Career and College Ready

Indiana's New Career and Technical Education

An Analysis of Indiana's Career and Technical Education Programs

April 2013

Indiana Department of Education

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Introduction

Over the last decade, Indiana's vocational education landscape has dramatically changed. What used to be perceived as a low rigor educational alternative for non-college bound students is now a robust statewide college and career preparation program linking the academic rigor of Indiana's Core 40 curriculum with the high-demand technical skills training required by Indiana's workforce leaders.

The negative connotations with the term "voc-ed" have been replaced by new "Career and Technical Education" or CTE programs. And more than just the name has changed.

Indiana high school students who complete a CTE program today:

- Are more likely to graduate from high school - at an average rate that is 6.4% above the graduation rate for all Indiana high school students,
- Earn more college credits than students in any other high school program in the state. College credits earned through CTE programs are transcripted and transferable to all of Indiana's two- and four-year public institutions.
- Take fewer remedial courses in their first year of college. National research indicates that students who have a career focus are more likely to complete a college program.
- Have a greater chance of leaving high school with an industry-recognized certification or credential that provides a competitive advantage to students entering the workforce.

In February 2013, the Indiana Department of Education commissioned two studies of Indiana's Career and Technical education program in order to:

1. Assess the impact of CTE on student performance, graduation and preparation for college and a career, and
2. Examine the strength of the relationships between high school career preparation programs and the regional workforce needs of Indiana's businesses and industries.

This first report provides an in-depth summary of student performance in Career and Technical Education (CTE) programs in Indiana drawn from data provided by the Indiana Department of Workforce Development, Indiana Department of Education and the results of a survey of CTE district directors conducted in February 2013.

Background

Career and Technical Education (CTE) programs in Indiana are governed by both state and federal laws. Federal funding from the Carl D. Perkins Act of 2006 (Perkins IV) is tied to annual student performance in eight core indicators and to the implementation of College and Career Pathways that align CTE and academic courses into a logical sequence that prepares students for entry into postsecondary education or the workforce in a high wage, high skill, high demand occupation.

Federal CTE funding flows to 47 CTE districts in the state, each district representing multiple high schools in an area, and each with its own CTE district director. Program funding is used to

provide equipment and resources for high school CTE courses and programs which, in many districts, are offered through an area career center facility.

State CTE funding is channeled directly to school corporations as reimbursement for student enrollment in designated career preparation courses. Reimbursement rates for courses that prepare students for high wage and high demand occupations in Indiana are higher than the reimbursement rates for courses that lead to lower wage and lower demand occupations. Federal CTE funding is dependent on census data and measures of student performance.

In contrast to former vocational programs intended only for students planning to work immediately after high school, current CTE programs are open to all students whether they intend to pursue a four-year college degree or expect to work directly after graduation. Indiana CTE Pathway Course Sequences today provide:

- Introductory "exploratory" courses to allow students to "try out" a variety of career interest areas before entering postsecondary education,
- An aligned sequence of related career preparation courses (called College and Career Pathways) that allow students to:
    - Earn college credits in high school,
    - Receive an industry-recognized certification, license or credential and,
    - Participate in a worksite internship, cooperative education or other work based learning experience.

In 2009 and 2010, the state asked more than 300 statewide business and industry representatives to review and revise the content standards of each of the state's CTE courses. The revised courses were then aligned into 53 related career course sequences, called College and Career Pathways, within the following broad "career cluster" categories:

- Agriculture
- Architecture and Construction
- Arts, AV, Technology and Communications
- Business and Marketing
- Education and Training
- Health Science
- Hospitality and Human Services
- Information Technology
- Manufacturing and Logistics
- Public Safety
- STEM (Science Technology, Engineering and Math)
- Transportation

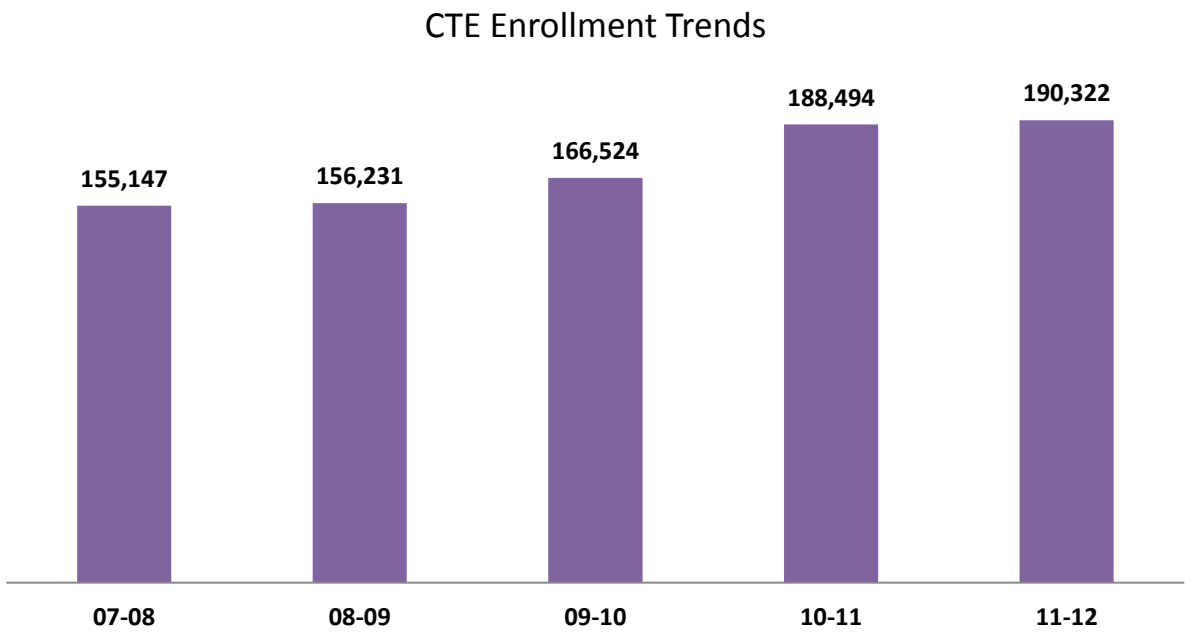
Indiana schools and career centers may choose to offer Pathway Course Sequences from any of these clusters areas as long as they prepare students to enter high wage and high demand careers in the state or local region.

Indiana CTE Program and Performance Information

Enrollment and Graduation Rates

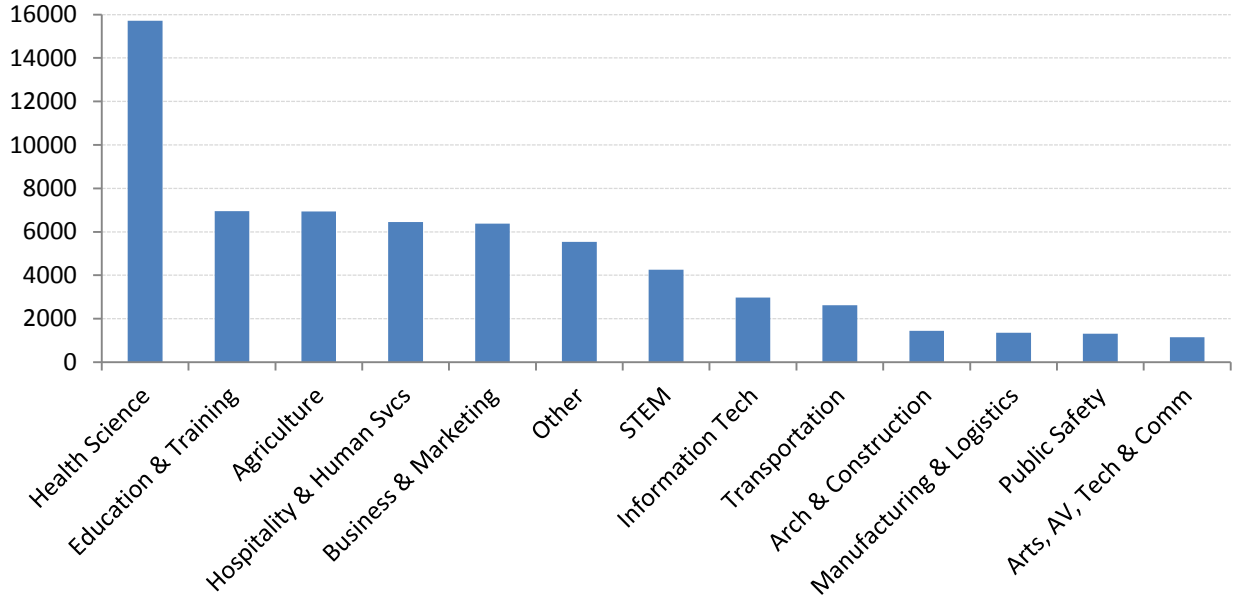
Almost half of all Indiana high school students enrolled in at least one Career and Technical Education (CTE) course in the latest reporting year, 2011-12[1]. That figure represents 60.2% of the 316,147 public high school students enrolled in grades 9-12[2].

Indiana's CTE enrollments have continued to rise every year with the number of Indiana public high school students enrolled in at least one CTE course at its highest level in 2011-12[1].

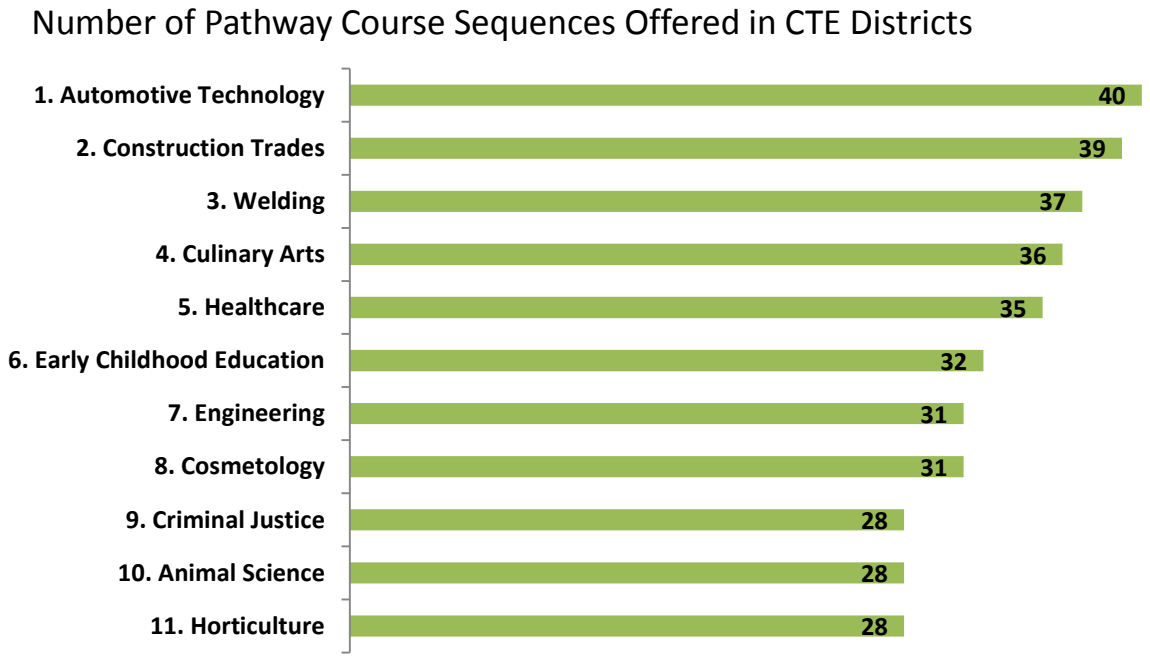


Statewide enrollment numbers in CTE Pathway Course Sequences vary depending on course availability and student interest. The most popular Pathway Course Sequences fall in the categories of health science, education and training, agriculture, hospitality and human services, and business and marketing. Manufacturing and STEM program numbers appear to be growing with an increased emphasis on a new Advanced Manufacturing curriculum from

Conexus and the continued strength of Project Lead the Way (PLTW) pre-engineering and biomedical science program offerings[1].

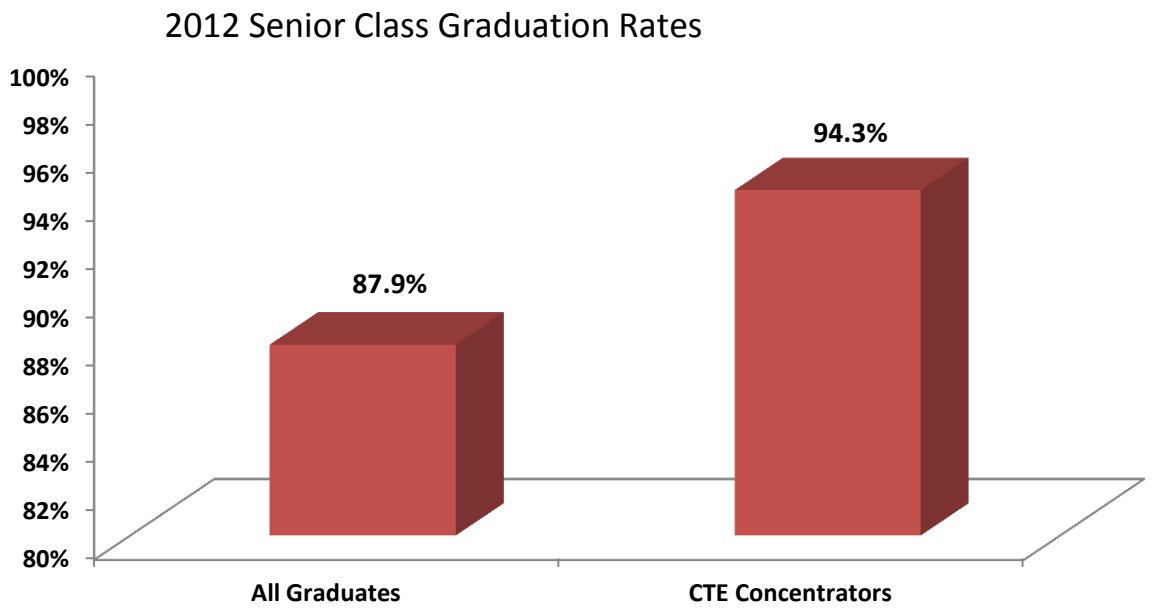


Each of the 47 CTE districts offers an average of 17 Pathway Course Sequences to students. The most commonly offered Pathway Course Sequences are in the areas of automotive technology, construction, welding, culinary arts and healthcare[3]. See more details in Appendix A.

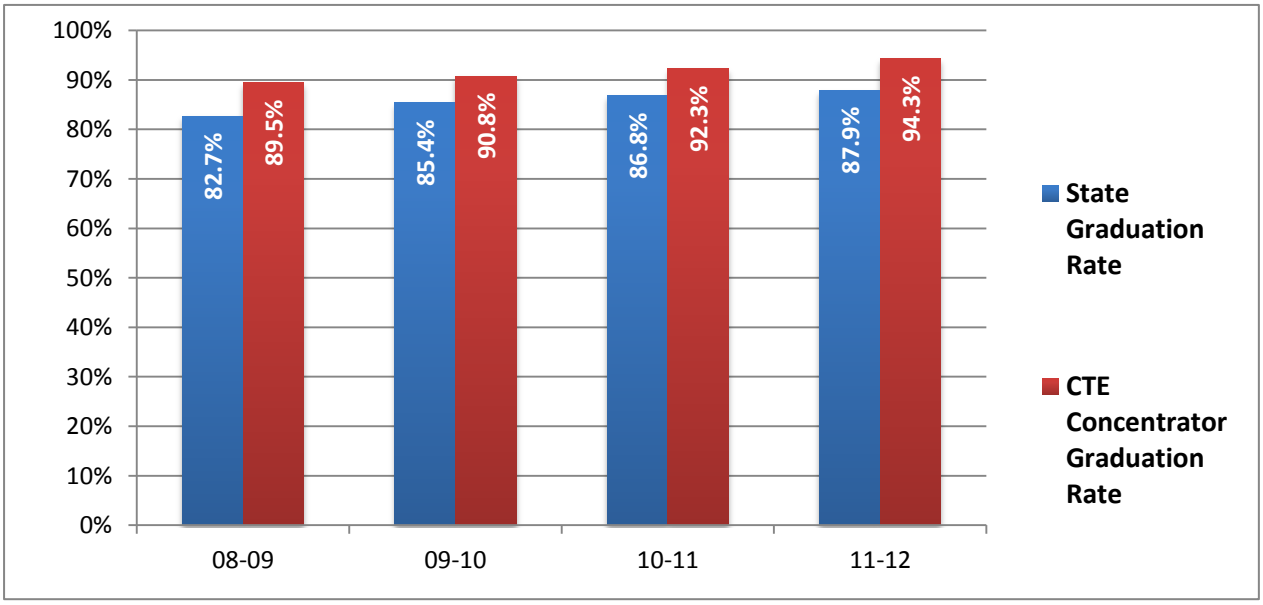


Graduation Rates

In 2011-12, high school seniors who completed at least six credits in a CTE Pathway Course Sequence (labeled "CTE concentrators") had a graduation rate of 94.3%[1] compared to 87.9% for all students[2]. That means Indiana students who concentrated in a career preparation program during high school **graduated at a 6.4% higher graduation rate than all other students**.

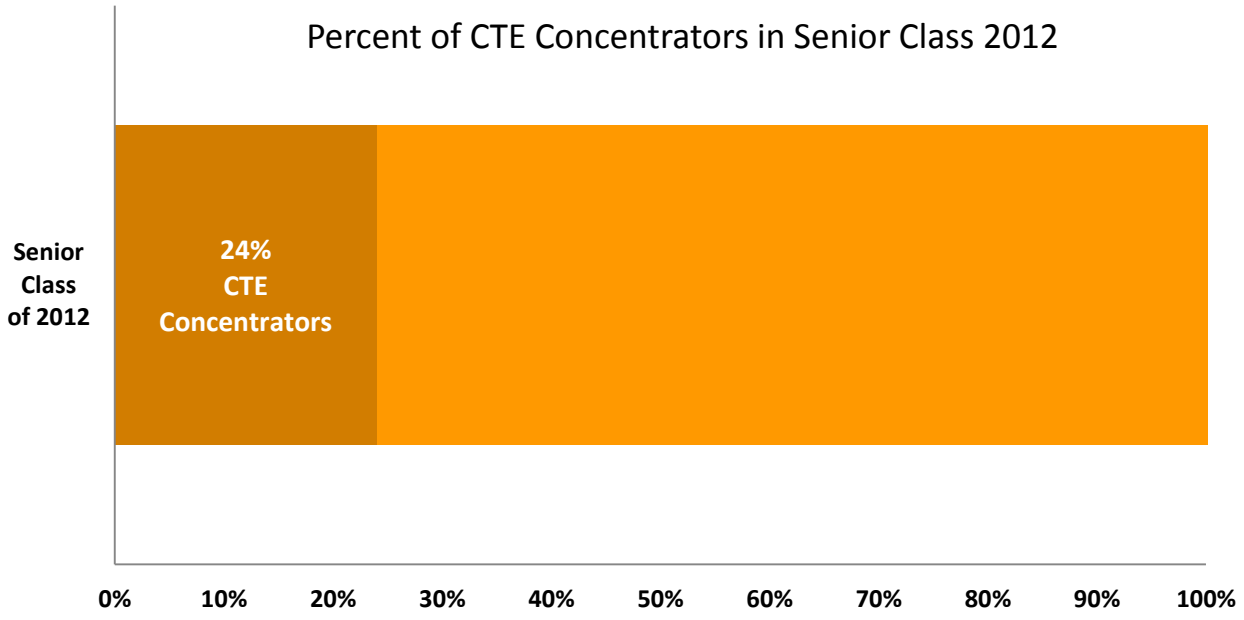


Graduation rates for CTE concentrators have been consistently higher than the statewide average graduation rate for all students for the last four years, averaging above 90% since 2010 and averaging 6% higher than the rate for all students[1]. That makes **CTE programs the most consistent and effective dropout prevention program in the state.**



While 49.4% of all students enrolled in at least one CTE course in 2011-12, a smaller number of students continue on to complete a six credit Pathway Course Sequence. Nevertheless, the numbers are strong.

In the senior class of 2012, students identified as a CTE concentrator numbered 17,570 or 24% of all seniors (74,065)[1].



College Credits in High School

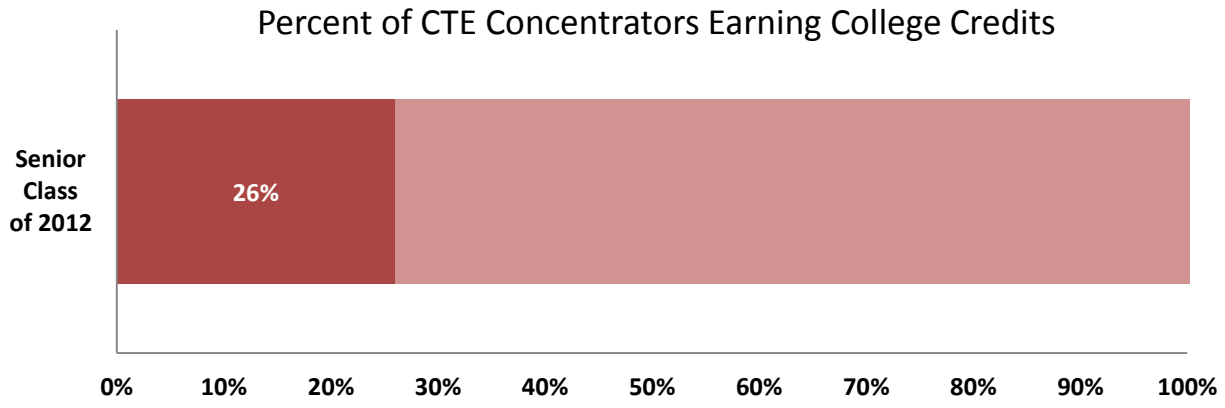
Almost all (49) of the 53 College and Career Pathways available to schools around the state offer the opportunity for students to earn college credits while in high school[3]. The majority of college credits are earned through dual credit programs available free of charge through Ivy Tech Community College and Vincennes University.

However, students in CTE Pathway Course Sequences earn college credits through an additional 35 postsecondary institutions including four-year universities such as Indiana University, Purdue University, Indiana State University and University of Southern Indiana as well as out of state universities and proprietary institutions[3].

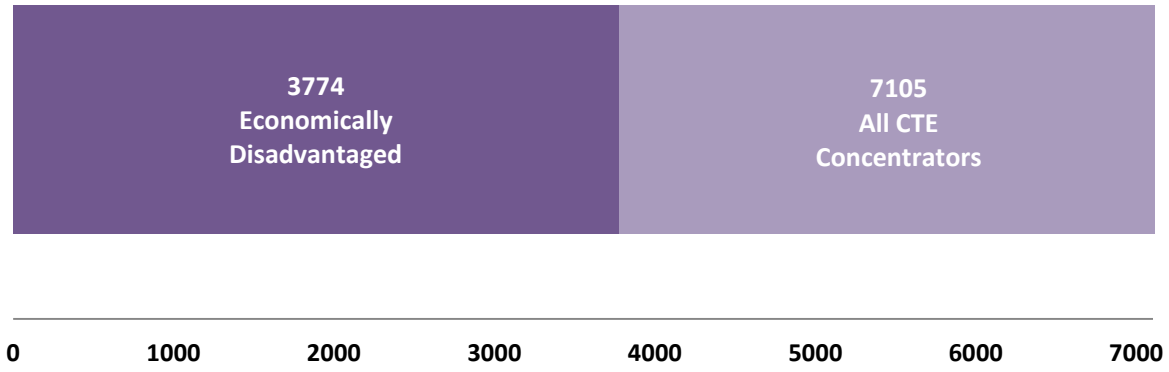
Postsecondary and Higher Education Institutions with Dual Credit Agreements with Indiana High School CTE Pathway Course Sequences

Ivy Tech Community College
Vincennes University
Purdue University West Lafayette
Purdue University – Calumet
Purdue University North Central
IPFW – IU Purdue University Fort Wayne
IUSB – Indiana University South Bend
IUPUI – Indiana University Purdue University Indianapolis
IUPUC - IU Purdue University Columbus
Grace College
Trine University
Indiana State University
Indiana University - Bloomington
University of Southern Indiana
Lincoln College of Technology
Lincoln Technical Institute
Harrison College
ITT Technical Institute
Kansas State University
University of Northwestern Ohio
Danville Area Community College
Southwestern Michigan University
Wyoming Technical Institute
Rochester Institute
University of Northern Ohio
PJ's College
Sullivan College
Kaplan College
Chef's Academy
University of St. Francis
Stevenson University
Missouri S&T
Southwestern Michigan Junior College
Cincinnati State
Beckfield College
Sullivan University
Ohio Technical College
Spencerian College
Christ College of Nursing and Health Sciences

One quarter, 26%, of all seniors completing a six credit CTE Pathway Course Sequence in Indiana in 2012 earned college credits, the highest percentage of any academic preparation program in the state. 53% of senior college credit earners in 2012 were from families considered economically disadvantaged[1].



Disadvantaged Student Concentrators Earning College Credits



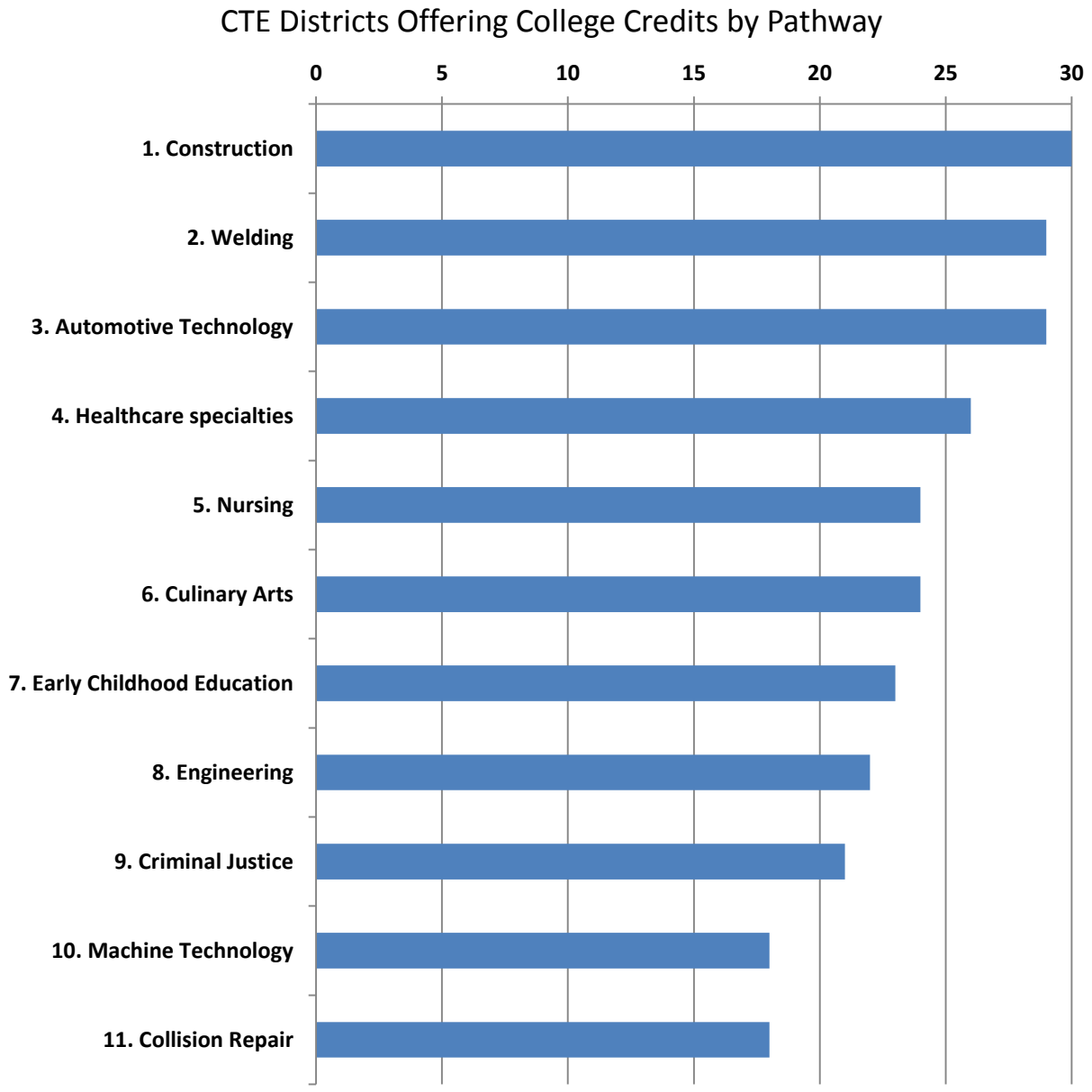
Unlike most other states, college credits earned through CTE programs in Indiana are transcripted college credits meaning students receive a college transcript listing the college credits they earned in high school and those college credits are treated the same as if they were earned on the college campus[2].

On average, more than 275 college credits are available to students in college and career Pathway Course Sequences offered in each CTE district. By the end of 2012, a total of 18,290 dual credit exams were administered and more than 69,000 college credits were awarded to Indiana high school students in CTE Pathway Course Sequences[3]. Calculating the average cost of a one credit hour course at Ivy Tech Community College at $111, Indiana students saved a total of more than $7.6 million dollars in college tuition costs in 2012 alone.

