POSTSECONDARY

VALUE COMMISSION

# EMPLOYMENT AND EARNINGS INEQUITIES: A CASE STUDY FROM THE UNIVERSITY OF TEXAS SYSTEM

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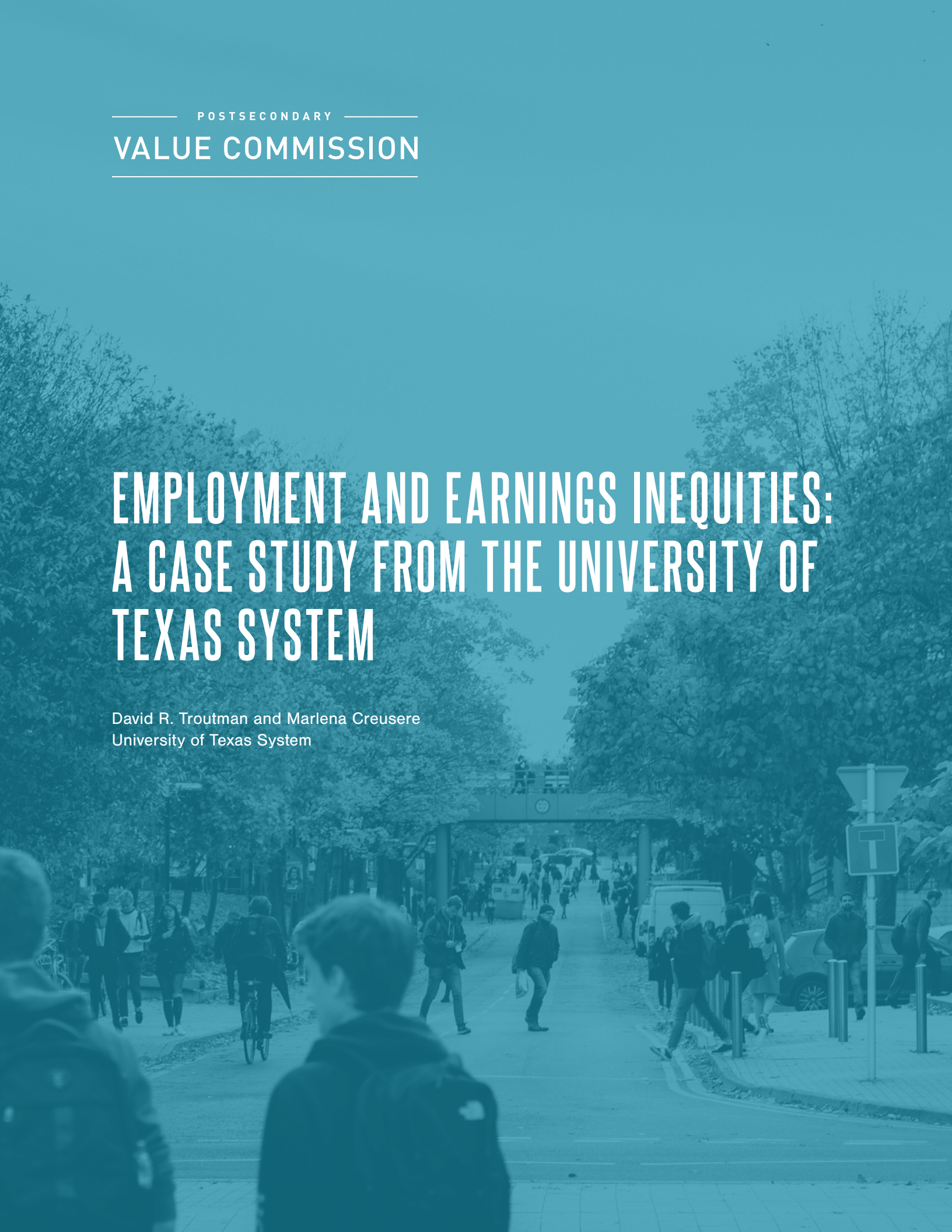


# TABLE OF CONTENTS



This paper is one in a foundational research series for the Postsecondary Value Commission authored in summer 2019 by scholars with diverse backgrounds and expertise. The research presented in these papers applies an equity lens to the philosophical, measurement, and policy considerations and assumptions underlying key components of postsecondary value to students and society, including investment, economic and non-economic returns, mobility, and racial and socioeconomic justice.

The Postsecondary Value Commission consulted this foundational research as it developed a conceptual definition of postsecondary value, a framework for measuring how institutions and programs create value and ensure equitable outcomes, and an action agenda with recommendations for applying the definition and framework to change policies and practices. Through this breadth of scholarship, the commission was better able to define the value of postsecondary education and the role institutions can play in creating a more equitable and fair United States.

Following the May 2021 release of the commission's findings, these foundational papers were prepared for publication. The views and opinions expressed in these papers do not necessarily reflect the positions of individual members of the Postsecondary Value Commission or the organizations they represent.


The Postsecondary Value Commission along with the Bill & Melinda Gates Foundation and Institute for Higher Education Policy are deeply grateful to the authors of this series. The authors' extensive expertise and thoughtful engagement in this work provided the foundation for the commission to develop an informed, innovative, and equity-driven framework. They also thank Deborah Seymour for editing the written products and the team at GMMB for their creative design and layout.

Suggested citation: Troutman, D. R., & Creusere, M. (2021). Employment and Earnings Inequities: A Case Study from The University of Texas System. Postsecondary Value Commission.

