Postsecondary and Workforce Outcomes after Participation in Nevada CTE Programs

Research Report for NPWR Research Grants Program

Federick Ngo

Xue Xing

Monique North

University of Nevada, Las Vegas

August 31, 2025

Corresponding Author: federick.ngo@unlv.edu

Acknowledgements: The research was supported by a grant from the Nevada Governor's Office of Workforce Innovation (GOWINN). All opinions expressed are the authors' and do not reflect those of the granting agency.

Abstract

Career and technical education (CTE) plays a unique role in the preparation of the nation's students as they progress towards college and career, but evidence on the impact of CTE programs is somewhat mixed, with returns varying by CTE program area and student demographics. The research is also limited because just a handful of states have data that allow for robust longitudinal analysis. We use statewide longitudinal data from Nevada that links CTE participation in high schools with postsecondary and labor market outcomes. Using inverse probability weighting to estimate CTE treatment effects, we find significant benefits to Nevada CTE programs, which has important implications for a diverse, fast-growing state heavily reliant on the tourism and gaming industries.

Introduction

Career and technical education (CTE) plays a unique role in the preparation of the nation's students as they progress towards college and career. Across the United States, 88% of high school students take at least one CTE course, with approximately 1/5 concentrating in a specific area (Edgerton**,** 2022). The goals of 21st Century CTE are to equip students to be ready for college and career by aligning college and career readiness requirements with CTE curriculum standards with rigor (Threeton, 2022). Combining rigorous academics with hands-on, minds-open, work-based content can foster engagement, persistence, and a sense of belonging among students as well as employability skills to transition into the labor market and preparation to become more successful in college (Xing & Gordon, 2018).

Yet the evidence on the impact of CTE programs is somewhat mixed. CTE participation can increase students' engagement, high school completion, college enrollment, and post-graduation employment, suggesting a significant value-adding role in the educational landscape (e.g., AIR, 2024; Gottfried & Plasman, 2018; Xing & Gordon, 2020). At the same time, some national studies using quantitative methods show that CTE does not affect enrollment in 4-year colleges or college completion rates, and that CTE participants have similar earnings compared to non-participants (AIR, 2024). Returns to CTE programs also vary by participant background, such as race/ethnicity and gender (e.g., Brunner et al., 2021), by field of study (e.g., Xu & Backes, 2024), and by context (e.g., national, state, and local analysis).

We contribute to the existing literature on CTE programs by examining statewide longitudinal data from Nevada, one of the most diverse and fastest-growing states in the nation. Over 70,000 of Nevada's students participated in secondary CTE programs, and nearly 30,000 enrolled in postsecondary CTE courses (Nevada Department of Education [NDE], 2022).

Descriptive reports indicate CTE students have consistently exceeded the state graduation rate, and CTE concentrator proficiencies in Reading/Language Arts, Math, and Science all have exceeded state targets. Yet, limited understanding exists in terms of whether CTE participation benefits Nevada students in the long-run post high school graduation.

This study uses a rich statewide dataset and quasi-experimental methods to examine the impact of Nevada secondary CTE programs on student postsecondary and workforce outcomes. We investigate whether CTE benefits Nevada students with respect to increased college enrollment, college completion and workforce outcomes such as wages and field of employment. We disaggregate analyses by CTE program area to explore whether returns to CTE participation vary by program area. The following research questions guided the study:

1) Do Nevada's secondary CTE programs pay off in college and the workforce?

2) How do returns vary by CTE program area?

Literature Review

Research on CTE programs has mostly found benefits with respect to academic outcomes, including higher on-time graduation rates and increased odds of college enrollment (Brunner et al., 2021; Castellano et al., 2017; Dougherty, 2018; Glenie et al., 2020; Mindham & Schultz, 2020; Xu & Backes, 2024). This research has also documented variation by program of study, credential type, and individual student demographics (e.g., Sublett & Plasman, 2017). For instance, CTE was particularly beneficial for English learners (Glennie et al., 2020).

