



# The Value Proposition to Our Students

Creating New ROI Analysis Tools from Multiple Data Sources

Navi Dhaliwal & McKenna Griffin



 TAIR 2023 Annual Conference

February 28, 2023



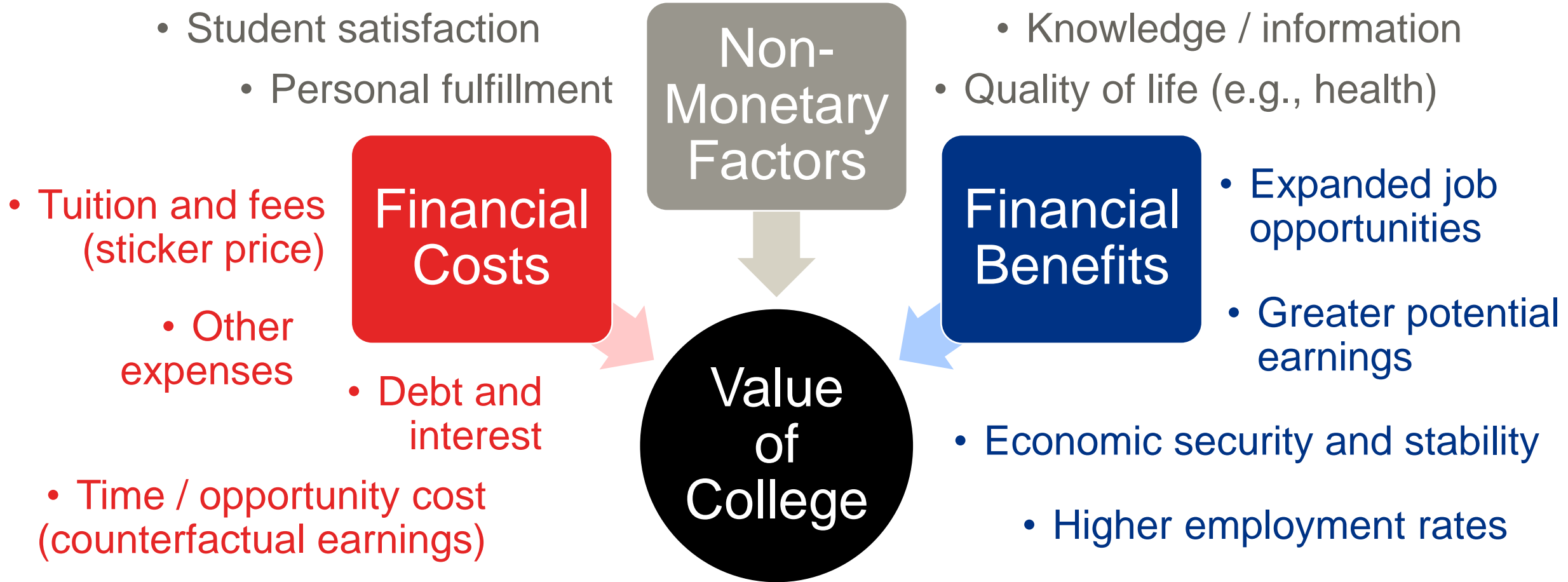
# What is return on investment (ROI)?



- ROI is a **cost-benefit measure** of the economic value of college
- Our research has taken a **student-centered perspective** on ROI
  - Is college economically worthwhile to a prospective student?
  - How much better off financially are students who attend college?
  - Do the long-term benefits of pursuing college outweigh the costs?
  - **Is the value offered by college equitable across student populations?**



# What affects the value of college?



These factors will vary by individual student, demographics, fields, and institution.





**The problem: How do we measure the ROI of higher education?**



# Many approaches, data used for ROI



FEDERAL RESERVE BANK of NEW YORK



Recommended reading,  
literature review →

Barrow, L., & Malamud, O. (2015). Is College a Worthwhile Investment? *Annual Review of Economics*, 7, 519–555.  
<http://www.jstor.org/stable/44860759>



# Each data source has its tradeoffs



- **Federal (College Scorecard):** Title IV Aid recipients only; program data only cover three years; cannot disaggregate by race/ethnicity
- **State (TWC):** only reflects employers who participate in state UI system; requires joining additional attainment and education info
- **Private (Lightcast):** wages are estimated by job title; sample may be skewed because it is drawn from online job profiles
- **Institutional (survey, qualitative):** sampling and privacy issues



# There is no consensus ROI metric



## Net Present Value (NPV)

A dollar sum of the expected benefits of education over time minus the costs.

Georgetown Center on Education and the Workforce

## Price-to-Earnings Premium (PEP)

The amount of time (years) it takes for education to pay off / to recoup costs.

Third Way

## Internal Rate of Return (IRR)

A percentage measure of the value of education, comparable to other assets.

Federal Reserve Bank of New York

## Debt-to-Earnings (DTE) Ratios

How much of one's potential paycheck goes toward student debt payments.

