

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

Presenters:

Sharon Wong, Assistant Director, Data Management and Research

Alyssa Ibarra, PhD, Senior Visualization Analyst, Data Management and Research

Amy McCurdy, PhD, Director I Quantitative Research, Data Management and Research

Acknowledgements

- Texas Education Agency
- David Troutman, PhD, Deputy Commissioner, Academic Affairs
- Melissa Humphries, PhD, Assistant Commissioner, Data Management and Research
- Brian Cordeau, Deputy Assistant Commissioner, Data Management and Research

Agenda

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



Background

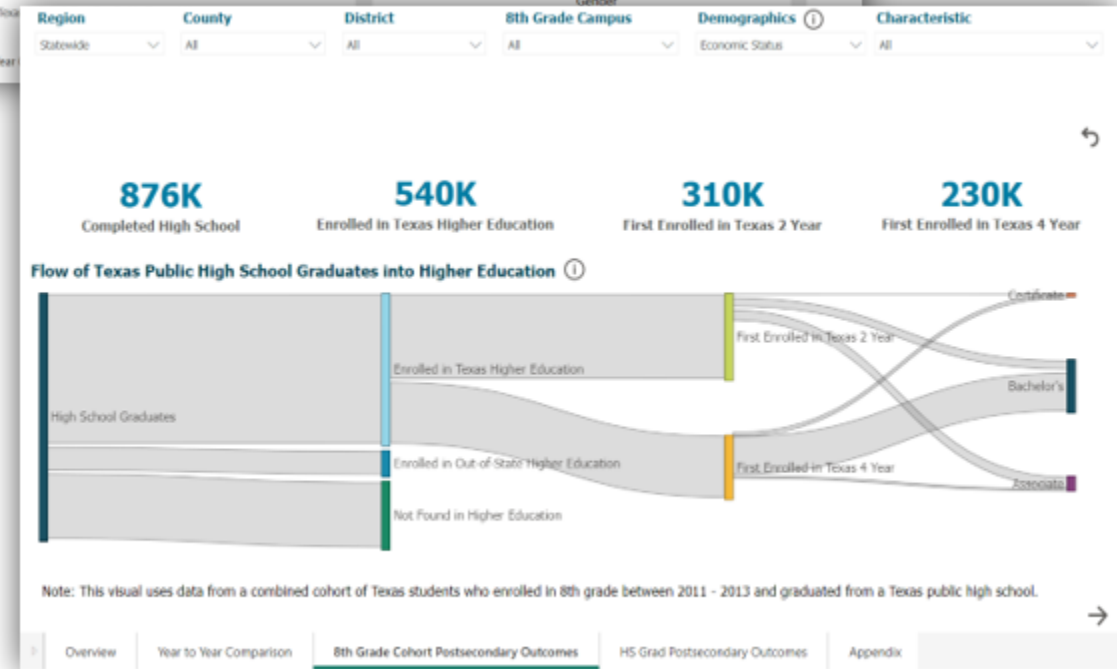
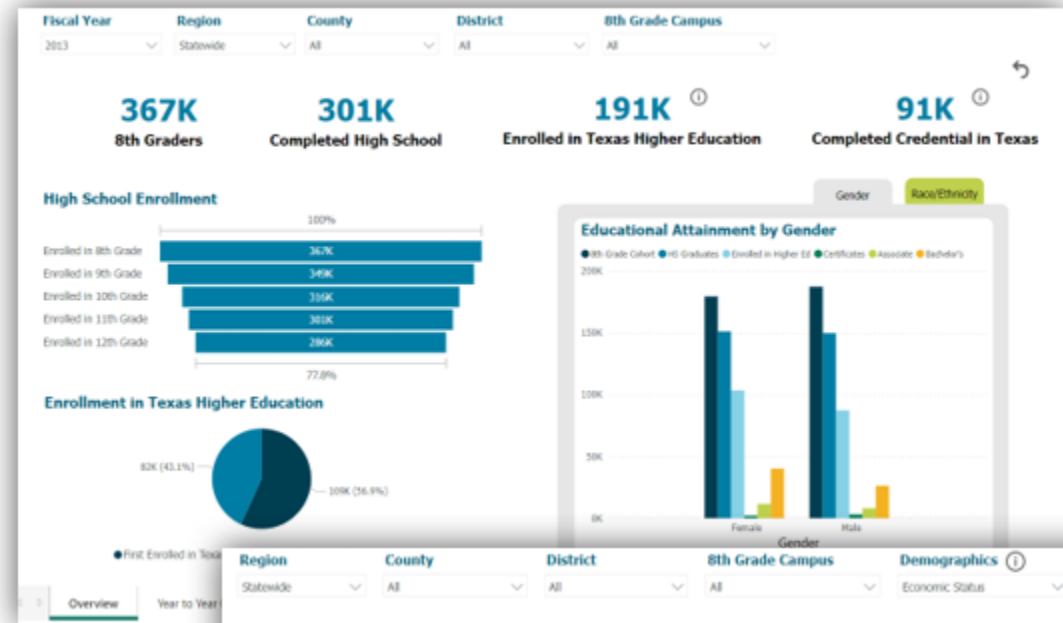
- The 8th Grade Cohort Report, Fall 1996 – Fall 2013 cohorts
 - THECB initiated a longitudinal study to analyze Texas student data from 8th grade to 6 years after high school graduation
 - Starting with the Fall 1996 cohort, only one out of five 8th grade students earned a college degree or certificate 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

