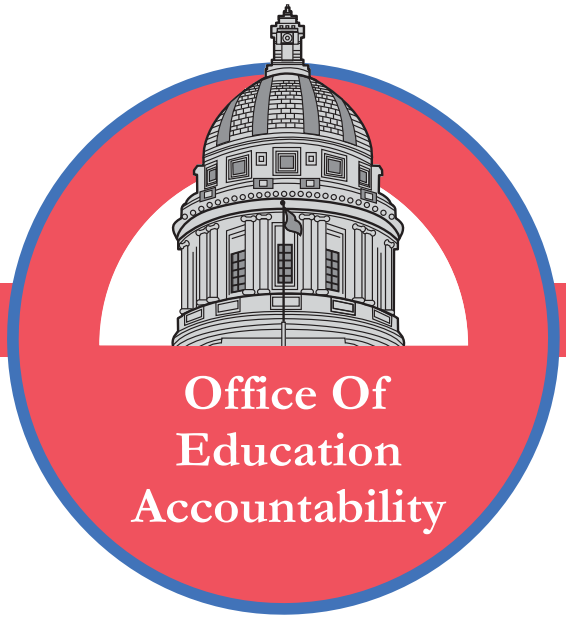

Legislative Research Commission

A Look Inside Kentucky's College And Career Readiness Data

Research Report No. 410

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Foreword

In December 2013, the Education Assessment and Accountability Review Subcommittee requested that the Office of Education Accountability conduct this study of Kentucky's college and career readiness measures. The study examines individual components of those measures, including how these components vary among schools, districts, and student groups. The study also explores postsecondary outcomes of graduates deemed college or career ready by different measures.

Marcia Ford Seiler
Acting Director

Legislative Research Commission
Frankfort, Kentucky
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Summary

Beginning in 2012, Kentucky's *Unbridled Learning* accountability system included a measure of graduates' college and/or career readiness (CCR). This measure reflects policy makers' concern that students graduate from high school with the skills necessary to succeed in postsecondary education and the workforce. Since the measure was introduced, CCR rates have climbed steeply, from 47 percent in 2012 to 62 percent in 2014.

College and/or career readiness rates are generally reported as a single percentage but comprise three different components: college ready; college and career ready; and career ready. Within each component, the Kentucky Department of Education (KDE) uses a variety of indicators to determine graduates' readiness. This report analyzes the components and indicators that make up CCR, looking at how each has changed over time and varies among schools and different types of students.

The report focuses in particular on the college readiness component. The Kentucky Council on Postsecondary Education (CPE) has set college readiness benchmarks in English, mathematics, and reading on the ACT college readiness test and on the Compass and Kentucky Online Testing (KYOTE) college placement tests. Students who meet benchmarks on any of these tests are permitted to take college-level courses at any Kentucky college or university and are not required to complete remedial courses. Prior to 2012, KDE reported college readiness based on the percentage of graduates meeting benchmarks on ACT tests. Beginning in 2012, KDE also reported as college ready those graduates who met benchmarks on the Compass or KYOTE.

The percentage of graduates deemed college ready increased from 32 percent in 2011 to 55 percent in 2014. Increases in the percentage of graduates deemed college ready have come more from students meeting benchmarks on Compass and KYOTE tests than from students meeting benchmarks on ACT tests. For example, the percentage of graduates deemed college ready in math increased from 41 percent in 2011 to 67 percent in 2014. Of this increase, 4 percentage points were from students meeting benchmarks on the ACT and 22 percentage points were from students meeting benchmarks on Compass and KYOTE tests.

The increase in college readiness rates has resulted in positive outcomes for many graduates who went on to enroll in Kentucky colleges and universities. The percentage of enrolled graduates who required remedial coursework in at least one subject dropped from 54 percent in 2011 to 38 percent in 2013.

However, outcomes that can be expected from graduates deemed college ready by the various measures are not yet entirely understood. Data from 2012 graduates show that outcomes such as college enrollment, grades, and persistence from the fall to spring semesters were stronger for students who met benchmarks on ACT tests alone than they were for students who met benchmarks on a combination of ACT, Compass, or KYOTE tests.

The proportion of CCR graduates who meet CPE college readiness benchmarks on ACT tests versus a combination of ACT, Compass, or KYOTE tests varies by school and by student characteristics. For example, college-ready 2014 graduates from higher-income families were

more likely to have met benchmarks on all ACT tests (about three-fourths) than were college-ready graduates from lower-income families (about one-half). Large differences existed in some schools between the percentage of graduates meeting all benchmarks on the ACT and those meeting benchmarks through a combination of ACT, Compass, and KYOTE tests. In 2014 there were 12 high schools in which one-third or less of students deemed college ready met benchmarks on all ACT tests. These differences raise concerns about the validity of the CCR college-ready measure as a means of comparing college readiness of graduates among districts and schools. Factors that could undermine the validity of the indicator include test-focused instruction or inappropriate test administration practices.

The percentage of graduates deemed career ready increased from 8 percent in 2012 to 18 percent in 2014. The percentage of graduates reported by KDE as career ready would be even greater (26 percent in 2014) if the department used consistent reporting criteria.

The report tracks 2012 career-ready graduates into Kentucky colleges or universities but does provide data on career-ready graduates who did not enroll in Kentucky postsecondary institutions. Forty-five percent of students deemed career ready (but not college ready) in 2012 enrolled in Kentucky postsecondary institutions in 2013. Cumulative grade point averages for these students were much lower than they were for students deemed college ready on ACT tests alone but only slightly lower than they were for students deemed college ready through a combination of ACT, Compass, and KYOTE tests. Data that would allow tracking of career-ready graduates into the workforce were not available for this report.

The report makes four recommendations:

Recommendation 2.1

As part of its biennial plan for validation studies required by KRS 158.6453, the Kentucky Department of Education should request a study of instructional practices in schools with large differences between the percentage of graduates who meet Council on Postsecondary Education readiness benchmarks on ACT tests in the 11th-grade administration and the percentage of all graduates deemed college ready.

Recommendation 2.2

The Kentucky Department of Education should work with its vendors to ensure that unusual patterns in college and/or career readiness test data are monitored and reported formally to the department.

Recommendation 2.3

The Kentucky Department of Education should reevaluate its criteria for college ready only, career ready only, and college and career ready to ensure consistency among criteria and reporting.

Recommendation 2.4

The Kentucky Department of Education should not use college and/or career readiness as the sole or primary measure when reporting progress of student outcomes over time or evaluating the impact of particular programs or policies. College and/or career readiness rates should not be used in isolation to compare student outcomes among districts and schools.

Chapter 1

Introduction And Policy Background

Education policies in Kentucky and the nation have focused increasingly on preparing students for success in college and in the workforce.

Education policies in Kentucky and the nation have focused increasingly on preparing students for success in college and in the workforce. In the commonwealth, these policies emerged in part from concerns about the number of high school graduates who enroll in college unprepared for college-level work. In Kentucky as in the nation, policy makers are also concerned that students acquire the strong academic and technical skills necessary to succeed in the global economy.

In keeping with this focus, the Kentucky Board of Education included a measure of graduates' college and/or career readiness (CCR) in the state's *Unbridled Learning* system, which was implemented in 2012.

In keeping with this focus, the Kentucky Board of Education included a measure of graduates' college and/or career readiness (CCR) in the state's *Unbridled Learning* system, which was implemented in 2012. This system revised the state's previous accountability system to align with standards and assessments established in Senate Bill 1 (SB 1) of the 2009 General Assembly. This legislation specified that new standards be aligned with expectations of postsecondary institutions and the business community.

For purposes of accountability, the Kentucky Department of Education (KDE) awards districts and schools points based on whether students meet criteria established for one of three mutually exclusive CCR components: college ready only, career ready only, or college and career ready. Within each component, a variety of indicators are permitted as readiness criteria.

This report looks at how the percentages of graduates considered CCR in each component vary among schools and students and have changed over time.

The CCR rate is generally reported as a single percentage but comprises many different components and indicators. This report looks at how the percentages of graduates considered CCR by different components and indicators have changed over time and vary among schools and different types of students.

The report also looks within each component to analyze data on particular indicators. For example, to be considered ready for college, students can meet college-ready benchmarks set by the Council on Postsecondary Education (CPE) in English, math, and reading on one of three tests, which are the ACT college readiness test and two college placement tests: the ACT Compass (Compass), and the Kentucky Online Testing System (KYOTE). Prior to 2012, college readiness for Kentucky students was

reported on ACT tests only. The report looks at the percentage of graduates deemed college ready by different indicators and offers some preliminary data on the college outcomes for these students.

Major Conclusions

- Since the CCR measure was introduced in 2012, readiness rates have climbed steadily, from 47 percent of graduates in 2012 to 62 percent of graduates in 2014. Gains have come largely from students meeting college readiness benchmarks on the Compass and KYOTE tests or students meeting career-ready measures. The percentage of graduates meeting readiness benchmarks on ACT tests has also increased but not as steeply as the percentage of graduates who are CCR by other indicators.

- The percentage of graduates who enroll in Kentucky colleges and universities and require remedial coursework in English, math, or reading has dropped substantially. In 2011, 54 percent of enrolled prior-year graduates required remedial coursework in at least one subject compared to 38 percent in 2013.[a]

- The percentage of total CCR rates, comprising different components and indicators, varies among schools and student groups. For example, schools vary in the percentage of students who are college ready by meeting benchmarks in all three subjects on ACT tests versus students meeting benchmarks on a combination of ACT, Compass, or KYOTE tests. In some schools, most of the students who are deemed college ready meet CPE benchmarks on ACT tests. In other schools, less than 50 percent of college-ready students do so. The proportion of college-ready students who meet benchmarks on ACT tests is much lower in higher-poverty schools than it is in lower-poverty schools.

- The percentage of students who are deemed career ready has more than doubled since the measure was introduced, increasing from 8 percent in 2012 to 18 percent in 2014. The percentage of graduates reported by KDE as career ready would be even higher (26 percent in 2014) if the department reported all of the students deemed college and career ready as

[a] These percentages are based on students who met CPE college readiness indicators at the time of high school graduation. Actual percentages of students requiring remediation would be slightly lower because some students meet these indicators after graduation and before beginning coursework.

career ready. Because of inconsistencies in the criteria associated with these measures, some college and career ready students are not currently counted as career ready.

- The percentage of graduates who were college ready increased greatly between 2010 and 2012, but the percentage of graduates who enrolled in Kentucky colleges or universities the following year remained flat.

- College-ready students enroll in college more and earn higher grades than do students who are not college ready, but enrollment rates and grades vary for students deemed college-ready by different indicators. Enrollment rates, persistence rates, and GPAs are higher for students who meet all benchmarks on the ACT than they are for students who meet benchmarks on a combination of ACT, Compass, and KYOTE tests or on Compass and KYOTE tests alone.

Description Of This Study

In December 2013 the Education Assessment and Accountability Review Subcommittee requested that the Office of Education Accountability (OEA) examine the individual components included in the college and career readiness measure and how these components varied among districts in the state. The committee also requested that OEA explore postsecondary outcomes of graduates deemed college or career ready.

Data Used For The Report

This report uses data from the Kentucky Department of Education (KDE) and the Kentucky Center for Education and Workforce Statistics (KCEWS).

This report uses high school graduate data from the Kentucky Department of Education (KDE) and the Kentucky Center for Education and Workforce Statistics (KCEWS). KCEWS collects and links data from KDE, CPE, and the Education and Workforce Development Cabinet, among other agencies.

KCEWS, which has also been called the "P-20" data system, compiles data that allows researchers to track outcomes from elementary and secondary education students as they move into postsecondary education and the workforce. In large part because of the capacity of this data system, Kentucky is ranked highly among states by the Data Quality Campaign for its collection and use of education data. [b] [1]

[b] In 2013, Kentucky met 9 out of 10 actions recommended for states.

This report does not include data on students who entered the workforce or enrolled in the military or in out-of-state colleges or universities.

KCEWS data analyzed for this report include graduates who enrolled in Kentucky colleges and universities but do not include graduates who enrolled in out-of-state institutions, joined the workforce, or enlisted in the military. Chapters 2 and 3 provide additional descriptions of the KDE and KCEWS data used in this report.

Kentucky's accountability system includes a measure of college readiness in middle schools. Unlike the graduate CCR measure, the middle school measure is based on data from a single source, the ACT EXPLORE that is administered in the 8th grade. The middle school CCR measure is not a focus of this report, but Appendix A shows middle school CCR rates by district.

Organization Of The Report

Chapter 1 describes Kentucky policies related to college and career readiness including the individual indicators used to measure it in the commonwealth. The chapter also compares Kentucky's policies to those used in other states.

Chapter 2 reports numbers and percentages of students CCR by individual indicators. Percentages are reported separately for students based on race; gender; and eligibility for free or reduced-price lunch, special education, and Limited English Proficiency programs. The chapter also reports school-level CCR data and changes in CCR over time.

Chapter 3 reports postsecondary outcomes associated with students who are considered college ready by different indicators. Outcomes include postsecondary enrollment rates, students' persistence from the fall to spring semesters, and students' grade point averages (GPAs).

State Policy Framework

State Law

Since 2009, all 11th-grade students have been required to take the ACT.

Senate Bill 130 of 2006 mandated that, beginning in 2009, 11th-grade students take the ACT, 10th-grade students take a college-readiness exam, and 8th-grade students take a high school readiness exam. The legislation also required that schools take steps to address academic deficiencies of students not meeting high school- or college-readiness benchmarks.

Senate Bill 1 of 2009 required development of a unified strategy to reduce college remediation rates.

SB 1 of 2009 increased the focus on CCR by directing KDE to revise the state's curriculum standards and its system of assessments to align with expectations of postsecondary educators and the business community. It also directed KDE, CPE, and the Education Professional Standards Board (EPSB) to develop a "unified strategy to reduce college remediation rates by at least fifty percent (50%) by 2014" from what they were in 2010.

The following statutes and regulations provide a framework for the CCR measure as it relates to the state's student assessment program and the state's accountability system. The individual CCR components and indicators will be discussed in later in the chapter.

Since 2009, all Kentucky 11th-grade public school students have been required to take the ACT.

Assessments. Of the indicators included in the CCR measure, only the ACT is required by statute. KRS 158.6453(5) lists six high school assessments required for inclusion in the assessment program implemented in 2012, one of which is the ACT in grade 11. It also requires that students take a high school readiness exam in grade 8 and a college readiness exam in grade 10.

Students who do not meet college readiness benchmarks on the ACT in the 11th-grade administration must be given opportunities to participate in accelerated learning.

KRS 158.6459(5) requires 11th-grade students who do not meet CPE benchmarks on ACT English, math, or reading tests to be provided with an opportunity to participate in accelerated learning and a second opportunity to take the ACT. The cost of the second attempt for these students prior to their high school graduation is the responsibility of KDE. It should be noted, however, that KRS 158.6453(11) requires KDE to pay only for the initial ACT examination.

The CCR measure analyzed in this report is not specifically required by the statute governing the state's accountability system.

State Accountability System. The CCR measure analyzed in this report is not specifically required by the statute governing the state's accountability system. Statute permits the Kentucky Board of Education to include in the accountability system measures it deems appropriate.

KRS 158.6455 defines the components of the state accountability system. Section (2)(b) requires that these components include results of program assessment of practical living skills and career studies, student assessment results, school improvement results, and other factors deemed appropriate by the board.

Biennial Study Plan. KRS 158.6453(17) requires that KDE develop a biennial study plan related to the validity of the state assessment system. This plan should include but not be limited to "the consistency of student results across multiple measures, the congruence of school scores with documented improvements in

instructional practice … and the potential for all scores to yield fair, consistent, and accurate student performance level and school accountability decisions."

State Regulations

The college and career readiness measure was developed by the Kentucky Board of Education and described in regulations relevant to the state's accountability system.

The CCR measure was developed by the Kentucky Board of Education and described in the following regulations relevant to the state's accountability system.

CCR Indicators. As of the dates when data analyzed for this report were collected, 703 KAR 5:200 defined college and career readiness as the percentage "calculated by dividing the number of high school graduates who have successfully met an indicator of readiness for college or career with the total number of graduates."

College Readiness. Sections 4(4)(b)(1) and 4(4)(b)(2) of the regulation identify college-ready indicators as the benchmarks established by CPE for the ACT (English, math, reading) or for college placement tests. These indicators are incorporated by reference in 13 KAR 2:020.

Career Readiness. Section 4(4)(b)(3) of the regulation defines career-ready indicators as "career measures as recognized by the Kentucky Board of Education." There is no document referenced for career-ready indicators.

Students meeting college and career indicators generate bonus points and count as one and one half students in the state's accountability system.

Bonus For College And Career Readiness. Section 4(4)(c)(1) awards a bonus of one-half point in the calculation of the readiness percentage for students who meet the criteria for college readiness and career measures as recognized by the Kentucky Board of Education. Schools that receive bonus points may receive higher rankings within the state's overall accountability system.

According to KDE, the bonus point was intended to encourage career-ready students to also become college ready. Some educators have expressed concerns that the bonus point may also create incentives to encourage some college-ready students to enroll in career technical courses even if those courses are not the most appropriate.

According to KDE, the bonus point was created to incentivize schools to encourage students who meet career-ready indicators to also meet college-ready indicators. However, some educators have expressed concerns about unintended consequences of the bonus point. For example, schools may now be incentivized to encourage students who meet college-ready indicators to take the technical courses and assessments necessary to be considered career ready. Some students may be encouraged to take technical courses over other courses that are more appropriate to their abilities and goals.

CCR Indicators As Part Of The State Accountability System. 703 KAR 5:200 (6) shows that CCR comprises 20 percent of the

Next Generation Learners component of Kentucky's accountability system as it applies to high schools. According to 703 KAR 5:225, the Next Generation Learners component made up 100 percent of total accountability points awarded to high schools in 2012, 77 percent in 2013 and 2014, and will comprise 70 percent in 2015. Thus, in 2015 CCR will comprise 20 percent of the Next Generation Learners component of the accountability system for high schools and 14 percent of the total accountability points awarded to high schools for overall rankings.

Local School Board Policies

Two districts, Simpson County and Bullitt County, have board policies that require students to be CCR for high school graduation. Both policies allow a limited group of students to demonstrate CCR in ways other than those approved by KDE.[c]

National Policy Context

CCR Policies In Other States

Kentucky is one of 17 states that require all public school 11th-graders to take the ACT.

Kentucky is one of 17 states that require all public school 11th-graders to take the ACT. Three other states and the District of Columbia require 11th-graders to take the SAT.[2]

Compared to other states, Kentucky is considered to have comprehensive CCR policies.

A 2013 report by Achieve credited Kentucky with having more comprehensive college and career readiness policies than do most states. Achieve is "an independent, nonpartisan, nonprofit education reform organization dedicated to working with states to raise academic standards and graduation requirements, improve assessments, and strengthen accountability." [3]

Kentucky policies include a goal to reduce college remediation rates, high school graduation requirements aligned with college-ready standards, and career-ready measures that include both academic and technical components.

The report notes that, in addition to holding schools accountable for student performance on college- or career-ready measures, Kentucky's General Assembly has set statewide goals for reducing the need for remedial coursework for students who enroll in college. Also, in order to graduate, Kentucky students must

[c] Simpson County allows students with disabilities to complete the transition plan that is outlined in their individualized education program (IEP) and allows students who have made a good-faith effort to complete a service learning project. Bullitt County Admissions and Release Committees may exempt students with disabilities. Any student meeting stringent criteria regarding attendance and work ethic may petition to complete a college and career readiness project that involves at least 24 clock hours to be presented to a five-member panel for approval.

complete a course of study that is aligned with college-ready standards.[4] Because Kentucky's career readiness measure include both technical and academic components, they are more comprehensive than career readiness measures used in other states. Many states have looked to Kentucky in attempting to develop their own career readiness measures.[5]

Ten states include in their accountability systems a measure of whether students earn college credit while still in high school. Kentucky does not.

As of 2013, 10 states included in their accountability systems a measure of whether students earned college credit while in high school.[6] Kentucky does not include this measure in its accountability system but does include on school and district report cards data for students who have taken and passed Advanced Placement exams. Students who earn a passing grade of 3, 4, or 5 on Advanced Placement tests are eligible to receive a college credit in the subject tested when they enroll in college.[d]

School report cards do not include "dual-credit" data on students who complete college classes while still in high school. Districts do not yet consistently report the data necessary to support this measure. There is also some concern about variation among schools in the state in student access to dual-credit college classes.

Federal Policies: No Child Left Behind

Beginning in 2011, the federal government allowed states to waive certain requirements of the No Child Left Behind legislation if they adopted college- and career-ready curriculum standards. Kentucky's adoption of new standards predates the federal waiver process.

Beginning in 2011, the federal government offered states the opportunity to waive certain requirements of the federal No Child Left Behind (NCLB) legislation in exchange for a number of policy provisions, including state adoption of college- and career-ready curriculum standards. NCLB waivers increased the focus on college and career readiness in many states. However, Kentucky's focus on new standards and college and career readiness predated the NCLB waiver process.

Policy Implementation

Interagency Collaboration

After SB 1, KDE, the Council on Postsecondary Education (CPE), and the Education Professional Standards Board collaborated to produce a unified strategy for college and career readiness that included accelerated learning, intervention, CCR advising, and postsecondary persistence and degree completion.

Following SB 1, KDE, CPE, and EPSB collaborated to produce a unified strategy for college and career readiness. This strategy included

- accelerated learning opportunities (focusing on expansion of Advanced Placement/International Baccalaureate access and dual-credit opportunities);

[d] Some colleges do not award college credits for passing grades on AP exams.

- secondary intervention programs (focusing on the development of transitional coursework);
- college and career readiness advising (focusing on the full implementation of the Individual Learning Plan and comprehensive advising programs); and
- postsecondary college persistence and degree completion (focusing on bridge programming, accelerated learning opportunities, and student support and intervention systems).[7]

Commonwealth Commitment

In 2011 the Kentucky Board of Education secured a commitment from superintendents in all Kentucky districts to increase CCR by 50 percent between 2010 and 2015. For this reason, change over time in CCR rates in the commonwealth is often reported beginning in 2010 rather than 2012, the year the CCR measure was introduced.

Kentucky CCR Indicators

Figure 1.A summarizes the indicators that indicate CCR in Kentucky's accountability system. Individual components of the system are discussed following the table.

For purposes of accountability, students are grouped into three mutually exclusive categories: college ready only, career ready only, or college and career ready. The phrase "college and/or career ready" is a more accurate term for what the measure represents than is "college and career ready" because most students do not meet the criteria to be considered college and career ready. This report uses the term CCR to indicate college and/or career readiness.

For purposes of accountability, students are grouped into three mutually exclusive categories: college ready only, career ready only, or college and career ready. This report uses the term CCR to indicate college and/or career readiness.

