

# UTSA Gender Pay Equity Study

Conducted by

The Office of the Senior Vice Provost for Academic and Faculty Support, the Office of Institutional Effectiveness and the Office of Human Resource Services

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## Introduction & Overview

In Spring 2017, each University of Texas System institution was asked to conduct a Faculty Gender Pay Equity Assessment. The purpose of this assessment was to complete a faculty gender pay equity analysis, raise awareness among decision-makers of disparities in compensation for male and female faculty that are not based on merit or performance, and to continue expansion of refinement of these processes by including additional relevant quantitative factors affecting compensation, including additional faculty (specifically part-time faculty and indentifiers in addition to gender (such as race and ethnicity)). At UTSA, three offices undertook this study. Dr. Jesse T. Zapata, Senior Vice Provost for Academic and Faculty Support was UTSA's representative at System meetings discussing the study. He also oversaw the project implementation at UTSA. Barbara Centeno, Deputy Officer for Business Affairs and Human Resource Services, and Steve Wilkerson, Associate Vice Provost of Institutional Effectiveness, together with Zapata and staff from their respective offices collaborated on this study.

In partnership with Dr. Daniel Sass and Dr. Anuradha Roy from the Department of Management Science and Statistics, the Office of Institutional Effectiveness conducted the statistical analyses. The Office of Human Resources used the results of these analyses as the basis for working with College Deans and Department Chairs to engage in further analysis that include additional factors such as productivity, performance and service. The main findings were as follows:

Average Gender & Racial/Ethnic Pay Differences among Tenured/Tenure-Track (T/TT) Faculty. A linear regression model that controlled for race/ethnicity, department, experience, and rank showed that tenured and tenure-track men and women earned similar nine-month salaries. On average across the university, female professors earned only 0.4% more than men, and this difference was not statistically significant. Most of the unadjusted female pay deficit was due to female faculty working in lower-paying departments than male faculty.

Similarly, when controlling for gender, department, experience, and rank, there were no statistically significant differences in nine-month salaries by racial/ethnic group ( $F(5, 561) = .29, p=0.92$ ). Asian, Black, Hispanic, and International faculty earned within 2% of White, non-Hispanic faculty. International and Black faculty's pay penalty was mainly attributable to fewer years of experience. Asian faculty's pay advantage was largely due to their specialization in higher-paying fields and holding higher ranks. Hispanic and White faculty earned similar pay after accounting for department differences.

Tenured/Tenure-Track Faculty Paid Less than their Expected Compensation. This section examined whether pay equity prevailed throughout the ranks, colleges, and departments at UTSA. An expected salary for each tenured/tenure-track faculty member was determined by using the predicted value from a linear regression model. Then, the number and percent of faculty who earned less than 95% of their predicted value were identified and the gender and racial/ethnic breakdowns across ranks, colleges, and departments were examined. Across the university a similar percent of male and female T/TT faculty earned less than predicted (33% and 29%, respectively). However, in eight departments, a much higher percent of women were paid less than predicted, and in six departments, a much higher percent of men were paid less than predicted.

Using the same predicted pay method showed differences in the percent of White and under-represented minority (Asian, Black, and Hispanic) faculty at the college level. Compared to White faculty, a larger percent of under-represented minority faculty earned less than predicted in the College of

Engineering and the College of Education and Human Development. In contrast, a larger percent of White faculty earned less than predicted in the College of Business.

Pay Inequities among Tenure/Tenure-Track Faculty. College Deans, in partnership with Human Resources, reviewed tenured/tenure-track faculty members' predicted and actual compensation. College Deans also considered factors not included in the regression analysis, such as faculty member evaluations and years of experience within their specific discipline, to identify faculty whose salaries should be adjusted. While 191 tenured/tenure-track faculty members earned less than 95% of their predicted value, the Deans identified 72 who warranted a pay adjustment.

Of the 72 who warranted salary adjustments, 31 were women and 41 were men. Sixteen percent of all female faculty at UTSA will receive a pay adjustment, compared to 10% of all male faculty. In terms of racial/ethnic group members, 41 of the 72 faculty were under-represented minorities (Asian, Black, or Hispanic), 27 were White, non-Hispanic, and 4 were International or other faculty. Eighteen percent of all URM faculty at UTSA will receive a pay increase, compared to 9% of White, non-Hispanic faculty and 6% of International or faculty of another/unknown race/ethnicity.

