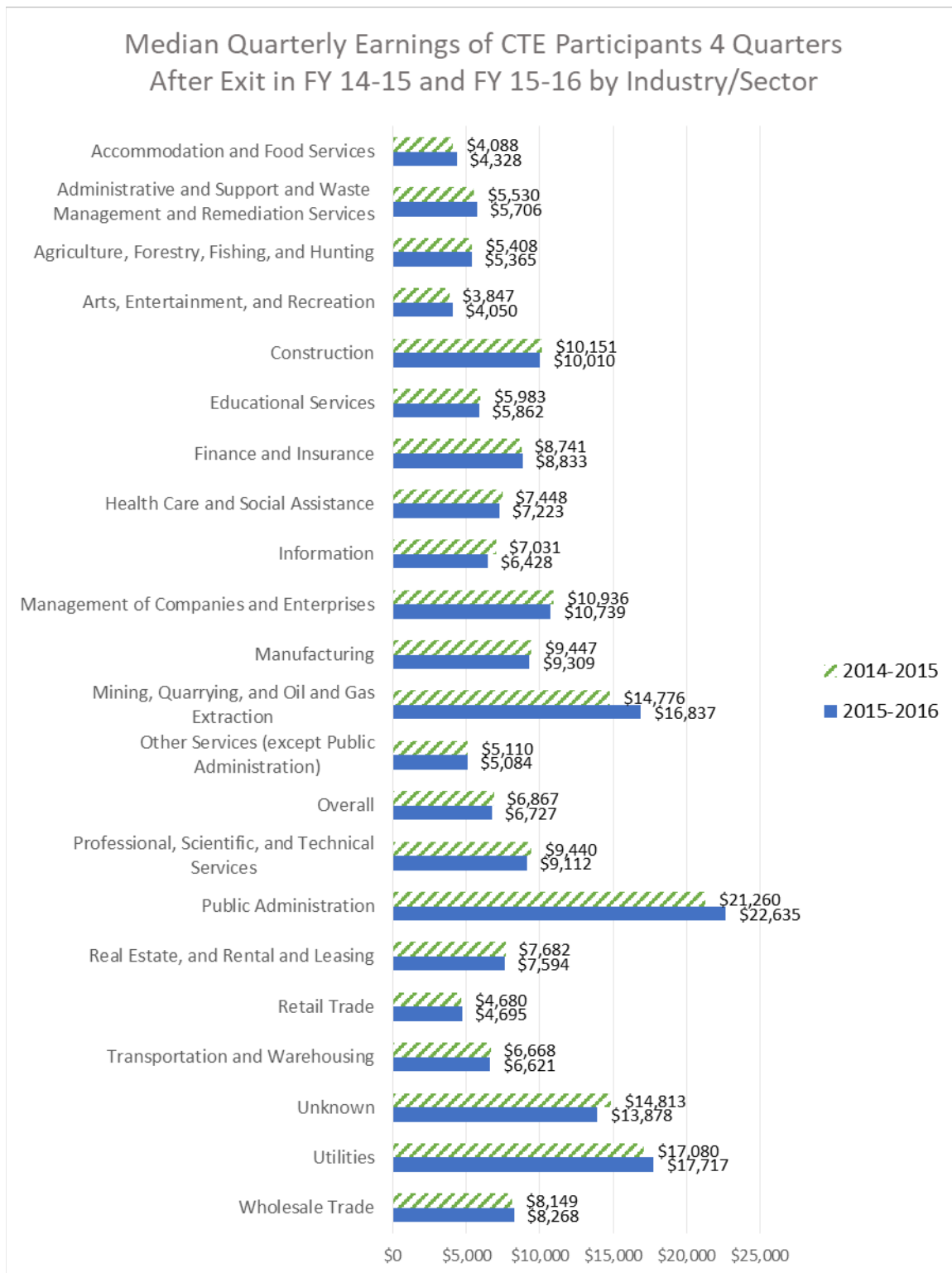
Participant median quarterly earnings in Accommodation and Food Services were also low, at \$3,778 and \$3,985 two quarters after exit in FY 14-15 and FY 15-16 respectively. Earnings were lower among each exit cohort than the statewide sector means of \$5,295 and \$5,570 respectively.

Given the fact that these sectors employ large percentages of former CTE participants, the fact that they are also associated with some of the lowest participant earnings may be cause for concern.

⁴⁸ If a participant was employed in multiple sectors during the quarter period in question, 100% of that participant's earnings were counted under the industry with which the majority of the participant's earnings were associated.

⁴⁹ BLS. NAICS 71 – [“Arts, Entertainment, and Recreation”](#).

11.4.1.5 Figure – 4th Quarter Median Earnings by Industry/Sector



The same sectors continued to be associated with highest and lowest earnings four quarters following exit.