Table 1.A
Measures Required By The Kentucky Department Of Education To Be Considered College Ready, Career Ready, Or College And Career Ready

College Ready: Must meet benchmarks on one of the following:	Career Ready: Must meet benchmarks for one requirement in Career Ready Academic area and must meet one requirement in Career Ready Technical area		Bonus: College AND Career Ready must meet at least one from each area	
College Ready	**Career Ready Academic**	**Career Ready Technical***	**College Ready Academic**	**Career Ready Technical**
The ACT	Armed Services Vocational Aptitude Battery (ASVAB)	Kentucky Occupational Skills Standards Assessment (KOSSA)	The ACT or ACT Compass or KYOTE	KOSSA
ACT Compass	ACT WorkKeys (applied math, locating information, and reading for information)	Industry certificates	Notes: (1) By meeting the College Ready Academic definition, the student does not have to take the additional tests of ASVAB or WorkKeys for the bonus area. (2) For accountability purposes, the bonus shall not allow the readiness percentage to exceed 100 percent	Industry certificates
Kentucky Online Testing System (KYOTE)				

*In addition to meeting one of the technical requirements shown here, the student must also meet career/technical course requirements.
**By meeting the College Ready Academic definition, the student does not have to take the additional tests of ASVAB or WorkKeys for the bonus area. For accountability purposes, the bonus shall not allow the readiness percentage to exceed 100 percent.
Source: Kentucky. Dept. of Educ. *Unbridled Learning Accountability Model: Superintendent's Three Year Review*. Frankfort: KDE, Aug. 8, 2014.

College Ready

To be considered college ready, a student must meet college-ready benchmarks established by CPE in each of three subjects: English, math, and reading. Students can meet benchmarks on the ACT college readiness test or the Compass or Kentucky Online Testing System (KYOTE) college placements tests.

KDE accepts scores from three assessments as proof of college readiness: the ACT college readiness test and the Compass and KYOTE college placement tests. To be considered ready for college, a student must meet college-ready benchmarks established by CPE in each of three subjects: English, math, and reading. Kentucky colleges and universities accept all three tests as evidence that students can take credit-bearing college classes and do not need to take remedial courses in the subjects tested. Districts and schools are awarded equal points in the state's accountability system for students who demonstrate readiness by any of these measures.

ACT. The ACT is a standardized test developed by ACT Inc. for the primary purpose of indicating students' readiness for college. Along with the SAT, the ACT is the test most commonly accepted by colleges for college admission.

All Kentucky students are required to take the ACT in the 11th grade. Eleventh-graders pay no fee for this required test, but many choose to retake the ACT at their own expense. ACT reports scores of Kentucky students who retake the ACT to KDE. KDE uses students' highest scores in English, math, and reading to compute college readiness for the CCR measure. [e]

Compass. Compass is a standardized test developed by ACT Inc. to assist colleges in placing students in courses with the appropriate level of difficulty. Compass offers tests in reading,

[e] The federal Individual With Disabilities Education Act (IDEA) requires that states administer state-required assessments to all students with disabilities. Most students with disabilities take the ACT. As permitted by IDEA, students with very severe cognitive disabilities take alternative forms of the state assessment. In Kentucky, the Transition Attainment Record (TAR) is the alternate assessment for the ACT test. Graduates who meet benchmarks on the reading and math TAR are counted as CCR in the state accountability system. According to KDE, 56 students with severe cognitive disabilities passed the reading and math TAR and were considered CCR in 2014.

In the commonwealth, students with disabilities who take the ACT during the 11th-grade administration are allowed testing accommodations as approved in their individualized education programs. Some of the testing accommodations permitted in the commonwealth are not permitted by ACT. For example, ACT does not allow students to use a reader accommodation on the ACT reading test. Kentucky students who take the ACT in the 11th-grade administration using accommodations that are approved in the commonwealth but not by the ACT cannot use the ACT scores from this administration for purposes of college admission.

math, and writing. The Compass writing test is aligned with the ACT English test.

Since 2012, the Compass has been accepted by KDE as an indication of college readiness. Students who do not meet ACT benchmarks in the 11th grade may take the Compass test in the 12th grade. KDE pays for up to two test admissions per student. Students who fail the first Compass test must receive an intervention and wait at least five days before taking the second test.[8]

KYOTE. The KYOTE is a free online test developed by a collaborative of university professors in the commonwealth to assist in placement of students in appropriate college classes. Since 2012, KDE has accepted KYOTE as an indication of college readiness. KYOTE was first developed as a math placement test but is now offered in reading and writing as well. KYOTE is not offered in English.

Since the test was included in Kentucky's accountability system, efforts have been made to increase the security of the test—specifically, by ensuring students taking the test in the same location take different versions of the test, requiring seating charts, and preventing students from learning which particular test questions they did not answer correctly.

The benchmarks established by CPE for the ACT are lower in reading and math than the benchmarks established by ACT in those subjects.

CPE College Readiness Benchmarks. Appendix B provides the CPE benchmarks established for the ACT, Compass, and KYOTE. The benchmarks established by CPE for the ACT are lower in reading and math than the benchmarks established by ACT in those subjects. In math, the ACT benchmark is 22 compared to a CPE benchmark of 19.[f] In reading, the ACT benchmark is 22 compared to the CPE benchmark of 20.

ACT benchmarks are established through research linking students' ACT scores and grades in their first credit-bearing college course in the tested subject.

ACT benchmarks are established through research linking students' ACT scores and grades in their first credit-bearing college course in the tested subject. Students who meet benchmarks have a 50 percent or greater chance of receiving a B in their first credit-bearing class and a 75 percent or greater chance of

[f] CPE's ACT benchmarks in math are established in three tiers in recognition of the fact that students pursuing different courses of study will require different levels of math preparation to be college ready. The CPE ACT benchmark of 19 applies to students pursuing general education or liberal arts degrees. CPE has set the ACT benchmark at 22 for students taking college algebra and at 27 for students taking calculus.

receiving a C. In 2013, ACT increased its reading benchmark from 21 to 22 based on recent research.[9]

Career Ready

To be considered ready for a career, a graduate must meet both an academic and a technical requirement.

Academic Requirement. To meet the academic requirement, students must attain a specified minimum score on either ACT's WorkKeys job skills assessment or the Armed Services Vocational Aptitude Battery (ASVAB).

- **WorkKeys.** WorkKeys is an ACT Inc. product designed to assess the skills necessary to succeed in the workplace. KRS 158.6453 permits Kentucky students to take the portion of the WorkKeys that assesses reading for information, locating information, and applied mathematics and requires that KDE pay for students to take one administration of the WorkKeys if funds are available. Full funding for students to take the WorkKeys was first provided in 2014.[10]

- **Armed Services Vocational Aptitude Battery.** The ASVAB is a test designed by the military to assess recruits' readiness for specific military job classifications. The ASVAB measures verbal, mathematical, science and technical, and spatial aptitude. ASVAB can be taken as paper and pencil or on the computer. Students must score at or above the 50th percentile on the ASVAB to meet the career-ready academic requirement.

Technical Requirement. Students can meet the technical requirement to be career ready by earning an industry certificate or passing a Kentucky Occupational Skills Standards Assessment (KOSSA). The industry certificate or KOSSA must be in a career pathway in which the student has passed two classes and enrolled in a third.

- **Industry Certification.** Industry certifications are end-of-program assessments in a career pathway in which a student has taken a sequence of at least three classes. Certifications must be based on a curriculum that is aligned with state or national standards, written by and verified by national or state industries, and recognized, endorsed, or required by an industry.

- **Kentucky Occupational Skills Standards Assessments.** KOSSA are designed by Kentucky industry specialists to gauge students' performance in specific technical areas. They are based on standards identified by Kentucky employers. KOSSA exams vary in format and length depending on industry sector.

College And Career Ready

To be considered ready for both college and career, a graduate must meet the college-ready requirement and the technical requirements for being career ready, as described above.

According to the definitions used by KDE, it is possible for a student to meet the criteria for college and career ready yet not meet the criteria to be considered career ready. Thus, when reporting total numbers of career-ready students, KDE does not include many students who are career ready.

According to the definitions used by KDE, it is possible for a student to meet the criteria for college and career readiness yet not meet the criteria for career readiness. Students who meet the technical requirements to be considered career ready and pass college readiness tests but either do not take or do not pass the ASVAB or WorkKeys test are not included in calculations of career-ready students. These students exceed the academic requirements established by KDE for career-ready students but are not publicly reported as career ready. In 2014, 3,602 graduates met the criteria to be considered college and career ready but not the criteria to be considered career ready.

This inconsistency in definitions results in underreporting of career-ready students but does not have any negative consequences for students and schools. Schools receive additional bonus points for college- and career-ready graduates regardless of whether those graduates are reported as career ready.

Test Security

CCR tests are each administered under different conditions, some of which are likely to be more secure than others.

All staff assisting in the administration of any CCR indicator must receive KDE training on appropriate test administration and follow the same guidelines required for all state tests in administration of tests and treatment of test materials. However, the CCR tests are each administered under different conditions, some of which are likely to be more secure than others.

The ACT is administered in Kentucky high schools during prescribed test windows to all 11th-grade students. However, after the initial ACT administration, it can only be administered in a limited number of ACT-approved locations and within certain test windows. The other CCR tests, however, can be taken at any time, administered in a variety of locations, and administered in open-ended time frames.

While KDE has established guidelines for administration of all tests, it cannot monitor all test events. KDE must rely primarily on reports of inappropriate test practices as a means of monitoring test security.

While KDE has established guidelines for administration of all tests, it cannot monitor all test events. The department must rely primarily on reports of inappropriate test practices as a means of monitoring test security. KDE has staff designated to receive and investigate reports of inappropriate test practices. In 2013, KDE identified inappropriate test administration of the Compass by staff in one high school. Scores for students in that school were invalidated.

Chapter 2

College And/Or Career Readiness of Graduates

This chapter presents data on each of the individual CCR components and indicators. It shows that the proportion of total CCR comprising different components and indicators varies among schools and students and that CCR has increased over time in some components and indicators more than in others.

The CCR measure in Kentucky's accountability system is made up of different components and indicators but is generally reported and discussed as a single number. This chapter presents data on each of the individual CCR components and includes a detailed analysis of the particular indicators used to determine the college-ready and career-ready components. The chapter shows that the percentage of total CCR comprising different components and indicators varies substantially among schools and types of students and that, over time, the percentage of students CCR has increased more in some components and indicators than in others.

As will be reported in Chapter 3, increases in the percentage of graduates deemed college ready have already resulted in positive outcomes; the percentage of graduates who require remedial coursework upon entering college has dropped substantially. However, the outcomes associated with the different components and indicators of CCR are not yet entirely understood. For this reason, the chapter urges caution in use of the CCR measure alone to make comparisons among districts and schools, to evaluate the effectiveness of particular programs, and to judge overall improvement of Kentucky's educational outcomes over time.

Data Analyzed In This Chapter

Results presented in this chapter come primarily from KDE student-level data on individual college or career measures, race, gender, and program eligibility.

Results presented in this chapter come primarily from KDE student-level data on individual college or career indicators, race, gender, eligibility for free and reduced-price lunch and other programs, and school enrollment. In a few cases, results are generated directly from KDE aggregate data.

College And/Or Career Readiness

In 2012 through 2014, the majority of CCR graduates were those deemed college ready only. Graduates both college and career ready were the next largest group. A smaller percentage of CCR graduates were deemed career ready only.

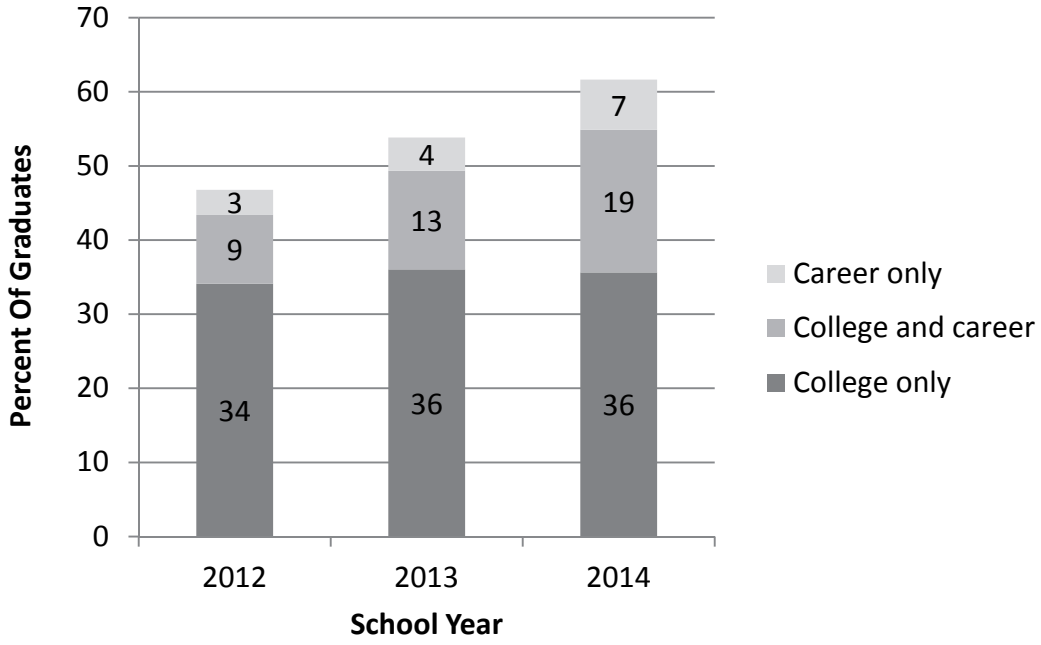
Chapter 1 describes the criteria used by KDE to determine whether students are counted as CCR in one of the three, mutually exclusive designations that make up the measure: college ready only, career ready only, and college and career ready. Figure 2.A shows the percentage of all graduates in 2012 through 2014 who met these criteria. Table 2.1 shows the number of graduates in each category.

In all three years, the majority of CCR graduates were students who were college ready only. These students met CPE benchmarks in English, math, and reading on either the ACT college readiness test or the Compass and KYOTE college placement tests. Students who were college and career ready constituted the next largest group. These students met college readiness benchmarks and also fulfilled the technical criteria to be considered career ready in a particular field. Each year, a relatively small percentage of students were career ready only.

Total percentages of CCR graduates increased from 47 percent in 2012 to 62 percent in 2014. Gains were greatest in the college and career category.

Total percentages of CCR graduates increased from 47 in 2012 to 62 in 2014. Gains were greatest in the college and career category. From 2012 to 2014, the percentage of graduates who were college and career ready increased by 10 percentage points compared to 4 percentage points for graduates who were career ready only and 2 percentage points for students who were college ready only.

Figure 2.A
College And/Or Career Readiness Of Kentucky Graduates
2012-2014



Note: Due to rounding, the data labels reported in the figure do not always sum to the total percentage of CCR graduates in each year.
Source: Staff analysis of data from the Kentucky Department of Education.

Table 2.1
Graduates College Ready Only, College And Career Ready,
Or Career Ready Only, 2012-2014

	School Year		
	2012	**2013**	**2014**
Total graduates	42,880	43,898	43,745
College only	14,617	15,827	15,593
College and career	3,979	5,833	8,421
Career only	1,451	1,974	2,951
Total college and/or career	20,047	23,634	26,965

Source: Staff analysis of data from the Kentucky Department of Education.

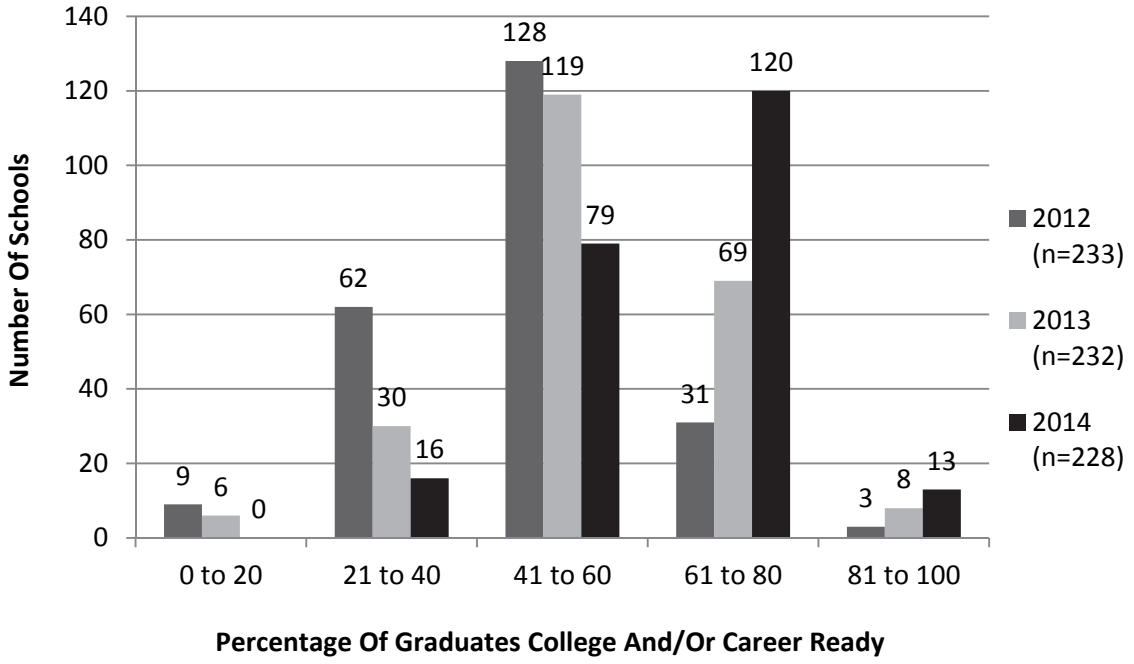
CCR By School

The percentage of graduates who are CCR varies among schools in the state, ranging in 2014 from 97 percent to 24 percent. Numbers and percentages of CCR graduates in each Kentucky high school are available on KDE's website.[11]

From 2012 to 2014, percentages of CCR graduates increased in most schools.

Figure 2.B shows the number of schools in various ranges of CCR performance from 2012 to 2014. In 2012, the percentage of CCR graduates in the majority of schools was between 41 and 60. By 2014 the percentage of CCR graduates in the majority of schools was between 61 and 80. From 2012 to 2014, the number of schools in which greater than 80 percent of graduates were CCR increased from 3 to 18 and the number of schools in which less than 20 percent of graduates were CCR decreased from 9 to 0.

Figure 2.B
Number Of High Schools By Range Of Graduates College And/Or Career Ready, 2012-2014



Note: The total number of high schools declined between 2012 and 2014 because of school closures and consolidations.
Source: Staff analysis of data from the Kentucky Department of Education.

The proportion of total CCR comprising different CCR designations does not vary substantially by school based on the total percentage of graduates who are CCR. Appendix C shows the proportion of CCR comprising different elements for schools in different CCR ranges.

CCR With And Without Bonus

In Kentucky's accountability system, districts and schools are awarded extra points for students who are deemed college and career ready; these students meet the technical criteria for being considered career ready and also pass college readiness exams.

This chapter reports CCR as the percentage of graduates who meet the criteria for being college-ready, career-ready, or college and career ready. In Kentucky's accountability system, districts and schools are awarded extra points for students who are deemed college and career ready; these students meet the technical criteria for being considered career ready and also pass college readiness exams. College- and career-ready students are worth one and one-half points when CCR percentages are calculated in the accountability system.

In 2014, the difference in the percentage of students CCR with and without the bonus calculation was less than 10 percentage points in most high schools.

Total CCR points with and without bonus for each Kentucky high school can be found on KDE's website.[12] In 2014, the difference in the percentage of students CCR with and without the bonus calculation was less than 10 percentage points in most high schools. In 39 high schools, the difference between CCR with and without the bonus calculation was greater than 15 percentage points. The difference was 25 percentage points in one high school.

Appendix D provides maps of district CCR rates with and without bonus points.

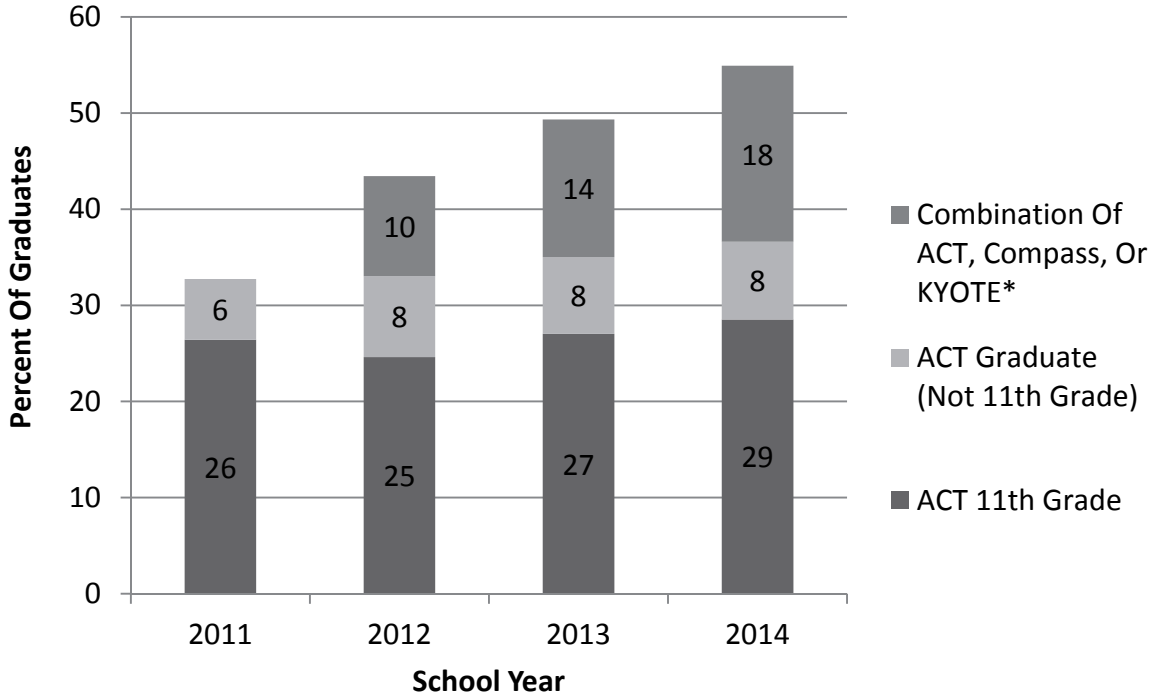
College-Ready Indicators

Figure 2.C shows the percentage of graduates who were deemed college ready between 2011 and 2014. The figure divides college-ready graduates into three groups: those who met benchmarks in all three subjects in the 11th-grade administration of the ACT; those who did not meet ACT benchmarks in all subjects in 11th grade but did so prior to graduation; and those who did not meet benchmarks in all three subjects on ACT tests but were considered college ready by passing a combination of ACT, Compass, or KYOTE tests.

The total percentage of graduates deemed college ready increased from 32 percent in 2011 to 55 percent in 2014. Gains came primarily from graduates deemed college ready by passing a combination of ACT, Compass, or KYOTE tests.

The total percentage of graduates who were college ready increased from 32 percent in 2011 (based on ACT tests alone) to 55 percent in 2014 (based on ACT, Compass, or KYOTE tests), an increase of 23 percentage points. The percentage of graduates who were college ready on all three ACT tests increased from 32 percent in 2011 to 37 percent in 2014, an increase of 5 percentage points. The gains in percentage of graduates college ready between 2011 and 2014 came primarily from the increase of 18 percentage points in graduates college ready by passing a combination of ACT, Compass, or KYOTE tests.