	8th Grade (FY 2010)	Enrolled in 9th Grade (FY 2011)	Enrolled in 10th Grade (FY 2012)	Enrolled in <10th Grade (FY 2013)	High School Graduate FY 2013-2015	Enrolled TX 4-year	Enrolled TX 2-year	Enrolled in Higher Education	No Public HS Grad Record Enrolled in Higher Ed	Higher Ed Degree or Certificates Texas										
	#	#	%	#	%	#	%	#	%	%										
Over.	346,451	328,360	95%	293,955	85%	28,229	8%	274,263	79%	74,580	22%	109,904	32%	184,484	53%	8,820	3%	84,478	24%	
Female	168,946	160,439	95%	146,691	87%	10,583	6%	136,784	81%	41,022	24%	57,544	34%	98,566	58%	4,794	3%	49,086	29%	
Male	177,505	167,921	95%	147,264	83%	17,646	10%	137,479	77%	33,558	19%	52,360	30%	85,918	48%	4,026	2%	35,392	20%	
Not Economically Disadvantaged	152,870	146,036	96%	137,240	90%	6,204	4%	130,480	85%	48,243	32%	52,220	34%	100,463	66%	4,725	3%	55,037	36%	
Economically Disadvantaged	193,581	182,324	94%	156,715	81%	22,025	11%	143,783	74%	26,337	14%	57,684	30%	84,021	43%	4,095	2%	29,441	15%	
TEA Region																				
01. Edinburg	27,951	26,698	96%	23,097	83%	3,198	11%	22,702	81%	6,942	25%	8,606	31%	15,548	56%	374	1%	6,955	25%	
02. Corpus Christi	7,597	7,156	94%	6,434	85%	626	8%	5,879	77%	1,588	21%	2,226	29%	3,814	50%	154	2%	1,536	20%	
03. Victoria	3,740	3,596	96%	3,290	88%	234	6%	2,936	79%	566	15%	1,395	37%	1,961	52%	93	2%	950	25%	
04. Houston	75,892	72,158	95%	64,067	84%	6,643	9%	59,661	79%	16,403	22%	24,605	32%	41,008	54%	2,176	3%	19,133	25%	
05. Beaumont	5,884	5,615	95%	5,134	87%	332	6%	4,564	78%	1,378	23%	1,673	28%	3,051	52%	160	3%	1,363	23%	
06. Huntsville	12,429	11,747	95%	10,609	85%	887	7%	9,696	78%	2,331	19%	3,891	31%	6,222	50%	337	3%	2,950	24%	
07. Kilgore	11,917	11,338	95%	10,546	89%	599	5%	9,506	80%	1,814	15%	4,434	37%	6,248	52%	335	3%	2,892	24%	
08. Mt. Pleasant	4,150	3,928	95%	3,623	87%	182	4%	3,061	74%	599	14%	1,511	36%	2,110	51%	294	6%	938	23%	
09. Wichita Falls	2,820	2,653	94%	2,442	87%	127	5%	2,238	79%	639	23%	752	27%	1,391	49%	64	2%	644	23%	
10. Richardson	53,102	49,381	93%	45,346	85%	4,194	8%	42,862	81%	11,001	21%	17,141	32%	28,142	53%	1,256	2%	12,572	24%	
11. Fort Worth	38,635	36,765	95%	32,829	85%	3,092	8%	30,828	80%	8,492	22%	12,331	32%	20,823	54%	1,061	3%	9,644	25%	
12. Waco	10,704	9,907	93%	8,763	82%	900	8%	8,217	77%	1,785	17%	4,035	38%	5,820	54%	363	3%	2,575	24%	
13. Austin	26,123	24,937	95%	22,743	87%	1,710	7%	21,200	81%	6,813	26%	6,845	26%	13,580	52%	629	2%	6,709	26%	
14. Abilene	3,339	3,145	94%	2,857	86%	203	6%	2,596	78%	791	24%	963	29%	1,754	53%	86	3%	891	27%	
15. San Angelo	3,378	3,233	96%	2,991	89%	190	6%	2,743	81%	946	28%	797	24%	1,743	52%	62	2%	882	26%	
16. Amarillo	6,044	5,771	95%	5,047	84%	545	9%	4,787	79%	1,124	19%	2,077	34%	3,201	53%	113	2%	1,547	26%	
17. Lubbock	5,528	5,299	96%	4,889	88%	313	6%	4,497	81%	1,199	22%	1,734	31%	2,993	53%	101	2%	1,376	25%	
18. Midland	5,385	5,087	94%	4,636	86%	393	7%	3,869	72%	952	18%	1,647	31%	2,599	48%	137	3%	1,129	21%	
19. El Paso	14,314	12,521	87%	10,441	81%	1,444	11%	10,359	78%	3,240	24%	2,405	23%	7,655	58%	356	3%	2,881	22%	

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?



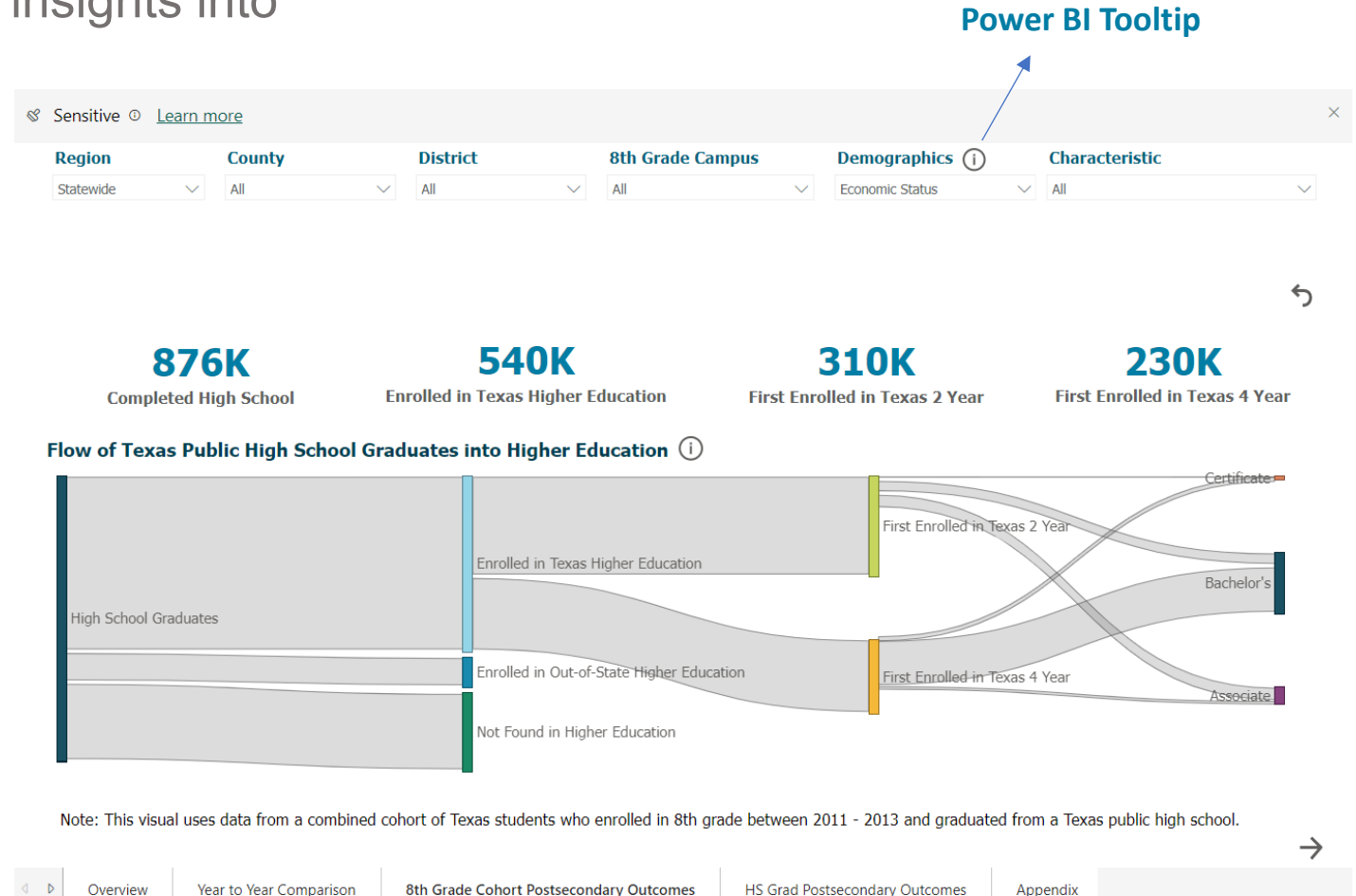
How have higher education trends changed? How do outcomes compare year to year?