# INTRODUCTION

A postsecondary credential is associated with higher levels of earnings, not just in the short term, but over a lifetime.[1] Georgetown University's Center on Education and the Workforce found that college graduates earn more than one million dollars more in lifetime wages, compared to high school graduates.[2] However, many factors influence income—including choice of major, occupation and/or industry of employment, location, gender, and race.[3]

The impact of labor market discrimination and systemic earnings disparities across genders and racial groups pose challenges for evaluating the value of postsecondary education through earnings. Schools that serve high proportions of students of color and women, including many minority-serving institutions (MSIs) and women's colleges, may be unfairly penalized when considering student earnings as a marker of value. The gender gap in wages in the United States is well-documented, with women working full-time earning 81 percent of what their male counterparts earn annually. Similarly, wage differences exist across races, with Black and Latinx workers, respectively, earning a full-time weekly income that is 75 and 74 percent of what White individuals receive.[4] While some disparity in wages on the basis of gender and race can be explained by differences in educational attainment, the evidence suggests that notable gaps remain, even when education level is taken into account.

**"While some disparity in wages on the basis of gender and race can be explained by differences in educational attainment, the evidence suggests that notable gaps remain, even when education level is taken into account.**

Using data from the University of Texas (UT) System's Office of Institutional Research and Analysis (OIRA) this paper explores differences in earnings across gender and race/ethnicity. Key findings from this analysis include:

1. Median earnings gaps exist for UT System graduates by gender and race/ethnicity.
2. Gender and racial/ethnic differences in earnings outcomes vary by field of study and industry.
3. Differences in intergenerational income mobility exist by gender and race/ethnicity.

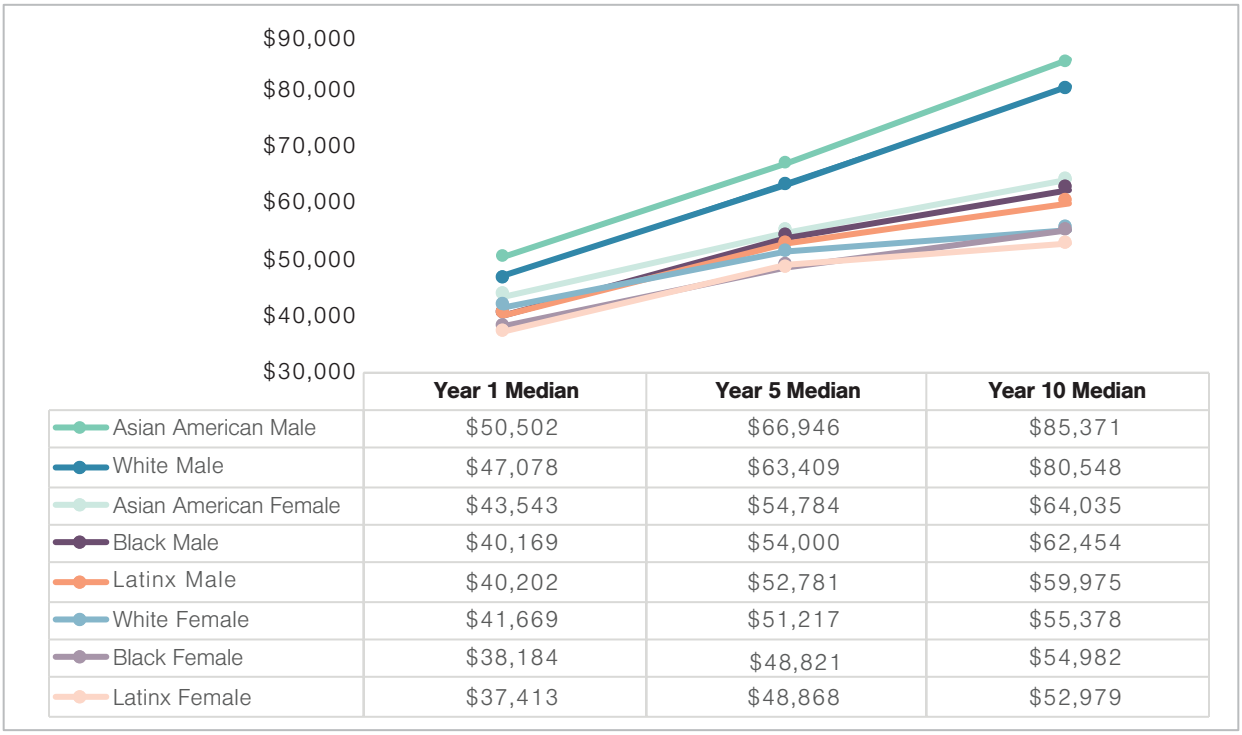
Unless stated otherwise, the population represented in these analyses include baccalaureate degree recipients who have at least four quarters of Texas Workforce Commission (TWC) Unemployment Insurance (UI) wages measured 1-, 5-, or 10-years after leaving a UT System school. Students who obtained an additional degree or certificate after receiving their bachelor's degree at UT System are excluded, as are those who were enrolled in postsecondary education at the time earnings were measured. All earnings reported are adjusted to 2017 dollars. National Student Clearinghouse Student Tracker records were used to determine non-UT System degrees and periods of enrollment.

# MEDIAN EARNINGS GAPS EXIST FOR UT SYSTEM GRADUATES BY GENDER AND RACE/ETHNICITY

The United States Census Bureau estimates that gender wage gaps are greater for college degree holders than high school graduates without college degrees.[5] Similar wage gaps exist by race/ethnicity.[6] As Figure 1 indicates, overall gaps exist in the median earnings of UT System baccalaureate degree recipients of different genders and races/ethnicities. For example, one year after graduation, Asian American and White men have the highest median earnings ($50,502 and $47,078, respectively), while Latinx and Black women have the lowest earnings ($37,413 and $38,184, respectively). Asian American women also earn more than Black men and Latinx men, while White women earn more than Black and Latinx women.