*Building a Talent Strong Texas*



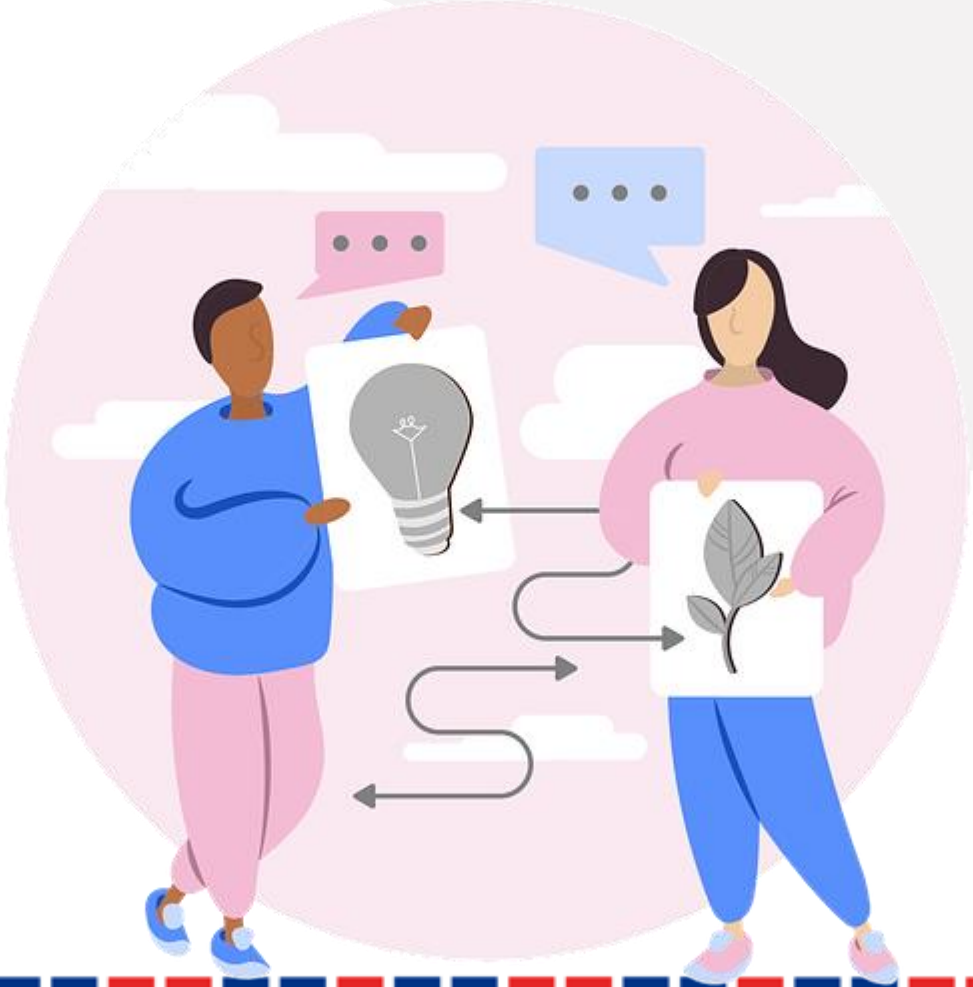
# Additional considerations about ROI



- Most recent, popular estimates of ROI used in rankings or lists are not causal. They do not explain *why* ROI is low or high.
- The data commonly used in ROI estimates reflect past cohorts. Outcomes of future cohorts may not resemble past outcomes.
- Accounting for the non-monetary benefits and costs of college is still non-existent or nascent in most current ROI estimates.







**Our solution: Multiple tools and techniques to study student ROI**



**Debt-to-Earnings Dashboard: Program Explorer**  
 The Research Institute at Dallas College

Select a Credential Level and Field of Study

Additional Filters

Additional Filters

Advanced Options

Click and drag a rectangle around points on the map and/or use additional filters to adjust the list

## Debt-to-Earnings Dashboard

The Research Institute at Dallas College

☆ 0 👁 450

**8-Year Outcomes for High School Graduates**  
 The Research Institute at Dallas College

Read Me

Data Definitions

List of Independent School Districts

Outcomes are reported for years 2013, 2017, 2018, 2019, and 2020 for each cohort, respectively. Graduation cohort year is provided by the ISD. Students who attend a postsecondary institution, who were not tracked after high school graduation, are excluded from the sample.

Retention Rates

Retention rates are reported for each cohort for each year after graduation. High school graduation is reported for each cohort for each year after graduation. High school graduation is reported for each cohort for each year after graduation.

## 8-Year Outcomes for High School Graduates from DFW Area...

The Research Institute at Dallas College

☆ 1 👁 359

**Job Placement Profiles by Program**  
 The Research Institute at Dallas College

Read Me

Wage Estimate Measures

Potential Annual Wage

Estimated Annual Wage

Use 100 Possible wages for a better estimate of entry-level wages.

No wage measures are reported for gender or demographic variables. Therefore, when you compare wage estimates, what you're really looking at is placement of graduates (geographically and by occupation) and comparing which programs have the most lucrative and

## Job Placement Profiles by Program

The Research Institute at Dallas College

☆ 0 👁 921

**Economic Mobility Index for Two-Year Institutions (EM2)**  
 The Research Institute at Dallas College

Dashboard Filters

Map of the United States showing EM2 scores by state.

## Economic Mobility Dashboard

The Research Institute at Dallas College

☆ 1 👁 1,022

**Effects of Education Level on Economic Outcomes during COVID-19**  
 The Research Institute at Dallas College

Read the Report

Group Data By

Select a Metric

State

Metropolitan Area

Educational Attainment

Legend

Employment Rates

Percent who did any work for pay or profit in the last seven days

80%  
70%  
60%  
50%

Bachelor's degree  
Associate's degree  
High school diploma

## Effects of Education Level on Economic Outcomes during...

The Research Institute at Dallas College

☆ 0 👁 227

**Return on Investment Dashboard**  
 The Research Institute at Dallas College

Read Me

This dashboard calculates the return on investment (ROI) of college by institution, demographic group, and program of study. ROI is calculated as the net present value of the earnings benefits that college provides over a career minus the costs of college.

Notes that the ROI values shown in this dashboard are estimates based on average and median outcomes, but every student is unique. Also note that the sole focus of this dashboard is monetary ROI, but college can offer many non-monetary benefits too.

Included in this dashboard are the following pages:

- College Comparisons - compare ROI of institutions geographically, over time, and review equity gaps by gender and family income level
- Custom Calculator - explore how ROI changes with custom inputs, for one or more colleges, by demographic group and field of study
- Transfer Tool - choose two colleges to estimate the ROI of a transfer pathway between the two compared to the ROI of each alone

For more details on each page and figure, hover over the question mark and information icons used throughout this dashboard.

This dashboard was prepared by the Research Institute at Dallas College using its own calculations and the references and data listed below. Please direct all questions and feedback to ResearchInstitute@dal.edu.

Dashboard Last updated: 2/2/2022

Related Work

## Return on Investment Dashboard

The Research Institute at Dallas College

☆ 0 👁 2,682

**Demographic Combinations of Wage Estimates**  
 The Research Institute at Dallas College

All Dallas College Matched Graduates

Gender

Full Eligibility

How to use this report

About the Data

This report includes several wage measurements, the 100th Percentile wages for a better estimate of entry-level wage comparisons. Use the matched wages for a better estimate of how attainment level impacts wages. For more information on wage estimates, view our report, [WAGE ESTIMATES FOR DALLAS COLLEGE GRADUATES](#).

