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Outcomes of Allied Healthcare Education in Texas

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Abstract

This report examines the outcomes of allied healthcare education in Texas by comparing career schools (CAR) and community colleges (CC) across two key domains: (a) student success, measured through certificate and associate degree graduation rates, and (b) economic mobility, measured through wage gains from pre- to post-completion (adjusted by inflation and average time to graduate). Using data from the Texas Higher Education Coordinating Board and the Texas Workforce Commission, the study analyzes students who enrolled between 2015 and 2021, with parallel comparisons limited to healthcare programs (CIP 51) offered at both institution types to ensure equivalence.

Findings reveal that CAR institutions demonstrate substantially higher graduation rates and shorter time-to-complete for both certificate and associate programs, with these patterns consistent across gender and most racial and ethnic groups. Wage-gain analyses indicate positive economic mobility for all graduates, with CAR students experiencing significantly higher wage gains than their CC counterparts in both certificate and associate programs. However, important gaps persist across racial/ethnic groups, particularly for African American students in both CAR and CC, and for Hispanic students at the associate-degree level.

By providing a systematic comparison of outcomes across sectors, this report offers evidence that can inform policy, guide program improvement, and support more diverse workforce preparation within Texas's expanding healthcare sector.

Finding Highlights

Overall Graduation Rates

- CAR institutions have substantially higher graduation rates than CC institutions:
  - Certificate completion: CAR 51.8% vs. CC 28.6%
  - Associate completion: CAR 48.6% vs. CC 21.2%
- CAR students finish programs faster than CC students:
  - Certificate: CAR 0.79 years vs. CC 1.43 years
  - Associate: CAR 1.29 years vs. CC 1.89 years

Gender Patterns

- Women make up the vast majority of healthcare students in both sectors.
- Women graduate at higher rates than men in both CAR and CC for both certificate and associate programs.
- Wage gains do not differ significantly by gender within institutions, but women tend to see slightly higher median gains, especially in CAR associate programs.

Ethnic and Racial Differences—Graduation Rates

- Hispanic students at CAR graduate at higher rates than non-Hispanic students (certificate: 58.6%; associate: 50.5%).
- Hispanic students at CC graduate at lower rates than non-Hispanic students.
- Across all racial groups, CAR students consistently outperform CC students in graduation rates.
- African American students have the lowest graduation rates across both CAR and CC.

Economic Mobility—Certificate Programs

- CAR graduates experience higher wage gains than CC graduates:
  - Mean delta wage: CAR +$8,704 vs. CC +$6,309
- Hispanic students at CAR see slightly higher wage gains than non-Hispanic students; the reverse is true at CC.
- CAR students see significantly higher economic mobility than CC students across most racial groups, especially Asian, African American, and White/Caucasian students.

Economic Mobility—Associate Degrees

- CAR graduates experience larger wage gains than CC graduates:
    - Mean delta wage: CAR +$22,832 vs. CC +$18,821
- Hispanic students show smaller wage gains than non-Hispanic students in both CAR and CC, with a wider gap at CAR.
- CAR associate graduates outperform CC graduates in most racial groups, especially Asian, African American, and international students.

Equity Considerations

- CAR demonstrates stronger graduation outcomes for Hispanic students compared with CC.
- African American students show consistently lower graduation and wage outcomes in both sectors.
- Despite higher CAR wage gains overall, Hispanic and African American students still face persistent disparities at the associate level.

Outcomes of Allied Healthcare Education in Texas

Background

The last few decades have seen a noticeable growth in proprietary career college enterprises. Historically, proprietary institutions have existed largely outside the margins of conventional academia. Although they serve a diverse range of students and offer a wide array of programs and degrees, proprietary institutions have long operated on the peripheries of postsecondary education because of their *perceived* differences in institutional missions and functions compared to public colleges (Iloh, 2016). However, these institutions increasingly began to converge with their mainstream counterparts in both mission and vision starting in the early 2000s (Zamani-Callaher, 2004).

Proprietary institutions have long operated on the peripheries of postsecondary education because of their "perceived" differences in institutional missions and functions compared to public colleges.

One important area that career institutions serve is healthcare professions. The healthcare industry is currently facing a critical shortage of workers, a situation exacerbated by the COVID-19 pandemic and its lasting impacts. Hospitals and healthcare systems are grappling with the dual challenge of heightened patient demand and a dwindling workforce (Takouk, 2024).

Hospitals and healthcare systems are grappling with the dual challenge of high patient demand and a dwindling workforce.

Allied Healthcare Professions

Allied healthcare programs provide education and training to develop skilled professionals to meet the critical and consistent workforce needs in the state of Texas. These programs achieve this by helping students develop the skills they need to meet the demands of today's healthcare industry and enter the pathway to a promising career that is right for them and tremendously impactful for the patients and communities that they serve (College of Health Care Professions [CHCP], n.d.). Healthcare professions also contribute to improved economic mobility of degree earners, particularly women (Bahr & Columbus, 2025).

Total enrollment number between 2015 and 2021 in healthcare professions (CIP 51) in either career school (CAR) or community colleges (CC) in Texas is 807,568 including certificate and associate degree programs (137,830 across 112 CAR institutions and 669,738 across 87 CC institutions). Of these enrollees, 154,778 were enrolled in certificate programs (101,535 across 92 CAR institutions and 53,243 across 87 CC institutions), 310,976 were enrolled in associate degree programs (36,124 across 91 CAR institutions and 274,852 across 87 CC institutions), and 465,754 students did not declare whether they intended to pursue a certificate or an associate degree.

Research Goals

Given the crucial role of allied healthcare in postsecondary education, an in-depth investigation of its impact is presented herein. Clear understanding of the ways in which these programs have been effective—and the extent of that effectiveness—helps inform and improve their broader societal impact through the dissemination of the knowledge extracted through this evaluation and impact study to the public audience and stakeholders. The goal of this research is to investigate the impact of allied healthcare programs offered in career schools (CAR)—most of which are proprietary—in Texas on student outcomes (i.e., graduation) and economic mobility, and to compare these outcomes with the similar data from public institutions (community colleges—CC) that offer degrees and certificates equivalent to those available at CAR institutions.

The impact on populations that are historically underrepresented in STEM fields is also investigated in this study. In particular, the impact on the Hispanic population is of interest because this population has become the largest and fastest-growing population group in Texas as of July 2022 and, therefore, holds more significance than ever for the state's economic growth (Ura, 2023). By comparing CAR outcomes in healthcare professions with those of their public counterparts, the study aims to provide unbiased investigations that can be utilized to evaluate and inform career education outcomes across all sectors of post-secondary education.

Research Questions

The following research questions guided this research:

1. What are the graduation rates for career schools (CAR) in allied healthcare, and how do they compare with those of community colleges (CC) that offer the same programs?