While first-year earnings differences are substantial, these patterns only widen as students spend more time out of school and in the labor market. Ten years after leaving school, three distinct groups of earners emerge: 1) Asian American and White men, 2) Asian American women and Black and Latinx men, and 3) White, Black, and Latinx women. After 10 years, there is a $30,000 earnings gap between the highest earners versus the lowest earners—as compared to an earnings difference of about $13,000 one year after leaving school. Earnings for Asian American and White men increase substantially over the intervening years, while the typical earnings of other groups have moderate to mild earnings growth.

**Figure 1. Median Earnings for UT System Graduates 1-, 5-, and 10-Years After Graduation by Gender and Race/Ethnicity**




| | Year 1 Median | Year 5 Median | Year 10 Median |
|---|---|---|---|
| Asian American Male | $50,502 | $66,946 | $85,371 |
| White Male | $47,078 | $63,409 | $80,548 |
| Asian American Female | $43,543 | $54,784 | $64,035 |
| Black Male | $40,169 | $54,000 | $62,454 |
| Latinx Male | $40,202 | $52,781 | $59,975 |
| White Female | $41,669 | $51,217 | $55,378 |
| Black Female | $38,184 | $48,821 | $54,982 |
| Latinx Female | $37,413 | $48,868 | $52,979 |

*Note: The population represented in these analyses include baccalaureate degree recipients who have at least four quarters of Texas Workforce Commission (TWC) Unemployment Insurance (UI) wages.*

*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

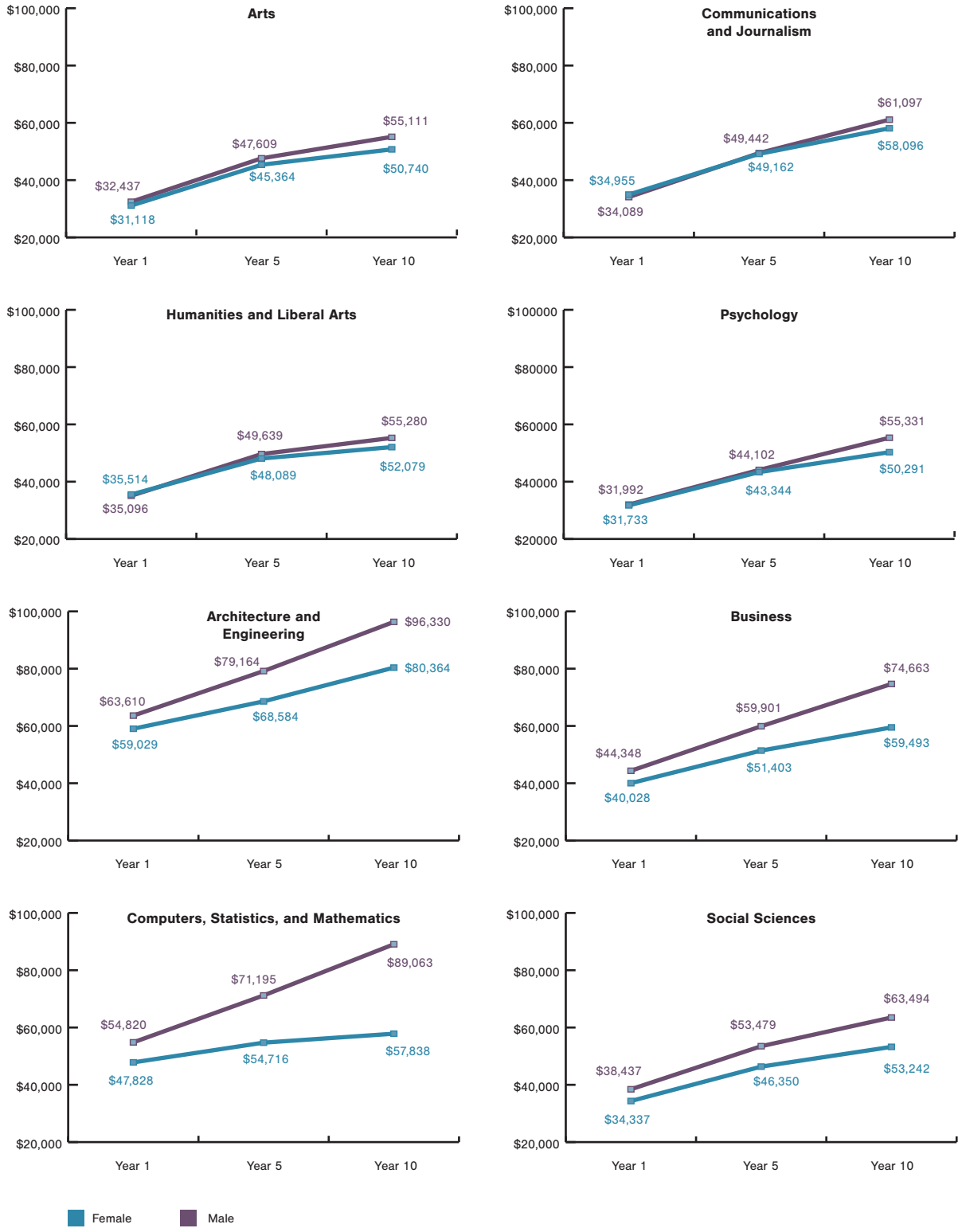
# GENDER AND RACE/ETHNICITY DIFFERENCES IN EARNINGS OUTCOMES VARY BY FIELD OF STUDY

Occupation is an important factor in determining earnings. To explore this, we rely on graduates' field of study to examine differences in earnings across educational pathways. Field of study does not align perfectly with occupational choice: the Federal Reserve Bank of New York found that only 26 percent of graduates obtain a job that is related to their major.[7] Despite this, previous research has found that a graduate's major has the biggest impact on their earnings,[8] so, due to data limitations, field of study is used as a proxy for earnings differences in related occupations.