11.5 Quarterly Earnings

11.5.1 Quarterly Earnings

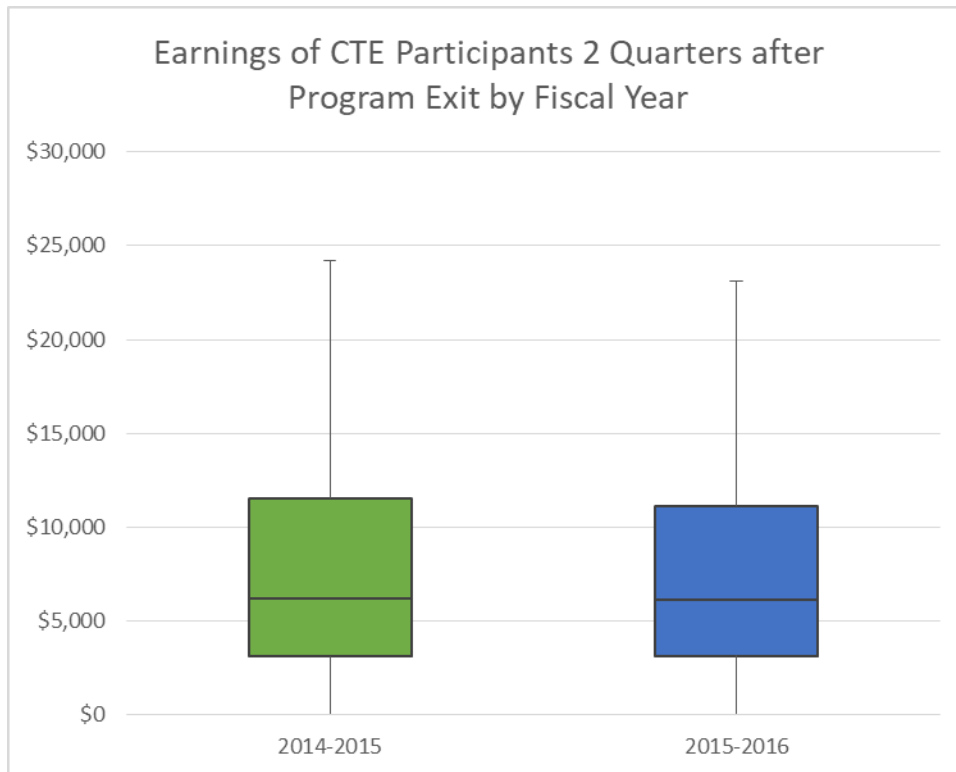
11.5.1.1 Table Set – Quarterly Earnings

FY 2014-2015					
Quarter After Exit	Minimum Earnings	Lower Quartile	Median Earnings	Upper Quartile	Maximum Earnings
Second	\$0.0	\$3,205	\$6,263	\$11,847	\$24,811
Fourth	\$0.0	\$3,578	\$6,867	\$12,826	\$26,698

FY 2015-2016					
Quarter After Exit	Minimum Earnings	Lower Quartile	Median Earnings	Upper Quartile	Maximum Earnings
Second	\$0.0	\$3,225	\$6,136	\$11,374	\$23,596
Fourth	\$0.0	\$3,559	\$6,727	\$12,284	\$25,371

Table Set 11.5.1.1 displays earnings of CTE participants at two and four quarters following exit in both fiscal years.

11.5.1.2 Figure – 2nd Quarter Earnings after Program Exit



The box plot shown in Figure 11.5.1.2 summarizes CTE participant earnings outcomes using five statistics: the lowest and highest individual participant earnings values in the range; and values

of the 25th, 50th (median) and 75th, percentiles of earnings. The lower edge of the box represents the 25th percentile, the upper edge the 75th, with the median shown by a horizontal line down the middle. The highest and lowest participant earnings are shown by the whiskers.⁵⁰

In the box-and-whisker plots shown, the upper inner fence value itself is used in lieu of actual highest individual earnings value within this limit, out of concerns over participant confidentiality. (The same concern does not exist when it comes to lowest individual earnings value, given that the low values shown were attained by multiple individuals in the data set).

Earnings of CTE participants from the second quarter after exit in each year showed similar spread and location. Two quarters after exit in FY 14-15, the lowest 25% of former CTE participant earnings ranged from \$0.01 to the lower quartile value (bottom of the “box”) of \$0.02, the next quartile from \$3,205 to the median of \$6,263, and the third quartile slightly more dispersed from the median to the upper quartile value of \$11,847. Another way to describe the data is to note that the middle 50% of participant earnings fell between \$3,205 and \$11,847, an inter-quartile distance or range of \$8,642.