69,000 Dual Credits
X
$111 Cost per Credit Hour

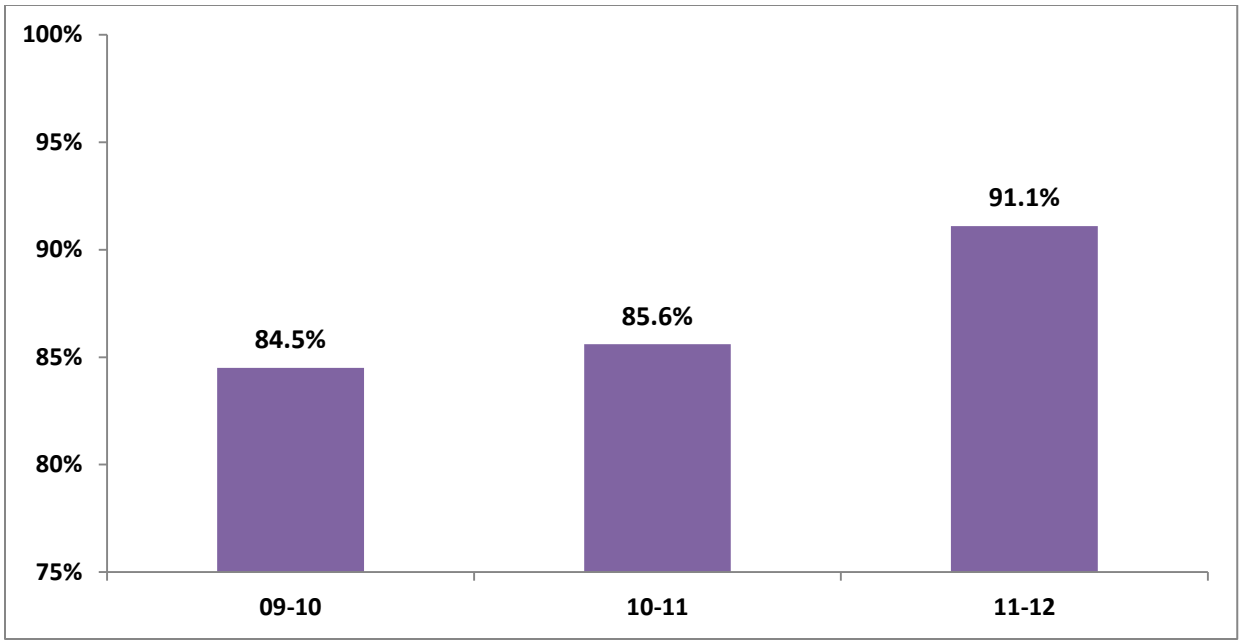
= $7,659,000 College Tuition Savings

The number of CTE districts offering college credits to students reflects the numbers of most frequently offered programs in the state with construction, welding and automotive technology programs topping the list[3].

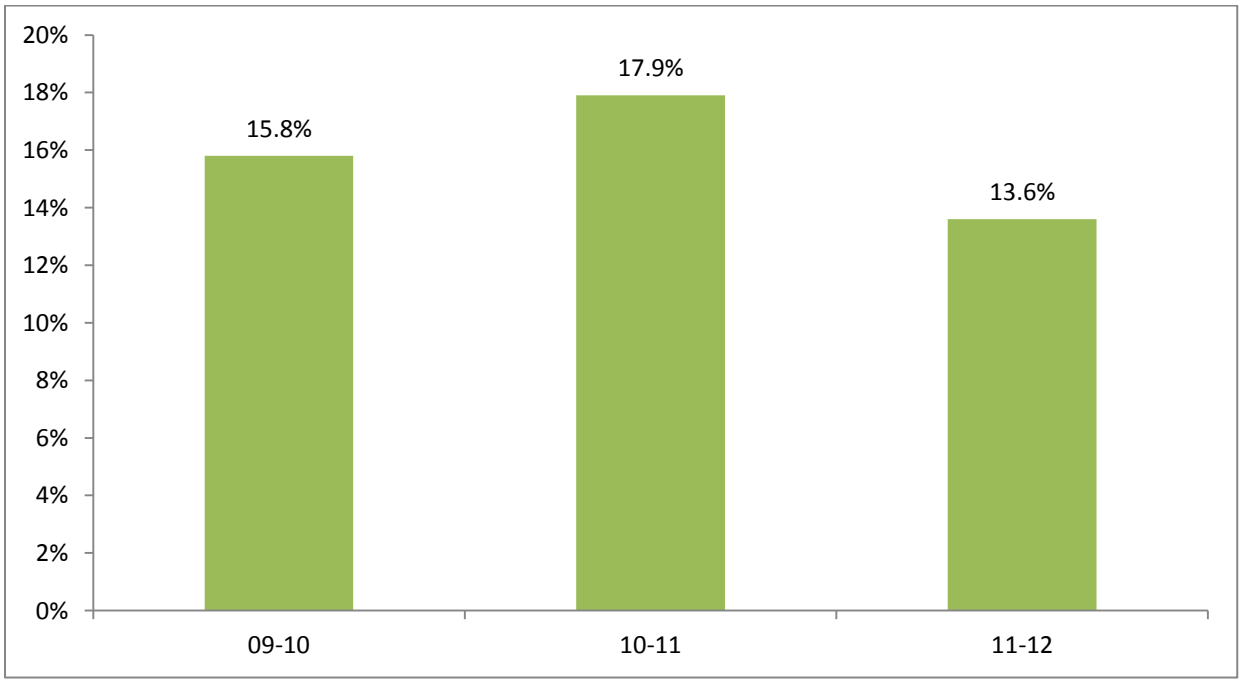


Postsecondary Enrollment and Success

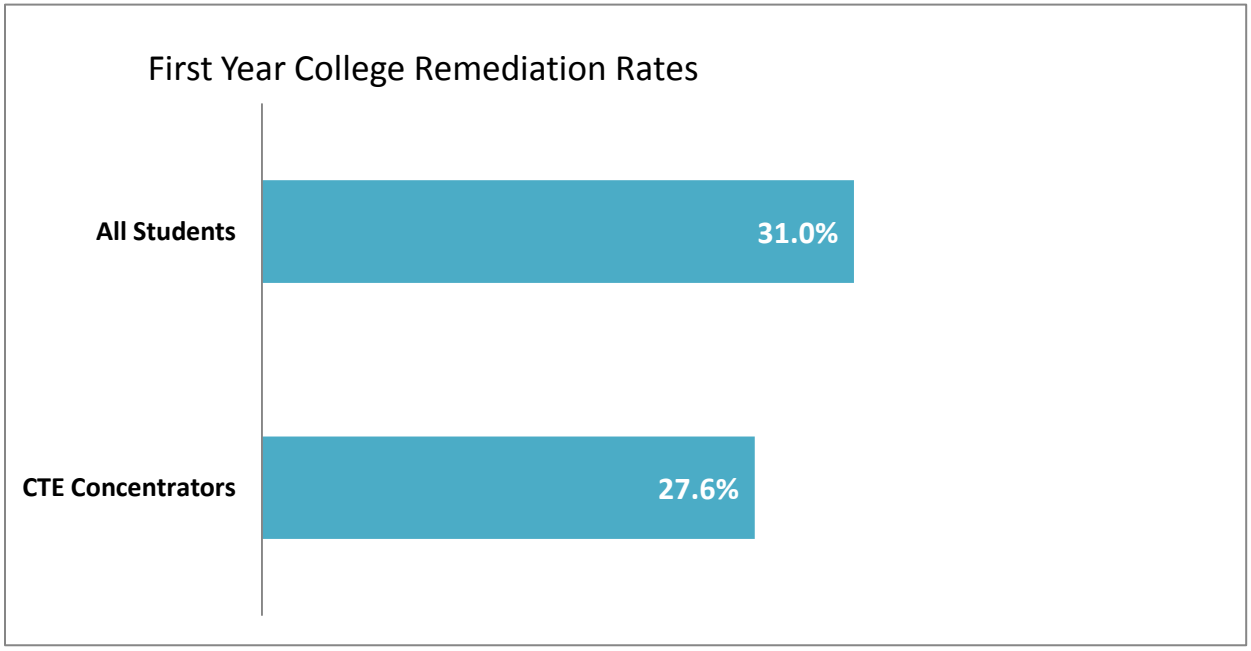
A growing percentage of seniors graduating high school after completing six or more CTE courses (CTE concentrators) enter the workforce or postsecondary education within six months after high school graduation. This after graduation "placement rate" has jumped by 7% in the last two years, moving from just over 84% in 2010 to 91% in 2012[1].



Two thirds of senior CTE concentrators (62.7%), enroll in a postsecondary education or training program immediately after high school graduation. Most enter college with an "undeclared" major or as "general studies." Only 13.6% of concentrators graduating high school in 2011 enrolled in a postsecondary education program that matched the CTE Pathway Course Sequence the student had completed while in high school[1].



One year follow-up data indicates that remediation rates for CTE concentrators in the first year of college is 27.6%, which is 3 percentage points lower than the 31% remediation rate for all students who entered college in the same year[1]. Though the news indicates a positive advantage to students entering college as a CTE concentrator, both percentages are very high. Remediation rates for CTE graduates enrolled in their first year of college rose in 2011-12 which paralleled an overall rise in the rate of students enrolling in college credit-bearing CTE courses.

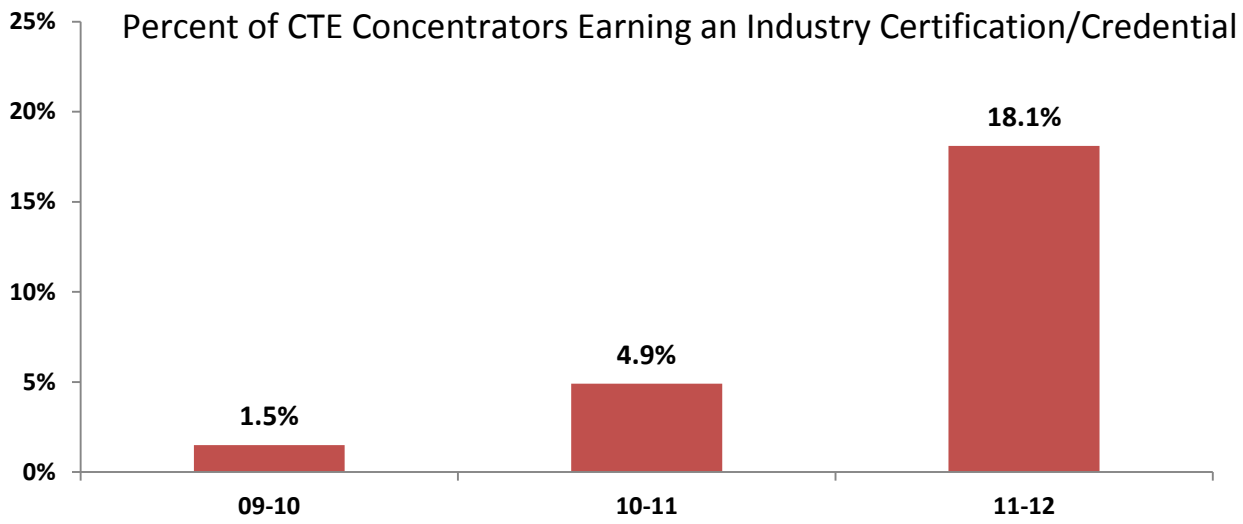


Industry-Recognized Certifications, Credentials and Licenses

Indiana's CTE Pathway Course Sequences are intentionally designed so that graduates earn not only a high school diploma but college credits and/or an industry-recognized certification, credential or license in their chosen career field of study.

While this goal is reflected in federally supported programs of the Carl D. Perkins Act of 2006, many industry-based certifications (IBCs) are typically unavailable to high school students due to minimum age requirements (typically certification holders must be 18 years old or older) and a frequent requirement of prior work experience in the field.

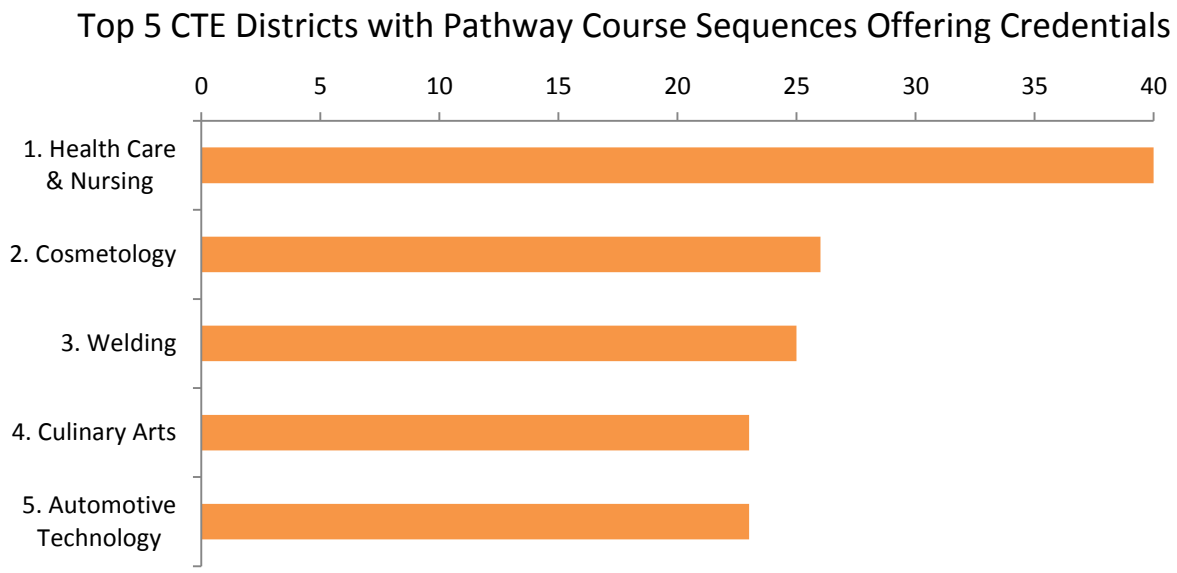
Nevertheless, some industries have created open certifications or "passport" certifications that are available to high school students who demonstrate proficiency in the knowledge and skills competencies of the industry. In 2012, almost 20% of CTE program concentrators earned an industry certification, credential or license which is a four-fold increase over 2011 and the highest percentage ever recorded[1].



The bulk of certifications awarded to Indiana CTE Pathway Course Sequence concentrators fall into eleven categories (two share the 2nd place position) with the highest numbers awarded to students in Health Sciences, Cosmetology, Family and Consumer Sciences and Life Sciences[1].

	Certification Assessment	Related Pathway Course Sequence	Tested	Passed	Percent Passing
1	Certified Nursing Assistant (CNA)	Health Sciences	872	861	98.7%
2	Indiana State Cosmetology License	Cosmetology	214	193	90.2%
2	American Association of Family & Consumer Sciences (AAFCS)		214	151	70.6%
3	Project Lead the Way (PLTW) Biomedical Sciences Assessment	Health Sciences	186	94	50.5%
4	National Automotive Student Skills Standards (NA3SA) – Auto Tech	Automotive Technology	182	146	80.2%
5	National Automotive Student Skills Standards (NA3SA) – Collision Repair	Collision Repair	184	148	80.43
6	American Welding Society (AW) Sense I Assessment	Welding	180	117	65.0%
7	National Consortium for Health Sciences Education (NCHSE) National Assessment	Health Sciences	165	125	75.8%
8	Early Childhood Education Pre-PAC Assessment	Early Childhood Education	160	84	52.5%
9	ProStart National Certificate	Culinary Arts	159	149	93.7%
10	ServSafe Food Handler Certificate	Culinary Arts	112	98	87.5%

Examining the number of CTE Districts that offer Pathway Course Sequences resulting in certifications or credentials, the most commonly offered programs include Health Care and Nursing, Cosmetology, Welding, Culinary Arts and Automotive Technology programs[3].



Today's CTE works -
for students in high school,
for graduates going on to
postsecondary education,
for businesses,
for the economy.

Marilyn Metzler
Executive Director
Indiana Association of CTE Districts

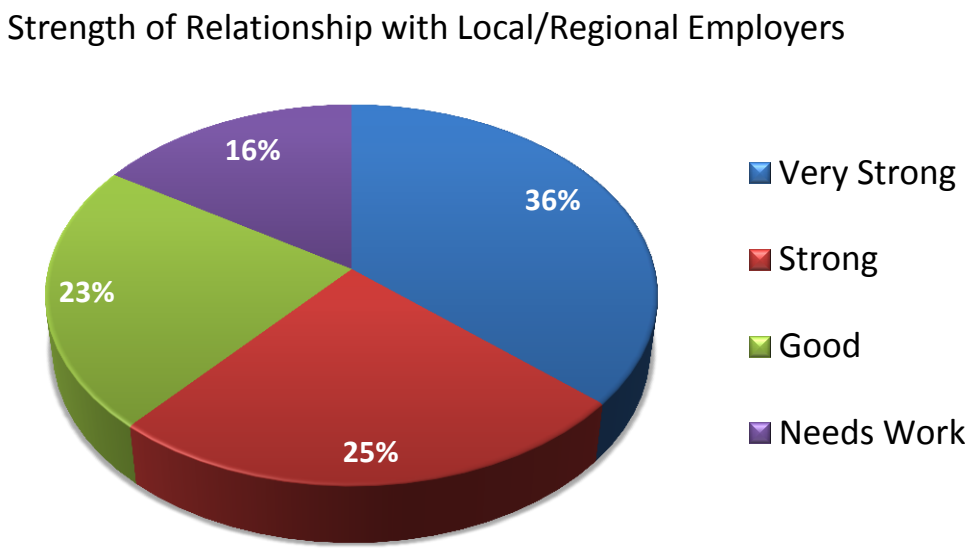
CTE Connections with Business and Industry

More than 2,300 Indiana regional business and industry representatives are connected and engaged with at least one CTE program in their local region. Most representatives provide advice to schools or career centers on course content, equipment and industry trends but many of the businesses also provide work-based learning opportunities to students through:

- Internships
- Cooperative education
- Job shadowing
- Site visits
- Guest speakers
- Other methods[3]

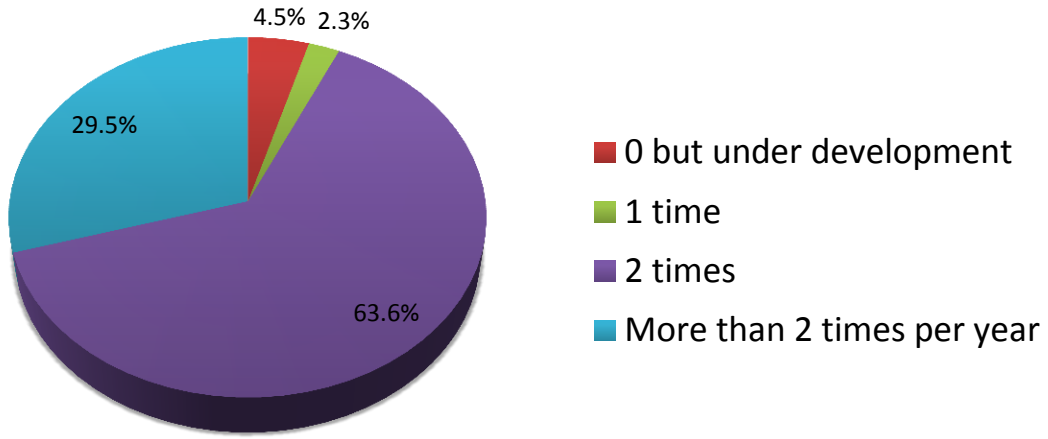
A list of businesses working with CTE programs in Indiana and an analysis of the strength of those relationships will be released in a follow-up report.

61% of area CTE district directors rate their office's relationship with local/regional employers as strong or very strong. 23% said their relationship was good but 16% categorized their connections with regional employers as weak[3].



All but two of the 47 districts providing CTE courses and Pathway Course Sequences hold annual business and industry advisory meetings. A large majority, 93%, hold two advisory committee meetings or more each year, typically one in the spring and another in the fall[3].

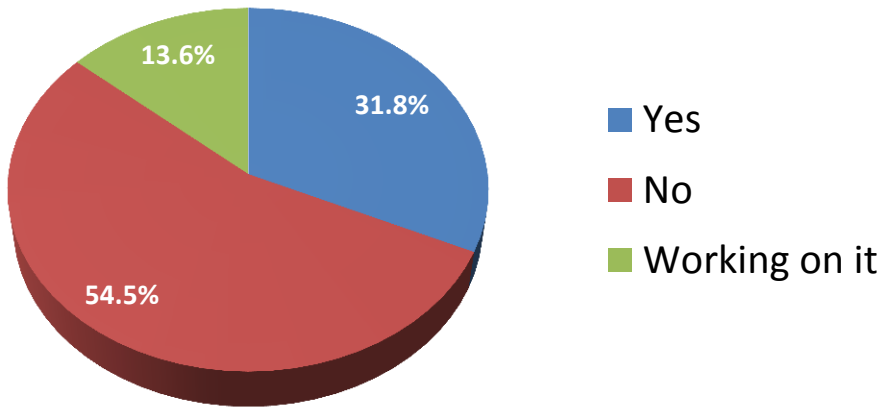
Annual Frequency of CTE Advisory Committee Meetings



District level CTE directors and teachers also reach out to the business community in a number of ways including serving on committees with local Chambers of Commerce and participating in economic development councils, Junior Achievement, manufacturing summits, Partners in Education, trade council meetings and many more (see Appendix B).

Regional Workforce Investment Boards (WIBs) are required to include key workforce and education representatives on boards in each region but only 32% of CTE directors are currently included, with another 14% responding that they are "working on" becoming a participant[3].

Do you or a representative of your office serve on your regional Workforce Improvement Board?



Recommendations

Looking solely at Indiana student performance data from the Indiana Department of Workforce Development and Indiana Department of Education over the last four years, summarized in this report, it is clear that Indiana high school students who complete six credits in a CTE Pathway Course Sequence have a distinct academic and competitive advantage over their peers with:

- A greater likelihood of graduating from high school,
- Increased opportunities for earning college credits and/or an industry-recognized credential before graduation, and
- A lower possibility of taking a remedial course in the first year of college.

While there is much good news in this report, four recommendations are apparent:

1. Increase Awareness and Promotion of CTE Programs. More students and parents need to know about the opportunities that are provided through the state's Career and Technical Education programs and specifically the Pathway Course Sequences. State legislators and education leaders must also understand both the benefits and needs of CTE programs to ensure that schools and career centers are adequately supported. Greater local, regional and state recognition of these programs can only help improve student performance.

2. Better Connect CTE to Regional Workforce Needs. Though more than 2,000 Indiana business and industry representatives are currently involved in CTE programs, there remains a consistent call from employers for more and better prepared applicants. New ways are needed to narrow the state's skills gap by ensuring that the voices of business leaders most in need of a highly skilled workforce are engaged with Career and Technical Education programs and decision-makers. The companion report to this study, *Connecting the Dots: Aligning Career and Technical Education with Employer Needs in Indiana*, stresses that even employers who are currently on CTE advisory committees aren't fully aware of CTE programs in their regions and what they offer. More regular and "intimate" communication opportunities are needed. One immediate step toward this goal would be to ensure that every regional Workforce Improvement Board includes at least one CTE representative.

3. Explore Ways of Improving Student Persistence. Though students completing six or more credits in a CTE Pathway Course Sequence outperform their peers in many areas, a surprisingly low percentage persist in the same career cluster area when transitioning to postsecondary education or the workforce. This discrepancy may be overstated in data. It is possible that many students remain in a similar career cluster area when matriculating from high school to postsecondary education but this is not captured through current data collection methods. Nevertheless, business leaders, secondary educators and aligned postsecondary faculty should explore ways of helping more students understand the opportunities that are connected to the career pathways they are studying in high school. Ensuring that every student has a state-required Graduation Plan that includes a postsecondary transition component is a first step.

Persistence and success rates in both the workforce and college increase when students better understand and can "picture" the options available to them.

4. Expand the Value of CTE to Disadvantaged Youth. As vividly noted in the graph on the top of page 10, students from economically disadvantaged backgrounds thrive in CTE Pathway programs. Some credit the visual clarity of Pathways, which shows students a clear sequence of courses leading to an economically viable career, for instilling hope and helping students find meaning and purpose to their high school experience. Whatever the reason, schools and communities cannot overlook the dropout prevention and high school completion results that CTE programs provide and should discuss intentional strategies and methods of expanding CTE's ability to reach more at-risk students.

5. Intentionally Focus on Reducing Postsecondary Remediation in High School. While college and postsecondary remediation rates are lower for CTE concentrators, first year college remediation rates at close to 30% for all students are still too high. Serious discussions are needed on which high school and postsecondary courses – especially math courses - "best fit" with students' career aspirations. The Indiana Department of Education should lead a robust statewide discussion on balancing high expectations for all students with the realistic requirements of colleges, postsecondary institutions and employers. The results must be clear and apparent to students and families before a student graduates from high school.

6. Develop Pathways for ALL Students. Since Pathways appear to be highly effective in helping students prepare for college and careers, schools should explore developing Pathways for ALL students. Doing so would result in:

- An intentional college and career readiness focus for all students, not just those completing CTE,
- Valuing all students' postsecondary aspirations whether students intend to earn a two- or four-year degree, certificate from a postsecondary program, industry-recognized certification, or other credential as long as they are aspiring toward the highest education and training levels possible for their interests and abilities,
- Teachers, counselors and administrators, along with students and parents, better understanding and supporting the full spectrum of college and postsecondary options that lead to high wage and high demand occupations,
- Improved alignment of high school course standards, sequences and assessments with college and postsecondary programs leading to reduced remediation, and
- Elimination of the persistent "two-track" mentality that presumes students are either "college-bound" or "career-bound" and perpetuates a perception that career readiness is less important and less rigorous.

Indiana's Career and Technical Education system is a relatively unrecognized statewide success story that quietly continues to improve student performance and prepare future leaders for college and careers amidst a loud clamor of popular new initiatives and reform efforts. Despite the remaining challenges, it is an educational achievement narrative that needs to be told and, for the sake of our students and the state's economy, deserves to be heard.

[1] *InTERS Student Data College System, Indiana Department of Workforce Development*

[2] *COMPASS Data System, Indiana Department of Education*

[3] *February, 2012 Survey of Indiana Career and Technical Education District Directors*

Appendix A

Indiana Career Clusters (in bold) and College and Career Pathway Course Sequences	Total # of Pathway Programs in Indiana	# of Districts Offering This Pathway Sequence	# of Districts Offering Dual Credits	# Districts Offering Certification/ Credential
AGRICULTURE				
• Agribusiness	70	26	9	0
• Horticulture & Landscape Management	51	28	10	2
• Life Sciences – Animal Science	68	28	14	2
• Life Sciences – Food Science	37	16	5	0
• Life Sciences – Natural Resources	41	19	8	0
• Life Sciences – Plants & Soils	33	16	8	0
ARCHITECTURE & CONSTRUCTION				
• Commercial & Residential Facilities - Residential & Commercial Facilities Management	3	3	0	0
• Commercial & Residential Facilities – Building & Facilities Management	2	2	0	0
• Commercial & Residential Facilities – Building & Facilities Maintenance	5	4	0	0
• Construction Trades – Construction	68	39	30	14
• Construction Trades – Electrical	8	7	4	6
• Construction Trades – Heavy Equipment	4	4	2	4
• Construction Trades – HVAC	8	8	5	5
• Drafting & Design – Architectural	26	21	14	6
• Drafting & Design – Mechanical	11	11	8	3
ARTS, AV, TECH & COMMUNICATIONS				
• Web & Digital Communications - Interactive Media	48	25	10	5
• Web & Digital Communications - Radio & TV	38	24	14	6
• Visual Arts - Commercial Photography	8	8	2	1
• Visual Arts - Fashion, Textiles and Design	22	9	2	0
• Visual Arts - Visual Communications	28	17	11	4
BUSINESS & MARKETING				
• Business Administration – Accounting and Finance	33	16	10	1
• Business Administration – Entrepreneurship & Management	41	21	8	4
• Business Administration – Marketing Management	41	17	9	1
EDUCATION & TRAINING				
• Early Childhood Education - Early Childhood	61	32	23	13
• Early Childhood Education - Education Careers	32	21	9	4

HEALTH SCIENCE				
• Biotechnology	17	10	7	2
• Dental	17	14	5	3
• Health Care Specialties – Health Science Careers	61	35	26	20
• Health Care Specialties – Dietetics & Nutrition Sci	8	2	1	1
• Health Care Specialties – Veterinary	5	5	3	1
• Nursing	43	26	24	20
HOSPITALITY & HUMAN SERVICES				
• Cosmetology	37	31	16	26
• Culinary Arts	50	36	24	23
• Hospitality Management	14	9	5	4
• Human & Social Services	16	7	0	0
INFORMATION TECHNOLOGY				
• Programming	23	14	6	7
• PC Networking & Support – Networking	22	21	15	16
• PC Networking & Support – PC Support	23	19	11	13
MANUFACTURING & LOGISTICS				
• Advanced Manufacturing	25	15	13	8
• Electronics	18	16	8	2
• Engineering	84	31	22	6
• Logistics and Supply Chain Management	5	4	1	0
• Machine Technology	38	27	18	9
• Welding	53	37	29	25
PUBLIC SAFETY				
• Criminal Justice	36	28	21	2
• EMT/Paramedic	20	17	12	14
• Fire and Rescue	16	16	8	11
TRANSPORTATION				
• Automotive Collision Repair	33	27	18	16
• Automotive Technology	60	40	29	23
• Aviation	6	6	2	1
• Diesel Service Technology	7	7	2	3
• Recreational and Mobile Equipment	5	5	3	0
• Tractor Trailer Operations	2	2	1	1

Appendix B

CTE Directors Comments on How they Connect with Regional Business and Industry Representatives

- Internships
- Cooperative education programs
- Formal and informal conversations with employers
- Business and worksite visits
- Lunch meetings
- Economic development meetings
- Local chambers of commerce and chamber education committees
- Presentations to local community clubs and organizations-
- Meetings with trades industries
- Yearly business and industry updates
- Tours, mentors, speakers
- Judges for student competitions and mock interviews
- Business luncheons with students
- American Education Week, business luncheons with students
- Career-related projects
- Business & Industry Surveys
- Company site visitations
- Individual business-education advisory consultations
- Business donations of worksites and clinics for student instruction
- Equipment and material donations to schools
- Judging student projects, presentations
- Participation of teachers in local human resources consortium
- Career mentors
- Collaboration with local economic development organizations
- Regional industry audits (surveys of employer needs)
- WorkOne regional data analysis
- Industry walk through with feedback sessions
- Pathway Work-Group Meetings (more in-depth than advisory meetings)
- Industry demonstrations at open houses
- Employee referrals plus seminars, workshops, and committee participation.
- Specific activities:
    - EcO15 seamless pathways groups
    - CareerFest
    - PLTW advisory committees
    - Business Education Partnership with Muncie Chamber
    - Delaware County Advanced Manufacturing Committee

- Participation in Manufacturing Summit
- Howard County Partners in Education
- Economic Workforce Council
- Horizon Education Alliance
- Participation on the EDC
- Work with Center for Workforce Innovations
- Financial Stability Committee of United Way of Madison County
- Let's Get Real campaign
- Junior Achievement
- EDD Evaluation Team
- Local home show
- NEAT Monthly Newsletter (produced in partner with WorkOne)
- Indiana Career Explorer website training
- Project Lead the Way counselor academy
- College and Career Readiness Education Subcommittee of Madison County Education Committee
- Periodic meetings with Economic Development Officers
- Close work with NEI

"We work hard in forming partnerships with the business sector, listening to their needs and making efforts to assist them by providing meeting spaces, school resources, and matching student's specific skills to the business sector when possible."