To investigate differences in earnings by field of study, OIRA groups majors into 15 categories.[a] Gender differences in earnings vary across these categories. For instance, graduates in Arts, Communications and Journalism, Humanities and Liberal Arts, and Psychology each have median earnings for men and women that are within $1,500 of each other one year after graduation (Figure 2). The gaps widen for these programs over time from approximately $3,000 to $5,000 ten years post-graduation, and in all cases, men's earnings are higher than women's in year ten. These fields of study also have lower first-, fifth-, and tenth-year earnings as compared to earnings for graduates within STEM-related fields. For graduates of Architecture and Engineering, Computer, Statistics, and Mathematics, Business, and Social Sciences, the earnings gap between women and men in the first year is $4,000 or greater (with men earning more than women), and the gap grows notably wider by the tenth year (Figure 2). The biggest earnings gaps by gender exist within the fields of Computer, Statistics, and Mathematics, as well as Architecture and Engineering.

a These 15 categories are: Agriculture and Natural Resources (CIP: 01, 03); Architecture and Engineering (CIP: 04, 14, and 15); Arts (CIP: 50); Biology and Life Sciences (CIP: 26); Business (CIP: 52); Communications and Journalism (CIP: 09 and 10); Computers, Statistics, and Mathematics (CIP: 11 and 27); Education and Interdisciplinary Studies (CIP: 13 and 25); Health (CIP: 51); Humanities and Liberal Arts (CIP: 05, 16, 23, 24, 30, 38, 39, and 54); Industrial Arts, Consumer Services, and Recreation (CIP: 12, 19, 31, 46, 47, and 49); Law and Public Policy and Social Work (CIP: 22, 43, and 44); Physical Sciences (CIP: 40 and 41); Psychology (CIP: 42); and Social Sciences (CIP: 45).

## Figure 2. Median Earnings of UT System Graduates in Select Fields of Study by Gender




*Notes: The population represented in these analyses include baccalaureate degree recipients who have at least four quarters of Texas Workforce Commission (TWC) Unemployment Insurance (UI) wages.*

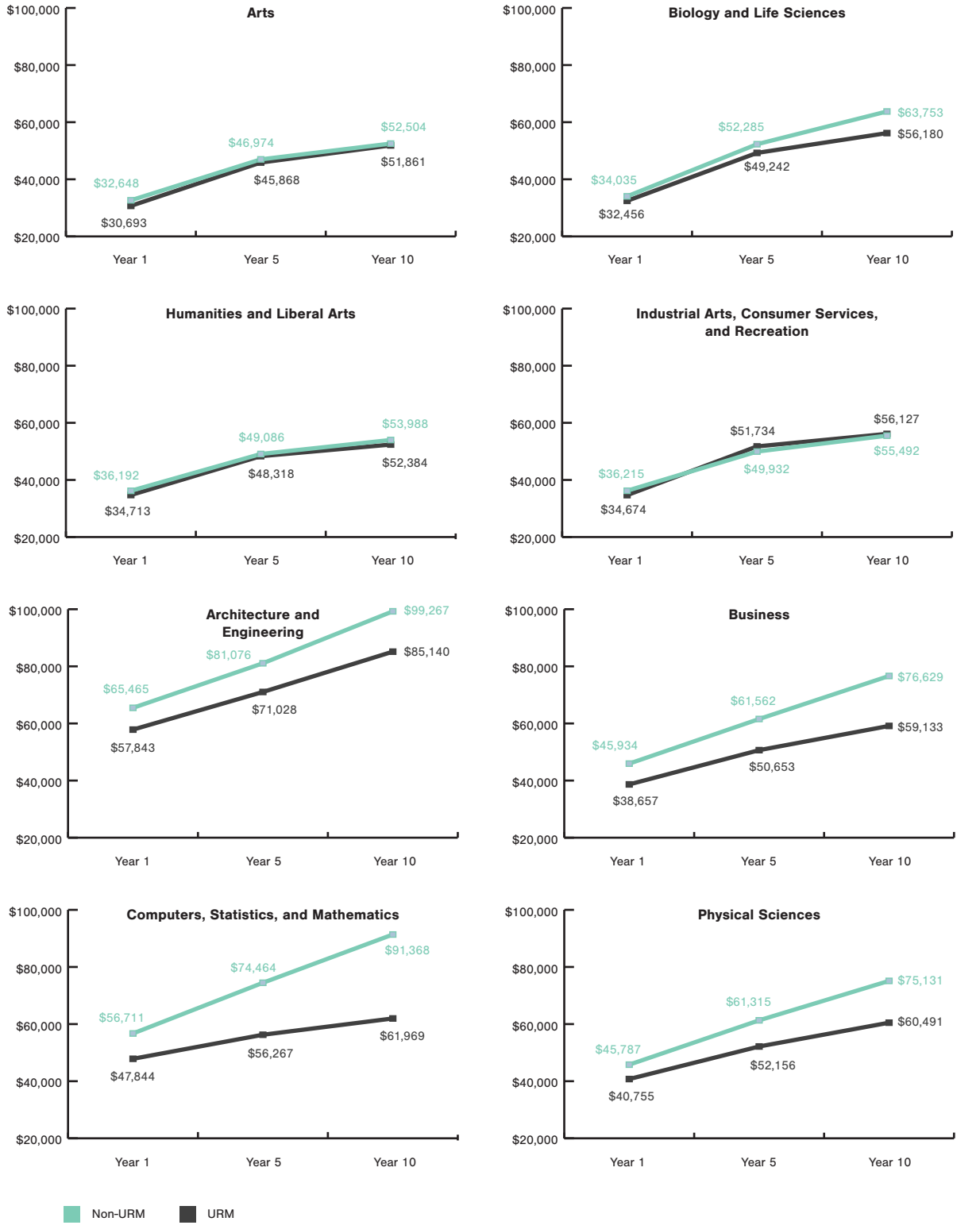
*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