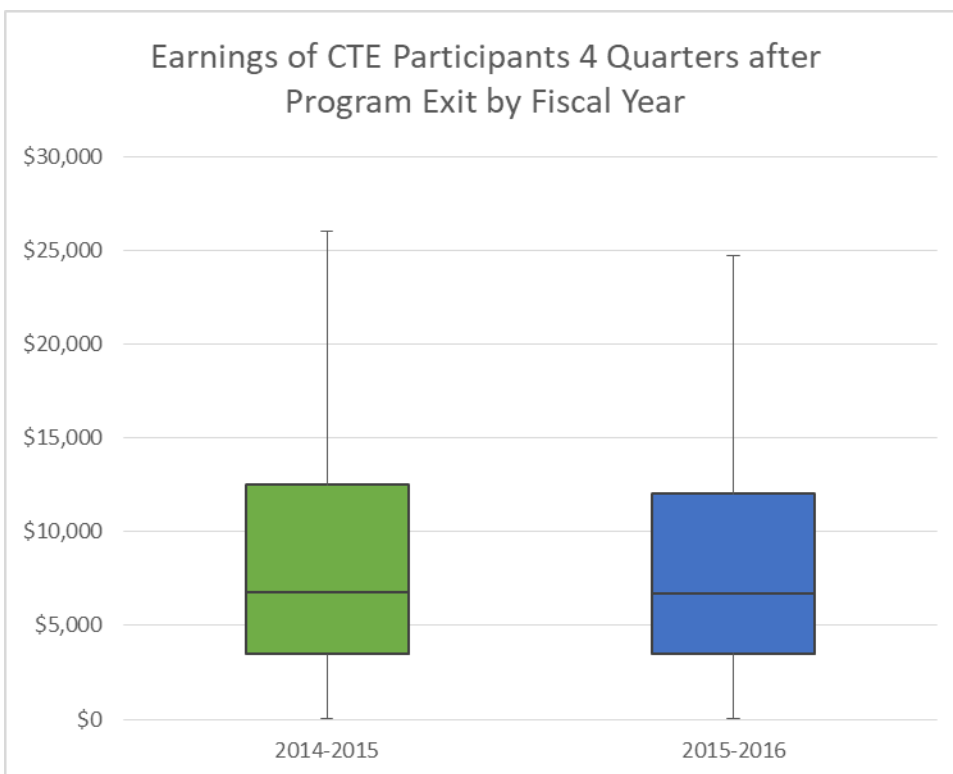
The median (\$6,136) and upper quartile (\$11,374) of participant earnings from two quarters after exit in FY 15-16 were slightly lower compared with values following exit in FY 14-15. The lower quartile was slightly higher, at \$3,225. Together, this indicates that earnings were more compressed among CTE participants to exit in FY 15-16 compared with those who exited in FY 14-15 (slightly), with an inter-quartile range of \$8,148.

In both years, earnings in the top quartile (from the top of the box to the upper whisker) were spread over a wider area— covering nearly the same area as the bottom 75% of the data combined. This characteristic of participant earnings data was echoed in nearly every program in the report. The highest non-outlier earnings ranged to \$24,811 for participants who exited in FY 14-15, and to \$23,596 for their counterparts who exited in FY 15-16. This skew is indicated visually by the off-center medians (horizontal line dividing the box).

It seems possible or likely that the year-to-year increases in participant earnings noted may be due to inflation.

⁵⁰ In Table Set 11.5.1.1 and both box-and-whisker plots, upper whiskers are not drawn to actual participant earnings values but rather to the distributions’ upper inner fences (equivalent to the value of the 75th percentile or Q3 plus one-and-a-half times the inter-quartile distance). This has been done to exclude extreme or outlier values in the upper range from both years’ cohorts to avoid misrepresenting the data’s trend visually, and to preserve participant confidentiality by avoiding display of individual earnings values. Low earnings values are actual participant earnings values, however confidentiality concerns did not apply because multiple participants shared this same low value in each year. Since the EDD Tax Branch lacks the resources to validate all employer-reported earnings, it cannot be determined further what very low participant earnings in the data may represent in substantive terms. In both years’ participant data, the maximum individual earnings data points were outliers, or data points that lie far from the rest of the data.

11.5.1.3 Figure – 4th Quarter Earnings after Program Exit



By the fourth quarter after exiting from a CTE programs, participant earnings among both years' cohorts appeared both higher and more widely dispersed than they had at the second-quarter stage. In dollars, gains were larger in the middle and upper parts of the distribution.

A year after exit, participant earnings increased from the second quarter, however increases were much larger at the higher end of the range compared with more modest increases the lower end. This increased skew is visible in the longer upper portions of each box, and longer upper whiskers.

Looking at participants' earnings one year after exit in FY 14-15 compared with earnings two quarters after exit, the 25th percentile increased by 11.7% (\$373) to \$3,578, the median by 9.6% (\$604) to \$6,867, and the 75th percentile by 8.3% (\$979) to \$12,826. The middle 50% of participant earnings was spread over a wider area (\$9,248) which was 7% larger than at the second quarter following exit). Lowest earnings (\$0.01) remained virtually unchanged from Q2, while the highest non-outlier earnings⁵¹ ranged to \$26,698.