Figure 2.C
Percentage Of Graduates Meeting CPE College Readiness Benchmarks In English, Math, And Reading On ACT Tests In 11th-Grade Administration, ACT Tests As Graduates, Or A Combination Of ACT, Compass, Or KYOTE Tests As Graduates, 2011-2014



* This group includes students who did not meet benchmarks on any ACT tests but were deemed college ready based on Compass and KYOTE tests alone. The number of students deemed college-ready on Compass and KYOTE tests alone increased from 383 in 2012 to 1,217 in 2014.
Source: Staff analysis of Kentucky Center For Education And Workforce Statistics data for 2011 and 2012 and Kentucky Department of Education data for 2013 and 2014.

Students Deemed College Ready On Compass And KYOTE Tests Alone

Included in the graduates considered college ready are a small but growing number of students who did not meet benchmarks in any subjects on ACT tests. These graduates are deemed college ready based on Compass or KYOTE scores alone. The number of graduates considered college ready based on Compass and KYOTE tests alone grew from 383 in 2012 to 1,217 in 2014. As will be shown in Chapter 3, college enrollment rates and college GPAs are much lower for 2012 graduates deemed college ready on Compass and KYOTE tests alone.

Table 2.2
Number Of Graduates Meeting CPE College Readiness Benchmarks In English, Math, And Reading On ACT Tests In 11th-Grade Administration, ACT Tests As Graduates, Or A Combination Of ACT, Compass, Or KYOTE Tests As Graduates, 2011-2014

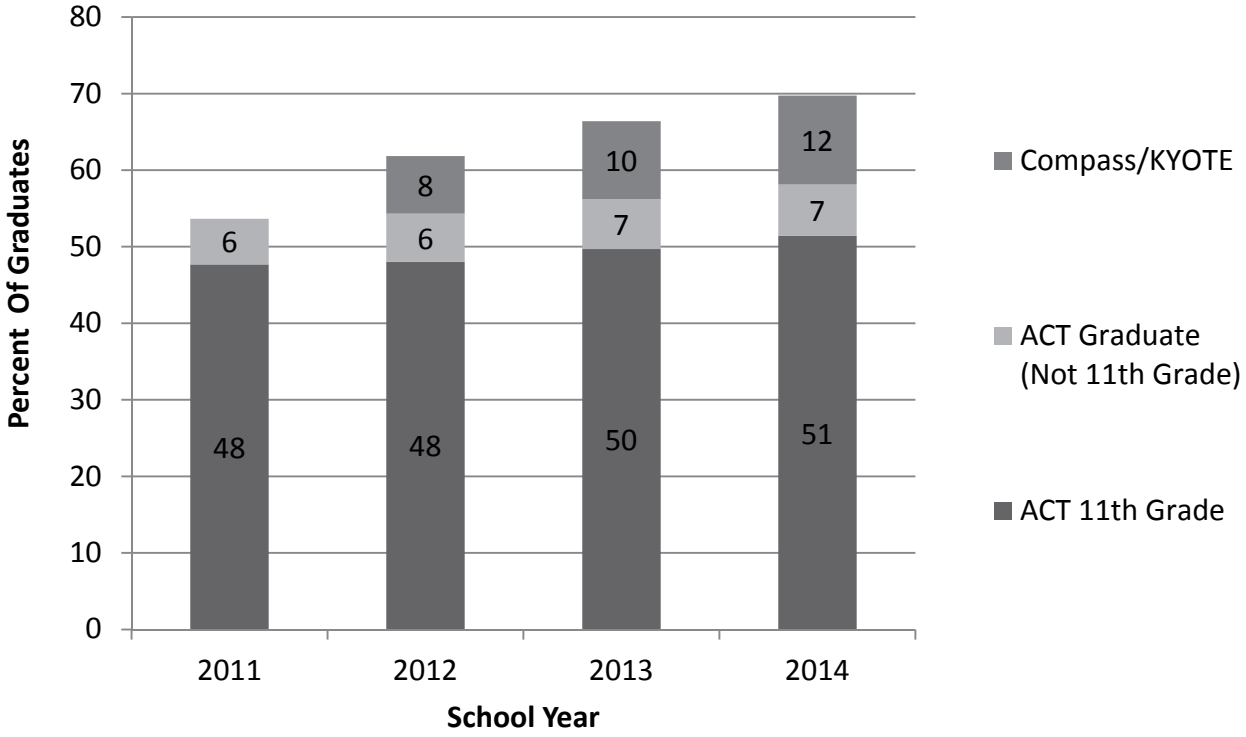
School Year	Tota Graduates	ACT 11th-Grade Administration	ACT Graduate	Combination Of ACT, Compass, Or KYOTE
2011	42,588	11,248	2,696	N/A
2012	42,864	10,554	3,606	4,458
2013	43,898	11,864	3,512	6,284
2014	43,745	12,480	3,536	8,010

Notes: ACT Graduate data reflect the highest ACT scores attained at the time of graduation. Actual numbers and percentages of graduates who were college ready in 2011 were likely higher than reported in this figure because some students passed Compass and KYOTE tests prior to 2012. However, Compass and KYOTE data prior to 2012 were not collected systematically by KDE.
Source: Staff analysis of Kentucky Center For Education And Workforce Statistics data for 2011 and 2012 and Kentucky Department of Education data for 2013 and 2014.

From 2011 to 2014, increases in percentages of students college ready in English, math, and reading came primarily from graduates meeting college-ready benchmarks on Compass or KYOTE tests. Increases in college readiness from students passing Compass or KYOTE exams were especially great in math.

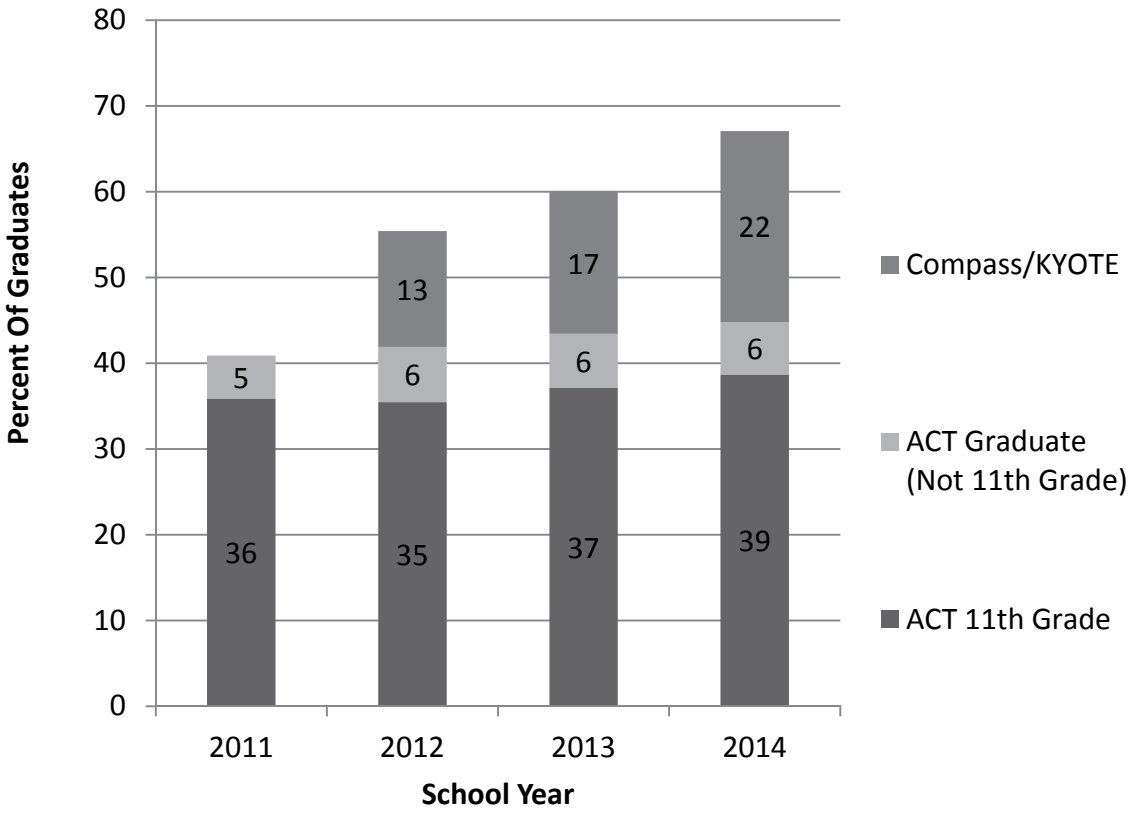
Figures 2.D, 2.E, and 2.F show changes over time in the percentage of graduates who met CPE college-ready benchmarks in English, math, and reading on ACT tests or on Compass or KYOTE tests. The figures show steady gains in the percentage of students meeting CPE benchmarks on the ACT but greater gains, beginning in 2012, in the percentage of students college ready by Compass or KYOTE tests. Increases in college readiness from students passing Compass or KYOTE exams were especially great in math. The percentage of graduates who were deemed college ready in math increased from 41 percent in 2011 to 67 percent in 2014, an increase of 26 percentage points. Of this increase, 22 percentage points were from students meeting benchmarks on Compass or KYOTE tests and 4 percentage points were from students meeting benchmarks on the ACT.

Figure 2.D
Percentage Of Graduates Meeting CPE College Readiness Benchmarks In English On ACT Tests In 11th-Grade Administration, ACT Tests As Graduates, Or Compass/KYOTE Tests As Graduates, 2011-2014



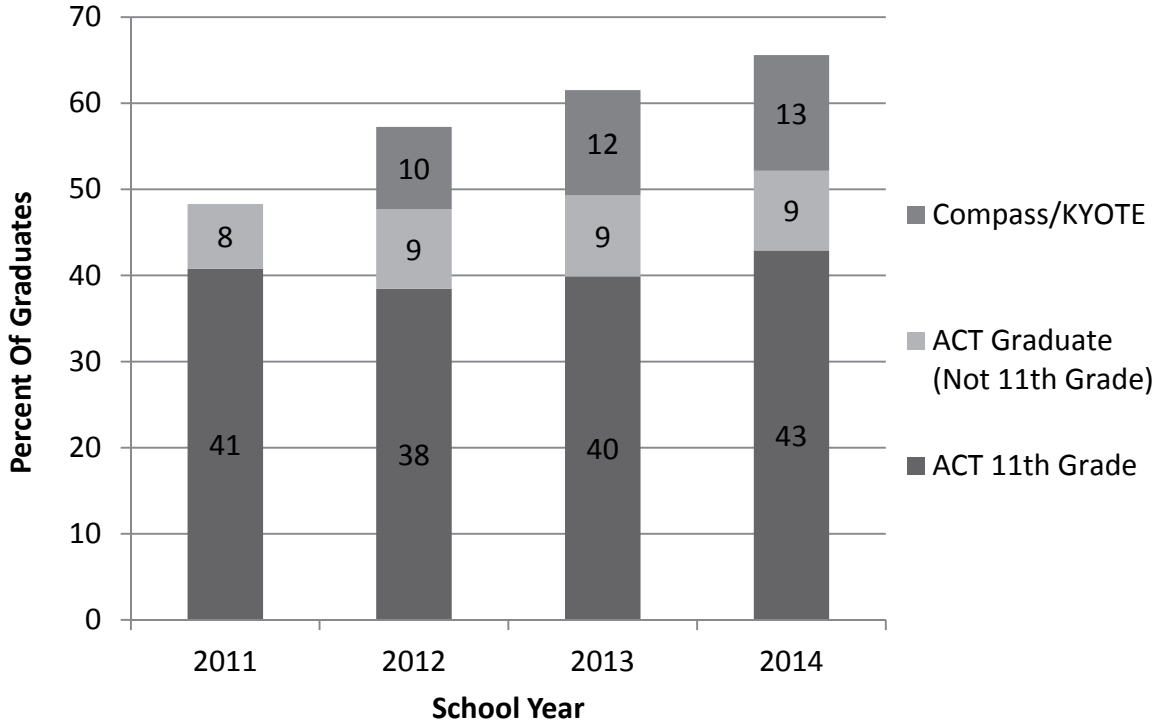
Notes: ACT Graduate data reflect the highest ACT scores attained at the time of graduation. Actual percentages of graduates that were college ready in 2011 were likely higher than reported in this figure because some students passed Compass and KYOTE tests prior to 2012. However, Compass and KYOTE data prior to 2012 were not collected systematically by KDE.
Source: Staff analysis of Kentucky Center For Education And Workforce Statistics data for 2011 and 2012 and Kentucky Department of Education data for 2013 and 2014.

Figure 2.E
Percentage Of Graduates Meeting CPE College Readiness Benchmarks In Math On ACT Tests In 11th-Grade Administration, ACT Tests As Graduates, Or Compass/KYOTE Tests As Graduates, 2011-2014



Notes: ACT Graduate data reflect the highest ACT scores attained at the time of graduation. Actual percentages of graduates who were college ready in 2011 were likely higher than reported in this figure because some students passed Compass and KYOTE tests prior to 2012. However, Compass and KYOTE data prior to 2012 were not collected systematically by KDE.
Source: Staff analysis of Kentucky Center For Education And Workforce Statistics data for 2011 and 2012 and Kentucky Department of Education data for 2013 and 2014.

Figure 2.F
Percentage Of Graduates Meeting CPE College Readiness Benchmarks In Reading On ACT Tests In 11th-Grade Administration, ACT Tests As Graduates, Or Compass/ KYOTE Tests As Graduates
2011-2014



Notes: ACT Graduate data reflect the highest ACT scores attained at the time of graduation. Actual percentages of graduates who were college ready in 2011 were likely higher than reported in this figure because some students passed Compass and KYOTE tests prior to 2012. However, Compass and KYOTE data prior to 2012 were not collected systematically by KDE.
Source: Staff analysis of Kentucky Center For Education And Workforce Statistics data for 2011 and 2012 and Kentucky Department of Education data for 2013 and 2014.

Compass And KYOTE

Between 2011 and 2014 a much greater number of students were deemed college ready by passing Compass than KYOTE tests.

Table 2.3 shows total numbers of graduates who met CPE benchmarks in each subject and test in 2011 through 2014. In each year, more students met college-ready benchmarks on the ACT than on any other test. Beginning in 2012, many students also met benchmarks on the Compass or KYOTE. In each year and subject, many more students met benchmarks on the Compass test than on the KYOTE.

Table 2.3
Number Of Graduates Meeting CPE College Readiness Benchmarks
In English, Math, And Reading By ACT, Compass, And KYOTE Tests, 2011-2014

Year	Total Graduates	English		Math			Reading		
		ACT	Compass	ACT	Compass	KYOTE	ACT	Compass	KYOTE
2011	42,588	22,713	N/A	17,253	N/A	N/A	20,387	N/A	N/A
2012	42,880	23,473	4,371	18,078	6,009	1,700	20,592	4,987	169
2013	43,898	24,658	5,637	19,061	7,159	2,020	21,627	6,268	240
2014	43,745	25,401	6,247	19,554	9,460	2,072	22,774	6,538	574

Note: ACT data reflect the highest score attained by students as graduates. In each year, a small number of students were college ready in more than one indicator.
Source: Staff analysis of data from the Kentucky Department of Education and the Kentucky Center For Education And Workforce Statistics.

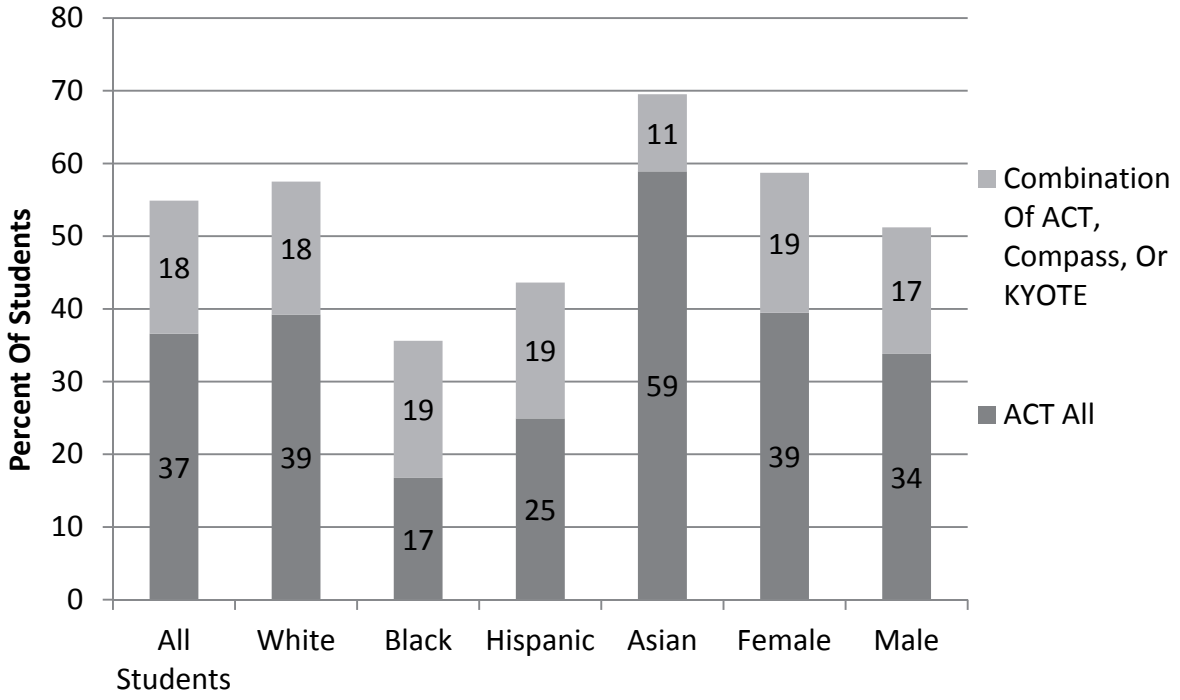
College Readiness By Race And Gender

Figure 2.G shows the percentage of 2014 graduates by race and gender who met CPE college-ready benchmarks on ACT tests in English, math, and reading and the percentage who met CPE benchmarks in those subjects through a combination of ACT, Compass, or KYOTE tests. The percentage of graduates who were college ready was highest for Asian students (70 percent) and lowest for black students (36 percent). A greater percentage of female graduates were college ready (58 percent) than were male graduates (51 percent).

Statewide, about two-thirds of college-ready students met benchmarks on all three ACT tests.

The figure also shows greater proportions of all college-ready students meeting ACT benchmarks in some groups versus others. Of college-ready students statewide, about two-thirds met all three CPE benchmarks on ACT tests. Less than half of college-ready black students met benchmarks on all three ACT tests.

Figure 2.G
Percentage Of Graduates Meeting CPE College Readiness Benchmarks On ACT Tests Or On A Combination Of ACT, Compass, Or KYOTE Tests By Race And Gender, 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Table 2.4
Number Of Graduates Meeting CPE College Readiness Benchmarks On ACT Tests Or On A Combination Of ACT, Compass, Or KYOTE Tests By Race And Gender, 2014

		College Ready	
	Total Graduates	ACT All	Combination Of ACT, Compass, Or KYOTE
White	36,451	14,293	6,670
Black	4,468	748	843
Hispanic	1,387	346	259
Asian	594	350	63
Female	21,517	8,490	4,146
Male	22,214	7,511	3,864
All students	43,745	16,004	8,010

Source: Analysis of data from the Kentucky Department of Education.

College Readiness By Eligibility For Free Or Reduced-Price Lunch, Special Education, And Limited English Proficiency Programs

Figure 2.H shows the percentage of 2014 graduates who met CPE college-ready benchmarks on the ACT versus Compass and KYOTE tests based on students' eligibility for free or reduced-price lunch, special education, and Limited English Proficiency (LEP) programs. Students eligible for free or reduced-price lunch have family incomes that are at or just above federal definitions of poverty.[g] This measure is often used as a proxy for students who are living in poverty.

Students in special education programs are those who receive specialized instructional support or related services because they have been identified as having one or more disabilities that affect their educational performance.[h] Students in Limited English Proficiency programs are those whose native language is not English and whose English language skills are not yet sufficient to support academic success in the classroom or on state assessments.

The percentage of graduates who met CPE college readiness benchmarks was substantially lower for students who were eligible for the free or reduced-price lunch program (41 percent) than it was for students who were not eligible (67 percent).

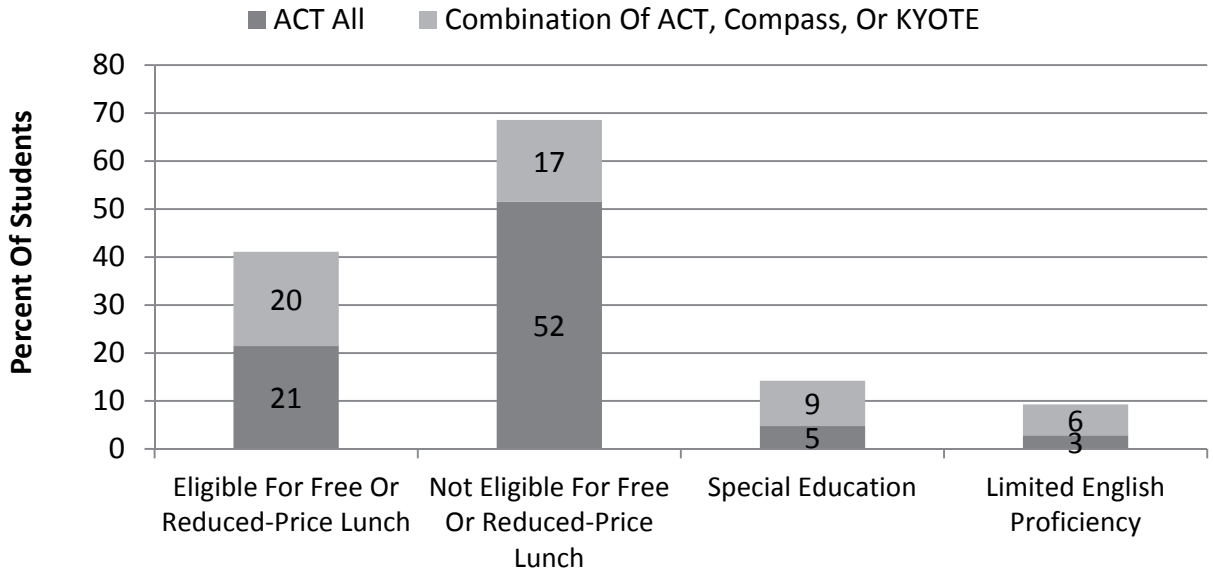
The percentage of graduates who met CPE college readiness benchmarks was substantially lower for students who were eligible for the free or reduced-price lunch program (41 percent) than it was for students who were not eligible (67 percent). Of college-ready students, the proportion meeting benchmarks on all three ACT tests was lower for students eligible for the program (about half) than it was for those not eligible (about three-fourths).

Compared to all graduates, a much smaller percentage of graduates eligible for special education and LEP programs met CPE college readiness benchmarks. In 2014, 14 percent of special education and 9 percent of LEP graduates met these benchmarks.

[g] Children from families with incomes at or below 130 percent of the federally defined poverty level are eligible for free lunches. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price lunches.

[h] In order to receive special education services, students must meet criteria for one of the disabilities defined in 707 KAR 1:300: autism, deaf-blindness, developmental delay, emotional-behavior disability, hearing impairment, mental disability, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, or visual impairment.