## Wage Outcomes for Dallas College Graduates

The Research Institute at Dallas College

☆ 0 👁 46

# Our Website

- Interactive Dashboards
- Analytical Briefs
- Infographics

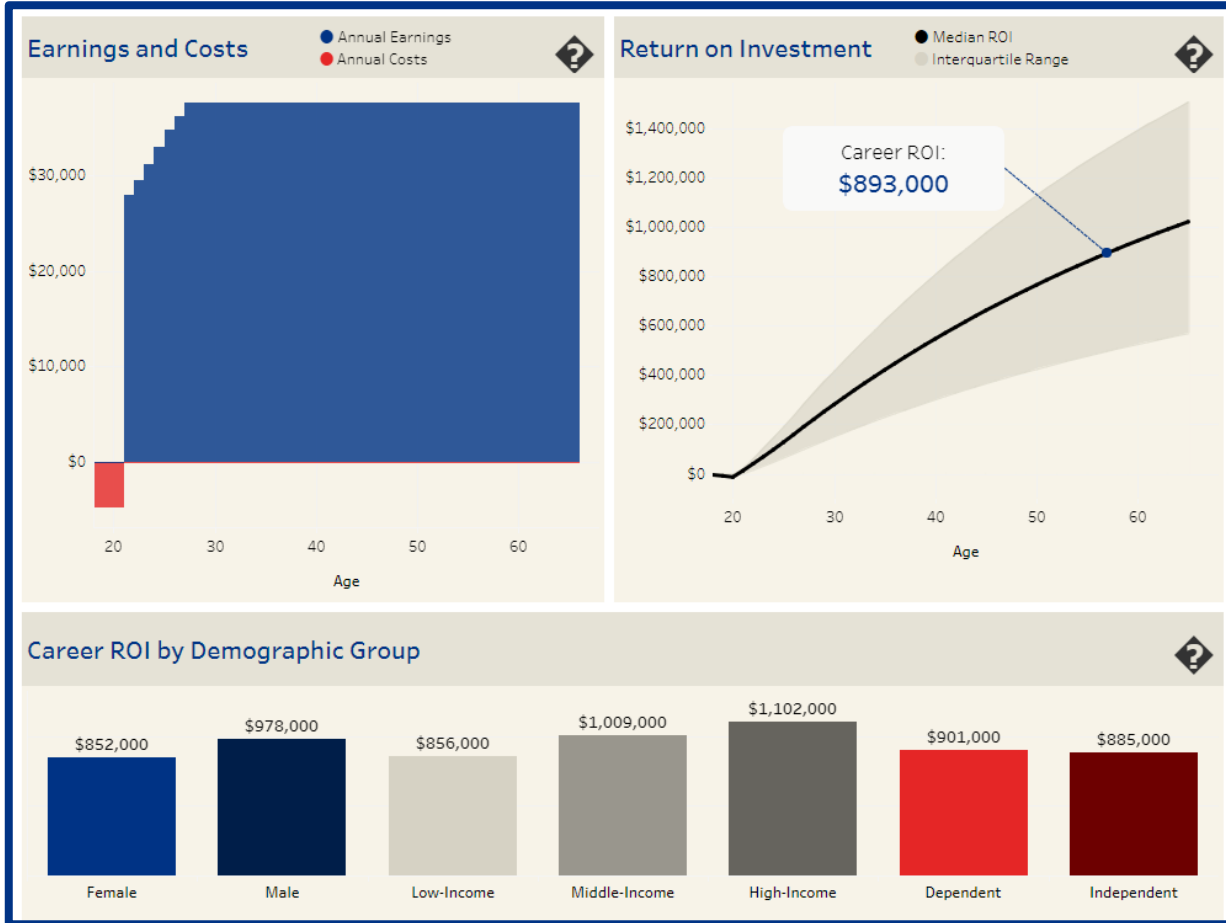
[www.dallascollege.edu/researchinstitute](http://www.dallascollege.edu/researchinstitute)



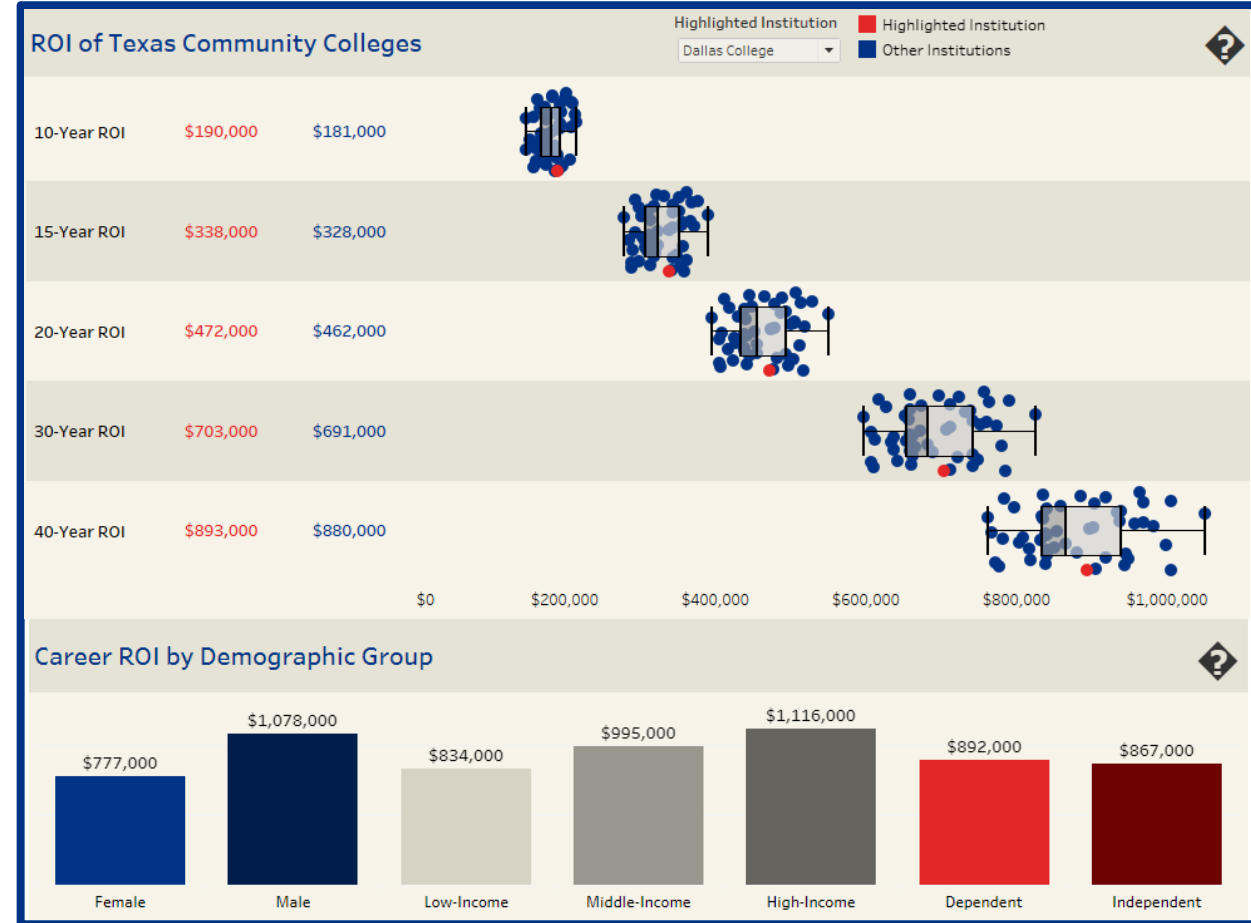
# Return on Investment Dashboard



## ROI Dashboard Profile for Dallas College



## Average ROI of Texas Community Colleges



Adapted from: Carnevale, A. P., Cheah, B., & Van Der Werf, M. (2019). *A first try at ROI: Ranking 4,500 colleges*. Georgetown University Center on Education and the Workforce. <https://cew.georgetown.edu/cew-reports/collegeroi/>