Appendix C

Appendix C and Appendix D compile the most recent and most significant Career and Technical Education (CTE) data from this report into Indiana regions, the nine Indiana Education Service Center regions (Appendix C) and eleven Economic Growth Regions (Appendix D). The data in Appendix C goes one step further by including detailed college remediation data by regions.

Detailed CTE student performance data by these two regions has never before, to our knowledge, been compiled and publicly released in this manner. But as legislative and public attention focuses more and more on college and career readiness, a critical "first step" is an examination of fundamental data regarding what is already in place, how well students are performing and what's working and not working.

The information provided in the appendices gives workforce, education, economic development, government and other leaders in each region of the state a solid starting point for examining secondary college and career readiness programs and a context for substantive discussions on areas of expansion as well as improvement.

It is important to highlight several key points:

- All of the student data in this report is for the latest reporting year (2011-12) though the postsecondary data is correlated to the cohort of students graduating in 2011.
- To be included in the data set a student must be a "CTE Concentrator" which is defined as, "An Indiana student who has earned at least six (6) credits in CTE pathway courses in a state approved College and Career Pathway.
- Data is submitted each year by individual schools and career centers around the state which accounts for some variation in data
- Indiana collects data on CTE student performance from sixteen indicators, including eight indicators required by the federal Carl D. Perkins Act of 2006. The additional eight performance indicators are voluntary and focus primarily on student transition from high school to postsecondary education or transition to a career or the military.
- CTE student performance data for each region has been grouped into two graphs, one that focuses on CTE student performance in high school including graduation rates and ISTEP+ performance, the other graph indicates student readiness for and transition to postsecondary education or an occupation.
- The remediation data in Appendix C is compiled with data from the public high school graduating class of 2011 attending Indiana public institutions of higher education.

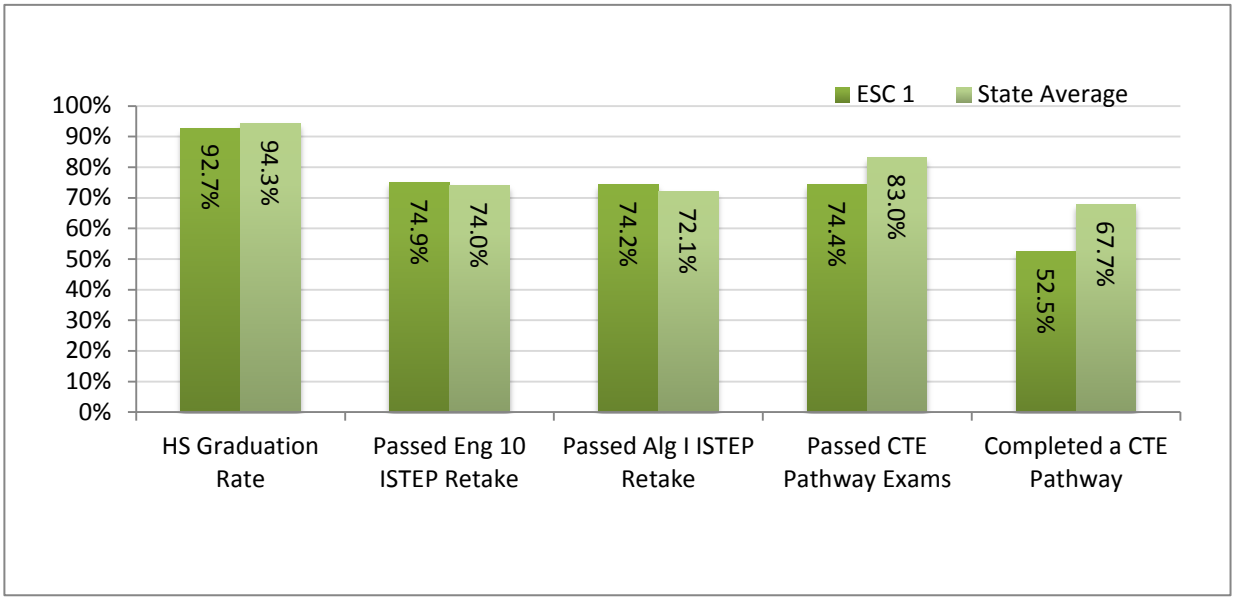
Contacts and a map of Indiana's Education Service Centers (ESCs) can be found on pages 45-46 and a map and contacts for the Economic Growth Regions (EGRs) are detailed on page 58-59. The definition of terms, on the next page, provides a quick reference to the key student performance data in both appendices.

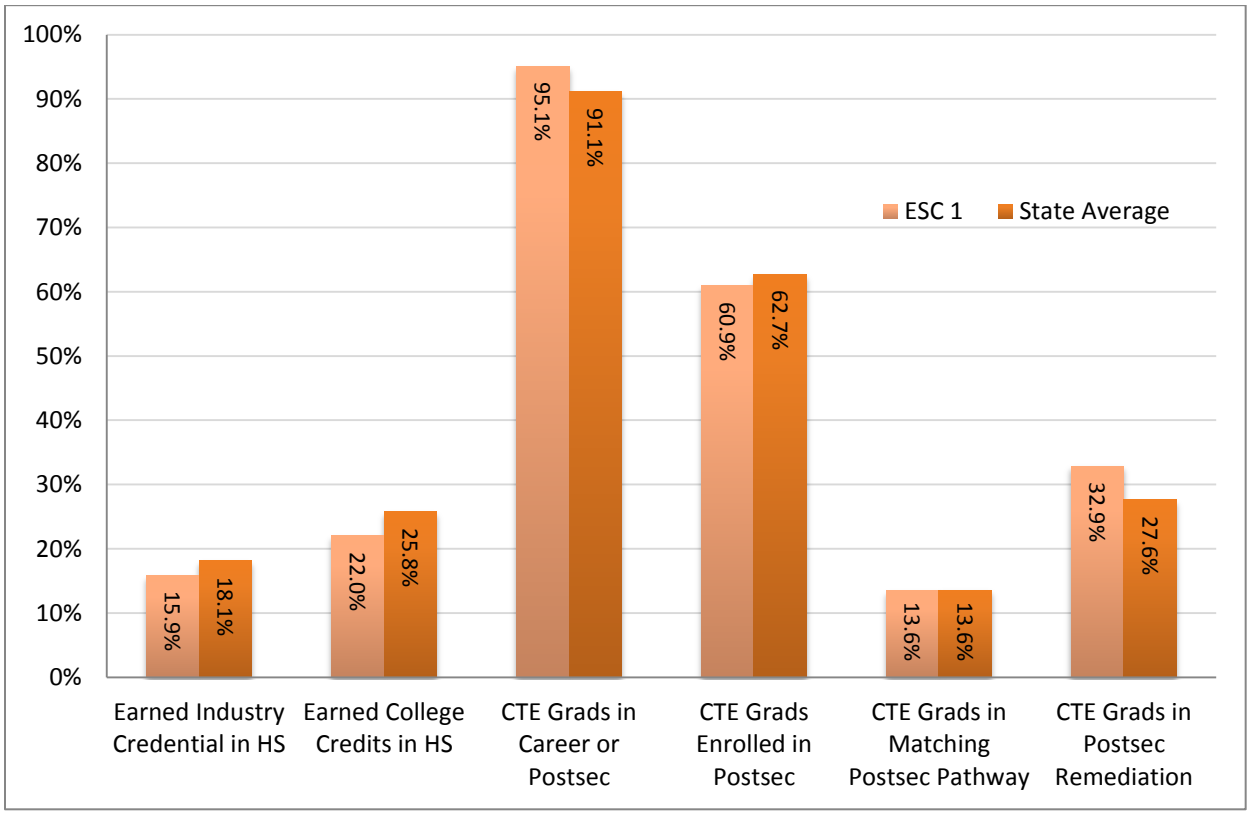
Definition of Terms

High School Graduation Rate	The percent of CTE concentrators who graduated from high school using the IDOE's calculation formula.
Passed Eng 10 ISTEP Retake	The percent of CTE concentrators who failed the English 10 ISTEP+ Graduation Exam prior to grade 11 but passed by graduation.
Passed Alg I ISTEP Retake	The percent of CTE concentrators who failed the Algebra I ISTEP+ Graduation Exam prior to grade 11 but passed by graduation.
Passed CTE Pathway Exams	The percent of CTE concentrators and completers who passed the state-approved technical skill assessments for Indiana's College and Career Pathways by graduation.
Completed a CTE Pathway	The percent of CTE concentrators who completed a College and Career Pathway program by graduation.

Earned Industry Credential in HS	The percent of CTE concentrators who graduated high school with a state or industry-recognized certificate, license or credential.
Earned College Credits in HS	The percent of CTE concentrators who graduated high school with transcripted college credits (dual credits).
CTE Grads in Career or Postsec	The percent of CTE concentrators who were in postsecondary education or advanced training, military service or employment in the second quarter after leaving high school.
CTE Grads Enrolled in Postsec	The percent of CTE concentrators who graduated high school in previous year and enrolled in postsecondary during the current year.
CTE Grads in Matching Postsec Pathway	The percent of CTE concentrators who graduated high school in previous year and enrolled in postsecondary during the current year in the same major or pathway completed in high school.
CTE Grads in Postsec Remediation	The percent of CTE concentrators who graduated high school in previous year and were enrolled in postsecondary remedial math, writing, or reading courses upon entering postsecondary education.

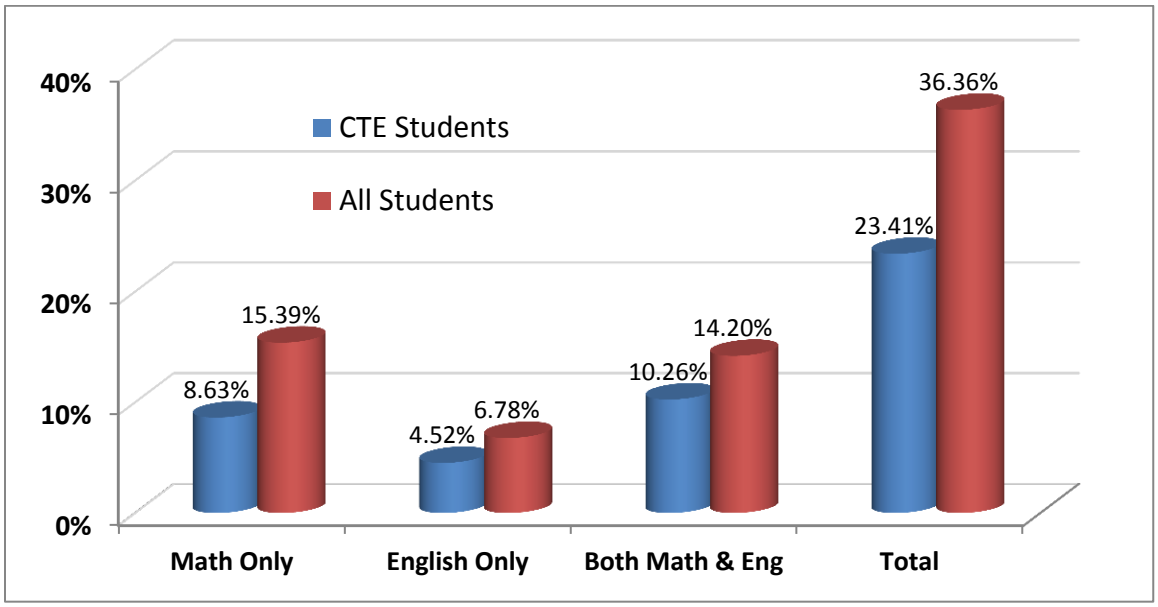
Education Service Center 1 – High School & College/Career Preparation



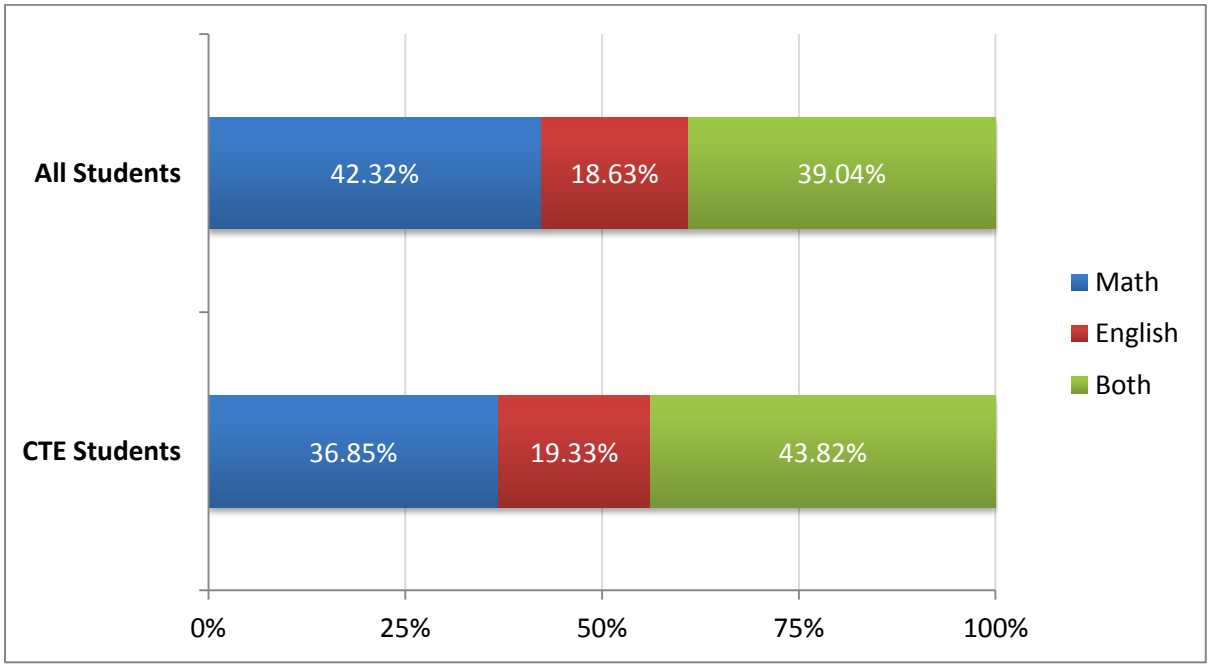


Education Service Center 1 – Remediation

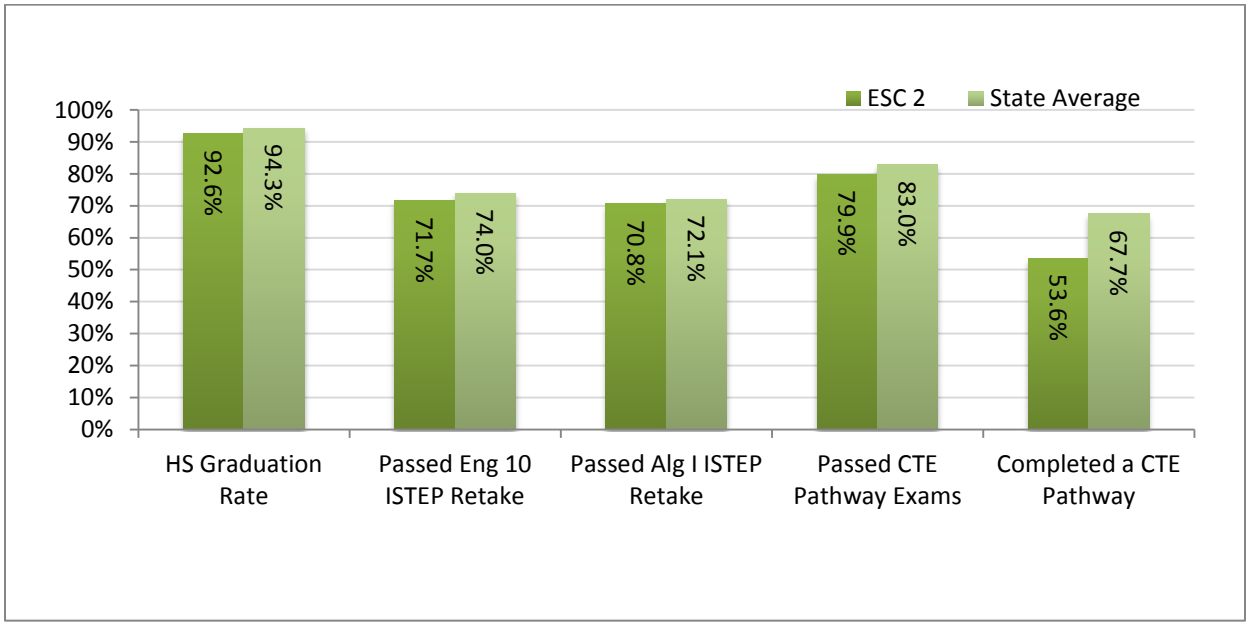
The first graph compares the percentage of 2011 CTE student concentrators in ESC 1 who enrolled in an Indiana public institution and were required to take math remeditation only, English remediation only, or both – compared to all 2011 graduates in the region.

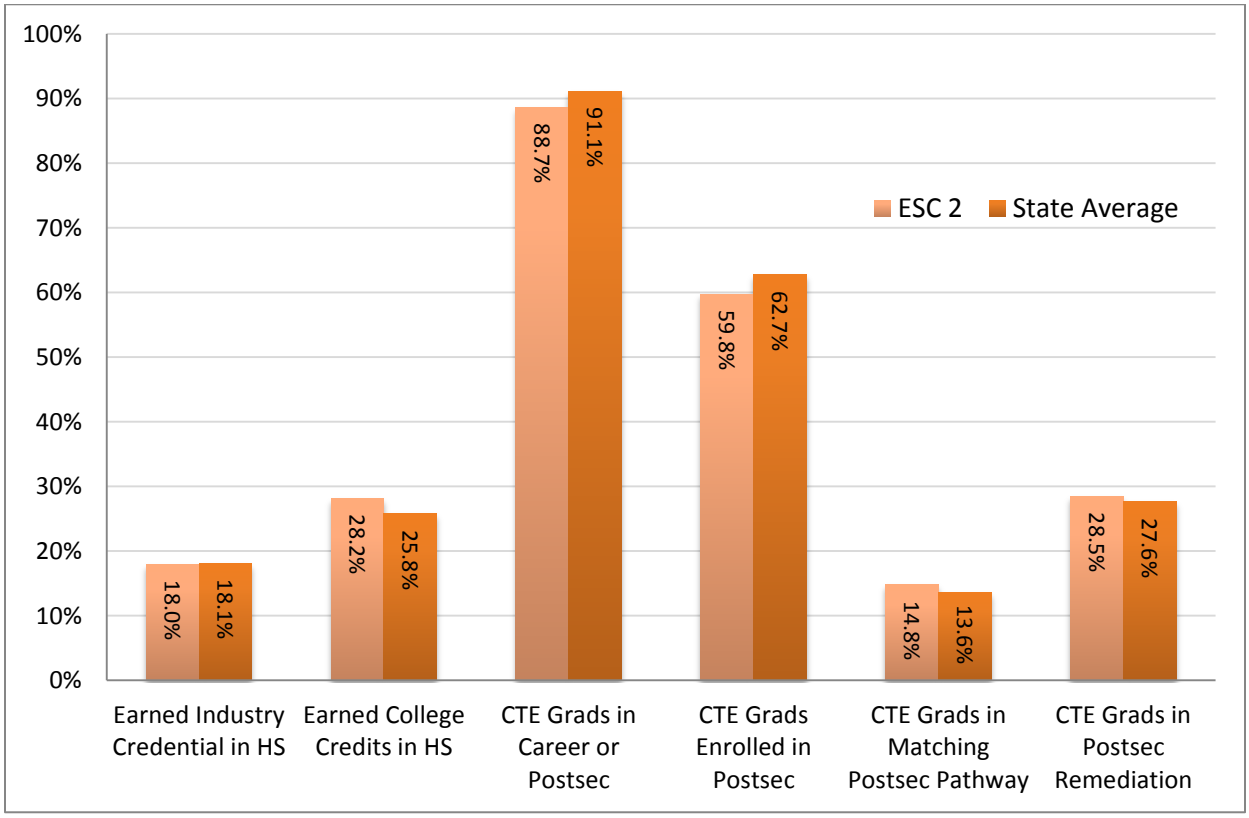


The second graph shows where the remediation time was spent by percentage of all students in each category taking remedial courses in the first year of college.



Education Service Center 2 – High School & College/Career Preparation





Education Service Center 2 – Remediation

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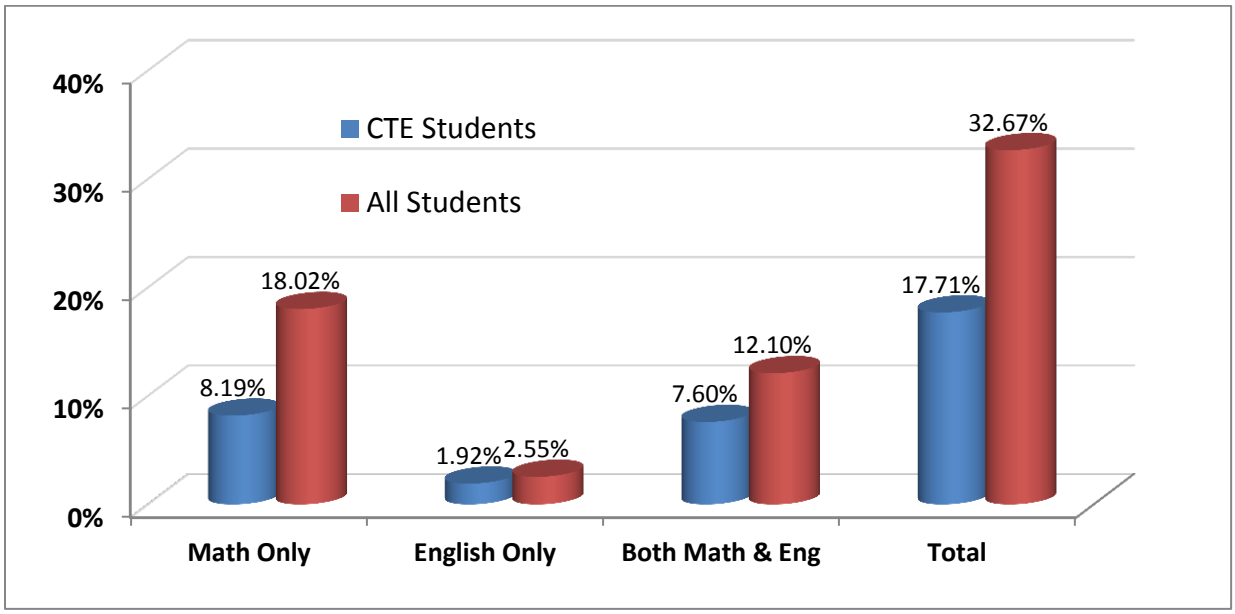
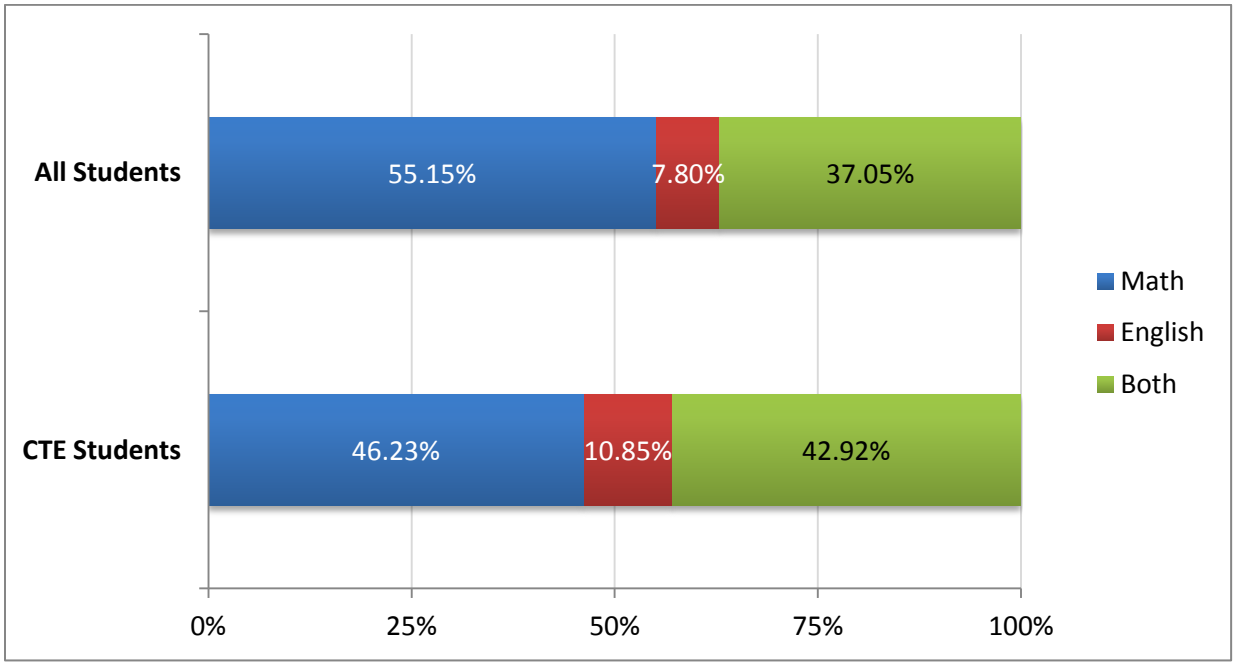
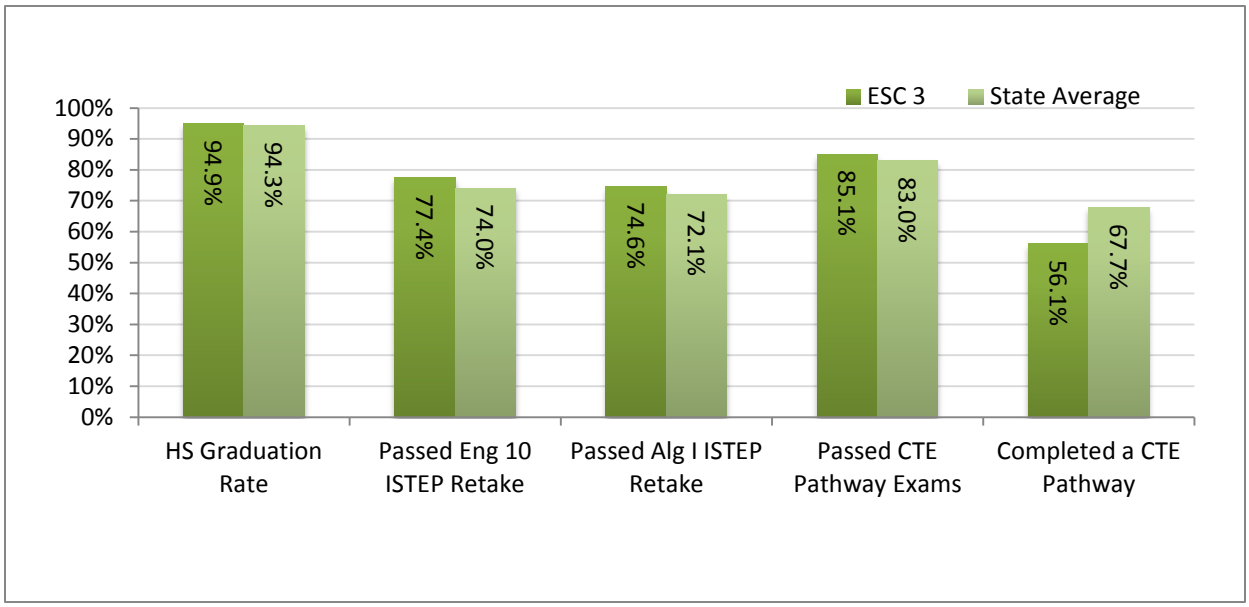
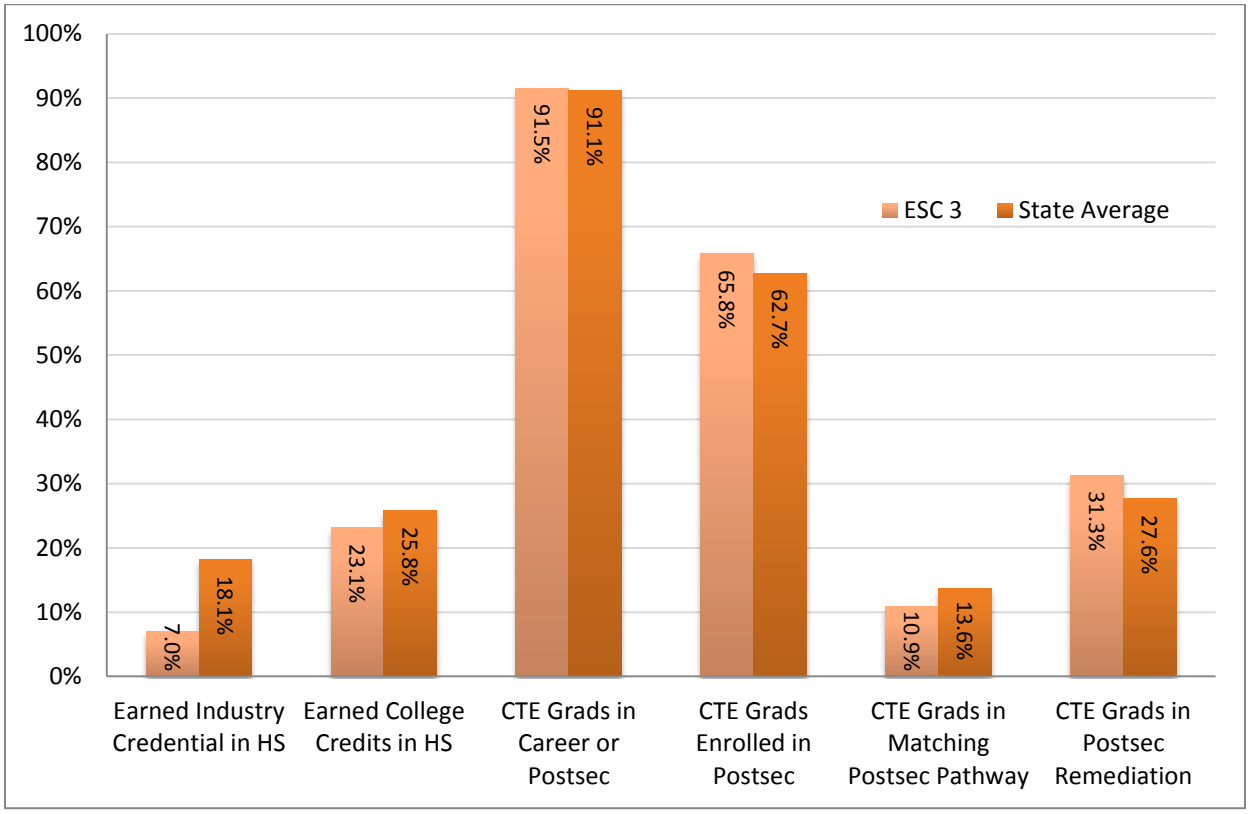


The second graph shows where the remediation time was spent by percentage of all students in each category taking remedial courses in the first year of college.