The relationship between second-quarter and fourth-quarter outcomes for participants with an

⁵¹ High earnings values shown in Table Set 11.5.1.1 and accompanying box-and-whisker plots are not individual participant earnings values but instead represent the inner fence of the distribution, equivalent to the value of the 75th percentile + 1.5 IQR. True individual earnings values were found in both years' data to be outliers (values far beyond the rest of the data) and have been excluded from display.

exit in FY 15-16 was similar to the previous year. The 25th percentile was 10.4% (\$334) larger than at the second quarter at \$3,559, the median 9.6% (\$591) larger at \$6,727, and the 75th percentile 8% (\$910) larger at \$12,284. Participant earnings in the interquartile range were spread over a wider area than at the second quarter after exit, shown again by a 7.1% wider interquartile range of \$8,725. Lowest earnings were unchanged, while the upper limit of non-outlier earnings⁵² increased to \$25,371.

⁵² High earnings values shown in Table Set 11.5.1.1 and accompanying box-and-whisker plots are not individual participant earnings values but instead represent the inner fence of the distribution, equivalent to the value of the 75th percentile + 1.5 IQR. True individual earnings values were found in both years' data to be outliers (values far beyond the rest of the data) and have been excluded from display.

11.6 Program Performance

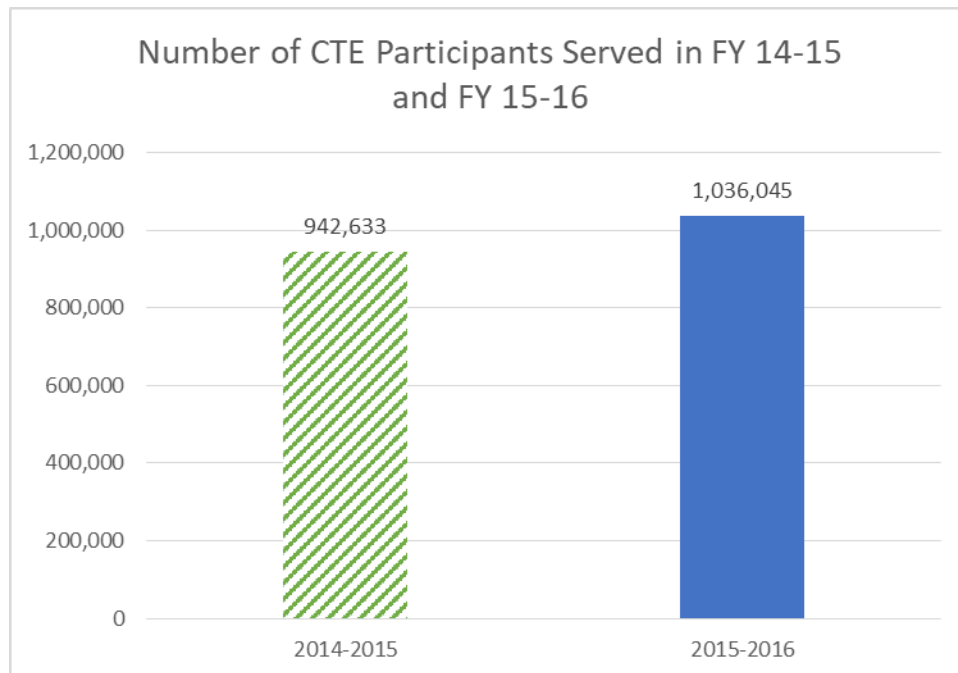
11.6.1 Program Performance

11.6.1.1 Table Set – Program Performance

FY 2014-2015											
Program	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	# Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Career Technical Education	942,633	322,037	40,879	197,467	61.3	\$6,263	50,661	15.7	199,114	61.8	\$6,867

FY 2015-2016											
Program	# Served	# Exited	# Completed Training	2 Quarters After Exit			4 Quarters After Exit				
				# Employed	% Employed	Median Earnings	# Attained Credential	% Attained Credential	# Employed	% Employed	Median Earnings
Career Technical Education	1,036,045	415,253	53,194	255,853	61.6	\$6,136	62,877	15.1	257,984	62.1	\$6,727