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

Texas Talent Trajectory

Data definitions

Regions map

Download data

About the data

Updates

Download Available Excel Reports for the 8th Grade Cohort

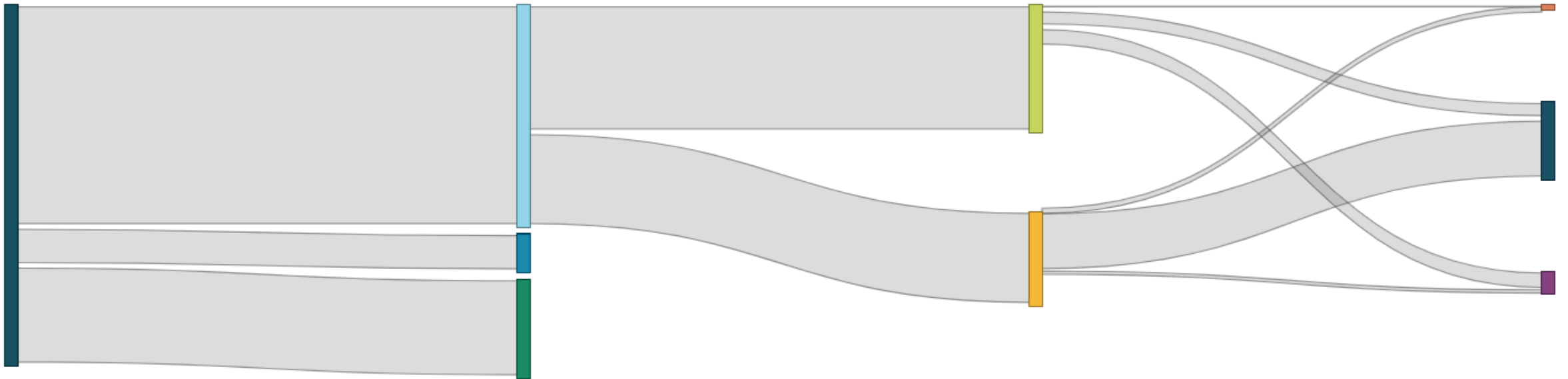
The most recent 8th grade cohort studies are published here. These reports are hosted on the THED website and can be downloaded in Excel format.

Download

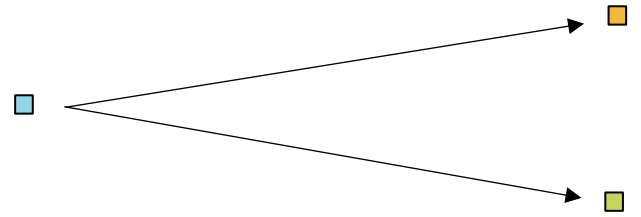

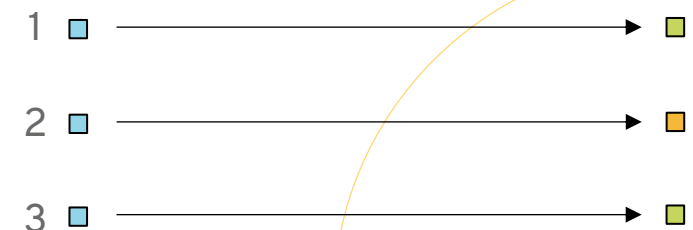
Statewide Summary															
8th Grade Cohort Tracked through Higher Education															
	8th Grade		Enrolled in 9th Grade		Enrolled in 10th Grade		Enrolled in 11th Grade		Enrolled in 12th Grade		High School Graduate		Enrolled in TX Higher Education		Enrolled High School
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#
2011	354,244	95%	336,558	95%	299,635	85%	283,753	80%	269,227	76%	283,393	80%	185,681	52%	30,000
2012	360,198	95%	343,863	95%	308,318	86%	292,874	81%	277,527	77%	292,107	81%	187,159	52%	32,000
2013	366,786	95%	349,093	95%	316,256	86%	301,151	82%	285,509	78%	300,737	82%	190,642	52%	32,000
Grand Total	1,081,228	95%	1,029,514	95%	924,209	85%	877,778	81%	832,263	77%	876,237	81%	563,482	52%	94,000
2011															
Female	172,736	95%	164,552	95%	149,728	87%	142,686	83%	134,889	78%	141,732	82%	99,357	58%	14,000
Male	181,508	95%	179,311	95%	149,907	83%	141,067	78%	134,338	74%	141,661	78%	86,324	48%	15,000
2012															
Female	175,122	96%	167,626	96%	153,419	88%	146,612	84%	138,277	79%	145,664	83%	100,120	57%	16,000
Male	185,076	95%	176,237	95%	154,899	84%	146,262	79%	139,250	75%	146,443	79%	87,039	47%	16,000
2013															
Female	179,448	95%	171,239	95%	158,274	88%	151,759	85%	143,302	80%	151,074	84%	103,408	58%	16,000