Education Service Center 3 – High School & College/Career Preparation





Education Service Center 3 – Remediation

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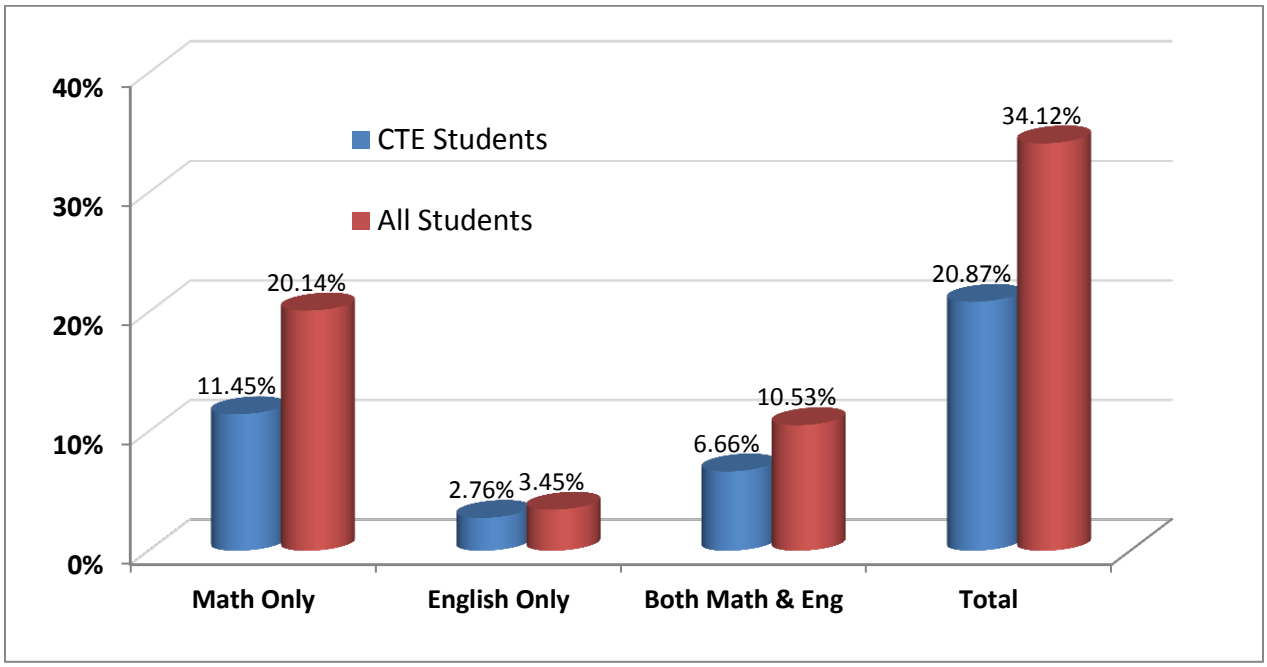

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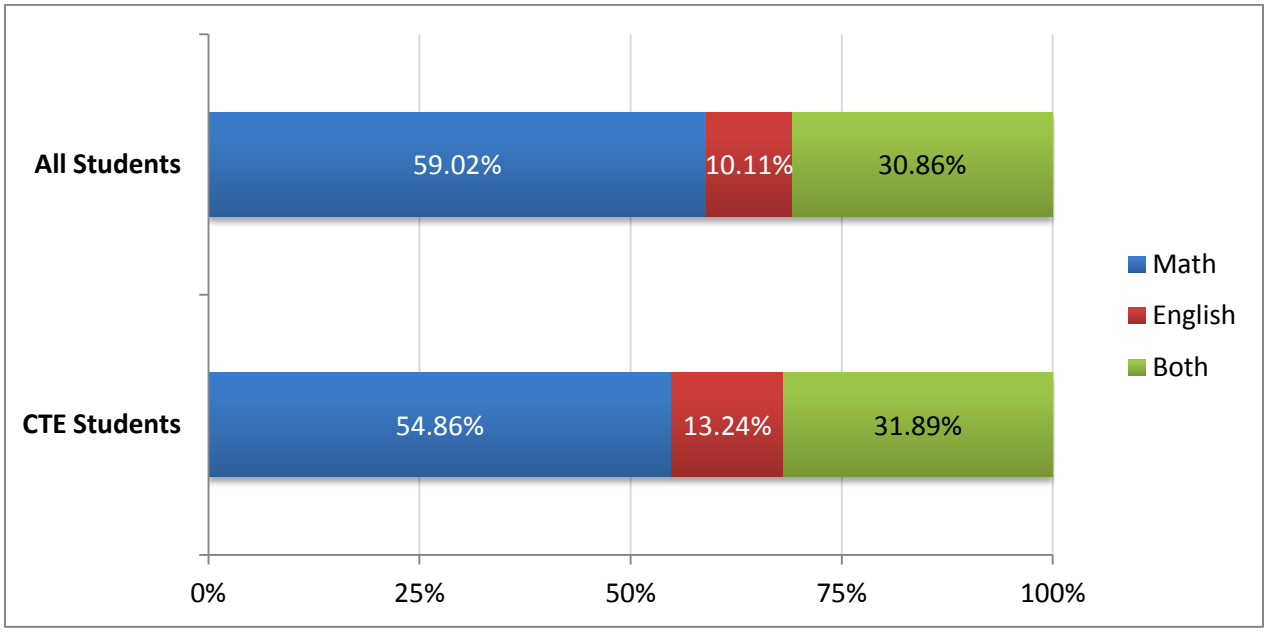
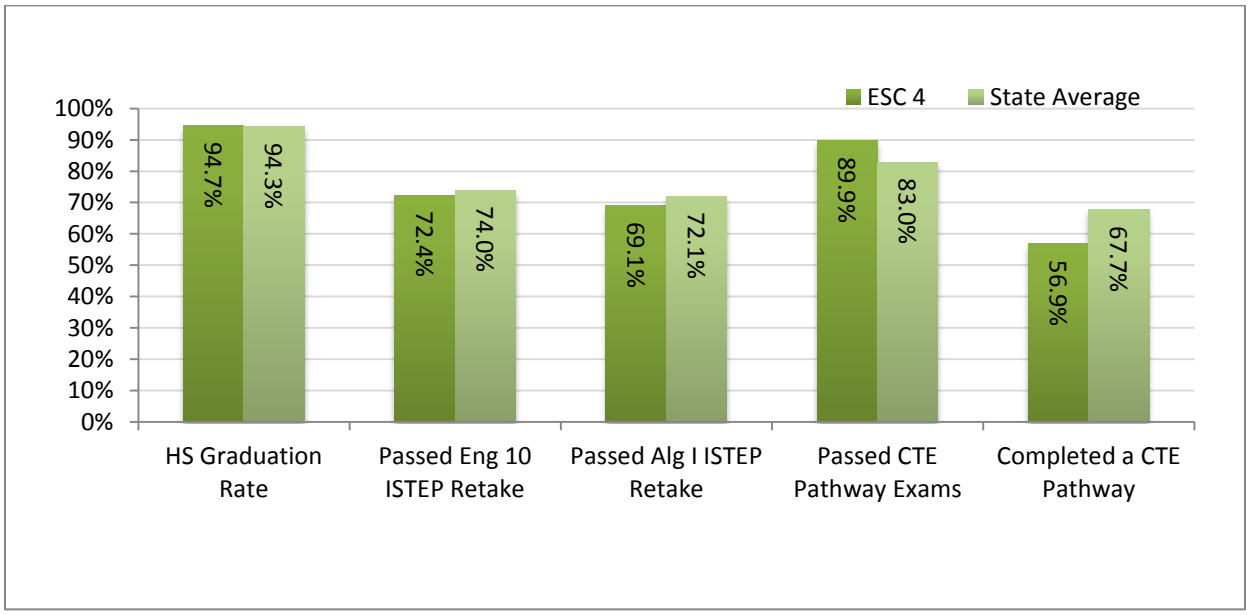
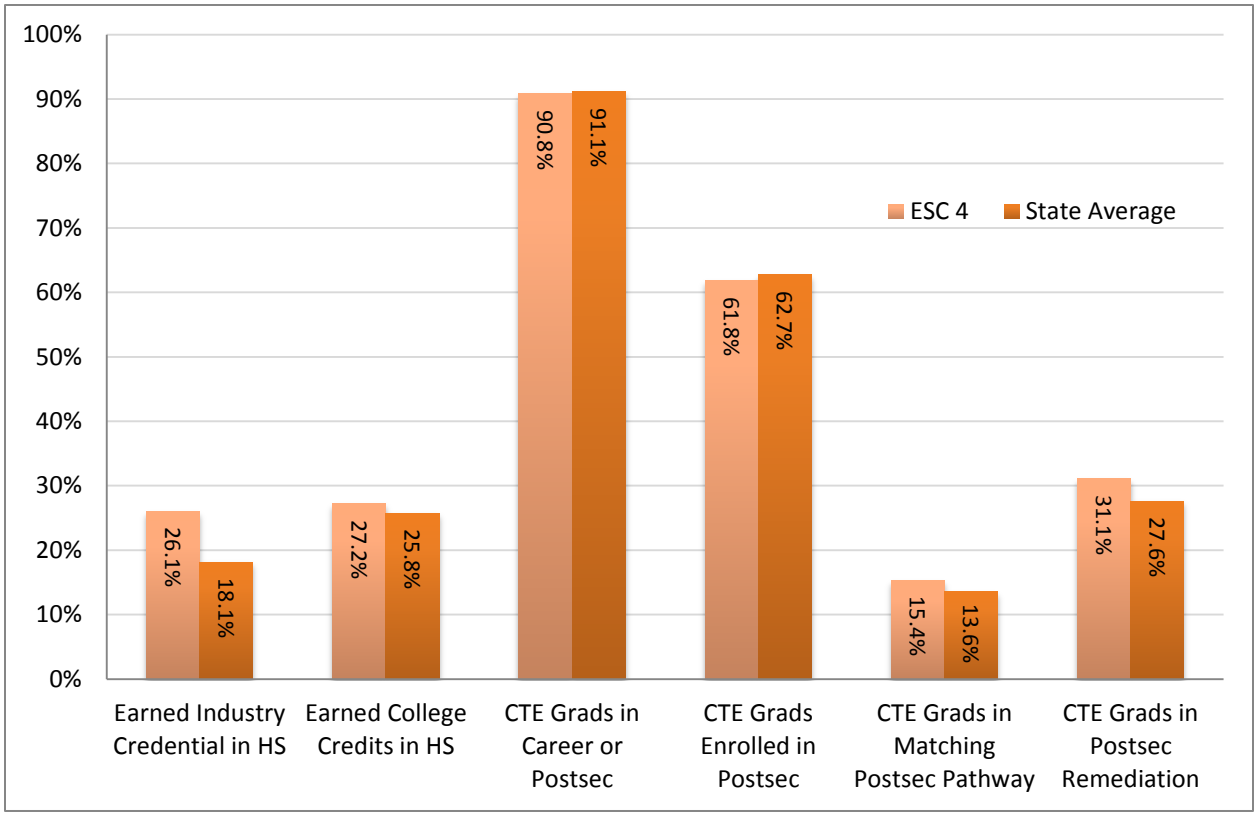


Education Service Center 4 – High School & College/Career Preparation





Education Service Center 4 – Remediation

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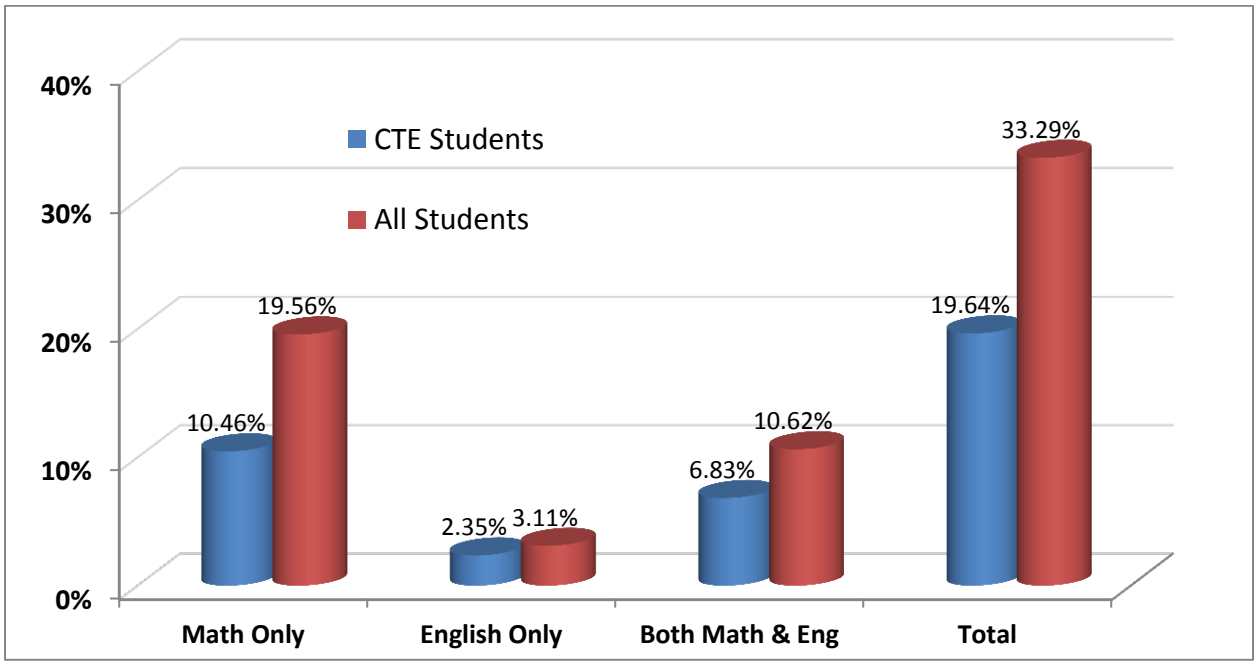

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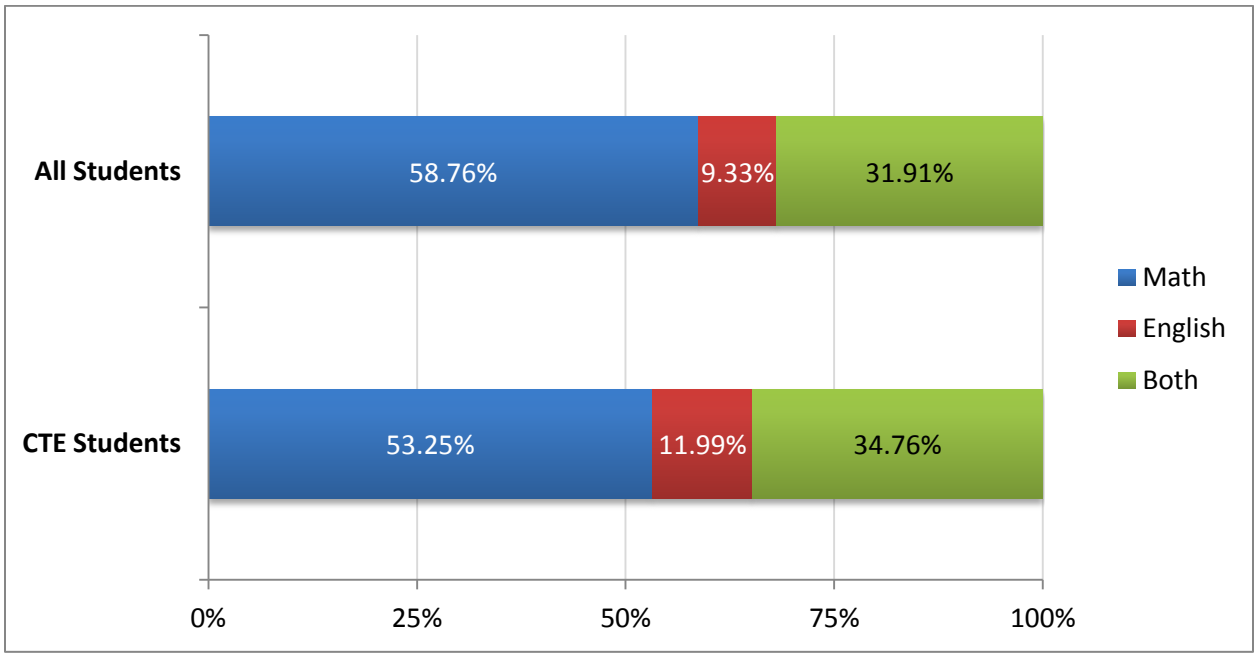
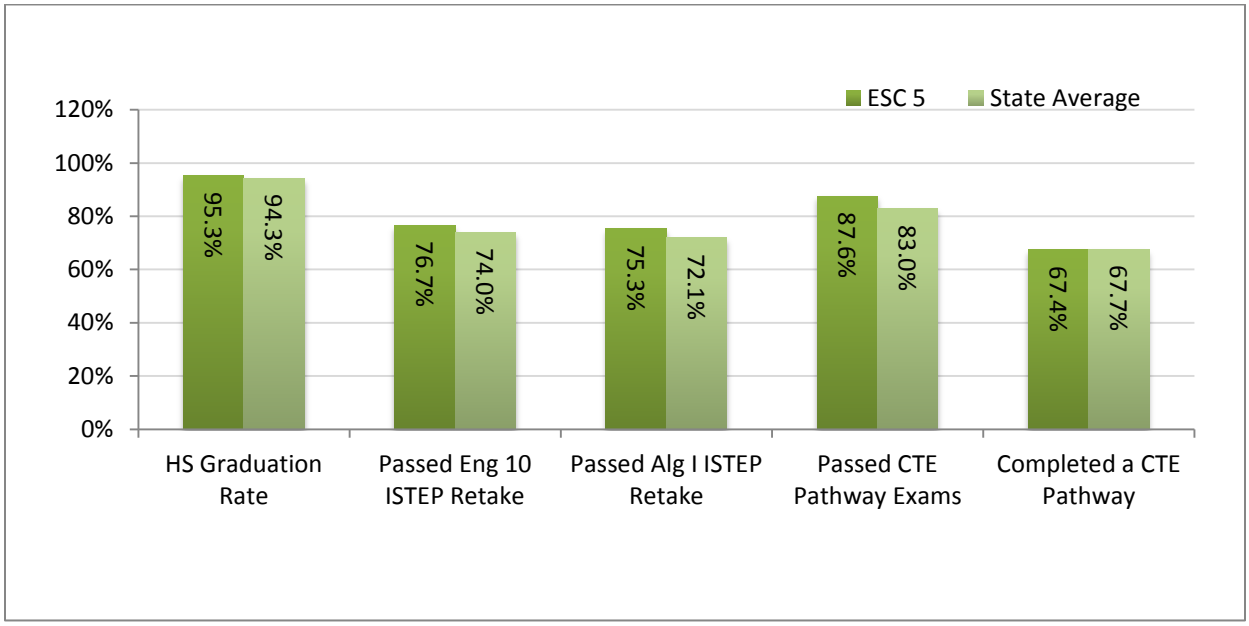
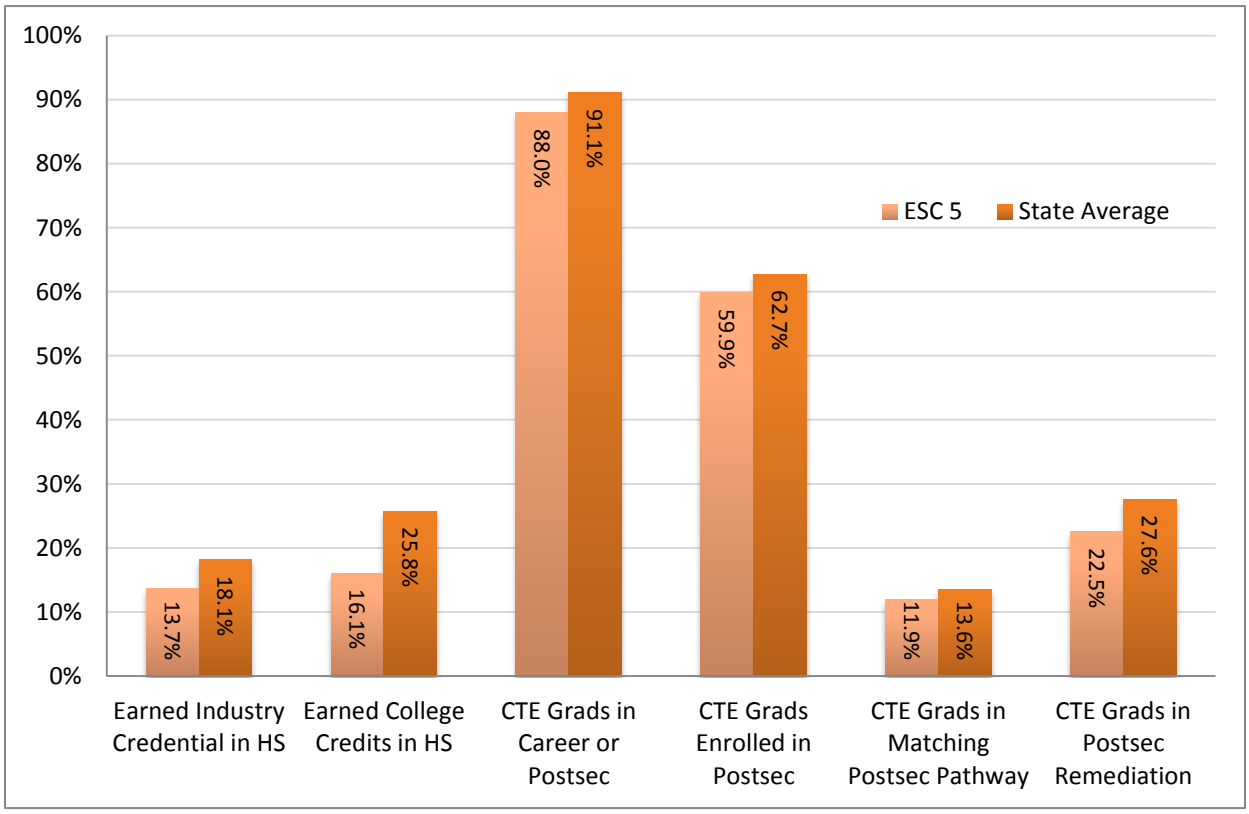


Education Service Center 5 – High School & College/Career Preparation





Education Service Center 5 – Remediation

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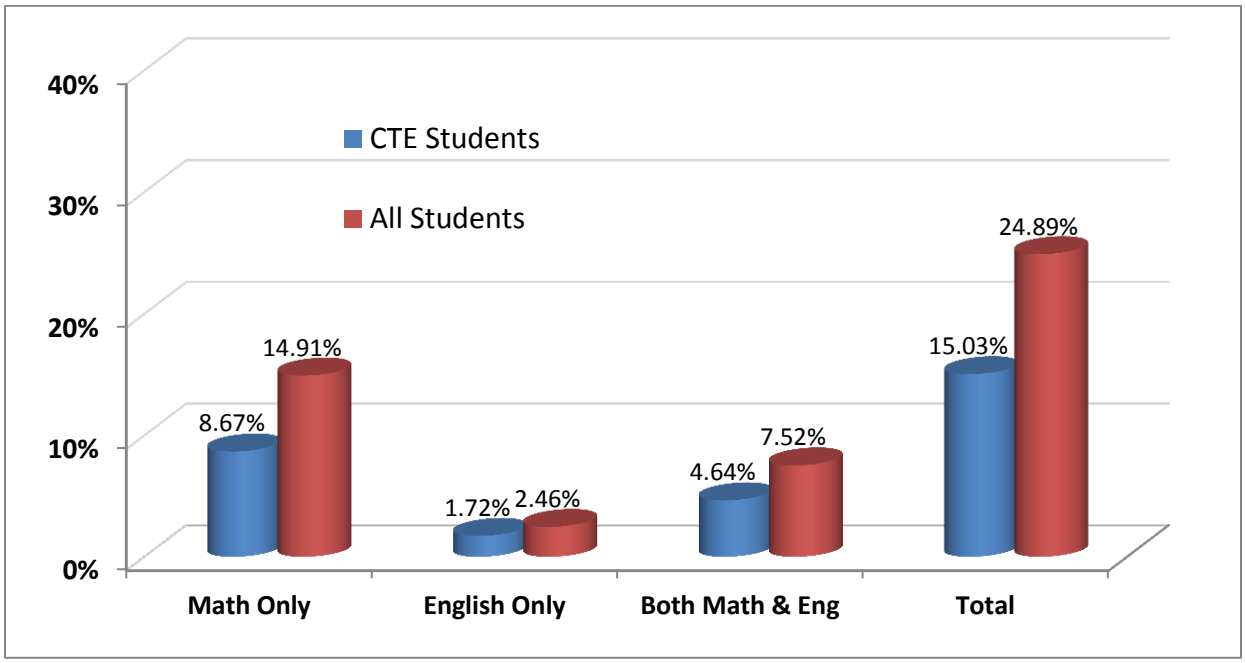

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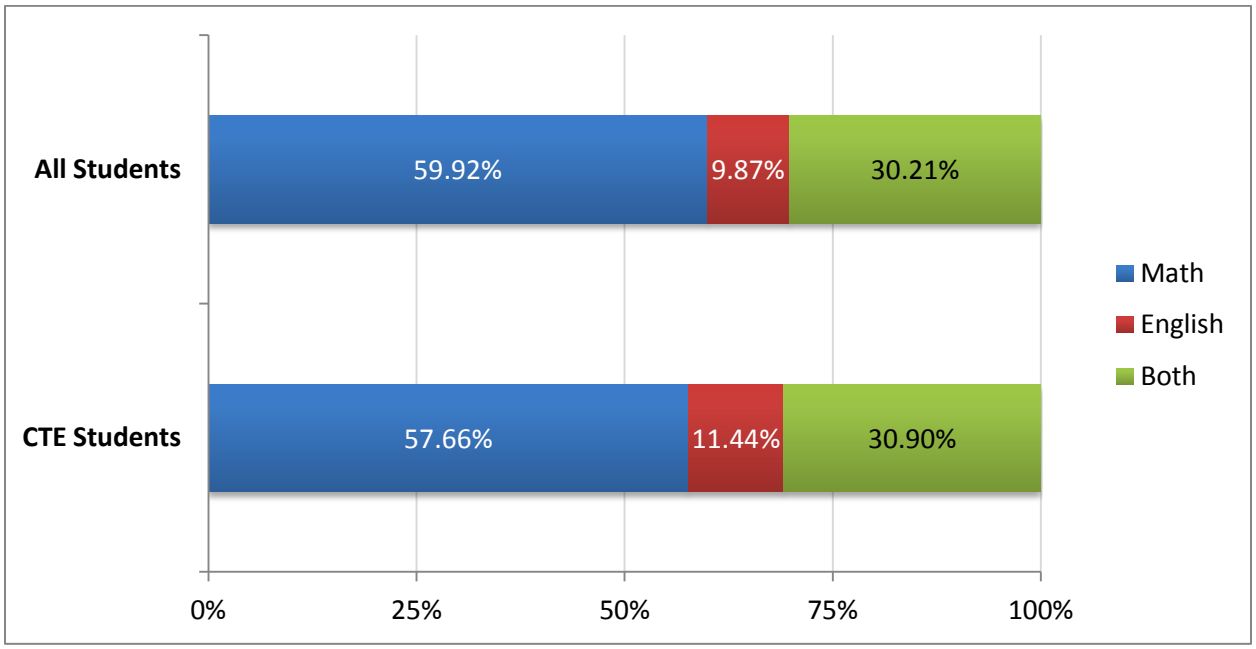
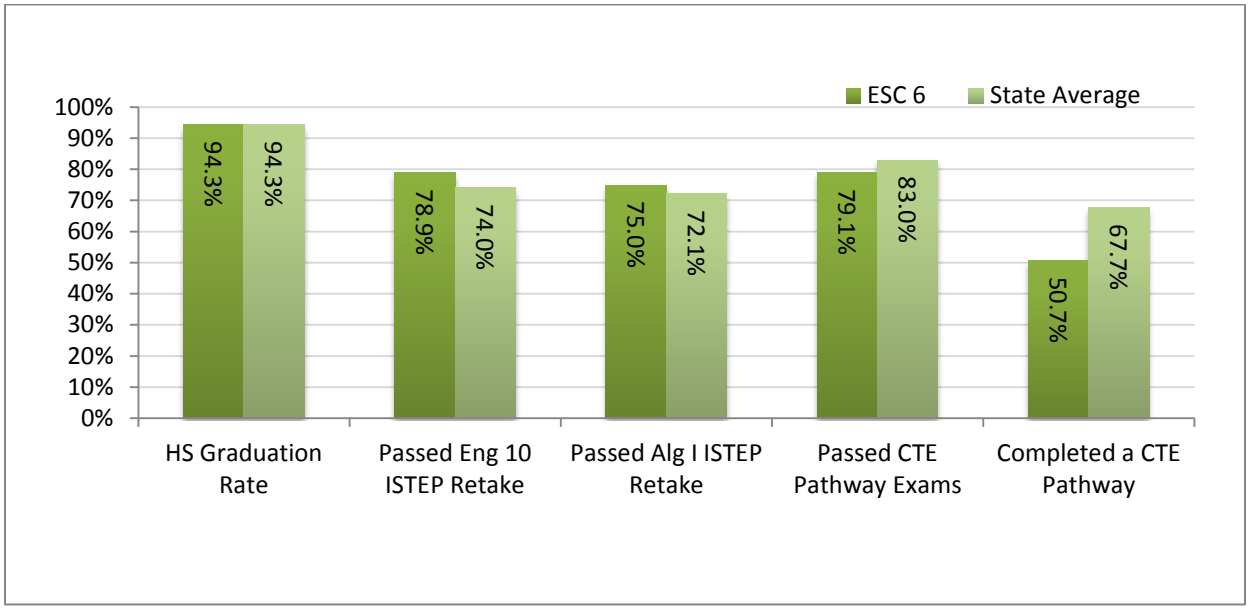
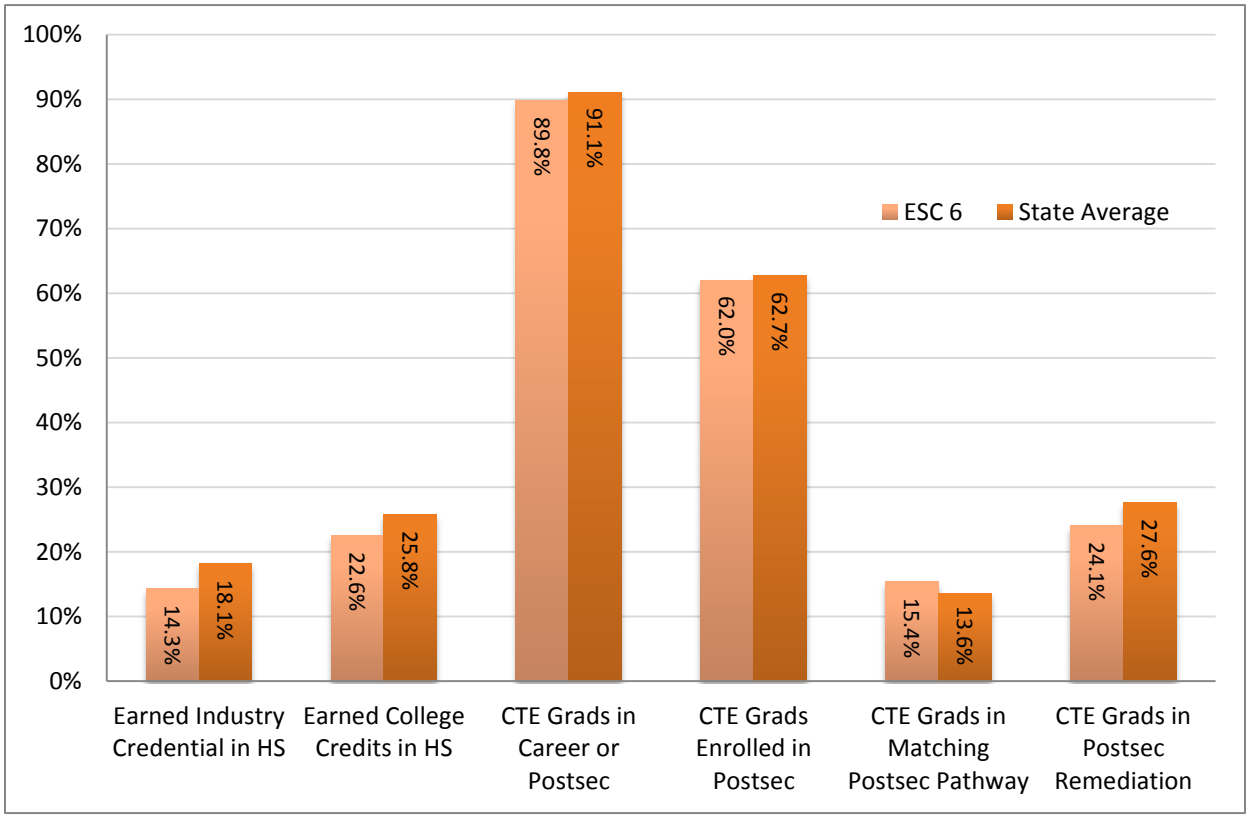


