

Preliminary Results Draft

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**Unpacking College
Success in Texas:
The Enrollment and
College Completion
Gap by Race and
Ethnicity at the Turn
of the Century**

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Outline

- I. Goals of Projects Using University of Texas at Dallas – Education Research Center (UTD-ERC) Data *(descriptive analyses)*
 - A. College Access Across Different Policy Periods in Texas
 - B. Understanding the College Completion Gap by Race and Ethnicity

- II. Using Geographic Analysis to Understand the Pool of Students
 - A. Where do the college eligible students come from?
 - B. Where do they go to college?
 - C. What explains the “College Completion Gap”?

- III. Implications and Necessary Questions
 - A. What does success mean? What does completion mean?
 - B. Who is responsible? Accountable?
 - C. What can “we” do?

Underrepresented Student Success in Texas Using Longitudinal State Administrative Data: Significance and Possibilities

1. College Enrollment in the Minority Serving Institutions: HSIs and the HBCUs (Bill & Melinda Gates Foundation)
2. The Racial College Completion Gap (Bill & Melinda Gates Foundation)
3. *Forthcoming: The College Trajectories of English Language Learner Students in Texas Using State Administrative Data (National Academy of Education/ Spencer Foundation)*

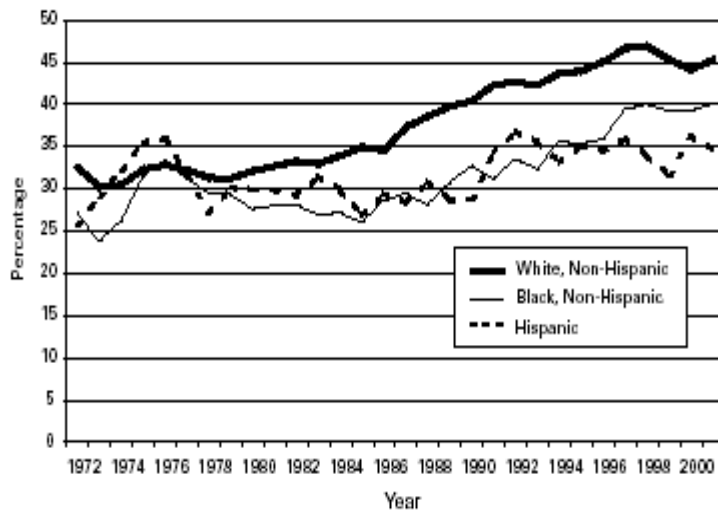
College Access & Completion Over Time

1972 to 2000

Participation

FIGURE 1

Enrollment Rates of 18- to 24-Year-Olds in Degree-Granting Institutions, by Race/Ethnicity: 1972–2000

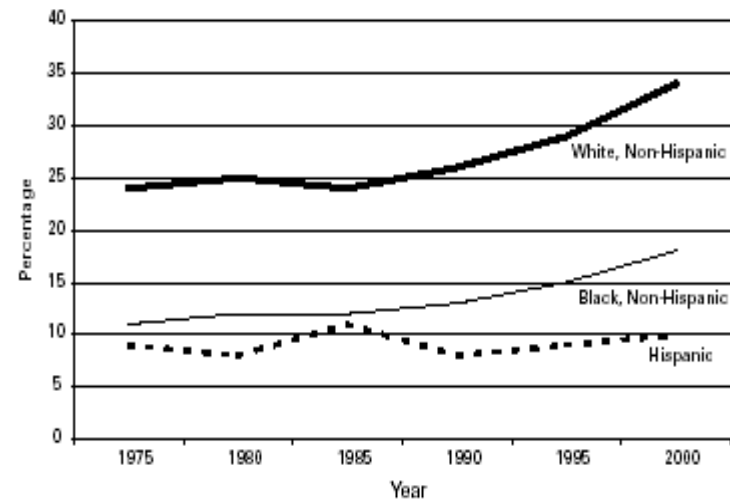


Source: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished data.

Completion

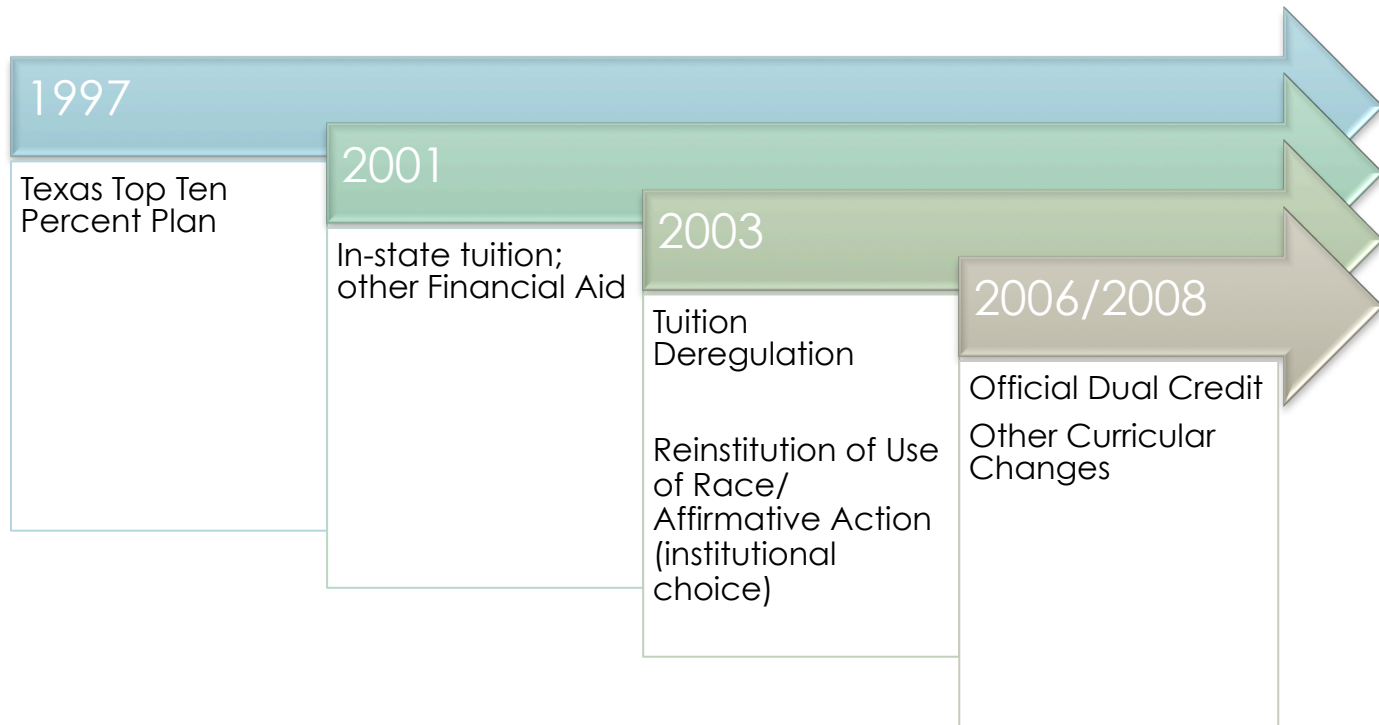
FIGURE 2

Percent of 25- to 29-Year-Olds Who Have Completed College (Bachelor's Degree or Higher), by Race/Ethnicity: Selected Years, 1975–2000

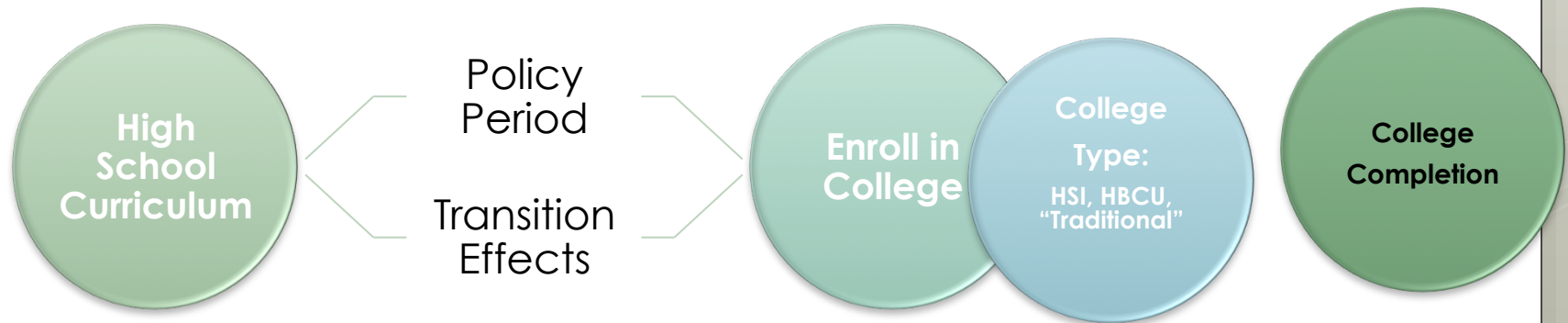


Source: U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics (2001), based on U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

Select Texas State [and Federal] Policy Changes, 1997-2008



Underrepresented Student Trajectory



- a. 1 = Enroll 2 year public
- b. 2 = Enroll 4 year public
- c. 3 = Enroll 4 year private
- d. 4 = HS Graduate No Enroll, Work (Wage files – Texas Workforce Commission)

Dataset: UTD-ERC Panel

- Cohorts for Relevant Pre- and Post-Policy Periods: 1997, 2000, 2002, 2006, 2008
- Sample: High School Graduates (Course work back to 10th grade)
- Data include information about race, sex, LEP status, economic disadvantage, high school curriculum, statewide exam scores, high school context (pupil to teacher ratio, enrollment, percent minority, urbanicity), distance to postsecondary education, postsecondary enrollment, and individual wage data
- EMPIRICAL STRATEGIES:
 - Logistic and Multinomial Logistic Regression
 - Outcome (1): Enroll in College immediately after HS graduation
 - Outcome (2): Type of College (MSI, Public/Private, etc.)
 - Decomposition Analysis: Contribution of the Individual, HS Curriculum, Postsecondary Institutional Characteristics

The College Success of Underrepresented Minority Students in Texas

Project 1: Cohort College Access and Enrollment Choice Across Policy Periods – The Role of Minority Serving Institutions

Questions: Into what type of institutions do URM students enroll over time accounting for a range of pre-college characteristics across distinct policy periods? What curriculum interventions seem to matter most?