2. What is the level of economic mobility (i.e., income gains from pre- to post-completion of a program) for CAR students in allied healthcare, and how does this compare with the economic mobility of CC students in the same fields?

Methodology

The data on related metrics for certificate programs and associate degrees in healthcare from postsecondary institutions are obtained from the Texas Higher Education Coordinating Board (THECB; enrollment and graduation data) and Texas Workforce Commission (TWC; wage data). The data are accessed through the Education Research Center (ERC) Database at the University of Houston. Students who matriculated anytime between 2015–2021 are included in the analyses. The graduation rates are calculated based on two-year graduation for certificate students and three-year graduation for associate students. In addition, graduation rates presented here are only for allied healthcare fields offered at both career schools (CAR) and community colleges (CC).

Out of total 122 areas offered in healthcare in Texas between 2015-2021, only 43 of them are offered at both CAR and CC (see Appendix A for a complete list). The data analysis is restricted to these 43 areas only to make an “apples-to-apples” comparison and avoid conflation of different types of healthcare areas. In these 43 areas, the number of students enrolled in any healthcare program between 2015 and 2021 in Texas is 722,923. Of these, 280,191 were associate students (33,955 across 83 CAR institutions and 246,236 across 87 CC institutions) and 147,103 were certificate students (97,066 across 82 CAR institutions and 50,037 across 87 CC institutions). The remaining students either did not state their intention or declare for a degree; or their intent was other than for a certificate or associate degree (personal enrichment, professional development, credit for transfer etc.). These remaining students were excluded from the graduation rate calculations, because without knowing their specific degree level, it would either introduce a bias to include them in certificate or associate graduation rates or disproportionately deflate the rates if included in both (even more so for CC than CAR, because most of these non-declared students were CC students).

For wage differences, further data filtering is done for an “apples-to-apples” comparison. The data analysis is restricted to graduated students only and to healthcare majors (CIP 51) that graduated students from both CAR and CC (see Appendix A for a complete list). With this filtering, in the wage data, 32 healthcare areas remained in the analysis with 170,127 students. Of these were 91,463 certificate program graduates (50,485 across 76 CAR institutions and 40,978 across 75 CC institutions) and 78,664 associate degree graduates (17,065 across 73 CAR institutions and 61,599 across 74 CC institutions).

For wage gains, delta wage is calculated as follows: First, pre-wage (average of the wage earned in the quarter of enrollment and the first previous quarter) is subtracted from post-wage (average of the wage earned in the quarter of program completion and the first following quarter). Then, this difference is multiplied by 4 to reach an annual salary. Before each quarterly wage is included in delta wage calculation, an inflation adjustment is performed (from the quarter of that listed wage to the first quarter of 2025). Lastly, because the time to graduate from either certificate program or associate degree program drastically differs between CAR and CC (based on the graduation rate findings), delta wage is adjusted by time to graduate. The adjustment is performed by dividing the delta wage by average time to graduate for each type of institution (CAR or CC) and multiplied by 1 for certificate graduates and 2 for associate graduates. Even though program length may vary across healthcare areas, especially for certificate programs, the general nearest year is 1 for certificate programs and 2 for associate degrees. These numbers are also confirmed by the overall average time-to-graduate across both CAR and CC within each of the degree types (i.e., certificate and associate). See Appendix B for an example calculation of delta wage adjusted-by inflation and time to graduate.

One-way ANOVA is then conducted to compare delta wage for the following:

- across institution types (CAR vs. CC; independent-samples *t*-test with unequal variances, two-tailed)
    - overall
    - by gender
    - by ethnicity
    - by race
- across gender groups (female vs. male; independent-samples *t*-test with unequal variances, two-tailed) within each institution type
- across ethnicity groups (Hispanic vs. non-Hispanic; independent-samples *t*-test with unequal variances, two-tailed) within each institution type
- across race groups (seven groups; one-way ANOVA with Bonferroni corrections) within each institution type

Effect sizes are also calculated for *t*-test results (Cohen's *d*; Cohen, 1988).

Results

Graduation Rates

Certificate Programs

Comparison of graduation outcomes in healthcare certificate programs reveal substantial differences between career schools (CAR) and community colleges (CC). Overall graduation rate for CAR is 51.8% (see Table 1), almost double the graduation rate of 28.6% observed for CC (Table 2). Completion times also differ: CAR students graduate, on average, in 0.79 years (about nine and a half months), while CC students take significantly longer to graduate: 1.43 years (more than 17 months).

Table 1.

Graduation Rates for Certificate Program Students in Career Schools

Group	*n*	Percent Total	Percent Graduated*	Years to Graduate**
All	97,066	100.0%	51.8%	0.79
Gender: Female	85,587	88.2%	52.6%	0.78
Gender: Male	11,479	11.8%	45.7%	0.80
Ethnicity: Hispanic/Latino	46,361	47.8%	58.6%	0.75
Ethnicity: Not Hispanic/Latino	45,221	46.6%	46.6%	0.83
Ethnicity: Unknown	5,484	5.6%	37.4%	0.81
Race: American Indian/Alaskan Native	619	0.6%	51.5%	0.82
Race: Asian	1,117	1.2%	63.8%	0.82
Race: African American	23,936	24.7%	38.9%	0.83
Race: International	383	0.4%	50.1%	0.65
Race: Native Hawaiian/Pacific Islander	270	0.3%	53.3%	0.79
Race: Unknown	50,617	52.1%	56.0%	0.76
Race: White/Caucasian	20,122	20.7%	56.1%	0.82

Notes. *n* represents the total number of students enrolled between 2015 and 2021.
* Two-year graduation. ** All time graduation.

Healthcare certificate program graduation rates are 51.8% for career schools and 28.6% for community colleges.

Average completion times of healthcare certificate programs are about 9½ months for career schools and more than 17 months for community colleges.

Table 2.

Graduation Rates for Certificate Program Students in Community Colleges

Group	*n*	Percent Total	Percent Graduated*	Years to Graduate**
All	50,037	100.0%	28.6%	1.43
Gender: Female	37,307	74.6%	30.6%	1.42
Gender: Male	12,730	25.4%	22.7%	1.45
Ethnicity: Hispanic/Latino	17,933	35.8%	28.4%	1.40
Ethnicity: Not Hispanic/Latino	30,599	61.2%	29.0%	1.44
Ethnicity: Unknown	1,505	3.0%	22.3%	1.46
Race: American Indian/Alaskan Native	1,688	3.4%	27.4%	1.42
Race: Asian	2,340	4.7%	22.8%	1.46
Race: African American	8,962	17.9%	25.4%	1.45
Race: International	442	0.9%	27.1%	1.31
Race: Native Hawaiian/Pacific Islander	263	0.5%	26.6%	1.46
Race: Unknown	6,727	13.4%	26.7%	1.43
Race: White/Caucasian	29,615	59.2%	30.5%	1.42

Notes. *n* represents the total number of students enrolled between 2015 and 2021.

