POLICY BRIEF

The Uneven Promise of Readiness: Which College and Career Readiness Indicators Actually Predict Success After High School?

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Overview

Texas uses the College, Career, and Military Readiness (CCMR) framework to assess whether high school students are prepared for life after graduation, and these measures are directly tied to school accountability and district funding. Although students can meet CCMR in many ways, the state accountability system assigns equal weight to all CCMR indicators, implicitly treating them as equally predictive of students' postsecondary success. We examined statewide data for nearly 1 million Texas high school students across eight graduating cohorts from 2015-16 to 2022-23. By linking K–12 records to postsecondary enrollment, attainment, and workforce data, we show that some CCMR indicators link to meaningful postsecondary and workforce trajectories, while others provide a false signal of readiness that does not translate into postsecondary success.

Highlights

1. **Students who earn a credential in high school are the most successful after graduation, earning 15-20% more in the workforce.**
2. **Dual credit is the most predictive course-based, CCMR indicator of positive college outcomes.**
3. **Strong performance on SAT, ACT, and TSIA exams links to strong four-year degree pathways and completion.**
4. **Rural students who achieve these CCMR indicators also see the same large boost in college success.**

Figure 1. CCMR Indicators and Differences in Likelihood of Degree Completion
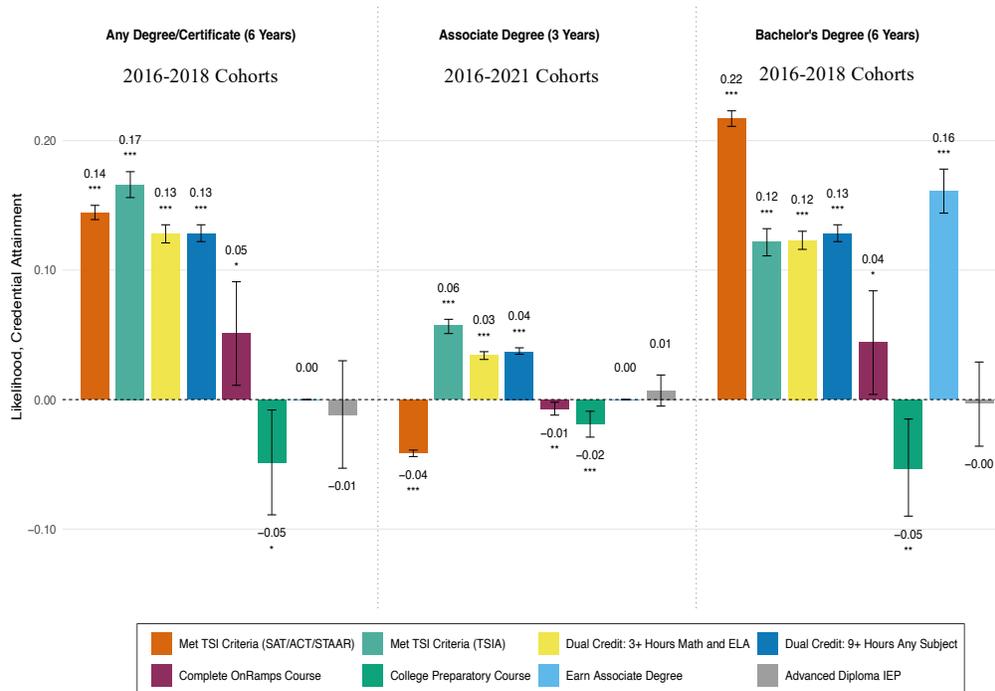
Key Findings