Previous Work: Domina, 2007; Fletcher & Tienda, 2008; Frost, 2007; Perna & Titus, 2004; Perna, 2000; Klopfenstein, 2004

Contributions:

- Accounts for pre-college characteristics (test performance, school context and financing)
- Links to national data sets such as NCES & Bureau of Labor Statistics county profiles
- Link to Texas Workforce Commission Wage data for student starting at age 16 and into college (or just workforce)
- Large size of Minority Serving Institutions and community colleges (HBCUs, HSIs)

Project 2: Examining the Racial College Completion Gap – The Role of Pre-College Characteristics

Questions: What factors explain the racial and ethnic achievement gap in college completion? What factors matter most: individual, high school context and curriculum, or postsecondary institutional factors?

Previous work: Oaxaca, 1973; Oaxaca & Ransom, 1999; McEwan, 2004; Bound, Lovenheim & Turner, 2009; Hanushek & Rivkin, 2009; Thomas, 2004;

Contributions: The role of Race and Ethnicity; Accounting for high school context beyond test scores.

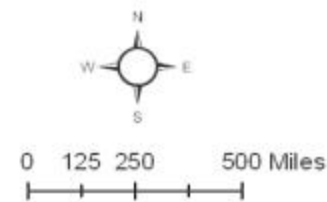
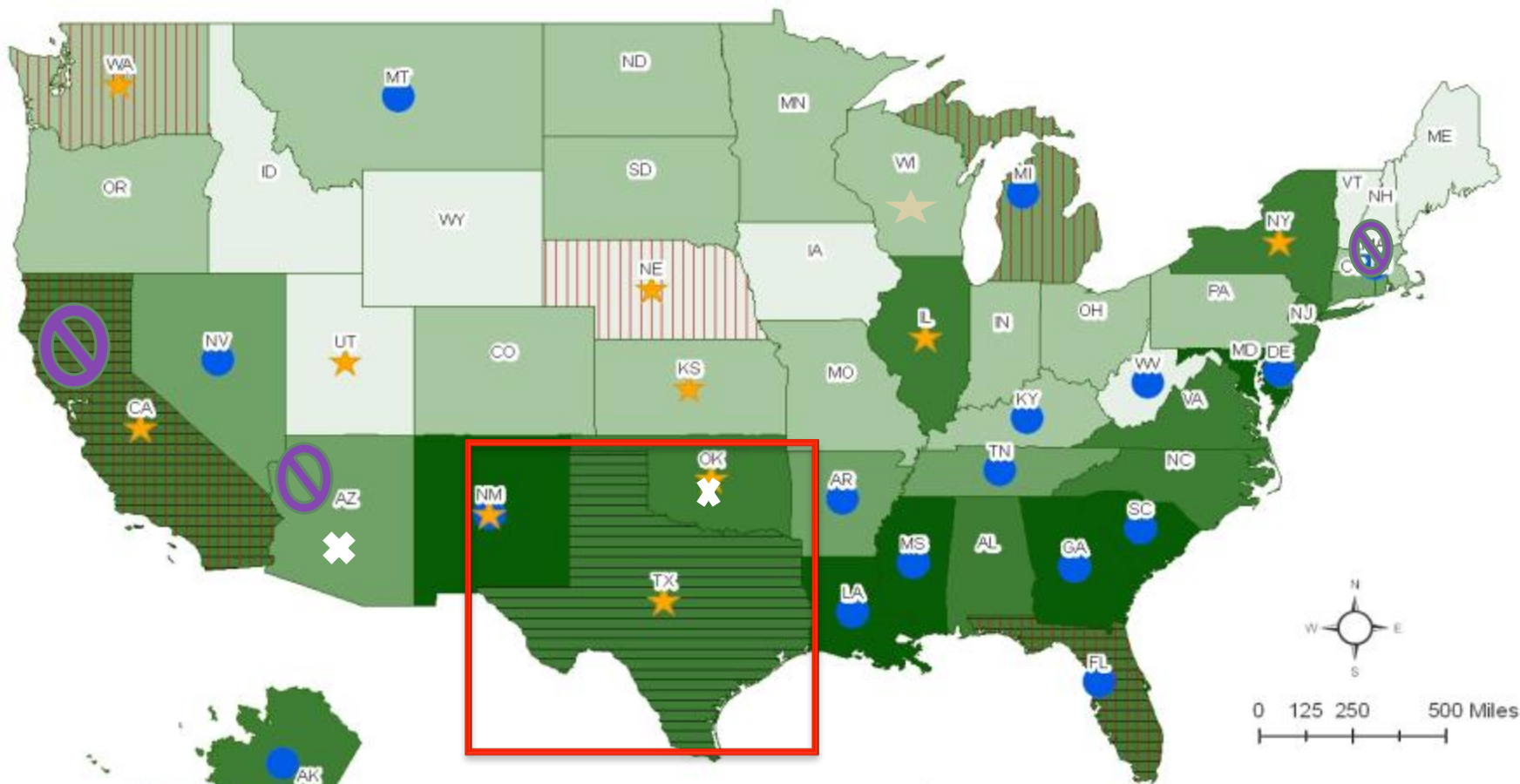
UTD-ERC, NCES, IPEDS Selected Variables

| Individual | HS Curriculum | HS Context | Geographic/ Region | Postsecondary Context |
|---------------|----------------------|------------------------|--------------------------------------|--------------------------|
| Hispanic | AP/IB Course | HS Pupil-Teacher Ratio | Distance (within 10 miles of PSE) | PS Percent Developmental |
| Black | Trigonometry Course | HS Enrollment | Economic Region (n=13) | PS Selectivity |
| Asian | Exit Math Exam Score | HS PPE | County Unemployment | PS Percent Tenured |
| Gender (Male) | Dual Enrollee | HS Urbanicity | | PS Student-Faculty Ratio |
| LEP/ELL | | HS Percent Minority | | PS Enrollment |
| Econ. Disadv. | | Work in HS | | |



A Geographic Portrait: The Nation and Texas as a Case Study

2006 Non White and Non Asian Population Ages 18-24 and Select State Higher Education Policies



| | |
|------------------------|--|
| Age 18-24 | |
| % Non White, Non Asian | |
| | 4.9 - 10.5 |
| | 10.6 - 17.4 |
| | 17.5 - 25.8 |
| | 25.9 - 34.9 |
| | 35.0 - 49.4 |
| | In State Resident Tuition |
| | Merit Aid |
| | Affirmative Action Ban |
| | Percent Plan |
| | Ban on Form of Bilingual Education Program |



November 5, 2008
Map by Jacob Thornton
Data from S. Flores and US Census Bureau

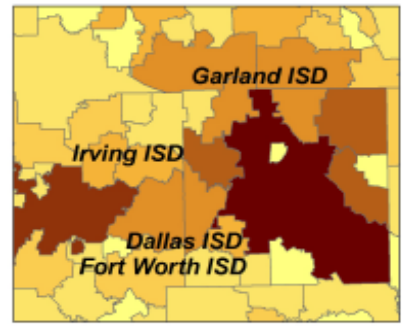
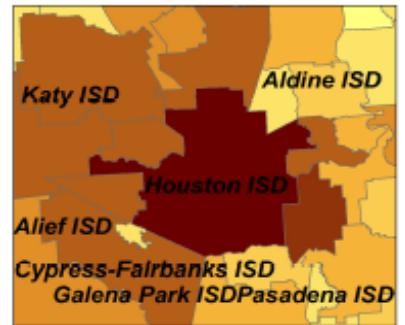
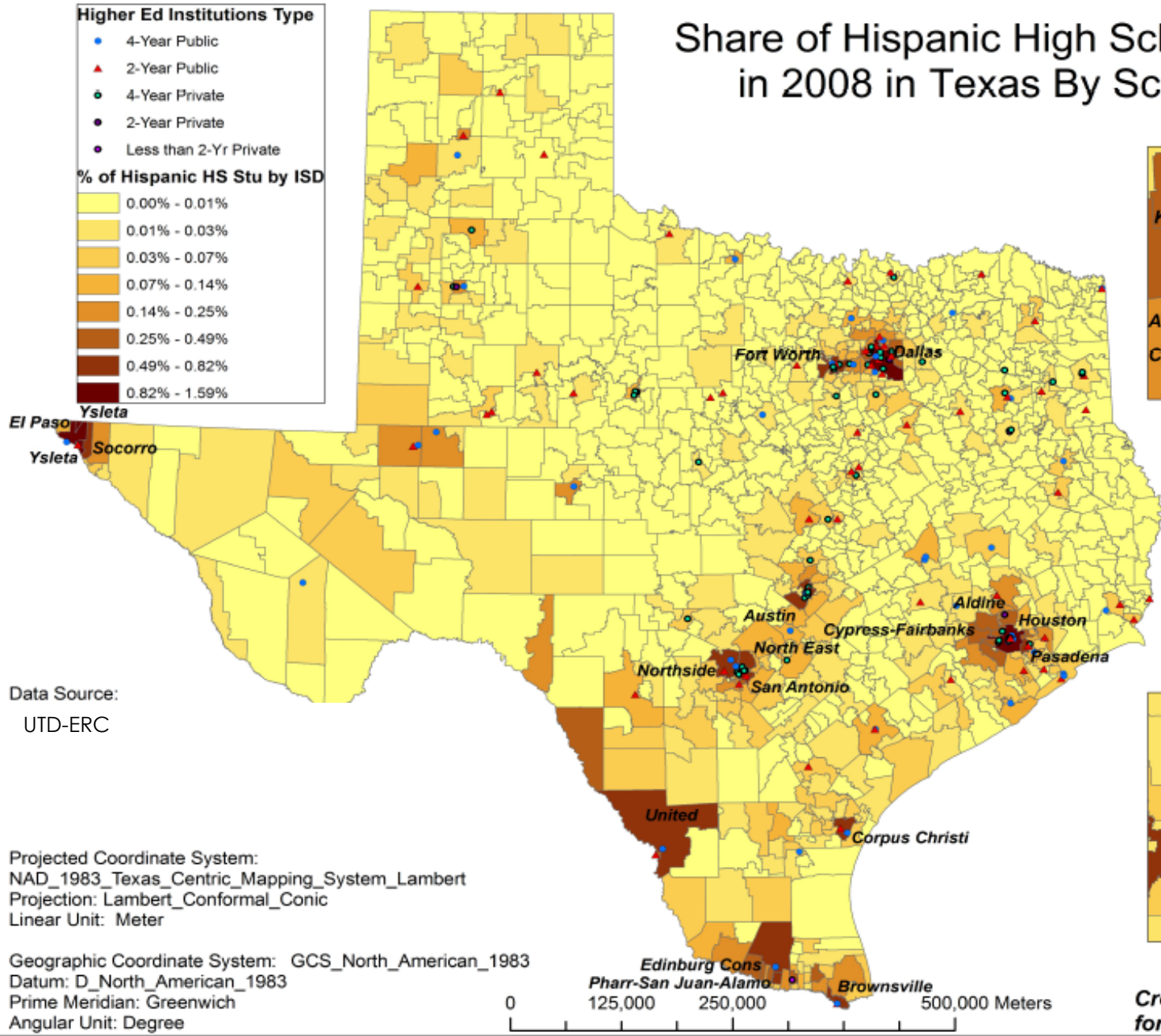
Share of Hispanic High School Graduates in 2008 in Texas By School District