Education Service Center 6 – High School & College/Career Preparation





Education Service Center 6 – Remediation

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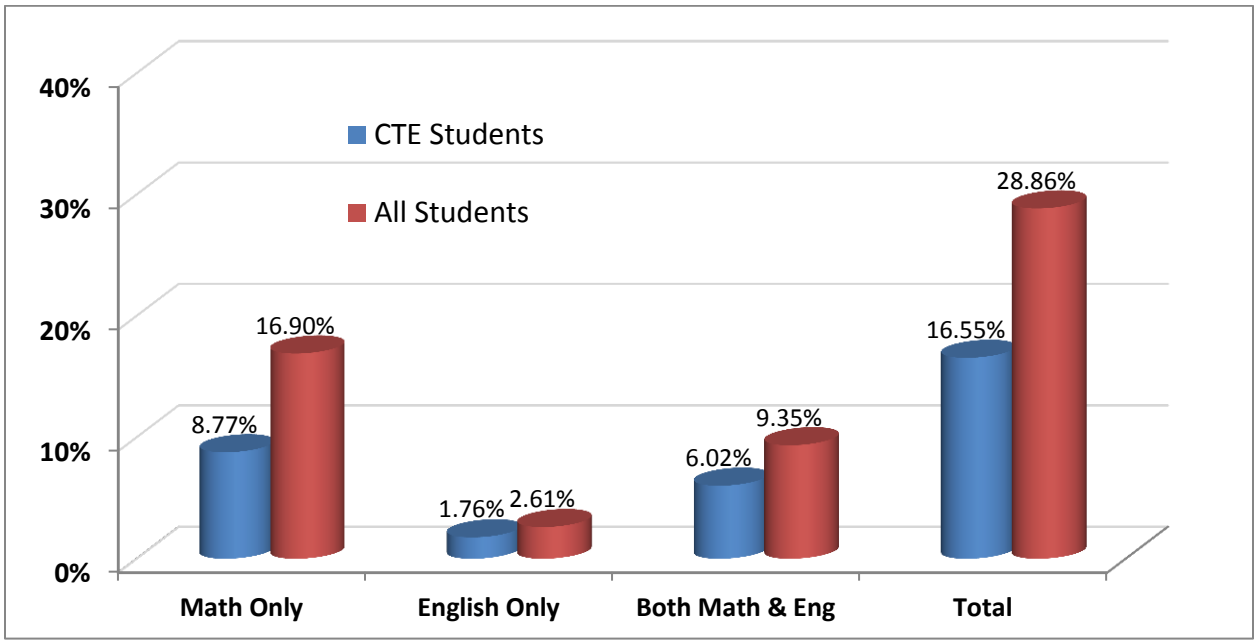

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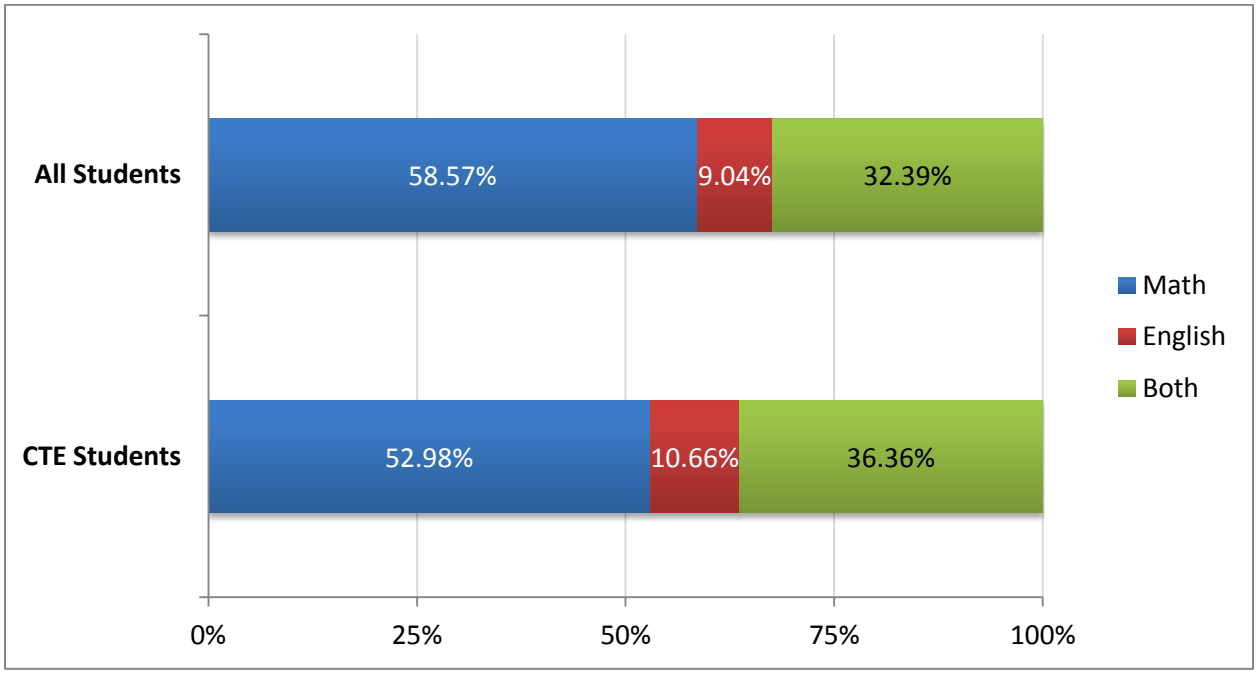
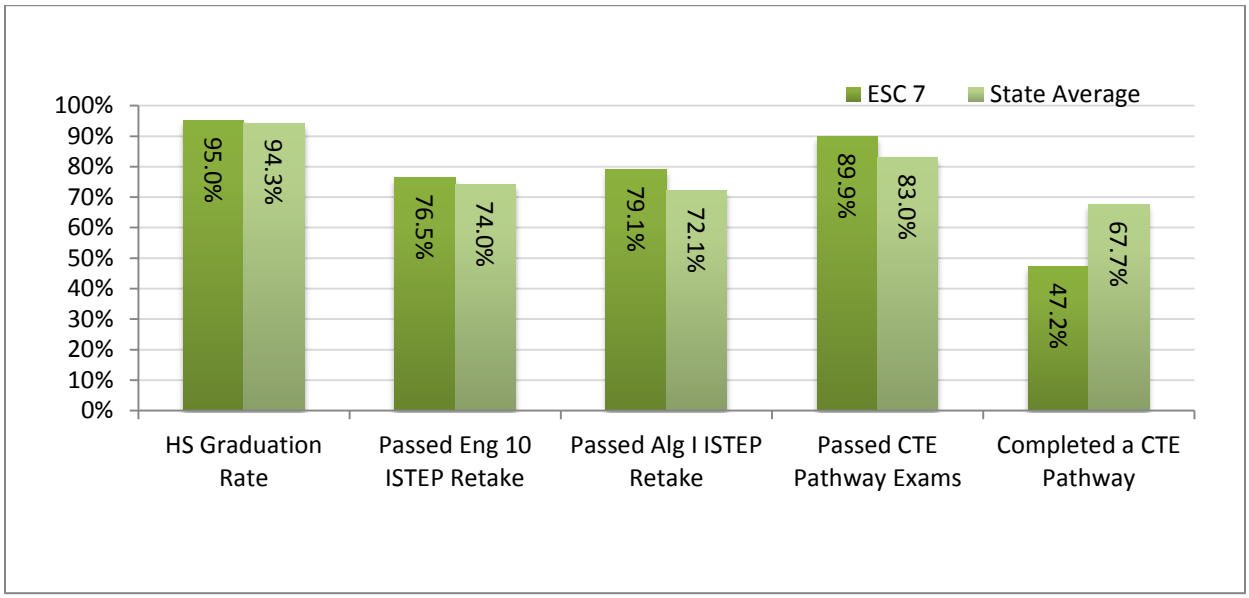
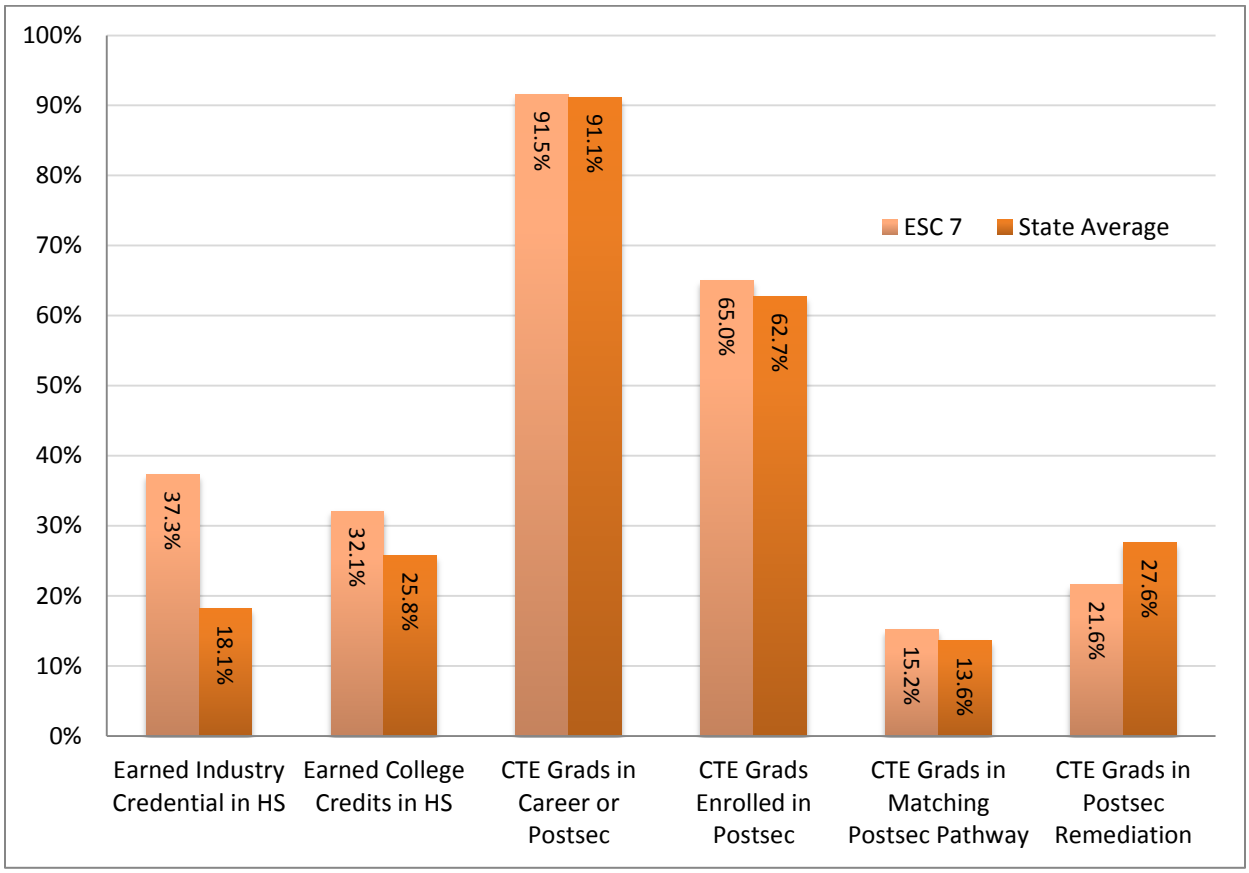


Education Service Center 7 – High School & College/Career Preparation





Education Service Center 7 – Remediation

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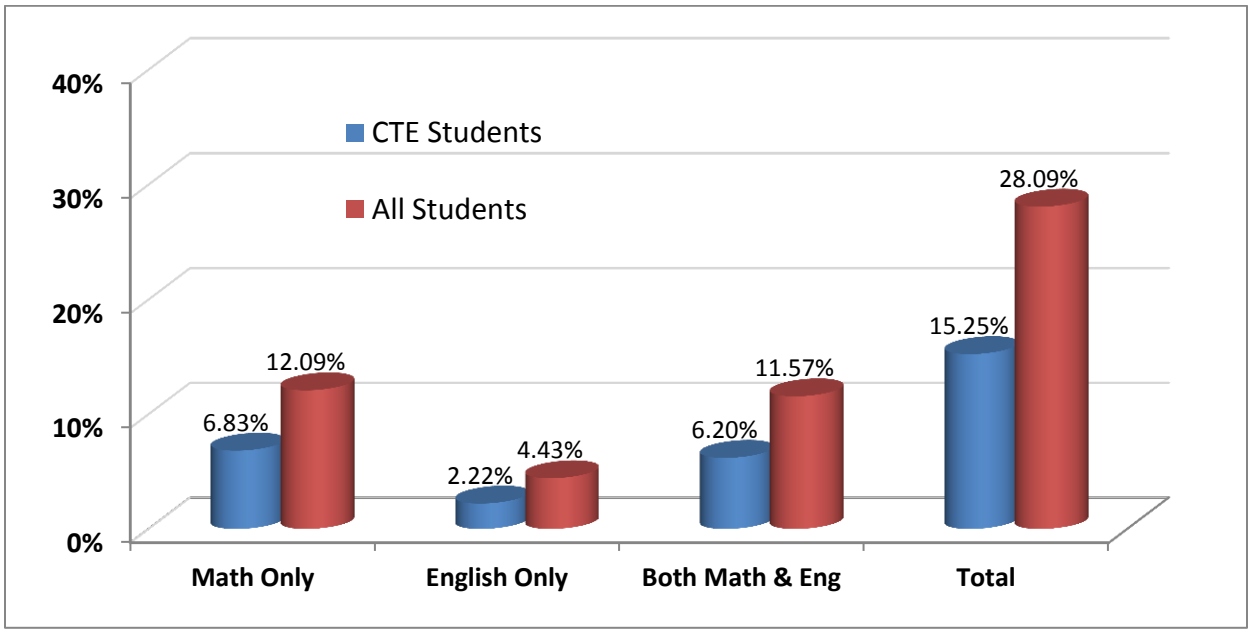

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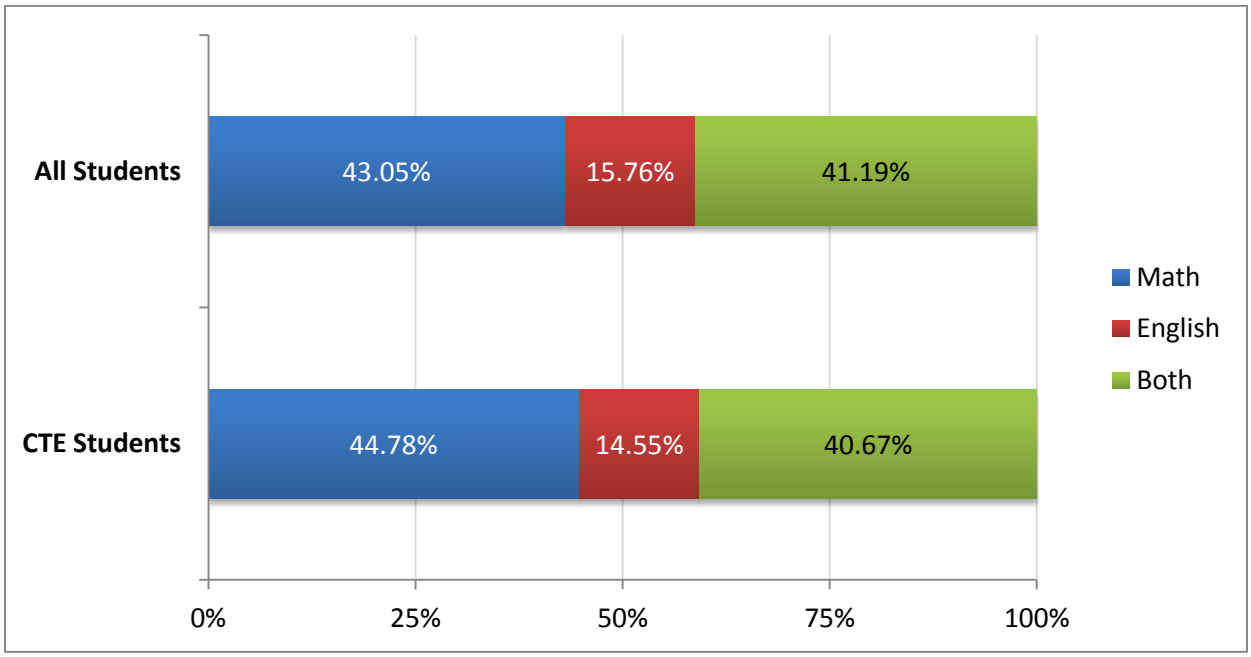
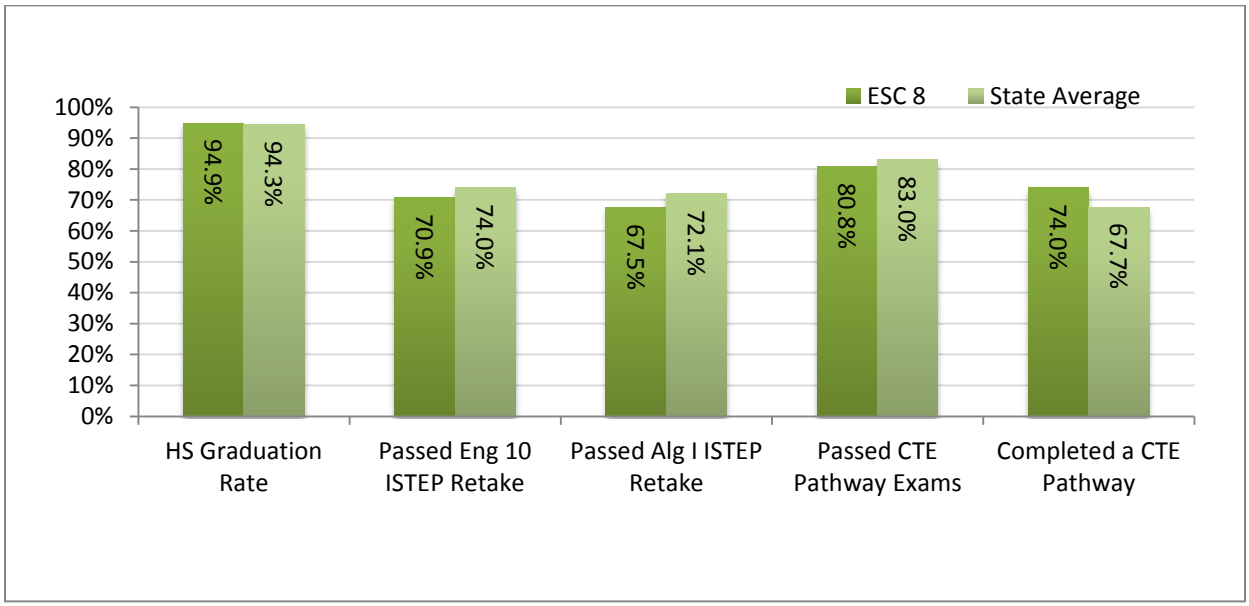
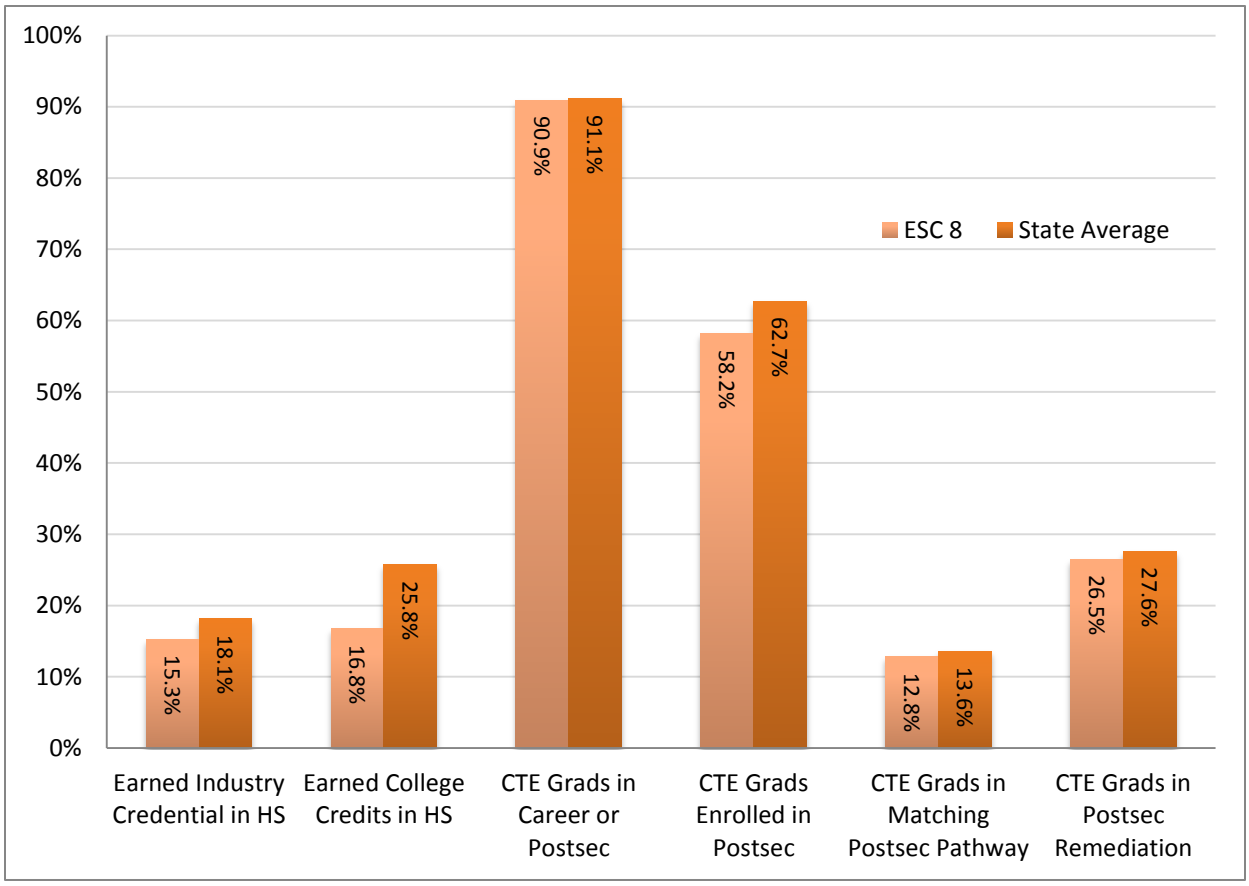