Some studies indicated no significant difference in college enrollment based on curricular rigor (Ames, 2021). However, Xu and Backes' (2023) study found a 12.5% increase in field-aligned college enrollment among healthcare cohorts, indicating the field of CTE study matters. Plasman et al. (2019) and Glennie et al.'s (2020) investigation highlighted that some programs

exhibit stronger connections to 2-year institutions and associate programs, particularly in the health, IT, and business industries. Thus while certifications in construction or hospitality may hinder college transitions, those in STEM fields may facilitate them more smoothly.

A few studies have documented labor market returns to CTE participation. Brunner et al. (2021) reported that males who attended CTE technical high schools earned 32% higher earnings. LaForest (2023), using ELS:02 data, found that trade-centered CTE increases earnings but reduces university attendance. Ecton and Dougherty (2022) and Hendricks et al. (2021) echo similar findings for industry-specific earnings increases in IT, healthcare, and manufacturing. Certifications under Florida's CAPE Act, as investigated by Glennie et al. (2020), revealed that terminal credentials directly lead to skilled employment and higher earnings. Ultimately, CTE participation offered immediate monetary benefits to participants—especially for non-college goers—when credentials are industry-recognized and linked to high-demand occupations.

While the above studies have provided important evidence on academic and labor market outcomes of students in high school CTE programs, one limitation is that most relied on national samples such as ELS:2002 (Gottfried & Plasman, 2018; Plasman et al., 2017, 2019; LaForest, 2023) or HSLS:2009 (Ames, 2021). Our study, which uses statewide longitudinal data from Nevada, complements the scant existing research that has examined the impact of CTE using statewide administrative data from Arkansas (Dougherty et al., 2019); Connecticut (Brunner et al., 2019), Florida (Glennie et al., 2024); Kentucky (Xu & Backes, 2024), and Massachusetts (Dougherty, 2018; Ecton & Dougherty, 2022). Nevada is among the most diverse and fastest-growing states in the nation, but it also has one of the least diversified economies, making it essential to explore whether the findings about CTE from other research also apply here.

CTE in Nevada

Nevada's economy heavily relies on gaming and hospitality, with over a quarter of Nevada workers employed in this industry (Girnus, 2021). Thus, diversifying the state business landscape continues to be a top priority for state lawmakers (Radke, 2024). Accordingly, CTE programs in Nevada align with workforce development strategies and play a critical role in labor shortages in in-demand sectors. For instance, the Nevada Governor's Office of Economic Development (GOED) has worked with Nevada System of Higher Education (NSHE) institutions to create programs that address workforce gaps, particularly in healthcare and technology (Nevada Governor's Office of Economic Development, 2020).

CTE programs of study exist in various school settings, including comprehensive schools that offer some CTE courses as well as magnet programs and career academies that provide CTE programs exclusively (CCSD Magnet Schools, n.d.). To participate in the CTE programs at selected schools, specific criteria must be met for criterion-based programs, while others are interest-based or audition-based. Students who aspire to attend a criteria-based program must meet rigorous eligibility requirements to be considered for attendance (CCSD Magnet Schools, n.d.).

The majority of programs of study are two to three years in length and are aligned with content standards and course sequencing, culminating in an end-of-program (EOP) assessment. Students enrolled in CTE programs can complete their programs of study at two different levels, completer and certificate earner. Completers, as the name suggests, complete all courses in a program of study and pass the EOP assessment (CTE in CCSD, 2025). Completers with a cumulative GPA of 3.0 or better and passing the Workplace Readiness Skills (WRS) assessment earn the state recognized Skill of Attainment Certificate, which is tied to CTE college credit

statewide (CTE in CCSD, 2025). We examine the impact of these programs on postsecondary and labor market outcomes using the data and methods described next.

