Postsecondary Pursuits

Pathways Research Collaborative

CONNECT VIRTUAL

May 21, 2026

LONESTARP3

Research Collaborative

Gabriela Sánchez-Soto, Ph.D.

Senior Researcher
HERC, Kinder Institute, Rice University

Jennifer Freeman, Ph.D.

Assistant Professor
Texas Tech University

Mauricio Molina, Ph.D.

Senior Research Analyst, HERC, Kinder Institute, Rice University

Stacey Hood, M.S.

Research Analyst
HERC, Kinder Institute, Rice University

Erin Baumgartner, Ph.D.

Director
HERC, Kinder Institute, Rice University

HERC → Houston Education Research Consortium

Context

- Texas Legislative Session Timeline
  - Interim Charges released March 2026
  - Pre-filing of bills begins November 9, 2026
  - 90th Texas Legislative Session begins January 12, 2027

- Research Collaboratives Timeline
  - White Papers submitted to LONESTA**RP3** August 2026
  - Translation Products produced September 2026
  - Public release at Success Summit December 2026

LONESTARP3

Overview of Research

Postsecondary Pursuits

LONESTARP3

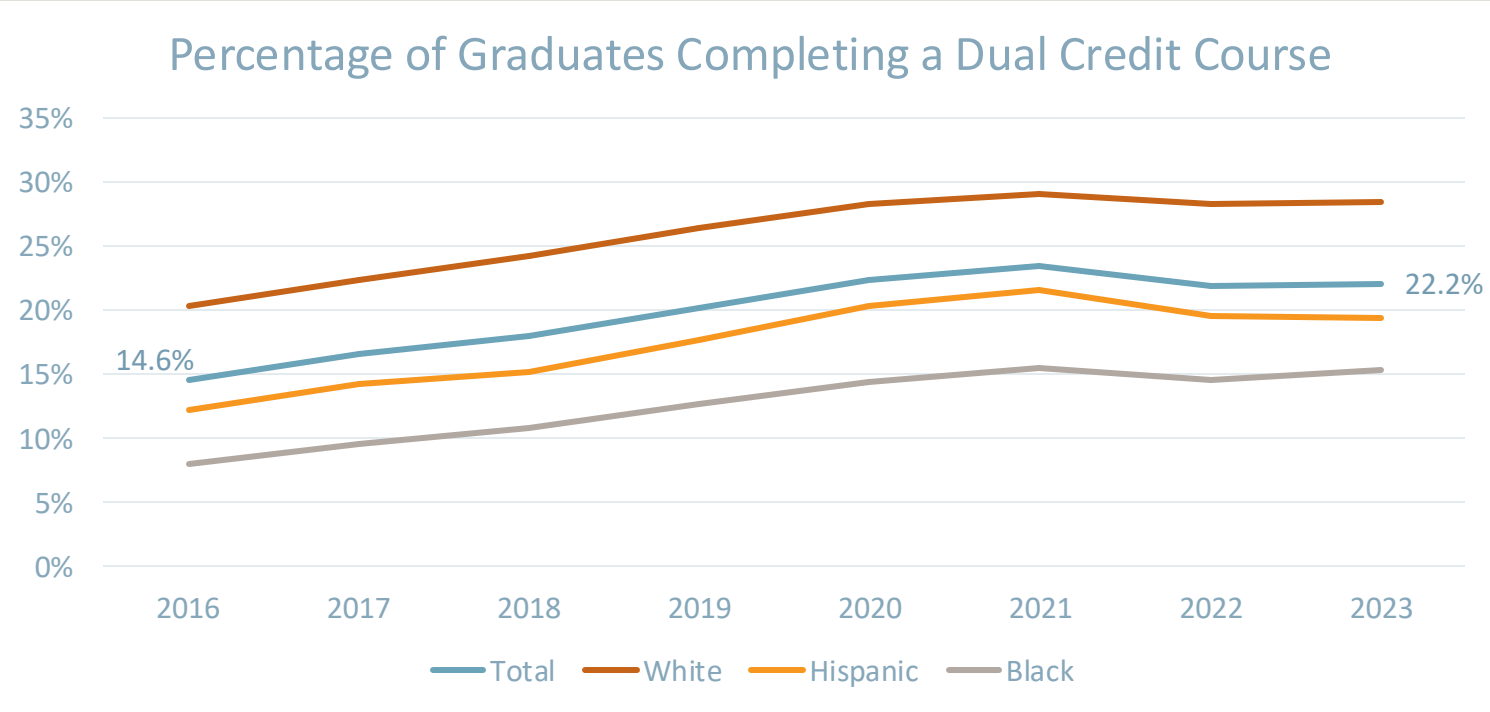
Research Questions and Relevance

- To what extent do Texas high school graduates attain CCR accountability standards?
- What distinct CCR profiles can be identified among Texas high school students based on their academic and career preparation experiences?
- How well do different readiness signals (CCR indicators and beyond) predict students' paths after high school?

Why is this research question important to Texas?