Visualizing Student Pathways

Exploring Student Pathways Through Sankey Diagrams

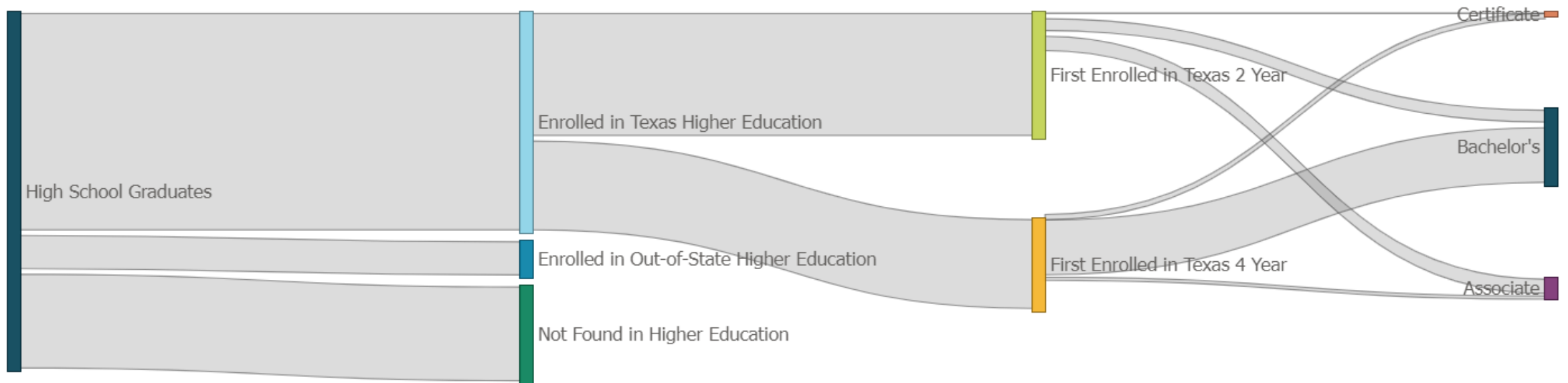


Features of a Sankey Diagram

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

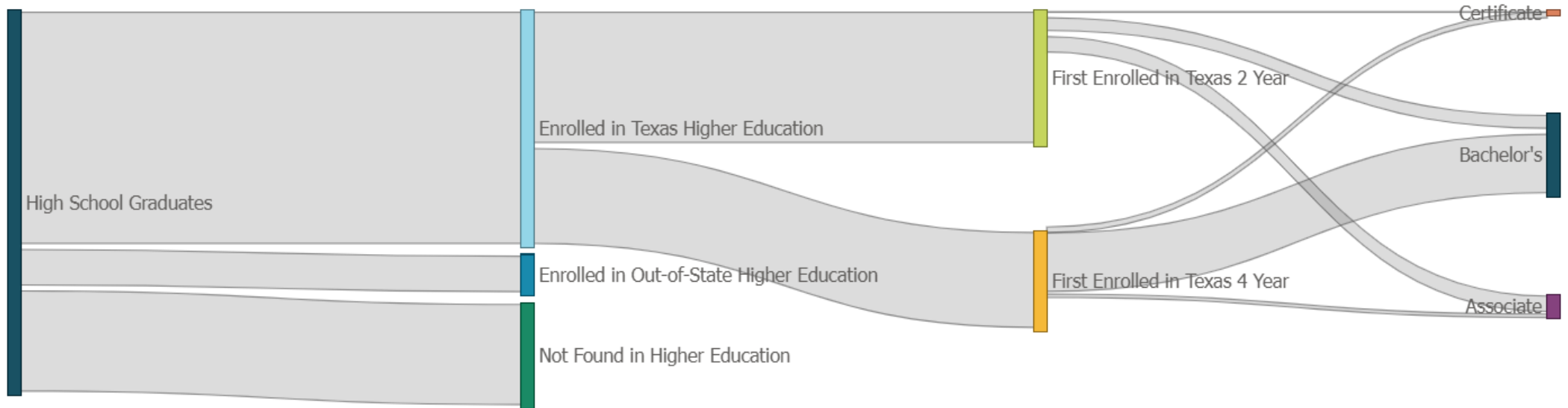
T3 Nodes

Flow of Texas Public High School Graduates into Higher Education ⓘ



T3 Methodology – Years of Tracking

8th
Grade
Cohort
X₀



X₃ + X₄ + X₅



X₆ + X₇ + X₈ + X₉ + X₁₀ + X₁₁



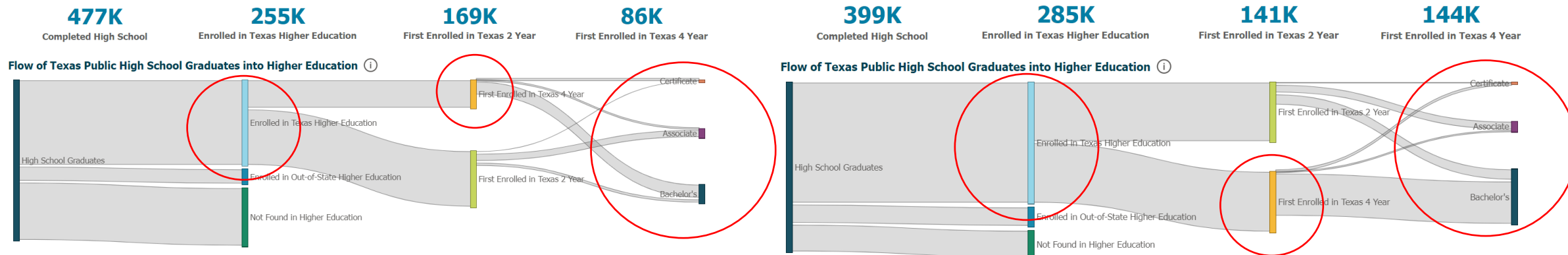
| Pathways not shown in T3

- 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

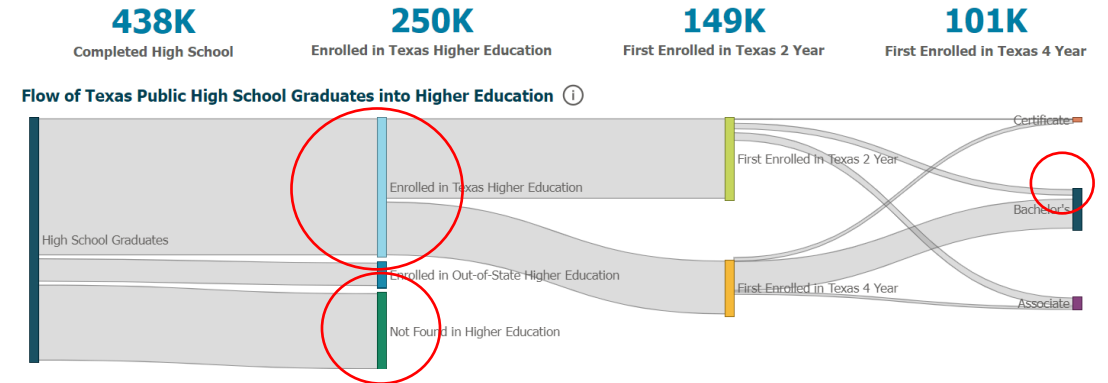
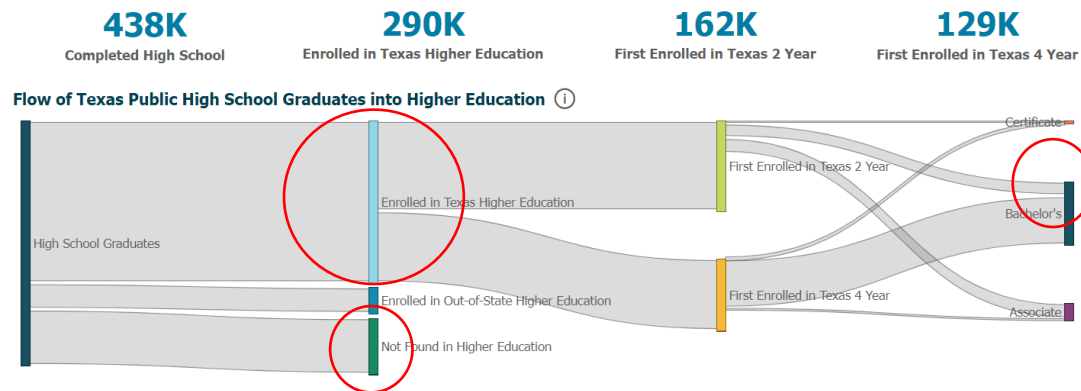


- Texas higher education enrollment is lower for economically disadvantaged students
- Enrollment in Texas 4-year institutions is lower for economically disadvantaged students