* Two-year graduation. ** All time graduation.

Great majority of students in healthcare certificate programs are women in both career schools (88.2%) and community colleges (74.6%).

Gender Differences. Women comprise the great majority of the enrollees for certificate programs at the two types of institutions (88.2% in CAR and 74.6% in CC). Moreover, women graduate at higher rates than men regardless of type of schools. Women graduate at 52.6% rate compared to 45.7% for men from CAR certificate programs. In CC certificate programs, the disparity is similar: 30.6 % for women versus 22.7% for men. These results suggest that there is a significant gender-based gap in graduation rates favoring women across the two institution types.

Women graduate at higher rates than men from healthcare certificate programs in both career schools and community colleges.

Ethnic/Racial Background Differences. First, it is important to point out the ethnic and racial makeup of the student body across the two institution types. Majority of CAR healthcare certificate students are Hispanic (almost half) whereas only one-third of CC healthcare certificate students are Hispanic. While the racial background of CAR certificate students is largely unknown (52.1%), African American student size is larger than White/Caucasian student size. On the other hand, for CC certificate student body, White/Caucasian students are in the majority (almost 60%).

In terms of the graduation rates, CAR certificate programs have a higher graduation rate for Hispanic students (58.6%) than for non-Hispanic students (46.6%—even higher than the overall graduation rate of 51.8%). On the other hand, for CC certificate programs, graduation rate for Hispanic students (28.4% —almost same as the overall graduation rate) is slightly lower than non-Hispanic student graduation rate (29%).

Hispanic students' graduation rate in certificate programs is higher than non-Hispanic students in career school.

Among all racial groups in CAR certificate programs, Asian students have the highest graduation rate (63.8%) followed by White/Caucasian students (56.1%) and unknown-race students (56%). African American student graduation rate is considerably low for CAR certificate programs. For certificate programs in CC, the highest graduation rate belongs to White/Caucasian students (30.5%) followed by American Indian/Alaskan Native students (27.4%) and international students (27.1%), though they comprise a very small portion of the student body. It is important to note that CAR graduation rates for any racial group are still higher than the graduation rates for any racial group at CC.

Certificate graduation rates for any racial group in career schools are higher than any racial group in community colleges.

Asian students have the highest graduation rate in career schools.

White/Caucasian students have the highest graduation rate in community colleges.

Associate Degrees

Comparisons of graduation outcomes in healthcare associate degree programs also reveal substantial differences between career schools (CAR) and community colleges (CC). Overall graduation rates for CAR are 48.6% (see Table 3), more than double the graduation rate of 21.2% observed for CC (Table 4). Completion times also differ: CAR students graduate, on average, in 1.29 years (about 15 and a half months), while CC students take significantly longer to graduate: 1.89 years (more than 22 months).

Table 3.

Graduation Rates for Associate Degree Students in Career Schools

Group	*n*	Percent Total	Percent Graduated*	Years to Graduate**
All	33,955	100.0%	48.6%	1.29
Gender: Female	28,062	82.6%	49.1%	1.29
Gender: Male	5,893	17.4%	46.0%	1.28
Ethnicity: Hispanic/Latino	14,433	42.5%	50.5%	1.33
Ethnicity: Not Hispanic/Latino	17,320	51.0%	47.6%	1.27
Ethnicity: Unknown	2,202	6.5%	43.6%	1.19
Race: American Indian/Alaskan Native	212	0.6%	51.4%	0.77
Race: Asian	909	2.7%	67.4%	1.36
Race: African American	6,161	18.1%	33.1%	1.33
Race: International	261	0.8%	67.4%	1.28
Race: Native Hawaiian/Pacific Islander	137	0.4%	49.6%	0.90
Race: Unknown	12,262	36.1%	51.3%	1.37
Race: White/Caucasian	14,013	41.3%	51.4%	1.22

Note. *n* represents the total number of students enrolled between 2015 and 2021.

* Three-year graduation. ** All time graduation.

Healthcare associate degree graduation rates are 48.6% for career schools and 21.2% for community colleges.

Average completion times in healthcare associate degrees are about 15½ months for career schools and more than 22 months for community colleges.

Table 4.

Graduation Rates for Associate Degree Students in Community Colleges

Group	n	Percent Total	Percent Graduated*	Years to Graduate**
All	246,236	100.0%	21.2%	1.89
Gender: Female	199,923	81.2%	21.8%	1.89
Gender: Male	46,313	18.8%	19.1%	1.86
Ethnicity: Hispanic/Latino	105,598	42.9%	19.3%	1.90
Ethnicity: Not Hispanic/Latino	133,888	54.4%	23.0%	1.87
Ethnicity: Unknown	6,750	2.7%	16.9%	1.99
Race: American Indian/Alaskan Native	8,363	3.4%	18.6%	1.88
Race: Asian	9,839	4.0%	24.7%	1.90
Race: African American	44,624	18.1%	14.5%	1.80
Race: International	3,409	1.4%	18.7%	1.74
Race: Native Hawaiian/Pacific Islander	1,442	0.6%	20.7%	1.85
Race: Unknown	38,381	15.6%	20.1%	1.88
Race: White/Caucasian	140,178	56.9%	23.7%	1.90

Note. *n* represents the total number of students enrolled between 2015 and 2021.

* Three-year graduation. ** All time graduation.

Great majority of students in healthcare associate degree programs are women in both career schools (82.6%) and community colleges (81.2%).

Gender Differences. Like certificate program student composition, women are the great majority of the enrollees in the associate degree programs at both types of institutions (82.6% in CAR and 81.2% in CC). Similarly, women graduate at higher rates than men regardless of type of schools. Women graduate at 49.1% rate compared to 46% for men from CAR associate degree programs. In CC associate degree programs, the disparity is similar: 21.8% for women versus 19.1% for men. These results suggest that there is a gender-based gap in associate degree graduation rates favoring women across the two institution types.

Women graduate at higher rates than men from healthcare associate degrees in both career schools and community colleges.

Ethnic/Racial Background Differences. Hispanic students comprise the healthcare associate degree student body close to 43% in both CAR and CC. Similarly, White/Caucasian students are in the majority in both institution types (41.3% in CAR and 56.9% in CC).

In terms of the graduation rates, CAR associate degree programs produce graduates at a higher rate for Hispanic students (50.5%) than for non-Hispanic students (47.6%—even higher than the overall graduation rate of 48.6%). On the other hand, for CC associate degree programs, graduation rate for Hispanic students (19.3%) is lower than both non-Hispanic student graduation rate (23%) and the overall graduation rate (21.2%).