Education Service Center 8 – High School & College/Career Preparation





Education Service Center 8 – Remediation

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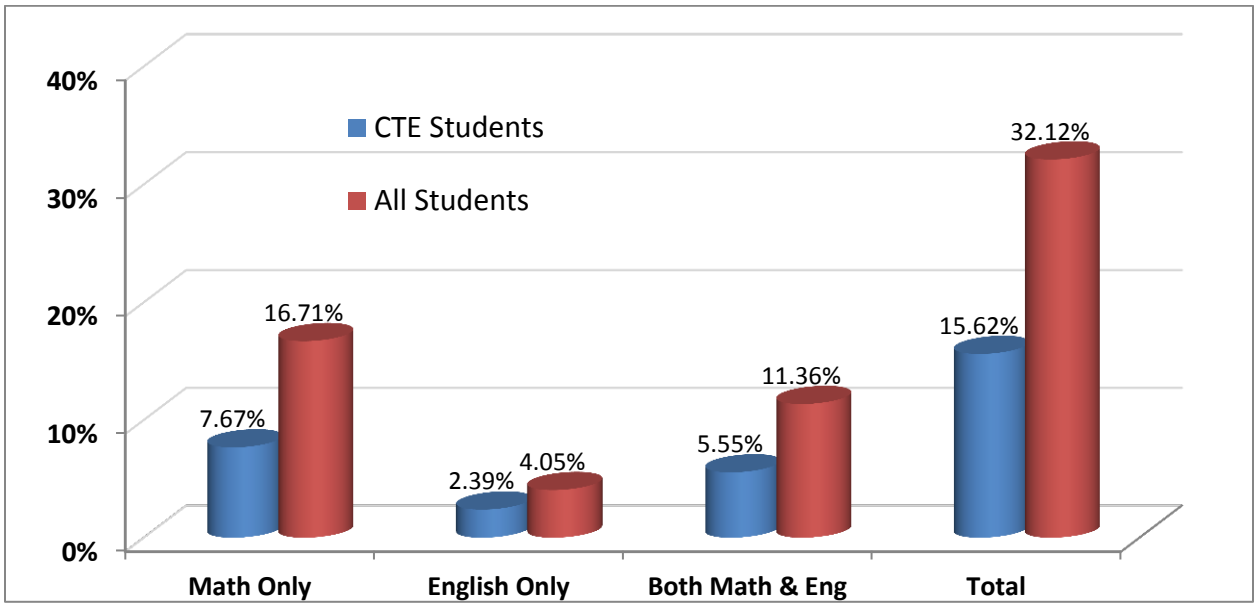
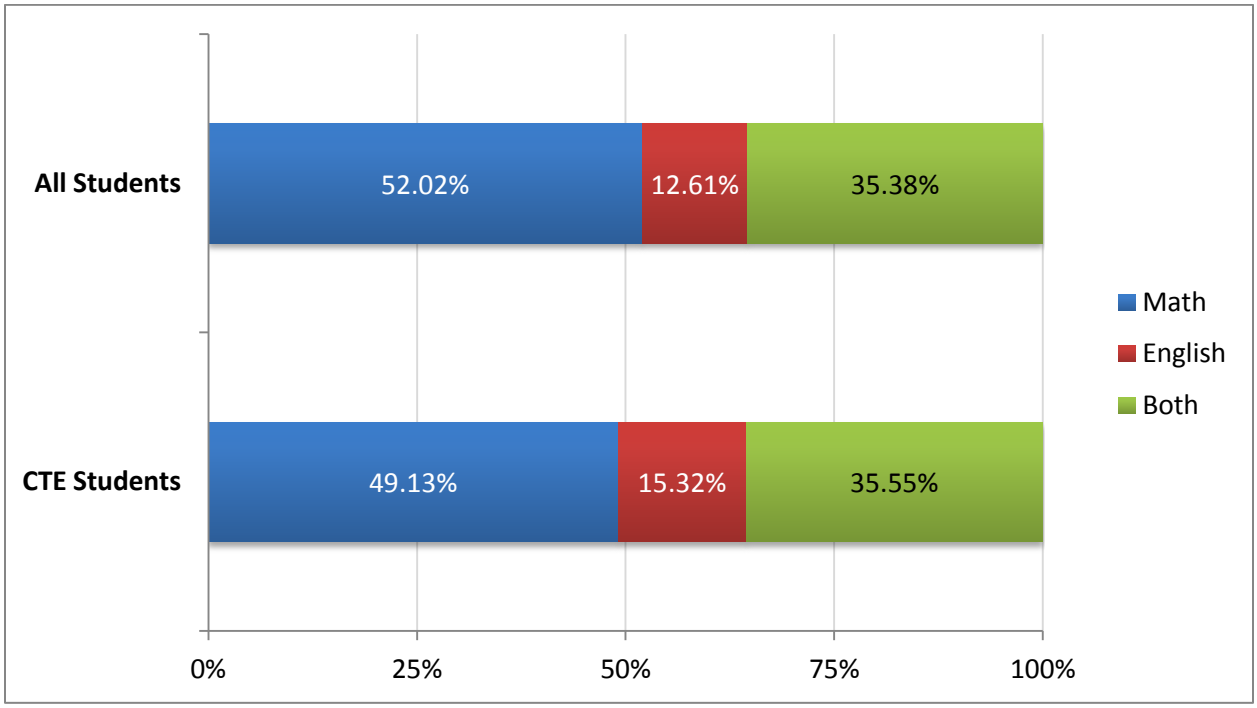
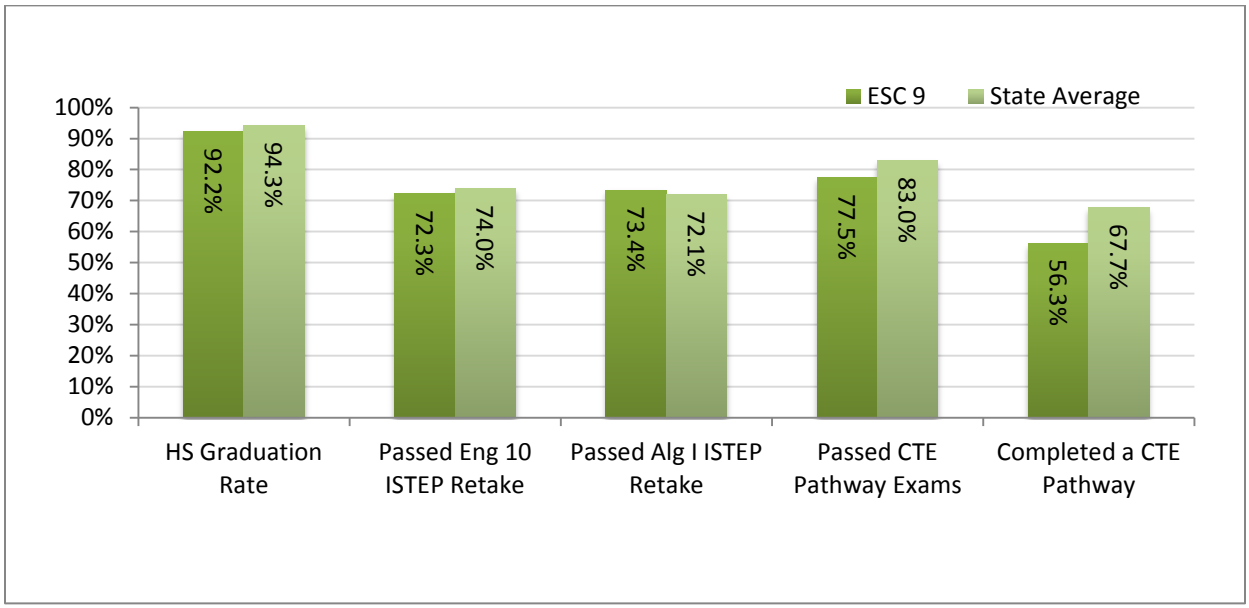
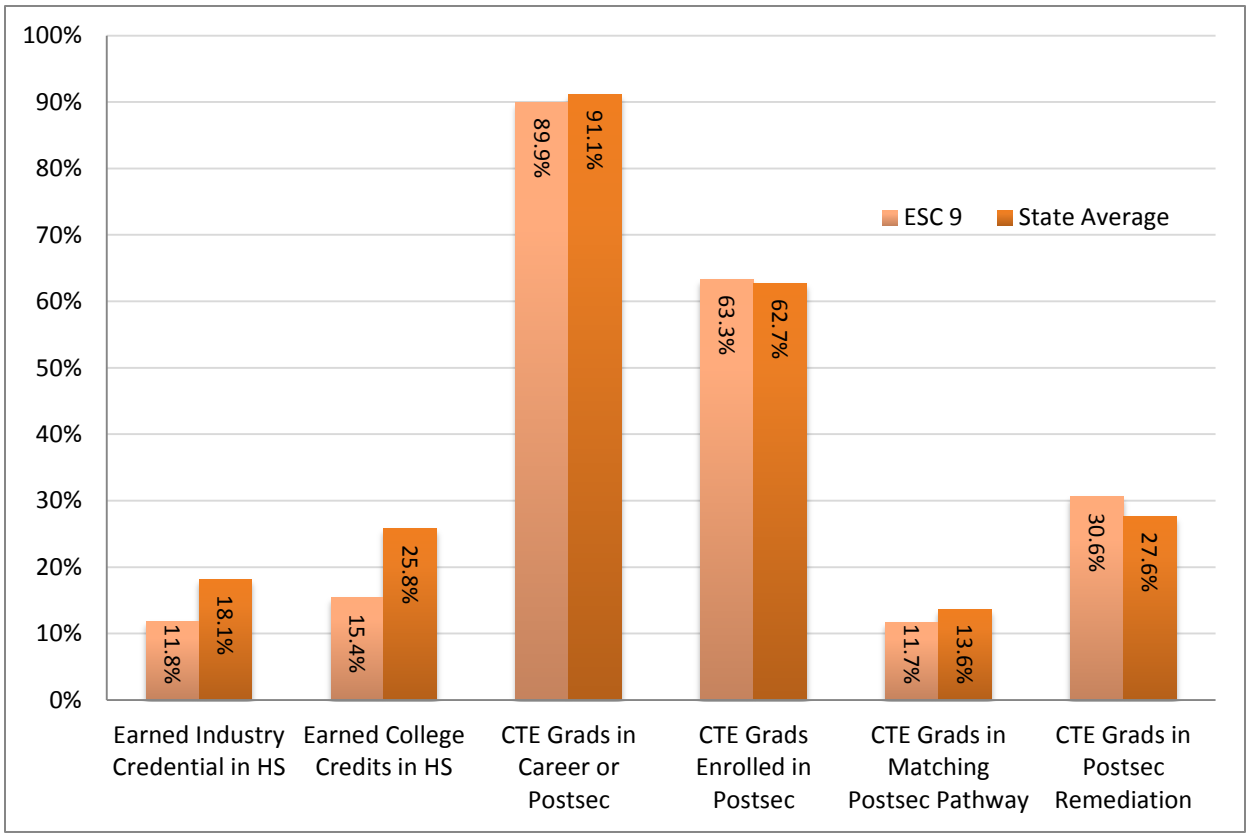


The second graph shows where the remediation time was spent by percentage of all students in each category taking remedial courses in the first year of college.



Education Service Center 9 – High School & College/Career Preparation





Education Service Center 9 – Remediation

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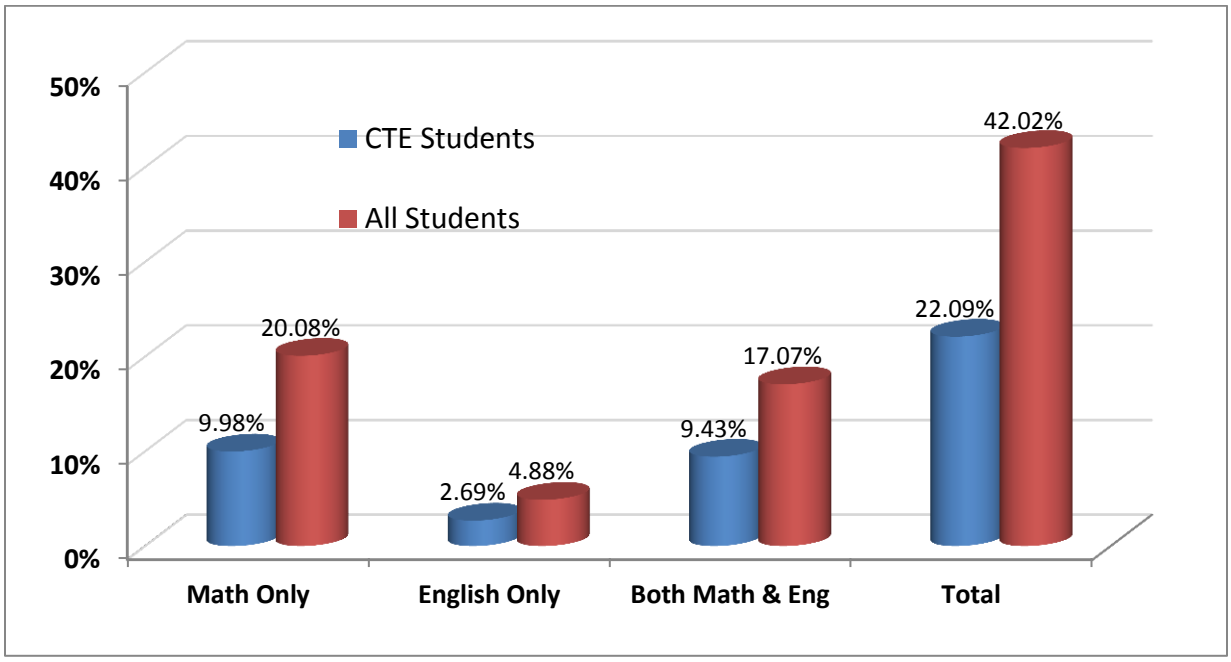

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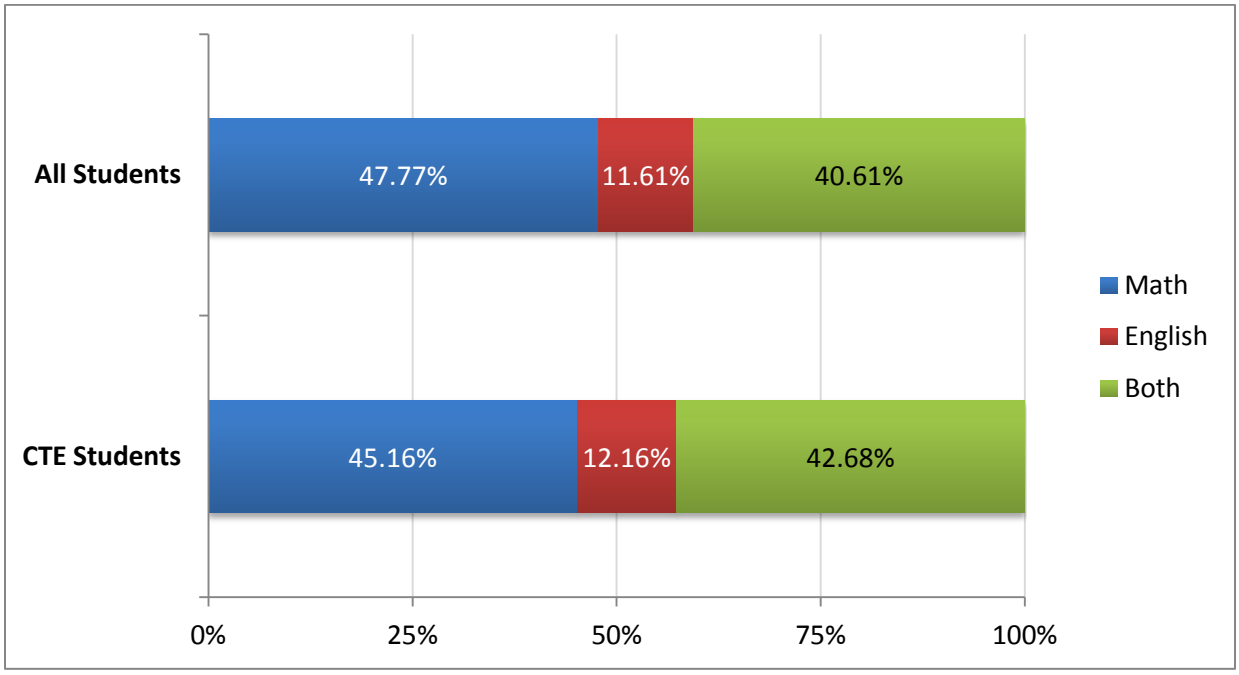
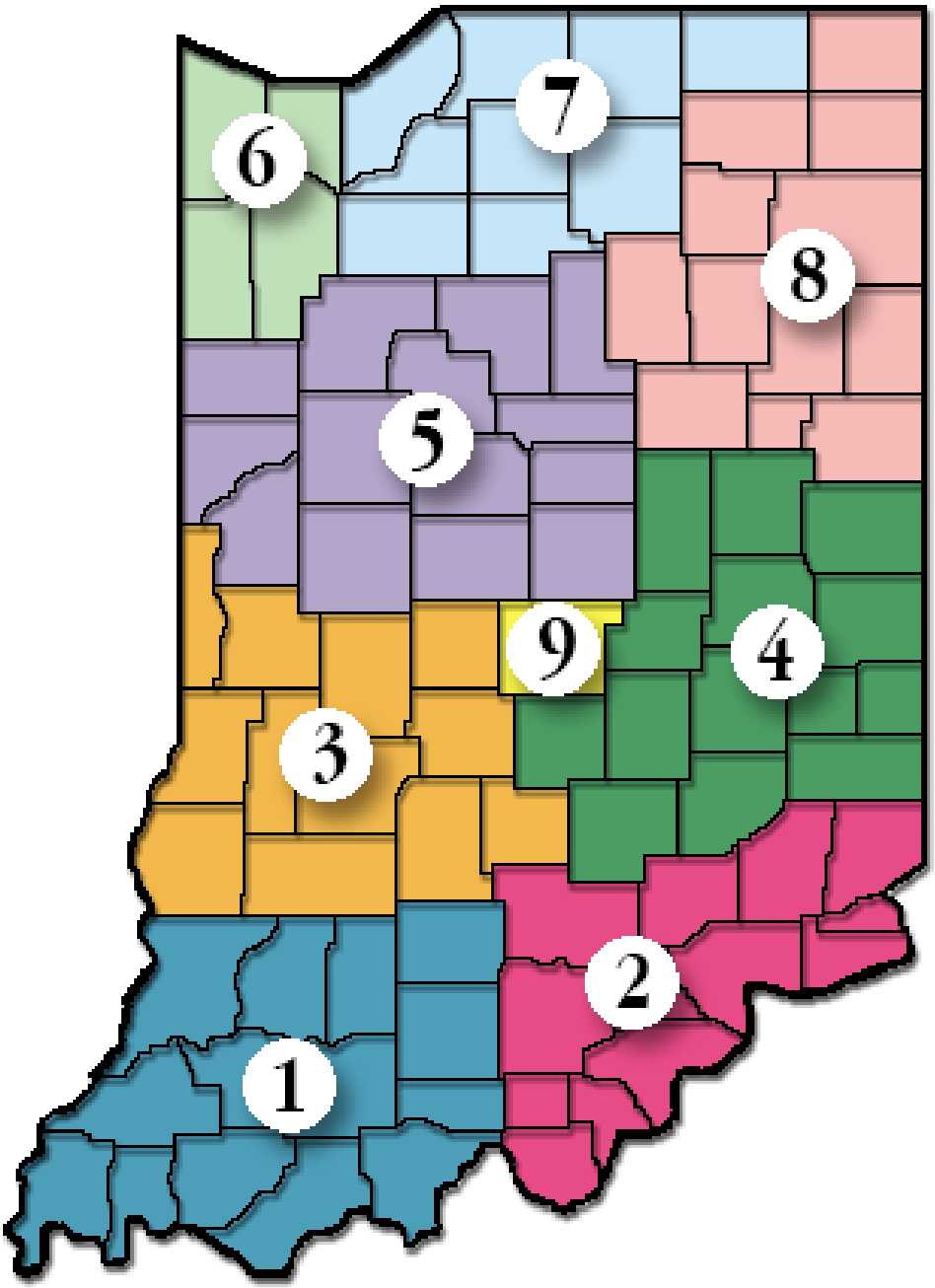


Appendix C2

Indiana Education Service Centers



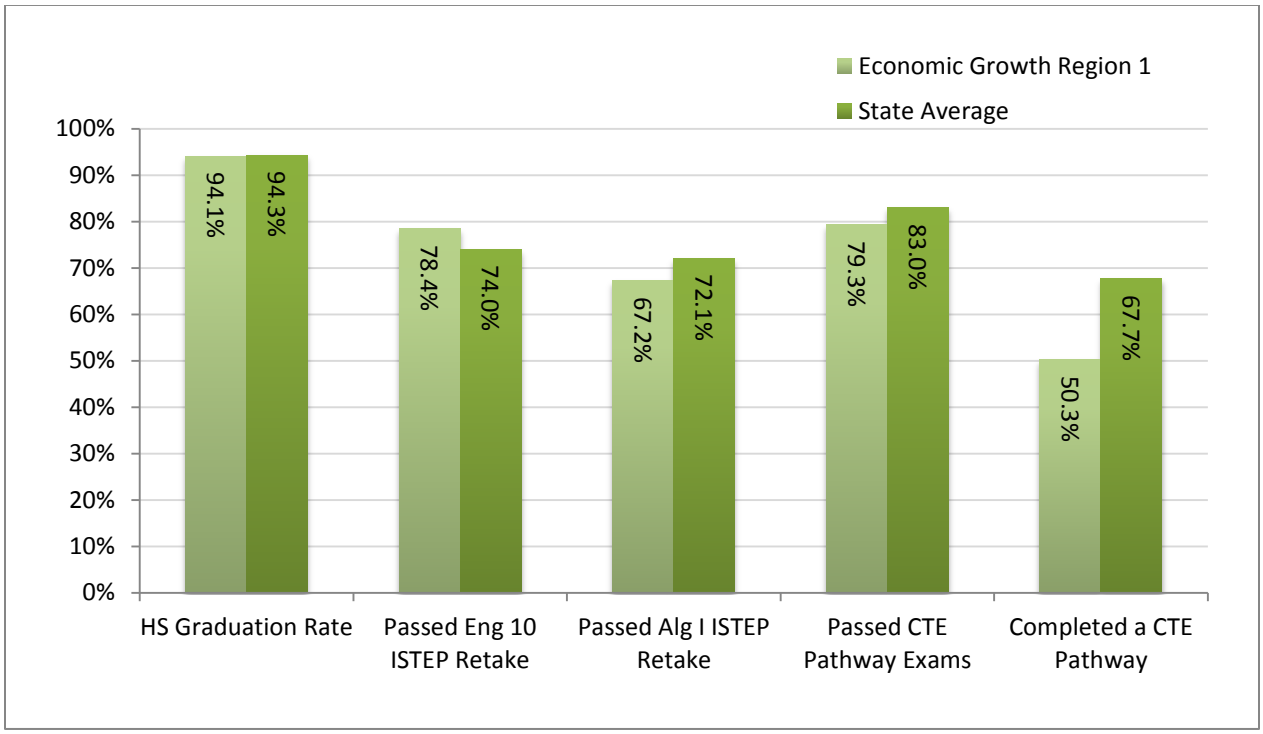
Indiana Education Service Center Contacts

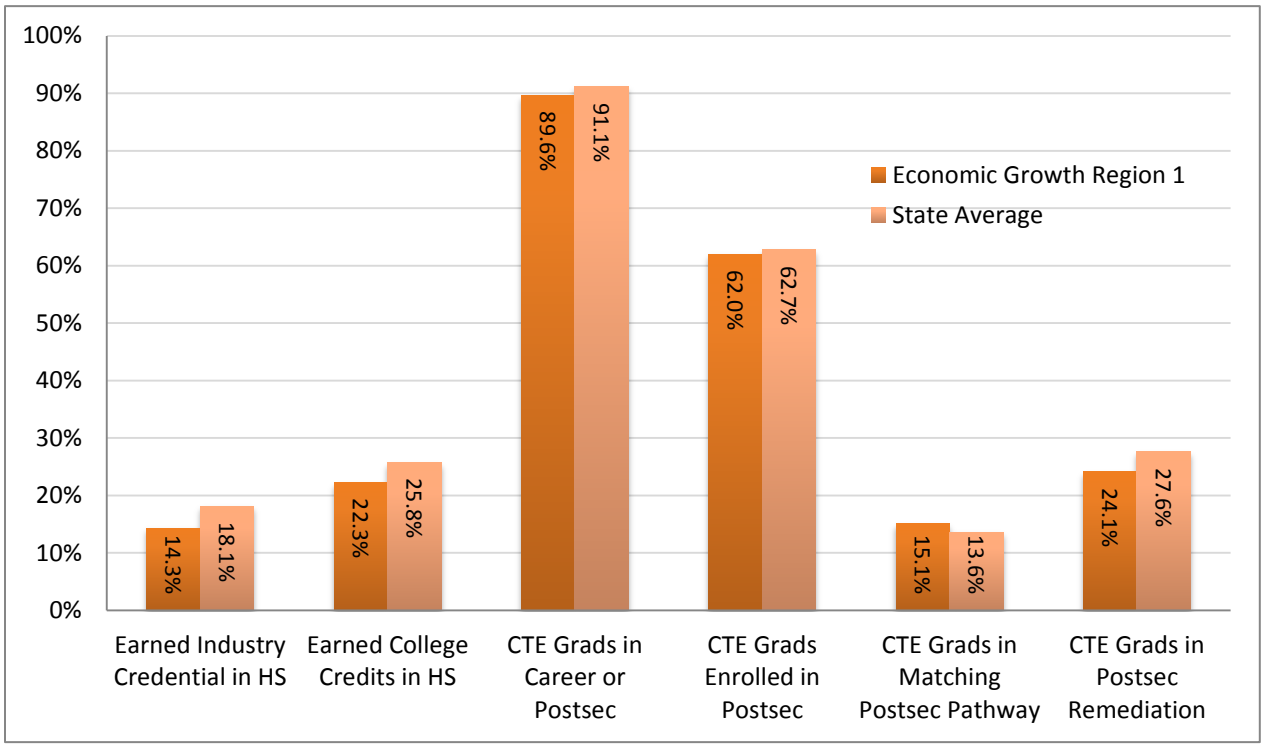
(From Indiana Department of Education)

Region 1 Southern Indiana Education Center J. Scott Turney, Director jsturney@siec.k12.in.us 1102 Tree Lane Drive Jasper, IN 47546 V: (800) 264-6641 or (812) 482-6641 F: (812) 482-6652	**Region 2** The Wilson Education Center Dr. Phil Partenheimer, Director philp@wesc.k12.in.us 2101 Grace Avenue Charlestown, IN 47111-8644 V: (800) 326-5467 or (812) 256-8000 F: (812) 256-8012	**Region 3** West Central Education Center Valerie Buchanan, Executive Director vbuchana@wciesc.k12.in P.O. Box 21 Greencastle, IN 46135 V: (765) 653-2727 F: (765) 653-7897
Region 4 East Central Educational Service Center Larry D. John, Executive Director ljohn@ecesc.k12.in.us 1601 Indiana Avenue Connersville, IN 47331 V: (800) 669-3010 or (765) 825-1247 F: (765) 825-2532	**Region 5** Wabash Valley Education Center Dr. Dennis Cahill, Interim Director dcahill@esc5.k12.in.us 3061 Benton Street West Lafayette, IN 47906 V: (765) 463-1589 F: (765) 463-1580	**Region 6** Northwest Indiana Education Center Edward Schoenfelt, Executive Director eschoenfelt@nwiesc.k12.in.us 48 W. 900 N. Chesterton, IN 46304-9357 V: (219) 926-5555 F: (219) 926-5553
Region 7 Northern Indiana Education Center Ted Chittum, Executive Director tchittum@niesc.k12.in.us 56535 Magnetic Drive Mishawaka, IN 46545 V: (800) 326-5642 or (574) 254-0111 F: (574) 254-0148	**Region 8** Region 8 Education Service Center Joshua O. Wenning, Executive Director jwenning@r8esc.k12.in.us 251 West 850 North Decatur, IN 46733 V: (260) 724-6200 or (800) 669-4565 F: (260) 724-6201	**Region 9** Central Indiana Education Service Center Dr. Mary Ann Dewan, Executive Director maryann.dewan@ciesc.k12.in.us 6321 La Pas Trail Indianapolis, IN 46268 V: (317) 387-7100 F: (317) 328-7298

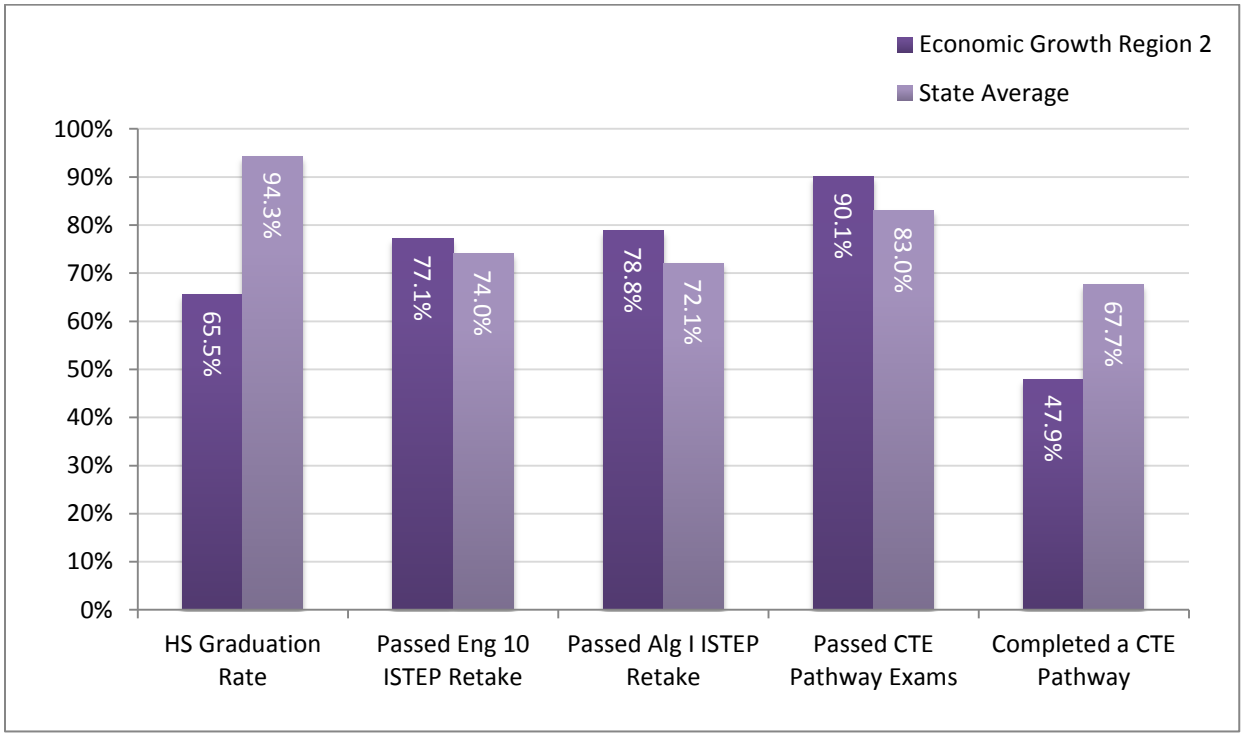
Appendix D

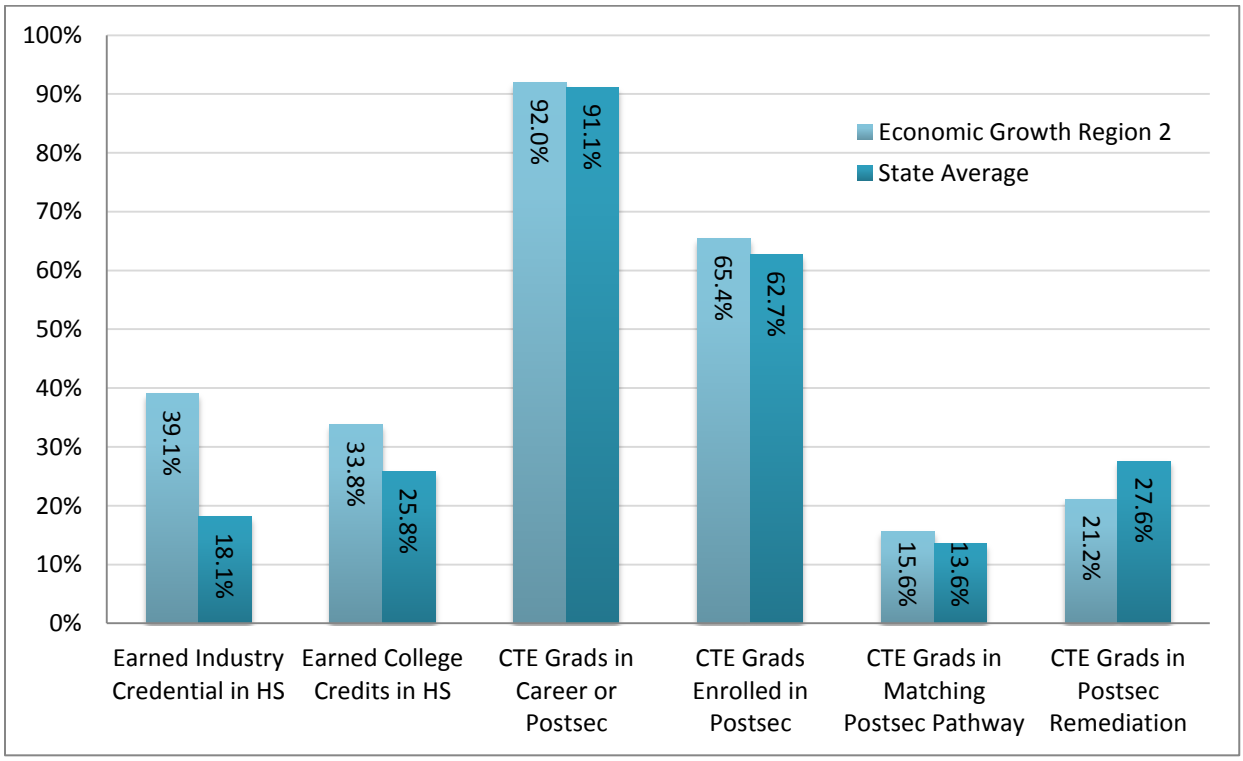
Economic Growth Region 1





Economic Growth Region 2





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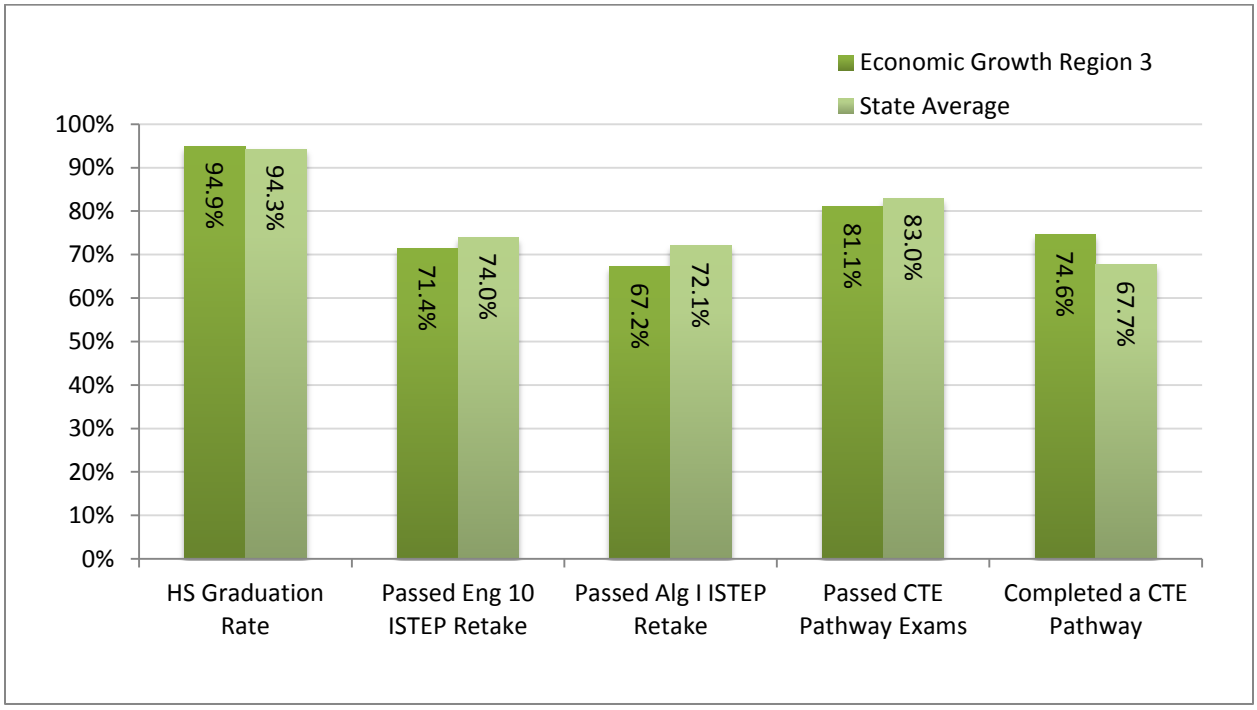