As with gender, race/ethnicity differences in earnings vary by field of study. Graduates in Arts, Biology and Life Sciences, Humanities and Liberal Arts, and Industrial Arts, Consumer Services, and Recreation see similar earnings regardless of racial backgrounds in the first year after graduation. In three of these fields (Arts, Humanities and Liberal Arts, and Industrial Arts, Consumer Services, and Recreation), the gap does not widen over time; however, in the case of Biology and Life Sciences, the median earnings for underrepresented minority (URM)[b] graduates is approximately $7,500 less in the tenth year than it is for non-URM graduates (Figure 3).

However, for graduates of Architecture and Engineering, Computer, Statistics, and Mathematics, Business, and Physical Sciences (Figure 3), the median earnings for non-URM students are between $5,000 and almost $9,000 more than what they are for URM students the first year after exiting college. In each of these programs, the race/ethnicity gap grows larger by the tenth year, ranging from just over $14,000 for Architecture and Engineering graduates to more than $29,000 for Computer, Statistics, and Mathematics graduates. This may be driven by the lower likelihood of Latinx and Black graduates' working in managerial and professional offices and STEM occupations compared to their White and Asian American counterparts.[9] Moreover, Latinx engineering graduates are more likely than White engineering graduates to work in blue-collar-related occupations.

b Underrepresented minority (URM) is defined as individuals who identify as Black, Latinx, Native American/Alaskan Native, Native Hawaiian/Pacific Islander. Due to the small cell sizes of specific groups, URM was used to ensure all racial/ethnic groups were included in the analyses.

## Figure 3. Median Earnings of UT System Graduates in Select Fields of Study by URM Status




*Notes: The population represented in these analyses include baccalaureate degree recipients who have at least four quarters of Texas Workforce Commission (TWC) Unemployment Insurance (UI) wages.*

*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

# GENDER AND RACE/ETHNICITY DIFFERENCES IN EARNINGS OUTCOMES VARY BY INDUSTRY

The industries where graduates are working provide additional insight on the reasons for earnings differences by gender and race/ethnicity. The North American Industry Classification System (NAICS) codes are included in UI Texas wage records and can be useful to understand what industries students are working in after they receive their degrees. Table 1 provides the percent of women, men, URM, and non-URM graduates working within each 2-digit NAICS code 1- and 10-years after graduation. Women and URM graduates are more concentrated in the educational services industry relative to men and non-URM graduates.[c] This percentage difference increases at the 10-year mark.

Women are also more likely than men to work in the health care and social assistance industry.[d] In contrast, men are more likely than women to work in the manufacturing industry.[e] Men and non-URM graduates are also more likely than women and URM graduates to be working in the professional, scientific, and technical services industries.[f]

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c Industries within educational services include elementary and secondary schools, junior colleges, colleges, universities, and professional schools, business schools and computer and management training, technical and trade schools, and other schools and instruction.

d Industries within health care and social assistance include health care services, hospitals, nursing and residential care facilities, and social assistance.

e Industries within manufacturing include petroleum and coal products manufacturing, chemical manufacturing, electrical equipment, appliance, and component manufacturing.

f Industries within professional, scientific, and technical services include legal services, accounting, tax preparation, bookkeeping, payroll services, architectural, engineering and related services, computer systems designs and related services, and specific research and development services.

## Table 1. Share of Women, Men, URM, and Non-URM UT System Graduates Working within Industries 1- and 10-years After Graduation

| | 1st Year | | | | 10th Year | | | |
|---|---|---|---|---|---|---|---|---|
| **Industry** | **Female** | **Male** | **URM** | **Non-URM** | **Female** | **Male** | **URM** | **Non-URM** |
| Accommodation and Food Services | 3% | 4% | 3% | 5% | 1% | 2% | 1% | 2% |
| Administrative and Support and Waste Management and Remediation Services | 5% | 7% | 6% | 7% | 4% | 6% | 4% | 6% |
| Agriculture, Forestry, Fishing and Hunting | 0% | <1% | <1% | <1% | 0% | <1% | 0% | <1% |
| Arts, Entertainment, and Recreation | 1% | 1% | 1% | 1% | 1% | 1% | <1% | 1% |
| Construction | 1% | 3% | 2% | 2% | 1% | 3% | 2% | 2% |
| Educational Services | 32% | 16% | 31% | 18% | 43% | 21% | 44% | 23% |
| Finance and Insurance | 8% | 10% | 8% | 9% | 8% | 10% | 8% | 10% |
| Health Care and Social Assistance | 18% | 6% | 14% | 12% | 14% | 6% | 11% | 10% |
| Information | 3% | 4% | 3% | 4% | 2% | 4% | 2% | 3% |
| Management of Companies and Enterprises | 1% | 1% | <1% | 1% | 1% | 1% | 1% | 1% |
| Manufacturing | 2% | 7% | 3% | 6% | 3% | 8% | 3% | 6% |
| Mining, Quarrying, and Oil and Gas Extraction | 1% | 2% | 1% | 2% | 1% | 3% | 1% | 2% |
| Other Services (except Public Administration) | 1% | 1% | 1% | 2% | 1% | 1% | 1% | 2% |
| Professional, Scientific, and Technical Services | 8% | 14% | 7% | 14% | 7% | 13% | 6% | 14% |
| Public Administration | 4% | 4% | 5% | 3% | 5% | 6% | 6% | 4% |
| Real Estate and Rental and Leasing | 2% | 2% | 1% | 2% | 1% | 1% | 1% | 2% |
| Retail Trade | 7% | 9% | 8% | 7% | 3% | 5% | 3% | 5% |
| Transportation and Warehousing | 1% | 2% | 1% | 1% | 1% | 2% | 1% | 2% |
| Unknown | 1% | 1% | 1% | 1% | <1% | <1% | <1% | <1% |
| Utilities | <1% | 1% | <1% | 1% | 1% | 1% | 1% | 1% |
| Wholesale Trade | 3% | 5% | 3% | 5% | 3% | 7% | 3% | 6% |
| All | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

