



# Workforce Training and Education Coordinating Board

## 2015 Workforce Training Results

### Secondary Career and Technical Education (CTE)

#### Program Details

Secondary Career and Technical Education (CTE) serves high school-age youth in approximately 235 school districts and 14 Skills Centers serving multiple districts throughout the state. CTE is a planned sequence of courses that utilize a unique hands-on approach to create learning experiences that begin with the exploration of career options, supports basic skill development, and enables high levels of personal and academic achievement, leadership, career preparation, and continuing education.

Instructional programs are organized within the following 16 career clusters:

- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Arts, AV Technology, and Communications
- Business, Management, and Administration
- Education and Training
- Finance
- Government and Public Administration
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections, and Security
- Manufacturing
- Marketing
- Science, Technology, Engineering, and Mathematics
- Transportation, Distribution, and Logistics

Every year, the Workforce Board measures the performance of key workforce programs. In this report, you'll find out more about the program and who is served, the metrics used to measure performance and how the

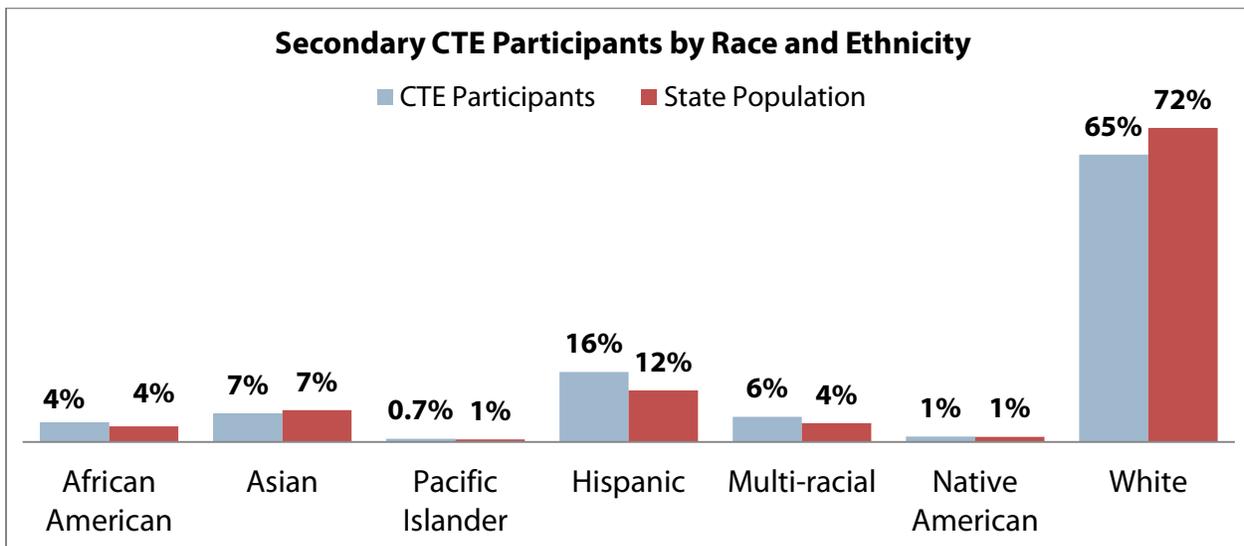


This program’s evaluation was limited to students identified by their districts as CTE completers.<sup>1</sup>

This study focuses on 19,342 CTE completers who left their senior year during the 2012-13 school year. This study includes information from the Office of Superintendent of Public Instruction’s student records and Employment Security Department wage files. Enrollment data from Washington community and technical colleges, public four-year institutions, and private career schools were analyzed to examine the extent to which CTE completers continued their education.

### Participant Profile

CTE completers have a fairly similar racial and ethnic diversity as the state population, with whites comprising 65 percent, followed by Hispanics (16 percent), Asians (7 percent), African Americans (4 percent), Native Americans (1 percent), and Pacific Islanders (1 percent).<sup>2</sup>



