

Participation, Outcomes, Expenditures, & Funding for CTE in Arkansas

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Roadmap

- Overview of prior study on the impact of CTE in Arkansas
 - Context & data
 - Findings
 - Describe subsequent study on CTE funding and Secondary Area Career Centers
 - Data
 - Findings
 - Implications
 - Questions & Answers
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Nationally, what do we know about the efficacy of CTE?

- Career and technical education has increasingly been a buzzword over the last several years, in part driven by CCSS focus on college and career readiness (US DOE, 2012)
 - Prior work on the effects of CTE on student outcomes who positive effects on wages, (Bishop & Mane, 2004; Kemple, 2008; Neumark & Rothstein, 2006; Page, 2012)
 - Evidence of the effects of CTE participation on academic outcomes is more mixed with less strong causal identification.
 - Recent work in Massachusetts on Regional Technical Schools shows promising impacts on high school completion (Dougherty, in press; Gottfried & Plasman, 2017), but also evidence of less CTE course taking in high stakes testing era (Kreisman & Stange, 2017)
 - Focus of policy in Arkansas provides a nice opportunity to understand whether CTE course taking effects student high school completion, college going, and labor market outcomes
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First report: The Fordham Institute, 2016

CAREER AND TECHNICAL EDUCATION IN HIGH SCHOOL: DOES IT IMPROVE STUDENT OUTCOMES?

By SHAUN M. DOUGHERTY



Research Questions

- 1. Which students are taking CTE courses?
Which courses – and how many of them –
are they taking?**
 - 2. Does greater exposure to CTE improve
education and employment outcomes?**
 - 3. Does CTE concentration have benefits for
students? Do certain students benefit more
than others?**
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Data Sources



Summary of 5 Key Findings

1. Most students in Arkansas take CTE with limited evidence of “tracking”
 2. White and female students are more likely to concentrate, and some concentrations are more or less popular depending on a student’s gender, race, income level, and disability status
 3. The more CTE courses students take, the better their education and labor market outcomes
 4. Students who concentrate see additional benefits, especially when it comes to high school graduation
 5. Male and low-income students see the largest benefits to concentrating in a CTE program of study
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Most Popular CTE Courses

Approximately 18% percent of all course taking is accounted for by just three classes:



**COMPUTERIZED
BUSINESS APPLICATIONS**



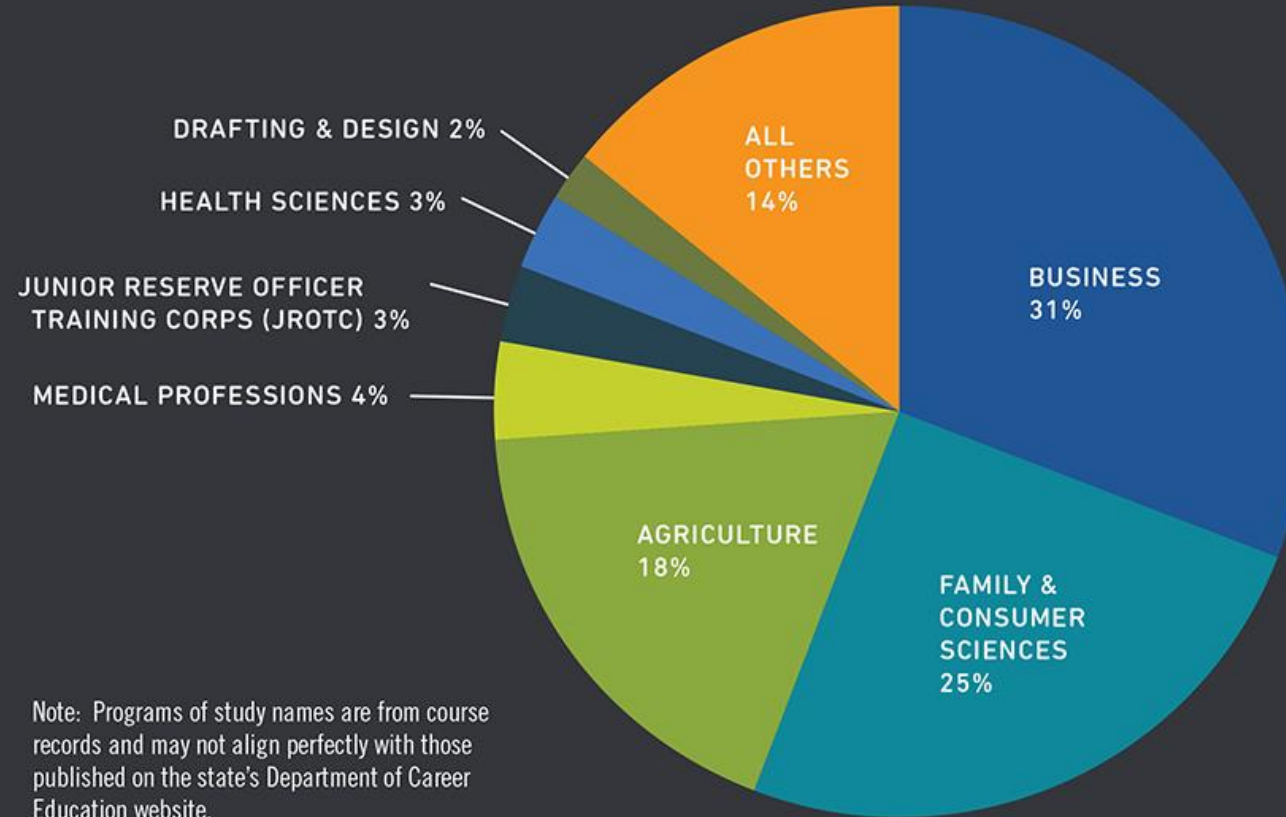
**FAMILY AND
CONSUMER SCIENCES**



**AGRICULTURAL SCIENCE
AND TECHNOLOGY**

Where are the concentrators?

FIGURE 7 | MOST POPULAR PROGRAMS OF STUDY FOR CONCENTRATORS



Note: Programs of study names are from course records and may not align perfectly with those published on the state's Department of Career Education website.

How does CTE course taking impact student outcomes?

FIGURE 8 | BENEFITS OF CTE COURSEWORK

Just one additional CTE class above the average means a student is...



3

PERCENTAGE POINTS
MORE LIKELY TO
GRADUATE FROM
HIGH SCHOOL



1

PERCENTAGE POINT
MORE LIKELY TO
ENROLL IN A
TWO-YEAR COLLEGE



2

PERCENTAGE POINTS
MORE LIKELY TO
BE EMPLOYED
AFTER HIGH SCHOOL



\$28

PER QUARTER
BETTER COMPENSATED
IN THE YEAR
AFTER HIGH SCHOOL

What are the benefits of concentrating, are all effects equal?

FIGURE 10 | BENEFITS OF CONCENTRATION

Students who concentrate in a single program of study are...