- *CCMR indicators are directly connected to how Texas rates schools and districts, how much funding those schools and districts receive, and how policymakers learn and respond with changes to the accountability system. Understanding which measures are showing high participation from graduates over this past decade, and which type of graduates, can influence policy decisions in upcoming legislative sessions.*

Initial Findings: Descriptive Analysis

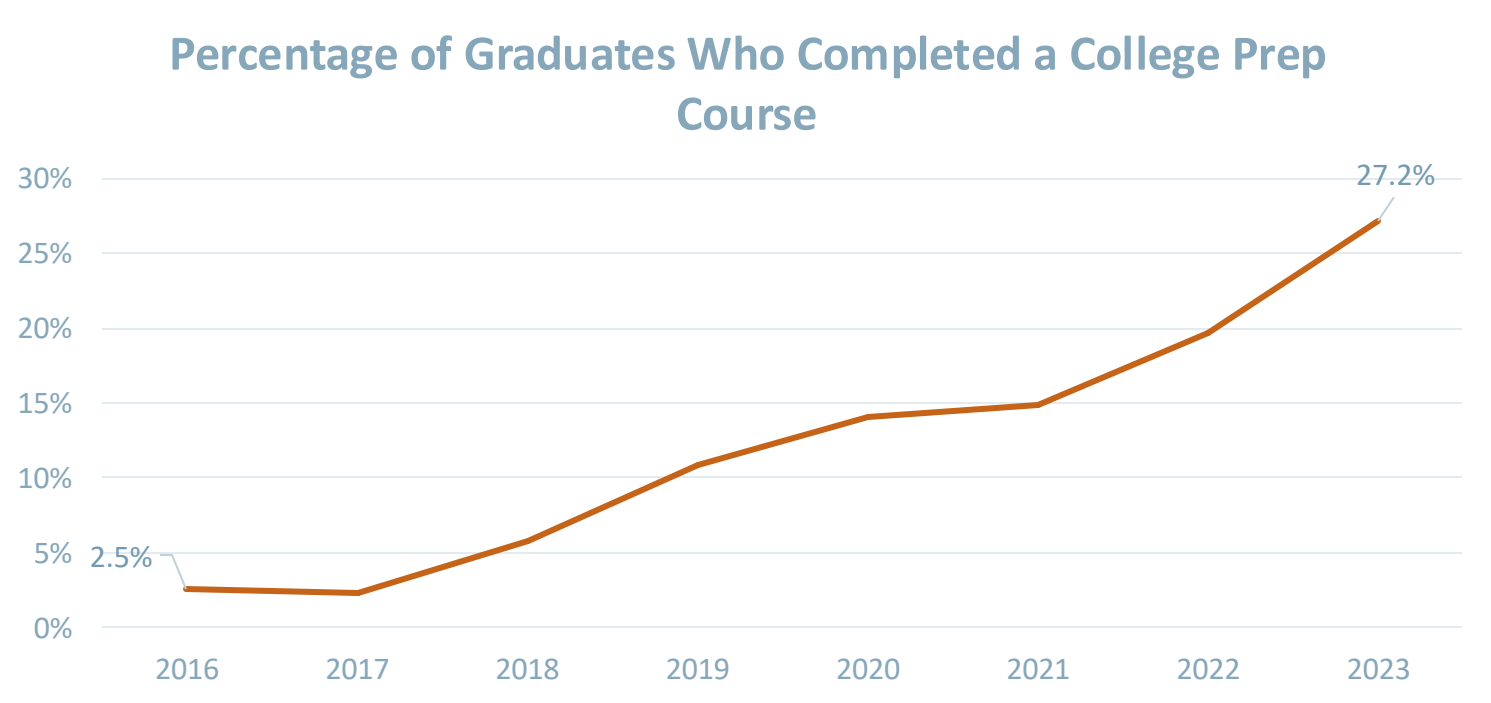


- Dual credit grew from 14.6% to 22.2%
- Rates differed by race/ethnicity, with White graduates outpacing Hispanic and Black graduates.

