Going with the Flow: Using the THECB Texas Talent Trajectory Dashboard to Understand High School Students' Path to Higher Education

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Agenda

- Background and Overview
- T3 Key Features
- Visualizing Student Pathways
- Data Masking
- Example Cases
- Future T3 Updates
- Q & A

Background

- The 8th Grade Cohort Report, Fall 1996 – Fall 2013 cohorts
  - THECB initiated a longitudinal study to analyze Texas student data from 8th grade to 6 years after high school graduation
  - Starting with the Fall 1996 cohort, only **one** out of **five** 8th grade students earned a college degree or certificate in Texas
  - This report illustrates the flow of students through the Texas education pipeline. Where are the "leaks" in the pipeline?

The 8th Grade Cohort Report consists of detailed spreadsheets with student data disaggregated by gender, ethnicity, economic disadvantage, and region

Background

- The Texas Talent Trajectory (T3) Dashboard
  - Same data as 8th Grade Cohort Report
  - Launched in Spring 2024
  - Interactive and user-friendly interface
    - Drop-down slicers
    - Ready-made data visualizations
    - Captures the "flow" of students
    - Quickly analyze three years of data
      - FY2011-FY2013
  - Statewide summaries are downloadable
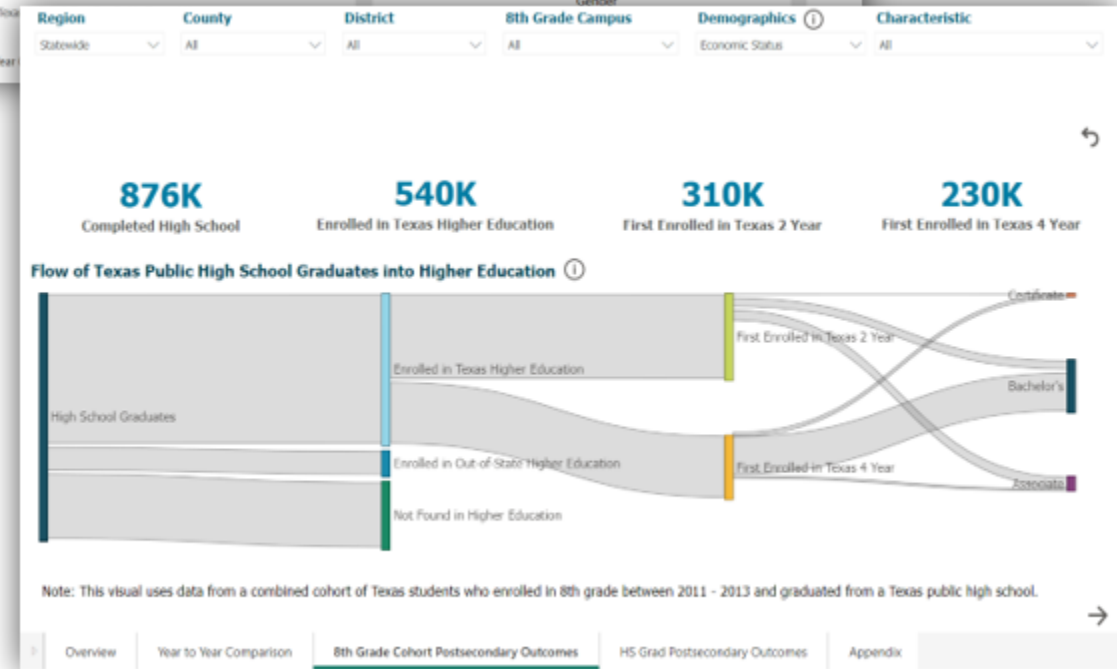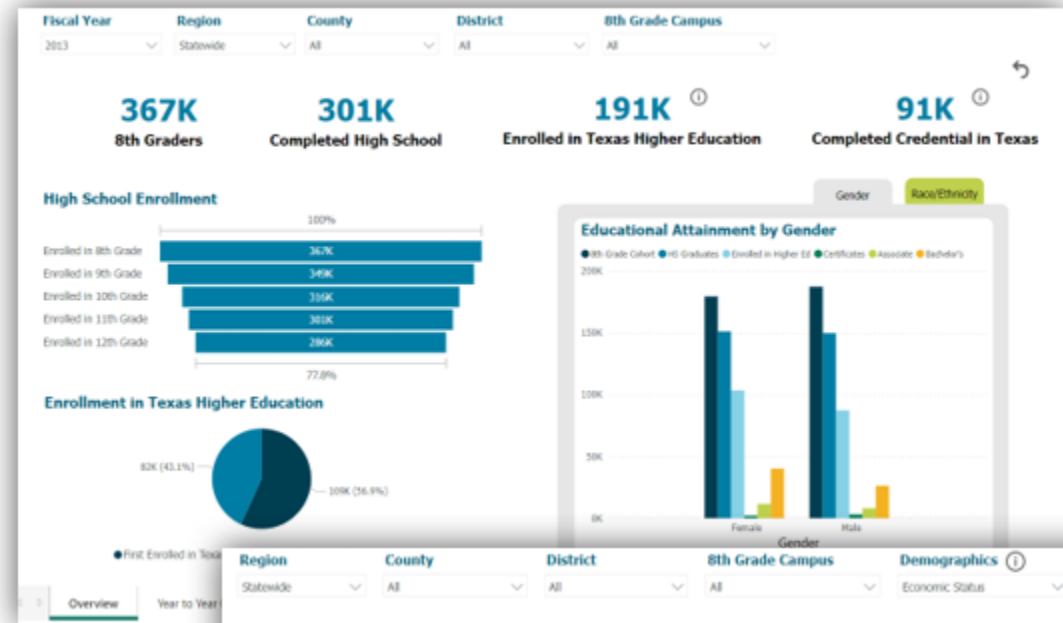
Texas Talent Trajectory Dashboard

Purpose: provide new insights on Texas students' education pathways by tracking academic progress from 8th grade through postsecondary education.