1. **Students who earn an associate's degree or Level I or II certificates in high school are the most successful after graduation.**
   Students earning an associate's degree show the strongest postsecondary and workforce trajectories. They are much more likely to persist after initial enrollment and earn a bachelor's degree (Figure 1). Students completing an associate's degree or Level I or II certificate in high school also exhibited the highest wages among all students (Figure 2). Just six years after high school, these students earn about $5,000 a year more than non-CCMR students, which is a 15-20% difference in wages.
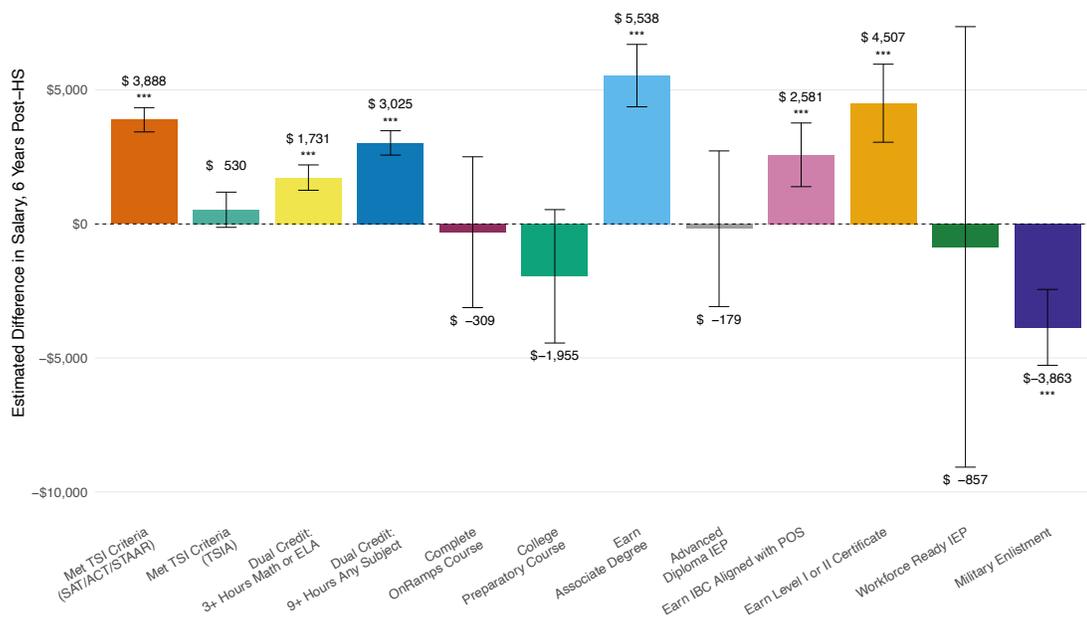
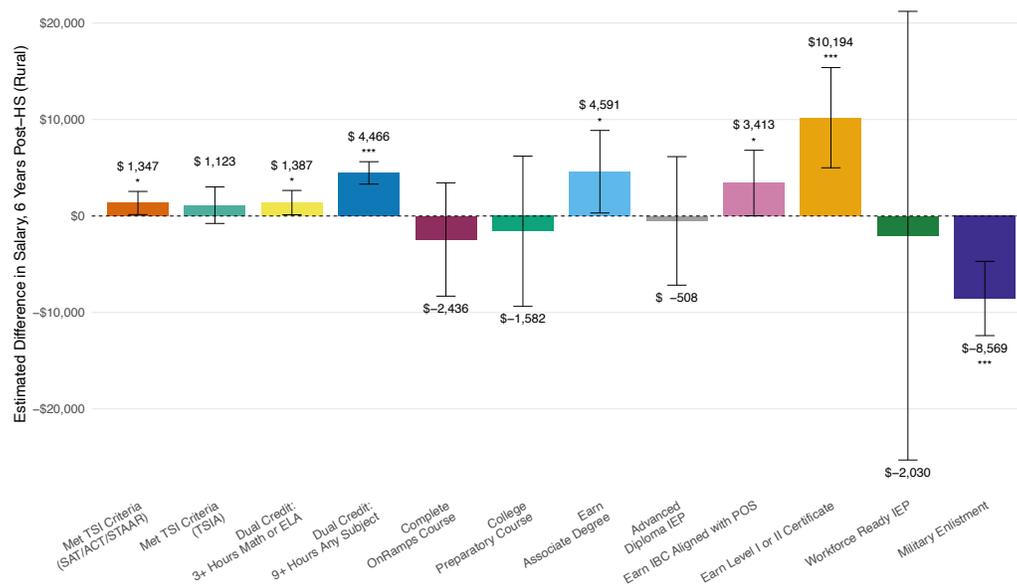2. **Dual credit is the most predictive course-based indicator of college outcomes.**
   Students earning CCMR through dual credit exhibit much stronger postsecondary pathways compared to students who met CCMR standards through other coursework. Dual credit students are 7 to 8 percentage points more likely to persist in college and 13 percentage points more likely to earn a postsecondary credential (Figure 1) compared to non-CCMR students. In contrast, students earning CCMR through college preparatory coursework are actually much less likely to persist and earn a credential compared to students not meeting any CCMR indicator.