Figure 2.H
Percentage Of Graduates Meeting CPE College Readiness Benchmarks On ACT Tests Or On A Combination Of ACT, Compass, Or KYOTE Tests By Eligibility For Free Or Reduced-Price Lunch, Special Education, Or Limited English Proficiency Programs, 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Table 2.5
Number Of Graduates Meeting CPE College Readiness Benchmarks On ACT Tests Or On A Combination Of ACT, Compass, Or KYOTE Tests By Eligibility For Free Or Reduced-Price Lunch, Special Education, Or Limited English Proficiency Programs, 2014

		College Ready	
Program Eligibility	Total Graduates	ACT All	Combination Of ACT, Compass, Or KYOTE
Eligible for free or reduced-price lunch	21,750	4,667	4,270
Not eligible for free or reduced-price lunch	21,995	11,337	3,740
Special education	3,063	146	289
Limited English proficiency	388	11	25

Source: Staff analysis of data from the Kentucky Department of Education.

Variation Among Schools And Students In College-Ready Graduates Who Meet CPE Benchmarks On ACT Tests

In some schools, the majority of college-ready graduates meet CPE benchmarks on all three ACT tests. In other schools, fewer than half of college-ready graduates meet CPE benchmarks on all three ACT tests.

The percentage of college-ready graduates who meet ACT benchmarks in all three subjects varies substantially among schools. In some schools the overwhelming majority of college-ready graduates meet ACT benchmarks. In other schools, less than half of college-ready graduates meet ACT benchmarks. In some cases, schools that have similar college-ready rates have very different percentages of students who meet ACT benchmarks.

In 2014 there were 52 high schools in which half or fewer of the students considered college ready had met CPE benchmarks on all three ACT tests and 12 high schools in which one-third or fewer did so. In 59 high schools more than three-fourths of the students who were considered college ready met CPE benchmarks on all three ACT tests. Appendix E shows the proportion of college-ready students, by school, who met CPE benchmarks on all three ACT tests versus a combination of ACT, Compass, and KYOTE tests.

Validity Of School-Level College Readiness Data

These differences raise concerns about the validity of the CCR measure as a means of comparing graduates' college readiness among schools.

The cause of the variation among schools in the total percentage of graduates who are college ready and the percentage of graduates who are college ready on ACT tests alone is not clear. However, the differences raise concerns about the validity of the college-ready measure as a means of comparing college readiness rates among schools.

As reported in Chapter 3, preliminary data show that college enrollment rates and grades are higher for students who demonstrate college readiness on the ACT than they are for students who demonstrate college readiness on a combination of ACT, Compass, and KYOTE tests.

Large differences in graduates' readiness rates on ACT tests and their readiness rates on Compass and KYOTE tests may reflect schools' intensive efforts to address students' academic deficiencies.

Relationship Between Instruction And Improvements In College Readiness Rates. In some schools, the percentage of students who are college ready as graduates is two or three times as great as the percentage of students who were college ready when they took the ACT in the 11th grade. These jumps might reflect intensive efforts by high schools to address students' academic deficiencies and ensure that they acquire the skills needed to succeed in college.

It is also possible that some high schools may be focusing instruction specifically on the content or types of questions likely to appear on the Compass or KYOTE test. In these cases, students' scores may indicate their knowledge of the specific material likely to appear on the test but may not be valid as an indication of their ability to understand and apply the concepts. National research has documented the tendency of educators to focus on material likely to be tested, especially when tests have high stakes for educators or students. This practice has also been documented in the commonwealth.[13]

The validity of some students' scores on ACT and Compass math tests may have been influenced by the use of "Zoom math" calculator software that can solve algebraic equations.

There is evidence that the validity of some students' scores on ACT and Compass math tests may have been influenced by the use of "Zoom math" calculator software that can solve algebraic equations. In 2013, postsecondary math educators in the commonwealth raised concerns that, using this software, it was possible for students to meet Kentucky benchmarks on ACT and Compass tests without truly understanding the content tested. The "Zoom Math" software was not allowed on KYOTE exams.

KDE investigated and found evidence to support the concern that use of the software could lead to artificial inflation of math scores for some students. The commissioner of education notified districts that, beginning in 2015, use of this software would not be permitted on Kentucky's college readiness tests. Shortly thereafter, ACT Inc. issued a universal ban on use of this software on its college readiness tests.[14]

Research shows that only a small percentage of students who did not meet ACT benchmarks in the 11th grade took transitional courses in the 12th grade. Districts vary in their implementation of transitional courses.

There is also some evidence of variation among districts in the level of instructional support provided to high school seniors who did not meet college readiness benchmarks on the ACT in their junior year. As reported in Chapter 1, KDE, CPE, and EPSB have collaborated in developing and supporting districts in implementing transitional courses for these students. Research conducted by the Regional Educational Lab suggests variation among districts in the implementation of these courses. The study found that, among students who were approaching but did not meet the CPE ACT, less than one-third (28 percent) took transitional courses in math and only 8 percent of those approaching benchmark students took transitional courses in reading.[15]

Recommendation 2.1

Recommendation 2.1

As part of its biennial plan for validation studies required by KRS 158.6453, the Kentucky Department of Education should request a study of instructional practices in schools with large differences between the percentage of graduates who meet CPE readiness benchmarks on ACT tests in the 11th-grade administration and the percentage of all graduates deemed college ready.

It is possible that the discrepancy between ACT scores and Compass or KYOTE scores indicates inappropriate test administration practices in some schools.

Test Security. It is possible that in some schools the discrepancy between ACT scores and Compass or KYOTE scores indicates inappropriate test administration practices. In 2014, KDE identified inappropriate test practices in one high school in which teachers were allegedly coaching students on how to answer questions during the administration of the Compass test and providing students with real test questions before the test.[16]

Given the many different times and locations in which Compass and KYOTE tests are given, KDE must rely primarily on reports submitted by individuals to identify instances of inappropriate test administration.

Instances of inappropriate test administration might also be identified based on identification of unusual patterns in CCR test data or on discrepancies between a student's performance on the ACT test and on other CCR tests

Recommendation 2.2

Recommendation 2.2

The Kentucky Department of Education should work with its vendors to ensure that unusual patterns in CCR test data are monitored and reported formally to the department.

Career-Ready Indicators

To be considered career ready, graduates must meet academic and technical requirements established by the Kentucky Board of Education.

To be considered career ready, graduates must meet academic and technical requirements established by the Kentucky Board of Education. Students can meet academic requirements by attaining minimum set scores on either the ASVAB or the WorkKeys tests. Students can meet technical requirements by passing a KOSSA test or earning an industry certificate. Career-ready indicators are described in greater detail in Chapter 1.

In 2012, 8 percent of graduates were career ready; by 2014, 18 percent were career ready.

Table 2.6 shows the number and percentage of graduates who met the academic and technical requirements to be considered career ready and the number of graduates who were career ready in 2012 through 2014. In 2012, 8 percent of graduates were career ready; by 2014, the percentage had risen to 18 percent. In each year, the number of graduates who met the career-ready technical requirements was greater than the number of graduates who met the academic requirements.

Table 2.6
Number And Percentage Of Graduates Meeting Criteria For Career Academic, Career Technical, And Career Ready, 2012-2014

	Number Of Graduates				Percentage Of Graduates		
School Year	Total Graduates	Career Academic	Career Technical	Career Ready	Career Academic	Career Technical	Career Ready
2012	42,880	5,489	7,497	3,429	13	17	8
2013	43,898	7,754	9,525	5,106	18	22	12
2014	43,745	10,327	12,724	7,770	24	29	18

Source: Staff analysis of data from the Kentucky Department of Education.

Career Academic

More than twice as many students met career academic requirements by passing the WorkKeys as by passing the ASVAB.

More than twice as many students met career academic requirements by passing the WorkKeys as by passing the ASVAB. Table 2.7 shows the number of students who took and passed the ASVAB and WorkKeys tests in 2014. A much higher percentage of students who took the WorkKeys passed (78 percent) than did students who took the ASVAB (35 percent).

Table 2.7
Number And Percentage Of Graduates Taking And Passing ASVAB And WorkKeys Tests For Career-Ready Academic Requirements, 2014

Test	Number Took	Number Passed	Percent Passed
ASVAB	10,308	3,588	35
WorkKeys	10,054	7,883	78

Source: Staff analysis of data from the Kentucky Department of Education.

Career Technical

In 2014, 9,170 students met career technical requirements by passing KOSSA tests and 5,308 met requirements by attaining industry certificates.

More graduates became career ready by passing the industry certificate for state registered nursing assistant than by passing any other test.

Table 2.8 shows the most common test areas in which career-ready students met technical criteria. More graduates became career ready by passing the industry certificate for state registered nursing assistant than by passing any other test. These were followed by graduates passing communications and allied health tests. Allied health tests cover general knowledge for career pathways in health-related fields.

Table 2.8
Most Common Career Technical Areas,
Career-Ready Or College- And Career-Ready Graduates,
2014

Test Area	Test	Number Of Graduates
State registered nursing assistant	Industry	1,075
Communications	KOSSA	1,065
Allied health*	KOSSA	853
Consumer and family management	KOSSA	737
Engineering and technology	KOSSA	650
Production livestock	KOSSA	627
Administrative support	KOSSA	529
Internet and computing core certification	Industry	518

Notes: This table reports test areas only for tests that were passed by career-ready or college- and career-ready graduates. Some graduates took tests in more than one area and passed one but not the other(s).
* Allied health is a general career pathway in health science program area that prepares students for a variety of occupations in this area.
Source: Staff analysis of data from the Kentucky Department of Education.

The top growth areas between 2012 and 2014 were state registered nursing, communications, allied health, consumer and family management, and engineering and technology.

Appendix F provides more data on fields in which career-ready or college- and career-ready students met technical requirements in 2014 and shows areas in which there was greatest growth between 2012 and 2014. The top growth areas between 2012 and 2014 were state registered nursing, communications, allied health, consumer and family management, and engineering and technology.

Alignment Of Career Areas And Workforce Demand

In a 2014 report on Kentucky career and technical education, the Southern Regional Education Board expressed concern that the fields in which graduates were becoming career ready did not align as closely as they should with regional demands in Kentucky's labor market.

In a 2014 report on Kentucky career and technical education, the Southern Regional Education Board (SREB) expressed concern that the fields in which graduates were becoming career ready did not align as closely as they should with regional demands in Kentucky's labor market. The report recommended that industry exams be approved for career-ready criteria in Kentucky's accountability system only if they were aligned with workforce demand and supported by the Kentucky Workforce Investment Board. [17]

The report expressed concern about lack of resources in some career and technical centers to provide students with the instructional time and the type of technical training that would prepare them for "high-wage, high-skill, high-demand jobs."

The report expressed concern about lack of resources in some career and technical centers to provide students with the instructional time and the type of technical training that would prepare them for "high-wage, high-skill, high-demand jobs."[18] In particular, the report noted insufficient numbers of career and technical programs "focusing on broad-based manufacturing, transportation, logistics and distribution, and renewable energy." In the absence of local programs in these high-need areas, students might be encouraged to become career ready in less demanding fields that do not lead to advanced opportunities. The report notes uneven distribution within the commonwealth of programs leading to jobs in high-demand areas.[19]

Career Ready By School

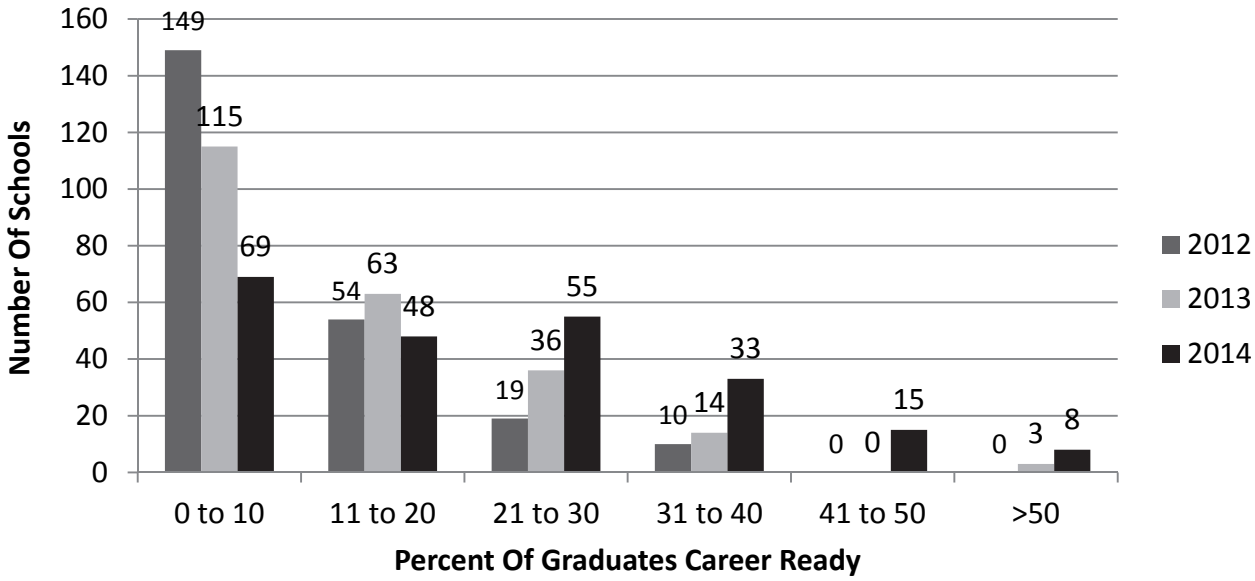
In 2012, the majority of high schools had career-ready rates of less than 10 percent. In 2013 and 2014, increasing numbers of schools had career-ready rates between 20 and 40 percent.

Figure 2.I shows the number of high schools in which the percentage of graduates who were career ready was less than 10, greater than 50, and ranges in between from 2012 to 2014. Career-ready rates in most high schools increased from 2012 to 2014. In 2012, the majority of high schools had career-ready rates of less than 10 percent. In 2013 and 2014, increasing numbers of schools had career-ready rates between 20 and 40 percent.

In 2014, career-ready rates ranged from a low of no career-ready students in 11 schools to a high of 80 percent career-ready graduates in two schools.[i] Numbers of career-ready graduates in all Kentucky high schools can be found on the KDE website.[20] Appendix G reports career-ready rates for all Kentucky districts.

[i] Some of the high schools with no graduates considered career ready by KDE's definition did have graduates considered college and career ready. The discrepancy in the criteria to be considered career ready only versus the criteria to be considered college and career ready is explained in Chapter 1 and also later in this chapter.

Figure 2.I
Number Of High Schools By Percentage Of Graduates Career Ready
2012–2014

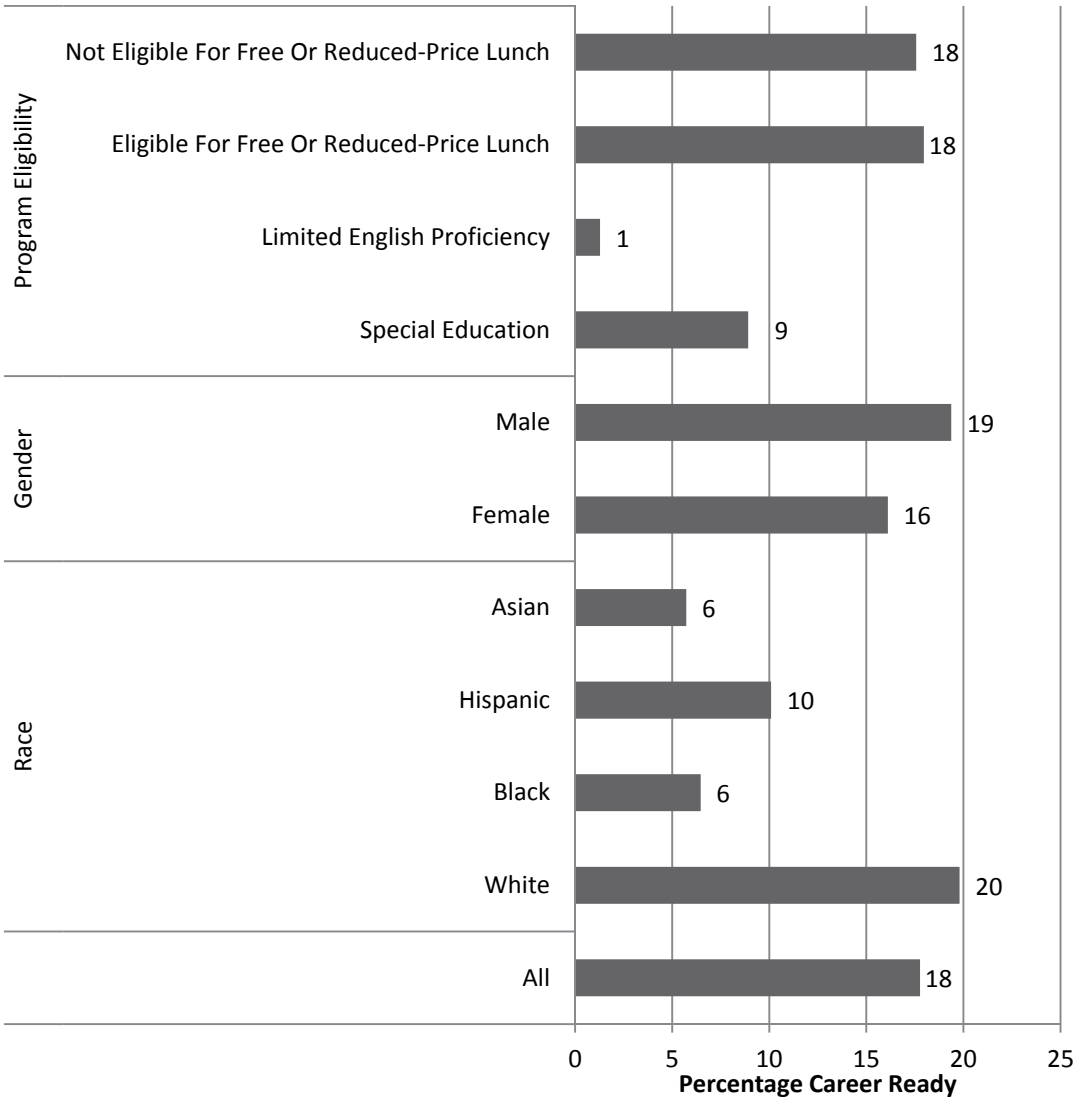


Source: Staff analysis of data from the Kentucky Department of Education.

Career Ready By Student Characteristics

Figure 2.J shows the percentage of graduates, by race, gender, and program eligibility who were considered career ready in 2014. Career-ready rates were highest for white students (20 percent) and lowest for students with limited English proficiency (1 percent). Students eligible and not eligible for free or reduced-price lunch were career ready at the same rates (18 percent).

Figure 2.J
Percentage Of Career-Ready Graduates By Race, Gender, And Program Eligibility
2014



Source: Staff analysis of data from the Kentucky Department of Education.

Discrepancy In Definitions Of Career Ready/College And Career Ready

Many students meet the technical criteria to be considered career ready and exceed the academic criteria to be considered career ready but are not included in KDE's public reports of career-ready students.

As noted in Chapter 1, many students meet KDE's criteria to be considered college and career ready yet do not meet the criteria to be considered career ready. These are students who have met the technical criteria to be considered career ready and met the criteria to be considered college ready but did not take or did not pass the academic tests (ASVAB or WorkKeys) required to be considered career ready; they exceed KDE's academic criteria for career readiness but are not included in KDE's public reports of career-ready students.

Figure 2.K repeats the CCR criteria shown in Chapter 1.

Figure 2.K
Indicators Required By The Kentucky Department of Education To Be Considered College Ready, Career Ready, Or College And Career Ready

	Career Ready		College And Career Ready	
College Ready	**Academic**	**Technical***	**College Ready Academic**	**Career Ready Technical**
• The ACT • ACT Compass • KYOTE	• ASVAB • ACT WorkKeys	• KOSSA • Industry certificates	• The ACT • ACT Compass • KYOTE	• KOSSA • Industry certificates

Note: For each column, students must meet at least one indicator but not necessarily all. Shaded portions of the figure illustrate the indicators met by students who are considered college **and** career ready but not career ready.
* In addition to meeting one of the technical requirements shown here, the student must also meet career/technical course requirements.
Source: Kentucky. Dept. of Educ. *Unbridled Learning Accountability Model: Superintendent's Three Year Review*. Frankfort: KDE, Aug. 8, 2014.

The inconsistency described in this report between KDE's definition of college and career readiness and its definition of career readiness results in underreporting of the total number of students who are career ready. The inconsistency does not have any consequences for schools or students. Schools receive bonus points for college- and career-ready graduates regardless of whether those graduates are reported as career ready.

In order to provide a more accurate account of the total number of career-ready students, Table 2.9 reports numbers and percentages of students considered career ready using KDE's criteria and students who would be considered career ready if college-ready indicators—in addition to the ASVAB and WorkKeys—were allowed as the academic component of the career-ready definition.

Data are shown separately for students based on race, gender, and eligibility for special education, limited English proficiency, and free or reduced-price lunch programs.

Statewide, 18 percent of students are considered career ready according to the current KDE definition whereas 26 percent would be considered career ready if college-ready tests were allowed as an academic indicator.

Statewide, 18 percent of students are considered career ready according to the current KDE definition whereas 26 percent would be considered career ready if college-ready tests were allowed as an academic indicator. For all student groups shown in the table, the percentages of students considered career ready if college-ready tests are allowed are greater than the percentages of students considered career ready by KDE's definition. The percentage of students reported as career ready would more than double for Asian and black students if college-ready tests were allowed as an academic indicator.

Table 2.9
Number And Percentage Of Graduates
Career Ready By KDE Definition And When College-Ready Indicators Allowed
By Race, Gender, And Program Eligibility, 2014

Student Characteristics		Number Of Students			Percentage Of Students	
		Total Students	KDE Definition	College-Ready Tests Allowed	KDE Definition	College-Ready Tests Allowed
All		43,745	7,770	11,372	18	26
Race	White	36,451	7,217	10,352	20	28
	Black	4,468	289	567	6	13
	Hispanic	1,387	140	225	10	16
	Asian	594	34	90	6	15
Gender	Female	21,517	3,466	5,395	16	25
	Male	22,214	4,303	5,976	19	27
Program eligibility	Special education	3,063	273	345	9	11
	Limited English proficiency	388	5	9	1	2
	Eligible for free or reduced-price lunch	21,750	3,906	5,174	18	24
	Not eligible for free or reduced-price lunch	21,995	3,864	6,198	18	28

Source: Staff analysis of Kentucky Department of Education data.

Appendix G provides geographic maps showing the percentage of students by district who would be considered career ready if college-ready indicators were allowed as an indicator of academic readiness for career ready students.

Recommendation 2.3

Recommendation 2.3

The Kentucky Department of Education should reevaluate its criteria for college ready only, career ready only, and college and career ready to ensure consistency among criteria and reporting.