Scope: The cohort consists of 8th graders attending Texas public schools in a given fiscal year (FY11-FY13). It leverages National Student Clearinghouse and statewide data. Outcomes are tracked for 11 years, including the last year of middle school, 4 years of high school and six years of higher education.

Goal: empower educators, policymakers, and stakeholders to make data-driven insights and support informed decision-making

Data Sources

- TEA Enrollment Files, TEA Region/District/Campus files

- THECB Enrollment and Graduation Files (CBM001/CBM0C1/CBM009)

- For out-of-state data, we use National Student Clearinghouse Data

- SAS is used to pull all the data together and generate the final output that is used in PowerBI

Key Research Questions:

How many graduated from a Texas public high school?

How many enrolled in a Texas higher education institution versus enrolling out-of-state?

How many earned a college degree or credential within 6 years of high school graduation?

How do college pathways differ by student gender, ethnicity and economic status?

How have higher education trends changed? How do outcomes compare year to year?

T3 Features: Slicers/Filters

T3 data can be disaggregated by geography and student demographics to provide novel insights into students' educational pathways:

- Region
- County
- ISD/District
- School/Campus

- Gender
- Ethnicity
- Economic Status
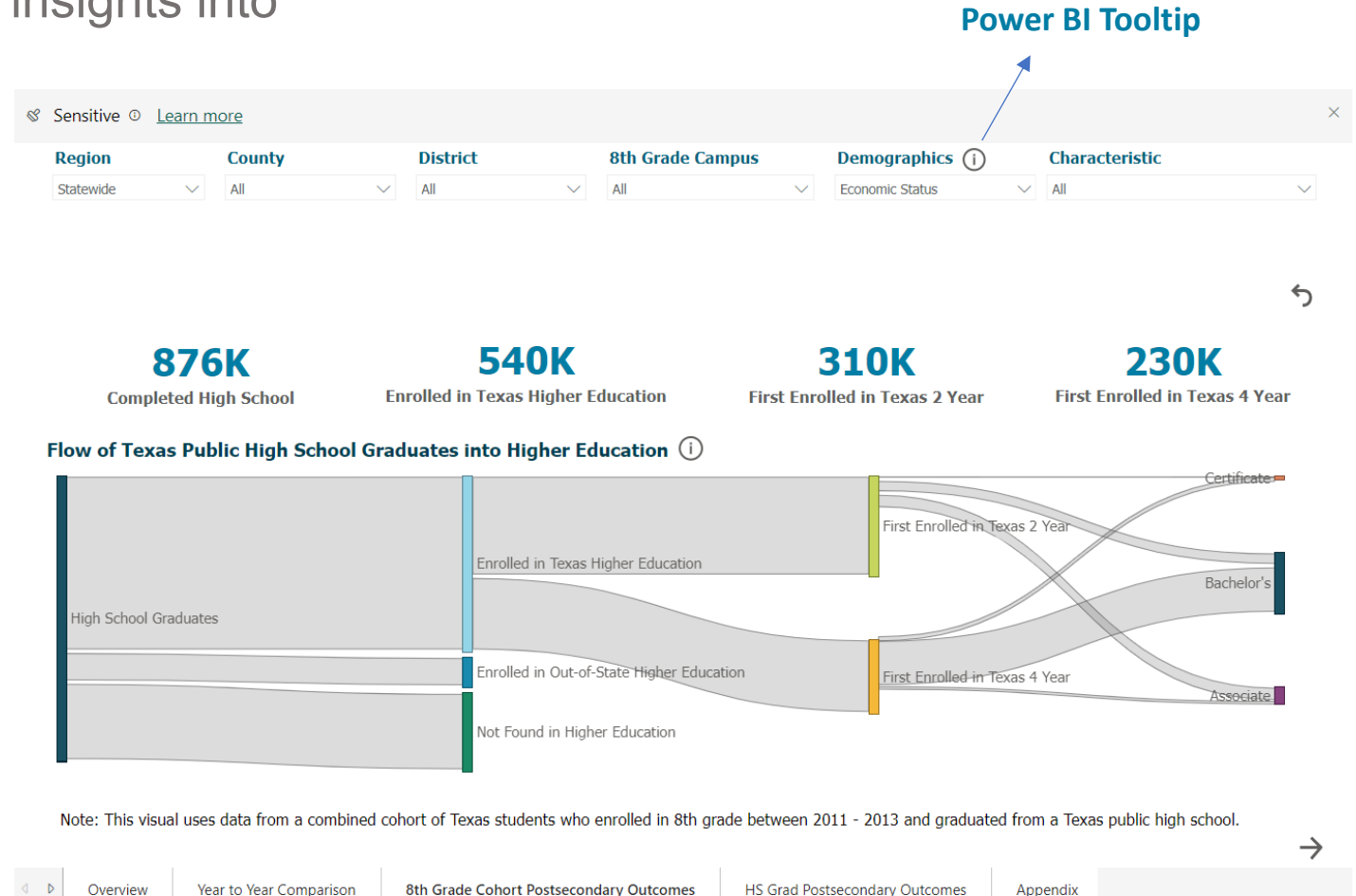
T3 Features: Downloadable Excel File