Average Pay Differences among Benefits-Eligible Non-Tenure Track Faculty. Full-time non-tenure track faculty analyses provided indeterminate results with regard to gender and racial/ethnic pay differences. A linear regression model that controlled for gender, race/ethnicity, college, years of experience, and rank poorly predicted non-tenure track faculty pay ( $R^2 = .26$ ). The poor fit of the model suggests that NTT pay levels were largely based on factors besides individual experience and field of expertise. Therefore, caution must be used when evaluating pay differences with this model. The model indicated that female NTTs earned about \$1,660 *more* than male NTTs. This difference was not statistically significant and was about 3% of the average NTT pay.

Although racial/ethnic groups were included as predictors in the model, we do not show racial/ethnic pay differences because of the small number of NTT faculty in non-White racial/ethnic groups.

Non-Tenure-Track Faculty Paid Less than their Expected Compensation. The predicted value that was used for Non-Tenure-Track Faculty's expected pay was derived from a regression model that did not explain much of the variation in NTT pay ( $R^2 = .25$ ). The poor fit of the model suggests that the predicted value may not be suitable for setting NTT pay and identifying those NTT faculty who were paid less than predicted. Analyses found 43% of male NTTs were paid less than predicted, compared to only 26% of female NTTs, and the difference was more pronounced within the Lecturer III rank.

## Gender & Racial/Ethnic Composition of Tenured/Tenure-Track Faculty

### Gender Distribution within College, Rank & Department

The University of Texas at San Antonio (UTSA) employed 611 tenured and tenure-track faculty in fiscal year 2017, of which nearly one-third (32%) of these faculty members were women. Table 1 is a comparison of tenured and tenure-track faculty by gender for UTSA's ten aspirant peers. UTSA and the University of Central Florida had the smallest percentage of tenured female faculty compared to other universities in UTSA's peer group. Georgia State University ranked the highest, with women comprising 40% of the tenured faculty. Further, almost all of UTSA's peer institutions had a higher percentage of female tenure-track professors; UTSA ranked among the bottom two. The University of Maryland-Baltimore County and University of Central Florida ranked the highest – half (51%) of their tenure-track faculty were women.

Table 1. Percent Female Tenured and Tenure-Track Faculty across Peer Institutions  
(Peer Institutions Shown in Descending Order of Percent Tenured Faculty who are Female)

	Tenured Faculty		Tenure-Track Faculty	
	% Female	% Male	% Female	% Male
Georgia State University	40%	60%	49%	51%
University of Maryland-Baltimore County	39%	61%	51%	49%
Portland State University	38%	62%	49%	51%
University of California-Santa Cruz	38%	62%	42%	58%
Arizona State University	35%	65%	47%	53%
George Mason University	34%	66%	42%	58%
University of California-Irvine	33%	67%	49%	51%
University of California-Riverside	32%	68%	36%	64%
Florida International University	31%	69%	42%	58%
University of Central Florida	30%	70%	51%	60%
The University of Texas at San Antonio	30%	70%	38%	62%

Source: IPEDS 2016 data; Arizona State University includes all campuses.

There are differences between IPEDS statistics for UTSA and statistics in this report. IPEDS data were for the Fall 2016 semester only, while this report used all faculty working in fiscal year 2017. Additionally, this report excluded Deans, retired, and emeritus faculty from consideration, due to its focus on pay equity.

At UTSA, the share of female faculty varies considerably across colleges. Figure 1 shows the percentages of male and female tenured/tenure-track faculty members in each of the colleges at UTSA. While women made up only 12% of the faculty at the College of Engineering, women comprise more than half (53%) of the faculty in Education and Human Development. In the College of Liberal & Fine Arts, the largest college at UTSA, 42% of the tenured/tenure-track faculty were women.

Regarding rank, 26% of faculty were Assistant Professors, 38% were Associate Professors, and 36% were Full Professors. However, only 45 of the 221 Full Professors (or 20%) were women, and in all colleges, the percent of Full Professors who were women is much lower than the percent of Assistant or Associate Professors. For example, in the College of Business, half of Assistant Professors were women, 26% of Associate Professors were women, and 18% of Full Professors were women. In the College of Public Policy, more than half of Assistant and Associate Professors were women, but none of the Full Professors were women.