Data & Methods

NPWR Data

To explore the outcomes of Nevada students in CTE programs, we use data from the Nevada P-20 to Workforce Research Data System (NPWR), which houses longitudinal educational records for each student in public K-12 programs in the Nevada Department of Education. These data include student demographic and academic enrollment information, including CTE program enrollment and completion. The data are linked to individual records from the Nevada System of Higher Education, which includes all postsecondary course enrollment and degree attainment information, and to data from the Department of Employment, Rehabilitation, and Training, which tracks quarterly wages for workers in the state. These allow us to estimate the relationship between CTE participation and wages, along with alignment between CTE program and occupation fields to determine whether CTE students find employment in a matching field. The full sample includes N=179,382 9th grade students entering NDE beginning 2014-2015 and through 2018-2019 cohorts (5 cohorts). disaggregated by CTE-participators (N=62,082) and non-participators (N=117,300). This is about 35% of Nevada 9th graders in the 2014-2018 9th grade cohorts who subsequently participated in a CTE program at their high school.

Identification Strategy

We are interested in identifying the effect of CTE participation and completion on academic outcomes, but selection bias arises as students select into Nevada schools and CTE programs. We attempt to account for selection bias using inverse probability weighting (IPW),

which is one approach to estimating unbiased treatment effects where there is no random assignment, and when there are possible confounders (Woolridge, 2010). In the first stage of IPW, we use logistic regression to obtain the propensity of CTE participation for each student, conditional on observable characteristics. These include race, gender, free/reduced lunch eligibility, Limited English Proficient designation, IEP designation, and 11th grade ACT score (all NV students must take the ACT in 11th grade as a graduation requirement).

These propensity scores are used to calculate treatment probability weights. We then assign the inverse of the probability of treatment for treated individuals and the inverse probability of not being treated for control individuals, and apply these in the outcome regression. Importantly, we include the same covariates that were included in the treatment model, resulting in the doubly robust IPR estimator. IPW remains consistent if either the outcome regression model or the propensity score model is correctly specified (Woolridge, 2010). We do not interpret the resulting Average Treatment on the Treated (ATT) estimate as a causal effect since the IPW design relies heavily on the assumption that selection into treatment or the outcomes model is correctly modeled. We describe all results as the estimated association between CTE participation and downstream outcomes.

To explore heterogeneity in the effects of CTE participation we estimate regressions among CTE participants, but include indicators for each of the 16 CTE program areas. This allows us to identify whether participation in certain CTE areas is associated with better college enrollment, college completion, and labor market outcomes.

About 15% of the full sample did not have 11th grade ACT score data, either due to non-progression to 11th grade or opt-out of the ACT test that is administered to all 11th graders in Nevada as a graduation requirement. We proceeded with listwise deletion of observations

missing 11th grade ACT since academic achievement (as proxied by a standardized test) is important in predicting college enrollment and postsecondary outcomes. The final analytical sample is N=152,912 students who have complete ACT and demographic information.

Findings

Description of CTE Participation in NDE

Table 1 shows the characteristics of our analytical sample. CTE participants have higher average 11th grade ACT scores. They are less likely to be eligible for free/reduced lunch, and less likely to have an IEP designation or a Limited English Proficiency (LEP) designation. Asian students and Hispanic students are slightly over-represented in CTE, and female students are underrepresented. Participation in CTE grows as a share of the 9th grade cohort; 17% of 2014-2015 9th graders participated in a CTE program, and this grew to 22% of 9th graders in the 2018-2019 cohort.

Table 2 shows descriptive statistics for students who were ever enrolled in an NDE CTE program (and who have ACT scores; N=42,983). This includes a disaggregation of CTE program areas: (1) Agriculture, food and natural resources; (2) Architecture and construction; (3) Arts, A/V technology and communication; (4) Business management and administration; (5) Education and training (6) Finance; (7) Government and public administration; (8) Health science; (9) Hospitality and tourism; (10) Human services; (11) Information technology; (12) Law, public safety, corrections and security; (13) Manufacturing; (14) Marketing; (15) Science, Technology, Engineering, and Mathematics; (16) Transportation, distribution and logistics. Arts (22%), Health Science (15%), Hospitality and Tourism (13%), and Information Technology (9%) are the four most popular areas. The table also shows the number of CTE completions and

number of certifications earned for each student. Among CTE participants, 69% completed at least one CTE program, and 35% completed at least one CTE certificate.