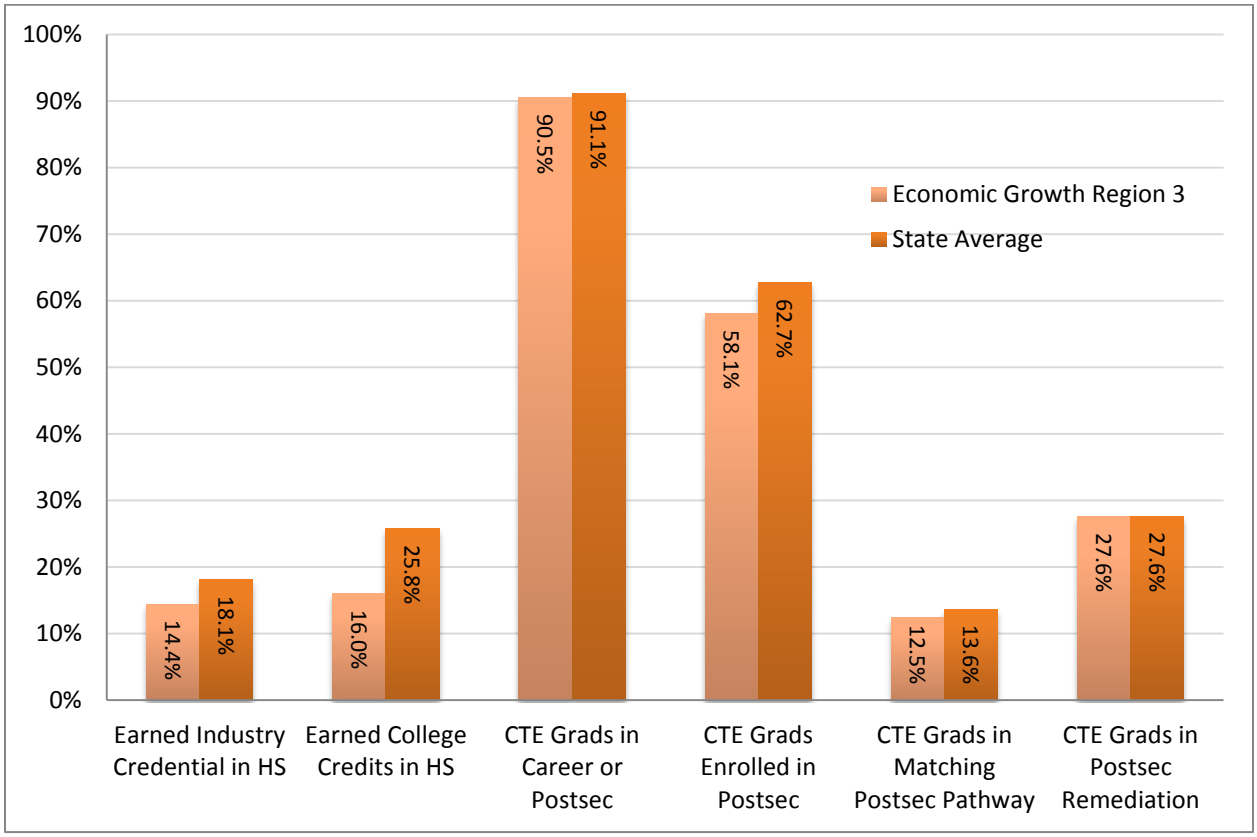

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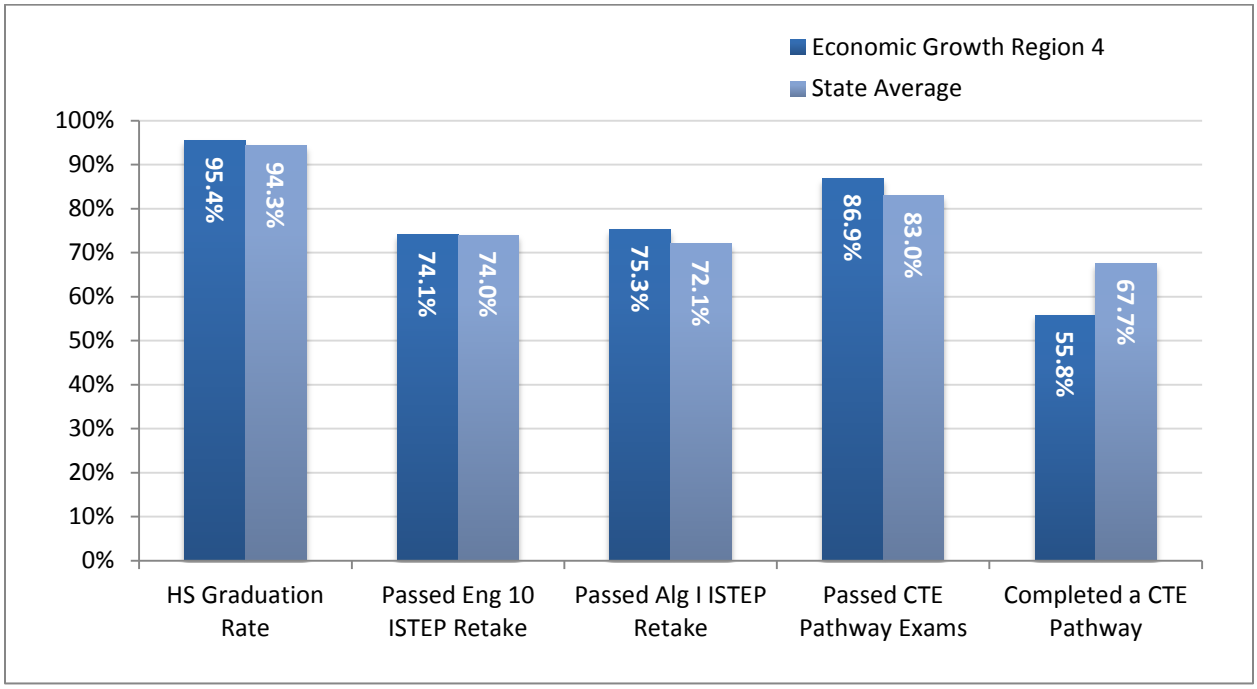
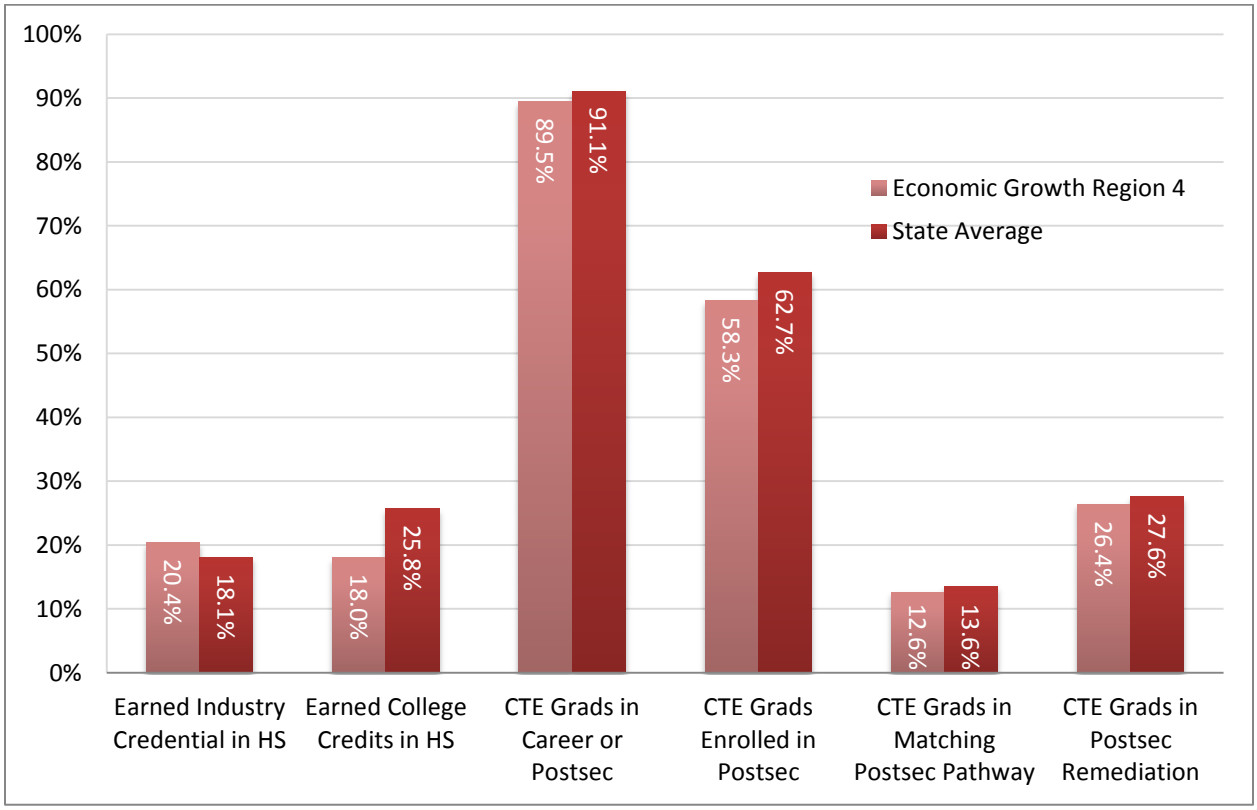
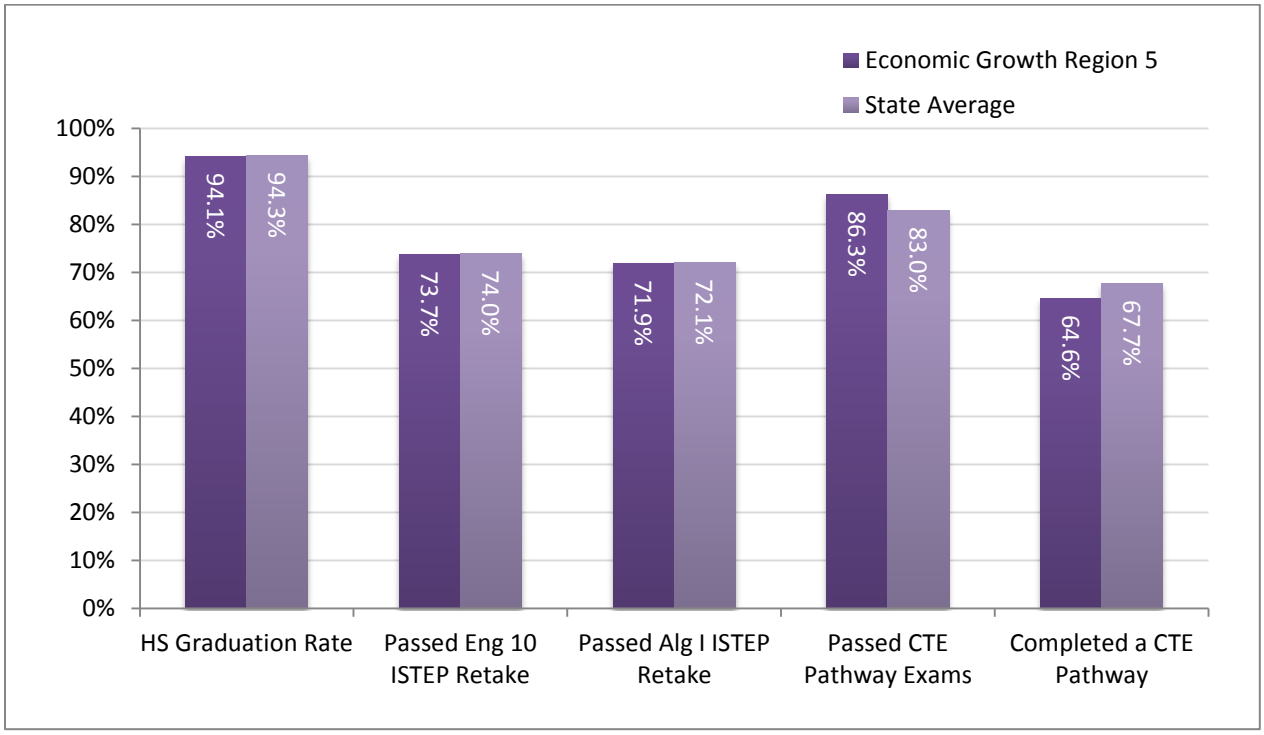
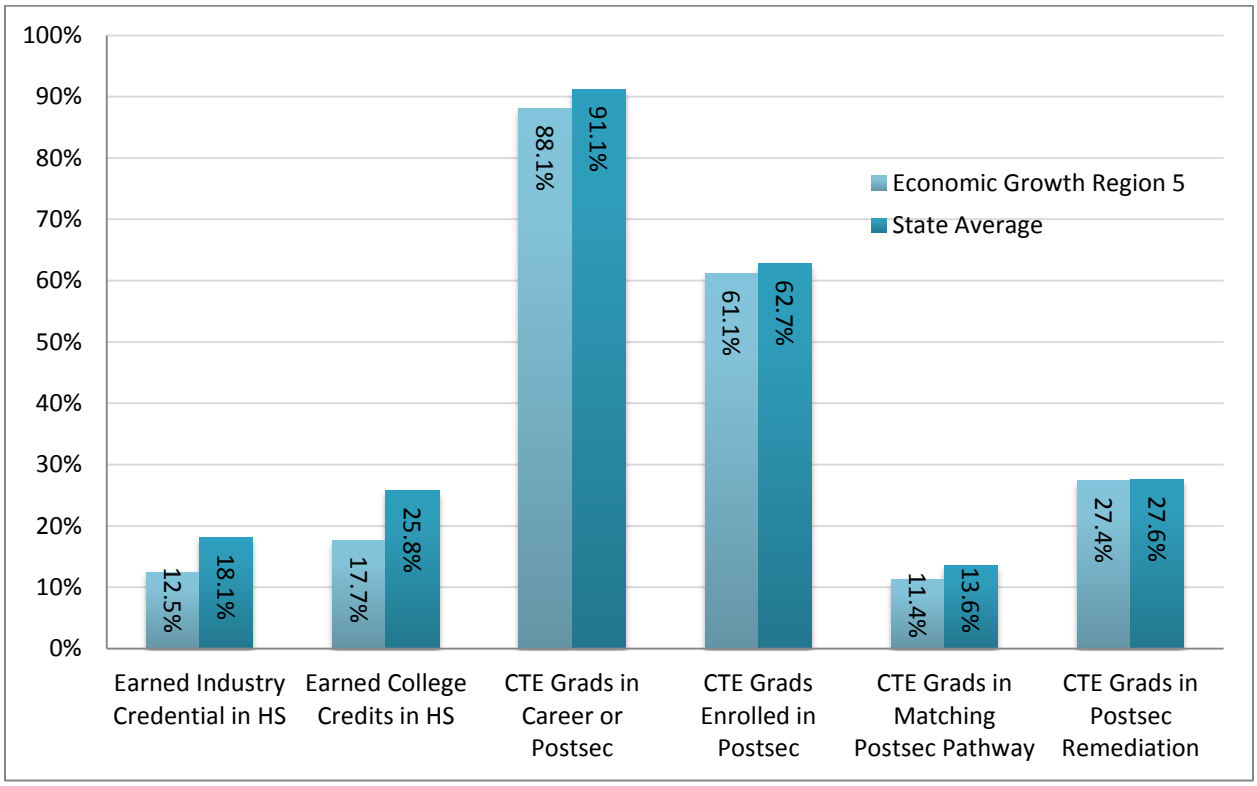