Hispanic students' graduation rate in associate degree programs is higher in career schools but lower in community colleges than non-Hispanic students.

Among all racial groups in CAR associate degree programs, Asian and international students have the highest graduation rate (67.4%), even though their proportions in the student body are low (less than 3%), followed by White/Caucasian and American Indian/Alaskan Native students (51.4%) and unknown-race students (51.3%). African American student graduation rate is considerably low for CAR associate degree programs as this was the case for certificate programs.

Asian students have the highest associate graduation rate in both career schools and community colleges.

For associate programs in CC, Asian students also have the highest graduation rate (24.7%) followed by White/Caucasian students (23.7%). As is the case for CAR, African American student graduation rate is considerably low for CC associate degree programs (14.5%).

African American students have the lowest associate graduation rate in both career schools and community.

It is important to note that, like certificate graduation rates, CAR associate graduation rates for any racial group are still higher than associate graduation rates for any racial group in CC.

Associate graduation rates for any racial group in career schools are higher than any racial group in community colleges.

Economic Mobility

Certificate Programs

Comparison of wage difference (delta wage—pre-enrollment wage subtracted from post-graduation wage adjusted by inflation and time to graduate; see p. 5) for students who earn a healthcare certificate program indicates several differences between career schools (CAR) and community colleges (CC). Overall mean delta wages are $8,704 for CAR and $6,309 for CC, respectively. Independent-samples t-test (unequal variances) results indicate that this difference is significant ($p < .001$), though the effect size of this difference is small (Cohen's $d = 0.15$, see Appendix C). Overall median delta wages are $7,731 for CAR and $4,630 for CC, respectively (see Table 5).

Mean delta wage for certificate programs:
$8,704 (CAR) & $6,309 (CC)
Median delta wage for certificate programs:
$7,731 (CAR) & $4,630 (CC)

Gender Differences. There is no significant delta wage difference between women and men regardless of their institution types. Independent samples t-test (unequal variances) results confirm the indifference statistically (see Appendix C). Women and men increase their wages about the same amount in CAR with more than $8,500 annual average increase and more than $7,700 annual median increase. Similarly, women and men increase their wages about the same about in CC with more than $6,200 annual average increase and more than $4,200 annual median increase.

Women and men who earn a healthcare certificate increase their wages about the same amount.

On the other hand, both women and men who receive a healthcare certificate from CAR increase their annual salary significantly more than their counterparts who receive a healthcare certificate from CC (*p* values less than .001 and Cohen's *d* values 0.15 for women and 0.16 for men; see Appendix C for average delta wage comparisons).

Table 5.

Delta Wage for Certificate Program Graduates

	Career Schools			Community Colleges		
Group	*n*	Mean	Median	*n*	Mean	Median
All	26,276	$8,704	$7,731	19,108	$6,309	$4,630
Gender: Female	23,614	$8,689	$7,730	16,791	$6,320	$4,667
Gender: Male	2,662	$8,836	$7,753	2,317	$6,229	$4,242
Ethnicity						
Hispanic/Latino	14,052	$8,876	$7,996	7,735	$5,954	$4,099
Not Hispanic/Latino	11,134	$8,404	$7,230	10,906	$6,558	$5,026
Unknown	1,090	$9,563	$9,092	467	$6,387	$3,982
Race						
American Indian/ Alaskan Native	164	$5,993	$6,067	605	$6,467	$5,589
Asian	330	$9,317	$8,671	627	$6,615	$5,054
African American	5,308	$7,273	$5,882	3,500	$6,282	$4,605
International	97	$6,733	$4,369	105	$5,082	$2,306
Native Hawaiian/ Pacific Islander	70	$10,174	$8,407	90	$5,678	$3,718
Unknown	14,891	$8,888	$8,091	3,046	$6,306	$4,239
White/Caucasian	5,416	$9,662	$8,313	11,135	$6,310	$4,685

Notes. *n* represents the total number of students enrolled between 2015 and 2021 and graduated anytime.

Both women and men who receive a healthcare certificate from CAR increase their annual salary significantly more than their counterparts from CC.

Ethnic/Racial Background Differences. Hispanic students who earn a healthcare certificate from CAR seem to increase their wages slightly more than non-Hispanic students. Average delta wage is more than $450 higher for Hispanic students than non-Hispanic students ($p < .05$), though effect size is negligible (see Appendix C). Median delta wage is more than $750 higher for Hispanic students than non-Hispanic students in CAR.

On the other hand, the results are the opposite for CC students. Hispanic students who earn a healthcare certificate from CC seem to increase their wage slightly less than non-Hispanic students. Average delta wage is more than $600 lower for Hispanic students than non-Hispanic students ($p < .001$), though effect size is small (Cohen's d = 0.14; see Appendix C). Median delta wage is more than $900 less for Hispanic students than non-Hispanic students in CC.

Hispanic students increase their wages more than non-Hispanic students after earning a certificate from CAR.

Hispanic students increase their wages less than non-Hispanic students after earning a certificate from CC.

When ethnicity groups are compared between CAR and CC, parallel with overall comparison, both Hispanic and non-Hispanic students in CAR increase their wages considerably more than their counterparts in CC, but the gap is more for Hispanic students as shown in Table 5. The differences for ethnicity between CAR and CC are both statistically significant with small effect sizes, though the effect size is slightly higher for Hispanic student comparison (Cohen's $d = 0.19$ vs. Cohen's $d = 0.12$ for non-Hispanic comparison; see Appendix C).

In terms of racial comparisons, one-way ANOVA with Bonferroni correction indicate that delta wage for African American students who earn a healthcare certificate from CAR is significantly less than White/Caucasian students and students whose race is unknown (see Appendix C). In CC, there is no significant difference found in delta wage across different racial groups.

Wage gains for African American students who earn a healthcare certificate from CAR are significantly less than White/Caucasian students.

When each racial group is compared between CAR and CC, there is no significant difference for American Indian/Alaskan Native, International, and Native Hawaiian/Pacific Islander student groups. However, delta wage is significantly higher for CAR students than for CC students in three racial groups: Asian ($p < .01$ with small effect size of Cohen's $d = 0.19$), African American ($p < .01$ with negligible effect size), and White/Caucasian ($p < .001$ with small effect size of Cohen's $d = 0.24$; see Appendix C).

Delta wage is significantly higher for CAR students than for CC students in three racial groups: Asian, African American, and White/Caucasian

Associate Degrees

Comparison of wage difference (delta wage—pre-enrollment wage subtracted from post-graduation wage adjusted by inflation and time to graduate; see p. 5) for students who earn a healthcare associate degree indicates several differences between career schools (CAR) and community colleges (CC). Overall mean delta wages are $22,832 for CAR and $18,821 for CC, respectively (see Table 6). Independent-samples *t*-test (unequal variances) results indicate that this difference is significant ($p < .001$), though the effect size of this difference is small (Cohen's $d = 0.13$, see Appendix C).