Postsecondary and Labor Market Outcomes

Our IPW analysis focuses on estimating the effects of CTE participation college enrollment, persistence in college (number of terms enrolled), and credential completion.[1] The results are presented in Table 3. Overall, there is a consistent, positive, and significant effect of CTE participation on these postsecondary outcomes. CTE-participators were 8.4 percentage points more likely to enroll in NSHE (compared to the mean of 34.4% for non-participants). Among the subsample of students who enrolled in an NSHE institution, students who had participated in a Nevada CTE program enrolled in 0.29 more terms than those who had not (mean = 5.51). They also were 2.5 percentage points more likely to complete a degree/certificate three years post high school (by Spring 2023) (mean = 25.7%).

Wage regressions are presented in Table 4. These show the differences in first and second year labor market outcomes among students who did not enroll in NSHE following high school graduation. Compared to other students who directly entered the workforce following high school graduation, students who had participated in CTE programs earned about $807 more on average after the first year, and $1,721 more on average after the second year. These suggest a significant wage boost to CTE participation among non-college enrollees.

Outcomes by CTE Program Area

The first 3 columns of Table 5 show the results of regressions estimating the relationship between NSHE outcomes and CTE participation with indicators for CTE program area. Compared to Agricultural, food, and natural resources CTE students, all other program areas

[1] These analyses were conducted in Stata using *teffects*. Observations not in the overlapping sample after propensity score estimation were dropped.

except for Government and Human Services were more likely to enroll in an NSHE institution. Moreover, students who participated in business, health, information technology, and STEM were more likely to enroll in a greater number of terms in the NSHE system. Students in health science and marketing were the most likely to subsequently earn a NSHE credential (by Spring 2023). Students who completed certifications were also more likely to have better postsecondary outcomes.

The two rightmost columns of Table 5 show wage returns by program area. These regressions only include those students who did not enroll in NSHE. Compared to Agriculture, students who participated in Government & Public Administration, as well as those who participated in Business, earned lower wages. Those with Marketing and Transportation CTE backgrounds earned higher wages 1 and 2 years post-high school graduation. However, it should be noted that many of these wage data are for wages earned during the COVID-19 pandemic. The shock to the Nevada economy and opportunities for young adults entering the workforce may be significantly affecting the results. If these students remained enrolled in higher education, then it is also possible that the wage returns will not transpire after a few years after college graduation.

Discussion

This study of secondary CTE programs from Nevada reveals significant returns to CTE participation in Nevada high schools. Students who completed a CTE program were more likely to enroll in higher education, and among those who did, they enrolled in more terms and were eventually more likely to complete a postsecondary credential, after control for student background characteristics and academic achievement (ACT scores).

We also examined outcomes of CTE students who did not subsequently enroll in NSHE and instead moved directly into the workforce. Among NDE students who did not enroll in NSHE, those who had participated in CTE were also more likely to earn higher wages. After 1 year, the CTE wage premium was $800, and this more than doubled by year 2, reaching upwards of $1700 premium by the second year post-high school. This suggests that there is a labor market return to high school CTE programs in Nevada.

Varied results exist across CTE disciplines. Business and health science CTE programs have the largest return in terms of increasing student enrollment in NSHE (an additional 9 and 16 percentage points, respectively). This suggests that there may be suitable scaffolds to support students transitioning from secondary to post-secondary programs in these CTE areas. Health sciences students and marketing students, in turn, are more likely to earn NSHE credentials. It is possible that these programs may offer more structured programs that lead towards postsecondary completion. Future research should investigate further curriculum alignment to better prepare students in all CTE program areas for postsecondary success.