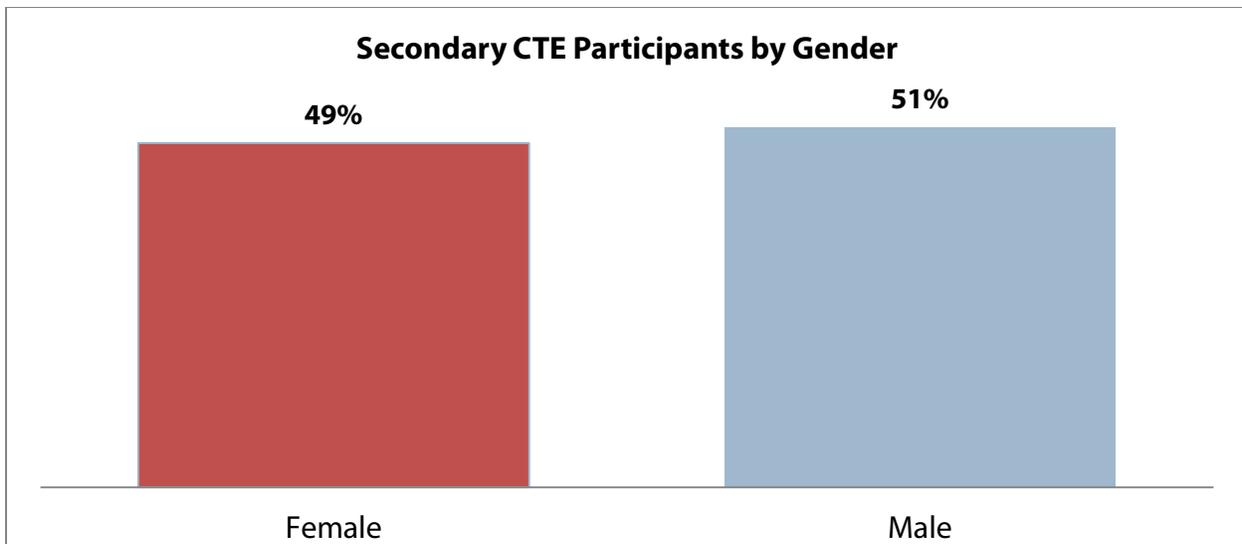
Source: Office of the Superintendent of Public Instruction and the U.S. Census data from the 2012 American Community Survey.

Among CTE completers, females and males are nearly equally represented among the program participants. This is equivalent to what was reported in the last two reports.

<sup>1</sup> The state defines a student who completes 360 hours of instruction (whether or not they earn a diploma) in a single CTE program area with grades of D or better as a CTE completer.

<sup>2</sup> In this report, unless otherwise stated, racial and ethnic minority groups are mutually exclusive; that is, an individual belongs to one group only. The groups include the following: Hispanics of any race (also referred to as Hispanics); non-Hispanic African Americans (also referred to as African Americans); non-Hispanic Asians (also referred to as Asians); non-Hispanic Pacific Islanders (also referred to as Pacific Islanders); non-Hispanic Native Americans and Alaskan Natives (also referred to as Native Americans); non-Hispanic multiracial (also referred to as multiracial); and non-Hispanic whites (also referred to as whites).





Source: Office of the Superintendent of Public Instruction.

## Tracking Secondary CTE Progress

The Workforce Board routinely measures the performance of our state's largest workforce programs. As a customer-focused advocate for Washington's workers and employers, the Workforce Board strives to provide performance accountability, verifying whether worker education and training programs provide a return on investment for participants and taxpayers.

The Workforce Training Results report seeks to answer five core questions:

- Did participants get the skills they needed?
- Did participants get a job or continue their education and training?
- Were employers satisfied with the preparation workers received?
- Has the program made a difference in the participant's success?
- Did participants and the public receive a return on their investment?

## Data comes from state wage files, Employer Survey

The 2015 Workforce Training Results includes information obtained from Employment Security Department wage files in Washington, Idaho, and Oregon, and federal employment records for 2013-14. In some cases, school districts do not supply student social security numbers. Driver's licenses are used to help provide more accurate employment and earnings results among students in these districts. Information on employer satisfaction among firms that hired new employees who recently exited a Secondary CTE program was assessed through the Workforce Board's 2012 Employer Survey.

## Net Impact Study adds more insight into program performance

In addition, the report includes a comprehensive Net Impact Study. Conducted every four years, this study provides a head-to-head comparison of participants and non-participants to help answer a central question: How much of a workforce participant's success in obtaining a



job, or a higher wage, is due to the workforce program? By comparing program participants with similar individuals who did not participate in a workforce training program, the Net Impact Study indicates whether employment and earnings gains are due to the workforce program, or if workers could have made this progress on their own. This research also provides for a more detailed analysis as to whether the participant and the public received a return on their investment in the program.

### **Did Participants Get the Skills They Needed?**

This study is limited to students who completed a sequence of CTE courses. While completing a secondary CTE sequence, in itself, provides students with significant skills for the labor market, it more importantly provides a pathway to postsecondary education and training where students can learn additional skills. Most good paying jobs require some form of postsecondary education or training. During the most recent reporting year, 47 percent of CTE completers continued on with their postsecondary education—9 percentage points lower than the previous reporting year.<sup>3</sup> However, when looking at both employment and postsecondary education and training, the number of CTE completers landing a job or moving forward with further education reached nearly 80 percent.

Turn to page 11 for the Net Impact Study. Conducted every four years, this in-depth report adds extra value to 2015 Workforce Training Results. The study provides a side-by-side comparison of participants vs. similar non-participants, answering the question of whether the program is making a difference.