LONESTARP3

Initial Findings: Descriptive Analysis

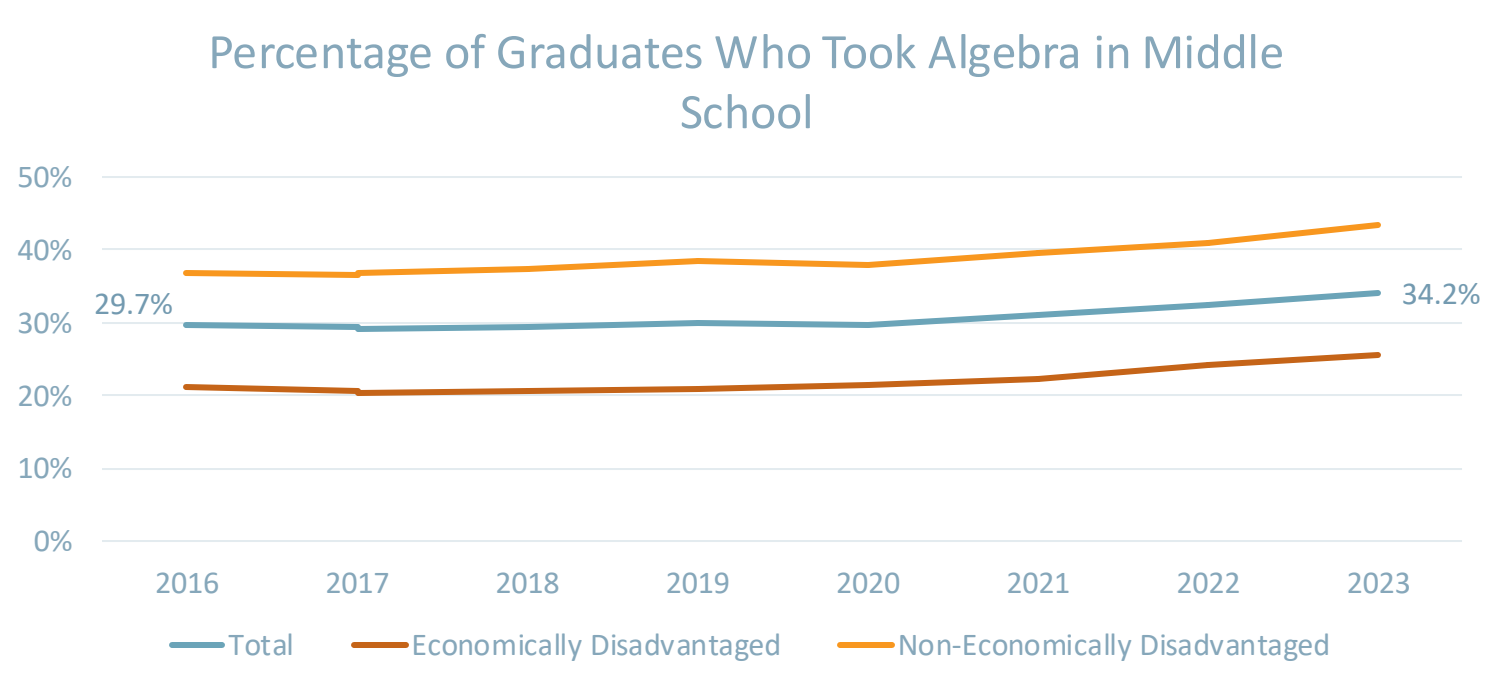
- College Prep courses went from 2.5% to 27.2%, but recent research has found college prep courses do not predict stronger college persistence or credential completion



LONESTARP3

Initial Findings: Descriptive Analysis

- Taking algebra in middle school grew modestly, from 29.7% to 34.2%, but the wide gap between economically disadvantaged and non-economically disadvantaged graduates remained



LONESTARP3

Initial Findings: Latent Profiles

- Latent Profile Analysis conducted for students who graduated in 2023 using the following indicators:
  - AP course completion
  - Dual Credit course completion
  - Associate degree attainment in high school
  - Algebra completed in middle school
  - Attainment of IBC aligned with Program of Study completion
  - JROTC course completion
  - FAFSA completion
  - SAT/ACT threshold achieved

- Preliminary analysis is showing **three or four college and career readiness profiles**
- Most differentiating indicators:
  - AP course completion
  - College prep course completion
  - Dual credit course completion
  - Associate degree attainment in high school

LONESTARP3

From Profiles to Predictions

Using machine learning to examine postsecondary pathways and outcomes among Texas graduates

We are using random forest to examine which student experiences are most predictive of postsecondary pathways and outcomes across Texas.

With many possible predictors of postsecondary success, this approach helps identify which experiences appear most connected to enrollment, persistence, and completion patterns among Texas graduates.

Today's focus: What predicts whether, and where, students enroll directly after high school?

What random forest modeling does

Builds hundreds of decision trees, each fit on a random subsets of the data. The trees vote on a prediction.

Ranks variables by how much they improve prediction, which is useful when relationships are non-linear or variables interact.

Importance tells us *which* variables improve prediction, not their direction or cause. Descriptive and regression analyses show direction.