3. **Strong performance on SAT, ACT, and TSIA exams links to strong four-year degree pathways and completion.**
   Meeting CCMR through SAT, ACT, or TSI benchmarks strongly predicts enrollment in four-year colleges and higher rates of bachelor's degree completion. Unsurprisingly, SAT/ACT indicator stands out as the most strongly tied indicator to bachelor's degree attainment (Figure 1). The assessment-based indicators are also linked to higher persistence and wages in the workforce (Figure 2).

Figure 2. CCMR Indicators and Differences in Predicted Salary Six-Years After High School

Figure 3. CCMR Indicators and Differences in Salary for Rural Students

Figure 3. CCMR Indicators and Differences in Salary for Rural Students. Y-axis: Estimated Difference in Salary, 6 Years Post-HS (Rural). Values by indicator: Met TSI Criteria (SAT/ACT/STAAR) $1,347 *; Met TSI Criteria (TSIA) $1,123; Dual Credit: 3+ Hours Math or ELA $1,387; Dual Credit: 9+ Hours Any Subject $4,466 ***; Complete OnRamps Course $-2,436; College Preparatory Course $-1,582; Earn Associate Degree $4,591 *; Advanced Diploma IEP $-508; Earn IBC Aligned with POS $3,413 *; Earn Level I or II Certificate $10,194 ***; Workforce Ready IEP $-2,030; Military Enlistment $-8,569 ***.

4. **Rural students who meet these positive indicators see a large boost in college and the workforce.**
   For students graduating from rural high schools, meeting the CCMR indicators discussed above corresponds to the same gains in college enrollment, persistence, degree completion, and workforce earnings compared to the rest of the state. In fact across all of our analyses, the most impactful CCMR measure was earning a Level I or II certificate in high school for rural students. As shown in Figure 3, rural students earning a Level I or II can expect to earn more than $10,000 annually just six years after high school, a gain that which we expect will exponentially increase as students continue in the workforce.

Implications and Recommendations

1. Drive School District Success and Outcome Metrics Towards CCMR Indicators that are Tied to Material Student Success

Currently, the CCMR framework defines college and career readiness with large buckets of indicators that are not all equal in terms of their individual likelihood to lead students to success beyond high school. This shapes how districts meet accountability standards and earn state funding. The likelihood of some indicators pointing toward success in comparison to others should be reflected in how the indicators contribute to accountability ratings and funding. Policymakers and stakeholders should realign CCMR accountability and funding rules so that they reward indicators that most reliably lead to positive postsecondary and workforce outcomes.

2. Leverage CCMR to Strengthen Student Pathways and Advising Decisions

Because course-based CCMR indicators reflect choices made by students and parents, counselors, and schools, how these pathways are differentiated within the CCMR framework warrants special attention. Stronger incentives for high-impact options, such as credential attainment and dual credit, can influence course offerings, advising practices, and student

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enrollment decisions in ways that improve long-term college and career outcomes. Assessment-based indicators should remain part of CCMR, but they primarily capture existing academic preparation and are less responsive to policy incentives. In revising the CCMR framework, stakeholders should place a greater emphasis on dual credit pathways among the course-based indicators.

3. Evaluate CCMR Indicators Based on Postsecondary Completion and Wage Outcomes
Most CCMR indicators successfully predict college enrollment, but enrollment alone is an incomplete measure of readiness. Texas should routinely evaluate CCMR indicators against longer-term outcomes, including college persistence, credential completion, and early workforce earnings, to identify which pathways support sustained success after high school. Indicators that consistently lead students into college but fail to support progress toward a degree should be flagged for redesign or reconsideration within the CCMR framework. Absent this shift, the system may inadvertently reward activities that satisfy accountability requirements while failing to honor the state's commitment to preparing students for life after high school.

Strengthening College and Workforce Pathways: Research on CCMR

This brief is part of a coordinated set of studies examining how Texas's College, Career, and Military Readiness (CCMR) framework operates in practice and how current accountability rules shape district behavior, student pathways, and postsecondary outcomes. Each brief draws on the same statewide longitudinal data, cohorts, and empirical approach to assess whether CCMR indicators function as valid signals of readiness for college, careers, and long-term economic success. Taken together, these briefs are intended to inform ongoing discussions about CCMR accountability design, indicator weighting, and alignment between high school incentives and postsecondary and workforce outcomes.