### **Did Participants Have a Job and How Much Were They Paid?**

For some students, employment is the next step after high school. To find out whether participants had jobs and how much they earned, participant records were matched with Employment Security Department wage files from Washington.<sup>4</sup> Record matches found 61 percent of CTE completers who were not enrolled in higher education had reported employment.

It's worth noting that young people continue to face high unemployment. Some 15.5 percent of Washington's young adults were unemployed in 2013, more than double the rate (6.1 percent) of those aged 25-64.<sup>5</sup>

<sup>3</sup> Matches are made against enrollments at Washington's community and technical colleges, public four-year institutions, and private career schools. However, in-state private four-year colleges and universities and out-of-state postsecondary enrollments are not included in the match. Therefore, the percentage enrolled in higher education is understated.

<sup>4</sup> These files contain quarterly earnings and hours-worked information on those individuals with employment reported for unemployment insurance (UI) purposes (approximately 90 percent of in-state employment, with self-employment, active duty military, and those working for religious nonprofit organizations being the major groups of employers not included).

<sup>5</sup> Workforce Board Multiple Pathways for Young Adults, A Report to the Washington Legislature on Young Adult Unemployment, 2014.



Nearly four out of five (or 79 percent) of all CTE completers were either employed or were enrolled in higher education during the third quarter after leaving.

Among those not enrolled in higher education, the median annualized earnings were \$10,930.<sup>6</sup> Though these earnings seem low, it is important to remember these are young, entry-level workers fresh from high school, and only 28 percent are working full time.

The chart below shows employment and earnings results for CTE completers.

### 2014 Employment and Earnings for Secondary CTE Completers

Performance Measure	Results
Postsecondary Education and/or Employment*	79%
Employment Rate* (State Records)	50%
Enrolled in Higher Education	47%
Full-Time Employment**	28%
Median Quarterly Hours **	272
Median Hourly Wage***	\$9.97
Median Annualized Earnings***	\$10,930

\* These figures apply to those with employment reported to state employment agencies six to nine months after leaving the program. Rate does not include self-employment, employment outside of Washington, or military service and thus understates total employment by approximately 10 percent. Employment rate (state records) is only those not enrolled in further education.

\*\* Of those not enrolled in higher education. Full-time employment averages 30 or more hours per week.

\*\*\* Earnings/wages expressed in first quarter 2013 dollars in order to account for inflation. Of those not enrolled in higher education.

<sup>6</sup> Annual earnings are calculated as third quarter earnings multiplied by four. All wages and earnings are stated in first quarter 2014 dollars.



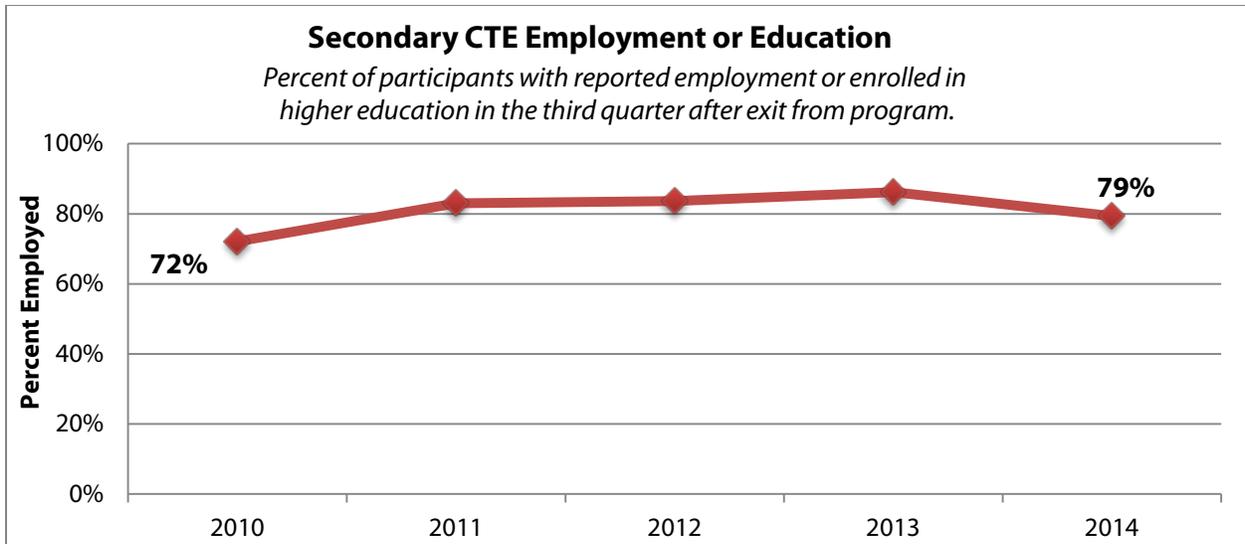
## Employment and Earnings Trends for Secondary CTE Participants