*Source: Authors' calculations of Unemployment Wage Records 2-digit North American Industry Classification System (NAICS) codes from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

# DIFFERENCES IN INTERGENERATIONAL INCOME MOBILITY EXIST BY GENDER AND RACE/ETHNICITY

Intergenerational income mobility is a critical component of the value of higher education.[10] OIRA embarked on in-depth research on intergenerational income mobility, using household adjusted gross income for financial aid recipients while students are in school compared to baccalaureate recipients' income five years after graduation (Creusere, Zhao, Bond Huie, and Troutman, 2019)[11]. We found that receiving a bachelor's degree will impact UT System graduates' upward mobility; however, choice of major and graduates' gender and race/ethnicity play a large role in determining the patterns of intergenerational mobility.

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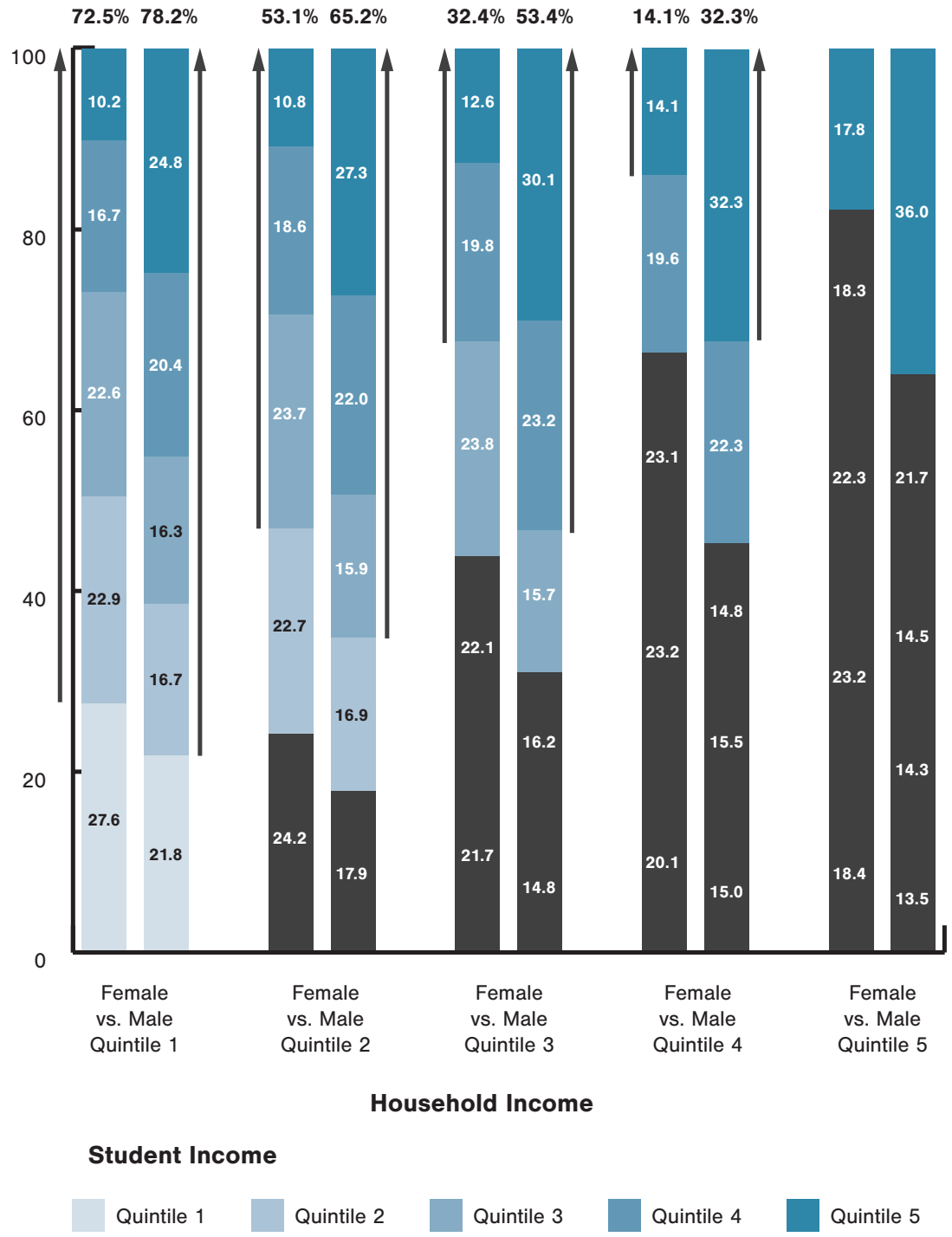
For this analysis, family household income is first categorized into quintiles (see Appendix) based on the household income of students at the time they matriculate to college—according to data from the Free Application for Federal Student Aid (FAFSA) and the Texas Application for State Student Aid (TASSA). Post-graduation income is based on fifth-year earnings outcomes. For students in all but the highest quintile, a higher proportion of male graduates is upwardly mobile than female graduates (Figure 4). Notably, the difference in upward mobility for men and women from the lowest household income quintile is six percent, and the gap is greater for graduates from higher quintiles, with a gap of 21 percent for males and females from the third household income quintile. However, within the lowest household income quintile, men are more likely than women to move up to the top two quintiles (45 percent and 27 percent, respectively).