Figure 1. Gender Distribution of Tenured/Tenure-Track Faculty within UTSA College, Overall & By Rank

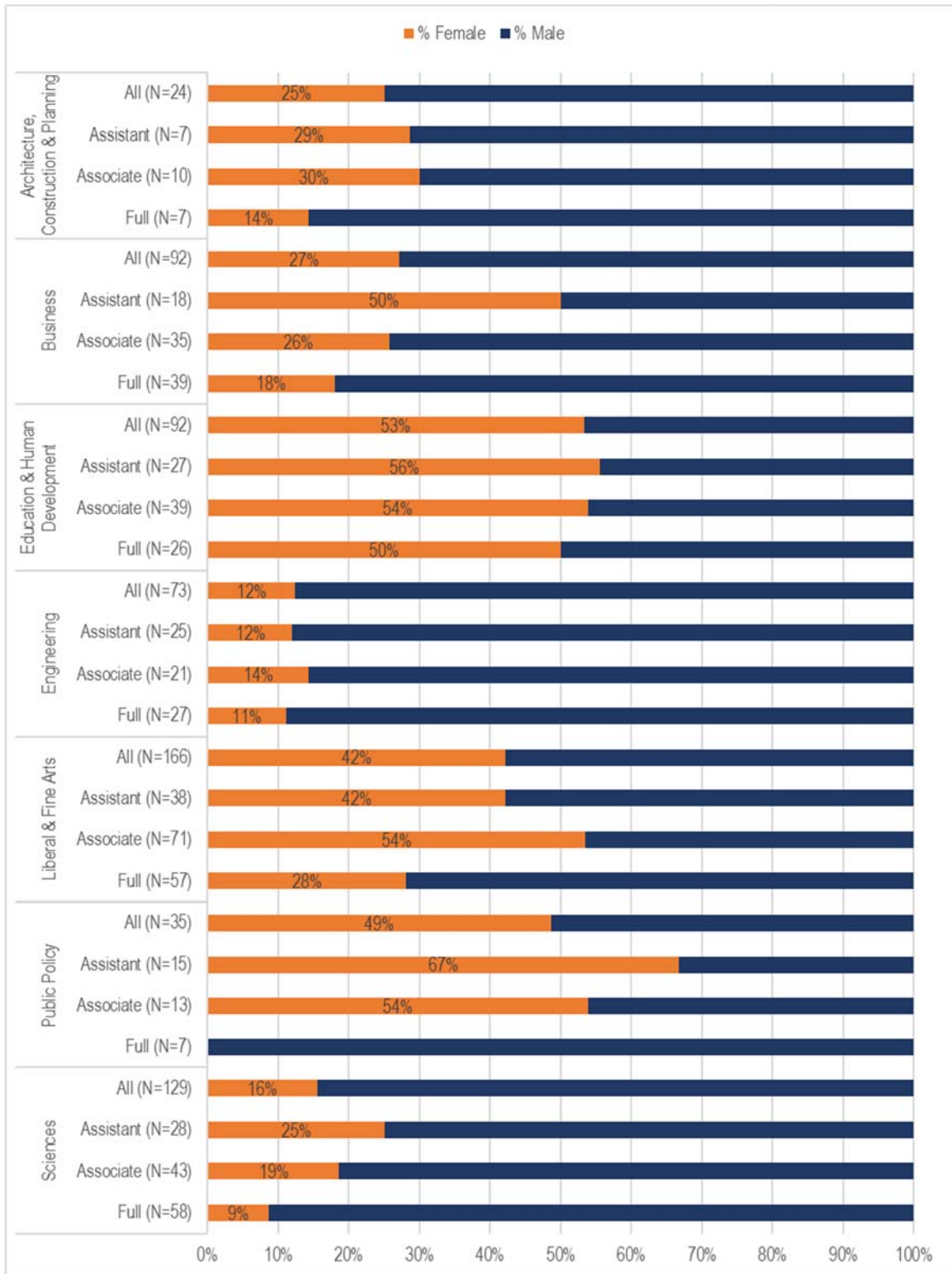


Figure A1 (see Appendix A) shows the percentages of male and female tenured/tenure-track faculty in each of the departments. Women made up over half of the faculty in seven departments, mostly within the fields of education and the humanities. On the other hand, there were five departments where women made up less than 10% of the faculty, usually in business, engineering, and the sciences. The Department of Chemistry in the College of Sciences did not have any female tenured/tenure-track faculty, and 19 (or almost half) of the departments at UTSA did not have any female Full Professors.