Higher Ed Institutions Type

- 4-Year Public
- ▲ 2-Year Public
- 4-Year Private
- 2-Year Private
- Less than 2-Yr Private

% of Hispanic HS Stu by ISD

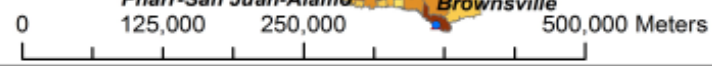
- 0.00% - 0.01%
- 0.01% - 0.03%
- 0.03% - 0.07%
- 0.07% - 0.14%
- 0.14% - 0.25%
- 0.25% - 0.49%
- 0.49% - 0.82%
- 0.82% - 1.59%



Data Source:
UTD-ERC

Projected Coordinate System:
NAD_1983_Texas_Centric_Mapping_System_Lambert
Projection: Lambert_Conformal_Conic
Linear Unit: Meter

Geographic Coordinate System: GCS_North_American_1983
Datum: D_North_American_1983
Prime Meridian: Greenwich
Angular Unit: Degree



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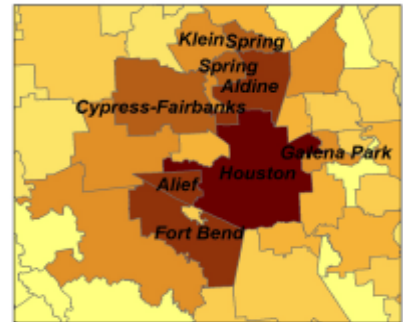
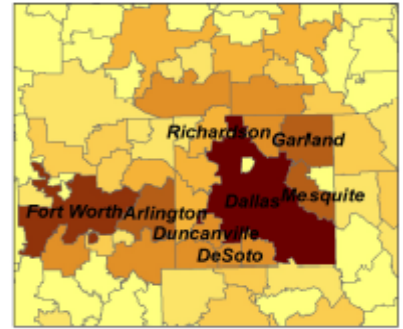
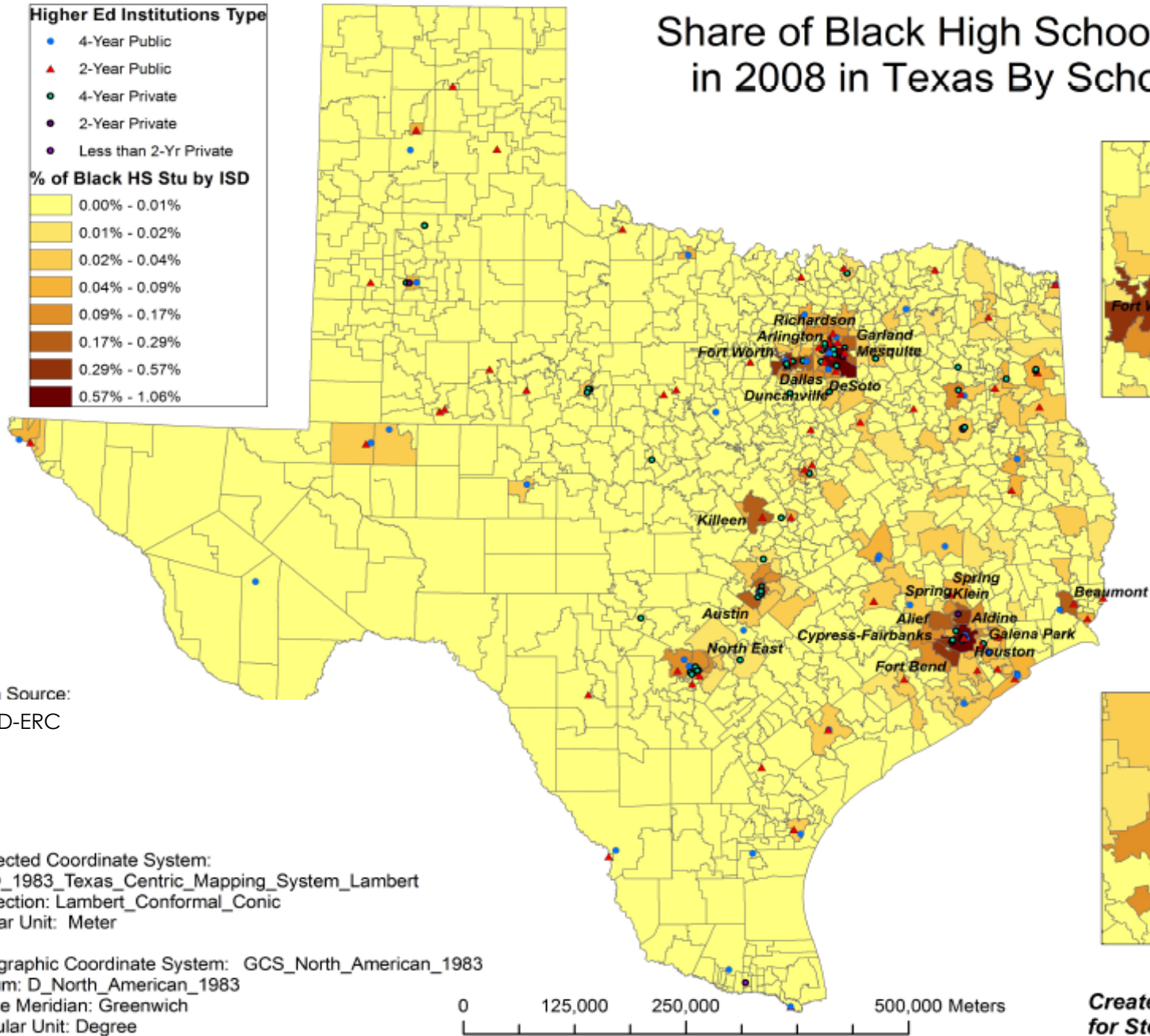
Share of Black High School Graduates in 2008 in Texas By School District

Higher Ed Institutions Type

- 4-Year Public
- ▲ 2-Year Public
- 4-Year Private
- 2-Year Private
- Less than 2-Yr Private

% of Black HS Stu by ISD

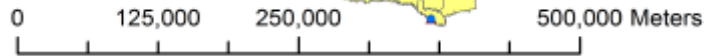
- 0.00% - 0.01%
- 0.01% - 0.02%
- 0.02% - 0.04%
- 0.04% - 0.09%
- 0.09% - 0.17%
- 0.17% - 0.29%
- 0.29% - 0.57%
- 0.57% - 1.06%



Data Source:
UTD-ERC

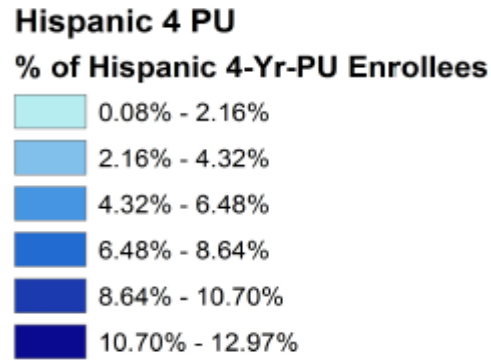
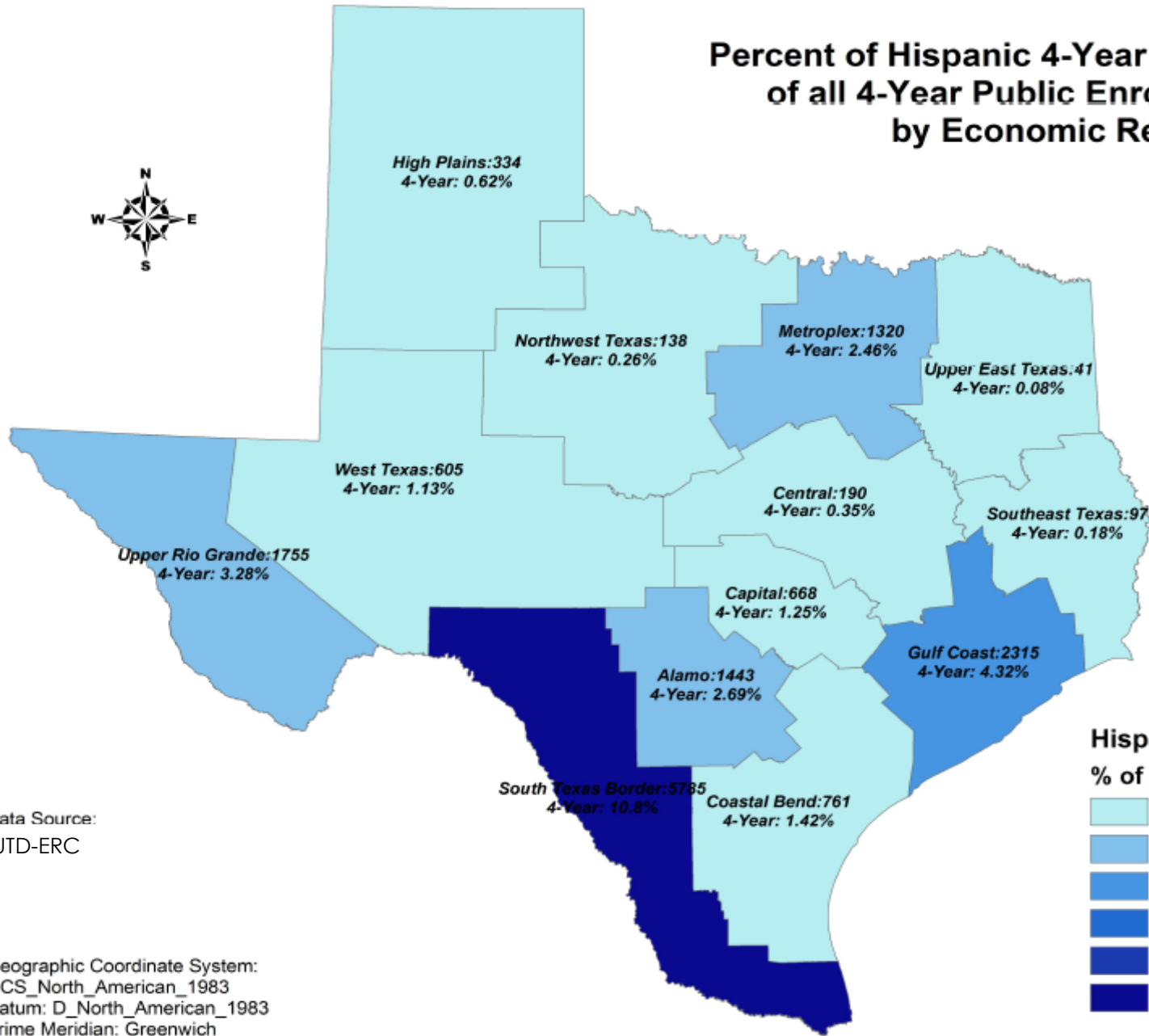
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Datum: D_North_American_1983
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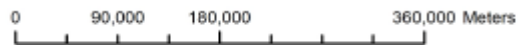
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Percent of Hispanic 4-Year Public Enrollees of all 4-Year Public Enrollees in 2008 by Economic Regions