Use Of CCR To Compare Schools, Evaluate Programs, And Assess Improvement Over Time

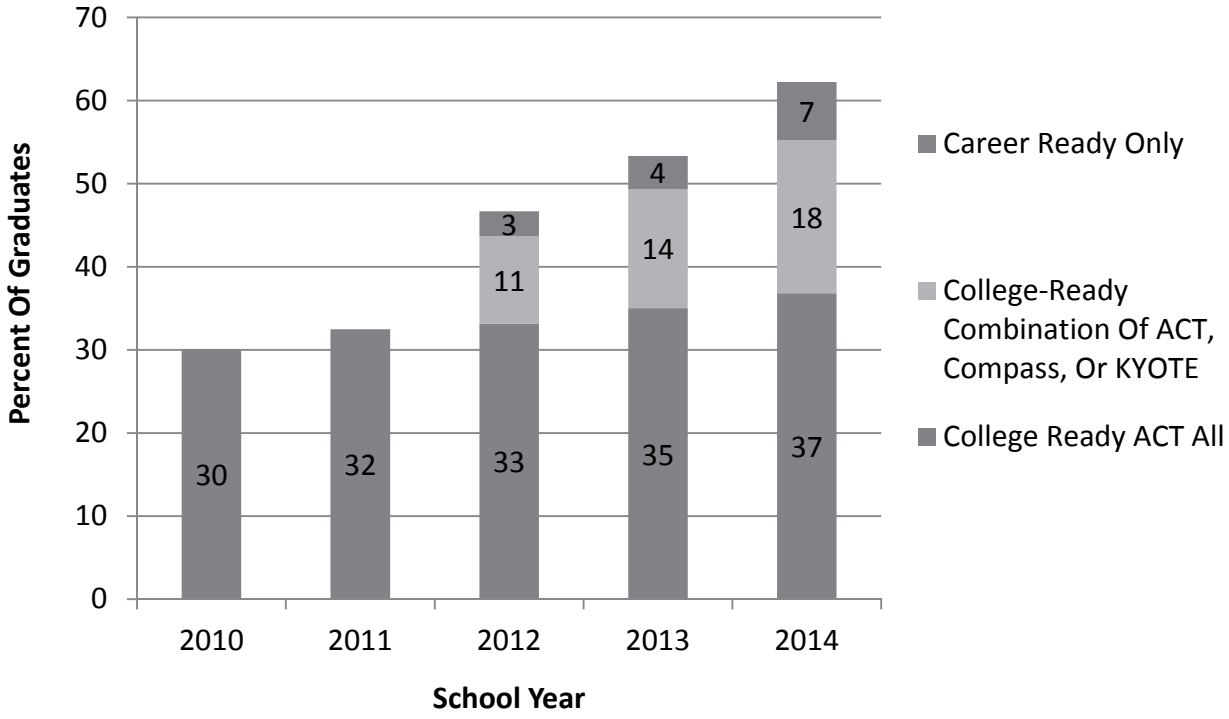
As reported in Chapter 1, Kentucky districts have taken the "Commonwealth Challenge" to increase CCR rates by 50 percent from 2010 to 2014. Although the CCR measure was formally introduced in 2012, progress on CCR is often reported beginning in 2010. This type of reporting compares graduates who were college ready in 2010 by meeting CPE ACT benchmarks with graduates college or career ready by the variety of indicators introduced in 2012.

Figure 2.L separates changes in CCR from 2010 to 2014 into individual components that are more comparable to each other than are the total CCR rates: the percentage of graduates meeting CPE benchmarks in English, math, and reading on all ACT tests; the percentage of graduates meeting those benchmarks on a combination of ACT, Compass, or KYOTE tests; and the percentage of graduates that met career-ready but not college-ready indicators.

From 2010 to 2014, the percentage of students CCR on all measures increased from 30 percent to 62 percent, an increase of 32 percentage points. During these years there was an increase of 7 percentage points in graduates college ready on ACT tests.

From 2010 to 2014, the total percentage of students CCR increased from 30 percent to 62 percent, an increase of 32 percentage points. The ACT is the only indicator for which data are available in all years during this time period. From 2010 to 2014, there was an increase of 7 percentage points in graduates who met CPE benchmarks on all three ACT tests. Total CCR gains came predominantly from students meeting CPE benchmarks on a combination of ACT, Compass, and KYOTE tests (18 percent).

Figure 2.L
Percentage Of Graduates Meeting CPE College-Readiness Benchmarks On All ACT Tests, On A Combination Of ACT, Compass, Or KYOTE Tests, And Career Ready Only 2010-2014



Source: Staff analysis of Kentucky Department of Education data.

Given the change over time in measures used to determine CCR, it is important to interpret changes in CCR rates with caution.

Given the change over time in indicators used to determine CCR, it is important to interpret changes in CCR rates with caution. The ACT is the only indicator that has been administered to all students since 2010. Improvements in CCR rates as measured by the ACT are encouraging but more modest than are improvements on the variety of indicators introduced in 2012.

Caution should also be used in drawing conclusions based on the CCR measure alone about the effectiveness of programs implemented during this time period or about changes in student learning.

When comparing total CCR rates in 2010 and 2014, it is not clear to what extent increases in CCR graduates have resulted from increases in student learning versus increased opportunity to demonstrate readiness by a variety of indicators. Therefore, caution should be used in drawing conclusions about the effectiveness of programs implemented during this time period or about changes in student learning based on the CCR measure alone.

Similar caution should be used when making comparisons among districts and schools based on CCR rates alone. As shown in Appendix E, schools with similar college-ready rates can have very different percentages of graduates meeting CPE benchmarks on the ACT. The proportion of total CCR rates comprising different

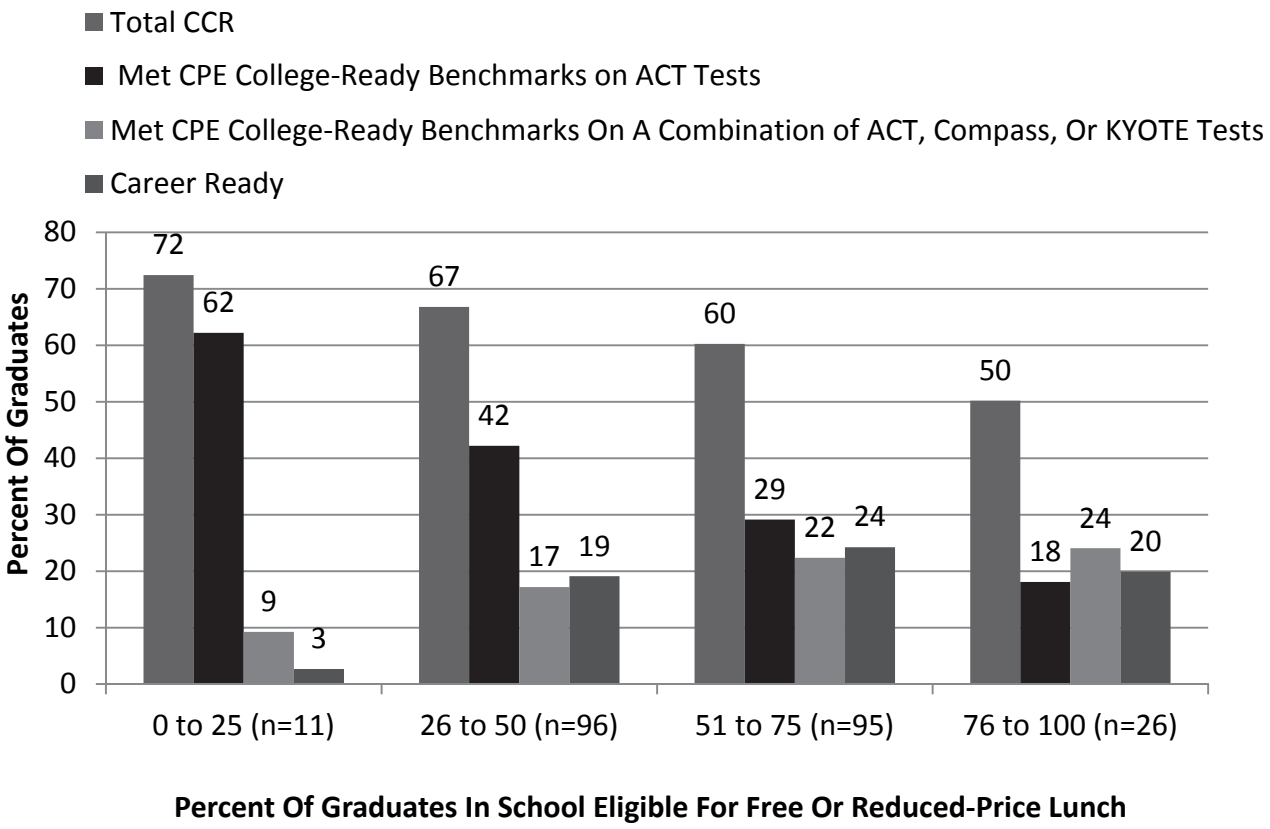
elements varies among schools and districts and appears to be associated somewhat with the percentage of schools' students living in poverty.

Figure 2.M shows differences among higher- and lower-poverty schools in the proportion of total CCR made up of different measures in 2014. The figure reports averages for schools with percentages of students eligible for free or reduced-price lunch of less than 25 percent, 76 percent or greater, and ranges in between.

As the percentage of students eligible for free or reduced-price lunch in a school increases, the proportion of the school's CCR comprising students college ready on the ACT decreases and the proportion of CCR comprising students who are career ready increases.

In the lowest-poverty schools (less than 25 percent of students eligible) most of the CCR graduates (86 percent) met all CPE benchmarks on the ACT. The percentage of career-ready but not college-ready graduates is low (4 percent). In contrast, in the highest-poverty schools (greater than 75 percent of students eligible), just more than one-third of CCR graduates (36 percent) met CPE benchmarks on all three ACTs. In these schools, on average, a higher percentage of CCR graduates were career ready but not college ready (40 percent). The figure shows that, overall, as the percentage of students eligible for free or reduced-price lunch in a school increases, the proportion of CCR comprising students college ready on the ACT decreases and the proportion of CCR students who are career ready increases.

Figure 2.M
Differences Among Higher- And Lower-Poverty Schools In Average Percentage Of Graduates CCR By Different Measures, 2014



Note: Percentages of students career ready and college ready do not sum to the total percentage of CCR students in this figure because some of the students are included in both the college-ready and career-ready categories. Students who are college ready and career ready are not reported separately in this analysis.
Source: Staff analysis of data from the Kentucky Department of Education.

Recommendation 2.4

Recommendation 2.4

The Kentucky Department of Education should not use college readiness and/or career readiness as the sole or primary measure when reporting progress of student outcomes over time or evaluating the impact of particular programs or policies. College and/or career readiness rates should not be used in isolation to compare student outcomes among districts and schools.

Chapter 3

Enrollment And Performance Of Graduates In Kentucky Colleges And Universities

This chapter examines relationships between the college or career readiness of high school graduates and their enrollment and performance in Kentucky postsecondary institutions.

This chapter examines relationships between the college or career readiness of high school graduates and their enrollment and performance in Kentucky postsecondary institutions. Using data from the first cohort of graduates for whom Compass and KYOTE data were available, the chapter also examines differences in the college enrollment and performance of students who become college ready by different indicators.

College-ready students enroll at higher rates and perform better in Kentucky colleges and universities than do students who are not college ready. However, outcomes vary for students college ready by different indicators.

College-ready students enroll and perform better in Kentucky colleges and universities than do students who are not college ready. However, enrollment rates and college performance differ somewhat depending on the test or combination of tests by which students are deemed college ready. Enrollment rates and GPAs are higher for students who demonstrate college readiness in all three subjects on the ACT than they are for students who demonstrate readiness through a combination of ACT and Compass or KYOTE tests and much higher than they are for students who demonstrate readiness on Compass and KYOTE tests only.

While college enrollment rates have remained flat, the percentage of enrolled graduates requiring remedial coursework has decreased substantially.

While the percentage of graduates who were deemed college ready increased between 2010 and 2012, the percentage of graduates who enrolled in Kentucky colleges and universities remained steady. However, the percentage of enrolled graduates who are college ready has increased and the percentage of enrolled graduates who require remedial coursework has decreased substantially.

Data Analyzed In This Chapter

Results reported in this chapter are based on staff analysis of KCEWS data that links student-level KDE and CPE data.

Results reported in this chapter are based on staff analysis of data from the Kentucky Center for Education and Workforce Statistics that links student-level KDE and CPE data. KDE data include students' performance on college and career readiness indicators, demographic characteristics, and school enrollment. CPE data include enrollment in Kentucky public and private postsecondary institutions and cumulative grade point averages.

Limitations

Data from students who enrolled in out-of-state postsecondary institutions, entered the workforce, or enlisted in the military were not analyzed for this report. GPAs of students enrolled in Kentucky private postsecondary institutions are not included in this report because these data are not available; private colleges and universities are not required to report course data to CPE.

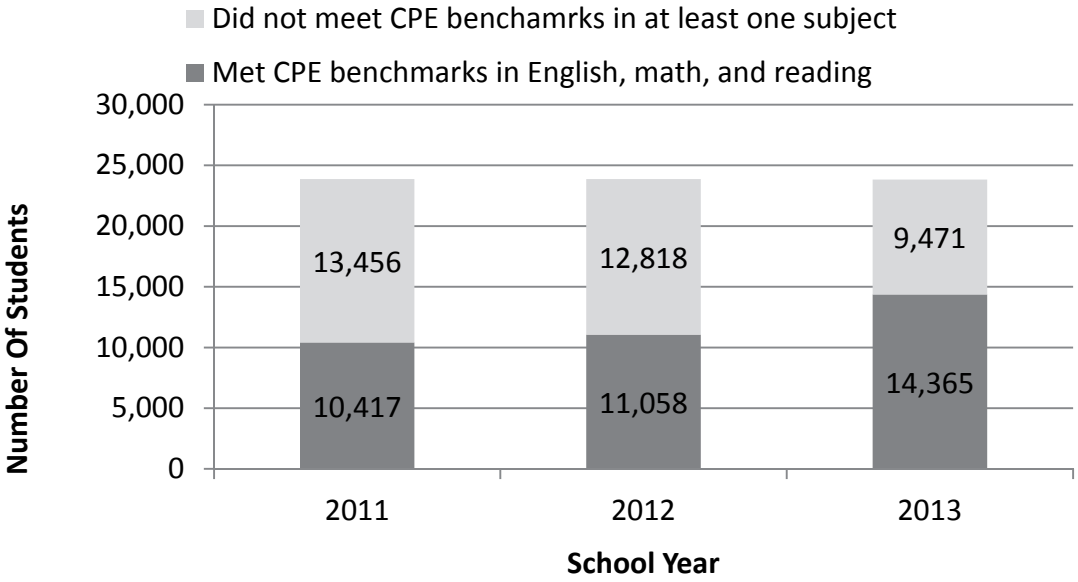
College Enrollment And Remediation

College Enrollment

From 2011 to 2013, the number of college-ready graduates who enrolled in Kentucky colleges or universities increased and the number of graduates who were not college ready and enrolled decreased. The total percentage of graduates who enrolled remained virtually unchanged.

Figure 3.A shows the number of prior-year graduates enrolled in Kentucky postsecondary institutions according to whether they had met CPE college-ready benchmarks as high school graduates. The number of college-ready prior-year graduates who enrolled in Kentucky colleges or universities increased from 10,417 in 2011 to 14,365 in 2013, while the number of graduates who enrolled and had failed to meet CPE benchmarks in at least one subject decreased from 13,456 to 9,471. Overall, the percentage of high school graduates who enrolled in Kentucky colleges and universities remained virtually unchanged during these years, at about 56 percent.

Figure 3.A
Number Of Prior-Year Graduates Enrolled In Kentucky Postsecondary Institutions Meeting CPE Readiness Benchmarks In English, Math, And Reading, 2011-2013



Note: This figure reports high school graduates who enrolled in either the fall or spring semesters of the year following graduation.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Table 3.1
Number Of Prior-Year Graduates Enrolled In Kentucky Postsecondary Institutions Meeting CPE Readiness Benchmarks In English, Math, And Reading, And Percentage Of All Graduates Enrolled, 2011-2013

	Number Of Students		
	2011	**2012**	**2013**
Enrolled graduates met CPE benchmarks	10,417	11,058	14,365
Enrolled graduates did not meet CPE benchmarks in at least one subject	13,456	12,818	9,471
Total enrolled	23,873	23,876	23,836
Total graduates	42,388	42,588	42,864
Percent of graduates enrolled	56.3%	56.0%	55.6%

Note: This table reports high school graduates who enrolled in either the fall or spring semesters of the year following graduation.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

A recent KCEWS report showed low wages and employment prospects for high school graduates who do not attend college. Three years after high school graduation the average salary for high school graduates who did not attend college was about $13,000 for males and $10,000 for females. Two-thirds of the 2009 graduates who did not enroll in college earned less than full-time minimum wage.[21]

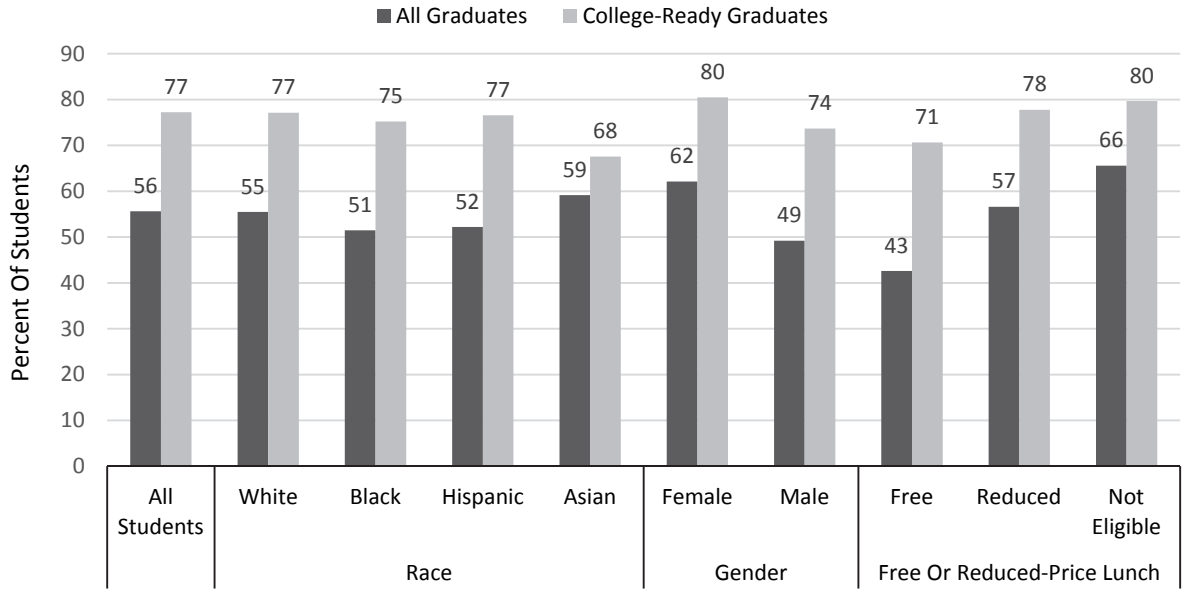
It was not within the scope of this study to analyze factors that explain flat college enrollment rates despite increasing rates of college readiness. While it is possible that some of the college-ready students are enrolling in out-of-state postsecondary institutions, graduates' enrollment rates in these institutions also remained constant from 2012 to 2013 at 5.4 percent. Economic factors such as the job market, availability of student loans, willingness of students to incur debt, and the income of students' families may affect college enrollment independent of college readiness. Data presented below suggest that student gender and family income play a role in the enrollment of college-ready graduates in Kentucky.

Figure 3.B shows the percentage of all graduates and college-ready graduates in 2012 who enrolled in Kentucky postsecondary institutions in the fall or spring semesters of the 2013 school year. Enrollment rates are shown by student race, gender, and eligibility for free or reduced-price lunch. Table 3.2 shows total numbers of students in each category.

The college enrollment rate is higher for females than for males and higher for students not eligible for free or reduced-price lunch than for students who are eligible for free lunch.

Overall, a greater percentage of college-ready students enrolled in college (77 percent) than did all students (56 percent). Enrollment rates for all graduates and for college-ready graduates were higher for students not eligible for free or reduced-price lunch than for those eligible for free lunch and higher for females than for males. Differences between these groups were smaller for college-ready students. Still, the enrollment rate for college-ready students not eligible for free or reduced-price lunch (80 percent) was 9 percentage points higher than it was for students who were eligible for free lunch (71 percent), and the enrollment rate of college-ready females (80 percent) was 6 percentage points higher than it was for college-ready males (74 percent). These data suggest that gender and family income may affect enrollment rates of college-ready graduates.

Figure 3.B
Percentage Of College-Ready 2012 Graduates Enrolled In Kentucky Colleges Or Universities By Student Race, Gender, And Eligibility For Free Or Reduced-Price Lunch, 2013



Note: Percentages are based on the number of 2012 graduates who enrolled in a Kentucky postsecondary institution in the fall or spring semesters of the 2013 school year. Enrollment for groups with small numbers of students, such as Asian or Hispanic students, may be misleading if large numbers of these students enrolled in out-of-state colleges or universities.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Table 3.2
Number Of 2012 Graduates And College-Ready Graduates
Enrolled In Kentucky Colleges Or Universities
By Student Race, Gender, And Eligibility For Free Or Reduced-Price Lunch, 2013

	All Graduates		College-Ready Graduates	
Student Group	Total 2012	Enrolled 2013	Total 2012	Enrolled 2013
All students	42,863	23,836	18,596	14,365
White	35,634	19,767	16,298	12,572
Black	4,327	2,227	1,008	758
Hispanic	1,218	636	410	314
Asian	514	304	296	200
Female	21,266	13,210	9,772	7,863
Male	21,596	10,625	8,824	6,502
Free	17,541	7,474	4,457	3,148
Reduced	2,651	1,501	1,079	839
Not eligible	20,524	13,460	11,823	9,420

Note: Percentages are based on the number of 2012 graduates who enrolled in the fall or spring semesters of 2013.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

College-ready students eligible for free lunch were less likely than other students to persist in enrollment from the spring to fall semesters.

College-ready students eligible for free lunch were also less likely than other students to persist in enrollment from the spring to fall semesters. In 2013, 92 percent of college-ready students who enrolled in the fall were still enrolled in the spring. Students who were not eligible for free or reduced-price lunch were more likely to persist from fall to spring (94 percent) than were students eligible for free lunch (87 percent).