### Racial/Ethnic Distribution within College, Rank & Department

In fiscal year 2017, the majority of tenured and tenure-track faculty at UTSA were White non-Hispanic (52%), followed by Asian (18%), Hispanic (15%), International (5%), and Black (4%).<sup>1</sup> The remaining 5% of faculty were classified as other; these faculty identified as two or more races (N=1), American Indian or Alaskan native (N=4), or their racial/ethnic group was unknown (N=23).

Of UTSA’s peer institutions, UTSA had the second highest percentage of Asian, Black, and Hispanic tenured faculty (see Table 2). When considering these racial/ethnic groups separately, UTSA had the second highest percentage of tenured Hispanic faculty, the third highest percentage of Asian tenured faculty, and the fourth highest percentage of Black tenured faculty (tied with Florida International University and University of Central Florida).

Table 2. Racial/Ethnic Distribution of Tenured Faculty across Peer Institutions  
(Peer Institutions Shown in Descending Order of Percent Under-Represented Minority (URM) Tenured Faculty)

	URM	Asian	Black	Hispanic	Intl.	Other	White	Total
Florida International University	40%	21%	5%	13%	2%	0%	57%	494
The University of Texas at San Antonio	35%	20%	5%	11%	1%	8%	56%	455
University of California-Riverside	31%	21%	3%	6%	0%	3%	66%	521
University of Central Florida	28%	18%	5%	6%	1%	1%	70%	579
University of California-Santa Cruz	27%	16%	2%	9%	0%	4%	69%	428
University of California-Irvine	27%	19%	3%	5%	1%	2%	70%	973
University of Maryland-Baltimore County	25%	15%	6%	3%	0%	0%	75%	285
Arizona State University	23%	12%	3%	8%	1%	3%	73%	1393
Georgia State University	21%	12%	7%	2%	1%	1%	78%	535
George Mason University	20%	13%	4%	3%	0%	7%	73%	675
Portland State University	17%	10%	2%	6%	1%	11%	71%	418

Source: IPEDS 2016 data; Arizona State University includes all campuses; Other includes American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, two or more races, and unknown; URM includes Asian, Black, and Hispanic faculty. URM percent does not equal the total of Asian, Black and Hispanic percentage in some cases due to rounding.

However, UTSA ranked seventh (tied with University of Central Florida) in the percentage of Asian, Black, and Hispanic tenure-track faculty (see Table 3). Twenty-five percent of UTSA tenure-track faculty were Asian, Black, or Hispanic. Meanwhile, the University of California – Riverside ranked first, with 39%. UTSA ranked sixth (tied with Arizona State University and University of Central Florida) in its percentage

<sup>1</sup> IPEDS race/ethnicity definitions were used. Faculty self-identified their racial group and ethnicity. IPEDS categorization prioritizes Hispanic ethnicity – no matter what race faculty members identified, they were assigned to Hispanic if they indicated Hispanic ethnicity. IPEDS also prioritizes visa status. All faculty members who were present in the US on a visa (not US citizens or legal permanent residents) were assigned the international racial/ethnic group.

of Hispanic tenure-track faculty, ranked sixth in its percentage of Asian tenure-track faculty, and ranked last (tied with Arizona State University) in the percentage of Black tenure-track faculty.

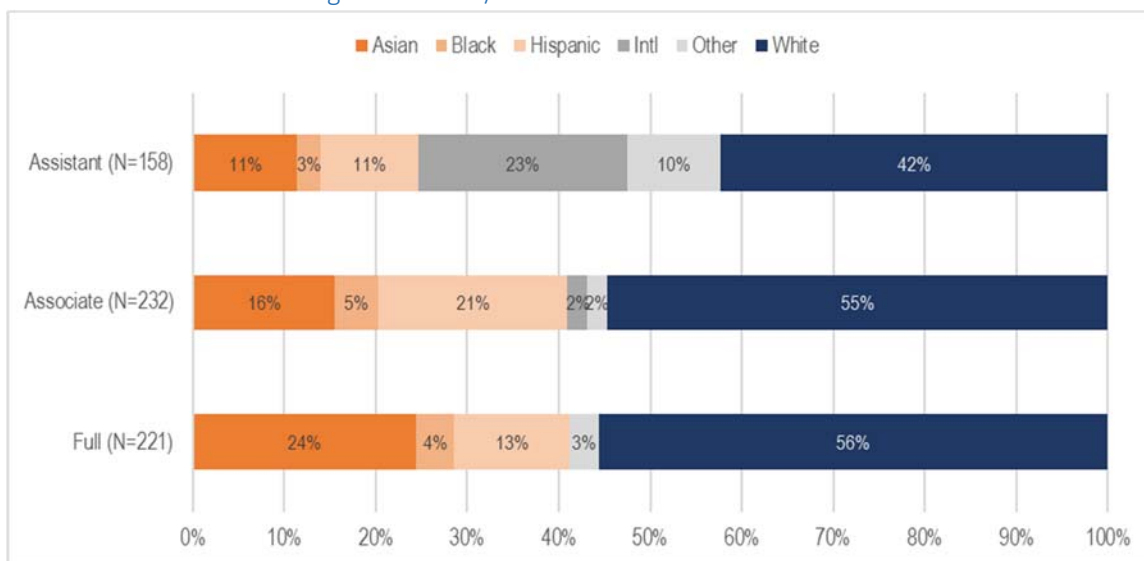
Table 3. Racial/Ethnic Distribution of Tenure-Track Faculty across Peer Institutions  
(Peer Institutions Shown in Descending Order of Percent Under-Represented Minority (URM) Tenure-Track Faculty)