Our Approach

Sample. 1.6 million Texas high school graduates, graduating cohorts 2018–2023

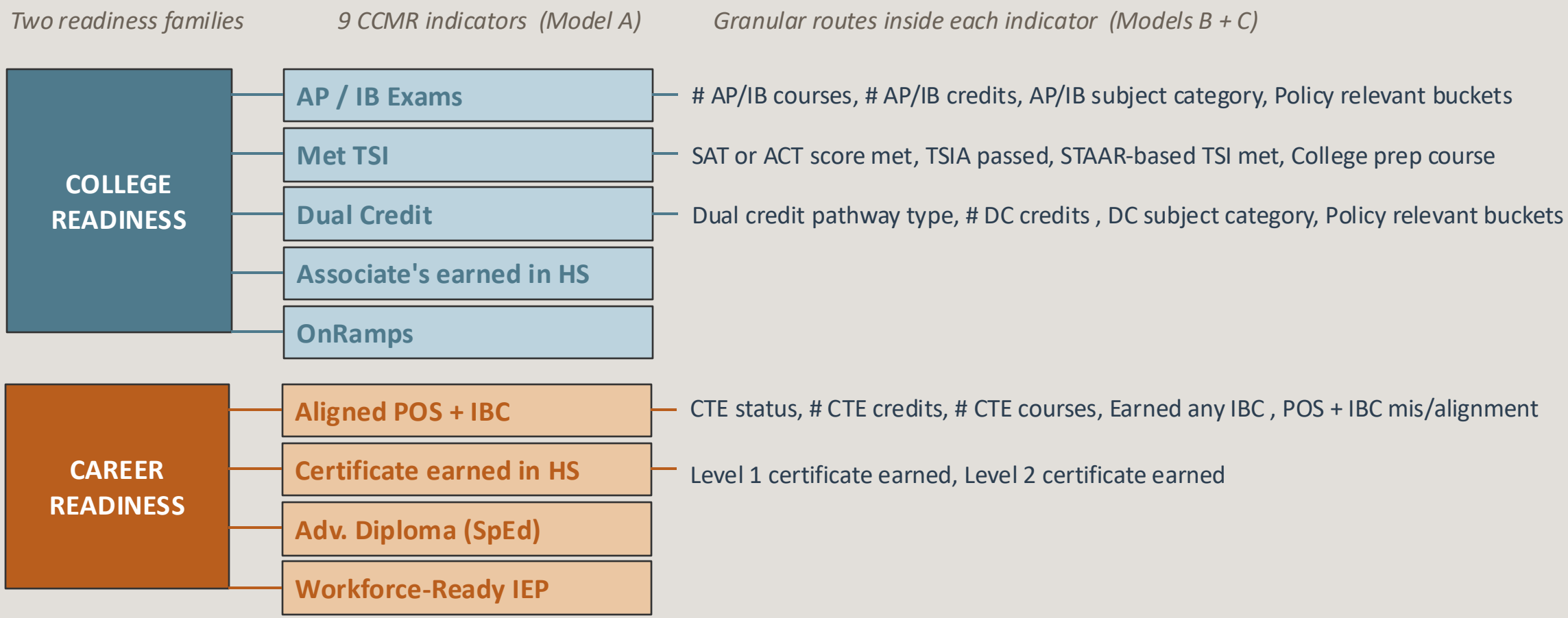
Outcomes. Direct-to-college enrollment: 2-year, 4-year

MODEL A **CCMR as accountability**	MODEL B **Granular CCMR**	MODEL C **Kitchen sink**
9 binary CCMR buckets matching TEA's accountability indicators. Treats each indicator as achieved / not achieved	Same CCMR indicators, broken into finer-grained levels: • Current vs. proposed thresholds • Course taking intensity • Subject-area detail	Same measures as Model B + • Middle school STAAR, Algebra I, attendance, discipline, mobility • High school math coursetaking, attendance, discipline, retention • School academic context

All models include indicators for:

- **Who the students are:** race/ethnicity, sex, economic disadvantage, special education, emergent bilingual status, homelessness across middle and high school; and
- **The schools they attended:** district, urban/rural, region, school type, demographic composition