11.6.1.2 Figure – Program Participation



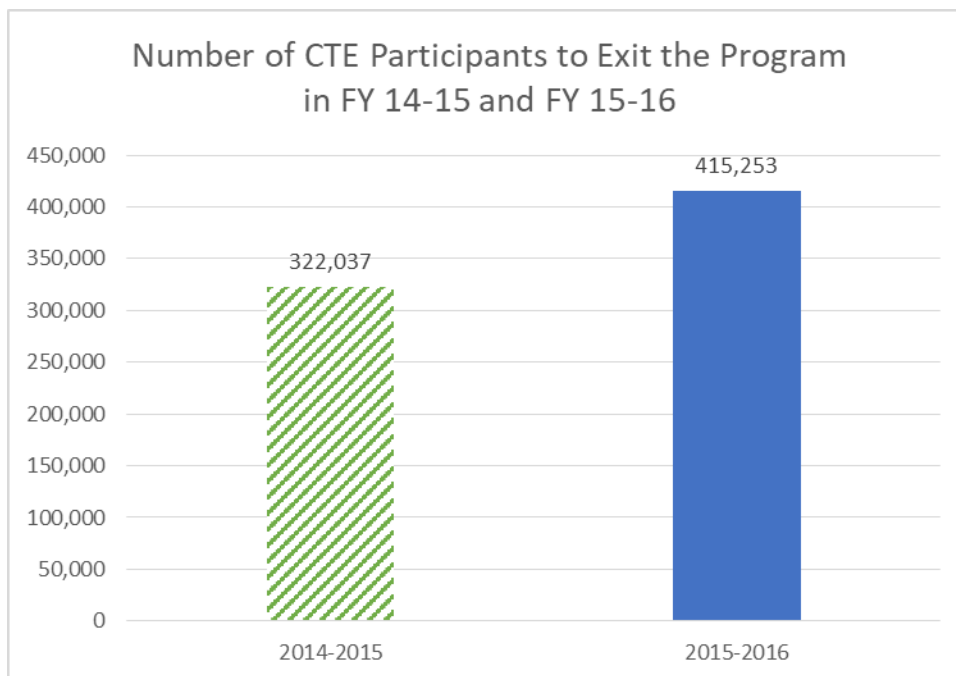
From the first to the second fiscal year, participation in CTE offered by the CCCCCO increased from 942,633 to 1,036,045, an increase of +93,412 individuals or about 10%.

Increases in CTE participation from the first to the second fiscal year could be shaped by two significant policy initiatives in this time period, although without further information, there is no way to determine if this is the case. First, the California Department of Education awarded the Community Colleges a total of \$98,569,418, released over three years, via the California Career Pathways Trust. The CCPT was created to improve linkages between K-12 schools and community colleges. The CCPT is administered by the California Department of Education to fund regional consortia of K-12 educators, community colleges, and employers to align articulated career pathways with regional workforce needs. The 2013-14 budget established the CCPT to provide competitive grants to school districts, county superintendents of schools, charter schools, and community colleges to further develop career pathways and to strengthen connections with postsecondary institutions and industry.

Beginning in FY 15-16 and initiated by findings of the (AB 1602) Task Force on Workforce, Job Creation, and a Strong Economy, the Strong Workforce Program is aimed at expanding community college career technical education and workforce development courses, programs, pathways, credentials, certificates, and degrees as well as aligning CTE coursework with regional labor market needs. Under Strong Workforce, \$248 million was dedicated toward CTE program development and improvement, including:

- Increasing the number of students in quality career technical education courses, programs, and pathways that will achieve successful workforce outcomes
- Increasing the number of quality career technical education courses, programs, and pathways that lead to successful workforce outcomes, or invest in new or emerging career technical education courses, programs, and pathways that may become operative in subsequent years and are likely to lead to successful workforce outcomes.
- Emphasis on broadening definitions of student success and improving and streamlining data collection

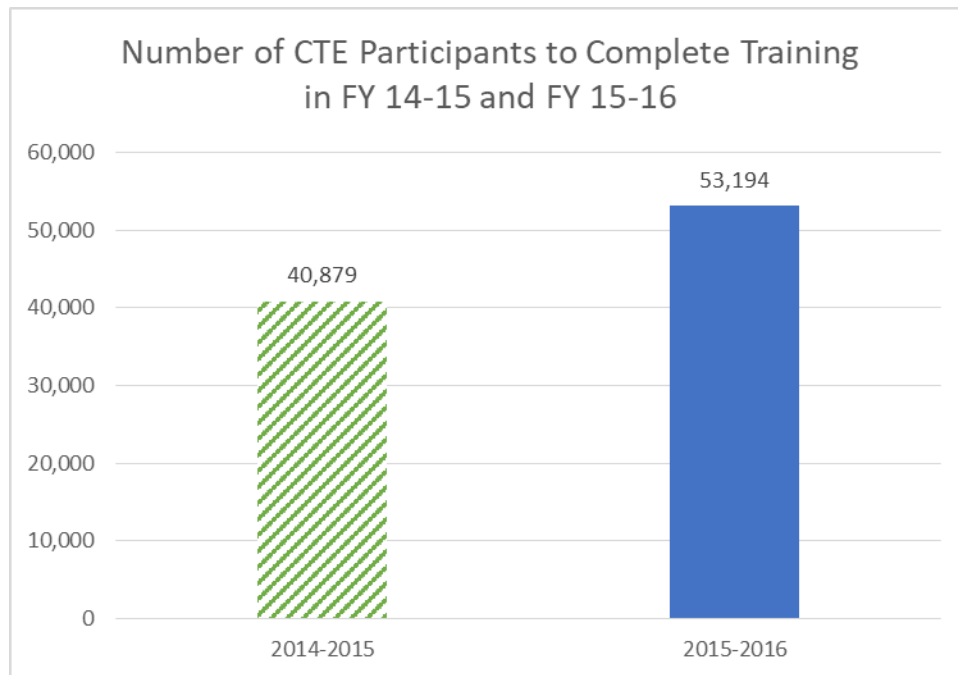
11.6.1.3 *Figure – Program Exit*



The number of participants to exit from CTE also increased in FY 15-16. The increase in program exits was almost the same as the increase in enrollments, 93,216.