	URM	Asian	Black	Hispanic	Intl.	Other	White	Total
University of California-Riverside	39%	26%	4%	9%	13%	7%	41%	230
University of Maryland-Baltimore County	36%	25%	7%	4%	12%	1%	51%	109
University of California-Irvine	31%	17%	5%	9%	15%	8%	46%	224
University of California-Santa Cruz	29%	15%	5%	9%	17%	7%	47%	108
Florida International University	28%	17%	4%	8%	18%	0%	54%	224
Arizona State University	26%	18%	2%	7%	11%	9%	54%	525
The University of Texas at San Antonio	25%	16%	2%	7%	20%	11%	43%	166
University of Central Florida	25%	14%	4%	7%	16%	1%	58%	283
Georgia State University	24%	10%	12%	2%	12%	2%	62%	210
Portland State University	22%	9%	4%	9%	4%	12%	62%	172
George Mason University	21%	13%	5%	2%	14%	18%	47%	201

Source: IPEDS 2016 data; Arizona State University includes all campuses; Other includes American Indian or Alaskan Native, Native Hawaiian or Other Pacific Islander, two or more races, and unknown; URM includes Asian, Black, and Hispanic faculty. URM percent does not equal the total of Asian, Black and Hispanic percentages in some cases due to rounding.

At UTSA, the majority of Associate and Full Professors and 42% of Assistant Professors were White (see Figure 2). Second to White faculty, International faculty made up the largest percent (23%) of Assistant Professors. Together, Asian, Black, and Hispanic faculty were only a quarter of Assistant Professors, but they were better represented in the Associate and Full Professor ranks. These groups represented 41% of Associate Professors; of which 21% identified as Hispanic, 16% identified as Asian, and 5% identified as Black. Asian, Black, and Hispanic faculty were also 41% of Full Professors; of which 24% identify as Asian, 13% identified as Hispanic, and 4% identified as Black.