Kentucky Graduates Requiring Remedial Coursework

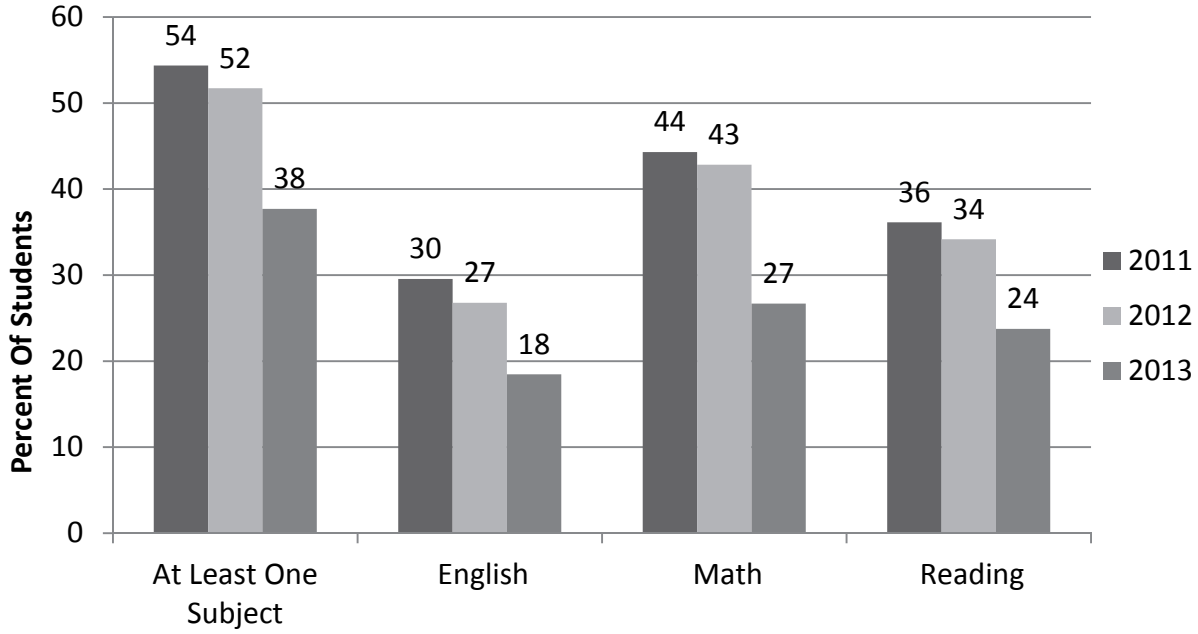
Kentucky postsecondary students who have not met CPE benchmarks in English, math, or reading are required to pass remedial courses before they can take credit-bearing classes in those subjects. As the percentage of graduates meeting Council on Postsecondary Education college readiness benchmarks has increased, the percentage of graduates required to take remedial coursework has decreased.

The percentage of postsecondary-enrolled graduates who required remediation in at least one subject declined from 54 percent in 2011 to 38 percent in 2013.

Figure 3.C shows the percentage of prior-year high school graduates enrolled in Kentucky postsecondary institutions who did not meet CPE benchmarks upon high school graduation. The percentage of postsecondary-enrolled graduates who required remediation in at least one subject declined from 54 percent in 2011 to 38 percent in 2013 and declined in all three subjects. The decrease in students needing remedial education in math dropped

substantially, from 44 percent in 2011 to 27 percent in 2013. Students enrolled in Kentucky colleges and universities in 2013 would have been the first to graduate from Kentucky public schools whose college and career readiness rates were included in the state's accountability system.

Figure 3.C
Percentage Of Prior-Year Graduates Enrolled In Kentucky Colleges Or Universities Required To Take Remedial Classes In English, Math, And Reading, 2011-2013



Note: This figure reports percentages of enrolled high school graduates who would be required to take remedial classes because they did not meet benchmarks set by CPE for college readiness at the time of graduation. The percentage of students actually required to take remedial classes would have been slightly lower as some students pass college readiness examinations after high school graduation and before beginning coursework.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Kentucky prior-year graduates enrolled in Kentucky colleges and universities required about 10,000 fewer remedial courses in 2013 than they did in 2011.

Table 3.3 shows the number of prior-year graduates enrolled in postsecondary institutions who did not meet CPE college-ready benchmarks in English, math, and reading in 2011, 2012, and 2013. Between 2011 and 2013, the number of students not meeting benchmarks decreased by 2,757 in English, 4,272 in math, and 3,028 in reading. In total, Kentucky prior-year graduates required about 10,000 fewer remedial courses in 2013 than they did in 2011.

Table 3.3
Number Of Prior-Year Graduates Enrolled In Kentucky Colleges Or Universities Who Did Not Meet Council On Postsecondary Education Readiness Benchmarks In English, Math, And Reading, 2011-2013

Year	Total Enrolled Fall or Spring	Total Not Meeting Benchmarks			
		At Least One Subject	English	Math	Reading
2011	23,873	13,456	7,570	11,071	9,121
2012	23,876	12,818	6,898	10,696	8,604
2013	23,836	9,471	4,813	6,799	6,093
Difference, 2011-2013	37	3,985	2,757	4,272	3,028

Note: This figure reports percentages of enrolled high school graduates who did not meet benchmarks at the time of graduation. The percentage of students who did not meet benchmarks may have been slightly lower as some students pass college readiness examinations after high school graduation and before beginning coursework.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Postsecondary Enrollment, Persistence, And Grades By College- Or Career-Ready Indicator

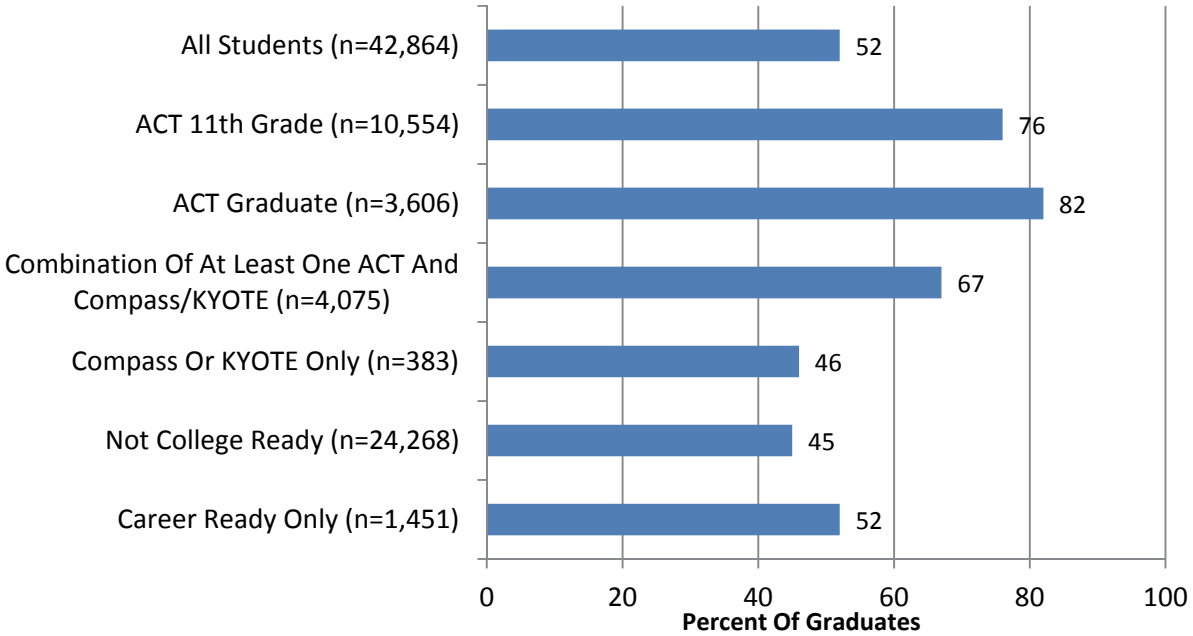
Enrollment

Figure 3.D shows the percentage of 2012 graduates who enrolled in Kentucky postsecondary institutions in the fall semester of the 2013 school year. Percentages are shown separately for students who demonstrated college readiness on ACT tests in 11th grade, on ACT tests by high school graduation (but not in 11th grade), on a combination of ACT and Compass and/or KYOTE tests, and on Compass and/or KYOTE tests only; students who met career-ready but not college-ready benchmarks; and students who were not college ready. Table 3.4 shows the total number of students in each category.

Postsecondary enrollment rates of college-ready graduates were highest for those meeting benchmarks on ACT tests and lowest for students not college ready by any indicator.

Enrollment rates were highest for students who met college readiness benchmarks on ACT tests as graduates (82 percent) and lowest for students who were not college ready by any indicator (45 percent). Enrollment rates were substantially lower for students who met benchmarks on Compass or KYOTE tests exclusively (46 percent) than for students who met college readiness rates on at least one ACT test (67 percent).

Figure 3.D
Percentage Of 2012 Graduates Enrolled In Kentucky Postsecondary Institutions By College- Or Career-Ready Indicator, 2013



Note: The enrollment rates reported in this figure do not include students who enrolled in out-of-state colleges or universities. Total percentages of students who enrolled in state or out of state would be higher and may be relatively higher for some groups.
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Table 3.4
Number And Percentage Of 2012 Graduates Enrolled In Fall 2013 By College- Or Career-Ready Indicator

College Readiness Indicator	Total Graduates 2012	Total Enrolled Fall 2013	Percentage Of 2012 Graduates Enrolled Fall 2013
ACT 11th grade	10,554	8,044	76%
ACT graduate (not 11th grade)	3,606	2,964	82
Combination of at least one ACT, and Compass/KYOTE	4,075	2,747	67
Compass and/or KYOTE only	383	176	46
Not college ready	24,268	8,425	35
Career ready only	1,451	649	45
All students	42,864	22,347	52

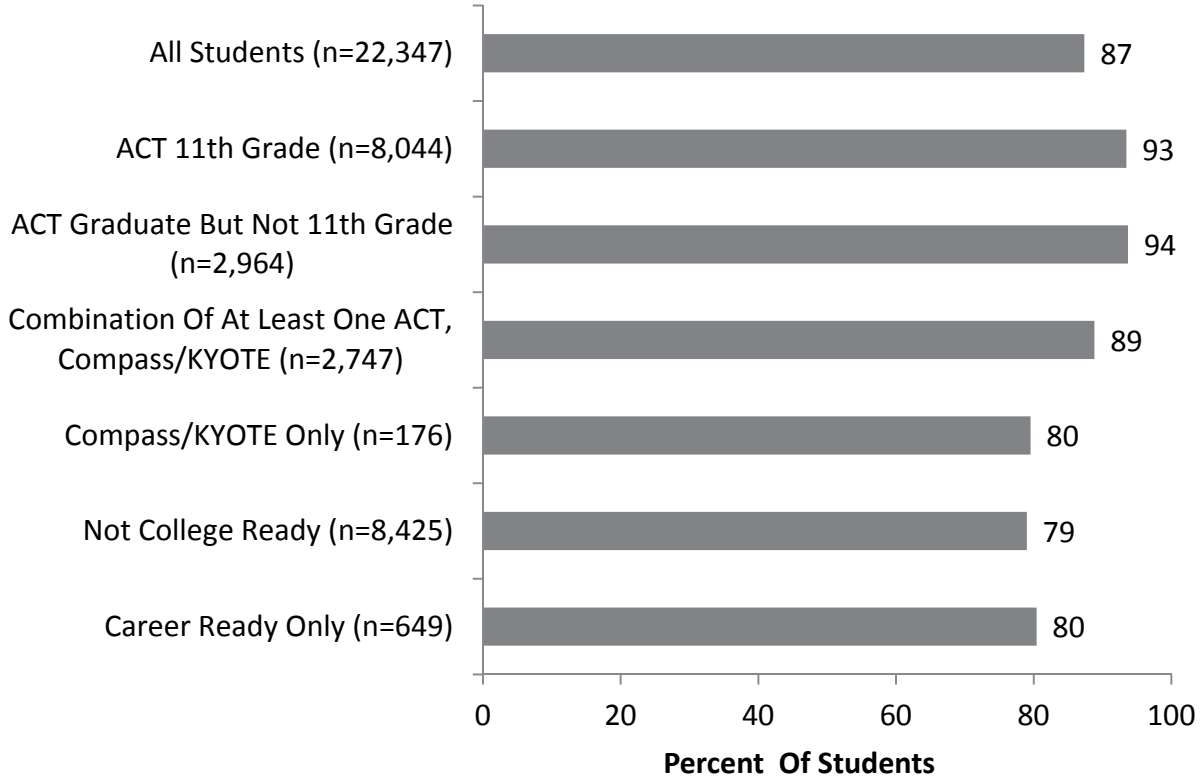
Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Persistence

Persistence rates for enrollment from the fall to spring semesters were higher for students who met ACT benchmarks as graduates than for students who were college ready by other measures.

Figure 3.E shows the percentage of 2012 graduates who enrolled in Kentucky postsecondary institutions in the fall of the 2013 school year and were still enrolled in spring semester of the 2013 school year. Overall, 87 percent of students who enrolled in the fall were still enrolled in the spring. Persistence rates were highest for students who met ACT benchmarks as graduates (94 percent) and lowest for students who were not college ready (79 percent), career ready but not college ready (80 percent), and college ready by Compass and KYOTE tests only (80 percent).

Figure 3.E
Percentage Of Fall-Enrolled Graduates Persisting To Spring Semester, 2013



Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

College Readiness Indicators And College Grades

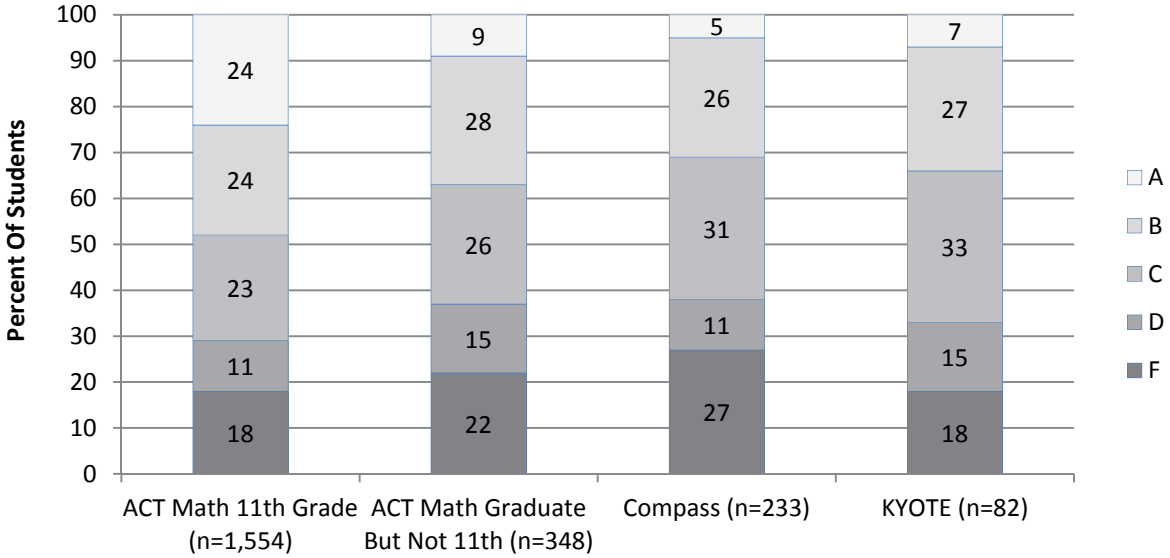
Figure 3.F shows grades in college algebra classes for students who were deemed college ready by various indicators. The majority of 2012 graduates who took algebra in 2013 earned grades of C or above, but grades varied by indicator.

The percentage of students earning a C or above in their first college algebra course was 71 percent for students who met CPE ACT benchmarks as 11th-graders and 62 percent for students college ready on the Compass.

Regardless of the indicator by which students demonstrated college readiness in math, the overwhelming majority earned a grade of C or above in their first college algebra course. The percentage of students earning a C or above was 71 percent for students who met CPE ACT benchmarks for math in the 11th-grade administration of the ACT, 63 percent for students who met these benchmarks as graduates, 67 percent for students college ready on the KYOTE, and 62 percent for students college ready on the Compass.

The percentage of students who failed their algebra class was 27 percent for students college ready by the Compass, 22 percent for students who met CPE ACT benchmarks as graduates, and 18 percent for students who met these ACT benchmarks in the 11th-grade administration or who were college ready by the KYOTE.

Figure 3.F
College Algebra Grades Of Prior-Year Graduates
By Math College-Ready Indicator, 2013



Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics

Figure 3.G shows the percentage of 2012 graduates enrolled in Kentucky postsecondary institutions in 2013 who attained GPAs of 3.0 or greater; 2.0 to 2.99; or less than 2.0. Percentages are reported separately for different college- and career-ready indicators.

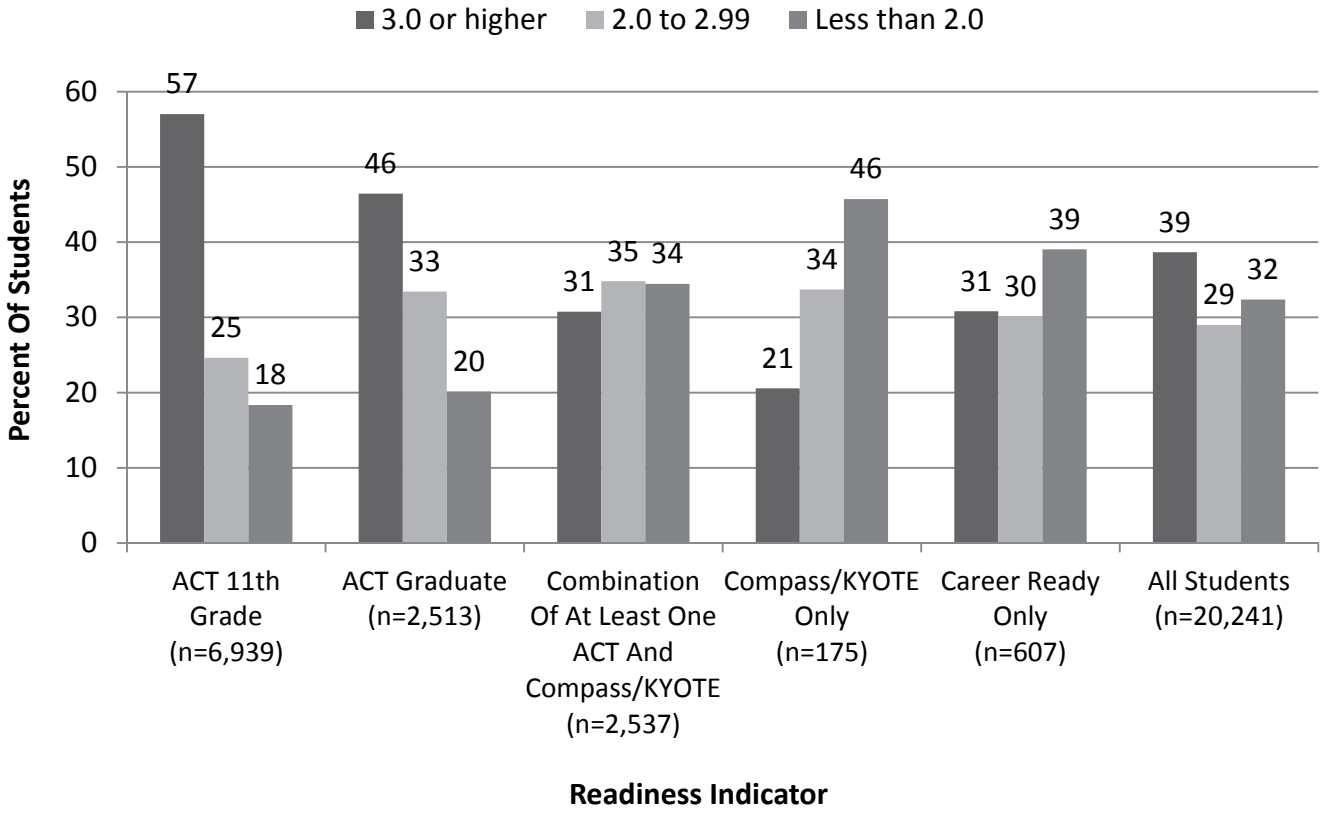
Regardless of college-ready indicator, the majority of enrolled graduates earned grade point averages (GPAs) of 2.0 or above. GPAs were higher for students who demonstrated college readiness on ACT tests than they were for those who demonstrated readiness on a combination of ACT, Compass, and KYOTE tests, however.

Regardless of college-ready indicator, the majority of students earned GPAs of 2.0 or above. GPAs were higher for students who demonstrated college readiness on the ACT tests than for those who demonstrated readiness on a combination of ACT, Compass, and KYOTE tests, however. The percentage of students who attained cumulative GPAs of 3.0 or higher was 57 percent for students who were college ready on ACT tests in 11th grade; 46 percent for those who retook ACT tests and met college-ready benchmarks by high school graduation; 31 percent for students who demonstrated readiness through a combination of at least one ACT test and at least one Compass or KYOTE test; 31 percent for students who were career but not college ready; and 21 percent for the small group of students who demonstrated readiness on Compass and KYOTE tests alone. [j]

GPAs were lowest for the small number of students (175) who demonstrated college readiness on Compass and KYOTE tests only and for students who were career ready and did not pass college-ready tests. The percentage of students with GPAs of less than 2.0 was 46 percent for students who were college ready on Compass and KYOTE tests alone and 39 percent for students who met career ready but not college-ready benchmarks.

[j] This analysis did not take into consideration differences in the competitiveness of postsecondary institutions in which students CCR by different measures enrolled.

Figure 3.G
Percentage Of Prior-Year Graduates Enrolled In Kentucky Postsecondary Institutions Who Attained GPAs Of 3.0 Or Higher, 2.0 To 2.99, Or Less Than 2.0, By College or Career Readiness Indicator, 2013



Source: Staff analysis of data from the Kentucky Center for Education Workforce Statistics.

Students deemed college ready in some high schools might be expected to perform better in college than students deemed college ready in others.

Interpreting GPA Differences. Data reported in Figure 3.G suggest that students in high schools in which most college-ready students meet ACT benchmarks might be expected to perform better in college than students in high schools whose students meet college-ready benchmarks through a combination of tests.

Differences in GPAs of students college ready on ACT versus Compass or KYOTE tests do not necessarily indicate differences in the validity of these tests as predictors of college success.

Differences in GPAs of students college ready on ACT versus Compass or KYOTE tests do not necessarily indicate differences in the validity of these tests as predictors of college success, however. The ACT, Compass, and KYOTE tests were designed to predict not overall GPAs but rather students' ability to perform successfully in individual subject areas. Differences in GPAs among students who became college ready by different indicators may be explained in part by differences among students who took the tests rather than characteristics of the individual tests.

Outcomes for students who met CPE ACT benchmarks in 11th grade would be expected to be higher than outcomes for other

students because the most academically successful students would have been more likely than other students to meet ACT benchmarks in the 11th grade. Outcomes for students who were not college ready in 11th grade but were college ready as graduates, either by the ACT, by a combination of ACT and Compass or KYOTE tests, or by Compass and KYOTE tests alone, provide a better indication of the potential relationship between the indicators by which students are deemed college ready and their performance in college.

However, there may be differences among these groups of students that partially explain differences in their college GPAs. For example, of the students who met college-ready benchmarks as graduates, the percent who were eligible for free or reduced-price lunch was 27 for students who met college-ready on the ACT exclusively; 44 for students who met benchmarks through a combination of ACT, Compass, or KYOTE tests; and 60 for students who met benchmarks on Compass and KYOTE tests alone.