21

PERCENTAGE POINTS
MORE LIKELY TO
GRADUATE FROM
HIGH SCHOOL



1

PERCENTAGE POINT
MORE LIKELY TO
ENROLL IN A
TWO-YEAR COLLEGE



1

PERCENTAGE POINT
MORE LIKELY TO
BE EMPLOYED
AFTER HIGH SCHOOL



\$45

PER QUARTER
BETTER COMPENSATED
IN THE YEAR
AFTER HIGH SCHOOL

Outcomes by Concentration

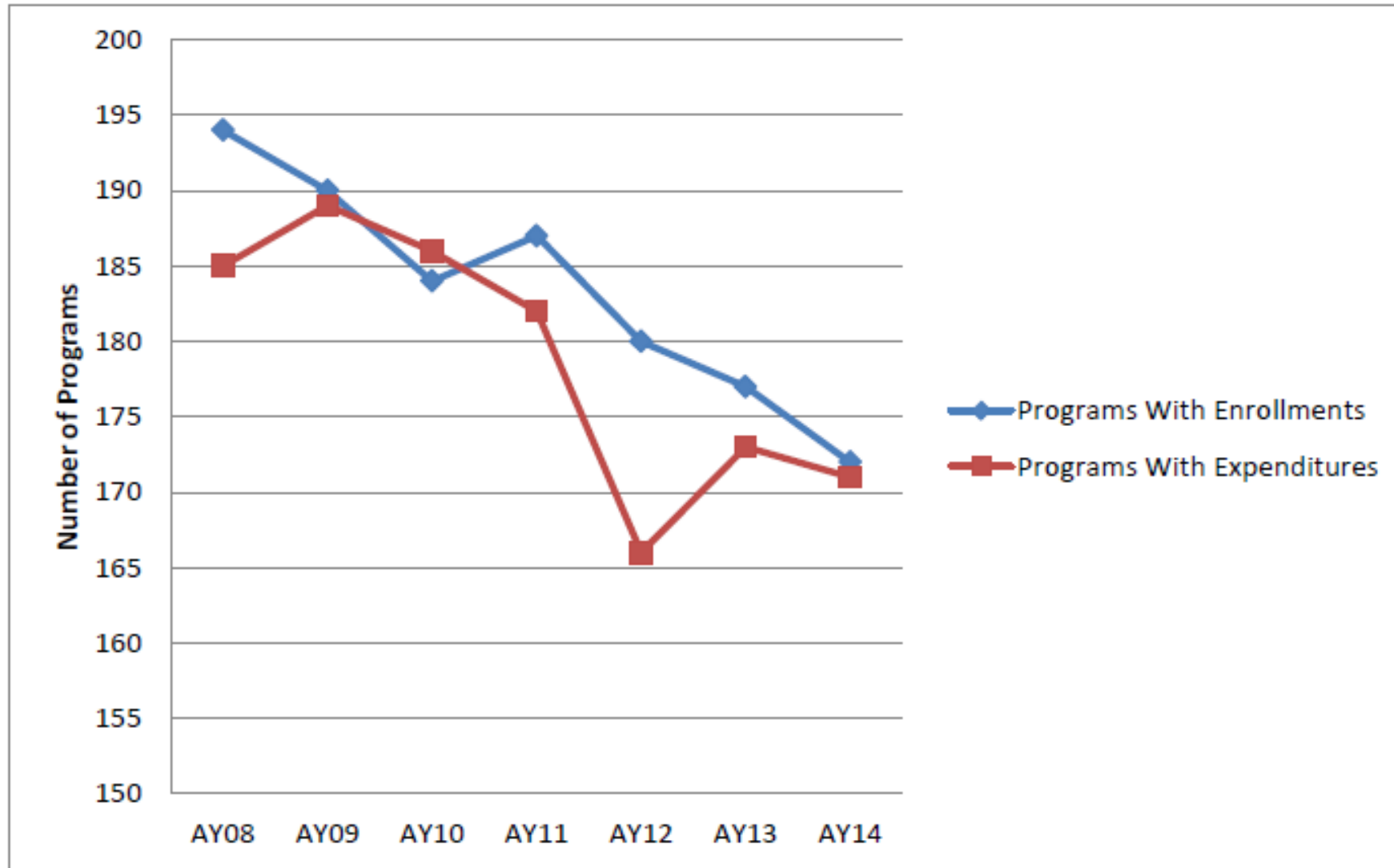
	Agriculture, Food, and Natural Resources	Architecture and Construction	Arts, A/V Technology, and Communications	Business Management and Administration	Education and Training	Finance	Government and Public Administration	Health Sciences
Graduated High School	0.94	0.931	0.944	0.946	0.958	0.96	0.913	0.95
Initially Enroll, 2-Year College	0.154	0.107	0.246	0.179	0.198	0.235	0.117	0.378
Initially Enroll, 4-Year College	0.064	0.093	0.101	0.087	0.116	0.129	0.041	0.114
Initial Average Quarterly Wage	1128.575	1192.029	864.05	949.837	917.896	907.483	894.796	936.314