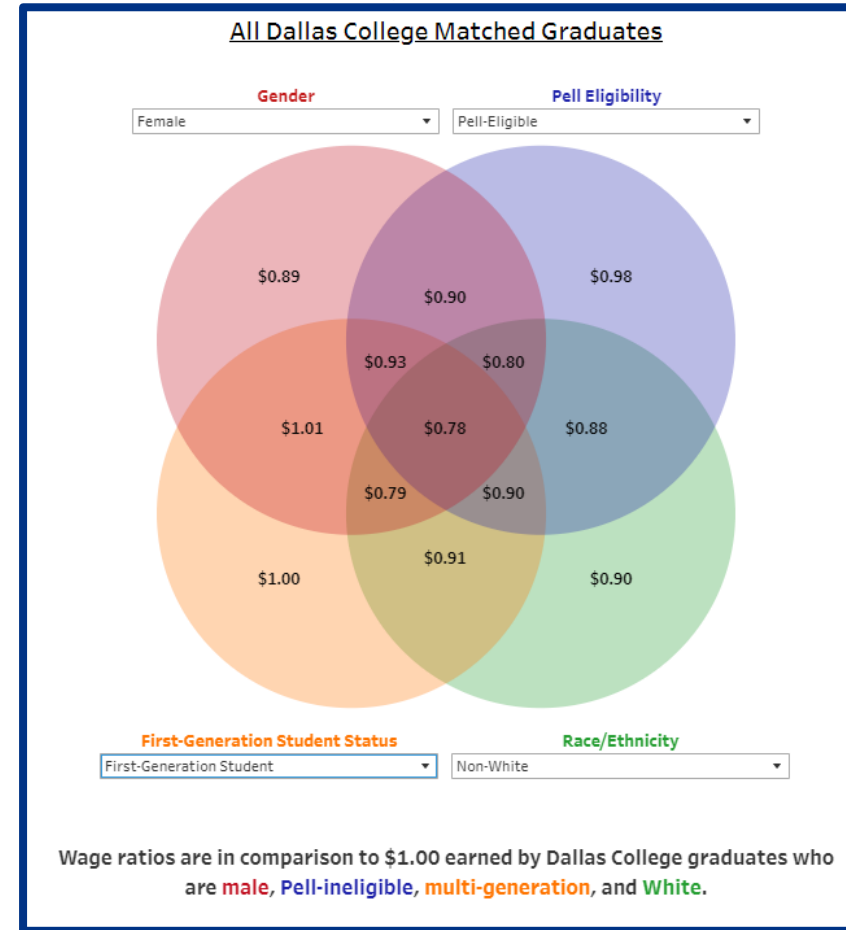
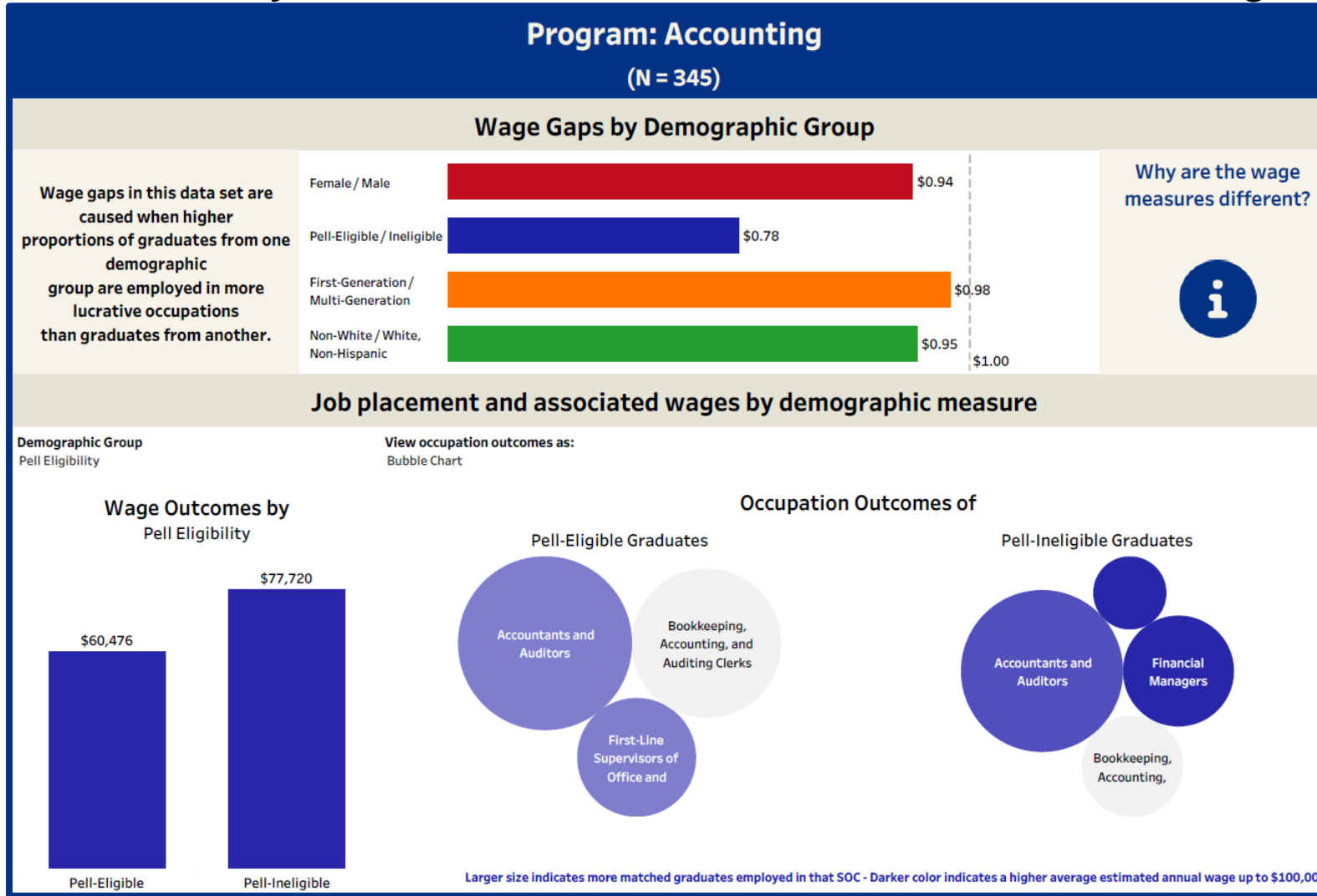