Performance Measure	2010	2011	2012	2013	2014
Postsecondary Education and/or Employment	72%	83%	84%	86%	79%
Employment Rate* (State Records)	49%	60%	63%	68%	61%
Enrolled in Higher Education	45%	58%	56%	57%	47%
Full-Time Employment**	29%	27%	30%	29%	28%
Median Quarterly Hours	265	265	270	273	272
Median Hourly Wage***	\$10.84	\$9.66	\$9.95	\$10.14	\$9.97
Median Annualized Earnings***	\$11,077	\$10,822	\$11,350	\$11,948	\$10,930

*\*These figures apply to those with employment reported to ESD six to nine months after leaving program. Rate does not include self-employment, employment outside Washington, or military service and thus understates total employment by approximately 10 percent. Employment rate (state records) is only those not enrolled in further education. \*\*Full-time employment averages 30 or more hours per week, of those not enrolled in higher education. \*\*Earnings/wages expressed in first quarter 2014 dollars in order to account for inflation. Those not enrolled in higher education.*

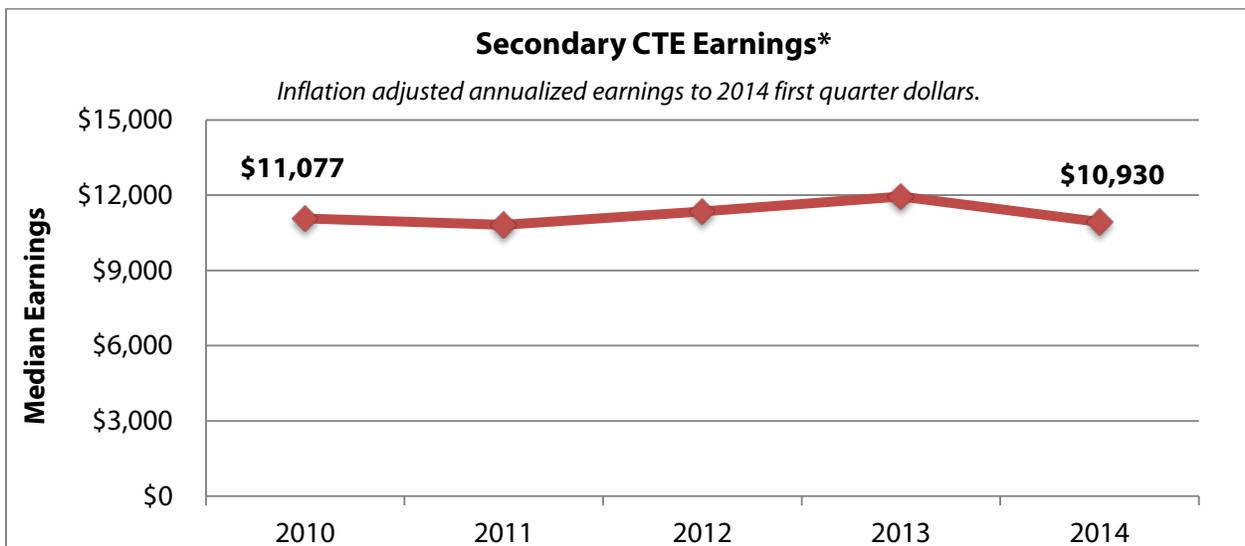
The percentage of secondary CTE participants who were in higher education or employed rose 7 percentage points since the 2011 report but is down by 7 percentage points from last year's 86 percent.





*Note: Rate does not include self-employment, employment outside the Northwest or military service and thus understates total employment by approximately 10 percent.*

While the employment rate for CTE completers has risen over the past several years, annual earnings are down. This is due to a nearly 9 percent drop in annual earnings. Median hours worked dipped only slightly so the trend was driven by falling real hourly wages (from \$10.14 in 2014 to \$9.97 in 2015).



*\*Does not include those enrolled in higher education.*

## Secondary CTE Employment by Industry

Employment of CTE completers continued to be heavily concentrated in services (55 percent) and retail trade (27 percent). Within the service industry, the largest category was accommodation and food services at 30 percent (compared to 25 percent on the last report). The largest retail sub-industry was general merchandise stores (8 percent).



<b>Industry Group</b>	
55.3%	Services (see breakout)
27.4%	Retail Trades (see breakout)
4.0%	Manufacturing
3.3%	Construction
2.1%	Wholesale Trade
2.1%	Transp., Warehousing, & Utilities
1.9%	Natural Resources and Mining
1.5%	Financial Services
1.5%	Information
0.8%	Public Administration
<b>Breakout of Services Industry</b>	
29.6%	Accommodation and Food Services
6.0%	Administrative and Support and Waste Management and Remediation Services
4.6%	All Other Services
4.5%	Health Care
3.9%	Arts, Entertainment, and Recreation
3.2%	Social Assistance
1.9%	Professional, Scientific, and Tech. Services
1.6%	Education Services
<b>Breakout of Retail Trade Industry</b>	
7.6%	General Merchandise Stores
6.7%	Clothing and Clothing Accessories Stores
4.6%	Other Retail Trade stores
3.9%	Food & Beverage
2.4%	Motor Vehicle and Parts Dealers
1.2%	Hardware, Farm, Home & Garden Stores
0.7%	Home Appliance & Electronics Stores
0.4%	Gasoline and Convenience stores