Visualizing Student Pathways

Exploring Student Pathways Through Sankey Diagrams
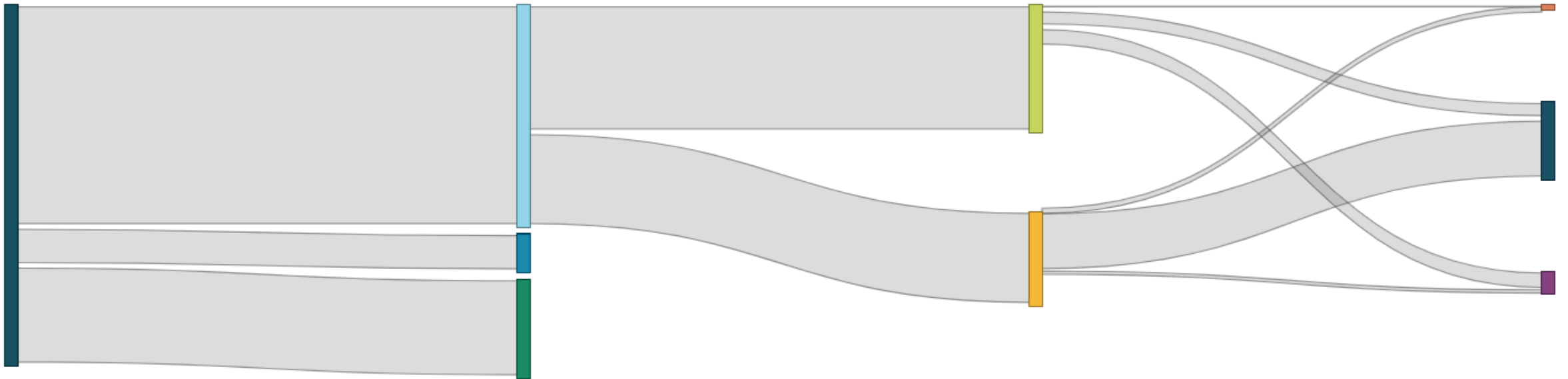
Features of a Sankey Diagram

Depicts the flow of a specific group or cohort into different destinations	
Visually, the width of bar is proportional to group count	
Each student is flagged by having a particular input and output state with only one pathway permitted for each student	

T3 Nodes

Flow of Texas Public High School Graduates into Higher Education ⓘ
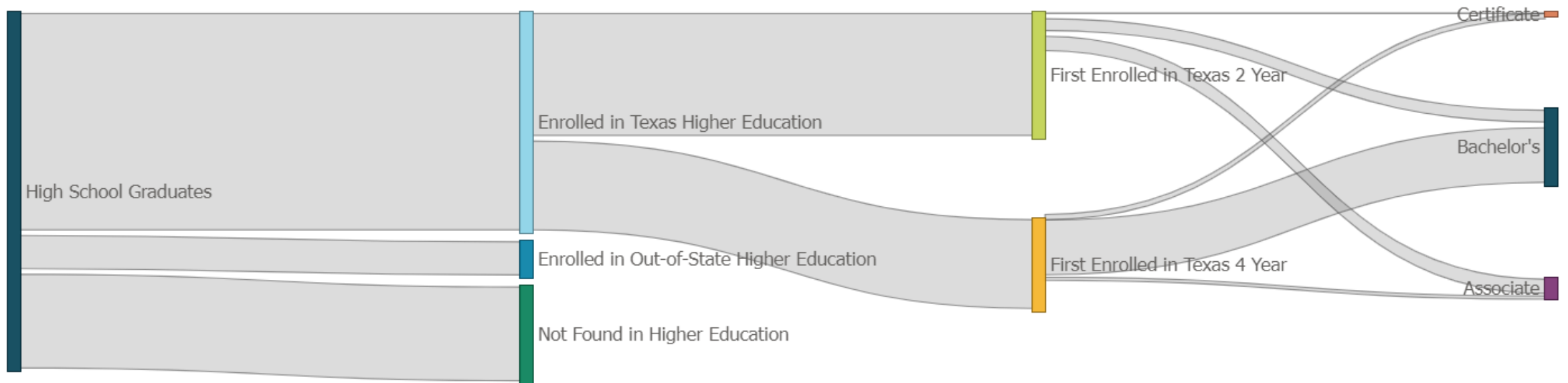
T3 Methodology – Years of Tracking

8th Grade Cohort X_0

High School Graduates
Enrolled in Texas Higher Education
Enrolled in Out-of-State Higher Education
Not Found in Higher Education
First Enrolled in Texas 2 Year
First Enrolled in Texas 4 Year
Certificate
Bachelor's
Associate

$X_3 + X_4 + X_5$

$X_6 + X_7 + X_8 + X_9 + X_{10} + X_{11}$

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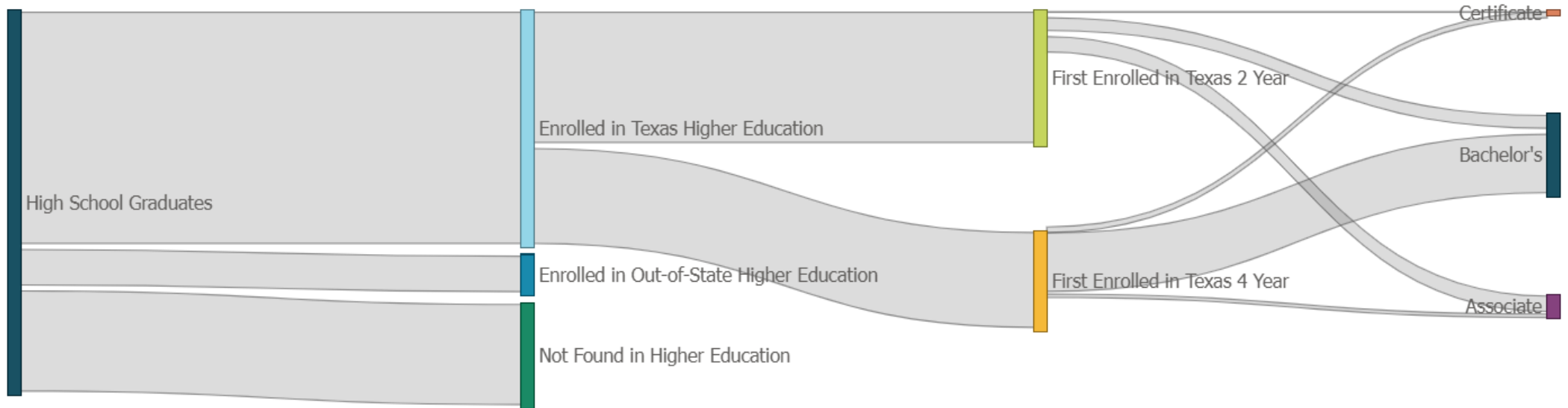
Pathways not shown in T3