Intergenerational income mobility also differs by race/ethnicity. For graduates from family household income quintiles one through four, non-URM graduates are more likely to demonstrate upward mobility than URM graduates (Figure 5). The difference in upward mobility rates tends to be larger for students from higher family income quintiles than for students from lower quintiles. However, within the first three household income quintiles, URM graduates are less likely than non-URM graduates to move up to the top student income quintile.

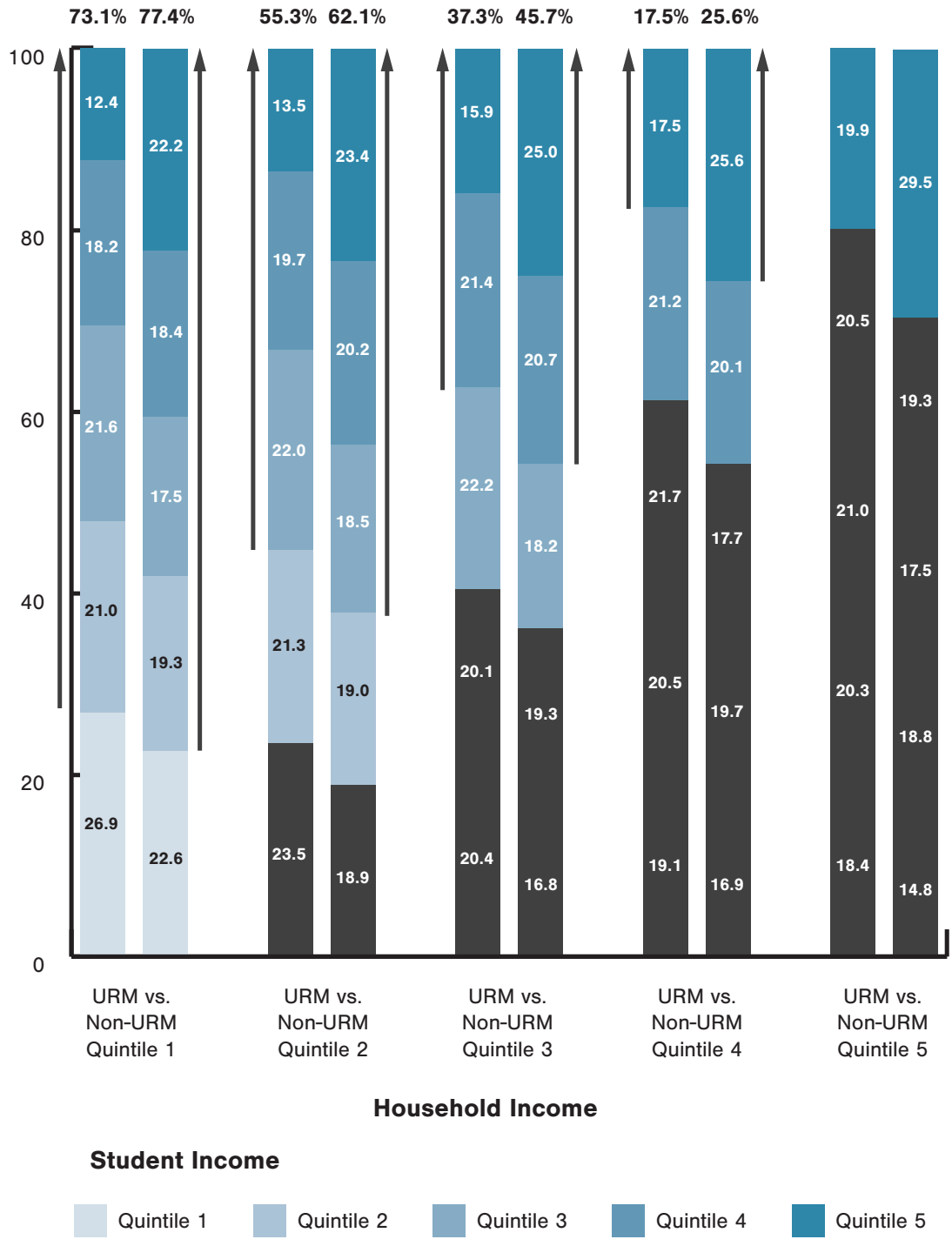
## Figure 4. Intergenerational Income Mobility for UT System Baccalaureate Degree Recipients by Gender




*Notes: This figure only includes students who filed a FAFSA or TASFA. Student income quintiles are distinguished by shades of blue, with lighter shades of blue representing lower quintiles and darker shades representing higher quintiles. The block with the lightest shade represents the percentage of students who remained in the same quintile. Colored blocks above the "same quintile" demonstrate upward mobility (also denoted with arrows) as compared to parental household quintile. Black blocks represent downward mobility.*

*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

## Figure 5. Intergenerational Income Mobility for UT System Baccalaureate Degree Recipients by URM Status

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*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission and higher education administrative data from the University of Texas System.*

Throughout its research endeavors, OIRA has investigated differences in intergenerational mobility across UT System institutions. While in some cases, clear differences occur across campuses, there is also evidence of similarities. For example, in Table 2, family household income quintiles were calculated separately for each institution type and compared to graduates' income five years after leaving college. Overall upward mobility rates differ little across institution type and, for all three types of institutions, students from lower household income quintiles demonstrate higher rates of mobility within five years of graduation than do students from higher household income quintiles.