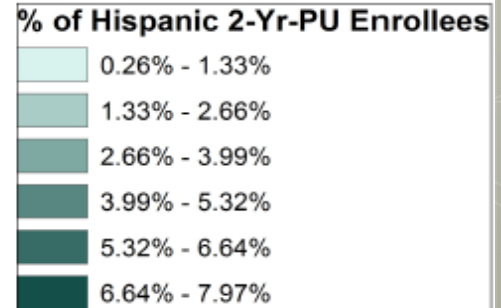
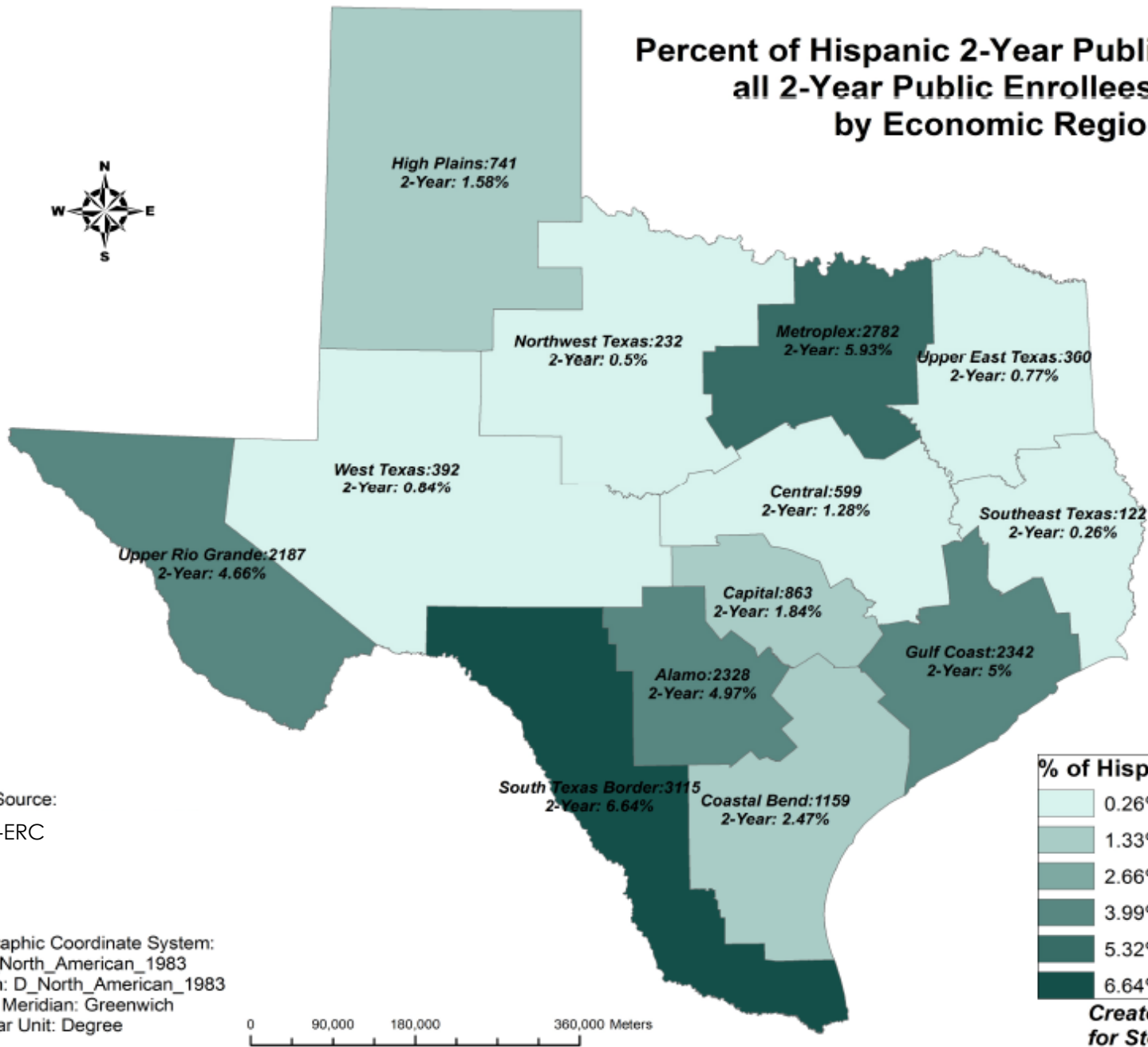
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Prime Meridian: Greenwich
Angular Unit: Degree



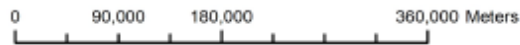
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Percent of Hispanic 2-Year Public Enrollees of all 2-Year Public Enrollees in 2008 by Economic Regions



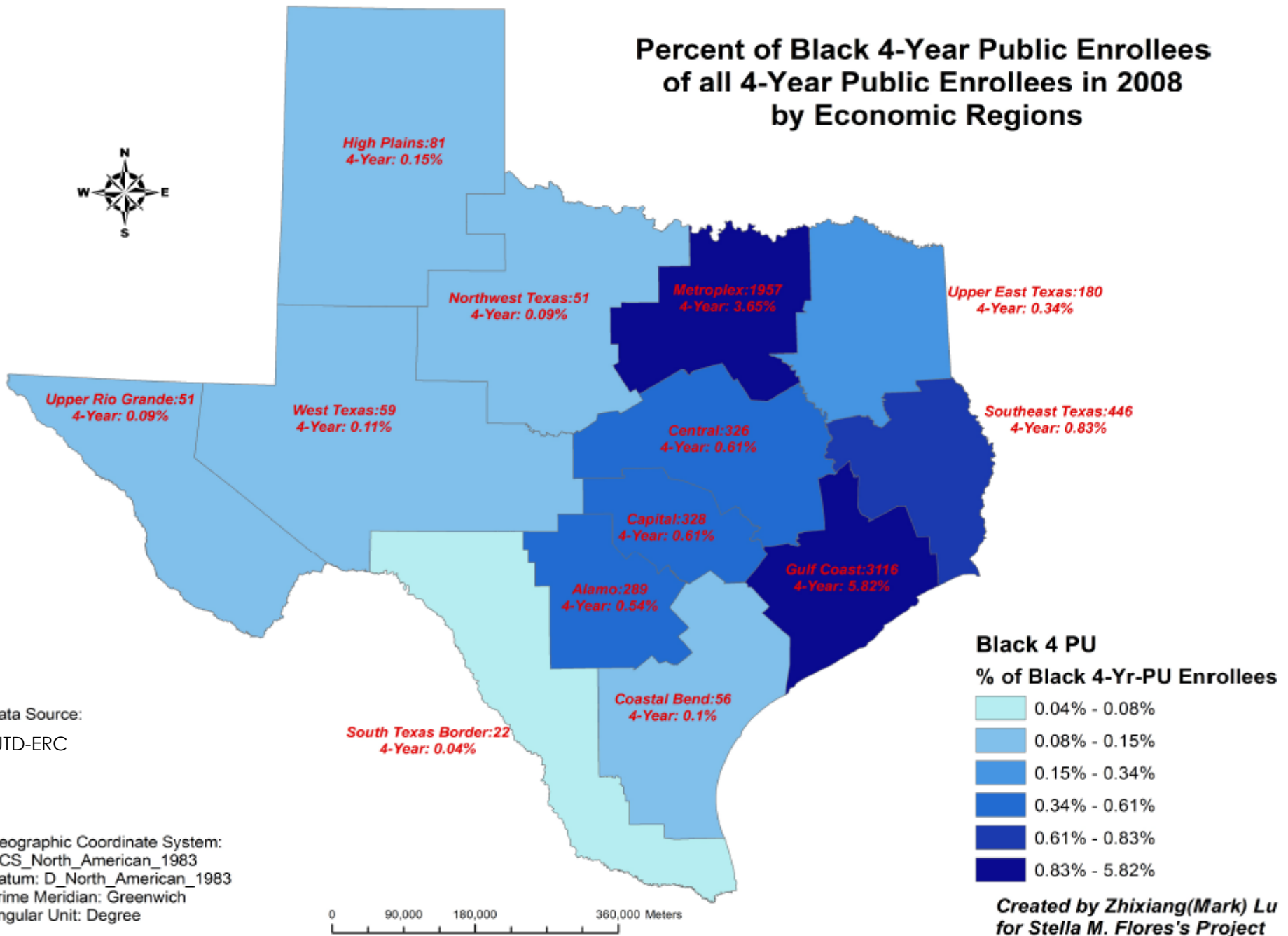
Data Source:
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Geographic Coordinate System:
GCS_North_American_1983
Datum: D_North_American_1983
Prime Meridian: Greenwich
Angular Unit: Degree



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Percent of Black 4-Year Public Enrollees of all 4-Year Public Enrollees in 2008 by Economic Regions