Table 6.

Delta Wage for Associate Degree Program Graduates

	Career Schools			Community Colleges		
Group	*n*	Mean	Median	*n*	Mean	Median
All	8,160	$22,832	$17,803	33,097	$18,821	$15,019
Gender: Female	6,786	$23,150	$18,371	27,502	$19,015	$15,206
Gender: Male	1,374	$21,262	$14,343	5,595	$17,866	$14,145
Ethnicity						
Hispanic/Latino	3,943	$19,386	$14,146	11,530	$18,303	$14,160
Not Hispanic/Latino	3,854	$25,961	$21,395	20,663	$19,173	$15,473
Unknown	363	$27,044	$22,710	904	$17,385	$13,631
Race						
American Indian/ Alaskan Native	32	$27,819	$16,554	927	$20,148	$16,299
Asian	269	$34,735	$31,902	1,493	$19,009	$13,965
African American	1,083	$19,217	$15,341	4,319	$14,370	$9,800
International	102	$33,764	$30,179	245	$16,165	$10,507
Native Hawaiian/ Pacific Islander	23	$15,961	$12,474	243	$14,380	$8,071
Unknown	3,321	$24,875	$21,077	4,732	$17,710	$13,252
White/Caucasian	3,330	$20,674	$14,913	21,138	$19,990	$16,415

Notes. *n* represents the total number of students enrolled between 2015 and 2021 and graduated anytime.

Overall median delta wages are $17,803 for CAR and $15,019 for CC, respectively.

Mean delta wage for associate degree programs:
$22,832 (CAR) & $18,821 (CC)
Median delta wage for associate degree programs:
$17,803 (CAR) & $15,019 (CC)

Gender Differences. There are some delta wage differences between women and men who earn a healthcare associate degree. Both mean and median delta wages seem higher for women than men for both CAR and CC students. While the mean difference is not statistically significant for CAR students, it is significant ($p < .05$) for CC students but with negligible effect size (see Appendix C). On the other hand, median delta wage is more than $4,000 higher for women than men in CAR, while the median delta wage is only around $1,000 higher for women than men in CC (see Table 6).

Mean wage gains for women and men who earn a healthcare associate degree is not significantly different.

Median delta wage, however, is more than $4,000 higher for women than men in CAR, and only $1,000 higher for women than men in CC.

Gender difference across CAR and CC on delta wage also reveals some differences. For both women and men who receive a healthcare associate degree from CAR, the mean delta wage is significantly higher than their counterparts who receive a healthcare associate degree from CC (*p* values less than .01 and Cohen's *d* values 0.14 for women and 0.11 for men; see Appendix C for average delta wage comparisons). Moreover, while the difference between CAR and CC male students is only about $200 in median delta wage, the difference is considerably larger for women. CAR female students' median delta wage is more than $3,000 higher than CC female students.

Both women and men who receive a healthcare associate degree from CAR increase their mean delta wage significantly more than their counterparts from CC.

Median delta wage is not considerably different for men between CAR and CC, but it is more than $3,000 higher for women in CAR than women in CC.

Ethnic/Racial Background Differences. Wage gains for Hispanic students who earn a healthcare associate degree from CAR are significantly lower (about $6,500 less) than for non-Hispanic students ($p < .001$ with moderate effect size of Cohen's $d = 0.38$; see Appendix C). Median delta wage is also more than $6,000 lower for Hispanic students than for non-Hispanic students in CAR. For CC students, the results are similar, but the gap is smaller. Average delta wage is about $900 less for Hispanic students than non-Hispanic students ($p < .01$), though effect size is negligible (Cohen's $d = 0.14$; see Appendix C). Median delta wage is about $1,300 less for Hispanic students than non-Hispanic students in CC.

Wage gains for Hispanic students are lower than for non-Hispanic students after earning an associate degree from CAR

When ethnicity groups are compared between CAR and CC, Hispanic students in CAR increase their wages about $1,000 more than their counterparts in CC ($p < .05$) after earning a healthcare associate degree, though the effect size is negligible for this difference (see Appendix C). Median delta wage is about the same for Hispanic students in both CAR and CC. On the other hand, non-Hispanic students in CAR increase their wages almost $7,000 more than their counterparts in CC ($p < .001$, Cohen's *d* = 0.22). Median delta wage is also almost $7,000 more for non-Hispanic students in CAR than for those in CC.

Both Hispanic and non-Hispanic students in CAR increase their wages more than their counterparts in CC after earning a healthcare associate degree.

In terms of racial comparisons, one-way ANOVA with Bonferroni correction indicate that Asian and international students and students whose race is unknown who earn a healthcare associate degree from CAR increase their wages significantly more than African American and White/Caucasian students (see Appendix C). In CC, delta wage for African American students who earn a healthcare associate degree is significantly lower than any other racial groups except for Native Hawaiian/Pacific Islander and international students.

Delta wage is lower for African American and White/Caucasian students than for Asian and international students in CAR.

Delta wage is lower for African students than for other students (except for NH/PI and international students) in CC.

When each racial group is compared between CAR and CC, there is no significant difference for American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and White/Caucasian student groups. However, delta wage is significantly higher for CAR students than for CC students in three racial groups: Asian ($p < .001$ with moderate effect size of Cohen's $d = 0.48$), African American ($p < .001$ with small effect size of Cohen's $d = 0.16$), and International ($p < .001$ with moderate effect size of Cohen's $d = 0.59$; see Appendix C).

Delta wage is significantly higher for CAR students than for CC students in three racial groups: Asian, African American, and International.

Conclusion

The comparative analysis of allied healthcare education in Texas reveals that career schools (CAR) contribute substantially to producing a skilled workforce in a high-need sector. CAR institutions demonstrate markedly higher graduation rates, shorter time-to-completion, and stronger economic mobility than community colleges across both certificate and associate programs. These findings suggest that CAR institutions provide an accelerated and effective pathway into the healthcare workforce, which is critical amid statewide labor shortages.

However, the data also highlight ongoing equity challenges. While Hispanic students perform well in CAR certificate and associate programs relative to CC, wage gaps persist at the associate level. African American students face the most significant barriers, with lower graduation rates and wage gains across both sectors. These inequities underscore the need for targeted support structures, culturally responsive advising, and structural interventions tailored to historically underserved populations.

Overall, the findings show that CAR institutions play a meaningful role in expanding and strengthening Texas's healthcare workforce while also highlighting opportunities to improve equitable student outcomes across sectors.