- Overall completions higher in non-economically disadvantaged students, especially for Bachelor's degrees

Statewide Trends and Insights

Female

Male



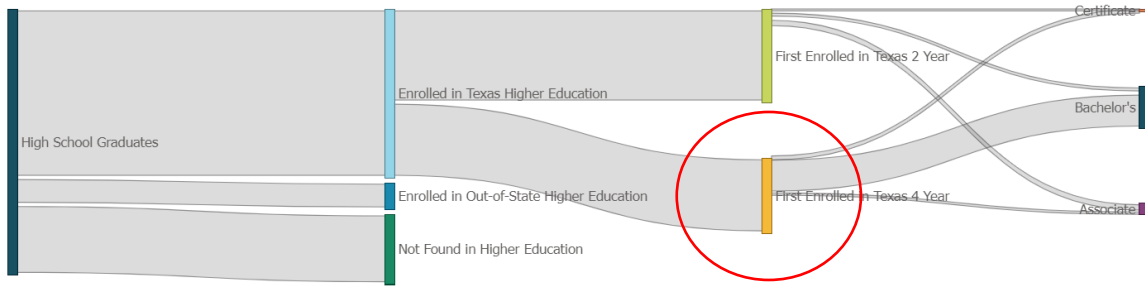
- Texas Higher Education enrollment is higher for female students than male students
- Higher proportion of male students not found in higher education (so not the case they go out of state)
- Higher proportion of female students who first enroll in a Texas 2-year and later complete a Bachelor's

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

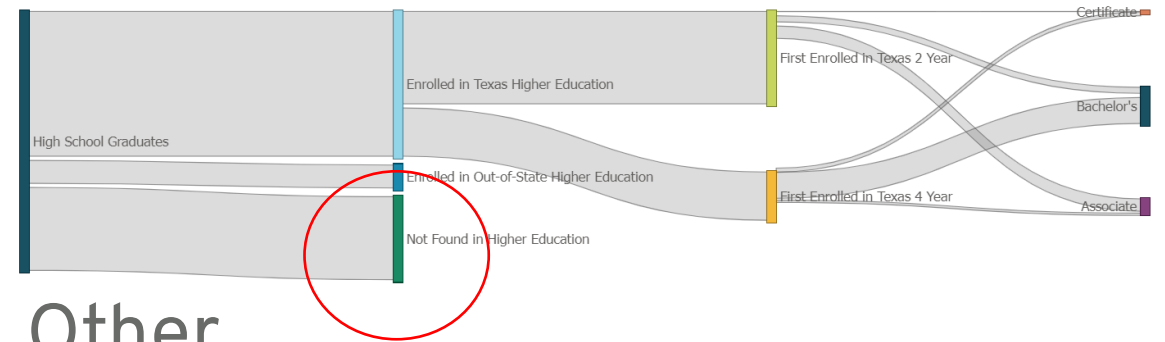
Flow of Texas Public High School Graduates into Higher Education ⓘ



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

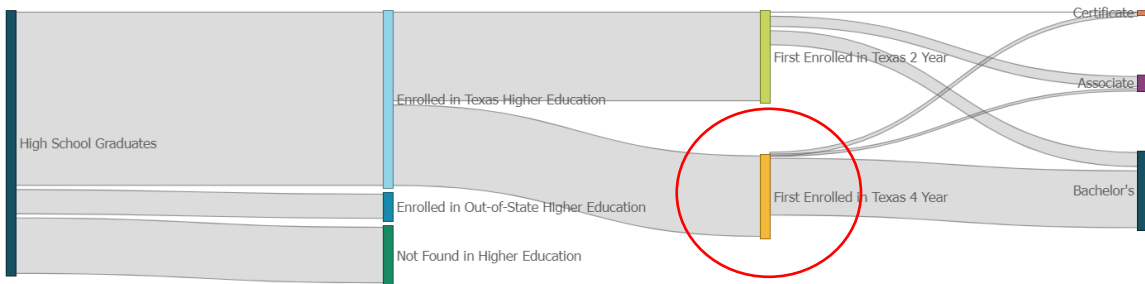
Flow of Texas Public High School Graduates into Higher Education ⓘ