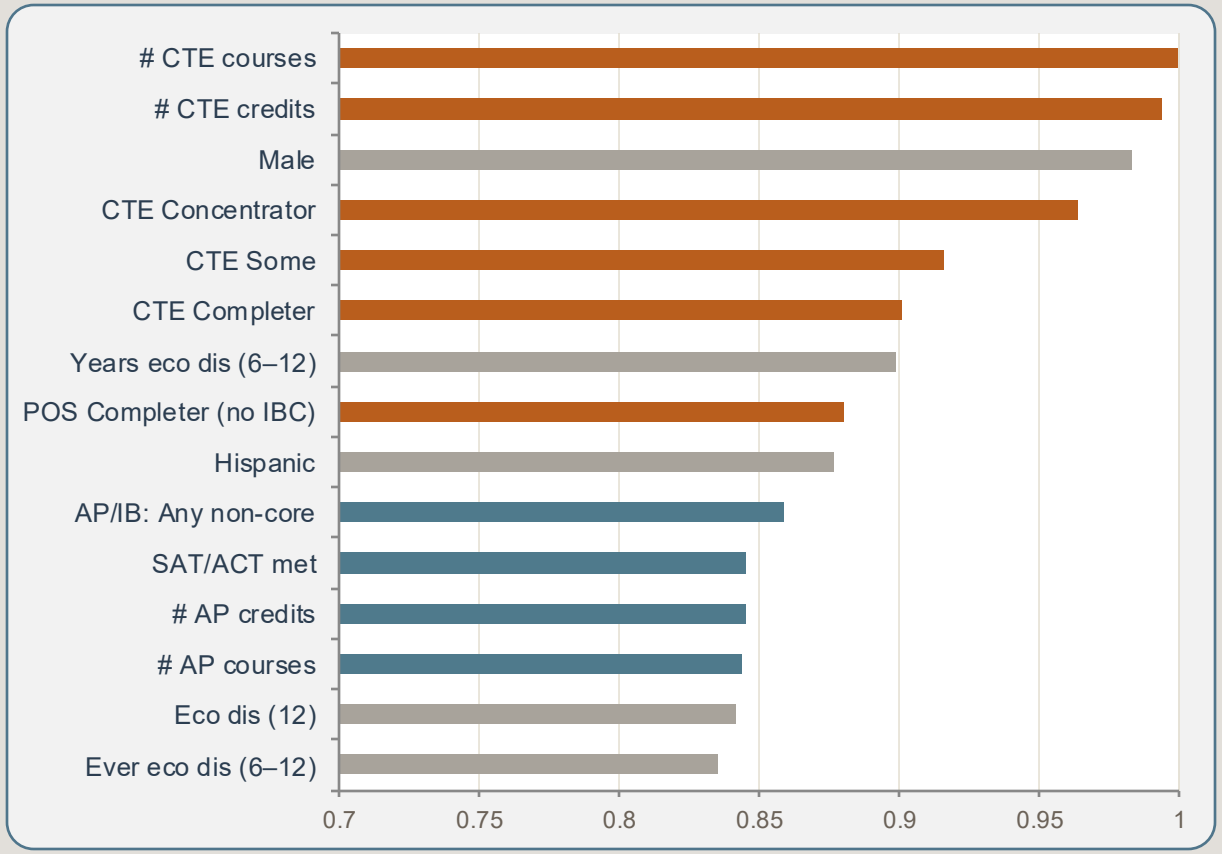
Disaggregating CCMR



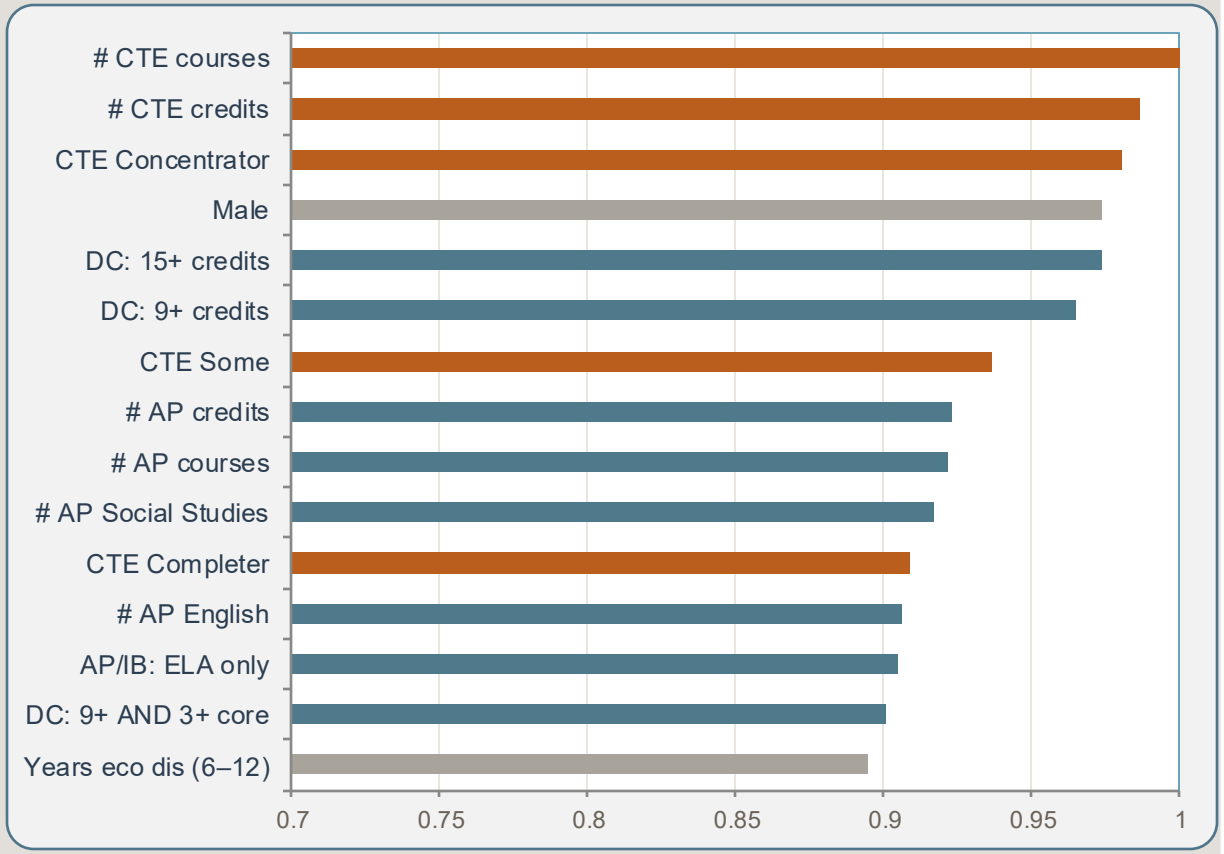
Top predictors differ by destination

Random forest variable importance, top 15 predictors for each outcome

Predicting 2-year enrollment



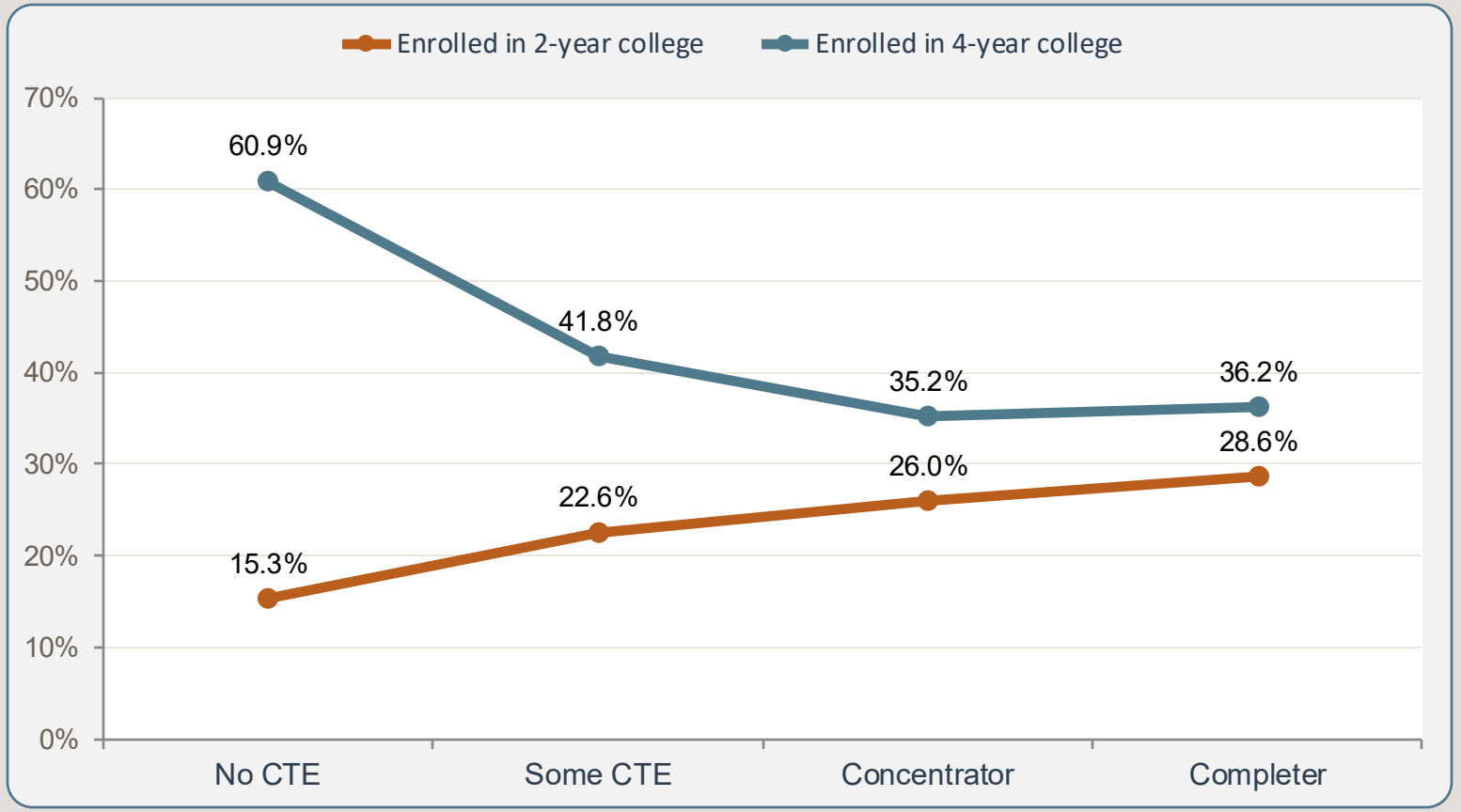
Predicting 4-year enrollment



Career-readiness College-readiness Demographics

Postsecondary enrollment patterns differ by CTE engagement