- Stop out and re-enrollment
- Completions past 6 years
- Transfer pathways between institutions or states
- Multiple degrees attained (highest level is shown)

Statewide Trends and Insights

Economically Disadvantaged

Not Economically Disadvantaged
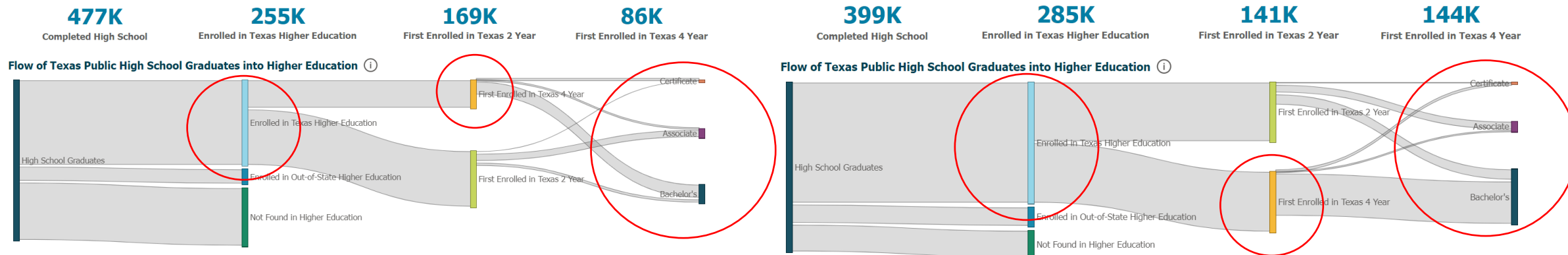
- Texas higher education enrollment is lower for economically disadvantaged students

- Enrollment in Texas 4-year institutions is lower for economically disadvantaged students

- Overall completions higher in non-economically disadvantaged students, especially for Bachelor's degrees

Statewide Trends and Insights

Female

438K	290K	162K	129K
Completed High School	Enrolled in Texas Higher Education	First Enrolled in Texas 2 Year	First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ

Male

438K	250K	149K	101K
Completed High School	Enrolled in Texas Higher Education	First Enrolled in Texas 2 Year	First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ

- Texas Higher Education enrollment is higher for female students than male students

- Higher proportion of male students not found in higher education (so not the case they go out of state)

- Higher proportion of female students who first enroll in a Texas 2-year and later complete a Bachelor's

Statewide Trends and Insights

African American

110K
Completed High School

70K
Enrolled in Texas Higher Education

38K
First Enrolled in Texas 2 Year

31K
First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ
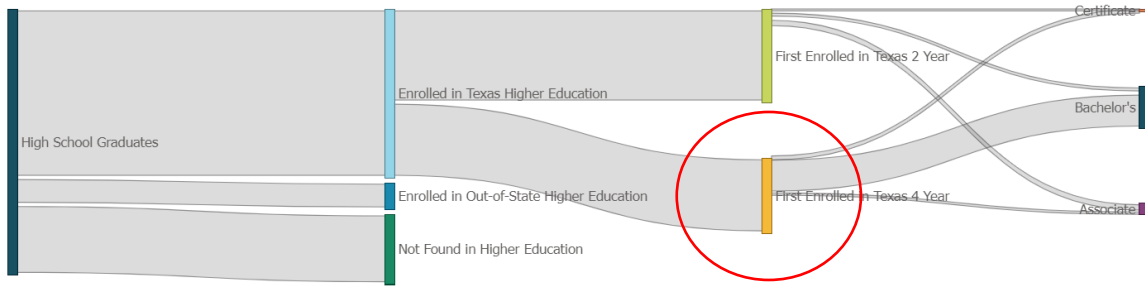
Hispanic

428K
Completed High School

242K
Enrolled in Texas Higher Education

157K
First Enrolled in Texas 2 Year

85K
First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ
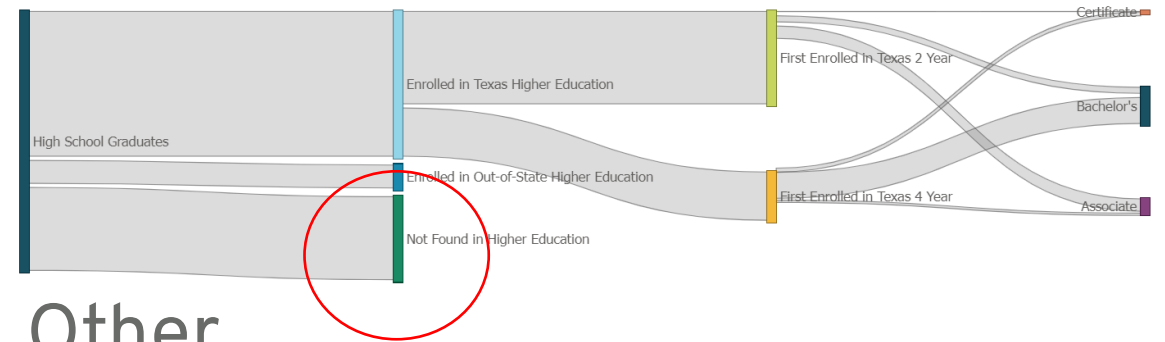
White