Recommendations

State agencies (THECB, TWC) should enhance cross-sector data systems to track workforce outcomes over longer timeframes and across multiple healthcare pathways. In addition, they should support standardized reporting of program-level outcomes across both sectors to ensure ongoing apples-to-apples comparisons and allow more in-depth analysis accounting for other important variables that may moderate/mediate student outcomes such as whether a student work several jobs or is a single parent.

Career Schools (CAR) should expand support structures, especially for African American students at the associate degree level, including mentoring, tutoring, and financial counseling and strengthen employer partnerships to align programs even more closely with labor-market demand and to create paid clinical pathways.

Community Colleges (CC) should develop models to reduce time-to-completion through improved advising, course scheduling, and clearer degree maps and scale accelerated pathways modeled after the short program durations that correlate with higher completion at CAR. In addition, CC institutions should invest in culturally responsive student supports, particularly for Hispanic and African American learners who face lower graduation and wage outcomes.

Institutions in both sectors should expand wraparound support services, including childcare, transportation support, emergency aid, and mental-health resources and increase transparency regarding program length, cost, expected earnings, and job placement to support informed student decision-making. In addition, they should develop targeted initiatives to close racial and ethnic gaps in both graduation and wage outcomes. Lastly, strengthening the continued collaboration with healthcare employers can expand the pipelines into in-demand healthcare roles statewide.

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Appendices

Appendix A – Healthcare CIP Codes

Table A1. Healthcare areas included in calculation of graduation rates

CIP-Codes	Title	Community Colleges *n*	Career Schools *n*
51000000	Health Services/Allied Health/Health Sciences, General.	29,444	<10
51000100	Health and Wellness, General.	609	<10
51010100	Chiropractic.	24	<10
51060100	Dental Assisting/Assistant.	12,600	11,767
51060200	Dental Hygiene/Hygienist.	13,062	887
51070100	Health/Health Care Administration/Management.	3,327	1,596
51070200	Hospital and Health Care Facilities Administration/Management.	1,356	28
51070700	Health Information/Medical Records Technology/Technician.	22,777	2,713
51071000	Medical Office Assistant/Specialist.	33	4,428
51071300	Medical Insurance Coding Specialist/Coder.	7,356	6,510
51071400	Medical Insurance Specialist/Medical Biller.	202	4,069
51071600	Medical Administrative/Executive Assistant and Medical Secretary.	6,173	2,140
51071700	Medical Staff Services Technology/Technician.	64	124
51071800	Long Term Care Administration/Management.	127	14
51071900	Clinical Research Coordinator.	118	<10
51080100	Medical/Clinical Assistant.	21,189	50,075
51080300	Occupational Therapist Assistant.	5,869	954
51080500	Pharmacy Technician/Assistant.	15,236	3,297
51080600	Physical Therapy Assistant.	11,580	2,348
51080800	Veterinary/Animal Health Technology/Technician and Veterinary Assistant.	8,914	2,231
51080900	Anesthesiologist Assistant.	11	30
51090100	Cardiovascular Technology/Technologist.	1,018	289
51090300	Electroneurodiagnostic/Electroencephalographic Technology/Technologist.	351	77
51090400	Emergency Medical Technology/Technician (EMT Paramedic).	84,084	38
51090700	Medical Radiologic Technology/Science - Radiation Therapist.	1,393	168
51090800	Respiratory Care Therapy/Therapist.	6,120	849
51090900	Surgical Technology/Technologist.	9,224	2,846
51091000	Diagnostic Medical Sonography/Sonographer and Ultrasound Technician.	14,044	2,063
51091100	Radiologic Technology/Science - Radiographer.	21,675	4,977
51091200	Physician Associate/Assistant.	<10	<10
51091300	Athletic Training/Trainer.	1,964	<10
51092000	Magnetic Resonance Imaging (MRI) Technology/Technician.	<10	79
51100400	Clinical/Medical Laboratory Technician.	4,406	1,657
51100900	Phlebotomy Technician/Phlebotomist.	18,597	754
51101200	Sterile Processing Technology/Technician.	129	1,013
51150100	Substance Abuse/Addiction Counseling.	8,950	<10

CIP-Codes	Title	Community Colleges *n*	Career Schools *n*
51180300	Ophthalmic Technician/Technologist.	<10	21
51350100	Massage Therapy/Therapeutic Massage.	1,874	644
51380100	Registered Nursing/Registered Nurse.	184,945	10,252
51390100	Licensed Practical/Vocational Nurse Training.	35,262	10,201
51390200	Nursing Assistant/Aide and Patient Care Assistant/Aide.	37,603	1,662
51999900	Health Professions and Related Clinical Sciences, Other.	10	299

Table A2. Healthcare areas included in calculation of delta wage

CIP-Codes	Title	Community Colleges *n*	Career Schools *n*
51000100	Health and Wellness, General.	11	<10
51060100	Dental Assisting/Assistant.	1,504	7,343
51060200	Dental Hygiene/Hygienist.	2,007	722
51070100	Health/Health Care Administration/Management.	57	464
51070200	Hospital and Health Care Facilities Administration/Management.	243	<10
51070700	Health Information/Medical Records Technology/Technician.	2,348	865
51071300	Medical Insurance Coding Specialist/Coder.	1,221	3,124
51071400	Medical Insurance Specialist/Medical Biller.	<10	1,167
51071600	Medical Administrative/Executive Assistant and Medical Secretary.	848	641
51071800	Long Term Care Administration/Management.	26	<10
51080100	Medical/Clinical Assistant.	3,136	26,222
51080300	Occupational Therapist Assistant.	1,671	371
51080500	Pharmacy Technician/Assistant.	2,107	1,374
51080600	Physical Therapy Assistant.	2,438	1,358
51080800	Veterinary/Animal Health Technology/Technician and Veterinary Assistant.	1,216	1,259
51080900	Anesthesiologist Assistant.	<10	10
51090100	Cardiovascular Technology/Technologist.	127	121
51090300	Electroneurodiagnostic/Electroencephalographic Technology/Technologist.	151	43
51090400	Emergency Medical Technology/Technician (EMT Paramedic).	8,187	<10
51090700	Medical Radiologic Technology/Science - Radiation Therapist.	470	124
51090800	Respiratory Care Therapy/Therapist.	2,489	427
51090900	Surgical Technology/Technologist.	3,090	1,307
51091000	Diagnostic Medical Sonography/Sonographer and Ultrasound Technician.	1,915	1,254
51091100	Radiologic Technology/Science - Radiographer.	5,234	2,901
51091300	Athletic Training/Trainer.	72	<10
51100400	Clinical/Medical Laboratory Technician.	1,510	532
51100900	Phlebotomy Technician/Phlebotomist.	25	517
51101200	Sterile Processing Technology/Technician.	<10	456
51350100	Massage Therapy/Therapeutic Massage.	872	395
51380100	Registered Nursing/Registered Nurse.	37,192	7,238
51390100	Licensed Practical/Vocational Nurse Training.	17,109	4,576
51390200	Nursing Assistant/Aide and Patient Care Assistant/Aide.	1,812	987