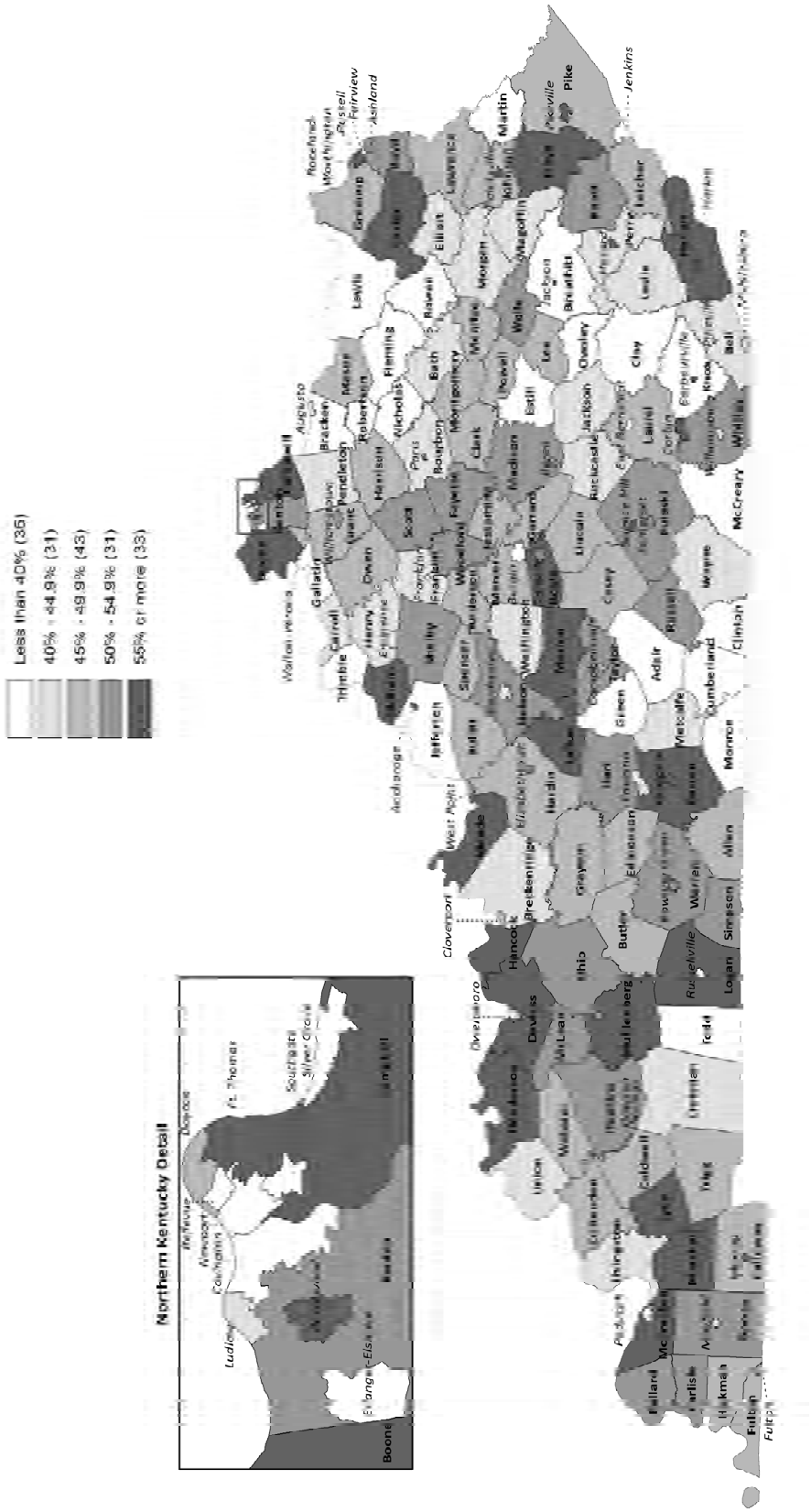
Appendix A

Middle School College Readiness: EXPLORE Exam Results By District

Figure A.1 shows 2014 middle school college readiness rates by district. These are based on the ACT Explore test administered to all eighth-graders. Per 703 KAR 5:200 (4)(4)(e), college readiness for middle schools is calculated as the average of the percent of students meeting the benchmark score in reading, English, and mathematics. As reported by KDE in 2011, the ACT-established benchmarks for EXPLORE were 15 in reading, 13 in English, and 17 in mathematics. [k]

[k] *Unbridled Learning Accountability Model.* Available at: education.ky.gov/comm/UL/Documents/WHITE%20PAPER%20062612%20final.pdf (accessed Nov. 12, 2014).

Figure A.1
Percentage Of Middle School Students Meeting College-Ready Benchmarks On EXPLORE Exam, FY 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Appendix B

Kentucky Council On Postsecondary Education
College Readiness Indicators [l] [m]

Beginning in fall 2012, all public postsecondary institutions in Kentucky will use the following benchmarks as college readiness indicators. Upon admission to a public postsecondary institution, students scoring at or above the scores indicated will not be required to complete developmental, supplemental, or transitional coursework and will be allowed entry into college credit-bearing coursework that counts toward degree credit requirements.

Readiness Score Area	ACT Score	SAT Score	Compass	KYOTE
English (writing)	English 18 or higher	Writing 430 or higher	Writing 74 or higher [n] [o]	6 or higher [p]
Reading	Reading 20 or higher	Critical Reading 470 or higher	Reading 85 or higher [q]	20 or higher
Mathematics (general education, liberal arts courses)	Mathematics 19 or higher	Mathematics 460 or higher	Algebra Domain 36 or higher [r]	College Readiness Mathematics 22 or higher
Mathematics (college algebra)	Mathematics 22 or higher	Mathematics 510 or higher	Algebra Domain 50 or higher [s]	College Algebra 14 or higher [t]
Mathematics (calculus)	Mathematics 27 or higher	Mathematics| 610 or higher	NA[u]	Calculus TBA

Source: Council on Postsecondary Education.

[l] Institutional admission policies comprise many factors including but not limited to high school completion or a GED, high school coursework, ACT or SAT scores, high school GPA, class rank, an admission essay or interview, submission of an academic and/or civic activity portfolio, etc. Placement exam results are used for course placement after a student is admitted to a postsecondary institution.

[m] A Compass or KYOTE placement test score will be guaranteed as indicator of college readiness for 12 months from the date the placement exam is administered.

[n] An Asset writing score of 43 or higher indicates readiness. Asset is the paper-pencil version of Compass.

[o] Compass E-write scores of 9 on a 12-point scale or 6 on an 8-point scale indicate readiness.

[p] A common rubric will be used to score the KYOTE Writing Essay. The rubric has an 8-point scale. A score of 6 is needed to demonstrate readiness.

[q] An Asset reading score of 44 or higher indicates readiness. Asset is the paper-pencil version of Compass.

[r] An Asset elementary algebra score of 41 or an intermediate algebra score of 39 indicates readiness for a general education course, typically in the social sciences.

[s] An Asset elementary algebra score of 46 or an intermediate algebra score of 43 indicates readiness for college algebra.

[t] For the 2011-2012 school year a KYOTE college readiness mathematics placement score of 27 or higher will be used to indicate readiness for college algebra. For 2012-2013 and beyond, only a KYOTE college algebra placement test score of 14 or higher will be used to indicate readiness for college algebra.

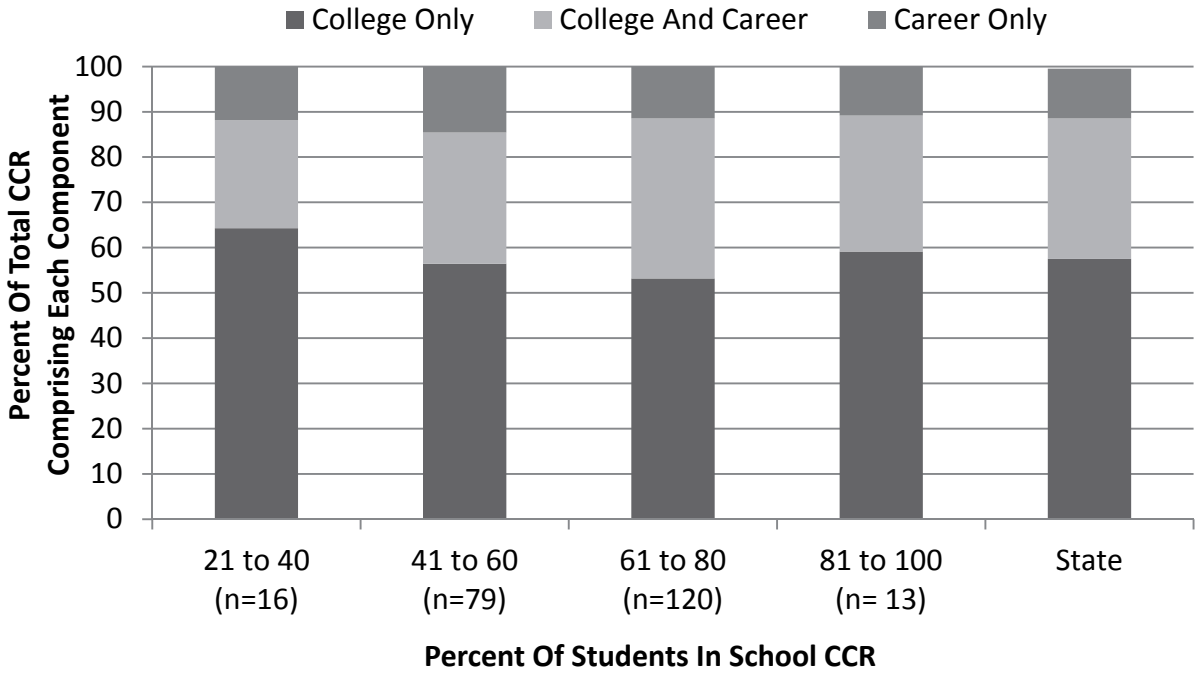
[u] There is not a Compass or Asset indicator for calculus readiness.

Appendix C

Proportion Of CCR By Performance Range

Figure C.1 shows the proportion of CCR comprising different elements for schools in different CCR ranges. Statewide, 57 percent of CCR students were college ready only. Percentages of college-ready-only students were slightly higher in schools with lower CCR rates (0-20 percent) and higher CCR rates (81-100 percent). The percentage of total CCR made up of students who were career ready only did not vary substantially based on the total percentage of CCR students in a school.

Figure C.1
Average Percentage Of School College- And/Or Career-Ready Rates
By Component And Range Of Graduates College And/Or Career Ready, 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Appendix D

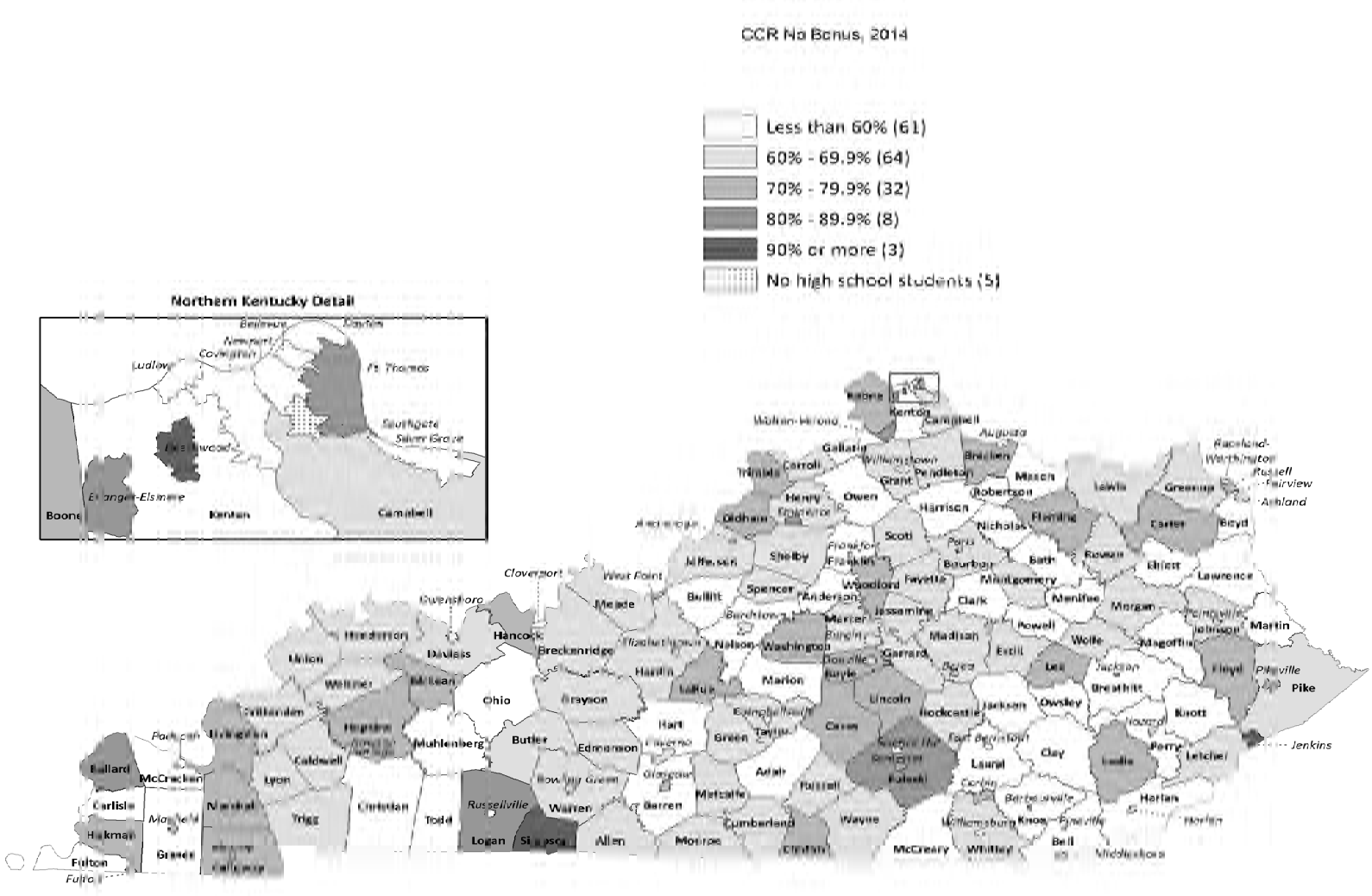
CCR By District, With And Without Bonus

The maps on the following two pages show a comparison of the percentages of students considered college and/or career ready with and without the bonus conferred for students who are both college ready and career ready. Figure D.1 shows CCR with bonus points while Figure D.2 on the facing page shows CCR without bonus points.

Figure D.1
Percentage Of Graduates Considered College And/Or Career Ready, Including Bonus For Students Who Were Both College Ready And Career Ready, FY 2014

Source: Staff analysis of data from the Kentucky Department of Education.

Figure D.2
Percentage Of Graduates Considered College And/Or Career Ready, Without Bonus For Students Who Were Both College Ready And Career Ready, FY 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Appendix E

College Readiness Met All Benchmarks On The ACT Versus Combination Of Other Indicators, By School

The figure that spans the following pages shows wide variation among Kentucky's 228 high schools in the proportion of college ready students who meet benchmarks in all three subjects on ACT tests. The figure shows school-level percentages of graduates deemed college ready in 2014. The black portion of each bar shows the percentage of graduates in a given high school who met all three of the Council on Postsecondary Education's benchmarks for the ACT (for reading, for math, and for English). The lighter portion of the bar shows the percentage deemed college ready by some other combination of indicators, such as meeting benchmarks on one or two parts of the ACT and/or showing college readiness on the Compass or KYOTE college placement tests.

Figure E.A
School-Level Percentages Of Graduates Deemed College Ready By Meeting All CPE Benchmarks On The ACT Versus A Combination Of Other Indicators, FY 2014

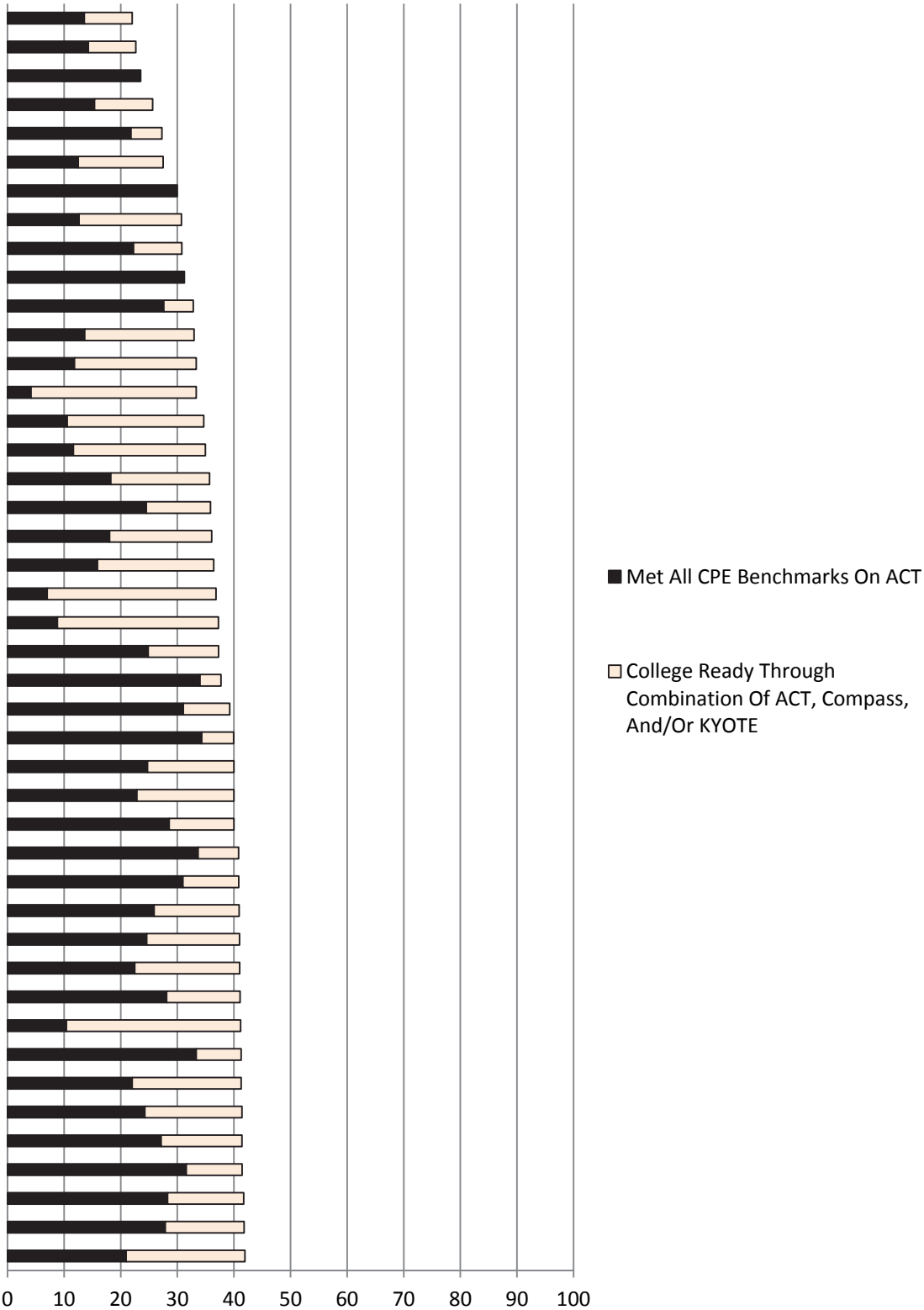


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Figure E.A (cont'd)

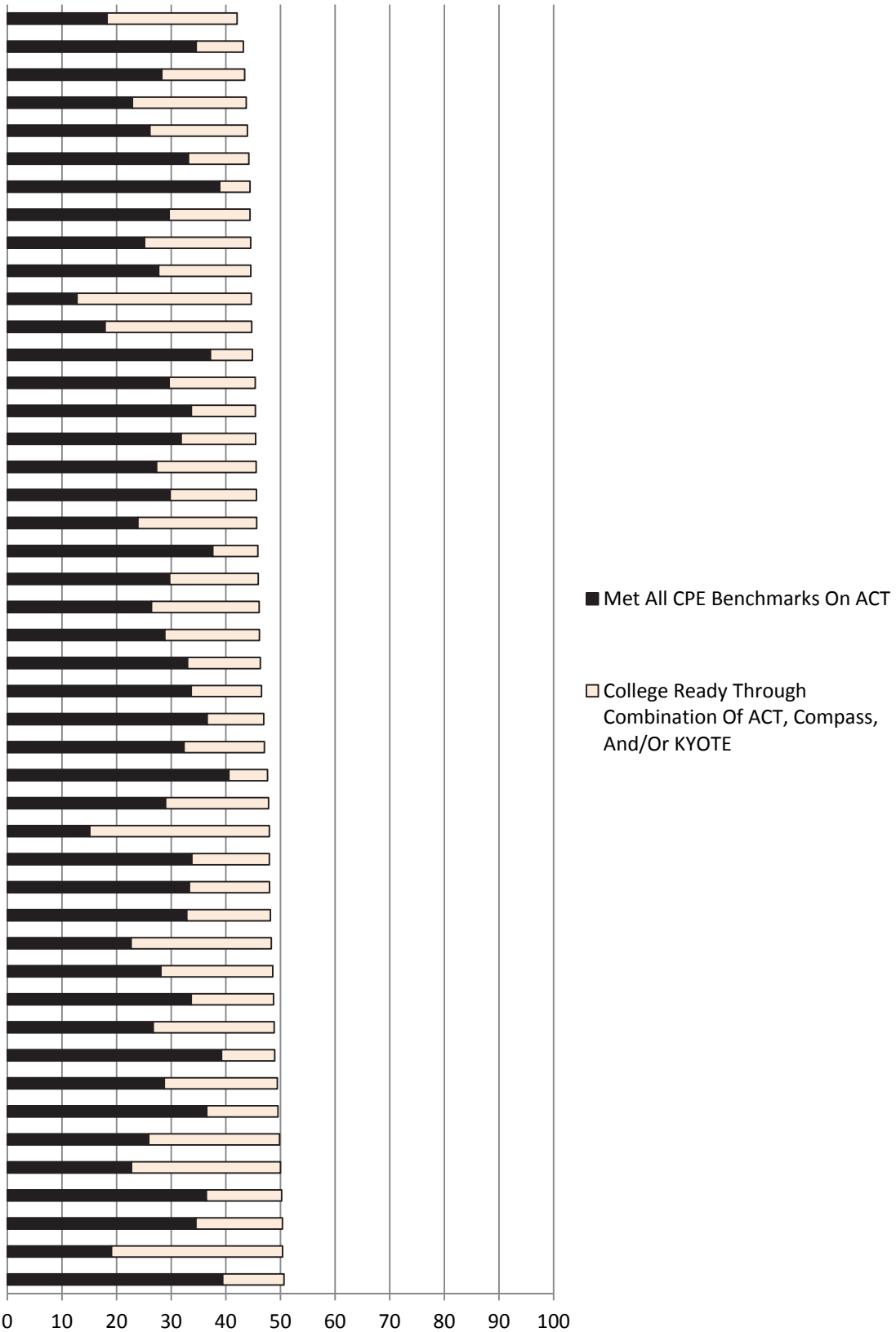

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Figure E.A (cont'd)