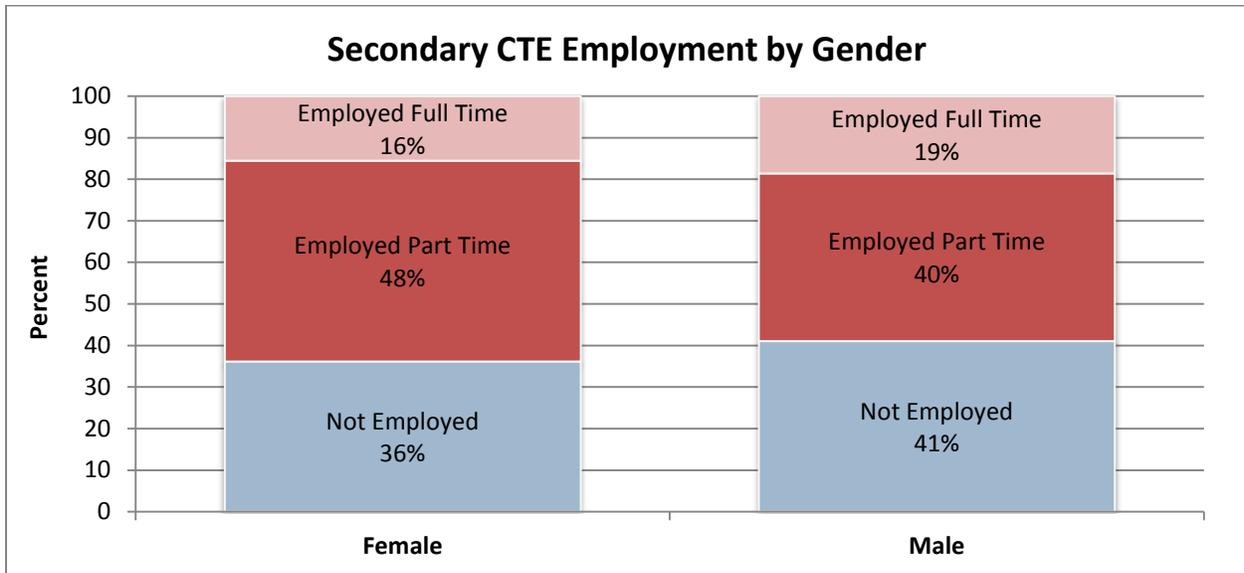
Source: Matches with Employment Security Department data in third quarter after exiting program.

Note: Industry groups based on North American Industry Classification System (NAICS) codes.



## Wages and Employment Results Vary by Population

Wages and employment results of CTE completers who are not enrolled in higher education can vary by gender, race and ethnicity, and disability. Some 48 percent of females worked part time, while 16 percent worked full time to reach an overall employment rate of 64 percent. This was higher than the overall employment rate for males (59 percent), yet males were more likely (19 percent) to be employed full time than females (16 percent). Women had median annual earnings that were 88 percent of men (\$10,279 versus \$11,630). Women’s hourly wages were 95 percent of wages earned by men (\$9.68 versus \$10.17).



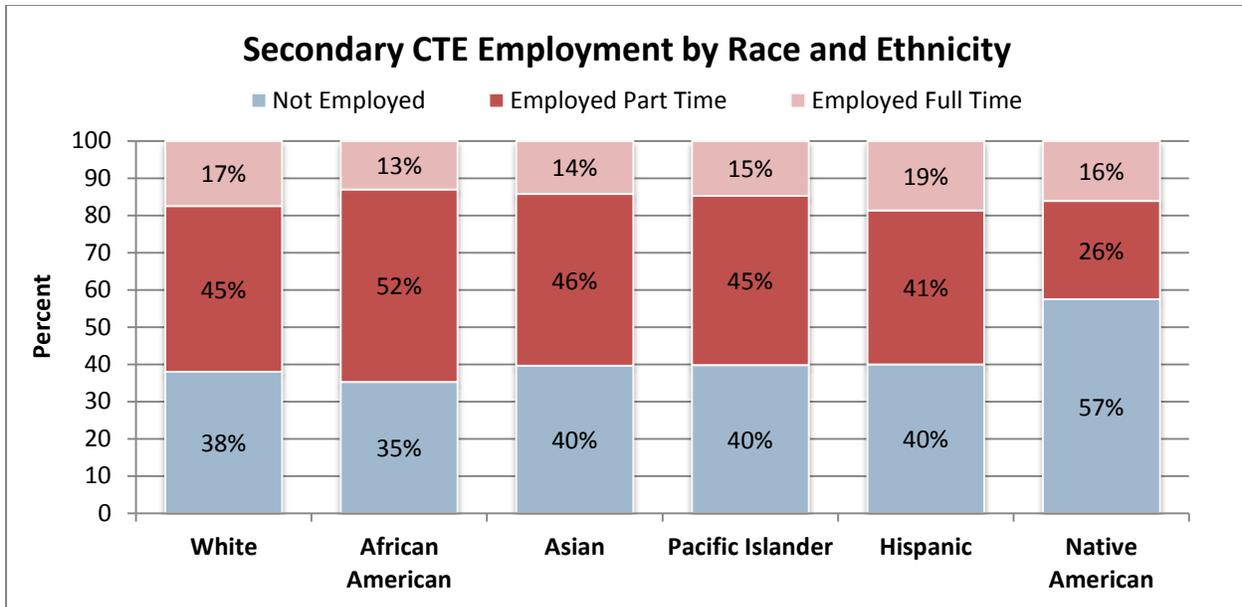
Source: Matches with Employment Security Department data. Among those who are not in higher education.