Enrollment rate by CTE course-taking category



Key Takeaways

As CTE engagement increases, 2-year college enrollment rises from **15% to 29%**

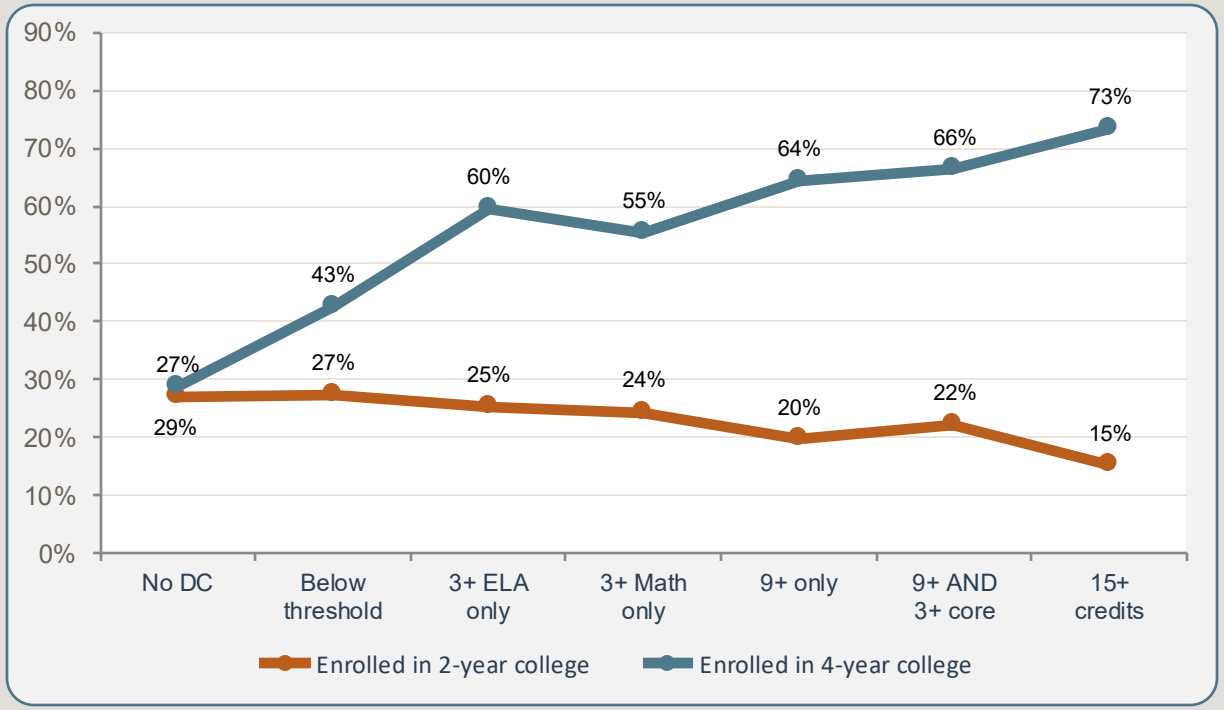
Graduates with no CTE coursework are a small, distinct group with high AP/IB participation and much higher 4-year enrollment

More than one-third of CTE concentrators and completers still enroll in 4-year colleges