# Job Placement Profiles by Program



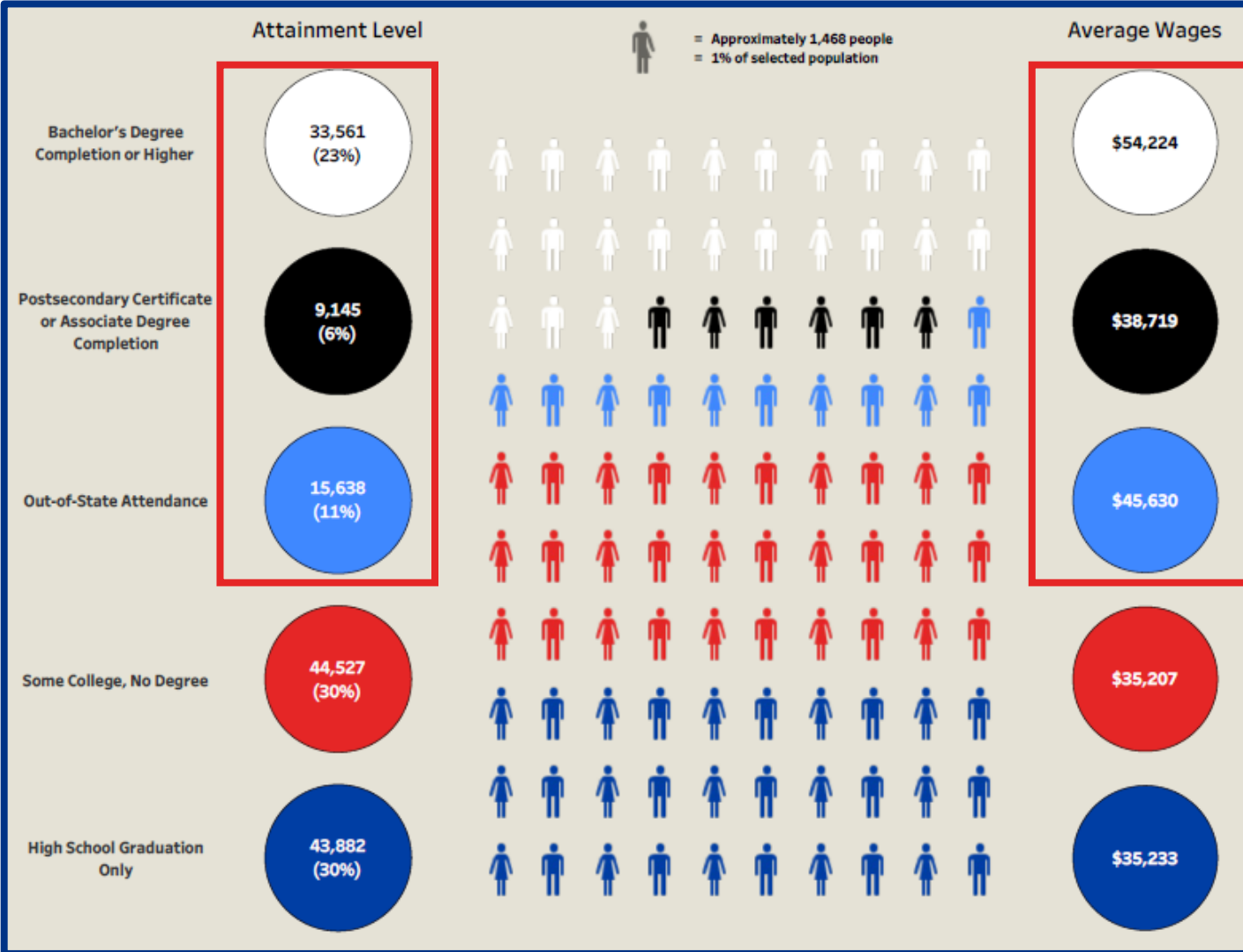
## Race/Ethnicity Job Placement Profile for the Business Program

## Relative Wage Venn Diagram



Note: Wage estimates and job placements data for matched graduates were provided by Lightcast.

# Eight-Year Outcomes Dashboard



**Entire Sample 2008-2012 Graduates**

Students who went out of state for college and completers of any postsecondary credential (n = 58,344; 40%) had an average annual income of \$49,950.

**Low-Income 2012 Graduates**

27%

\$46,598

**Mid- to High-Income 2012 Graduates**

50%

\$54,967



# Economic Mobility Dashboard



## EMI2 Component Scores for Dallas College

For low-income Dallas College students:



10-Year ROI  
= \$45,295



Completion and Transfer Rates  
= 25.8%



Loan Debt  
= \$5,966

Dallas College ranks at these percentiles...

ROI

78<sup>th</sup>

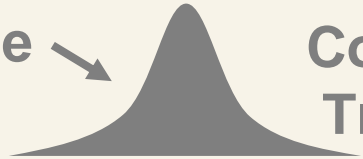
← Percentile

Debt

76<sup>th</sup>

← Percentile

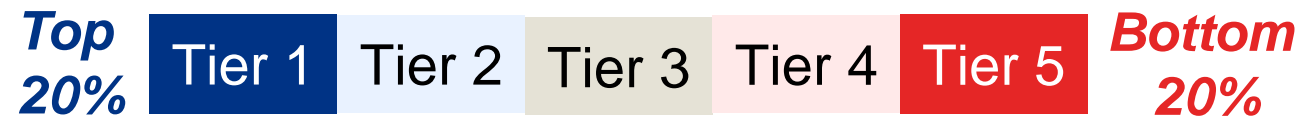
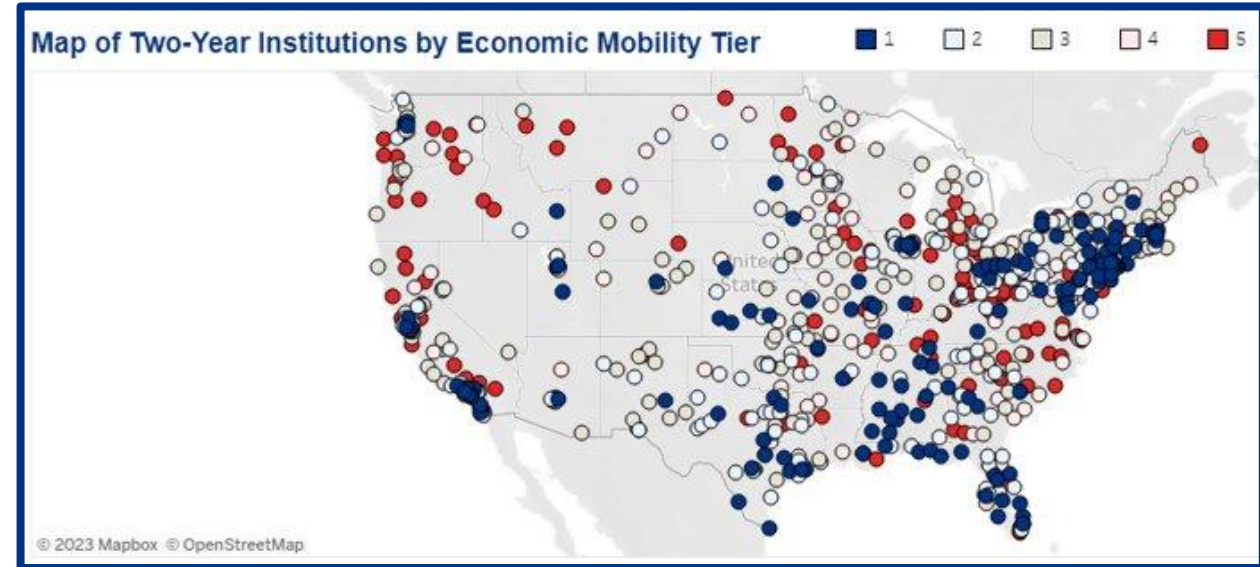
31<sup>st</sup> Percentile