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

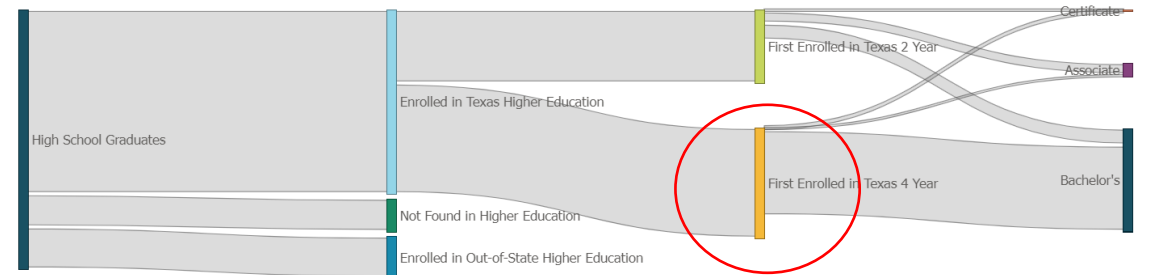
Flow of Texas Public High School Graduates into Higher Education ⓘ



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:

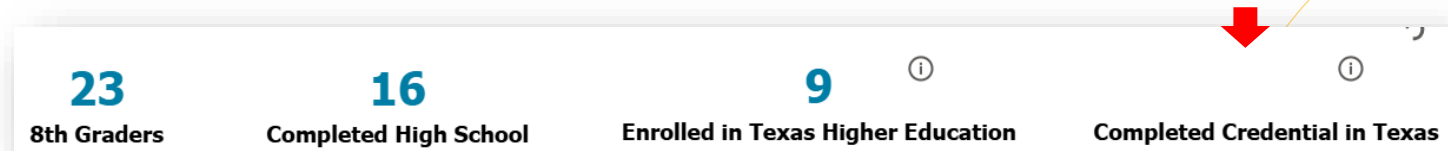
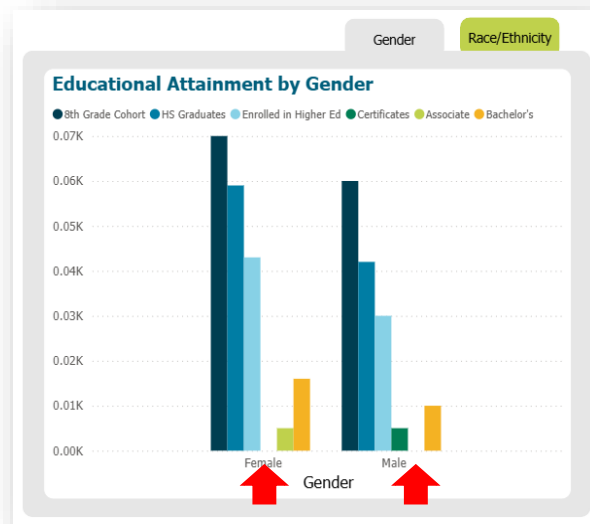
Cohort Year	8th Graders	HS Graduates	First Enrolled in Texas 2 Year	% First Enrolled in Texas 2 Year	First Enrolled in Texas 4 Year	% First Enrolled in Texas 4 Year	Earned Associate Degrees or Certificates	% Associate Degrees or Certificates Earned	Earned Bachelor's Degrees	% Bachelor's Degrees Earned
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.

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:



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

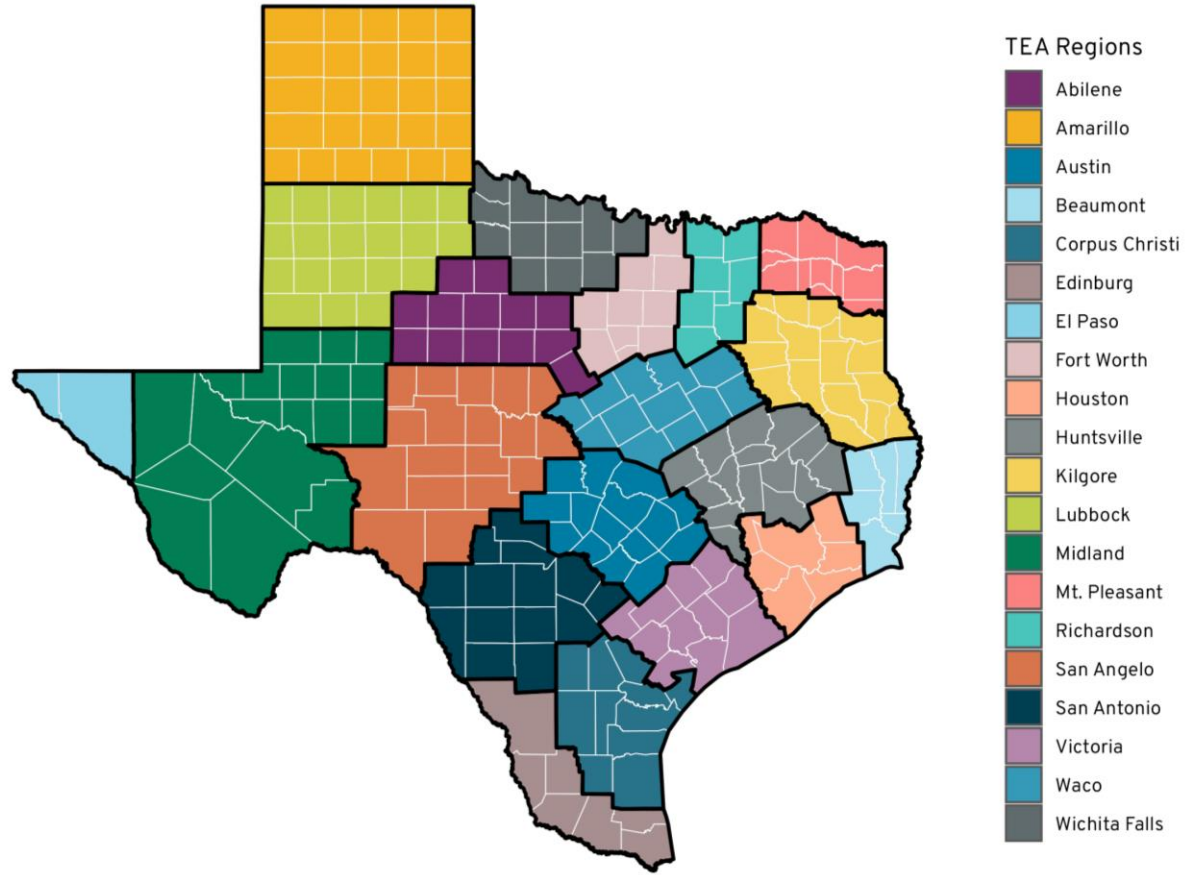
Example Cases

T3 Dashboard Walkthrough

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

Find Your TEA Region

Texas Education Agency 20-Region Map



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**)

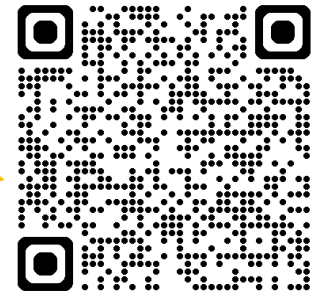
Table 1. TEA Region of Campus and FTUGs Enrolled Fall 2024 - Universities

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).