Appendix B – Delta Wage Calculation Example

Adjusted by Inflation and Average Time-to-Graduate by Institution Type

Enrollment date: 2016-Q2
Graduation date: 2018-Q3
Inflation rates per U.S. Bureau of Labor Statistics
(https://www.bls.gov/data/inflation_calculator.htm)

Since 2016 Q1: 1.37
Since 2016 Q2: 1.36
Since 2018 Q3: 1.29
Since 2018 Q4: 1.28

Pre-wage = Mean(2016 Q1 wage * 1.37, 2016 Q2 wage * 1.36)
Post-wage = Mean(2018 Q3 wage * 1.29, 2018 Q4 wage * 1.28)

Delta wage (annual) = (Post-wage – Pre-wage) * 4

Adjustments based on average time to graduate:

Delta wage_adj (CAR, certificate) = [(delta wage) / (0.79)] * 1
Delta wage_adj (CC, certificate) = [(delta wage) / (1.43)] * 1
Delta wage_adj (CAR, associate) = [(delta wage) / (1.29)] * 2
Delta wage_adj (CC, associate) = [(delta wage) / (1.89)] * 2

Appendix C – Delta Wage One-Way ANOVA Tables

Table C1. Delta wage *t*-test table for certificate programs

					95% C.I.			
	N	Mean	S.D.	S.E.	Lower	Upper	*t*-value	Cohen's *d*
Overall								
Career Schools	26,276	$8,704	17,939	111	8,487	8,921		
Community Colleges	19,108	$6,309	11,433	83	6,147	6,471		
Difference (CC-CAR)	45,384	-$2,394***		138	-2,665	-2,124	-17.33	-0.15
Female								
Career Schools	23,614	$8,689	17,810	116	8,462	8,916		
Community Colleges	16,791	$6,320	11,343	88	6,149	6,492		
Difference (CC-CAR)	40,405	-$2,368***		145	-2,653	-2,084	-16.31	-0.15
Male								
Career Schools	2,662	$8,836	19,045	369	8,112	9,560		
Community Colleges	2,317	$6,229	12,071	251	5,737	6,721		
Difference (CC-CAR)	4,979	-$2,606***		446	-3,481	-1,732	-5.84	-0.16
Hispanic								
Career Schools	14,052	$8,876	17,084	144	8,593	9,158		
Community Colleges	7,735	$5,954	11,054	126	5,707	6,200		
Difference (CC-CAR)	21,787	-$2,922***		191	-3,297	-2,547	-15.28	-0.19
Non-Hispanic								
Career Schools	11,134	$8,404	18,938	179	8,052	8,755		
Community Colleges	10,906	$6,558	11,652	112	6,340	6,777		
Difference (CC-CAR)	22,040	-$1,845***		211	-2,259	-1,431	-8.73	-0.12
American Indian/Alaskan Native								
Career Schools	164	$5,993	18,392	1,436	3,158	8,829		
Community Colleges	605	$6,467	11,111	452	5,580	7,354		
Difference (CC-CAR)	769	$473		1,505	-2,495	3,442	0.31	0.04
Asian								
Career Schools	330	$9,317	18,631	1,026	7,300	11,335		
Community Colleges	627	$6,615	11,944	477	5,678	7,552		
Difference (CC-CAR)	957	-$2,702*		1,131	-4,924	-479	-2.39	-0.19
African American								
Career Schools	5,308	$7,273	18,540	254	6,774	7,772		
Community Colleges	3,500	$6,282	11,989	203	5,884	6,679		
Difference (CC-CAR)	8,808	-$991**		325	-1,629	-353	-3.05	-0.06
International								
Career Schools	97	$6,733	16,764	1,702	3,355	10,112		
Community Colleges	105	$5,081	13,260	1,294	2,515	7,648		
Difference (CC-CAR)	202	-$1,651		2,138	-5,870	2,566	-0.77	-0.11

	N	Mean	S.D.	S.E.	95% C.I. Lower	95% C.I. Upper	*t*-value	Cohen's *d*
Native Hawaiian/Pacific Islander								
Career Schools	70	$10,174	17,893	2,139	5,908	14,441		
Community Colleges	90	$5,678	10,661	1,124	3,445	7,911		
Difference (CC-CAR)	160	-$4,495		2,415	-9,285	293	-1.86	-0.32
White/Caucasian								
Career Schools	5,416	$9,662	18,600	253	6,100	6,519		
Community Colleges	11,135	$6,310	11,260	107	6,100	6,519		
Difference (CC-CAR)	16,551	-$3,352***		274	-3,890	-2,814	-12.22	-0.24

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$ (two-tailed)

Table C2. Delta wage *t*-test table by gender for certificate programs

					95% C.I.			
	N	Mean	S.D.	S.E.	Lower	Upper	*t*-value	Cohen's *d*
Career Schools								
Female	23,614	$8,689	17,810	116	8,462	8,916		
Male	2,662	$8,836	19,045	369	8,112	9,560		
Difference (M-F)	26,276	$146		386	-611	905	0.38	0.01
Community Colleges								
Female	16,791	$6,320	11,343	88	6,149	6,492		
Male	2,317	$6,229	12,071	251	5,737	6,721		
Difference (M-F)	19,108	-$91		256	-612	429	-0.34	-0.01

Table C3. Delta wage *t*-test table by ethnicity for certificate programs

					95% C.I.			
	N	Mean	S.D.	S.E.	Lower	Upper	*t*-value	Cohen's *d*
Career Schools								
Hispanic	14,052	$8,876	17,084	144	8,593	9,158		
Non-Hispanic	11,134	$8,404	18,938	179	8,052	8,755		
Difference (H-N)	25,186	$472*		230	21	923	2.05	0.03
Community Colleges								
Hispanic	7,735	$5,954	11,054	126	5,707	6,200		
Non-Hispanic	10,906	$6,558	11,652	112	6,340	6,777		
Difference (H-N)	18,641	-$604***		168	-934	-275	-3.60	-0.14

Notes. *** $p < .001$, * $p < .05$ (two-tailed)

Table C4. Delta wage ANOVA post-hoc table (Bonferroni Corrections) for race comparison for certificate programs

	American Indian/ Alaskan Native	Asian	AA	Int	NH-PI	Unknown
Career Schools [a]						
Asian	3,323					
African American	1,279	-2,043				
International	739	-2,583	-539			
Native Hawaiian-Pacific Islander	4,180	856	2,900	3,440		
Unknown	2,894	-429	1,614*	2,154	-1,286	
White/Caucasian	3,668	345	2,388*	2,928	-511	774
Community Colleges [b]						
Asian	147					
African American	-185	-333				
International	-1,385	-1,533	-1,200			
Native Hawaiian-Pacific Islander	-788	-936	-603	596		
Unknown	-160	-308	24	1,224	627	
White/Caucasian	-157	-305	27	1,228	631	3