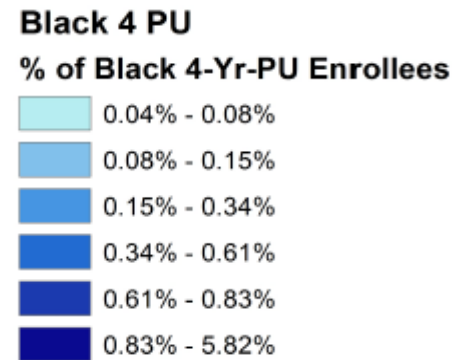


Data Source:

UTD-ERC

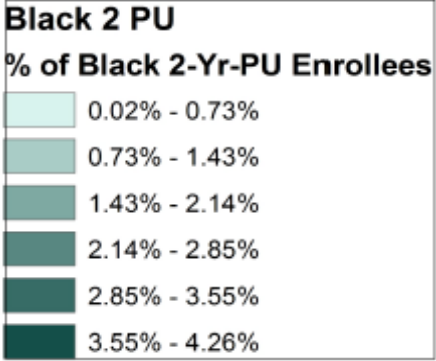
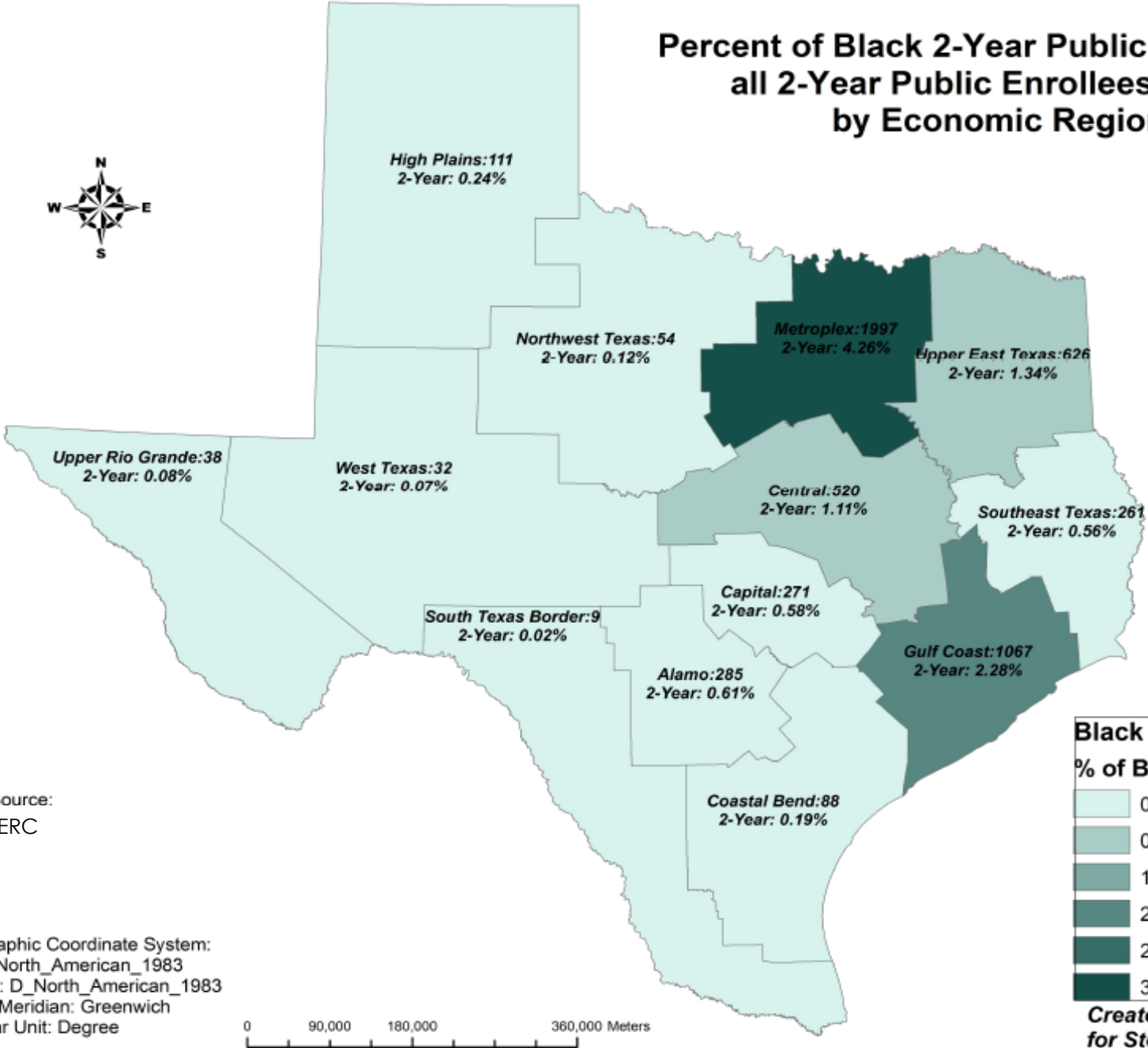
Geographic Coordinate System:
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 Prime Meridian: Greenwich
 Angular Unit: Degree

0 90,000 180,000 360,000 Meters



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Percent of Black 2-Year Public Enrollees of all 2-Year Public Enrollees in 2008 by Economic Regions



Data Source:
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 Prime Meridian: Greenwich
 Angular Unit: Degree



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Project 1: Cohort College Access and Enrollment Choice Across Policy Periods – The Role of Minority Serving Institutions

Access Outcomes of HS Graduates in Texas Over Time by Cohort Status

| | <u>Fall 1997</u> | <u>Fall 2000</u> | <u>Fall 2002</u> | <u>Fall 2006</u> | <u>Fall 2008</u> |
|-------------------------------|------------------|------------------|------------------|------------------|------------------|
| Hispanic | -0.231*** | -0.226*** | -0.369*** | -0.287*** | -0.242*** |
| Black | -0.077*** | 0.014 | 0.03 | 0.247*** | 0.230*** |
| Asian | 0.279*** | 0.346*** | 0.222*** | 0.027 | 0.073** |
| Male | -0.233*** | -0.219*** | -0.174*** | -0.211*** | -0.191*** |
| LEP | -0.399*** | -0.386*** | -0.549*** | -0.686*** | -0.778*** |
| ECON DISADV. | -0.458*** | -0.384*** | -0.433*** | -0.450*** | -0.416*** |
| Took & Pass AP/IB | 0.017 | 0.186*** | 0.393*** | 0.357*** | 0.357*** |
| Took & Pass Trig | 0.242*** | 0.456*** | 0.643*** | 0.472*** | 0.412*** |
| Math Exit Exam Score | 0.026*** | 0.021*** | 0.021*** | 0.024*** | 0.023*** |
| Part. In Dual Enroll. | 0.532*** | 0.569*** | 1.021*** | 1.035*** | 1.018*** |
| Pupil/Teacher Ratio (HS) | -0.022*** | -0.007* | -0.015*** | 0.001 | -0.015*** |
| HS Enrollment | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Pct. Minority in HS | -0.194*** | -0.153*** | -0.174*** | -0.096*** | 0.035 |
| Per Pupil Expenditure | 0.000** | 0.000*** | 0.000*** | 0.000*** | 0 |
| Urban Area HS | -0.117*** | -0.131*** | -0.050*** | -0.067*** | -0.088*** |
| Worked in HS | -0.001 | 0.058*** | -0.066*** | -0.017 | 0.002 |
| County Unemp. | 0.008** | 0.044*** | 0.023*** | 0.039*** | 0.018* |
| HS Within 10 miles of College | 0.109*** | 0.063*** | 0.009 | -0.016 | 0 |
| N | 144,399 | 165,089 | 171,753 | 197,242 | 208,727 |
| chi2 | 13502.178 | 17333.287 | 32191.992 | 38540.498 | 37522.017 |