Exercise 1

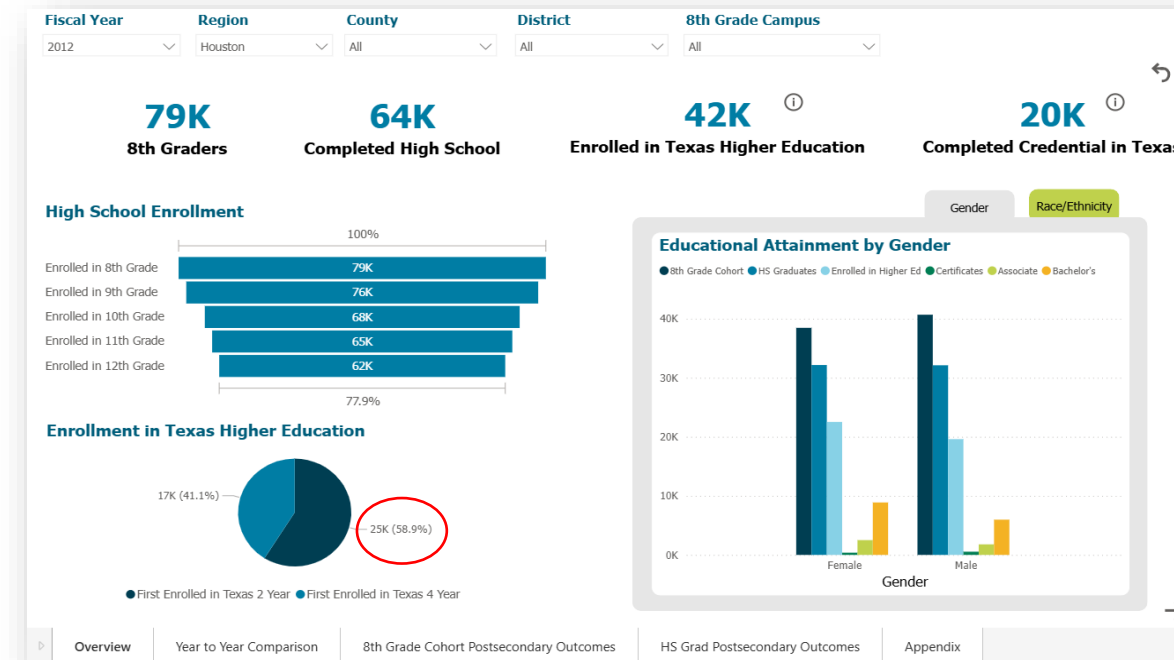
Access T3 here!



<https://databrige.highered.texas.gov/the-texas-talent-trajectory/>

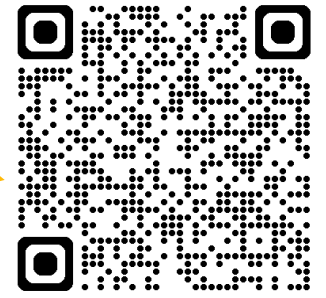
a) Navigate to the "Overview" tab and select the 2012 cohort. Using your region, how many 8th grade students were first enrolled in a Texas 2-year higher ed institution?

A: 25K students



Exercise 1

Access T3 here!



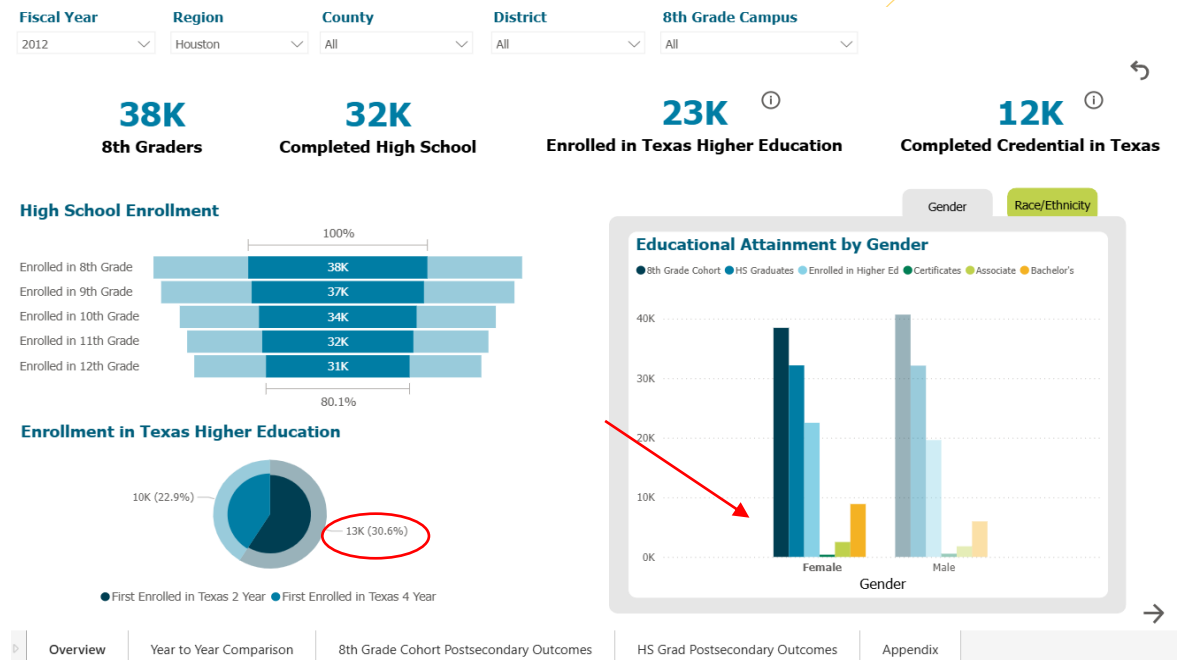
<https://databrige.highered.texas.gov/the-texas-talent-trajectory/>

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

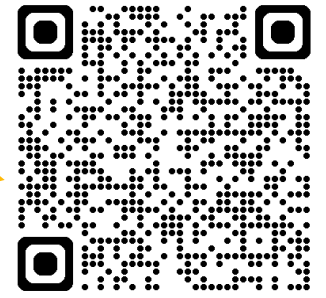
b) How many of these students were female?