286K
Completed High School

191K
Enrolled in Texas Higher Education

100K
First Enrolled in Texas 2 Year

91K
First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ
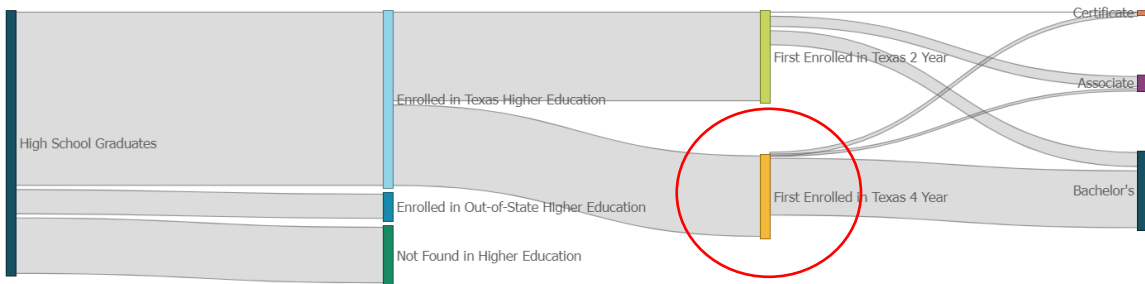
Other

52K
Completed High School

37K
Enrolled in Texas Higher Education

15K
First Enrolled in Texas 2 Year

22K
First Enrolled in Texas 4 Year

Flow of Texas Public High School Graduates into Higher Education ⓘ
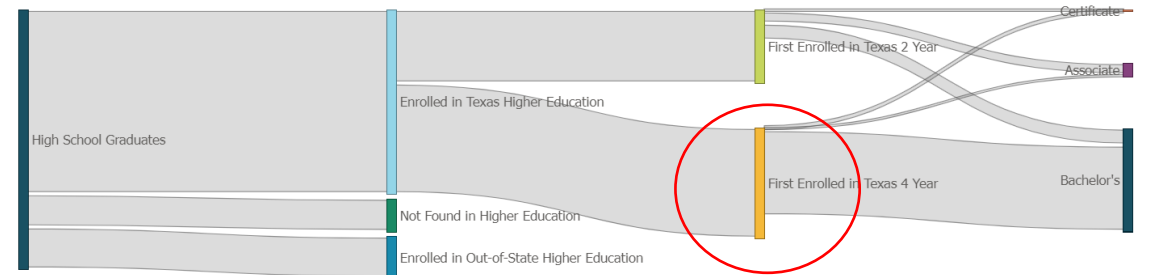
Data Masking

Data Masking

- Data suppression policy for student information

- Protects data that is linkable to a specific student or would identify the student

- Suppress ("mask") aggregate student counts of less than 5

- Data masking strategies used in T3:
    1) Combine/collapse categories
    2) Conditional Power BI syntax (DAX) measures to show blank/missing values if count < 5

Data Masking: Strategy 1

- For strategy 1, we consolidated multiple categories to produce more robust cell sizes
  - Reduces masking needs – allows more data to be shown
  - Helpful for high-dimensional data
  - Examples:

Student Education Outcomes by 8th Grade Cohort Year

Cohort Year	8th Graders	HS Graduates	First Enrolled in Texas 2 Year	% First Enrolled in Texas 2 Year	First Enrolled in Texas 4 Year	% First Enrolled in Texas 4 Year	Earned Associate Degrees or Certificates	% Associate Degrees or Certificates Earned	Earned Bachelor's Degrees	% Bachelor's Degrees Earned
2011	354,244	283,393	109,690	31%	75,991	21%	23,175	7%	63,495	18%
2012	360,198	292,107	109,385	30%	77,774	22%	23,842	7%	64,453	18%
2013	366,786	300,737	108,520	30%	82,122	22%	24,433	7%	66,353	18%

Note appearing beneath the Sankey diagram

Note: This visual uses data from a combined cohort of Texas students who enrolled in 8th grade between 2011 - 2013 and graduated from a Texas public high school.

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Data Masking: Strategy 2

- For strategy 2, we used Power BI syntax to create masked measures for our visualizations
  - If a condition is met (count ≥ 5), count is shown. If not met, count appears blank.
  - Examples:

23	16	9	
8th Graders	Completed High School	Enrolled in Texas Higher Education	Completed Credential in Texas

Educational Attainment by Gender

● 8th Grade Cohort ● HS Graduates ● Enrolled in Higher Ed ● Certificates ● Associate ● Bachelor's
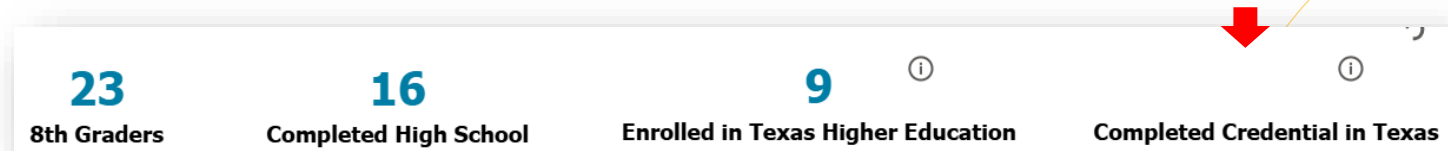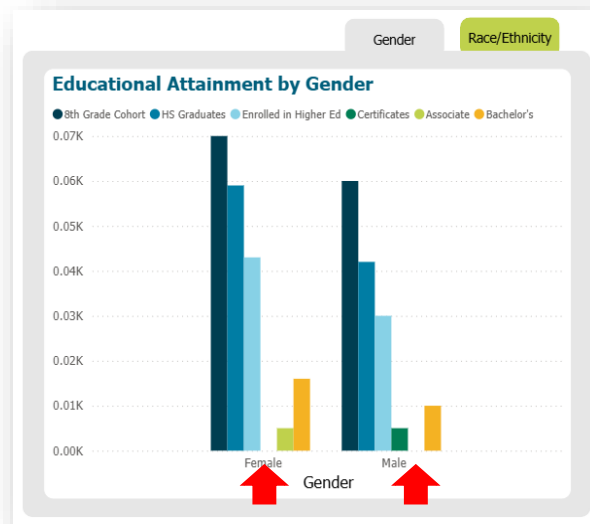
Enrollment in Texas Higher Education

Data masked for FERPA Compliance

● First Enrolled in Texas 2 Year ● First Enrolled in Texas 4 Year

In some places, we added a card visualization that appears when a condition is met. In this case, the text appears when both counts are blank