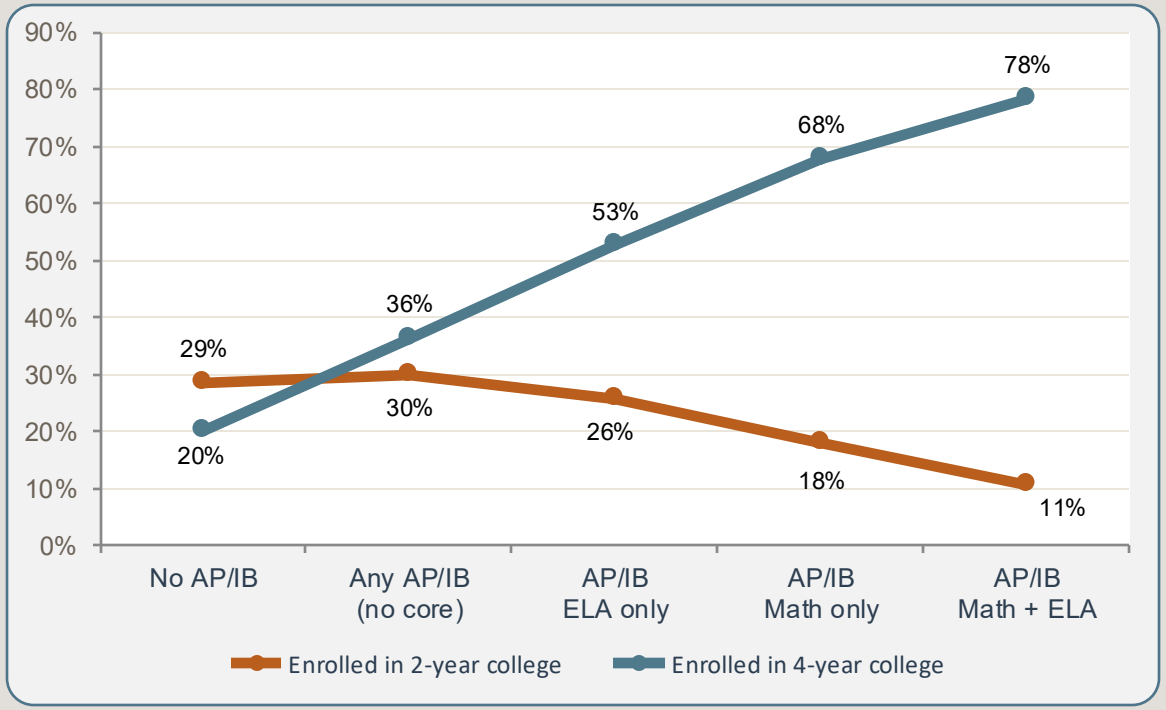
Two college-readiness routes, two paths to 4-year

4-year enrollment rate by dual credit pathway and by AP/IB course-taking pattern

Dual credit pathway



AP / IB course-taking



Two independent levers. Both DC and AP/IB predict 4-year enrollment, but they reach largely different students. Investment in one doesn't substitute for the other.