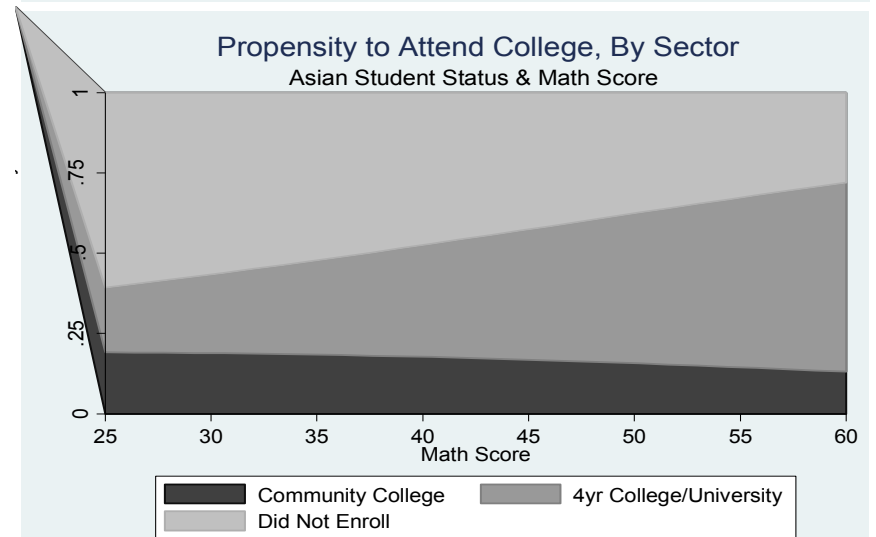
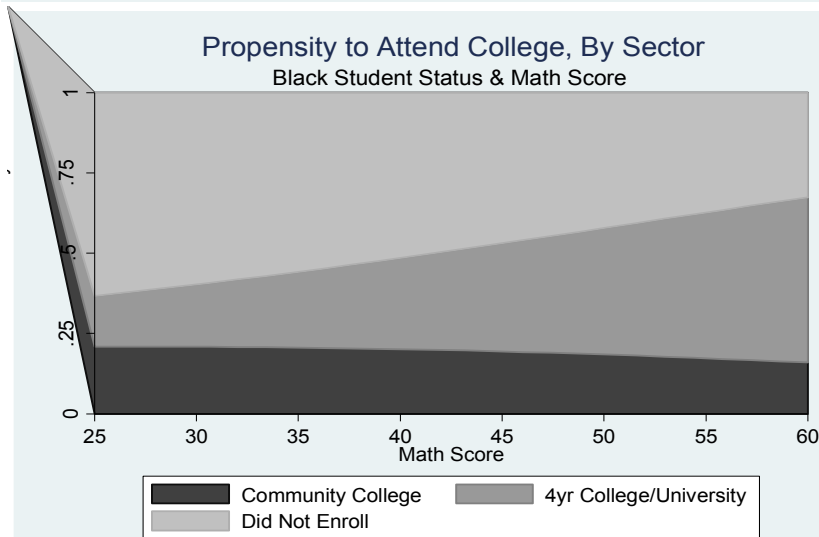
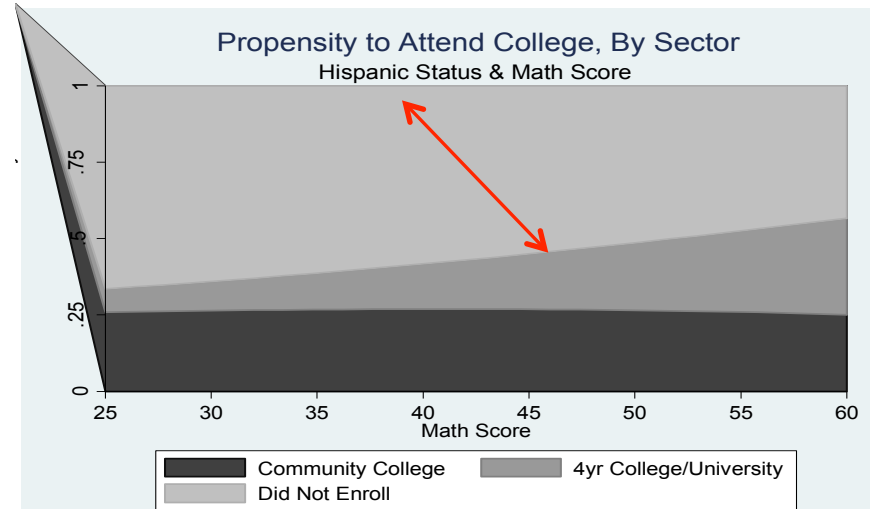
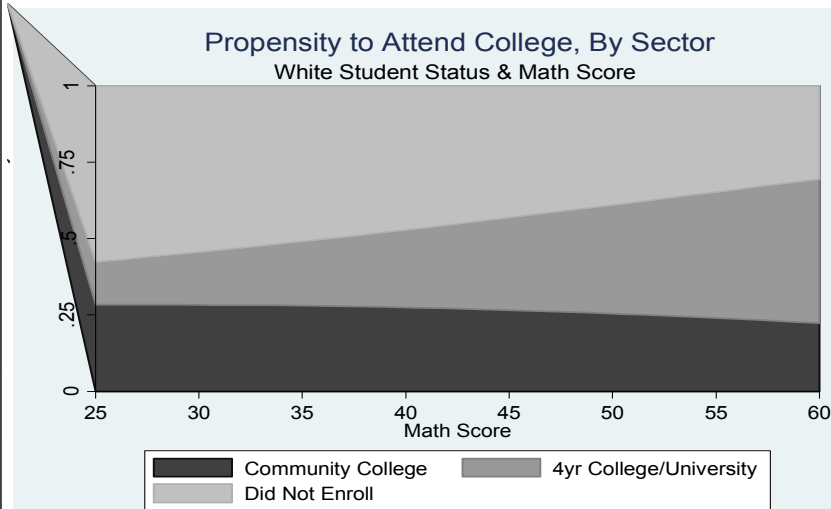
* p<0.05, ** p<0.01, *** p<0.001

College Enrollment Across Policy Periods

(Logit Model Interpretation)

- Across all years, Hispanic students show an average decrease in the odds of enrolling in college of 23%, holding all other variables constant. This decrease is the least in 2000 (20%) and the greatest in 2002 (31%).
- In years 2006 and 2008, Black students show an average INCREASE in the odds of enrolling in college of 73%, holding all other variables constant.
- Across all years, participating in dual enrollment shows an average increase in the odds of enrolling in college of 178%, holding all other variables constant.

Propensity to Attend College by Exit Math Exam Score: 2008

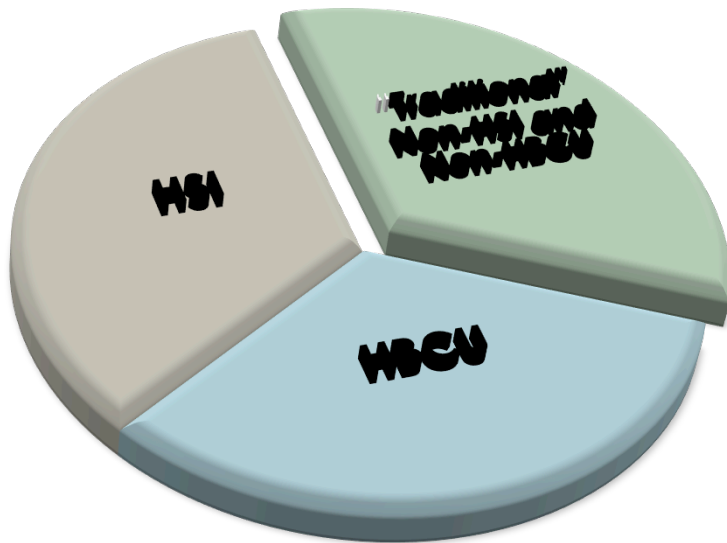


Propensity to Attend

- These graphs are by race and hold all other variables at their mean, within race.
- All students show increased enrollment higher education as math score increases, holding all other variables at their mean, within race. This increase, however, disproportionately in the four-year sector, with two-year enrollment decreasing, as math score increases, holding all other variables at their mean, within race.
- Asian students show the sharpest example of this trend.

Texas Postsecondary Sector Levels by MSI Status

MSI SECTOR



LEVEL



Postsecondary Enrollment of Texas HS Graduates by Sector, 2008

| | Two-Year | | | Four-Year Public | | | Four-Year Private | | |
|----------|----------------------------|----------------------------|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|
| | Traditional | HSI | HBCU | Traditional | HSI | HBCU | Traditional | HSI | HBCU |
| Hispanic | -0.263*** [0.02] | 0.122*** [0.03] | 0.063 [0.12] | -0.593*** [0.02] | 0.350*** [0.03] | 1.106*** [0.26] | -0.517*** [0.04] | 0.579*** [0.07] | 0.594* [0.29] |
| Black | 0.021 [0.02] | -0.359*** [0.05] | 1.138*** [0.15] | 0.425*** [0.03] | 0.560*** [0.05] | 5.240*** [0.23] | 0.445*** [0.04] | 0.375** [0.12] | 3.648*** [0.25] |
| Asian | -0.021 [0.04] | -0.623*** [0.09] | -0.065 [0.43] | 0.145*** [0.03] | 0.540*** [0.06] | 0.943* [0.47] | -0.215*** [0.06] | -0.056 [0.16] | 0.272 [0.75] |
| Male | -0.159*** [0.01] | -0.289*** [0.02] | 0.028 [0.08] | -0.272*** [0.01] | -0.163*** [0.02] | -0.238*** [0.05] | -0.310*** [0.02] | -0.714*** [0.05] | 0.116 [0.09] |

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Model includes regional controls

MNL Analysis of The MSI “Story” in TEXAS: Where do students go to college?

- Hispanic Students:
 - 1. They don't enroll in college
 - 2. They go to 2-year HSIs
 - 3. They go to 4-year HSIs
 - Black Students:
 - 1. They go to 4-year public HBCUs
 - 2. They go to 4-year private HBCUs
 - 3. They go to 2-year HBCUs
- *National rate of HBCU Enrollment is between 12 and 15%. Texas is an outlier.***
- Asian Students:
 - They go to 4-year Public Schools – HIS and Non-HSIs
 - Male Students:
 - Consistently across the board, the coefficient for male is negative. This is the most pronounced in the four-year private sector where males experience a decrease of 27% in the traditional and a decrease of 51% in the HSI.

Multinomial Tables

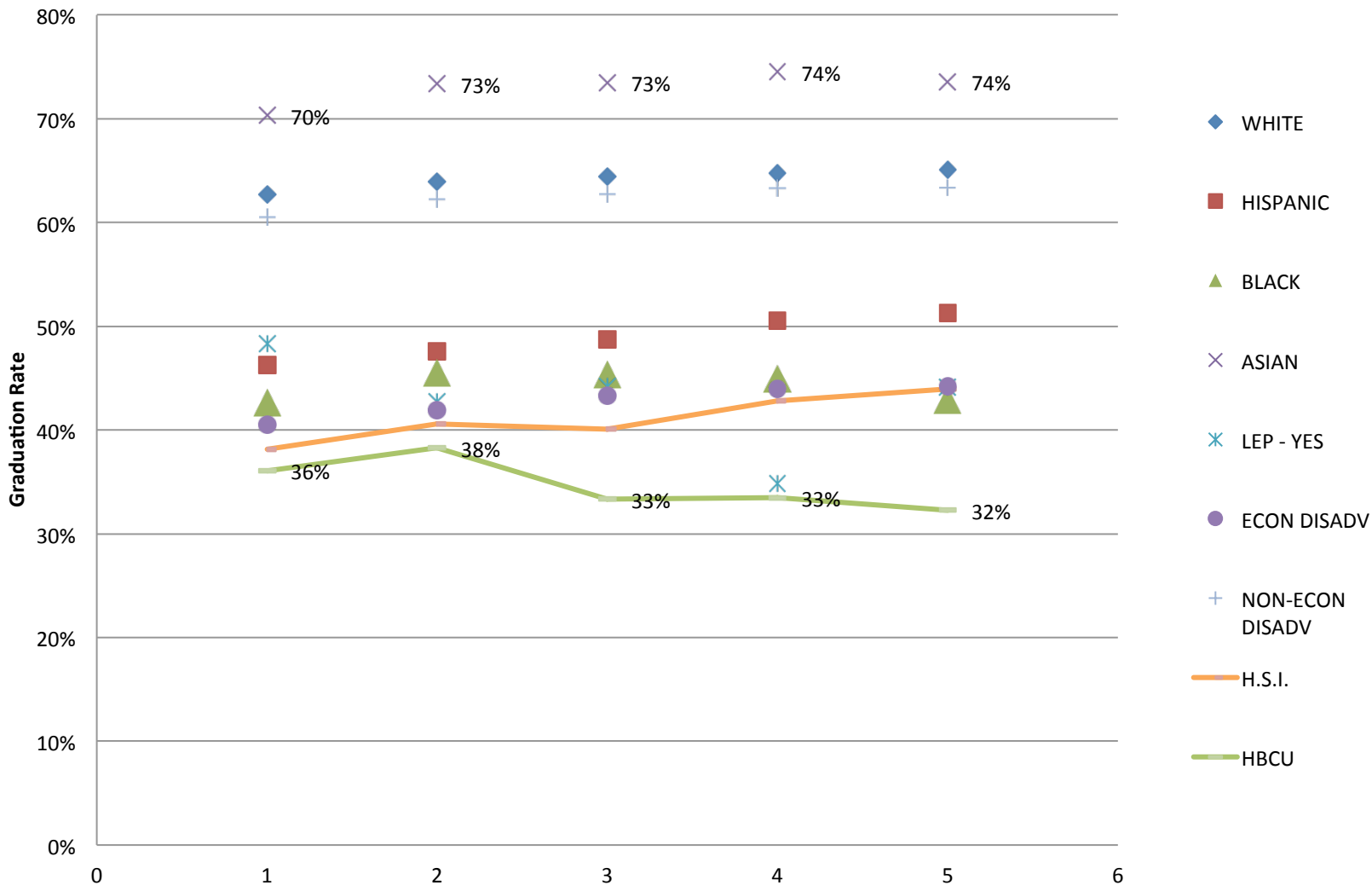
- Hispanic
 - As compared to not enrolling, Hispanic students are less likely to enroll in traditional colleges and more likely to enroll in HSIs. Hispanic students show a decrease of the odds of enrolling in a traditional 2-year school of 23%, a decrease of 45% in a traditional 4-year, and a decrease of 40% in a private 4-year. Whereas, Hispanic students show an increase of 13% increase in the odds of enrolling in a 2yr HSI , an increase of 42% in a 4yr public HSI, and an increase of 78% in a 4yr private HSI.
- Black
 - Black students are more likely to enroll in an HBCU, particularly at a 4yr public HBCU. For instance, the odds increase by a factor of 212% for a two-year HBCU, and these odds are 88 times greater at a 4yr public HBCU and 17 times greater at a 4yr private HBCU.
- Asian
 - Asian students show a decrease of 46% in attending a 2yr HSI, 16% increase in attending a public 4yr tradition, 72% increase in attending a public 4yr public HSI, and a 19% decrease in attending a private 4yr traditional.
- Male
 - Consistently across the board, the coefficient for male is negative. This is the most pronounced in the four-year private sector where males experience a decrease of 27% in the traditional and a decrease of 51% in the HSI.