Related Briefs
- Kirksey, J. J., Freeman, J. A., Edwards, W., Holzman, B., & Lee, H. B. (2026). The Uneven Promise of Readiness: Which College and Career Readiness Indicators Actually Predict Success After High School? Texas Tech University. Center for Innovative Research in Change, Leadership, and Education. https://hdl.handle.net/2346/104820
- Kirksey, J. J., Freeman, J. A., Edwards, W., Holzman, B., & Lee, H. B. (2026). Aligning Incentives with Opportunity in College and Career Readiness Across Rural Texas. Texas Tech University. Center for Innovative Research in Change, Leadership, and Education. https://hdl.handle.net/2346/104881
- Freeman, J. A., Kirksey, J. J., Edwards, W., Holzman, B., & Lee, H. B. (2026). The Value of Earning Credentials in High School for Texas Graduates Entering the Workforce. Texas Tech University. Center for Innovative Research in Change, Leadership, and Education. https://hdl.handle.net/2346/104882
- Freeman, J. A., Kirksey, J. J., Edwards, W., Holzman, B., & Lee, H. B. (2026). Beyond the Threshold: What Dual Credit Benchmarks Signal About College Readiness in Texas. Texas Tech University. Center for Innovative Research in Change, Leadership, and Education. https://hdl.handle.net/2346/104880

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- Kirksey, J. J. (2025). Evaluating Course-Based CCMR Indicators: Which Pathways Signal True Readiness? Texas Tech University. Center for Innovative Research in Change, Leadership, and Education. https://hdl.handle.net/2346/102377

Researcher Bios

J. Jacob Kirksey, Ph.D., is an associate professor in the College of Education and associate director of the Center for Innovative Research in Change, Leadership, and Education at Texas Tech University. His research is broadly focused on issues at the nexus of education and other areas of public policy, which student well-being, college and career readiness, and the educator workforce. Contact: Jacob.Kirksey@ttu.edu

Jennifer Freeman, Ph.D., is an assistant professor in the College of Education at Texas Tech University. Her research focuses on the connections between high school, higher education, and the workforce, with particular attention to students navigating nontraditional pathways.

Wesley Edwards, Ph.D., is an assistant professor of Educational Leadership in the Department of Teacher Education and Administration at the University of North Texas. His research interests include teacher and school leader career trajectories, school organizational work environments, and the politics and policy of educational leadership.

Brian Holzman, Ph.D., is an assistant professor in the Department of Educational Administration and Human Resource Development at Texas A&M University. His research examines the pathway from middle school to and through college, paying particular attention to structural barriers among students from marginalized backgrounds.

Han Bum Lee, Ph.D., is an assistant professor of research at the Department of Educational Psychology and Associate Director of UT San Antonio's Urban Education Institute. Dr. Lee has research interests in understanding and evaluating the effectiveness of public policy and innovative experimental programs implemented to improve human capital, labor productivity, and economic self-sufficiency.

Acknowledgement

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Additional Findings

College Enrollment

Figure A1 shows the relationship between the CCMR indicators and direct-to-college overall as well as for two- and four-year institutions. The data show that most CCMR indicators predict higher enrollment in college, although to varying degrees. The assessment-based indicators (SAT/ACT and TSIA) are the most predictive of enrollment in four-year colleges, followed by earning an associate's degree in high school and the dual credit thresholds.