Certification also was a predictor of postsecondary outcomes. Students with one or more CTE certificates are significantly more likely to enroll in and attend an NSHE institution. It is important to note that there was mostly no significant increase in terms completed or credential completion among students earning multiple certifications. Future research should investigate what certifications are most associated with earning NSHE credentials. Additionally, future research should investigate who earns the most certificates by demographic and how it relates to earning an NSHE credential.

Implications

There are a few important implications for Nevada educators, instructional designers, and learners. Though not fully explored and shown in this paper, CTE participation varied by district and by school. Since there are benefits to CTE participation, this suggests that it is important to explore access to CTE in Nevada high schools and the processes of admissions into CTE programs.

Most CTE program areas were associated with increased NSHE enrollment, but not all of them were associated with increased persistence (number of terms enrolled) or credential completion. Only Health Sciences and Marketing programs appeared to significantly increase postsecondary credential completion. It is important to explore what practices in those programs might be facilitating college enrollment and attainment relative to other programs.

Finally, only Marketing and Transportation CTE programs were associated with increased wages for non-college enrollees. This suggests that other CTE fields may want to examine their workforce connections in Nevada to ensure that high school CTE training can translate to some workforce and labor market advantages for NDE CTE participants.

Conclusion

Overall, these findings mirror the handful of other studies using statewide longitudinal data (e.g., Arkansas, Connecticut, Florida, Kentucky, and Massachusetts). These findings from Nevada offer insight into the role of CTE in creating economic opportunity for Nevada's students, and have significant implications for developing and expanding the economy in a rapidly growing state with a great need for economic diversification.

References

Advanced CTE. (2023). Carl D. Perkins Career and Technical Education Act. https://careertech.org/what-we-do/engaging-policymakers/federal-policy-agenda/perkins-act/

Ames, T. (2021). Does career and technical education in high school increase the odds of college enrollment? *Journal of Career and Technical Education*, 36(1), 1–20. https://doi.org/10.21061/jtce.v35i1.a4.

Balfanz, B., & Bridgeland, J. (2024). Graduation Nation. *Stanford Social Innovation Review*, *22*(4), 28–37. https://doi.org/10.48558/NJZM-BZ95

Bettencourt, A., et al. (2022). But do I need a college degree? Student voice and career readiness. *Urban Education*, https://doi.org/10.1007/s10755-021-09585-3.

Brunner, E. J., Dougherty, S. M., & Ross, S. L. (2021). The effects of career and technical education: Evidence from the Connecticut technical high school system. *Journal of Policy Analysis and Management*, 40(2), 491–520. https://doi.org/10.1162/rest_a_01098

Castellano, M., et al. (2017). Preparing students for college and career in the United States. *Peabody Journal of Education*, 92(2), 191–208. https://doi.org/10.1007/s12186-016-9162-_7

College of Southern Nevada. (n.d.). *Career and technical education programs*. Retrieved from https://www.csn.edu/CTE

Diehl, D. (2020). It's Good Until It's Not: The Curvilinear Relationship Between Affective School Engagement and Career and Technical Education Participation. *Career and Technical Education Research, 45*(3), p.45 https://doi.org/10.5328/cter45.3.45

Dougherty, S. M. (2018). The effect of career and technical education on human capital accumulation: Causal evidence from Massachusetts. *Education Finance and Policy*, 13(2), 119–148. https://doi.org/10.1162/edfp_a_00224

Ecton, W., & Dougherty, S. M. (2022). Heterogeneity in high school career and technical education. Annenberg Institute Working Paper Series, 21-492. https://doi.org/10.26300/4jwf-wb39

Fletcher, E. C., & Dumford, A. D. (2021). Preparing students to be college and career ready: The effect of career academy participation. *Career and Technical Education Research*, 46(2), 23–41. https://doi.org/10.5328/cter46.2.23

Freeman, J. A., Gottfried, M. A., & Plasman, J. S. (2021). STEM-focused career courses and college pipeline for students with learning disabilities. Educational Policy, 37(2), 308–338. https://doi.org/10.1177/08959048211019988

Girnus, A. C. (2021, August 16). Census data shows communities of color are the new Nevada • Nevada Current. *Nevada Current*. https://nevadacurrent.com/2021/08/16/census-data-shows-communities-of-color-are-the-new-nevada/

Glennie, E. J., Ottem, R., & Lauff, E. (2020). The influence of earning an industry certification in high school on going to college: The Florida CAPE Act. *Journal of Career and Technical Education*, 35(1), 17–36. https://doi.org/10.21061/jcte.v35i1.a2.