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Example Cases

T3 Dashboard Walkthrough

https://databridge.highered.texas.gov/the-texas-talent-trajectory/

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Find Your TEA Region

Texas Education Agency 20-Region Map

TEA Regions
- Abilene
- Amarillo
- Austin
- Beaumont
- Corpus Christi
- Edinburg
- El Paso
- Fort Worth
- Houston
- Huntsville
- Kilgore
- Lubbock
- Midland
- Mt. Pleasant
- Richardson
- San Angelo
- San Antonio
- Victoria
- Waco
- Wichita Falls
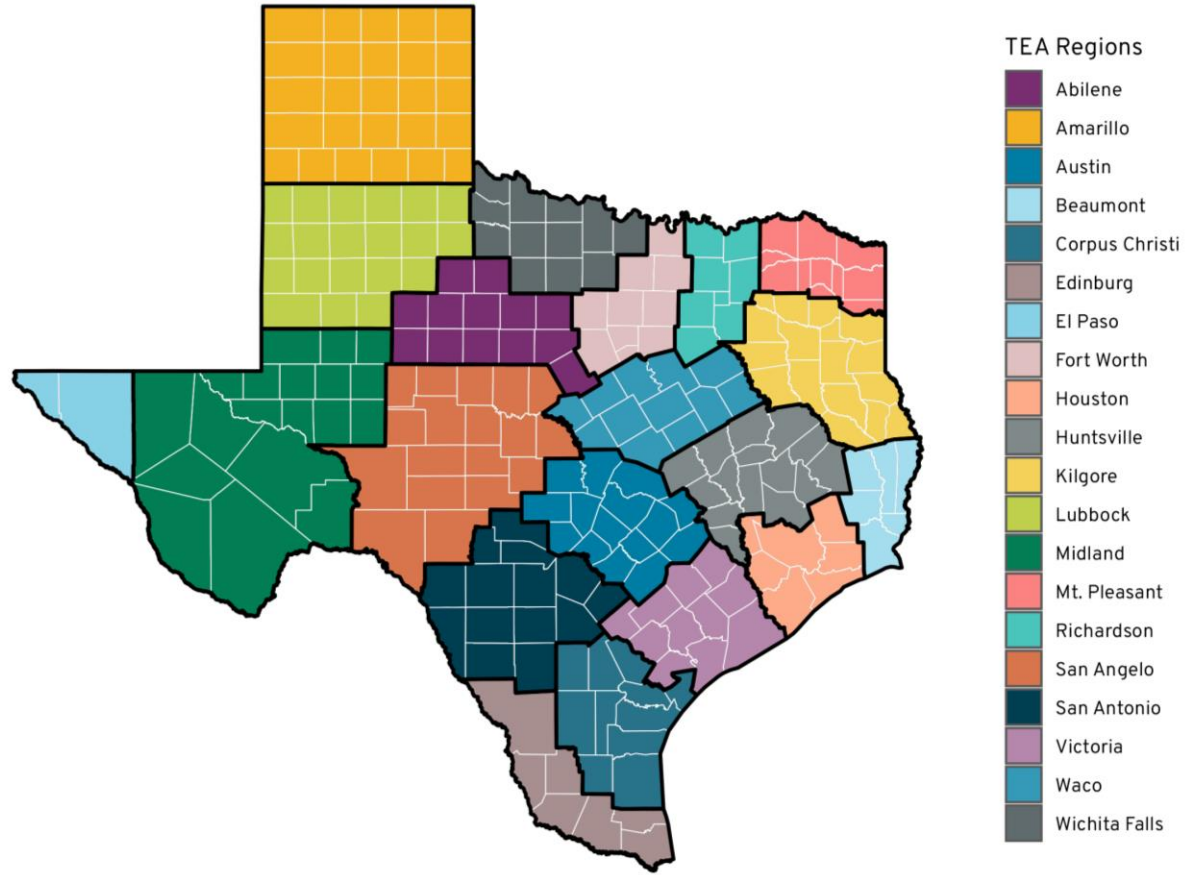
Find Your TEA Region

- On handouts:
  1) TEA Region map
  2) Table with region of campus location (**1a**) and the region with the highest percentage of first-time undergrads (FTUGs) in fall 2024 (**1b**)

Table 1. TEA Region of Campus and FTUGs Enrolled Fall 2024 - Universities

FICE	Institution Name	1a. TEA Region: Campus	1b. TEA Region: Students	% of FTUGs[1] from 1b
003541	Angelo State University	San Angelo	San Angelo	37%
003565	East Texas A&M University	Richardson	Richardson	73%
003581	Lamar University	Beaumont	Beaumont	60%
003592	Midwestern State University	Wichita Falls	Wichita Falls	46%
003594	University of North Texas	Fort Worth	Fort Worth	39%