Emerging Patterns in Postsecondary Enrollment

Key Takeaways

- **Different CCMR pathways predict different postsecondary destinations**. CTE aligns most strongly with 2-year enrollment, while AP/IB and Dual Credit align most strongly with 4-year enrollment
- **Composite indicators bundle students with very different experiences.** Within each composite, the underlying components carry different amounts of signal

Additional Findings

- **Sex is the single largest demographic predictor.** Differences in postsecondary enrollment between males and females are larger than differences across other demographic predictors
- **Middle-school signals are the strongest non-CCMR predictors.** Number of middle schools attended, 6th-grade math, and 6th-grade attendance rank higher than any HS-level behavior or discipline variable

Texas Policy Landscape

Preparation for the 90th Legislative Session

LONESTARP3

2026 Texas Interim Legislative Charges

Teacher Workforce	Student Outcomes	Postsecondary Education	Early Childhood Education
• Monitoring of HB 2 (89R) – *public school finance* • Recruitment and Retention • Compensation Investments	• Improving Middle School Outcomes • Investment in Special Education • Student Enrollment and High-Quality Education • School Choice • Monitoring of HB 6 (89R) – *mental health services*	• Postsecondary Affordability and Financial Barriers • Increasing Credential Completion • Community College Funding • Aligning Advising Initiatives • Workforce Readiness and System Alignment	• Monitoring HB 4903 (Quad-Agency Child Care Initiative and Commission)

Relevant Interim Charges to Postsecondary Pursuits

- State of Education (House Committee on Education)
  - Study the current state of public education in Texas. Examine academic outcomes, enrollment trends pertaining to the stability of the school finance system, school safety, and the role of technology and artificial intelligence. Identify emerging challenges, opportunities, and best practices to sustain and expand high-performing schools across Texas.

- State of Higher Education (House Committee on Higher Education)
  - Study the current state of higher education in Texas. Examine enrollment trends, workforce demands, and postsecondary outcomes, as well as progress toward the state's Building a Talent Strong Texas strategic plan.

Implications of Research for Policy

- **Public School Accountability:** Findings raise questions about whether all CCMR indicators should be treated equally within accountability systems. Some high-participation indicators, such as college prep courses, appear substantially less predictive of enrollment than other readiness signals.
- **Improving Middle School Outcomes:** Middle school emerged as an important upstream policy lever for postsecondary readiness. Sixth-grade math, attendance, and Algebra I participation emerged as stronger predictors of enrollment than most high school behavior measures.
- **Credential Completion and College Readiness Pathways:** AP/IB and DC appear to represent distinct pathways into 4-year enrollment rather than interchangeable indicators, suggesting value in maintaining multiple college-readiness routes.
- **Public Junior College Finance:** DC participation, particularly at higher credit thresholds, emerged as one of the strongest predictors of postsecondary enrollment, aligning closely with current efforts to expand DC access through community college funding incentives.

Refinements to Research to Inform Policy

- **Postsecondary outcomes:** Extend analyses beyond enrollment to persistence, credential completion, transfer, and workforce outcomes.
- **Middle school pathways:** Examine attendance, mobility, Algebra I participation, and additional middle school course-taking patterns as predictors of postsecondary success.
- **Credentials of value:** Link certificates and IBCs to wages, regional labor markets, and industry demand to better evaluate workforce alignment.
- **Pathway alignment:** Examine how AP/IB, DC, CTE, and advising supports shape transitions into postsecondary education and the workforce.
- **Student subgroup variation:** Test whether pathways and predictors operate differently across student groups, school contexts, and regions across Texas.

Implications of Research for Practitioners

- **Readiness vs. intention:** Some CCMR indicators may reflect college-going behavior more than college readiness, suggesting schools and districts may need to interpret readiness signals differently.
- **DC access and participation:** DC participation continues to grow, but uneven access across districts may widen gaps in postsecondary opportunity.
- **Middle school as an early leverage point:** Sixth-grade math, attendance, and Algebra I participation emerged as stronger predictors of enrollment than most high school behavior indicators, highlighting middle school as a critical point for postsecondary preparation.
- **Multiple postsecondary pathways:** Findings reinforce the importance of maintaining multiple college and career readiness pathways that support different postsecondary destinations.

Thank You

Pathways Research Collaborative

Have questions? Contact:
Gabriela Sánchez-Soto, *gs47@rice.edu*
Jennifer Freeman, *jen.freeman@ttu.edu*

LONESTARRP3