Notes. * The mean difference is significant at 0.5 level

[a] $F(6, 26269) = 9.44$, $p < .001$, $\eta^2 = .002$

[b] $F(6, 19101) = 0.34$, $p = .91$, $\eta^2 = .0001$

Table C5. Delta wage *t*-test table for associate degree programs

	N	Mean	S.D.	S.E.	95% C.I. Lower	95% C.I. Upper	*t*-value	Cohen's *d*
Overall								
Career Schools	8,160	$22,832	39,274	435	21,980	23,684		
Community Colleges	33,097	$18,821	27,972	154	18,520	19,122		
Difference (CC-CAR)	41,257	-$4,011***		461	-4,915	-3,107	-8.70	-0.13
Female								
Career Schools	6,786	$23,150	39,008	474	22,222	24,078		
Community Colleges	27,502	$19,015	27,871	168	18,686	19,345		
Difference (CC-CAR)	34,288	-$4,134***		502	-5,119	-3,149	-8.23	-0.14
Male								
Career Schools	1,374	$21,262	40,539	1,094	19,116	23,407		
Community Colleges	5,595	$17,866	28,451	380	17,121	18,612		
Difference (CC-CAR)	6,969	-$3,395**		1,157	-5,666	-1,124	-2.93	-0.11
Hispanic								
Career Schools	3,943	$19,386	36,466	581	18,248	20,525		
Community Colleges	11,530	$18,303	27,673	258	17,798	18,808		
Difference (CC-CAR)	15,473	-$1,082		635	-2,328	162	-1.70	-0.04
Non-Hispanic								
Career Schools	3,854	$25,961	41,468	668	24,651	27,270		
Community Colleges	20,663	$19,173	28,117	196	18,789	19,556		
Difference (CC-CAR)	24,517	-$6,788***		969	-8,152	-5,423	-9.75	-0.22
American Indian/Alaskan Native								
Career Schools	32	$27,819	44,551	7,876	11,756	43,881		
Community Colleges	927	$20,148	27,852	915	18,353	21,943		
Difference (CC-CAR)	959	-$7,670		7,928	-23,823	8,482	-0.97	-0.27
Asian								
Career Schools	269	$34,735	47,423	2,891	29,042	40,428		
Community Colleges	1,493	$19,009	29,310	759	17,521	20,497		
Difference (CC-CAR)	1,762	-$15,725***		2,989	-21,608	-9,843	-5.26	-0.48
African American								
Career Schools	1,083	$19,217	39,450	1,199	16,864	21,569		
Community Colleges	4,319	$14,370	28,900	440	13,507	15,232		
Difference (CC-CAR)	5,402	-$4,847***		1,276	-7,351	-2,342	-3.80	-0.15
International								
Career Schools	102	$33,764	35,772	3,542	26,738	40,790		
Community Colleges	245	$16,165	27,449	1,754	12,711	19,619		
Difference (CC-CAR)	347	-$17,599***		1,671	-25,407	-9,790	-4.45	-0.58

	N	Mean	S.D.	S.E.	95% C.I. Lower	95% C.I. Upper	*t*-value	Cohen's *d*
Native Hawaiian/Pacific Islander								
Career Schools	23	$15,961	35,079	7,314	791	31,130		
Community Colleges	243	$14,380	29,572	1,897	10,643	18,116		
Difference (CC-CAR)	266	-$1,580		1,840	-17,142	13,980	0.21	-0.05
White/Caucasian								
Career Schools	3,330	$20,674	36,594	634	19,431	21,918		
Community Colleges	21,138	$19,990	27,640	190	19,617	20,362		
Difference (CC-CAR)	24,468	-$684		662	-1,982	613	-1.03	-0.02

Notes. *** $p < .001$, ** $p < .01$ (two-tailed)

Table C6. Delta wage *t*-test table by gender for associate degree programs

					95% C.I.			
	N	Mean	S.D.	S.E.	Lower	Upper	*t*-value	Cohen's *d*
Career Schools								
Female	6,786	$23,150	39,008	474	22,222	24,078		
Male	1,374	$21,262	40,539	1,094	19,116	23,407		
Difference (M-F)	8,160	-$1,888		1,191	-4,225	448	-1.58	-0.05
Community Colleges								
Female	27,502	$19,015	27,871	168	18,686	19,345		
Male	5,595	$17,866	28,451	380	17,121	18,612		
Difference (M-F)	33,097	-$1,148**		415	-1,964	-333	-2.76	-0.04

Notes. ** $p < .01$ (two-tailed)

Table C7. Delta wage *t*-test table by ethnicity for associate degree programs

	N	Mean	S.D.	S.E.	95% C.I. Lower	95% C.I. Upper	*t*-value	Cohen's *d*
Career Schools								
Hispanic	3,943	$19,386	36,466	581	18,248	20,525		
Non-Hispanic	3,854	$25,961	41,468	668	24,651	27,270		
Difference (H-N)	7,797	-$6,574***		885	-8,309	-4,839	-7.43	-0.38
Community Colleges								
Hispanic	11,530	$18,303	27,673	258	17,798	18,808		
Non-Hispanic	20,663	$19,173	28,117	196	18,789	19,556		
Difference (H-N)	32,193	-$869**		323	-1,503	-235	-2.69	-0.09

Notes. *** $p < .001$, ** $p < .01$, (two-tailed)

Table C8. Delta wage ANOVA post-hoc table (Bonferroni Corrections) for race comparison for associate degree programs

	American Indian/ Alaskan Native	Asian	AA	Int	NH-PI	Unknown
Career Schools[a]						
Asian	6,916					
African American	-8,602	-15,518*				
International	5,945	-970	14,547*			
Native Hawaiian-Pacific Islander	-11,858	-18,774	-3,255	-17,803		
Unknown	-2,944	-9,860	5,657	-8,889	8,913	
White/Caucasian	-7,144	-14,060*	1,457	-13,089	4,713	-4,200*
Community Colleges[b]						
Asian	-1,139					
African American	-5,778*	-4,639*				
International	-3,982	-2,843	1,795			
Native Hawaiian-Pacific Islander	-5,768	-4,629	10	-1,785		
Unknown	-2,438	-1,299	3,340*	1,544	3,330	
White/Caucasian	-158	980	5,620*	3,824	5,610*	2,279*

Notes. *The mean difference is significant at 0.5 level

[a] $F(6, 8153) = 10.41$, $p < .001$, $\eta^2 = .01$

[b] $F(6, 33090) = 27.50$, $p < .001$, $\eta^2 = .01$