[1] "% of FTUGs from 1b" = Percent of first-time undergraduate students whose permanent residence was in the 1b TEA region (out of all first-time undergraduate Texas residents).
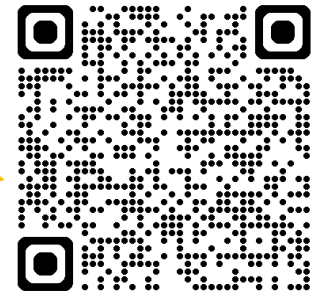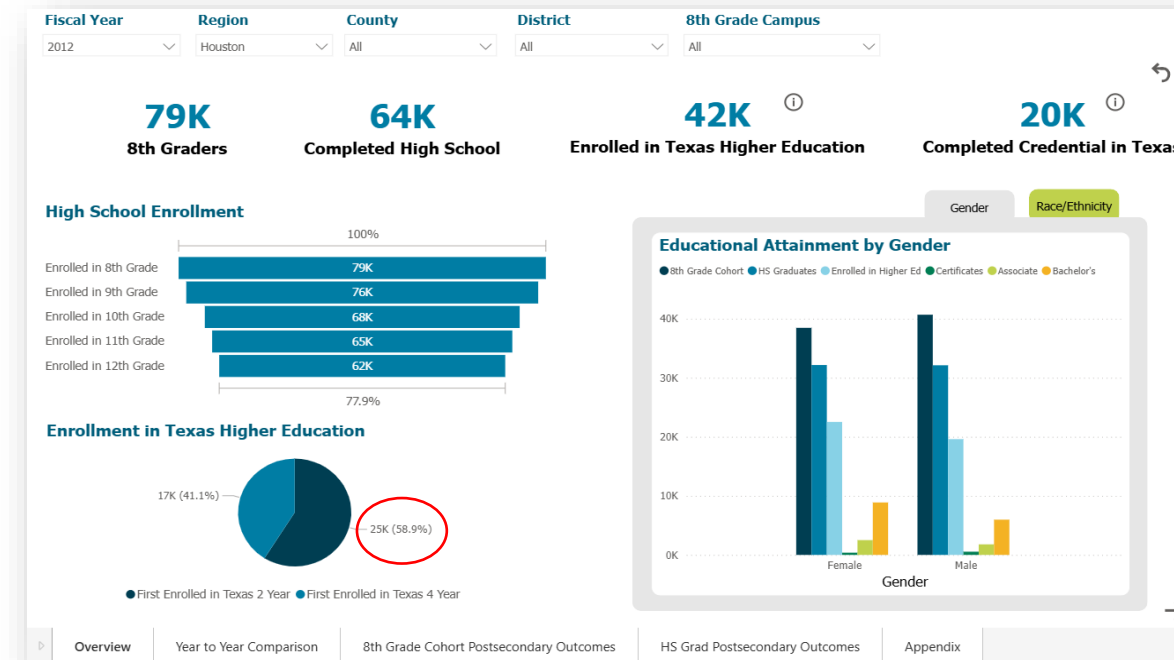
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Exercise 1

https://databridge.highered.texas.gov/the-texas-talent-trajectory/
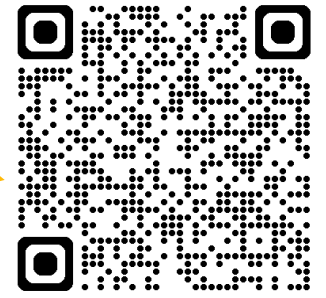
a) Navigate to the "Overview" tab and select the 2012 cohort. Using your region, how many 8th grade students were first enrolled in a Texas 2-year higher ed institution?

A: 25K students

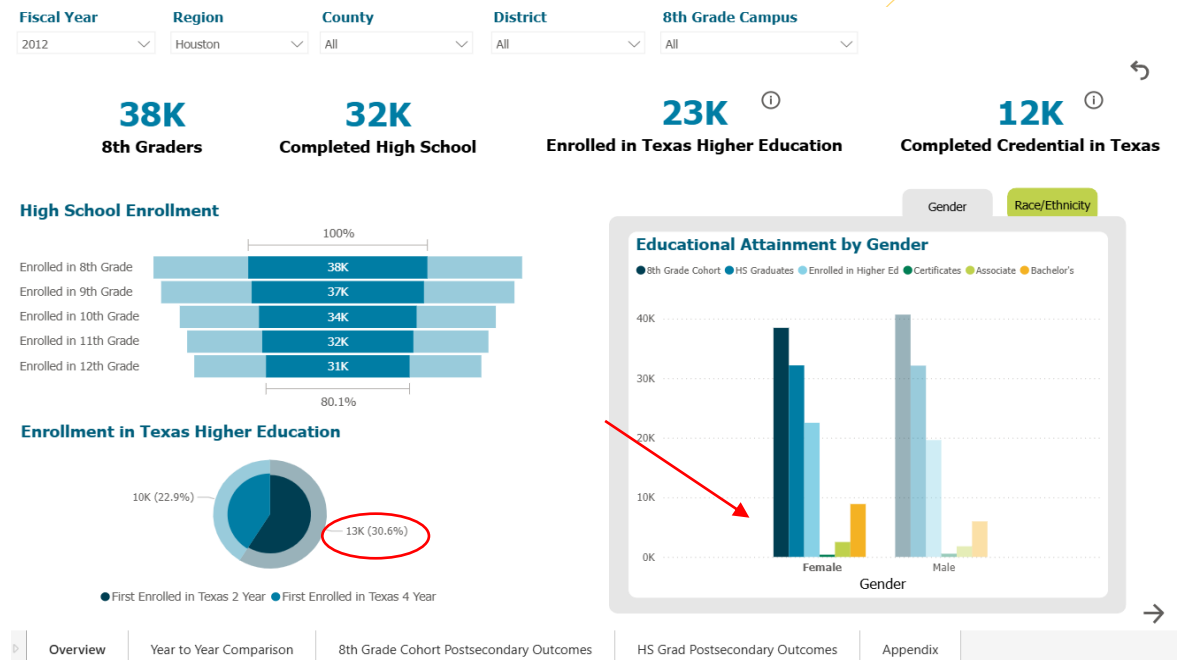THECB | Texas Higher Education COORDINATING BOARD

Exercise 1

a) Navigate to the "Overview" tab and select the 2012 cohort. Using your region, how many 8th grade students were first enrolled in a Texas 2-year higher ed institution?
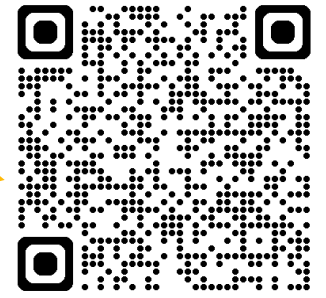
A: 25K students