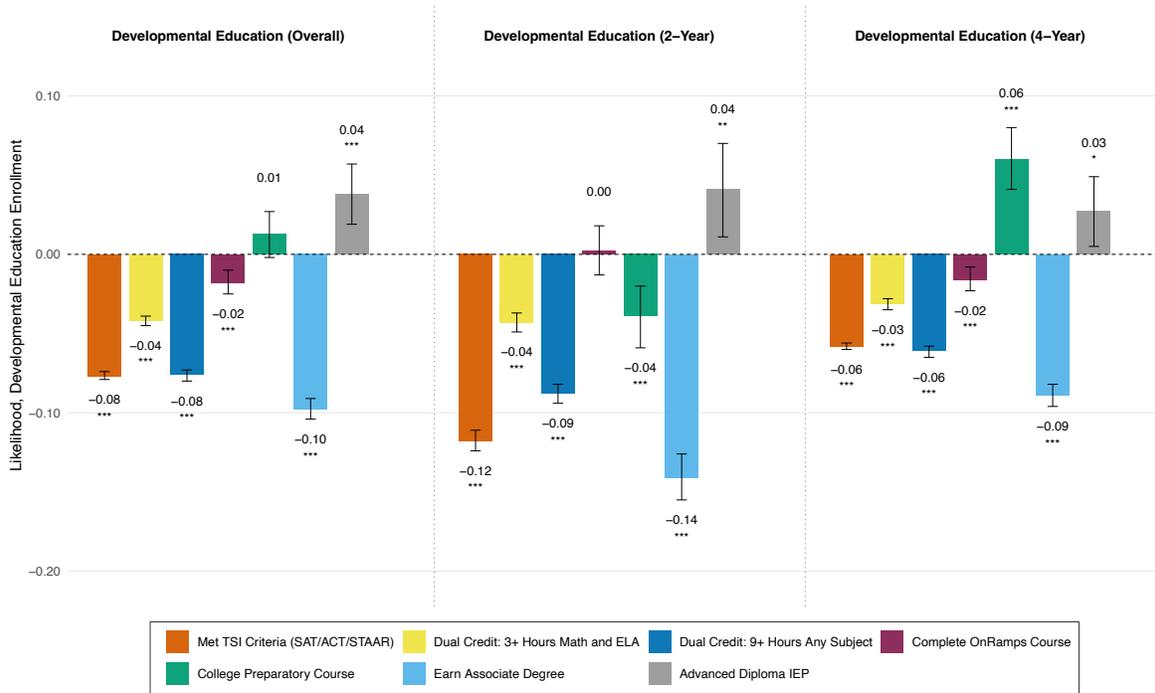**Figure A1. CCMR Indicators and Differences in Likelihood of College Enrollment**
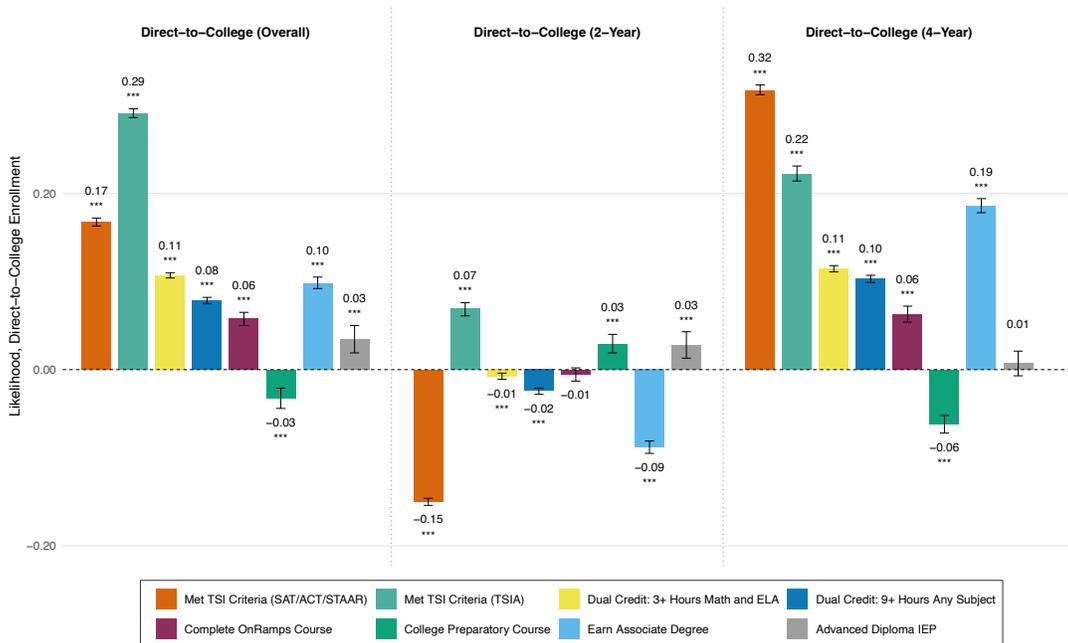
Enrollment in Developmental Education and Persistence

Figure A2 shows the relationship between the CCMR indicators and the likelihood of having to enroll in developmental education, a non-credit course requirement for students not considered ready to complete college-level coursework. Again, we find that the same indicators that appear to drive student success in degree completion and eventual wages correspond with a lower likelihood of needing to complete developmental coursework. In fact, an increasingly common measure of CCMR – completing college preparatory coursework in ELA and math – appears to increase the likelihood that students will need to complete developmental education for those enrolling in four-year institutions.