In percentage terms however, exits increased by about 30% from FY 14-15 to FY 15-16, much larger than the 10% increase in enrollments. In other words, a larger share of enrolled CTE participants exited from the program in FY 15-16 even controlling for the increase in enrollments.

11.6.1.4 Figure – Training Completion



From FY 14-15 to FY 15-16 of exit, the number of participants to complete a CTE program increased from 40,879 to 53,194, or an increase of 12,315 (a 30.1% increase).

In percentage terms, year-to-year increases in exits and completions were similar (30%) and larger than the proportionate increase in enrollments (10%).

This suggests one of several possible interpretations: given that the numeric increase in exits from FY 14-15 to FY 15-16 was nearly identical to the increase in enrollments, it might be that larger exit and completion numbers in FY 15-16 reflect some change in the type of program in which participants are enrolling (i.e. greater enrollments in shorter-term programs which conclude within one fiscal year).

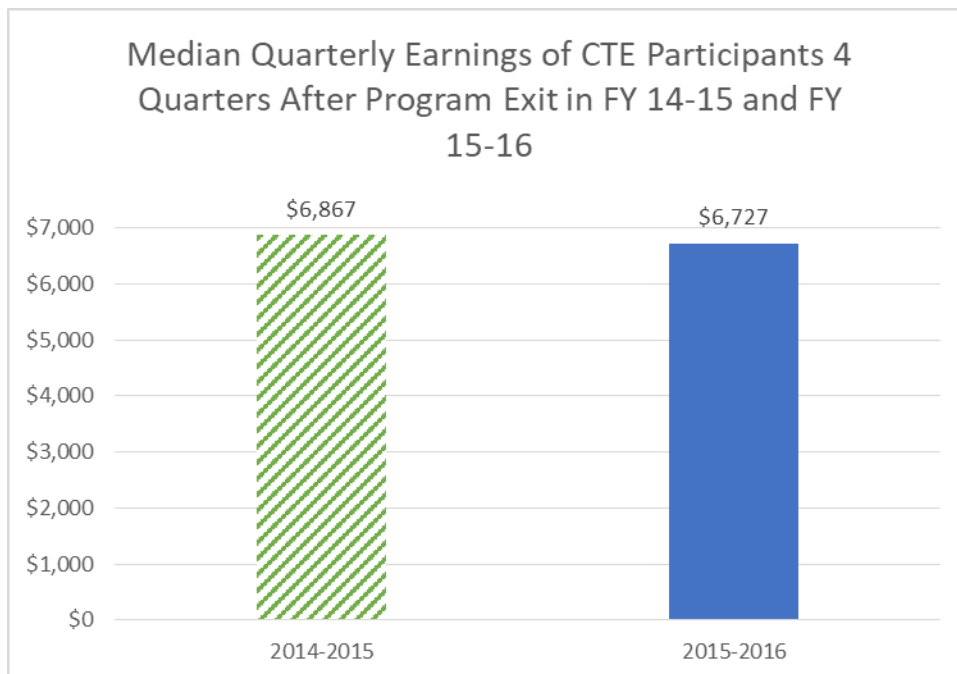
Increase in reported completions could also be linked to improved reporting of local—low-unit and non-credit—program-specific CTE credentials. The Strong Workforce Program, as discussed above, has led to improved tracking of local certificates and other historically non-tracked credentials.

As has been discussed earlier in this chapter, there are reasons to expect that measures of completion for this program historically undercount students finishing with a locally-issued or a third-party credential or those who complete course requisites yet fail to petition for receipt of a degree. The enormous magnitude of increase in reported completion not only indicates a promising increase in tracking of such credentials, but strongly suggests that earlier-reported completion figures are in fact much larger for this program than they appear.

Implementation of improved data tracking is still ongoing, including better capture of local program certificates and third-party certificates.