Completion and Transfer Rates

...among two-year colleges nationwide

## Screenshot of the Economic Mobility Dashboard

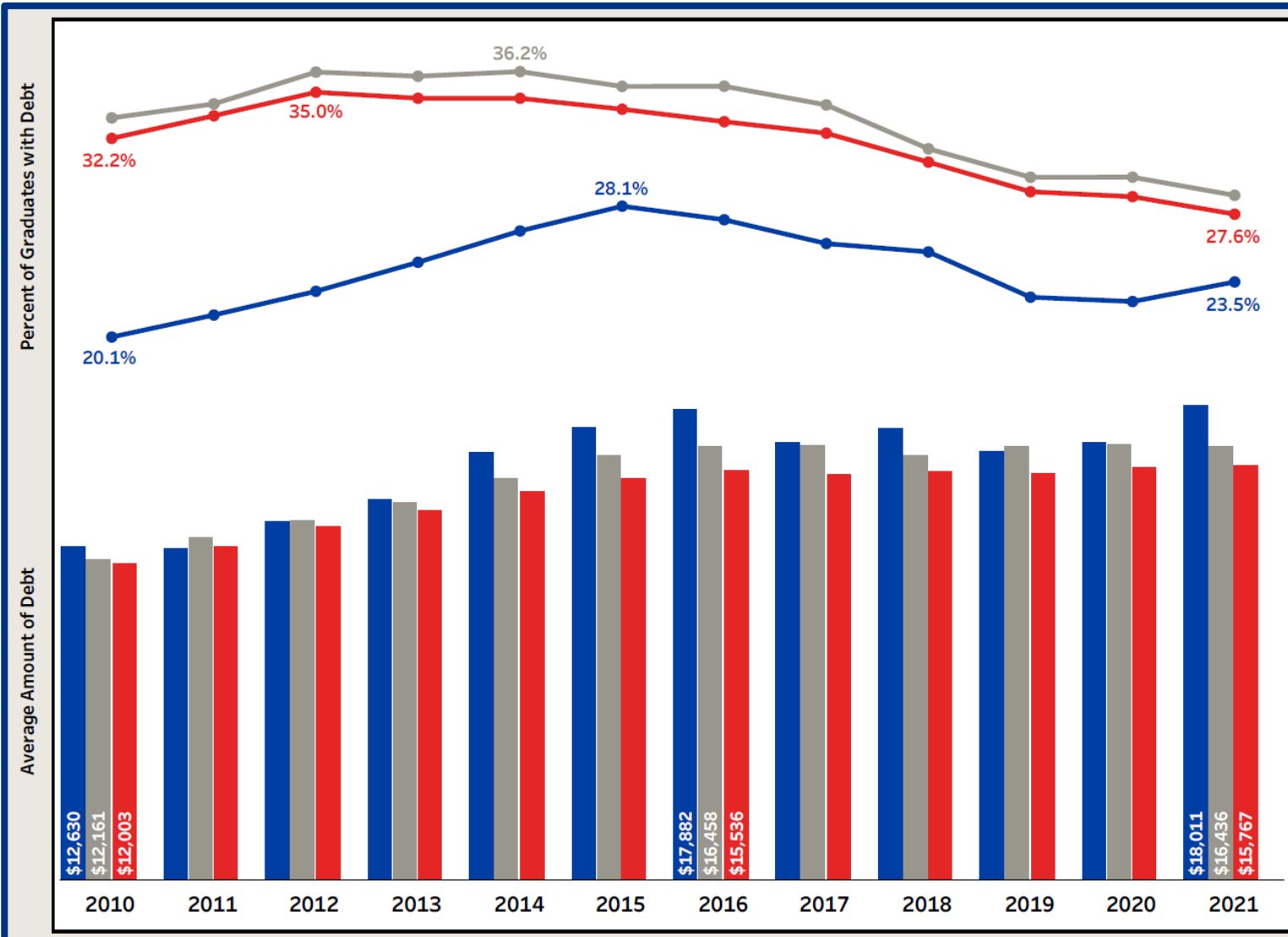


Dallas College places in the top 24%, or at Tier 2, in its economic mobility outcomes for low-income students.

Adapted from: Itzkowitz, M. (2022). Out with the old, in with the new: Rating higher ed by economic mobility. Third Way. <https://www.thirdway.org/report/out-with-the-old-in-with-the-new-rating-higher-ed-by-economic-mobility>



# Debt Trends Dashboard



- Dallas College
- Peer Institutions
- Public 2-Year Institutions in Texas

## At Dallas College (2021)

Demographic Comparison	Difference in	
	Amount of Debt	Percent with Debt
Hispanic vs non-Hispanic	30% Less	14pp Lower
Female vs Male	12% More	5pp Higher
Black vs non-Black	20% More	21pp Higher



# Debt-to-Earnings Dashboard



Compare debt-to-earnings (DTE) ratios by credential level and CIP

The tool also lists out all mapped institutions, sorting by DTE ratio

**Select a Credential Level and Field of Study**

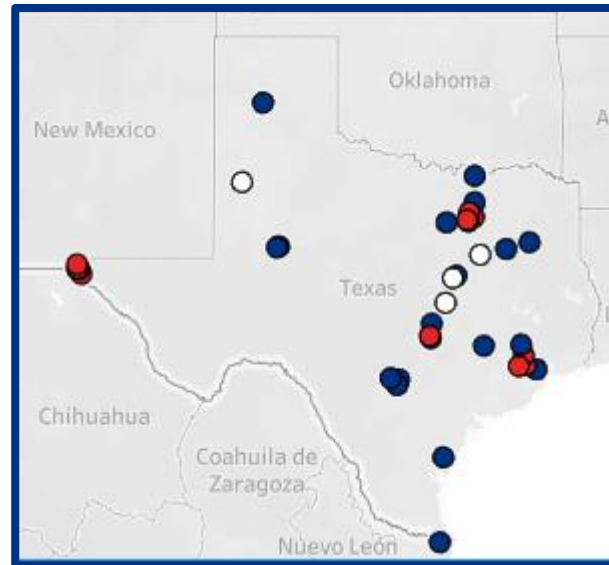
Credential Level: Associate Degree  
 Area or Field of Study (CIP): Business, Management, Marketing, and Related Support Services ...