Goodwin College. (2020). *The value of for-profit education: A policy analysis*. Retrieved from https://www.goodwin.edu

LaForest, M. (2023). The Effects of High School Career and Technical Education on Employment, Wages, and Educational Attainment. *Journal of Human Capital*. https://doi.org/10.1086/722309

Mindham, N., & Schultz, D. (2020). Youth apprenticeship and employability skills programs. *Wisconsin Department of Public Instruction*. http://dx.doi.org/10.5328/cter44.3.3

National Center for Education Statistics. (2024). High School Graduation Rates. *Condition of Education*. US Department of Education, Institute of Education Sciences. https://nces.ed.gov/programs/coe/indicator/coi.

Nevada Career Institute. (2020). *Programs offered*. Retrieved from https://www.nevadacareer.org

Nevada Department of Education. (2018). *Nevada Career and Technical Education: A history*. Retrieved from https://www.doe.nv.gov

Nevada Governor's Office of Economic Development. (2020). *Nevada Ready 21 Initiative*. Retrieved from https://www.diversifynevada.com

Nevada System of Higher Education. (2021). *Academic catalog*. Retrieved from https://www.nevada.edu

Plasman, J.S., Gottfried, M.A., & Sublett, C. (2019). Is There a Career and Technical Education Coursetaking Pipeline between High School and College? *Teachers College Record: The Voice of Scholarship in Education, 121*, 1 - 32.

Radke, B. (2024, October 10). *Nevada Strategic Growth Initiative aims to diversify the state economy through collaboration—Las Vegas Weekly*. https://lasvegasweekly.com/ae/2024/oct/10/nevada-strategic-growth-initiative/

Xu, Z., & Backes, B. (2023). Linkage between fields of focus in high school career technical education and college majors. Educational Evaluation and Policy Analysis, 46(3), 435–457. https://doi.org/10.3102/01623737231164149

Xu, Z., & Backes, B. (2023). CTE field continuity into college credentials: A longitudinal analysis. American Institutes for Research. CALDER Working Paper No. 269-0323-2

TABLES

Table 1: Descriptive Statistics (N = 152912)

	Non-CTE		CTE Participants	
	Mean	**SD**	**Mean**	**SD**
ACT Composite (11th gr.)	17.43	5.14	18.63	4.95
FRL	.44	.50	.43	.49
IEP	.09	.29	.06	.23
LEP	.12	.33	.10	.30
Asian	.06	.24	.08	.27
Black	.11	.31	.08	.27
White	.34	.47	.34	.47
Hispanic	.41	.49	.43	.50
Other/Unknown	.01	.09	.01	.09
Multiracial	.06	.23	.05	.22
Pacific Islander	.01	.12	.01	.11
Female	.50	.50	.48	.50
Cohort				
1415	.21		.17	
1516	.21		.18	
1617	.20		.21	
1718	.19		.22	
1819	.19		.22	

Table 2. Descriptive Statistics of CTE Participants (N = 42983)