	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, Corrections, and Security	Manufacturing	Marketing	Science, Technology, Engineering, and Mathematics	Transportation, Distribution, and Logistics
Graduated High School	0.943	0.912	0.921	0.917	0.912	0.9	0.932	0.92
Initially Enroll, 2-Year College	0.203	0.164	0.208	0.369	0.416	0.138	0.286	0.415
Initially Enroll, 4-Year College	0.083	0.069	0.11	0.047	0.099	0.057	0.124	0.07
Initial Average Quarterly Wage	953.913	938.11	895.988	1115.525	1348.744	1249.213	853.438	1480.28

Second report: Secondary Area Career Centers

- Report titled: **The Condition of Participation, Outcomes, Expenditures and Funding of Secondary Area Career Centers in Arkansas**
 - Uses enrollment, funding, and outcomes data for Secondary Area Career Centers for Academic Years 2008 through 2014.
 - Student outcomes for those enrolled in SACCs
 - Survey data from State CTE directors in 23 states
 - Funding, staffing, and enrollment for SACCs
 - Describes funding and spending patterns
 - Simulates alternative funding scenarios
 - Makes recommendations about funding, reporting, and accountability
-

Trends in Secondary Area Career Center Participation



Student outcomes: SACCs & Traditional High Schools

- Within sample of about 100,000 students
 - Traditional high schools produce about 3X as many concentrators
 - 30,786 versus 10,163
 - Participation in CTE through SACCs represents:
 - 34% of all high school CTE participation
 - 24% of all CTE concentrators in high school
 - Outcomes across 16 Career Clusters are similar
 - College going
 - Initial employment & wages
-

Program of Study Offerings & Mismatch

- Top 5 most offered programs of study;
 - Medical Professions (23)
 - Welding (18)
 - Auto Service Technology (17)
 - Computer Engineering (15)
 - Cosmetology (14)
 - Clear imbalance in production of some careers:
 - Cosmetology (over produced) and accounts for 9% of total program related expenditures
 - Advanced manufacturing (under produced) relative to current & anticipated labor demand, and accounts for <2% of total program related expenditures
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Funding Structure Static, Possibly Imbalanced

- *Matrix formula* for all schools
 - No explicit outlays for CTE
 - *Vocational Center Aid Fund (VCAF)*: \$20.1 million per year provided for SACCs as supplement
 - Distributed at rate of \$3,250 per FTE, with any remainder split in proportion to center enrollment
 - Meant to cover program-related costs only
 - Approach unchanged since 2003
 - *State Start-up Funds*: \$2.37 million can be requested for program start-up (e.g. equipment)
 - Though nearly all goes to high schools (97%), rather than SACCs
 - Most SACC funding comes through VCAF – 94.3% of total expenditures in this period
 - Range of funds spent on non-program costs varied:
 - As low as ~11% and as high as ~50%
-

Expenditures Underfund Program-related Areas

COST AREA	TOTAL EXPEND	% OF TOTAL EXPEND
ADMINISTRATION	\$37,276,240	23.8%
BUILDING (1 CENTER)	\$2,454,912	1.6%
INDIRECT COSTS	\$1,223,460	0.8%
INSTRUCTIONAL SUPPORT (1 CENTER)	\$250,722	0.2%
INTERNSHIPS ACROSS PROGRAMS	\$148,132	0.1%
M&O	\$11,715,812	7.5%
SECURITY (1 CENTER)	\$1,341,047	0.9%
SITE IMPROVEMENT (1 CENTER)	\$20,650	0.0%
TECH PREP (1 CENTER)	\$81,659	0.1%
TRANSPORTATION	\$282,766	0.2%
TUITION AY12 AND AY13 (1 CENTER)	\$367,651	0.2%
TOTAL NON-POS EXPENDITURES	\$55,163,051	35.3%
PROGRAM OF STUDY EXPENDITURES	\$101,200,210	64.7%
TOTAL EXPENDITURES	\$156,363,261	