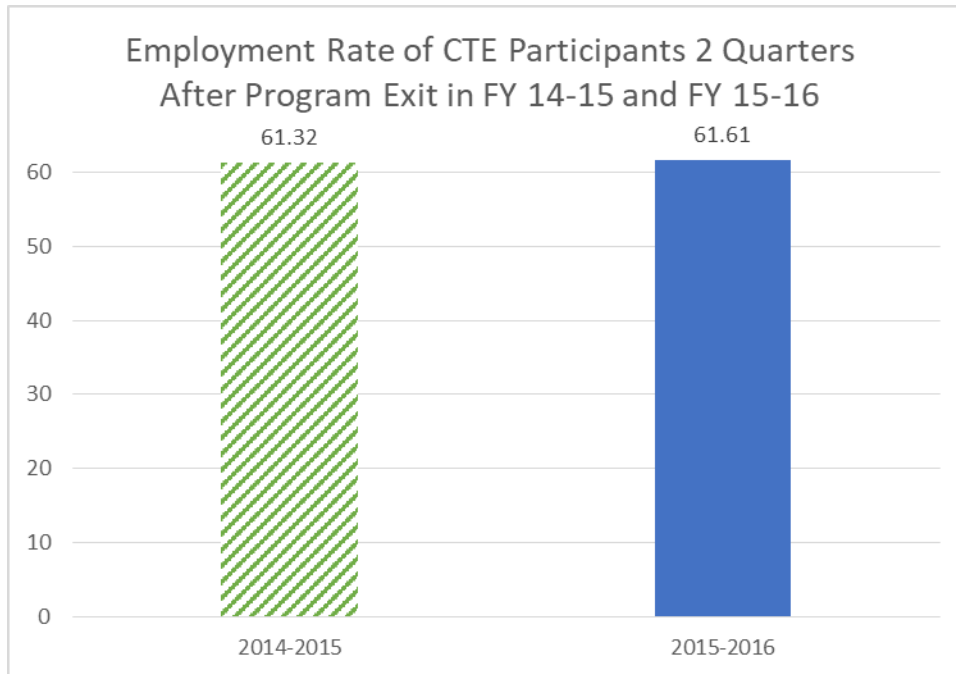
Finally, given that only two fiscal years' data are available, it is also possible that exits and completions were unusually low in FY 14-15 for an unknown reason and that it is common for most CTE participants to exit and/or complete within the same fiscal year of enrollment.

11.6.1.5 Figure – Credential Attainment Rate



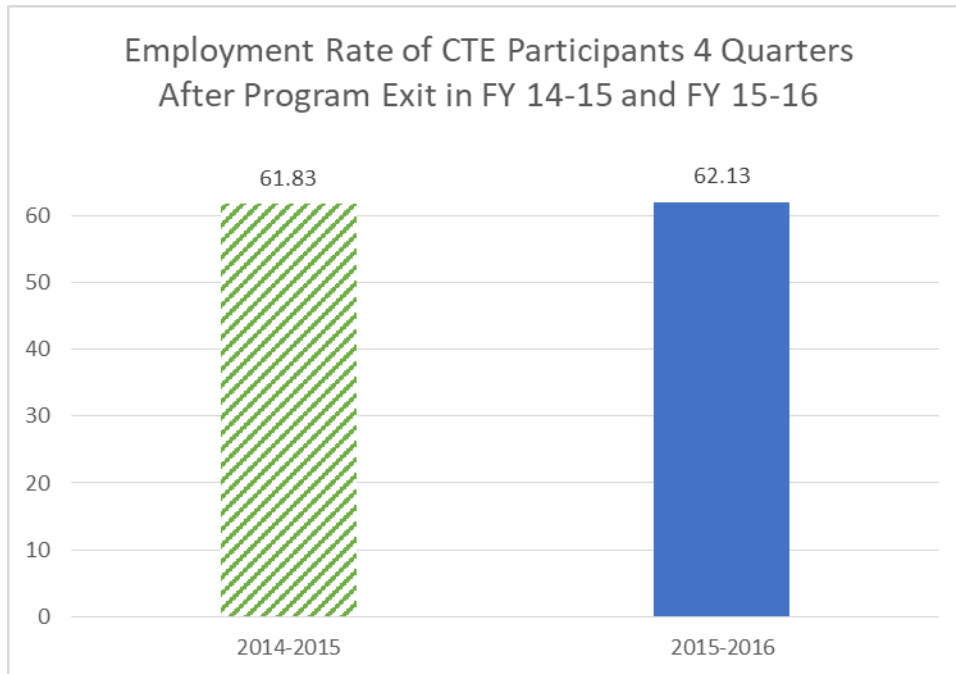
Credential attainment remained similar from the first to the second fiscal year of program reporting, with 15.7% of all participants to exit in FY 14-15 earning a recognized credential within one year of exit compared with 15.1% of participants to exit in FY 15-16.