Figure 2. Racial/Ethnic Distribution within Rank



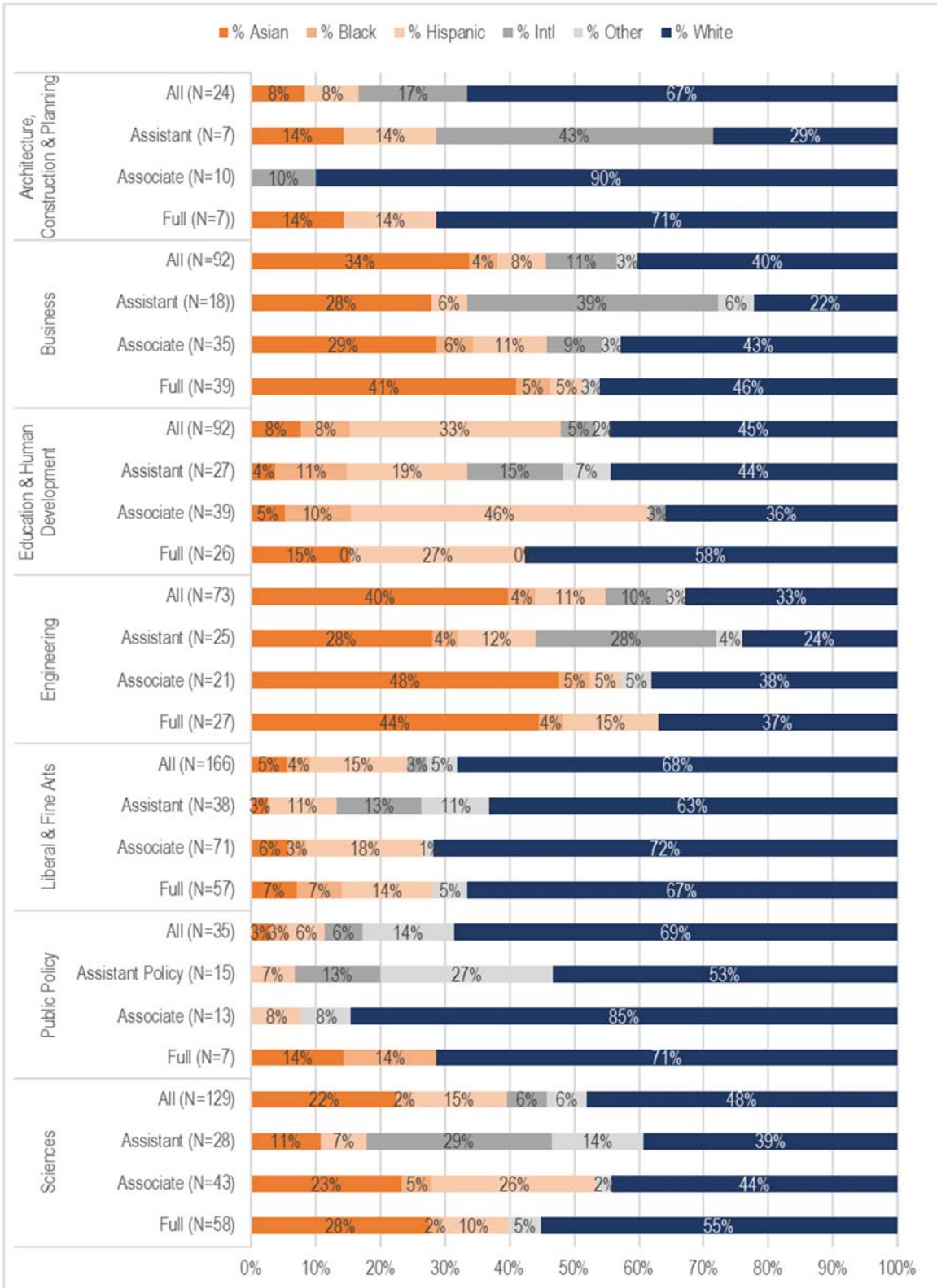
White faculty predominated the Colleges of Public Policy, Liberal & Fine Arts, and Architecture, Construction & Planning (see Figure 3). White faculty represented about 70% of the faculty in these colleges. Asian faculty were the largest racial/ethnic group in the College of Engineering (40%); they also made up larger shares within the College of Business (34%) and the College of Sciences (22%). Hispanic faculty represented one-third of the faculty housed in the College of Education & Human Development.

Figure 3 also shows the racial/ethnic distribution of faculty within colleges by rank. While across the university, International faculty were the second largest percent of Assistant Professors, Hispanic faculty were the second largest percent of Associate Professors, and Asian faculty were the second largest percent of Full Professors, this pattern was only evident in the College of Sciences. In the College of Liberal Arts and the College of Education and Human Development, Hispanic faculty were the second largest percent of Associate *and* Full Professors. In the College of Engineering and the College of Business, Asian faculty were the second largest percent of Full Professors *and* Associate Professors. The College of Architecture, Construction & Planning did not have any under-represented minority Associate Professors.

Figure A2 (see Appendix A) shows the racial/ethnic minority representation by department. Two departments at UTSA did not have any Asian, Black, or Hispanic faculty. Twenty departments did not have any Black faculty, 11 departments did not have any Asian faculty, and seven departments did not have any Hispanic faculty. On the other hand, in nine departments, more than half of the faculty were under-represented racial minorities (Asian, Black, or Hispanic). Three departments had Asian faculty majorities, and one department had a Hispanic faculty majority.



Figure 3. Racial/Ethnic Distribution within College, Overall and by Rank



## Average Gender & Racial/Ethnic Pay Differences among Tenured/Tenure-Track (T/TT) Faculty

### Overview

A linear regression model that controlled for race/ethnicity, department, experience, and rank showed that tenured and tenure-track men and women earned similar nine-month salaries. On average across the university, female professors earned only 0.4% more than men, and this difference was not statistically significant. Most of the unadjusted female pay deficit was due to female faculty working in lower-paying departments than male faculty.