Abbreviated Findings & Recommendations

Program Structure

- Program availability at centers is not fully aligned with high growth industries and college enrollment
- Redesign/re-alignment of programs should be considered for HS, SACCs, and higher education
- Implement an accountability system to ensure all students are trained to meet industry & academic standards for career and/or college readiness

Funding of CTE

- Funding to SACCs appears disproportionate to relative share of CTE market (students & staff)
- Rationalize funding processes to ensure programs & CTE funding allocations for SACCs & all CTE programs represent labor demand

Reporting & Data Collection

- Update financial accounting, and data collection processes to standardize
 - Conduct subsequent analysis & reporting under new systems
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Summary & Conclusion

- Clear positive effects of CTE participation and concentration for students in Arkansas
 - Effects for SACCs and comprehensive high schools – especially for concentrators – are about the same
 - Yet, spending on SACCs substantially exceeds comprehensive high schools
 - Present system of funding and evidence of outcomes does not suggest that status quo is likely to improve short or med-term economic outcomes
 - Funding approaches could be updated to reflect innovations in other states
 - Non-lagged per pupil allocations
 - Funding differential to recognize economies of scale
 - Incentives to align program offering with local labor demand
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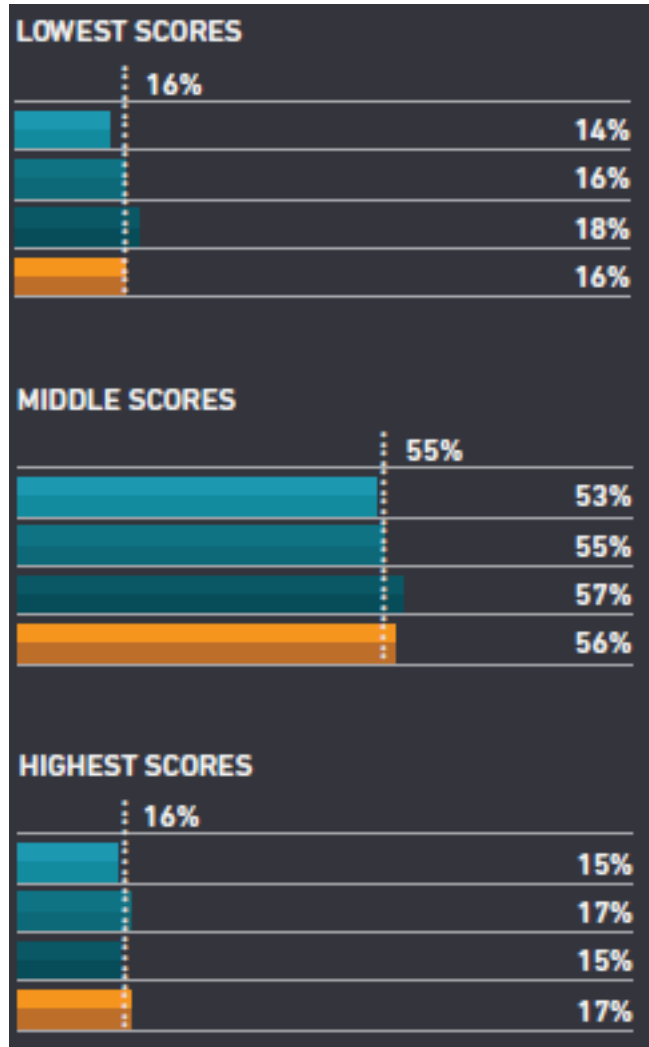
QUESTIONS?