Across 45 programs, students who completed an **Associate Degree** in **Business, Management, Marketing, and Related Support Services (CIP = 52)** and were not enrolled in further study had average median first-year earnings of **\$28,054**. Using the average median debt value of **\$14,351**, the total debt-to-earnings ratio was **55.2%** and monthly debt payments on a standard ten-year plan were **\$152**, or **7.0%** of potential earnings. Within this field of study, at this credential level, and using average median debt, **66.7%** of programs had healthy debt-to-earnings outcomes using criteria from **Building a Talent Strong Texas**.

Lone Star College System	3.0% = \$85 / \$2,627
Austin Community College District	3.1% = \$89 / \$3,252
El Paso Community College	3.2% = \$63 / \$1,950
San Jacinto Community College	3.3% = \$98 / \$2,957
Dallas College	4.0% = \$122 / \$3,075
Collin County Community College District	4.0% = \$81 / \$2,040
Palo Alto College	4.1% = \$93 / \$2,251
Blinn College	4.4% = \$98 / \$2,214
San Antonio College	4.5% = \$106 / \$2,381
Tarrant County College District	4.5% = \$128 / \$2,858
Texas Southmost College	4.6% = \$94 / \$2,053

Alter how healthy DTE ratios are defined

Map out program health by institution



Rule for Program Health

Building a Talent Strong Texas

- 60x30TX
- Building a Talent Strong Texas
- Gainful Employment Rule
- Texas Public Policy Foundation
- Urban Institute

Rule for Program Health

Building a Talent Strong Texas

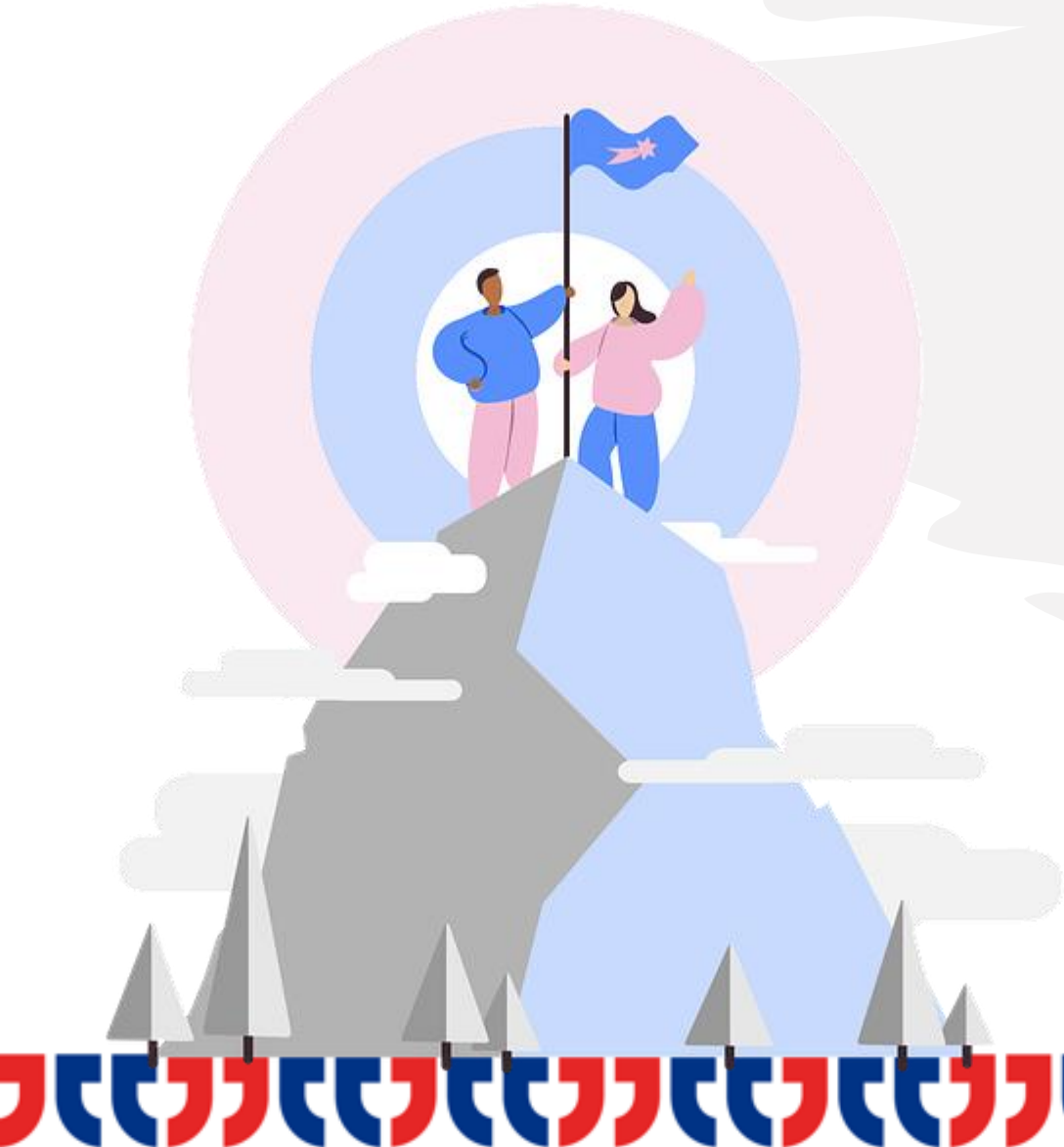
- Manageable Debt
- Not Manageable Debt
- Missing Data

Note: All calculations in this dashboard are computed using College Scorecard data, rather than THECB and TWC data.