11.6.1.6 Figure – 2nd Quarter Employment Rate



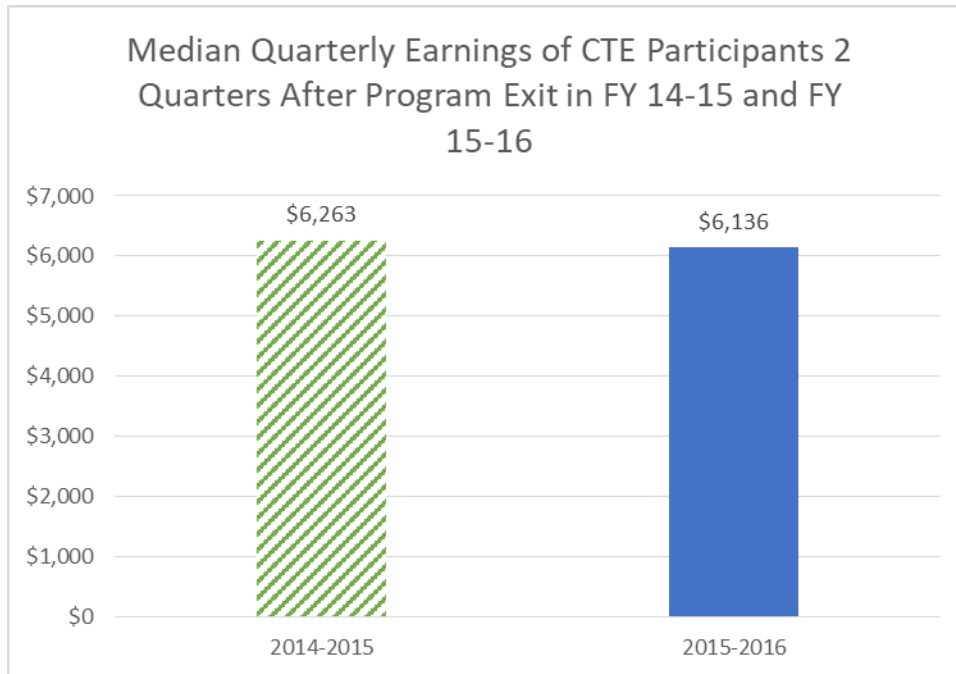
The rate of employment among CTE participants was similar two quarters after exit in both years, 61.3% (FY 14-15) and 61.6% (FY 15-16).

11.6.1.7 Figure – 4th Quarter Employment Rate



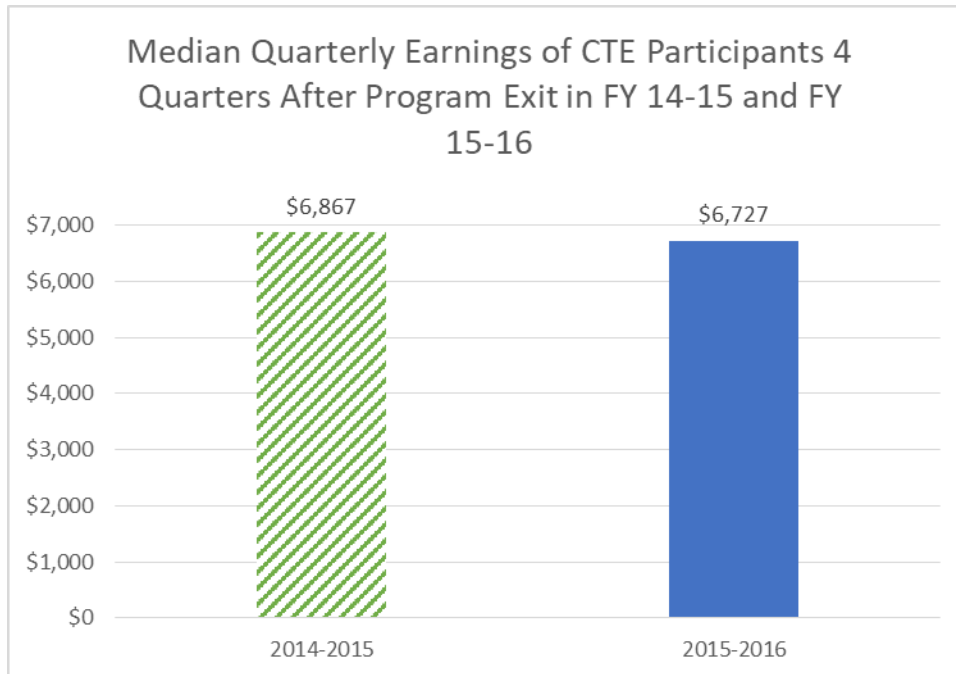
Among CTE participants to exit in both fiscal years, employment increased marginally from the second-quarter stage: 61.8% of CTE participants exiting in FY 14-15 were employed one year later, as were 62.1% of those to exit in FY 15-16.

11.6.1.8 Figure – 2nd Quarter Median Earnings



Two quarters following exit from a CTE program, earnings of participants were \$6,263 following exit in FY 14-15 and \$6,136 following exit in FY 15-16, respectively. Without further data and with so many potential variables, it is difficult to pinpoint factors that led earnings to be slightly lower in the second year. Factors could include changes in conditions in the sectors in which former CTE participants are employed, changes in the pre-program profile of the CTE participant population (which grew from the first to the second fiscal year) or other unknown factors.

11.6.1.9 Figure – 4th Quarter Median Earnings



Median earnings of CTE participants rose from the second to the fourth quarter among both years' cohorts, respectively \$6,867 following exit in FY 14-15 and \$6,727 following exit in FY 15-16.