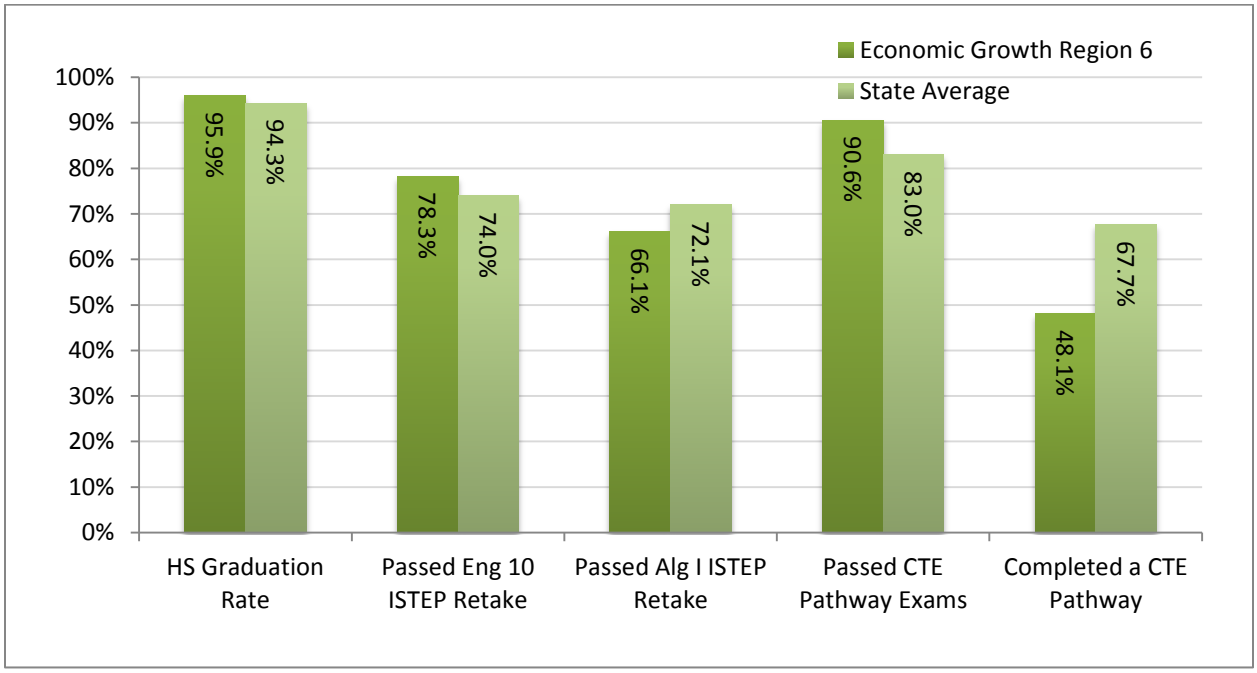


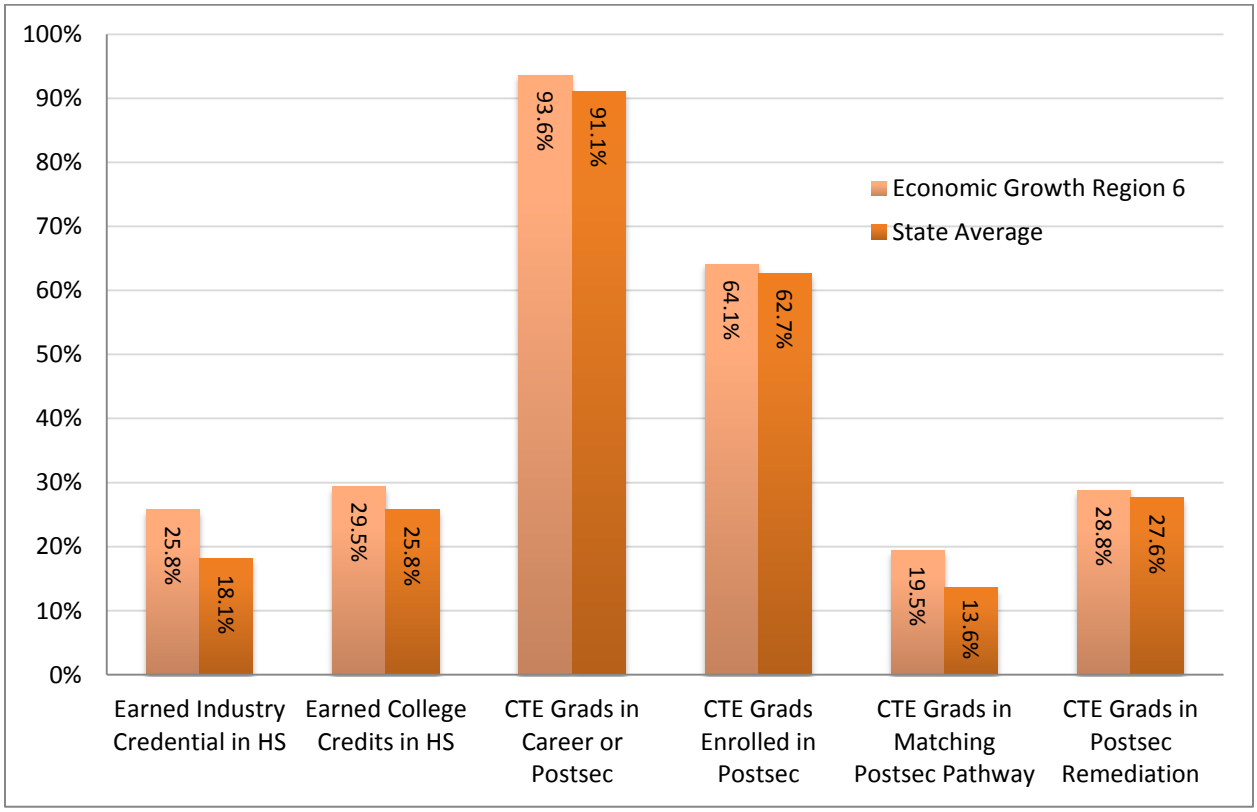
Economic Growth Region 5



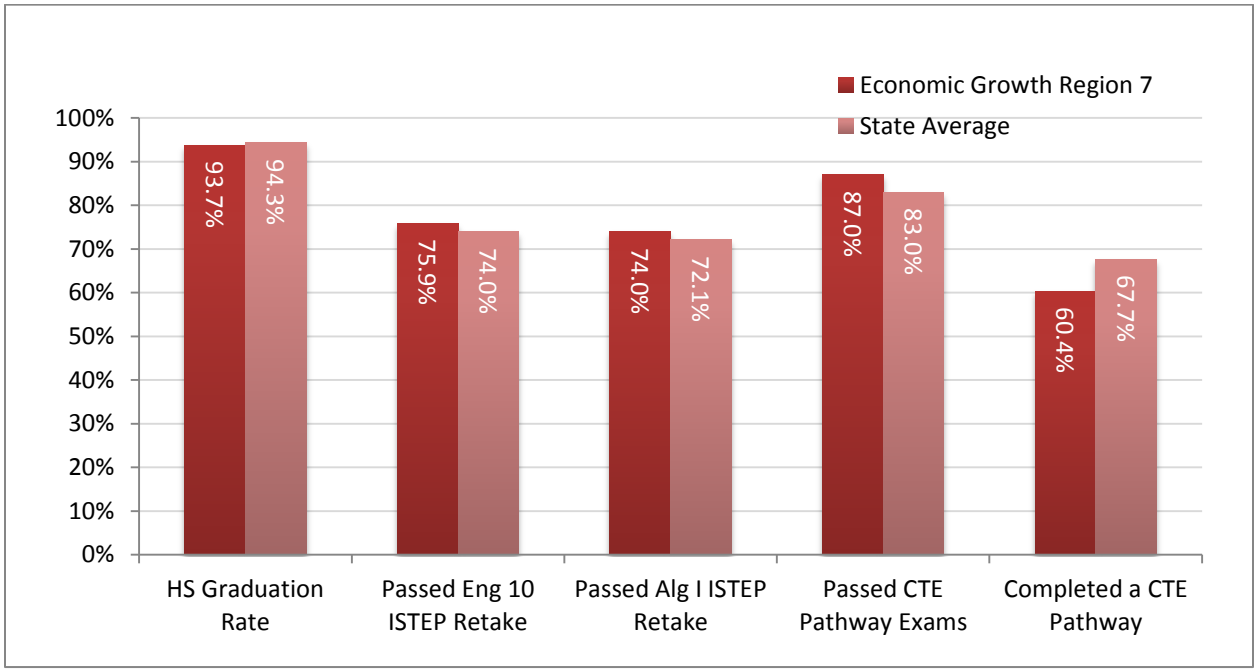


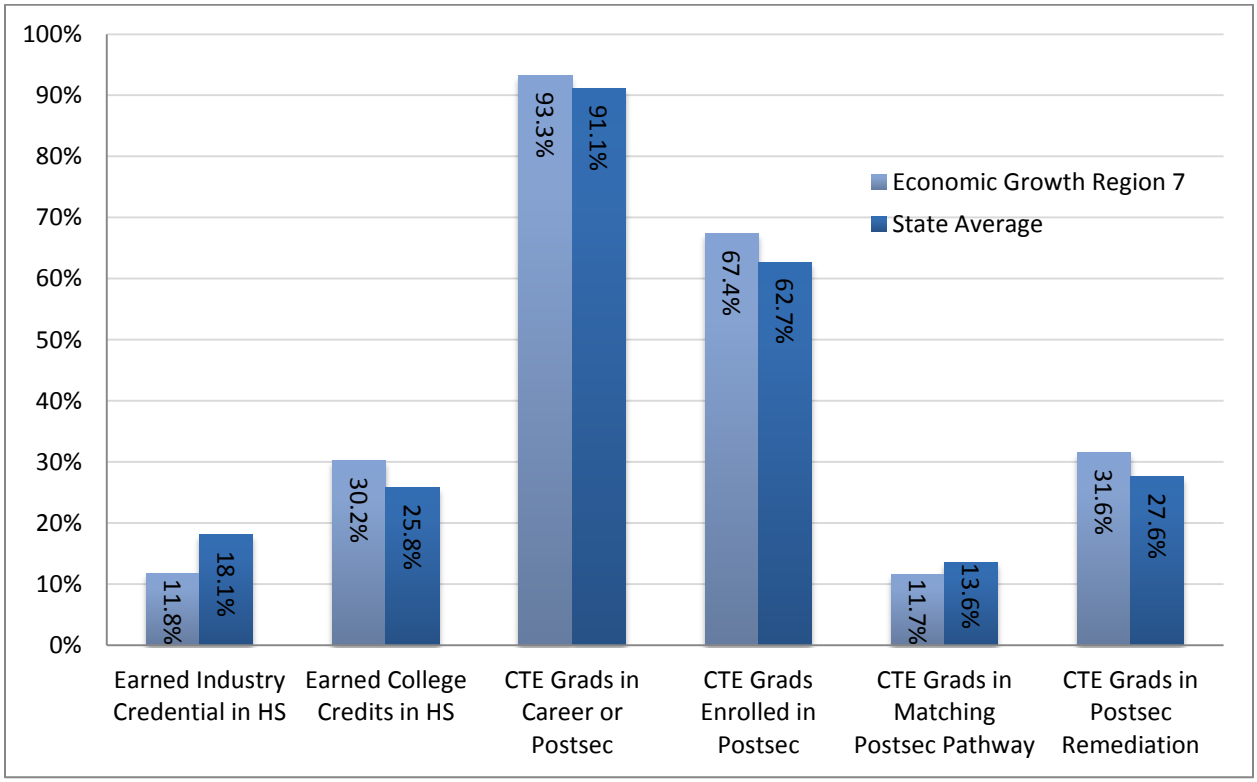
Economic Growth Region 6



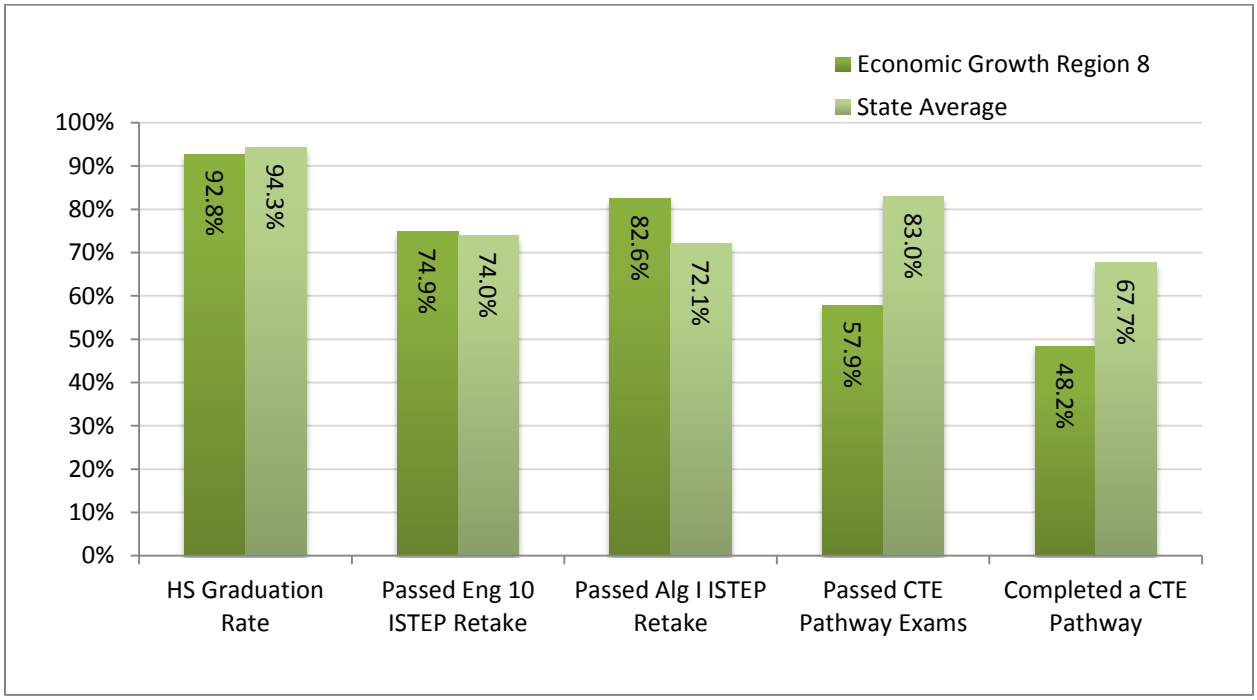


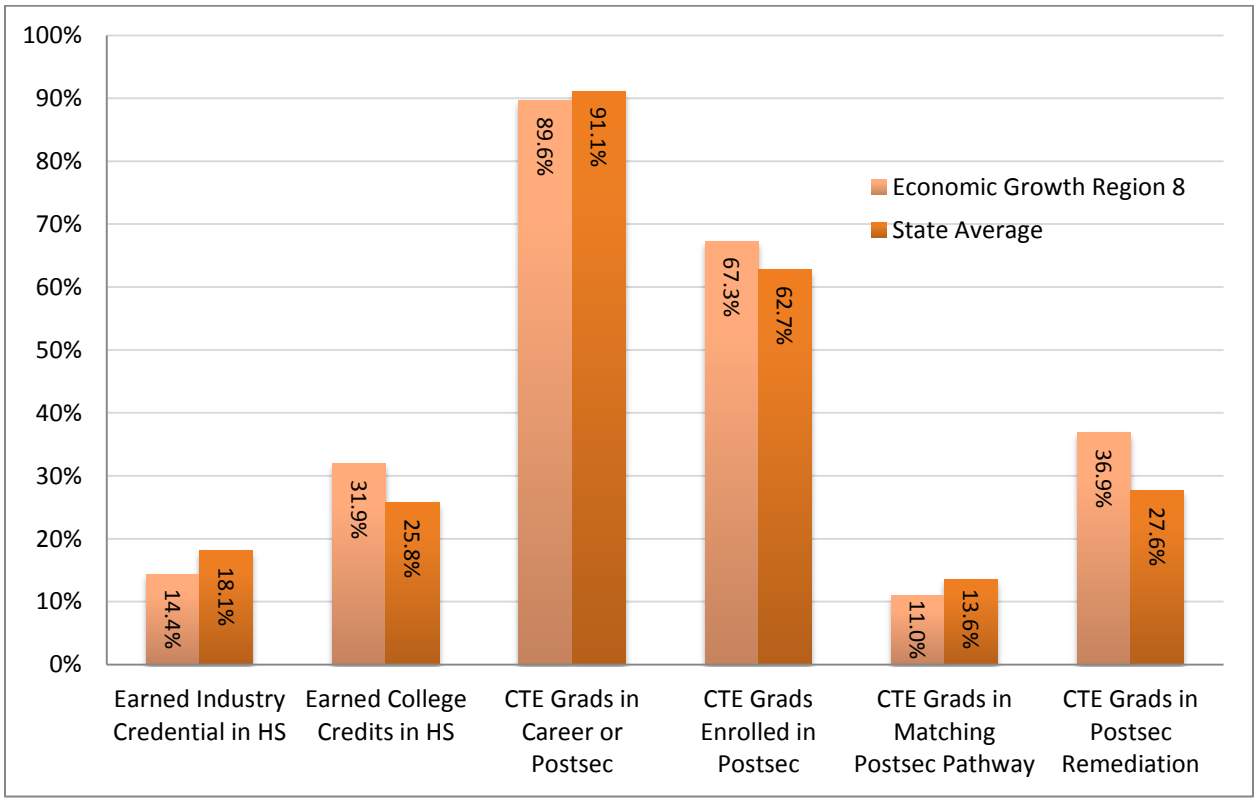
Economic Growth Region 7





Economic Growth Region 8





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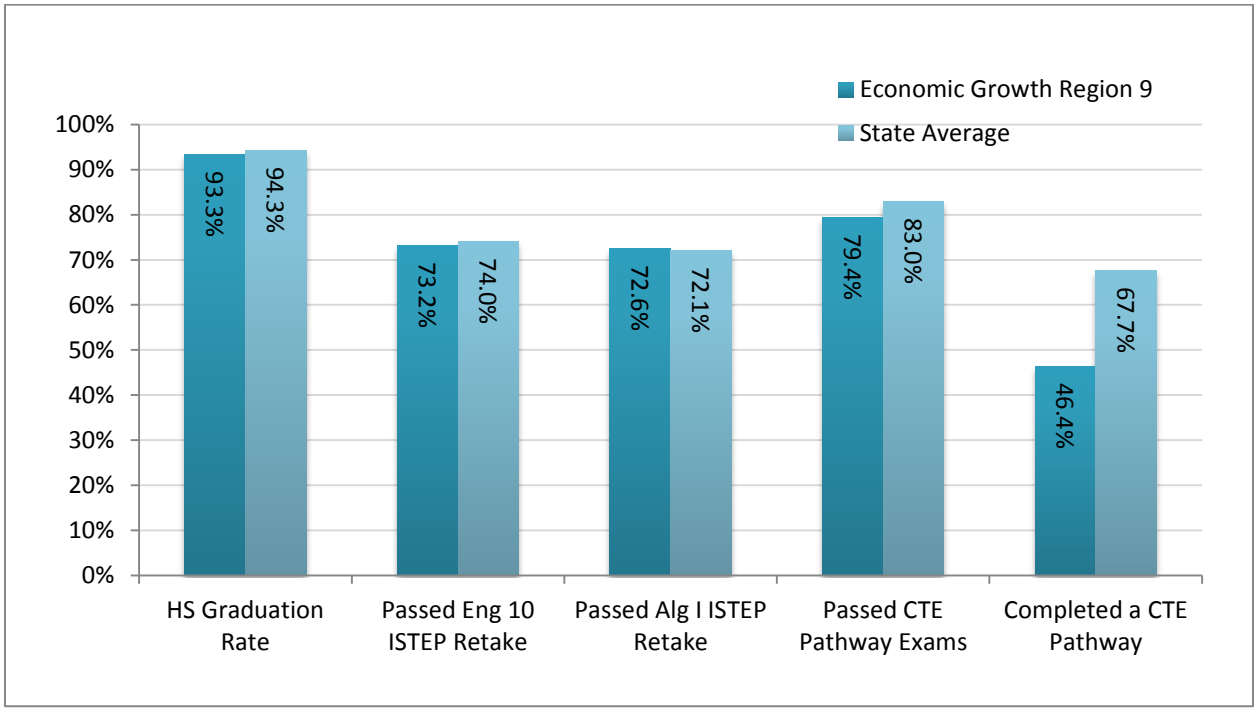
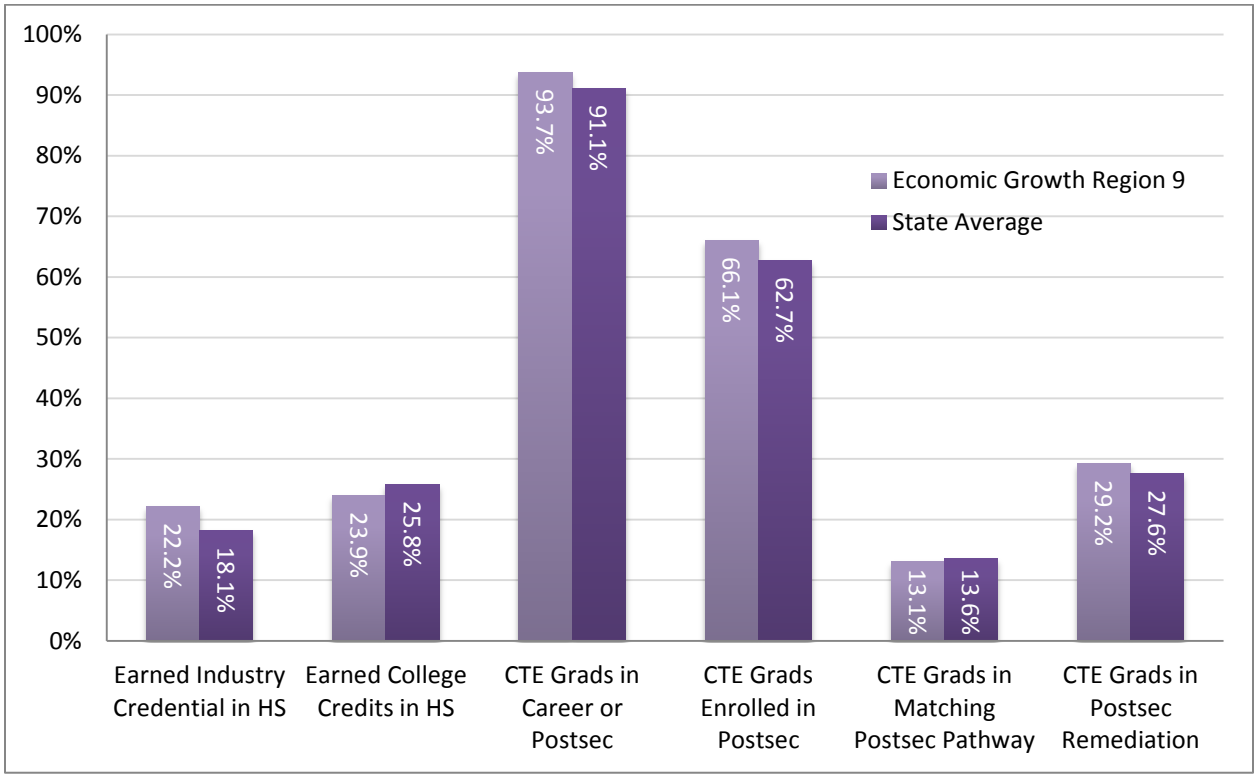
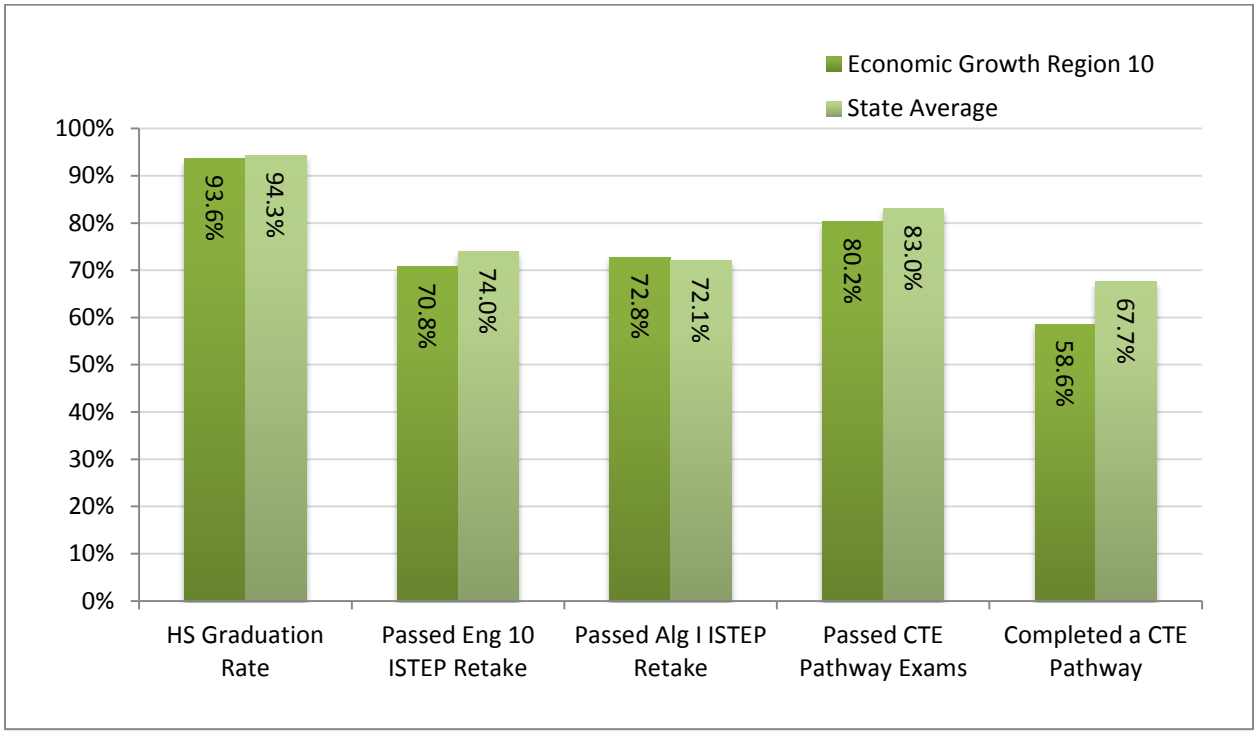
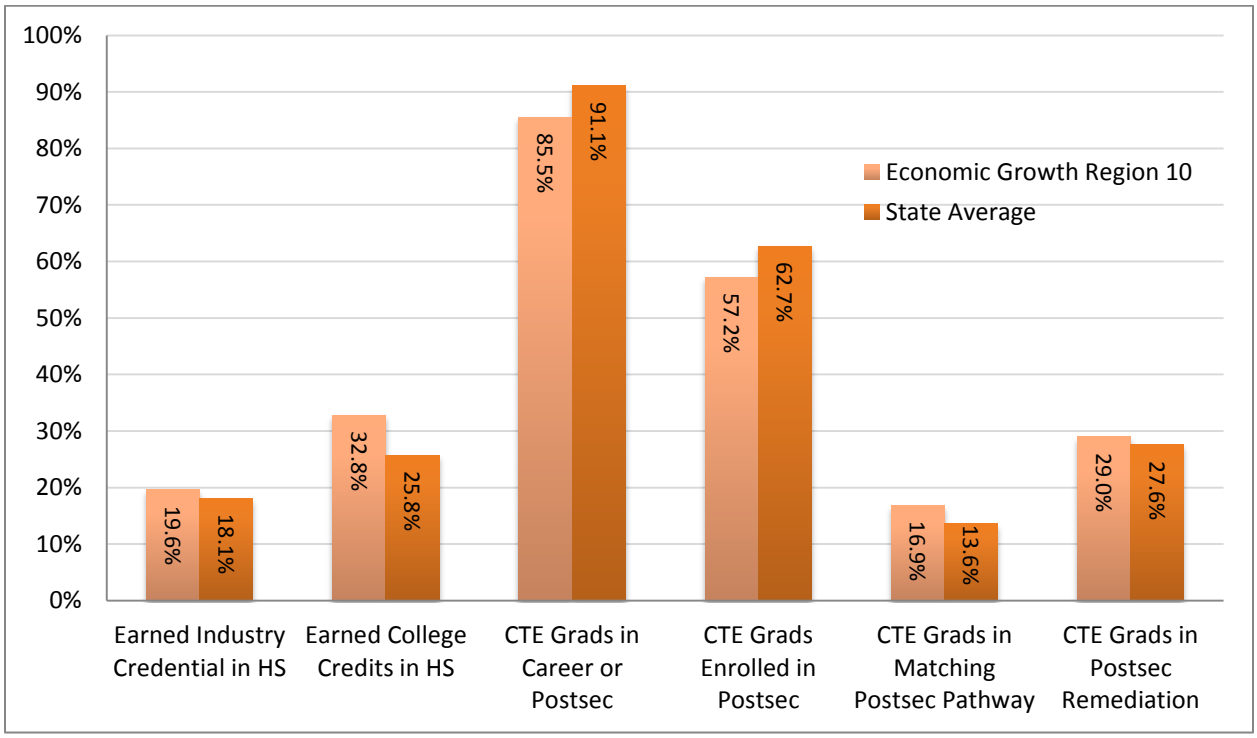


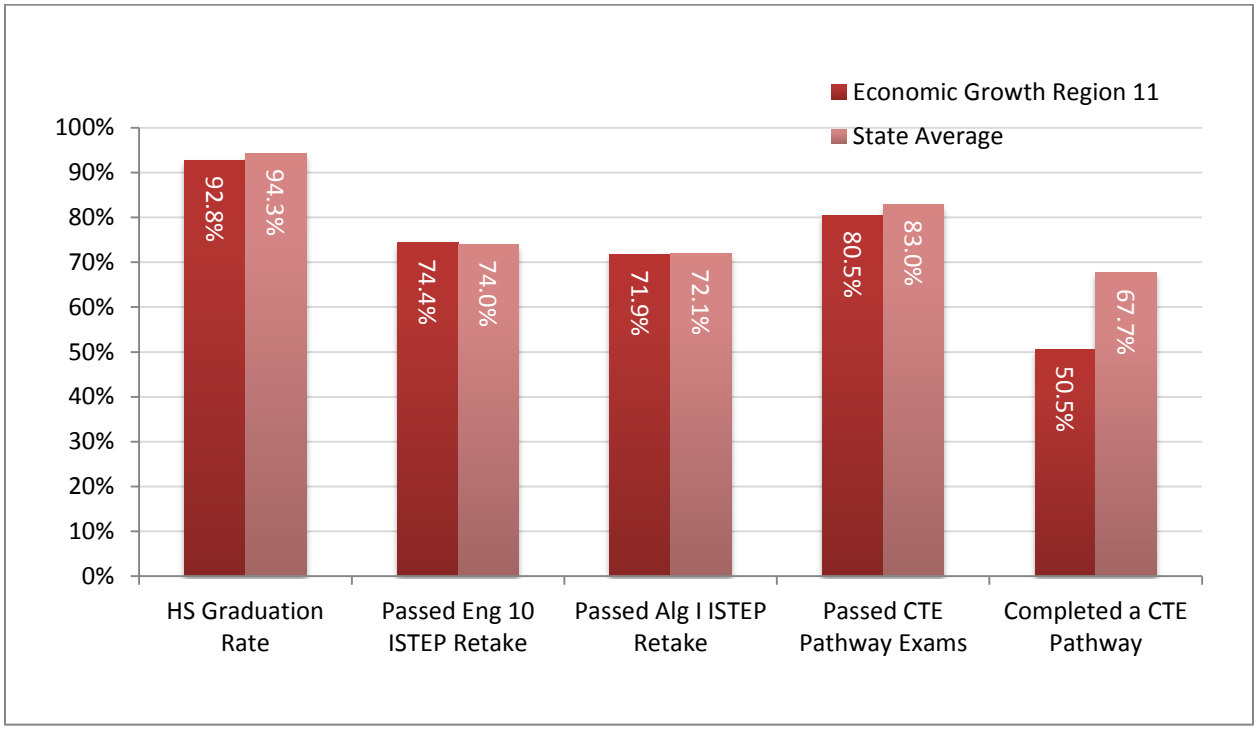


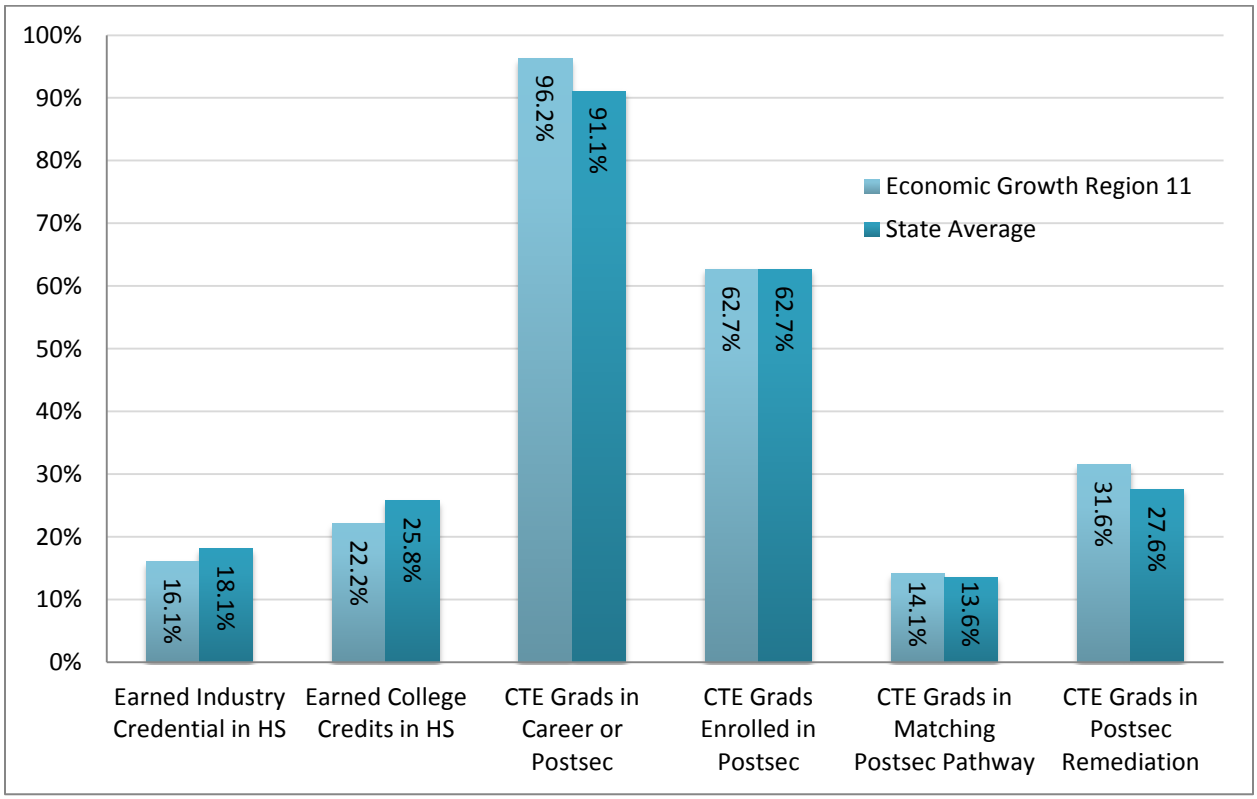
Economic Growth Region 10





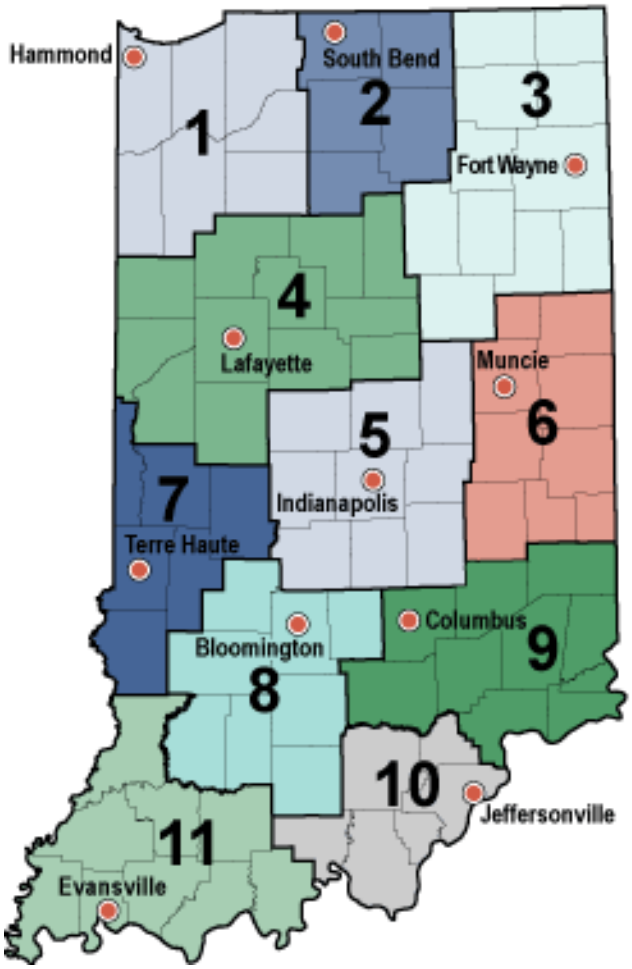
Economic Growth Region 11





Appendix D1

Indiana Economic Growth Regions and Affiliated Counties



- **Region 1**: Jasper, Lake, LaPorte, Newton, Porter, Pulaski, and Starke
- **Region 2**: Elkhart, Fulton, Kosciusko, Marshall, and St. Joseph
- **Region 3**: Adams, Allen, DeKalb, Grant, Huntington, LaGrange, Noble, Steuben, Wabash, Wells, and Whitley
- **Region 4**: Benton, Carroll, Cass, Clinton, Fountain, Howard, Miami, Montgomery, Tippecanoe, Tipton, Warren, and White
- **Region 5**: Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby
- **Region 6**: Blackford, Delaware, Fayette, Henry, Jay, Randolph, Rush, Union, and Wayne
- **Region 7**: Clay, Parke, Putnam, Sullivan, Vermillion, and Vigo
- **Region 8**: Brown, Daviess, Greene, Lawrence, Martin, Monroe, Orange, and Owen
- **Region 9**: Bartholomew, Dearborn, Decatur, Franklin, Jackson, Jefferson, Jennings, Ohio, Ripley, and Switzerland
- **Region 10**: Clark, Crawford, Floyd, Harrison, Scott, and Washington
- **Region 11**: Dubois, Gibson, Knox, Perry, Pike, Posey, Spencer, Vanderburgh, and Warrick

Source: Indiana Department of Workforce Development

Appendix D2

CTE Contacts by Economic Growth Region and CTE District

Listed below are the primary CTE contacts for each of the Economic Growth Regions. Because some CTE Districts fall across more than one EGR, some contact information is repeated.

EGR	CTE District	Contact Name	Phone	Email
1	1	Claudia Drayton	832 298 6787	clod511@aol.com
	2	Mike Zimmerman	219-933-2428	mdzimmerman@hammond.k12.in.us
	3	Robert Doctor	219 962-7571	rdoctor@garycsc.k12.in.us
	4	Dr. Nathan H. Kleefisch	219- 696-6661	nkleefisch@tricreek.k12.in.us
	5	Jon Groth	219-531-3170	jgroth@valpo.k12.in.us
	6	Audra Peterson	219-873-2120	apeterson01@mcas.k12.in.us
	10	Dan Grayson	574-583-7264	dgrayson@twinlakes.k12.in.us
	11	Jerry Hollenbaugh	574-842-4004	jhollenbaugh@culver.k12.in.us
	16	James Little	574-722-3811	littlej@lcsc.k12.in.us
2	7	Laura Marzotto	574-283-7566	lmarzotto@sbcsc.k12.in.us
	8	William Kovach	574-262-5732	wkovach@elkhart.k12.in.us
	11	Jerry Hollenbaugh	574-842-4004	jhollenbaugh@culver.k12.in.us
	12	Ronna Kawsky	574-371-5099	rkawsky@warsaw.k12.in.us
	13	Kim Nguyen	574-457-3147	knguyen@wawasee.k12.in.us
3	9	Jim Walmsley	260-349-0250	jwalmsley@fcavc.org
	13	Kim Nguyen	574-457-3147	knguyen@wawasee.k12.in.us
	14	Larry Gerardot	260-467-1007	larry.gerardot@fwcs.k12.in.us
	17	Gary Sweet	260-563-7481	gsweet@hcc.k12.in.us
	18	Kevin Keller	765-730-1564	kkeller@bhmsd.k12.in.us
	21	Amanda McCammon	765-664-9091	amccammon@marion.k12.in.us
4	16	James Little	574-722-3811	littlej@lcsc.k12.in.us
	17	Gary Sweet	260-563-7481	gsweet@hcc.k12.in.us
	19	Pam Rager	765.230.0505	pgrager@tsc.k12.in.us
	20	James Stradling	765-455-8021	jstradling@kokomo.k12.in.us
	23	Dan Martin	317-627-4218	dmartin@cville.k12.in.us
	25	Jim Pearson	765-552-9881	jpearson@hindscc.k12.in.us

5	24	Shawn Wright Browner	317-259-5265	swrightbrowner@msdwt.k12.in.us
	26	Gregory Kalisz	765-641-2121	gkalisz@acsc.net
	31	Ron Hoke	317-988-7262	ron.hoke@wayne.k12.in.us
	32	Sarah Bogard or Brenda O'Brien	317-693-5431	bogards@ips.k12.in.us/obriesb@ips.k12.in.us
	33	Frank Svarczkopf	317-964-8041	franksvarczkopf@msdlt.k12.in.us
	36	Alan Dafoe or Christi McBride	812-330-7730	adafoe@mccsc.edu or cmcbride@mccsc.edu
	37	Stan Wilkison	317-888-4401	swilkison@central9.k12.in.us
	38	Steve Shaw	317-392-4191 x1101	sshaw@brcp.k12.in.us
	49	Lou Anne Schwenn	317-532-6151	lschwenn@warren.k12.in.us
6	18	Kevin Keller	765-730-1564	kkeller@bhmsd.k12.in.us
	22	Jo Ann McCowan	765-747-5257	jamccowan@muncie.k12.in.us
	25	Jim Pearson	765-552-9881	jpearson@hindscc.k12.in.us
	27	Robert Hobbs	765-593-6680	rhobbs@nccsc.k12.in.us
	28	Rusty Hensley	765-973-3307	rhensley@rcs.k12.in.us
	34	Milton Eley	765-825-0521	eley09@fayette.k12.in.us
7	29	Craig Newby	765-245-2870 x1	cnewby@pveti.k12.in.us
	30	Lora Busch	765-653-3515	lbusch@area30.k12.in.us
	35	Doug Dillion	812-462-4470	dwd@vigoschools.org
	39 & 43	JT Roberts	812-882-0801	jroberts@twinriversarea.org
8	36	Alan Dafoe or Christi McBride	812-330-7730	adafoe@mccsc.edu or cmcbride@mccsc.edu
	39 & 43	JT Roberts	812-882-0801	jroberts@twinriversarea.org
	40	Duane Martin	812-279-3561	martind@nlcs.k12.in.us
9	40	Duane Martin	812-279-3561	martind@nlcs.k12.in.us
	41	Gene Hack	812-376-4240	hackg@bcsc.k12.in.us
	42	Bradley Street	812-689-5253 x 223	bstreet@sccenter.k12.in.us
10	44	Kevin Knies	812-620-0906	kknies@lrcc.k12.in.us
	45	Alan Taylor	812-542-8508	ataylor@nafcs.k12.in.us
11	43	JT Roberts	812-882-0801	jroberts@twinriversarea.org
	46	Barbara Bennett	812-435-8439	barbara.bennett@evsc.k12.in.us
	47 & 48	Glenn Weil	812-482-7662	gweil@gjcs.k12.in.us