Participation in Clusters by Geography

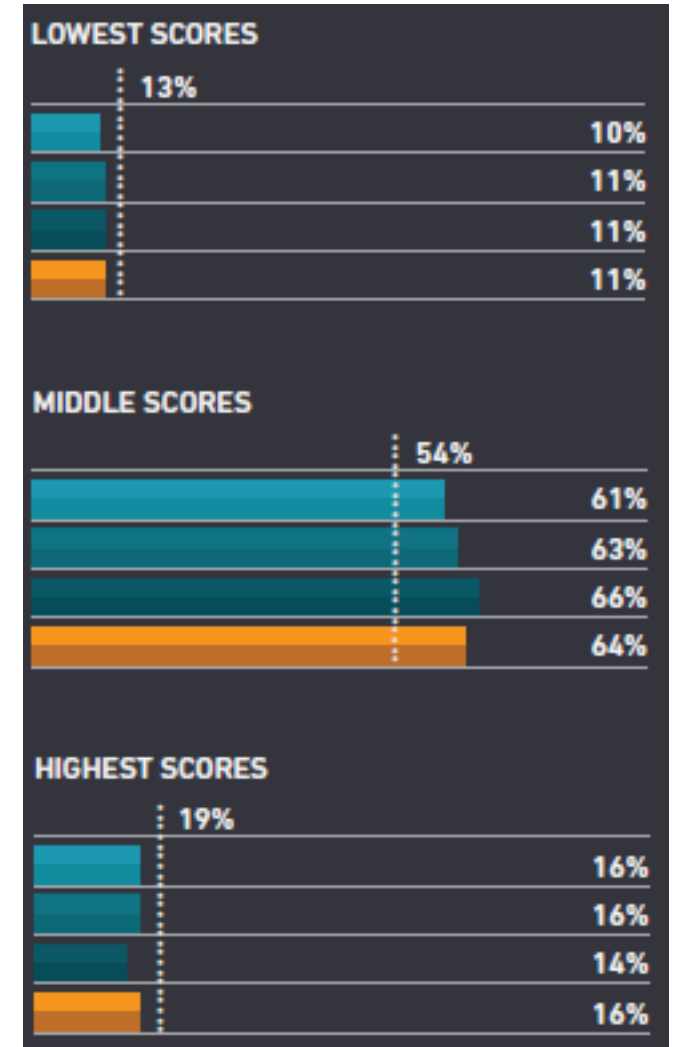
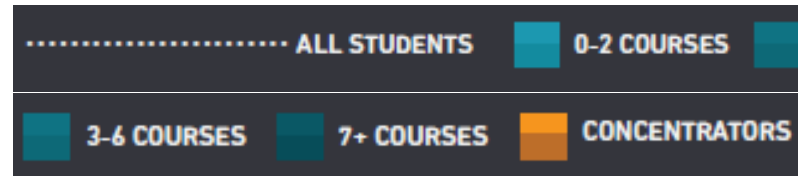
PANEL B - INDUSTRY CLUSTERS	City	Suburb	Rural
Agriculture, Food, and Natural Resources	0.06	0.296	0.187
Architecture and Construction	0.056	0.017	0.036
Arts, A/V Technology, and Communications	0.078	0.008	0.029
Business Management and Administration	0.03	0.019	0.022
Education and Training	0.022	0.006	0.011
Finance	0.027	0.012	0.023
Government and Public Administration	0.047	0.021	0.051
Health Sciences	0.149	0.047	0.108
Hospitality and Tourism	0.021	0.008	0.012
Human Services	0.188	0.256	0.207
Information Technology	0.122	0.236	0.191
Law, Public Safety, Corrections, and Security	0.027	0.01	0.014
Manufacturing	0.027	0.021	0.031
Marketing	0.066	0.007	0.026
Science, Technology, Engineering, and Mathematics	0.042	0.007	0.013
Transportation, Distribution, and Logistics	0.03	0.02	0.031

Who is represented in CTE?: Performance



MATH

ENGLISH



Who is represented in CTE?: Demographics