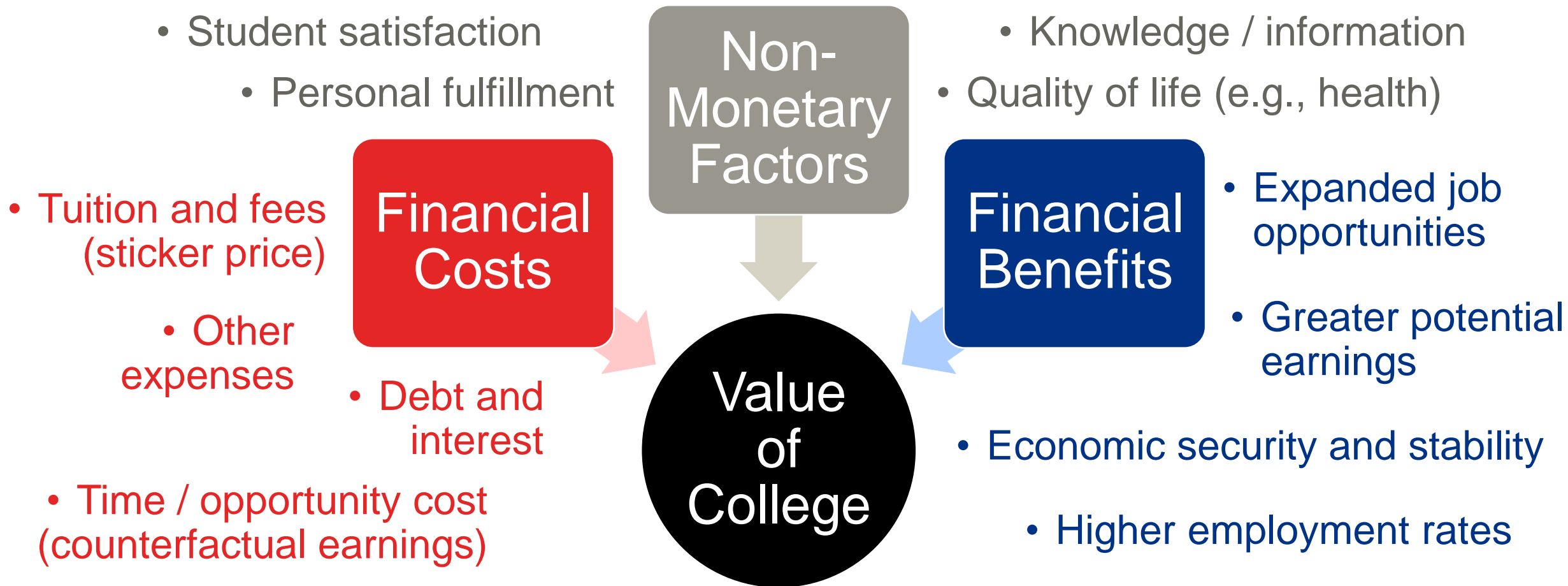




# Concluding remarks and looking ahead



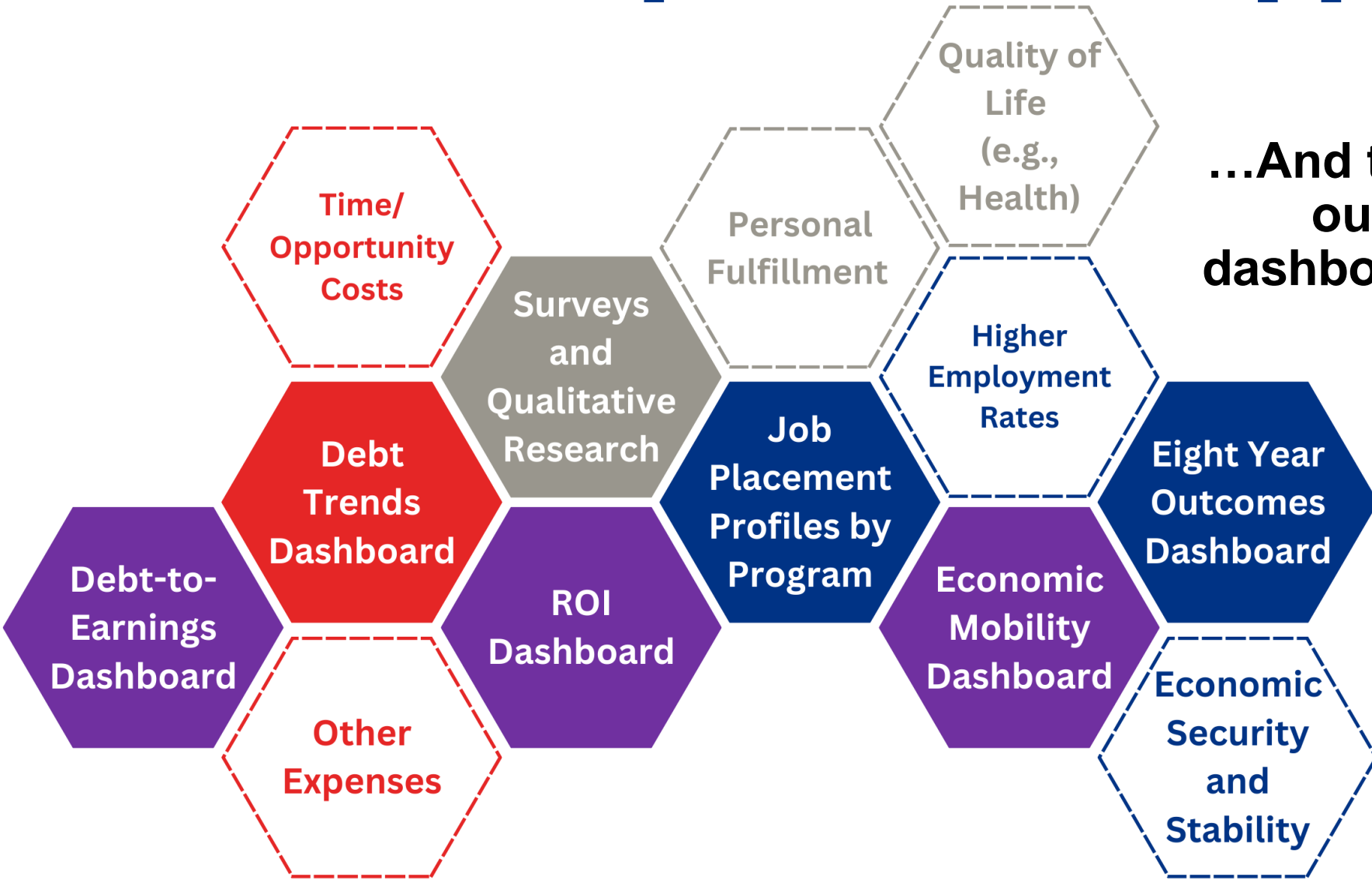
# Returning to our original question...



These factors will vary by individual student, demographics, fields, and institution.



# ...We took a patchwork approach...



...And there remain gaps that our current data and dashboards cannot yet cover.

**Next steps: creating a unified, simplified ROI dashboard to synthesize various data and methods**





# The Value Proposition to Our Students

Creating New ROI Analysis Tools from Multiple Data Sources

Navi Dhaliwal & McKenna Griffin

<https://www.dallascollege.edu/researchinstitute>



<https://public.tableau.com/profile/the.research.institute.at.dallas.college>