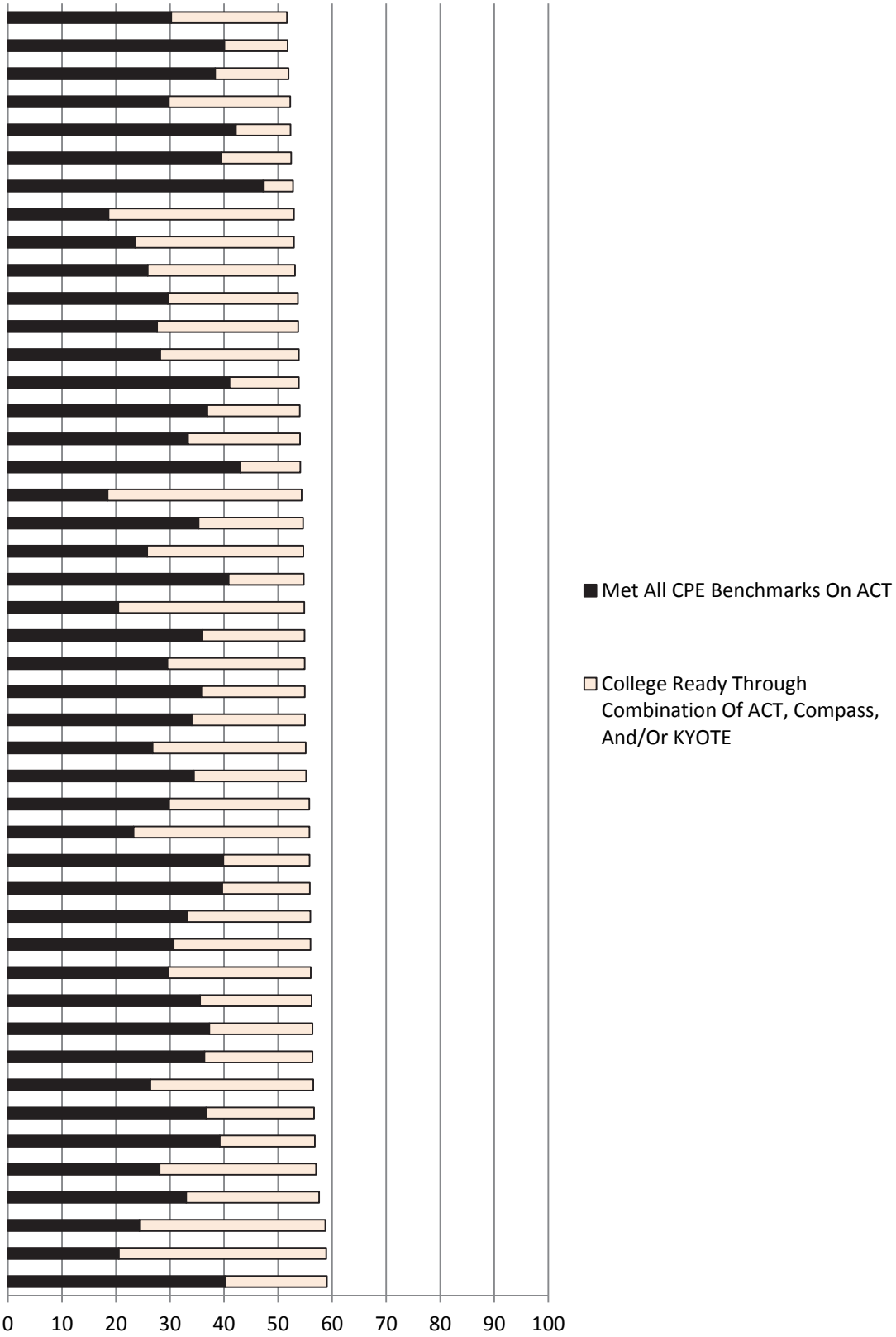

Figure continues on next page.

Figure E.A (cont'd)

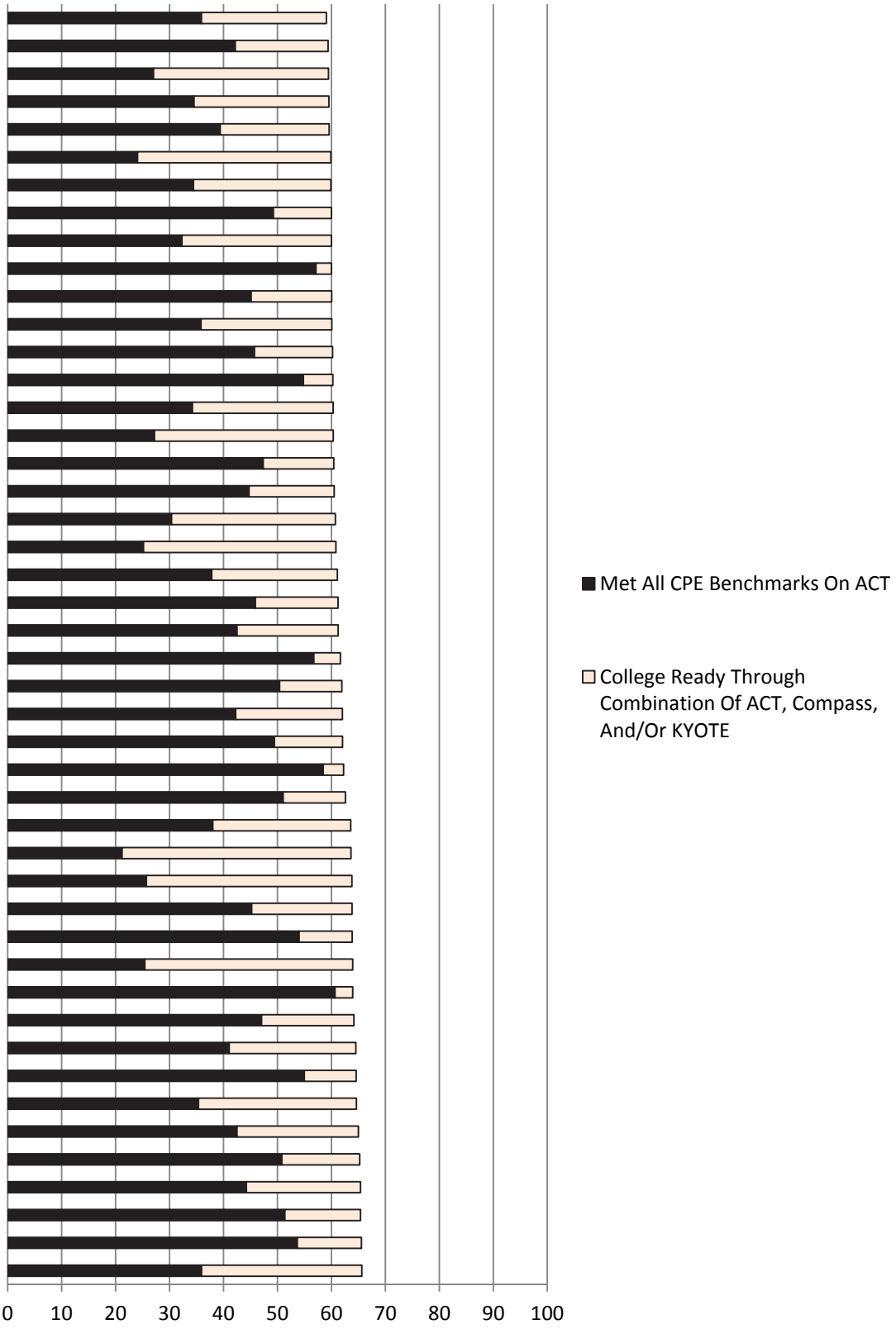

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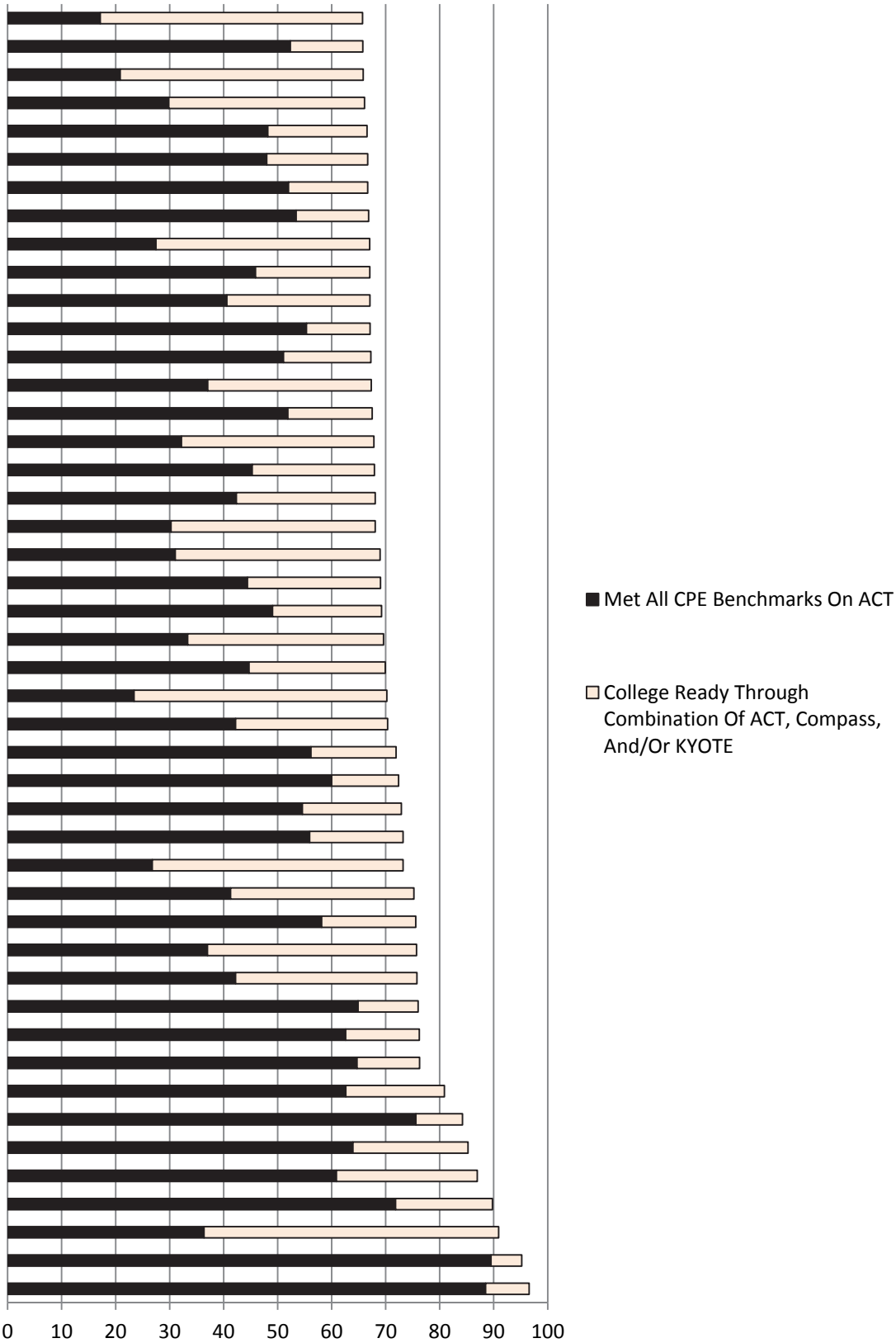
Figure E.A (cont'd)



Source: Staff analysis of data from the Kentucky Department of Education.

Appendix F

KOSSA And Industry Certificates

Figure F.1 shows the industry certificate or KOSSA test categories in which students deemed either career ready or college and career ready met technical requirements. The top 25 technical areas for 2014 are listed, beginning with the category in which the greatest number of students met requirements—state registered nursing assistant. The table compares numbers of 2014 graduates in these categories to 2012 graduates in the same categories.

Figures F.2 and F.3 separate these technical areas into those met by career-ready-only graduates (F.2) and college- and career-ready graduates (F.3) in 2014. Each table also shows the average graduate ACT scores for students meeting technical requirements in each category.

Table F.1
Career-Ready Or College- And Career-Ready Graduates
Passing KOSSA Tests And Earning Industry Certificates
By Test/Certificate Area, FY 2012, FY 2014, And Change 2012-2014

		Number Of Graduates		
Test/Certificate Area	**Test**	**2012**	**2014**	**Change 2012 To 2014**
State registered nursing assistant/Medicaid	Industry	372	1,075	703
Communications	KOSSA	379	1,065	686
Allied health	KOSSA	249	853	604
Consumer and family management	KOSSA	193	737	544
Engineering and technology*	KOSSA	141	650	509
Production livestock	KOSSA	266	627	361
Administrative support	KOSSA	143	529	386
Internet and computing core certification	Industry	21	518	497
Manufacturing	KOSSA	240	493	253
JROTC Army certificate of training	Industry	0	493	493
Culinary and food services	KOSSA	90	481	391
Marketing	KOSSA	108	444	336
Early childhood education	KOSSA	0	386	386
Business management	KOSSA	30	355	325
Transportation	KOSSA	172	340	168
Construction	KOSSA	237	307	70
Horticulture	KOSSA	133	306	173
Financial services	KOSSA	105	303	198
Ag power structured tech systems	KOSSA	61	240	179
KY Dept of Transportation certification	Industry	41	213	172
Commonwealth child care credential	Industry	49	195	146
JROTC Navy/Marine Corps certificate of training	Industry	0	180	180
NCCER—construction carpentry (Level 1)	Industry	59	167	108
ServSafe*	Industry	0	129	129
KY Early Care & Education orientation certificate	Industry	30	126	96

*Related to food safety, preparation, and regulations.
Source: Staff analysis of Kentucky Department of Education data.

Table F.2
Top 20 Technical Test Areas And Average ACT Scores
Career-Ready-Only Graduates, 2014

Test Area	Test	Number Of Graduates	Average ACT English	Average ACT Math	Average ACT Reading
State registered nursing assistant/Medicaid	Industry	353	17.0	16.7	17.7
Communications	KOSSA	201	16.4	16.4	18.1
Manufacturing	KOSSA	190	14.6	16.6	16.5
Transportation	KOSSA	181	14.0	16.3	15.7
JROTC Army certificate of training	Industry	180	15.6	16.5	16.8
Consumer and family management	KOSSA	160	17.7	16.8	18.3
Construction	KOSSA	132	15.2	16.9	17.0
KY Dept of Transportation certification	Industry	130	13.3	16.0	15.2
Production livestock	KOSSA	125	17.3	17.5	18.5
Internet and computing core certification	Industry	124	15.8	16.4	17.3
Early childhood education	KOSSA	116	16.9	16.8	17.9
Allied health	KOSSA	105	19.1	17.2	20.0
Culinary and food services	KOSSA	102	16.9	16.6	18.0
NCCER—construction carpentry (Level 1)	Industry	90	13.6	16.6	15.9
Engineering and technology*	KOSSA	80	16.7	17.6	18.8
Ag power structured tech systems	KOSSA	77	15.1	17.3	16.9
2-F American Welding Society qualification certification	Industry	72	12.4	15.9	14.7
Administrative support	KOSSA	69	16.5	17.2	18.1
Commonwealth child care credential	Industry	61	15.6	16.4	16.8
Horticulture	KOSSA	58	16.3	16.9	17.8

*Related to food safety, preparation, and regulations.
Source: Staff analysis of Kentucky Department of Education data.

Table F.3
Top 20 Technical Test Areas And Average ACT Scores
College- And Career-Ready Graduates, 2014

Technical Test Area	Test	Number Of Graduates	Average ACT English	Average ACT Math	Average ACT Reading
Communications	KOSSA	864	23.7	22.7	24.7
Allied health	KOSSA	748	24.2	22.4	24.9
State registered nursing assistant/Medicaid	Industry	722	22.1	20.6	23.0
Consumer and family management	KOSSA	577	23.3	21.3	23.9
Engineering and Technology*	KOSSA	570	24.2	24.4	25.1
Production livestock	KOSSA	502	23.0	21.9	24.1
Administrative support	KOSSA	460	23.6	22.2	24.2
Internet and computing core certification	Industry	394	23.1	21.5	23.4
Marketing	KOSSA	393	23.4	22.2	24.4
Culinary and food services	KOSSA	379	22.5	21.0	23.5
Business management	KOSSA	333	24.7	23.3	25.2
JROTC Army certificate of training	Industry	313	21.5	21.0	22.9
Manufacturing	KOSSA	303	20.6	21.1	21.9
Early childhood education	KOSSA	270	22.2	20.1	22.7
Financial services	KOSSA	265	23.8	23.1	24.7
Horticulture	KOSSA	248	23.3	22.3	24.3
Construction	KOSSA	175	20.0	20.3	21.1
Ag power structured tech systems	KOSSA	163	20.4	21.4	22.2
Transportation	KOSSA	159	19.8	19.8	20.6
JROTC Navy/Marine Corps certificate of training	Industry	139	21.6	21.4	23.2

*Related to food safety, preparation, and regulations.
Source: Staff analysis of Kentucky Department of Education data.

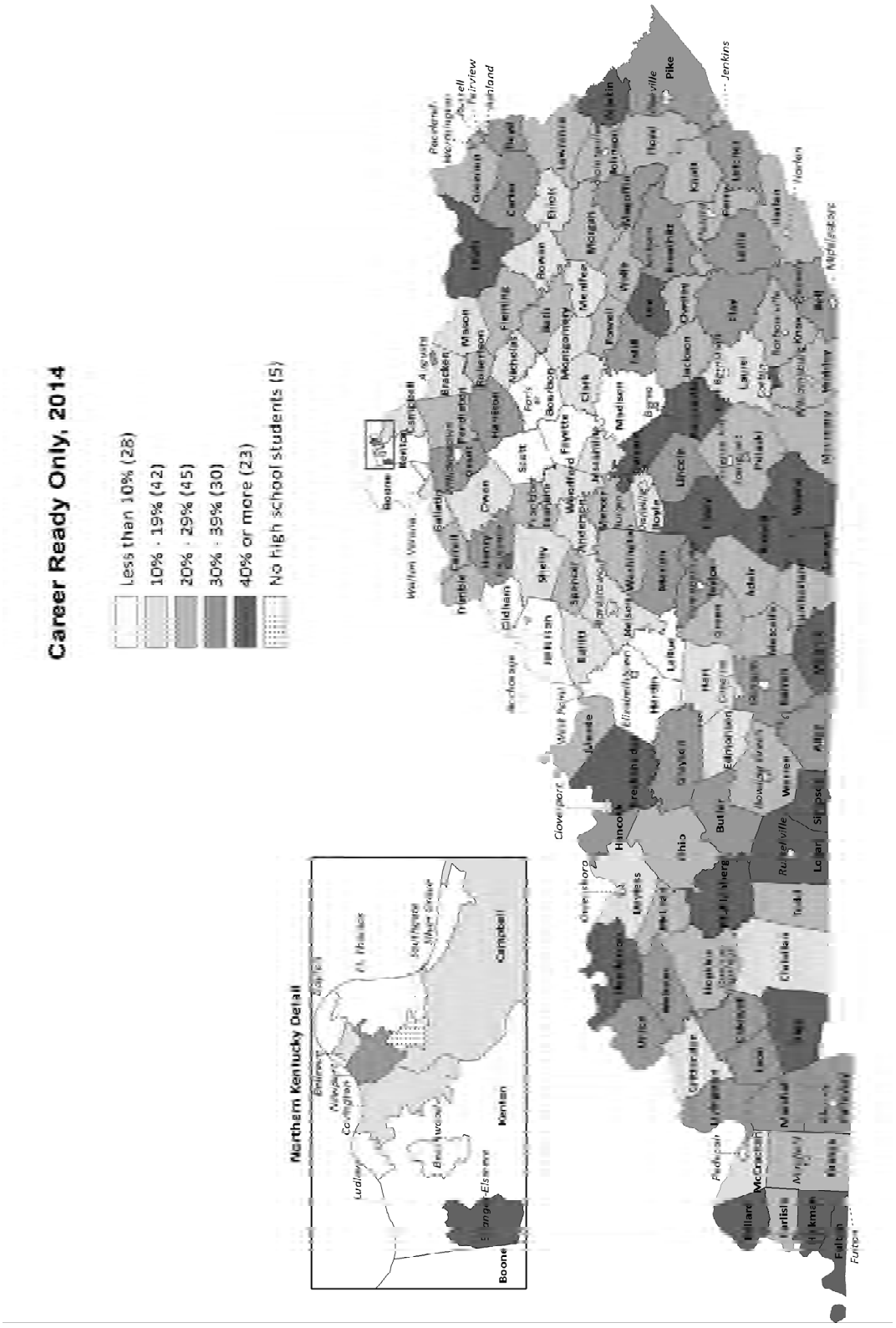
Appendix G

Career Ready By District, With And Without Broader Definition

The maps on the following two pages show a comparison of the percentages of students deemed career ready, as reported by KDE (students who are career ready only) versus a combination of students who are career ready only and students who are both college and career ready. The two mutually exclusive groups (those who are career ready only and those who are both college and career ready) are based on different academic criteria, as shown below.

Figure G.1 shows career readiness based on the career-ready-only definition, while Figure G.2 on the facing page shows career readiness using the broader definition.

Figure G.1
Percentage Of Graduates Reported By KDE As Being Career Ready, FY 2014



Source: Staff analysis of data from the Kentucky Department of Education.

Figure G.2
Percentage Of Graduates Deemed Career Ready, Including Students Who Were Both College Ready And Career Ready, FY 2014

Source: Staff analysis of data from the Kentucky Department of Education.

Endnotes

[1] Data Quality Campaign. *State Progress.* Web. Oct. 20, 2014.
[2] Adams, Caralee. "State Initiatives Widen Reach of ACT, SAT Tests." *Education Week.* Oct. 28, 2014. Web. Nov. 10, 2014.
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[9] ACT Inc. *Updating the ACT College Readiness Benchmarks.* Web. Dec. 3, 2014.
[10] Winkler, Dale. Personal communication to Deborah Nelson, March 29, 2014.
[11] The data set feature in KDE's school report card shows CCR data by school, district, and individual student group: applications.education.ky.gov/SRC/DataSets.aspx.
[12] Ibid.
[13] Koretz, Daniel, and Sheila Barron. *The Validity of Gains on the Kentucky Instructional Results Information System (KIRIS).*Santa Monica: Rand, 1998; Kentucky. Office of Education Accountability. *Test Familiarity And Performance: Comparing Scores On Kentucky Core Content Tests And Unfamiliar Tests.* Frankfort: LRC, 2013.
[14] Blackford, Linda B., and Valarie Honeycutt Spears. "Ky. orders review after questions raised about use of calculator software on statewide tests." Lexington Herald-Leader. April 5, 2014.
[15] REL Appalachia Regional Educational Laboratory. *Participation and pass rates for college preparatory transition courses in Kentucky*. Washington, DC: US Dept. of Educ., March 2014.
[16] Personal communication from Terry Holliday to Donna Hargens, July 3, 2014.
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[18] Ibid., P. 40.
[19] Ibid, P. 9.
[20] The data set feature in KDE's school report card shows CCR data by school, district, and individual student group: applications.education.ky.gov/SRC/DataSets.aspx.
[21] McGrew, Charles. *No College = Low Wages: Kentucky High School Graduates Who Do Not Attend College Face Limited Employment Opportunities And Low Wages*. Frankfort: Kentucky Center for Education And Workforce Statistics, 2014.