Project 2: The Racial College Completion Gap: Using Decomposition Analysis

What contributes most to the gap?

The individual, the high school context and curriculum, or the postsecondary institution?

Six-Year College Graduation Rates for Students Entering 4-year Public Institutions Year After HS Grad by Cohort in Texas

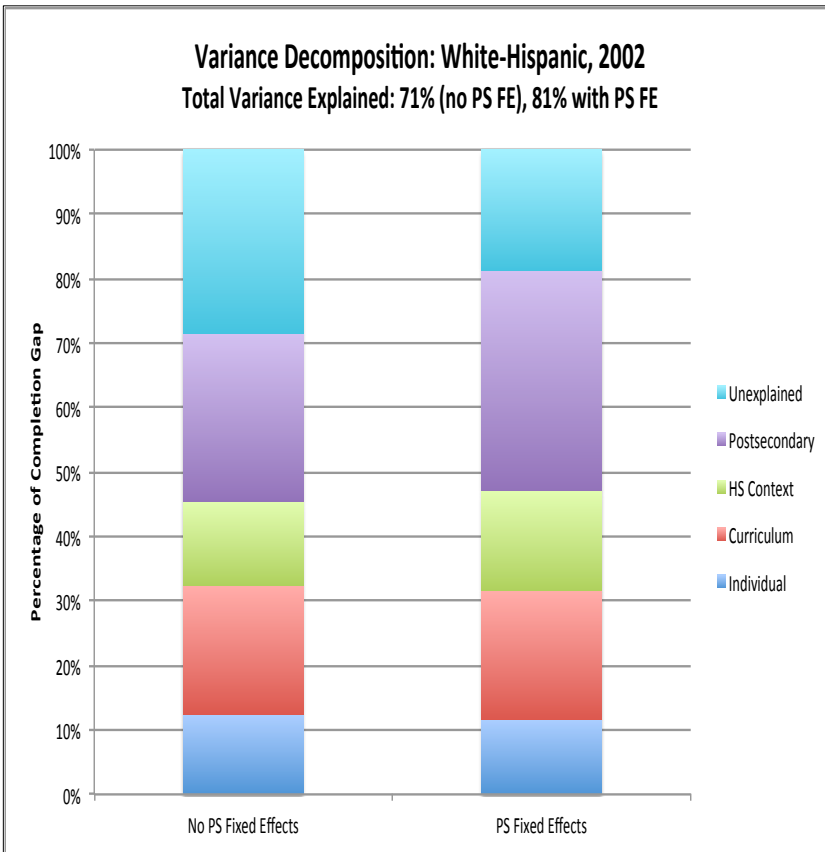


Entering Cohort: (1) 1997; (2) 1998; (3) 1999; (4) 2001; (5) 2002

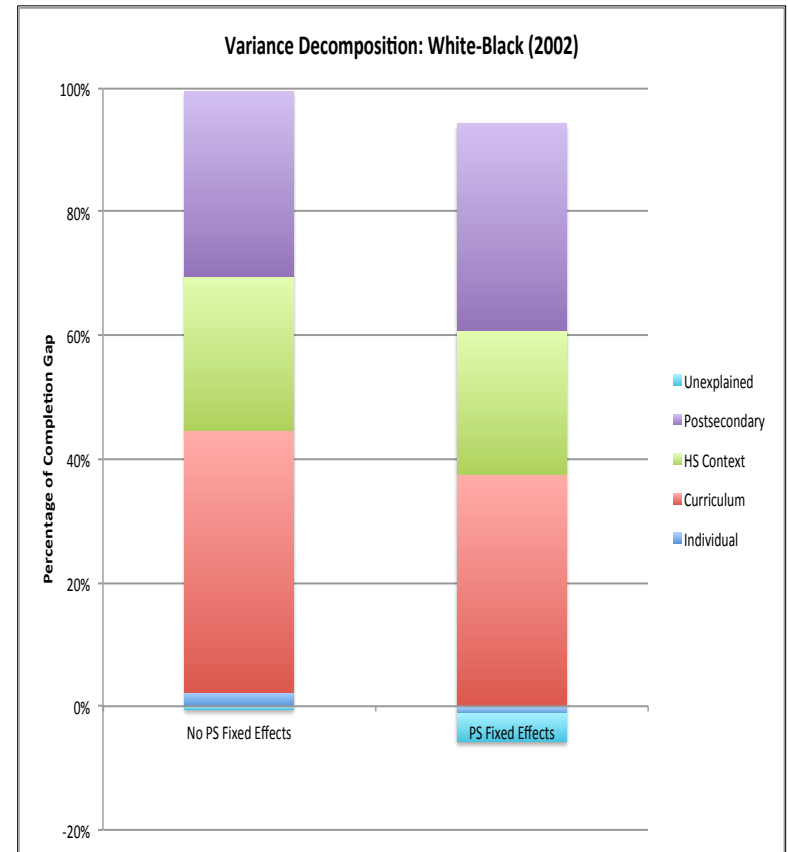
Source: UTD-ERC

College Completion Gap in Texas: Variance Decomposition Analysis (Class 2002 - 2008)

White-Hispanic Gap (15.5%)



White-Black Gap (21.7%)



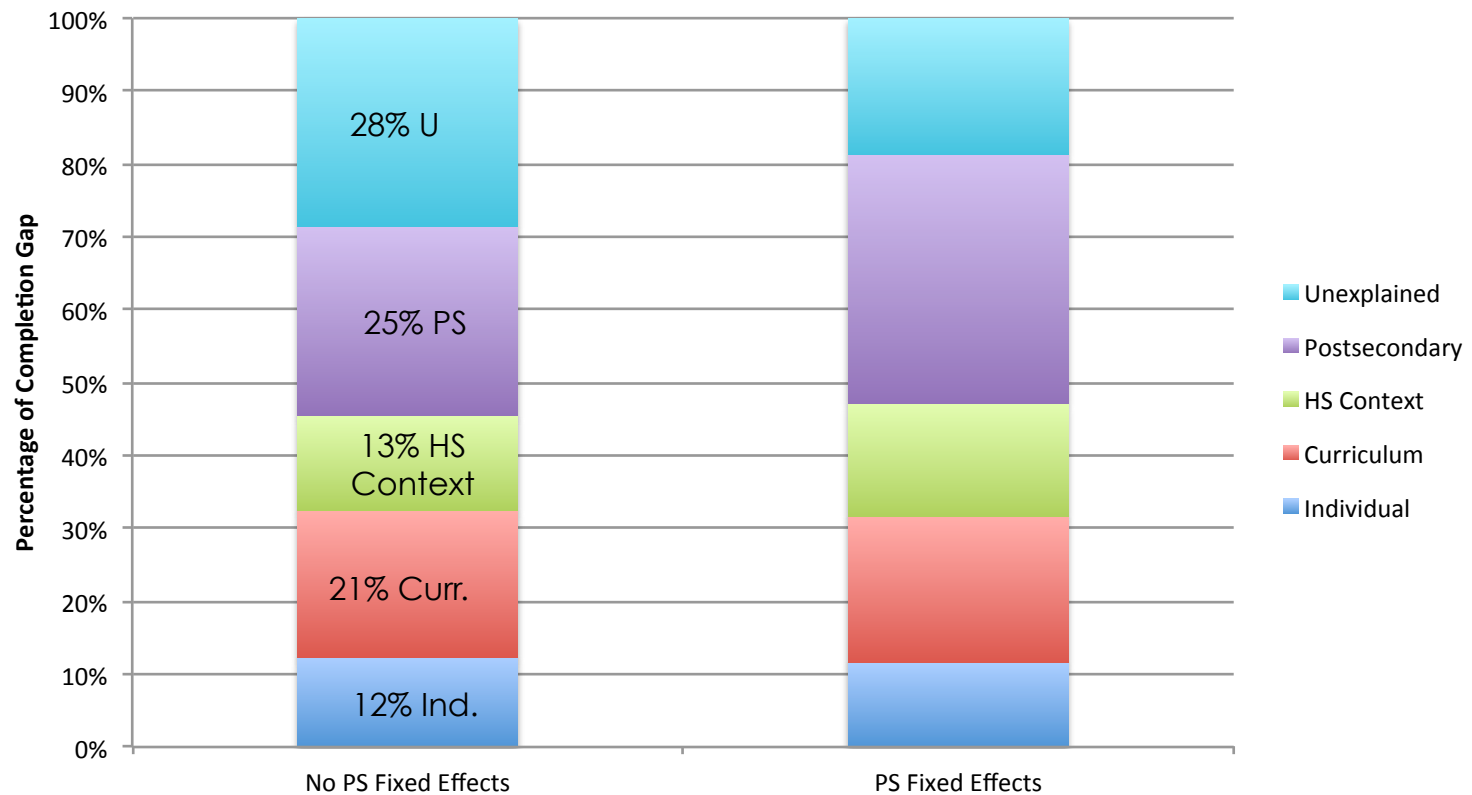
Decomposition

Year 2002:

- For the White-Hispanic gap we explain 71.6% of the variance in the model without fixed effects; 12.3% is due to individual characteristics, 20.6% is due to HS curriculum, 13% is due to high school context, and 25% is due to PS context—28.4% is unexplained. By including fixed effects, we explain more of the variance (81.3%); the PS fixed effects now explain 35.1% and the others stay relatively the same.