Similarly, when controlling for gender, department, experience, and rank, there were no statistically significant differences in nine-month salaries by racial/ethnic group ( $F(5, 561) = .29, p=0.92$ ). Asian, Black, Hispanic, and International faculty earned within 2% of White, non-Hispanic faculty. International and Black faculty's pay penalty was largely attributable to fewer years of experience. Asian faculty's pay advantage was due to their specialization in higher-paying fields and holding higher ranks. Hispanic and White faculty earned similar pay after accounting for department differences.

### Data and Methodology

A regression analysis was conducted to statistically test whether there were gender or racial/ethnic pay differences. Regression analysis allows for an estimation of the gender and racial/ethnic pay gaps while holding a range of variables constant that may also influence compensation levels.

The data consisted of all faculty with tenure titles at UTSA during fiscal year 2017. The analysis did not include retired or emeritus faculty who still received pay from UTSA, and it omitted faculty who were primarily administrators, such as College Deans.<sup>2</sup> A separate analysis was conducted for benefits-eligible non-tenure track faculty (see section titled "Average Gender Pay Differences among Benefits-Eligible Non-Tenure Track Faculty").

### Independent Variables: Gender & Race/Ethnicity

Human Resources provided data on faculty members' gender (either male or female). About one-third (32%) of tenured/tenure-track faculty at UTSA were female.

The Texas Higher Education Coordinating Board Faculty Report (CMB008) data was used for faculty members' race/ethnicity. IPEDS race/ethnicity was used for model estimation and included the following groups: Asian, Black or African American, Hispanic or Latino, International, Unknown/Other, and White. Under the IPEDS definition of race/ethnicity, faculty were classified as Hispanic/Latino regardless of their race group(s). Faculty were International if they were nonresident aliens (in the US on a temporary visa). Finally, the unknown/other category combined faculty who identified as American Indian or Alaska Native, two or more races, or whose race/ethnicity was unknown. The racial-ethnic breakdown of tenured/tenure-track faculty was as follows: 52% were White, 18% were Asian, 15% were Hispanic, 5% were International, 4% were Black, and 5% were other/unknown.

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<sup>2</sup> Faculty were considered administrators if according to the coordinating board faculty file (CMB008), they worked in an administrative area, rather than a specific college. Administrators were excluded from analyses because their pay was usually higher and reflected a different pay determination process from other faculty.

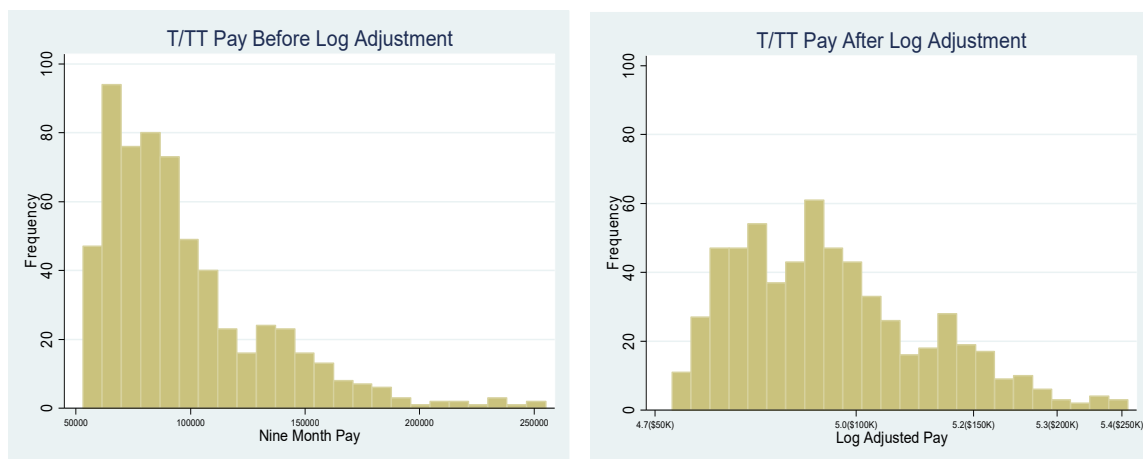
### Dependent Variable: Nine-Month Salary

Faculty members' nine-month salary was analyzed. UTSA's PeopleSoft system was the source for nine-month salary data, and the salary reflected the amount that faculty members should have been paid for the nine-month period from September 1, 2016 through May 31, 2017. Nine-month salary did not include administrative stipends, endowment pay, summer salaries, or any one-time payments (such as relocation costs or travel funds).<sup>3</sup>

Several adjustments were made to faculty members' nine-month salary so that pay would be more comparable across faculty members. First, some faculty did not work full time during FY 2017 (N=4). The salaries of these faculty members was adjusted so that it reflected the amount that they would have received had they been working full-time.