## Race/Ethnicity Plays Role

Wages and employment results also differ by race and ethnicity. African Americans had the highest reported employment (65 percent), but most worked part time (52 percent compared to 13 percent full time). Whites had the second highest overall employment rate (62 percent), followed by Asians, then Hispanics, and Pacific Islanders (all 60 percent). Native Americans had the lowest employment rate (43 percent). Hispanics had the highest full-time rate (19 percent) followed by whites (17 percent), then Native Americans (16 percent), Pacific Islanders (15 percent), and Asians (14 percent).

Native Americans had the highest median hourly rate (\$10.12), followed by whites (\$9.99), Hispanics (\$9.98), Asians (\$9.90), and Pacific Islanders (\$9.78). African Americans had both the lowest hourly rate (\$9.71) and lowest annual rate (\$8,988). Native Americans had the highest annual rate (\$11,612), followed by Hispanics (\$11,271), whites (\$11,040), Asians (\$10,485), and Pacific Islanders (\$10,021).



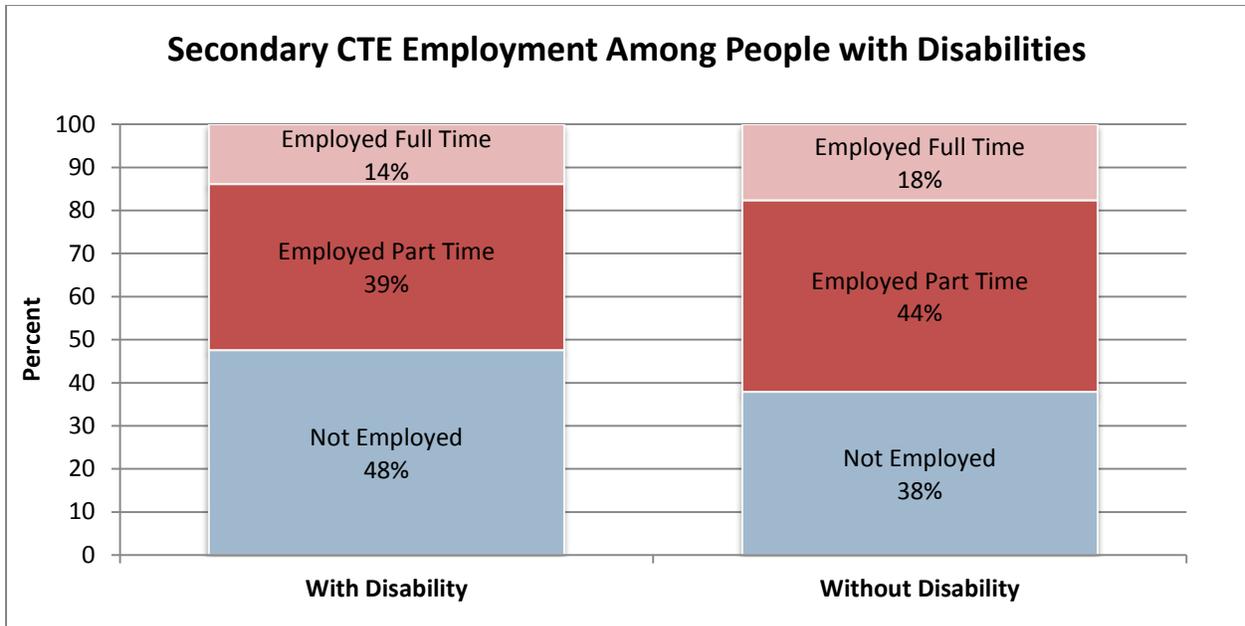


Source: Matches with Employment Security Department data. (Among those who are not in higher education.)