The same is true when looking at students' likelihood of persisting in college beyond their first year of enrollment. Shown in Figure A3, nearly all indicators correspond to some level of higher persistence, but at drastically different levels. The boost in persistence is largest for students meeting assessment benchmarks through SAT/ACT and obtaining an associate's degree in high school. These indicators are in stark contrast to what we observe when students complete college preparatory courses. These students are less likely to persist than students meeting no CCMR measure. This aligns with our aforementioned takeaway that

some indicators may be setting students up for failure, as they marginally increase their likelihood of going to college but negatively contribute to their overall trajectory.

Figure A2. CCMR Indicators and Differences in Likelihood of Enrollment in Developmental Education

Figure A3. CCMR Indicators and Differences in Likelihood of College Persistence
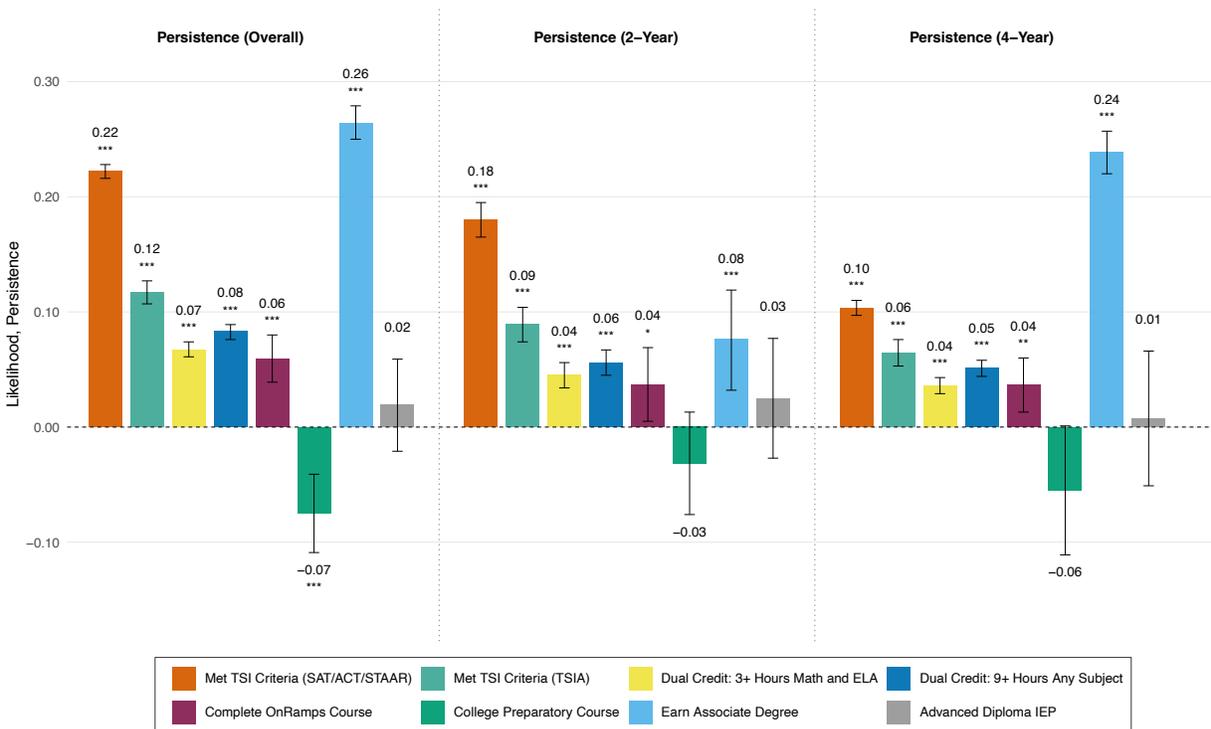
Self-Sustaining and Family-Sustaining Wages

Figure A4 shows estimated percentage-point differences in the likelihood of meeting sustaining wage thresholds, relative to students who met no CCMR criteria. By far, students obtaining a postsecondary credential in high school–associate's degrees and level I/II certificates–are the most likely to obtain a self- and family-sustaining wage six years after they graduate high school. The same indicators that correspond to the other positive outcomes examined in this study also increase the likelihood of meeting these thresholds.

Figure A4. CCMR Indicators and Differences in Likelihood of Obtaining a Self- and Family-Sustaining Wage Six Years After High School

Methodology

This section describes the data, sample, variables, and empirical approach used across all analyses presented in our on CCMR published in Spring 2026.