College Completion Gap in Texas: Variance Decomposition Analysis (Class 2002 - 2008)

Variance Decomposition: White-Hispanic, 2002
Total Variance Explained: 71% (no PS FE), 81% with PS FE



Decomposition

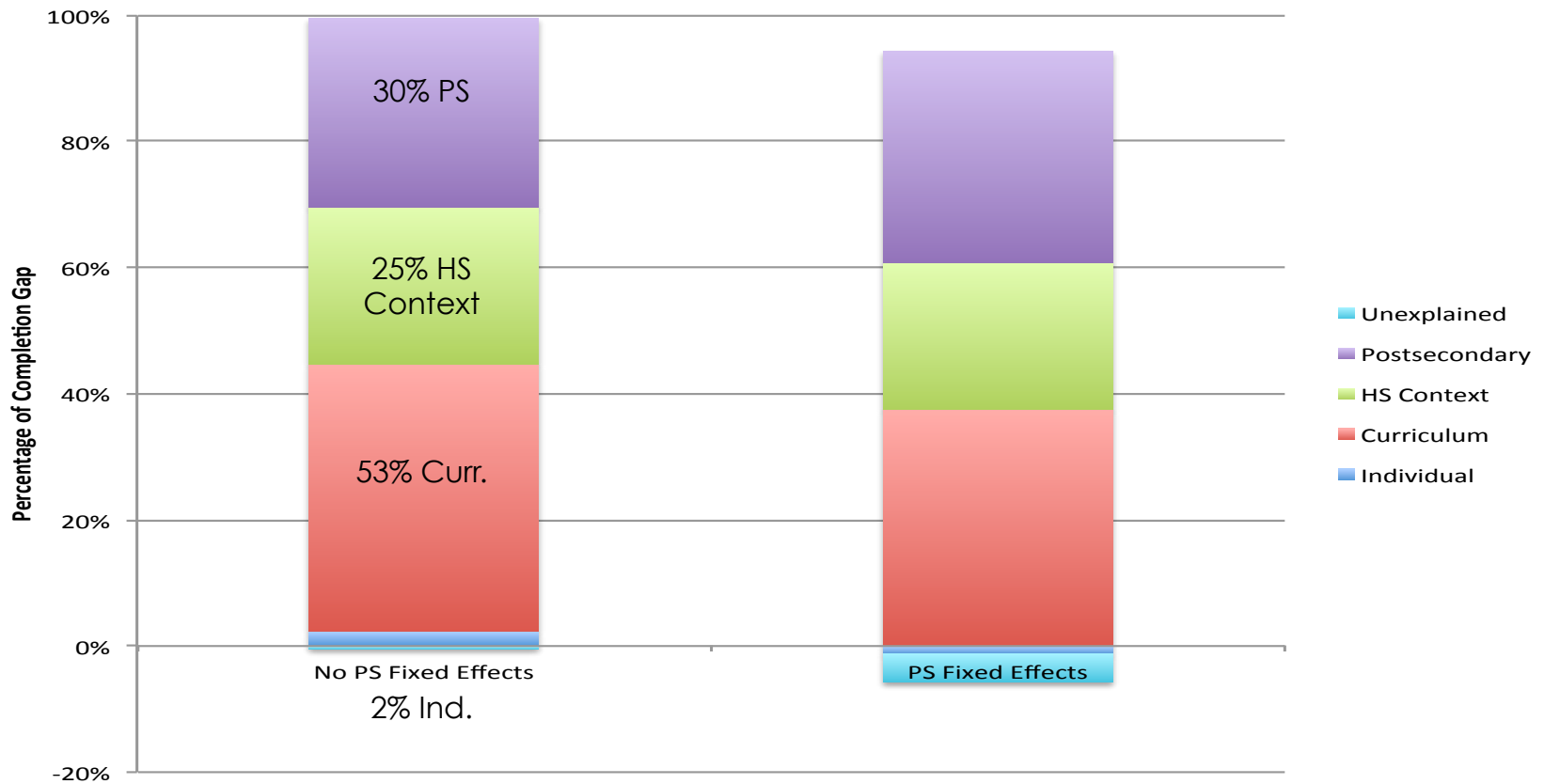
Year 2002:

- For the White-Black gap, current analyses show a slight overestimation of the variance. However, 2.3% is due to individual characteristics, 43.3% is due to HS curriculum, 24.9% is due to high school context, and 30% is due to PS context. By including fixed effects, the PS context now explains 37.8% and the others stay relatively the same.

College Completion Gap in Texas: Variance Decomposition Analysis (Class 2002 - 2008)

White-Black Gap (21.7%)

Variance Decomposition: White-Black (2002)



College Completion over Time in Texas

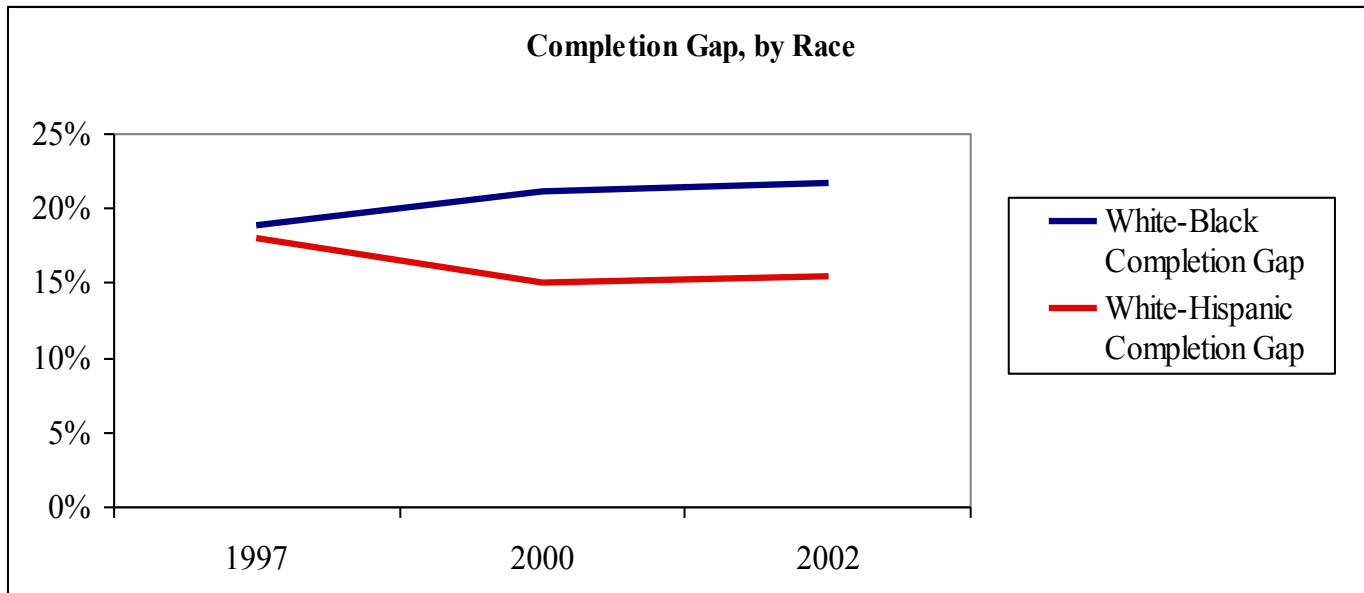
White-Hispanic

| | 1997 | 2000 | 2002 |
|---|----------------------|----------------------|----------------------|
| <i>Total Individual Characteristics</i> | 0.013 | 0.007 | 0.019 |
| <i>Total Curriculum Contribution</i> | 0.047 | 0.031 | 0.032 |
| <i>Total HS Context</i> | 0.032 | 0.010 | 0.020 |
| <i>Total Pre-College</i> | 0.092 | 0.048 | 0.071 |
| <i>Total PS Context</i> | 0.047 | 0.055 | 0.040 |
| Total Variance (Explained) | 0.181 (0.138) | 0.151 (0.102) | 0.155 (0.111) |

White-Black

| | 1997 | 2000 | 2002 |
|---|----------------------|----------------------|----------------------|
| <i>Total Individual Characteristics</i> | -0.002 | -0.002 | 0.005 |
| <i>Total Curriculum Contribution</i> | 0.090 | 0.074 | 0.094 |
| <i>Total HS Context</i> | 0.031 | 0.014 | 0.055 |
| <i>Total Pre-College</i> | 0.119 | 0.086 | 0.154 |
| <i>Total PS Context</i> | 0.054 | 0.090 | 0.065 |
| Total Variance (Explained) | 0.189 (0.172) | 0.211 (0.176) | 0.217 (0.218) |

The Racial College Completion Gap Over Time: Texas



Implications and Necessary Questions

Should college completion be the new “Universal” goal for K-20?

- Differential effects by enrollment and completion status by race and Ethnicity: Reasonable Hypotheses?
 - Geographic patterns: Hispanics Preference to Stay v. High Achieving Black Student Exodus
- The “Unexplained” – The Role of Financial Aid and Generational Status
- How should postsecondary institutions close the college completion gap?
- Beyond Enrollment and Access: What responsibility does K-12 have to close the college completion gap?
- Who else needs to participate in this endeavor?

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