**Table 2. Intergenerational Income Mobility for UT System Graduates by Institution Type**

| Household Income Quintile | Institution Type | Upward Mobility Rate |
|---|---|---|
| 1 | High Selectivity/Large or Midsize City | 75.8 |
| | Medium Selectivity/Large City | 74.1 |
| | Medium Selectivity/Midsize or Small City | 75.1 |
| 2 | High Selectivity/Large or Midsize City | 58.1 |
| | Medium Selectivity/Large City | 57.4 |
| | Medium Selectivity/Midsize or Small City | 58.3 |
| 3 | High Selectivity/Large or Midsize City | 40.4 |
| | Medium Selectivity/Large City | 41.3 |
| | Medium Selectivity/Midsize or Small City | 39.7 |
| 4 | High Selectivity/Large or Midsize City | 20.7 |
| | Medium Selectivity/Large City | 21.8 |
| | Medium Selectivity/Midsize or Small City | 21.4 |
| 5 | High Selectivity/Large or Midsize City | N/A |
| | Medium Selectivity/Large City | N/A |
| | Medium Selectivity/Midsize or Small City | N/A |

*Notes: This figure only includes baccalaureate degree recipients who filed a FAFSA or TASFA.*

*Source: Authors' calculations of Unemployment Wage Records from the Texas Workforce Commission, higher education administrative data from the University of Texas System, and data from the US Census Bureau.*

# RECOMMENDATIONS FOR DEFINING POSTSECONDARY VALUE

This paper illustrates how UT System's OIRA office has used UI wage records to highlight the value of postsecondary education. The Postsecondary Value Commission should consider the following when developing a postsecondary value definition:

- Who is the audience receiving the commission's information? Each stakeholder has their own view of the value of higher education. After meeting with hundreds of students from a variety of universities, our experience suggests that students are particularly interested in their monthly income and monthly student loan bill. Students are also interested in whether higher education provides them an advantage to obtain a good job, but typically are not interested in intergenerational income mobility. Other stakeholders might be more focused on ensuring that higher education is supplying an educated workforce for the 21st century, a compelling story on how intergenerational income mobility rates change over time, or potential wage revenue generated by graduates within state districts.

- All earnings metrics demonstrate the value of higher education. However, this paper shows that earnings inequities exist by gender and race/ethnicity. In other words, not all students receive the same economic value. We encourage the commission to carefully examine earnings metrics when creating value definitions at the university level. Average earnings at a given institution can hide disparities in earnings by gender and race/ethnicity. Moreover, university-wide metrics will underestimate universities' economic value based on the diversity of the students a school serves, as well as the types of degrees (e.g., STEM vs. non-STEM) offered to students. This type of metric will not move the needle on creating a society with an equitable workforce culture.
- Future research is needed to better understand the value of higher education, including work that will examine further the underlying sources of earnings inequities; identify and account for geographic differences in cost of living; explore graduates' willingness to relocate and how it might impact earnings differences; and capture graduates' voices through quantitative and qualitative data in order to identify barriers when entering the workforce and as graduates progress in their careers.
- The value of higher education should not be reduced down to just economic value. Higher education value for students comes in many forms (e.g., civic engagement, social justice, healthy lifestyles, and analytical reasoning).
- Higher education institutions cannot bear full responsibility of the earnings differences found by gender and race/ethnicity. Institutions do not have the agency to require employers to pay their employees equally. However, institutions do have the opportunity to provide future graduates with the skills needed to combat against earnings inequalities within the workplace. First, institutions can provide graduates with the most relevant and timely marketable skills that students can use as leverage to receive a high earnings premium. Second, institutions can assist future graduates with salary negotiation skills needed to ensure they receive the salary they desire. Lastly, institutions can create equity-minded graduates who will become future CEOs, hiring managers, etc. and who can create a paradigm shift within industries to eliminate earnings gaps that currently exist.

# APPENDIX: FAMILY AND STUDENT QUINTILES BY INSTITUTIONAL SELECTIVITY AND SIZE OF CITY

| Family Quintiles | | | | | |
|---|---|---|---|---|---|
| **Institution Type** | **Quintile 1** | **Quintile 2** | **Quintile 3** | **Quintile 4** | **Quintile 5** |
| High Selectivity/ Large or Midsize City | Less than $21,996 | $21,996 - $45,643 | $45,644 - $77,793 | $77,794 - $124,054 | $124,055 + |
| Medium Selectivity/ Large City | Less than $15,819 | $15,819 - $30,239 | $30,240 - $50,018 | $50,019 - $84,846 | $84,847 + |
| Medium Selectivity/ Midsize or Small City | Less than $12,964 | $12,964 - $23,077 | $23,078 - $35,029 | $35,030 - $59,632 | $59,633 + |

| Student Quintiles | | | | | |
|---|---|---|---|---|---|
| **Institution Type** | **Quintile 1** | **Quintile 2** | **Quintile 3** | **Quintile 4** | **Quintile 5** |
| High Selectivity/ Large or Midsize City | Less than $40,934 | $40,934 - $52,101 | $52,102 - $63,936 | $63,937 - $84,931 | $84,932 + |
| Medium Selectivity/ Large City | Less than $36,357 | $36,357 - $48,357 | $48,358 - $54,962 | $54,963 - $68,554 | $68,555 + |
| Medium Selectivity/ Midsize or Small City | Less than $35,416 | $35,416 - $46,238 | $46,239 - $51,319 | $51,320 - $59,655 | $59,656 + |

*Source: Quintiles are based on data from the Free Application for Federal Student Aid (FAFSA) and the Texas Application for State Student Aid (TASSA).*

# ENDNOTES


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