A: 13K students



Exercise 2

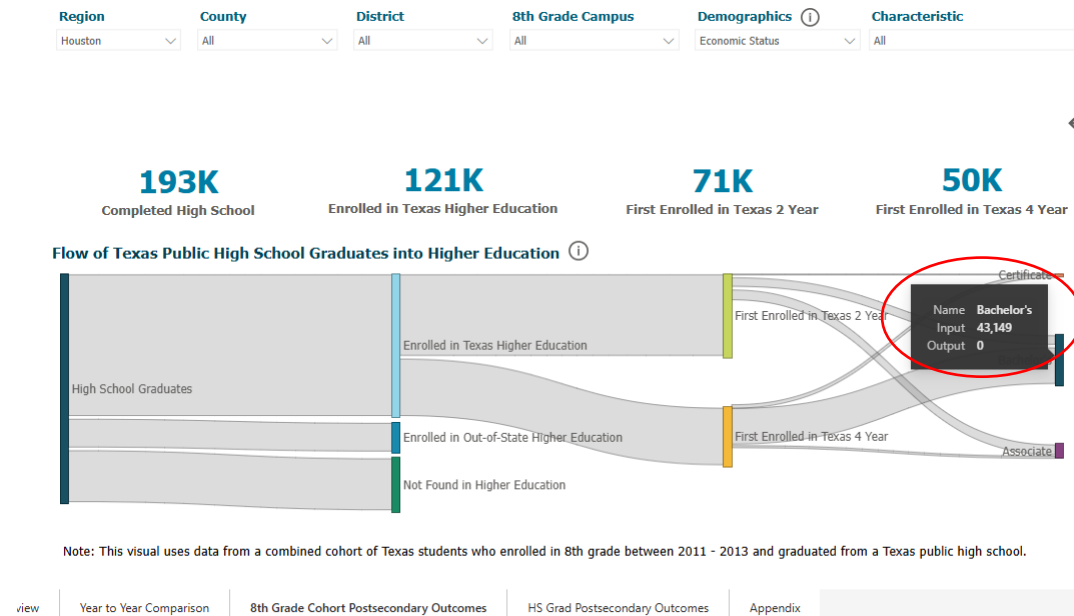
Access T3 here!



<https://databrige.highered.texas.gov/the-texas-talent-trajectory/>

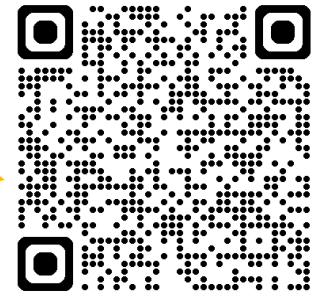
a) Keep the same slicer selections and navigate to the "8th Grade Cohort Postsecondary Outcomes" tab. How many HS graduates from your region earned a Bachelor's degree?

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



Exercise 2

Access T3 here!



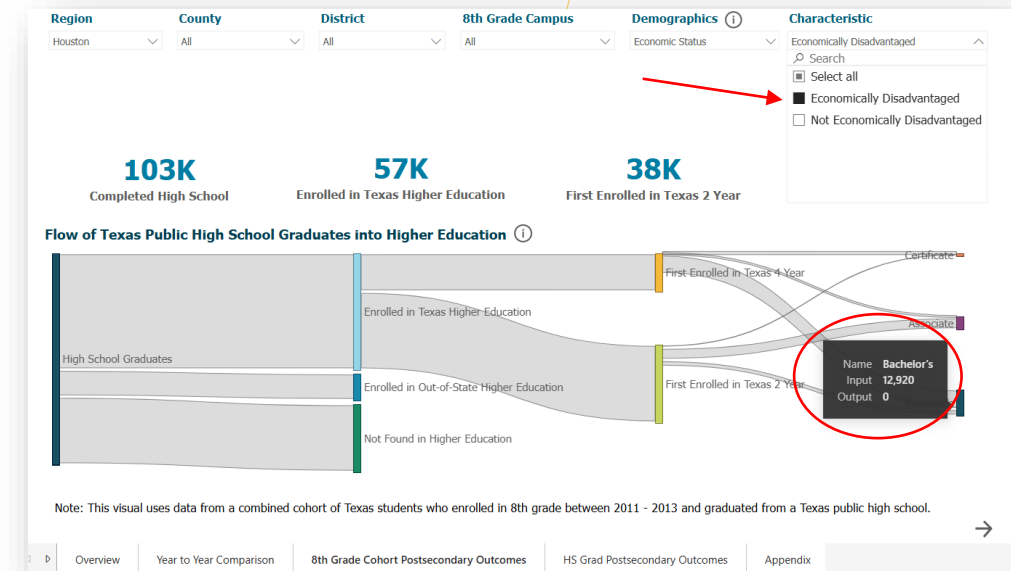
<https://databrige.highered.texas.gov/the-texas-talent-trajectory/>

- 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)



T3 Update Roadmap

T3 Update Roadmap

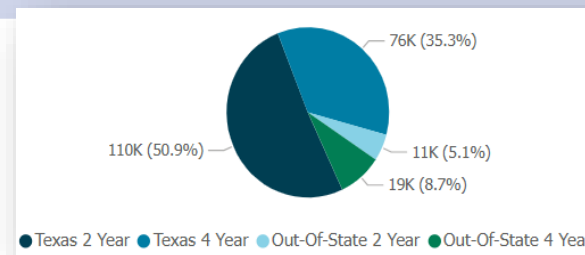
Updating our data infrastructure:
Migration to Snowflake*



Add out-of-state enrollments to all dashboard pages



New data: The 2014 8th grade cohort



Add out-of-state degrees and certificates data

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

Early Access to Materials



Scan the QR code to receive session materials from THECB

Contact us!

Sharon Wong: Sharon.Wong@highered.texas.gov

Alyssa Ibarra: Alyssa.Ibarra@highered.texas.gov

Amy McCurdy:
Amy.McCurdy@highered.texas.gov