Data and Sample

This analysis uses administrative data from the University of Houston Education Research Center (UH ERC), which houses the Texas P-20W data system. Using data from the Texas Education Agency (TEA), the Texas Higher Education Coordinating Board (THECB), the National Student Clearinghouse (NSC), and the Texas Workforce Commission (TWC), we link Texas public school students from K–12 to postsecondary enrollment and workforce outcomes. The analytic sample includes students who graduated on time from Texas public high schools between 2016 and 2023. Some analyses use all cohorts, while others exclude later cohorts that do not have sufficient postsecondary or labor market follow-up time.

CCMR Indicators

We examine eight indicators that signify <u>college readiness</u> under Texas' CCMR framework:

1. **Met TSI Criteria (SAT/ACT/STAAR):** Met Texas Success Initiative (TSI) college readiness benchmarks via SAT, ACT, or STAAR End-of-Course exams[1]
2. **Met TSI Criteria (TSIA):** Met TSI benchmarks via the TSI Assessment exam
3. **Dual Credit: 3+ Hours Math and ELA:** Completed at least 3 dual credit hours in mathematics or 3 dual credit hours in English/Language Arts
4. **Dual Credit: 9+ Hours Any Subject:** Completed 9 or more dual credit hours in any subject
5. **Complete OnRamps Course:** Completed at least one OnRamps course
6. **College Preparatory Course:** Completed college preparatory courses in both English and mathematics
7. **Earn Associate Degree:** Earned an associate's degree while in high school
8. **Advanced Diploma IEP:** Special education students with an Individualized Education Program (IEP) who earned an advanced/distinguished high school diploma

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[1] Benchmarks for meeting college readiness under the TSI changed during the study period, including updates to the TSI Assessment (TSIA) in 2021 and revisions to SAT and ACT exemption criteria in 2023. Students may demonstrate readiness in mathematics and English language arts/reading (ELAR) through performance on any of the following assessments.

TSIA and TSIA2: Before January 2021, students met TSI benchmarks with minimum scores in math (350), reading (351), and writing (340 on multiple choice with an essay score of 4–8, or slightly lower scores paired with higher diagnostic levels). After January 2021, the TSIA2 established updated thresholds of math (950, or slightly lower with a diagnostic level of 6) and ELAR (minimum score of 945 with an essay score of 5 or higher, or slightly lower with higher diagnostic performance).
SAT: Students met TSI readiness benchmarks with a minimum score of 530 in mathematics and 480 in Evidence-Based Reading and Writing on SAT exams administered since 2016.
ACT: Before February 2023, students met TSI benchmarks with a composite score of 23 and minimum scores of 19 in both math and English. After February 2023, the updated benchmarks required a minimum score of 22 in math and a combined English and Reading score of 40.
STAAR End-of-Course Exams: Students who met Meets Grade Level standards on both Algebra I and English II End-of-Course exams also satisfied TSI college readiness criteria.

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For workforce outcomes, we additionally examine four indicators that signify <u>workforce readiness</u> under Texas' CCMR framework:

- **Earn Level I or II Certificate:** Earned a Level I or Level II certificate in high school
- **Earn IBC Aligned with POS:** Earned an Industry-Based Certification aligned with the student's career program of study
- **Workforce Ready IEP:** Special education students with an IEP who earned a workforce-ready diploma
- **Military Enlistment:** Enlisted in the military following high school graduation

Comparing Effects Between CCMR Indicators

We did not create mutually exclusive groups for the CCMR indicators, meaning a single student could meet multiple benchmarks (for example, earning dual credit hours while also meeting TSI criteria). Each estimated effect therefore represents the independent association between that indicator and the outcome, controlling for whether students also met other indicators. This approach reflects how readiness works in practice—students often demonstrate readiness in multiple ways—while allowing us to isolate the unique contribution of each indicator to college, workforce, and wage outcomes. Findings should be interpreted as the marginal effect of each readiness measure, rather than as outcomes for students who met that indicator alone.