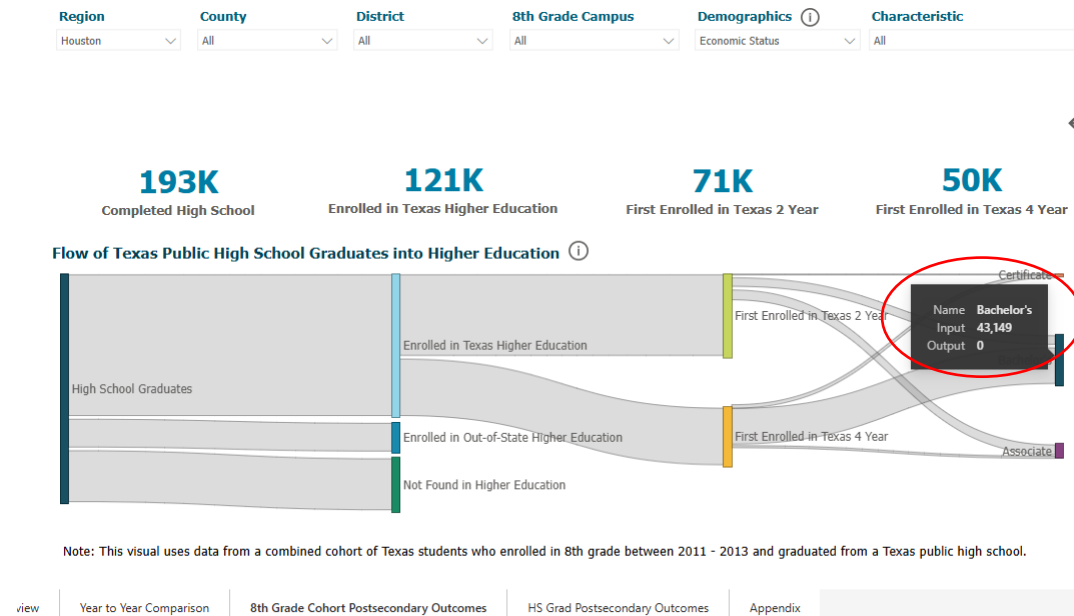b) How many of these students were female?

A: 13K students

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Exercise 2

a) Keep the same slicer selections and navigate to the "8th Grade Cohort Postsecondary Outcomes" tab. How many HS graduates from your region earned a Bachelor's degree?

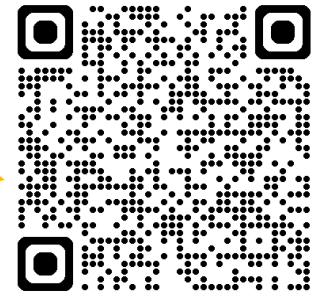   **A: 43,149 students (22% of all HS grads)**

Exercise 2

a) Keep the same slicer selections and navigate to the "8th Grade Cohort Postsecondary Outcomes" tab. How many HS graduates from your region earned a Bachelor's degree?

    A: 43,149 students (22% of all HS grads)

b) How many of the students earning Bachelor's degrees were economically disadvantaged in 8th grade?

    A: 12,920 students
    (13% of economically disadvantaged HS grads)

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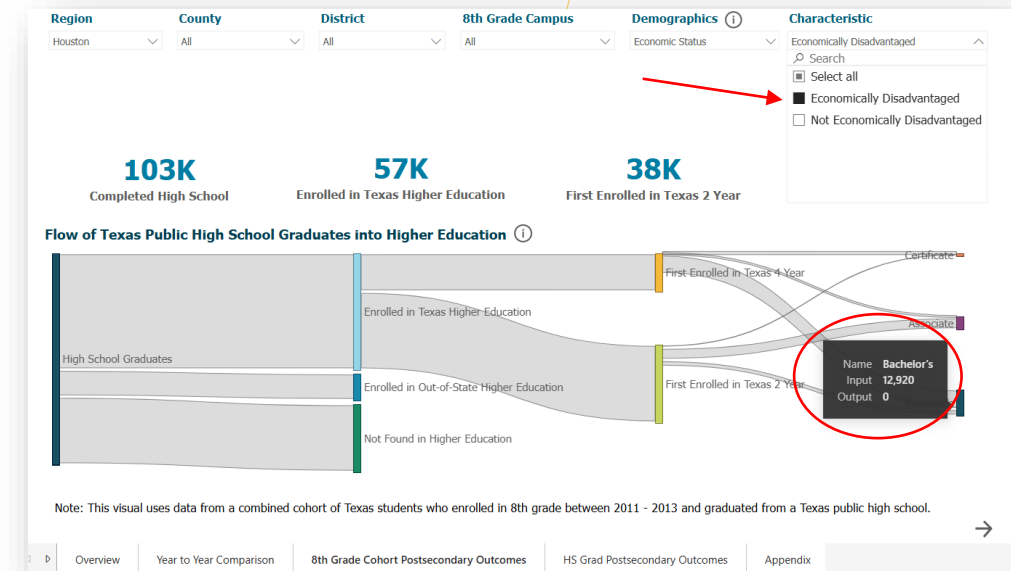
T3 Update Roadmap

T3 Update Roadmap

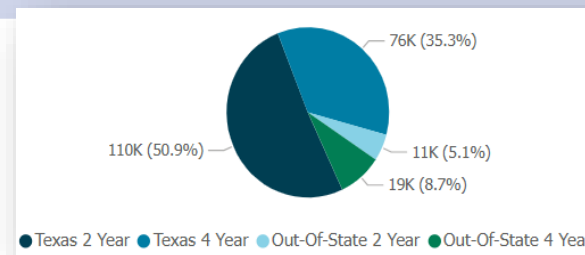Updating our data infrastructure: Migration to Snowflake*

Add out-of-state enrollments to all dashboard pages

New data: The 2014 8th grade cohort

76K (35.3%)
110K (50.9%)
11K (5.1%)
19K (8.7%)

● Texas 2 Year ● Texas 4 Year ● Out-Of-State 2 Year ● Out-Of-State 4 Year

Add out-of-state degrees and certificates data

*A cloud data warehouse platform that integrates storage and data analysis

Scan the QR code to receive session materials from THECB

Early Access to Materials

Contact us!

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