	Mean/Prop.	SD
ACT Composite (11th gr.)	19.13	5.00
FRL	.43	.50
IEP	.05	.22
LEP	.10	.29
Asian	.09	.28
Black	.07	.25
White	.33	.47
Hispanic	.44	.50
Other/Unknown	.01	.09
Multiracial	.05	.22
Pacific Islander	.01	.11
Female	.48	.50
Cohort		
1415	.15	
1516	.18	
1617	.21	
1718	.23	
1819	.23	
Last CTE Cluster Completed		
Agriculture, food and natural resources	.03	
Architecture and construction	.06	
Arts, A/V technology and communication	.22	
Business management and administration	.02	
Education and training	.03	
Finance	.01	
Gov't & Public Administration	.00	
Health Science	.15	
Hospitality and Tourism	.13	
Human Services	.03	
Information Technology	.09	
Law, Public Safety, Corrections and Security	.06	
Marketing	.04	
Manufacturing	.05	
STEM	.04	
Transportation, Distribution, and Logistics	.05	
Total CTE Completions		
0	.31	
1	.55	
2	.13	
3	.01	
4	.00	
Total CTE Certificates		
0	.65	
1	.29	

2	.05
3	.00
4	.00

Table 3. IPW regression of postsecondary outcomes on CTE participation

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Enrolled in NSHE						
Avg. Treatment Effect (In CTE)	0.084	0.003	32.9	***	0.079	0.090
Mean (No CTE)	0.344	0.002	218.1	***	0.341	0.347
N	152856					
Number of Terms Enrolled (among NSHE enrollers)						
Avg. Treatment Effect (In CTE)	0.293	0.031	9.51	***	0.233	0.353
Mean (No CTE)	5.514	0.021	268.54	***	5.473	5.554
N	57814					
Completed NSHE Cert/Degree (among NSHE enrollers)						
Avg. Treatment Effect (In CTE)	0.025	0.004	6.71	***	0.018	0.032
Mean (No CTE)	0.257	0.002	104.05	***	0.252	0.262
N	57814					

*p<.05 **p<.01 ***p<.001

Table 4. IPW regression of wage outcomes following CTE participation among non-NSHE HS grads

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Wages 1yr Post-HS						
Avg. Treatment Effect (In CTE)	807.406	175.537	4.6	***	463.360	1151.451
Mean (No CTE)	7533.928	130.014	57.95	***	7279.106	7788.750
N	10560					
Wages 2yrs Post-HS						
Avg. Treatment Effect (In CTE)	1721.974	244.468	7.04	***	1242.826	2201.122
Mean (No CTE)	9788.594	174.982	55.94	***	9445.636	10131.550
N	10560					