## Disability Impacts Employment, Earnings

Earnings and employment outcomes also varied by disability status. Records from the Office of Superintendent of Public Instruction indicate 7 percent of secondary CTE completers included in this study had a disability. Those with a disability were less likely to be employed than completers who did not have a disability (52 percent versus 62 percent). Just 14 percent of disabled participants were working full time, while 39 percent worked part time (to reach an overall rate of 52 percent). By comparison 18 percent of those without a disability worked full time and 44 percent part time. The median annualized earnings of those with a disability (\$10,022) were lower than those without a disability (\$11,040). However, students with a disability had median hourly wages identical to students without a disability (\$9.97).

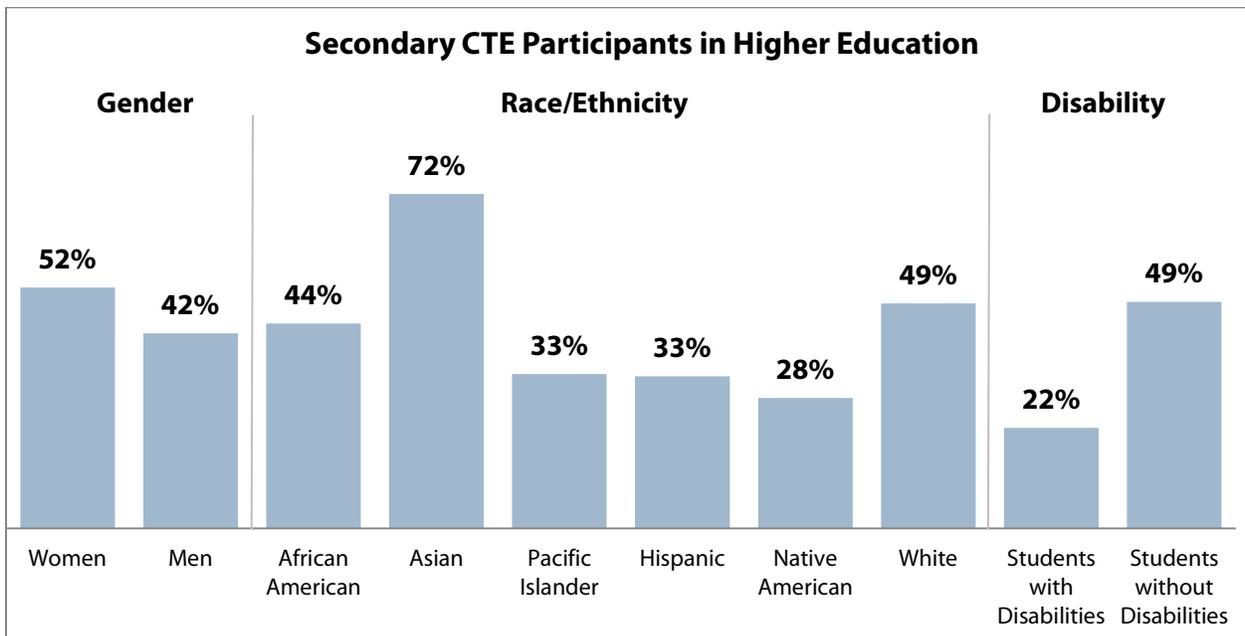




Source: Matches with Employment Security Department data (among those who are not in higher education).

CTE completers also progressed to postsecondary education at different rates, depending on ethnicity and gender.

Of the CTE completers, the following percentages of each group were enrolled in higher education: Females, 52 percent; males, 42 percent; students with disabilities, 22 percent; students without disabilities, 49 percent; whites, 49 percent; African Americans, 44 percent; Asians, 72 percent; Pacific Islanders, 33 percent; Hispanics, 33 percent; and Native Americans, 28 percent.



Source: Matches with State Board for Community and Technical Colleges' postsecondary data.



## Participant Survey

No participant survey done for 2013.

### Impact on Employment and Earnings: Participants vs. Control Group

Secondary CTE	Short-term <sup>^</sup>	Long-term <sup>^</sup>
Net Employment Impact*	6 percentage points	8.4 percentage points
Net Hourly Wage Impact**	No significant positive impact	No significant positive impact
Net Hours Employed per Quarter Impact	19.2	32.2
Net Annualized Earnings Impact**	\$755	\$2,157

<sup>^</sup>Short-term is 3 quarters after program exit; Long-term is average across 3 years since program exit.

\*Percentages listed are employment percentage points above those of the control group of non-participants.

\*\*Wages and earnings, expressed in first quarter 2014 dollars, represent the average difference between secondary CTE participants who got jobs and those in the control group who were employed.

As can be seen above, secondary CTE participants experienced positive net impacts in employment, hours worked, and net annualized earnings, particularly over the long-term, when compared with the control group. Net hourly wages weren't boosted significantly by the program, however.