Outcomes

College Outcomes:

- **Direct-to-College Enrollment (DTC):** Enrollment in any postsecondary institution within one year of high school graduation, reported both overall and separately for two-year and four-year colleges.
- **Enrollment in Developmental Education:** Enrollment in at least one developmental or remedial course during the first year of college, reported both overall and separately for two-year and four-year institutions.
- **Year 1 Persistence (Full-Time Enrollment):** Continuous full-time enrollment or degree completion after initial enrollment, reported both overall and separately for two-year and four-year institutions.
- **Earned Any Degree or Certificate (Within 6 Years):** Completion of any postsecondary credential within six years of high school graduation, including Level I and Level II certificates, associate degrees, and bachelor's degrees.
- **Earned Associate Degree (Within 3 Years):** Completion of an associate degree within three years of high school graduation.
- **Earned Bachelor's Degree (Within 6 Years):** Completion of a bachelor's degree within six years of high school graduation.

Workforce Outcomes (for all graduates):

- **Log Real Annual Earnings (6 Years Post-Graduation):** The natural log of students' annual wages six years after high school graduation, allowing wage differences to be expressed in percentage terms. All earnings are adjusted to 2024 dollars using the Consumer Price Index (CPI).
- **Real Annual Earnings (6 Years Post-Graduation):** Students' average annual wages, measured six years after high school graduation and expressed in inflation-adjusted 2024 dollars using the CPI.

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- **Met Self-Sustaining Wage Threshold (6 Years Post-Graduation):** Indicates whether a student's annual earnings met or exceeded the self-sustaining wage level defined by TWC for their county of residence in 2024. This threshold reflects the income required for an individual adult to meet basic living expenses without public or private assistance.
- **Met Family-Sustaining Wage Threshold (6 Years Post-Graduation):** Indicates whether a student's annual earnings met or exceeded the family-sustaining wage level defined by TWC for their county of residence in 2024. This threshold represents the income required to support one adult and one child without public or private assistance.

Sample Definition: The analyses for non-college goers are limited to high school graduates who did not enroll in a two-year or four-year college within five years of graduation and did not enlist in the military. This restriction allows us to isolate workforce outcomes among students whose primary postsecondary pathway was direct entry into the labor market.

Control Variables
All models include student-level characteristics measured prior to high school, capturing differences in demographic background and academic preparation before students met any CCMR indicators. These variables include:

- **Gender:** Female (male as the reference category)
- **Race/Ethnicity:** Asian, Black/African American, Hispanic/Latino, and Other (White as the reference category)
- **Special Education Status:** Student who received special education and related services in 8th grade
- **Emergent Bilingual Status:** Designated as an Emergent Bilingual student in 8th grade
- **Gifted and Talented Status:** Identified as gifted and talented in 8th grade
- **8th Grade Mathematics STAAR Scale Score (Standardized):** Standardized scale score from the State of Texas Assessments of Academic Readiness (STAAR) mathematics exam
- **8th Grade Reading STAAR Scale Score (Standardized):** Standardized scale score from the STAAR reading exam
- **Algebra I Completion by 8th Grade:** Indicates whether the student completed Algebra I prior to entering high school

Empirical Approach
We estimate the associations between CCMR indicators and postsecondary and workforce outcomes using linear probability models that include school-by-cohort fixed effects. The general specification is:

$$Y_{ijc} = \beta_1 CCMR_{ijc} + \beta_2 X_{ijc} + \alpha_{jc} + \varepsilon_{ijc}$$

where *Y* represents the outcome of interest for student *i* in school *j* in graduation cohort *c*. *CCMR* is a vector of binary indicators capturing whether each student met specific college and career readiness benchmarks. *X* includes the set of control variables described previously. *α* represents school-by-cohort fixed effects, which absorb all observed and unobserved differences across schools and graduation cohorts. Standard errors are clustered

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at the school-by-cohort level to account for correlated outcomes among students attending the same school in the same year.

Fixed Effects

School-by-cohort fixed effects account for all time-invariant differences across schools and graduation cohorts, including factors such as school quality, resources, geographic location, and cohort-specific characteristics. This approach isolates the within-school, within-cohort relationship between CCMR indicators and student outcomes, meaning that comparisons are made among students who attended the same school and graduated in the same year.

Sample Sizes

Sample sizes vary across models depending on data availability and cohort restrictions.

- **DTC Enrollment Models**: Approximately 2.3 million students.
- **Developmental Education Models:** Between 600,000 and 1.4 million students (restricted to DTC enrollees)
- **Persistence Models**: Between 270,000 and 575,000 students (restricted to full-time DTC enrollees with adequate follow-up).
- **Degree Completion Models:** Between 800,000 and 1.6 million students (restricted to cohorts with sufficient time to observe degree attainment).
- **Workforce Outcome Models:** Approximately 575,000 students (2016–2018 graduates).