*p<.05 **p<.01 ***p<.001

Table 5. NSHE Outcomes Among NDE CTE Participants by CTE Area

	Enrolled in NSHE	Number of Terms Enrolled	Completed Credential in NSHE	Wages 1yr Post-HS	Wages 2yrs Post-HS
11th Gr ACT	0.013***	0.041***	0.009***	-331.182***	-595.963***
	(0.001)	(0.006)	(0.001)	(31.837)	(45.387)
FRL	-0.042***	-0.682***	-0.067***	1403.041***	1625.366***
	(0.005)	(0.051)	(0.007)	(306.401)	(436.800)
IEP	-0.052***	-0.052	-0.005	-942.274	-808.64
	(0.011)	(0.139)	(0.018)	(731.764)	(1043.191)
LEP	-0.044***	0.346***	0.034**	650.789	278.01
	(0.009)	(0.099)	(0.013)	(597.012)	(851.090)
Asian	0.084***	0.878***	0.069*	-665.229	-1089.393
	(0.022)	(0.223)	(0.029)	(1194.710)	(1703.160)
Black	0.023	-0.107	-0.007	-1429.951	-2504.51
	(0.022)	(0.232)	(0.030)	(1181.639)	(1684.526)
White	(0.025)	-0.064	0.032	-257.916	-429.223
	(0.021)	(0.217)	(0.028)	(1083.133)	(1544.096)
Hispanic	0.056**	0.442*	0.052	792.54	1922.155
	(0.021)	(0.215)	(0.028)	(1079.031)	(1538.249)
Other	0.014	-0.564	-0.053	-5266.138*	-7130.482*
	(0.034)	(0.353)	(0.046)	(2094.366)	(2985.695)
Multiracial	0.027	-0.085	0.028	-681.578	-519.159
	(0.023)	(0.233)	(0.031)	(1209.624)	(1724.420)
Female	0.079***	0.557***	0.045***	-1305.941***	-2237.368***
	(0.005)	(0.051)	(0.007)	(299.337)	(426.731)
Agriculture, food and natural resources	0.000	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Architecture and construction	0.047**	0.243	-0.005	865.175	1325.809
	(0.016)	(0.178)	(0.023)	(855.549)	(1219.657)
Arts, A/V technology and communication	0.041**	0.141	-0.003	1349.206	464.688
	(0.014)	(0.158)	(0.021)	(748.907)	(1067.630)
Business management and administration	0.097***	0.755***	0.05	-1685.483	-3171.432*
	(0.021)	(0.213)	(0.028)	(1051.075)	(1498.395)
Education and training	0.063***	0.253	0.02	335.89	-149.291
	(0.019)	(0.198)	(0.026)	(890.624)	(1269.659)
Finance	0.076*	0.546	0.049	233.803	-1725.371
	(0.031)	(0.295)	(0.039)	(1546.311)	(2204.395)
Gov't & Public Administration	(0.024)	-0.297	0.029	-2183.604	-6609.274**
	(0.037)	(0.402)	(0.053)	(1732.618)	(2469.992)
Health Science	0.165***	0.733***	0.070***	1323.236	674.498
	(0.015)	(0.158)	(0.021)	(787.165)	(1122.170)
Hospitality and Tourism	0.054***	0.184	0.016	1271.582	1581.827
	(0.015)	(0.165)	(0.022)	(791.791)	(1128.764)
Human Services	0.027	0.385	0.003	911.918	1172.19
	(0.019)	(0.199)	(0.026)	(999.557)	(1424.953)
Information Technology	0.044**	0.363*	0.036	184.537	287.954
	(0.016)	(0.168)	(0.022)	(841.492)	(1199.617)
Law, Public Safety, Corrections and Security	0.072***	0.144	0.028	299.099	-960.028
	(0.017)	(0.180)	(0.024)	(894.898)	(1275.752)
Marketing	0.081***	0.122	0.074**	3512.319***	4002.307**
	(0.018)	(0.192)	(0.025)	(992.362)	(1414.695)
Manufacturing	0.076***	0.235	0.014	1227.098	835.611
	(0.017)	(0.184)	(0.024)	(915.480)	(1305.093)
STEM	0.074***	0.917***	-0.032	973.826	712.38
	(0.018)	(0.184)	(0.024)	(992.297)	(1414.603)
Transportation, Distribution, and Logitistics	-0.045**	0.008	0.017	1781.146*	2554.666*
	(0.017)	(0.196)	(0.026)	(895.122)	(1276.071)
1 CTE Completion	0.000	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
2 CTE Completions	0.024**	-0.066	-0.01	-43.695	671.22
	(0.007)	(0.073)	(0.010)	(419.754)	(598.395)

3 CTE Completions	0.065**	-0.022	-0.029	-486.524	1848.943
	(0.023)	(0.218)	(0.029)	(1164.349)	(1659.877)
4 CTE Completions	(0.006)	2.556**	0.136	6390.646	9779.442
	(0.085)	(0.810)	(0.106)	(3544.300)	(5052.697)
0 CTE Certificates	0.000	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
1 CTE Certificate	0.100***	0.634***	0.111***	-123.979	-298.579
	(0.006)	(0.055)	(0.007)	(323.916)	(461.769)
2 CTE Certificates	0.126***	1.105***	0.169***	167.8	-550.99
	(0.011)	(0.106)	(0.014)	(606.770)	(865.002)
3 CTE Certificate	0.079*	0.756*	0.233***	-1758.708	-5156.465*
	(0.038)	(0.339)	(0.044)	(1755.682)	(2502.872)
4 CTE Certificates	0.215	-3.053*	0.029		
	(0.179)	(1.541)	(0.202)		

*p<.05 **p<.01 ***p<.001