## Benefits and Costs

The cost-benefit analysis examines the value of the net impact on earnings, employee benefits (estimated at 25 percent of earnings), and certain taxes. Program costs include both direct program costs and support payments borne by taxpayers and the tuition and foregone earnings borne by program participants. The program cost is the *difference* in the cost of a student completing CTE compared to the cost of a student completing another type of high school program. (The difference is primarily due to smaller student/teacher ratios in CTE.) The intent of the cost-benefit evaluation is to analyze the net value of exiting high school having completed a CTE program, rather than exiting not having completed a CTE program.

Benefits and costs are evaluated for both the observed period of time and based upon a statistical model that estimated the benefits and costs out to the age of 65. In order to compare benefits and costs in terms of net present values, post-program benefits and costs are discounted by 3 percent per year and all figures are stated in 2014 Q1 dollars to control for inflation. The benefits and costs presented here are based on impacts estimated for participants leaving programs in 2005-2006, because a longer-term follow-up is required for this analysis.



## Participant and Public Benefits and Costs per Participant in Secondary CTE

Benefit/Cost	First 2.5 years		Lifetime (until 65)		Sum of Costs and Benefits
	Participant	Public	Participant	Public	
<b>Benefits</b>					
Earnings	\$5,143	\$0	\$71,430	\$0	
Fringe Benefits	\$1,285	\$0	\$17,857	\$0	
Taxes	-\$668	\$668	-\$9,293	\$9,293	
Transfers					
UI	-\$6	\$6	\$622	-\$622	
<b>Costs</b>					
Foregone net earnings	-\$782	-\$91	-\$782	-\$91	
Program costs	\$0	-\$921	\$0	-\$921	
Benefits	\$5,753	\$674	\$80,616	\$8,672	
Costs	-\$782	-\$1,012	-\$782	-\$1,012	
<b>Total (Net)</b>	<b>\$4,971</b>	<b>-\$338</b>	<b>\$79,833</b>	<b>\$7,659</b>	<b>\$87,493</b>

Note: Benefits and costs are expressed in 2014 first quarter dollars.

Secondary CTE enhances the lifetime earnings of program completers. Gains in earnings and employee benefits outweigh the costs of CTE to the public. For each CTE completer, the cost to the public (taxpayer) is roughly \$921 over the length of their enrollment. During the first two and one-half years after leaving school, the average completer will gain \$5,143 in earnings. During the course of their working life to age 65, they will gain about \$70,648 in net earnings (earnings minus foregone earnings) and \$9,293 in employee benefits. These are net gains compared to the earnings of similar individuals who were not CTE completers. Including program costs and the net impacts on taxes and unemployment insurance benefits, the total net benefit per participant is \$79,833.

Projected participant net benefits to age 65 outweigh public costs invested in college training by a ratio of \$87 to 1, or \$79,833 to \$921.

From the time of leaving the senior year in high school to age 65, the public is forecast to gain about \$9,293 in net additional Social Security, Medicare, federal income, and state sales taxes and to save \$622 per participant in total UI benefits and other social welfare costs—greater than the cost of CTE completion. The estimated lifetime net benefit to taxpayers is \$7,659 per completer.



## **Summary, Areas for Improvement, and Further Research**

Secondary Career and Technical Education (CTE) serves high school-age youth with the exploration of career options and enables achievement of high academic standards, strong technical skills training, leadership, options for employment preparation, and advanced and continuing education.

Outcomes for CTE participants are generally down compared to last year's report, but up over the longer term. Some 79 percent of completers were either enrolled in postsecondary education or employed, or both. This is down from 86 percent in 2013, but higher than the 72 percent achieved in 2010. Similarly, median quarterly hours dropped from last year's 273 to 272 this year, but is seven hours more than the median in 2010. On a positive note, a recent report from the Office of Superintendent of Public Instruction showed that 88 percent of CTE completers graduated high school in 2013 vs. 77 percent of all students.

Also, the net impact evaluation shows a strong net impact on employment rates and earnings. For example, three years after exit, CTE graduates earn an additional \$2,157 per year compared to those with similar demographics, who did not participate in CTE. The cost-benefit evaluation shows that Secondary CTE returns more money in tax revenue than the program costs taxpayers.

Going forward, the CTE program may want to focus on helping CTE students focus on higher-paying occupational areas. Among all CTE graduates who were employed, 55 percent were employed in retail trade or accommodations and food services. These tend to be lower-paying industries, which is reflected in the low hourly (\$9.97) and annual (\$10,930) earnings achieved by completers. However, it's also worth noting that CTE graduates are fresh from high school and often hold part-time jobs, bringing down annual wages. As they spend more time in the workforce, wages and hours worked tend to rise.

Also, it should be noted that equipping CTE classrooms with the technology required for higher-paying occupational clusters can be expensive. So this is a challenge going forward.

Finally, 22 percent of students with disabilities continued on to postsecondary education. This is a 10 percentage point reduction from last year's report and another challenge that merits attention.