Second, the logarithm (log10) of faculty members' pay was taken. Figure 3 shows that faculty members' nine-month salary ranged from about \$50,000 to \$250,000, but most faculty earned less than \$150,000. Taking a logarithm adjusted faculty pay so that the few faculty earning more than \$150,000 did not unduly influence the results. Using the log10 of salary lowered the highest salaries and brought them closer to the rest of the sample. Figure 3 shows the log10 pay value and its equivalent in actual dollar amount. Note that a one unit increase in the log value at 5 (from 5 to 5.1) is about \$25,000, but a one unit increase in the log value at 5.3 (from 5.3 to 5.4) is about \$50,000. This salary transformation also created a more normal distribution in pay, which allowed for a better fitting linear regression model (in other words, the factors being considered explained more of the variation in faculty pay).<sup>4</sup>

Figure 4. Distribution of Nine-Month Salary vs. Log10 Salary for T/TT Faculty



<sup>3</sup> Potential inequities can arise when awarding these additional compensation components, which should be considered in future research.

<sup>4</sup> When using the log10 of salary, the parameter estimates in the regression model no longer represent differences in dollar amounts. To interpret the coefficients, 10 was raised to the value of the coefficient; this value was then subtracted from one and multiplied by 100 to provide an estimate of the percent change in salary (see Appendix B for coefficients of models estimated).

Lastly, each faculty member's salary was centered on the average salary in his or her department. Departments at UTSA vary in the average amount paid to their tenured/tenure-track faculty: faculty in Music averaged \$66,232, while faculty in Finance averaged \$163,050. Centering subtracts the average log<sub>10</sub> department salary from each faculty member's log<sub>10</sub> salary. For example, if a faculty member was in the Music department, the Music department's average log<sub>10</sub> salary was subtracted from the faculty member's log<sub>10</sub> salary. The results section further discusses how centering salary accounts for gender and racial/ethnic pay differences.

### Control Variables

Other variables related to pay also differed between men and women and between racial/ethnic groups. Including variables measuring discipline, experience, and rank in the regression model allowed for the estimation of gender and racial/ethnic group pay differences while accounting for these other dissimilarities.

### Discipline

Department was selected as a proxy for discipline due to small sample sizes available. Indicators for 38 departments were included in the regression model. Faculty were assigned to their primary department based on the Texas Higher Education Coordinating Board Faculty Report (CBM008). Architecture, Construction Science and Management, and General College of Architecture faculty were combined to ensure that each department had at least five tenured/tenure-track faculty members. Adding department as a control accounts for variation in salary between disciplines – more variation in faculty salary within a department is usually associated with higher average pay.

### Experience

Years since highest degree was used as a measure of experience. PeopleSoft was the source of the year the highest degree was awarded, which was subtracted from 2016 to calculate years of experience.

Of students earning doctoral degrees in the early 1990s, 36% to 40% were women (NCES 2005), but women made up half of the doctorates awarded in the early 2000s (NSF 2017). Therefore, faculty members with more years of experience are more likely to be men. At UTSA, tenured/tenure-track faculty averaged 17 years of experience, but men averaged about 4.5 more years of experience than women ( $p < 0.05$  using a two-tailed t-test, see Table 4). In terms of experience across the racial/ethnic groups (see Table 5), White faculty averaged 19 years of experience, but International faculty averaged only 5 years of experience ( $p < 0.001$  using a two-tailed t-test). Asian and Hispanic faculty averaged 17 years and Black faculty averaged 15 years of experience.

Using years since degree as a measure of experience assumed that once faculty members received their degrees, they worked continuously in their field. However, women may be more likely to take time off of employment for family obligations. Unfortunately, our data did not include faculty's time out from their continuous appointments, so using years since degree may slightly over-estimate women's experience. Additionally, some faculty members may have worked outside their field or outside of academia. Our data did not allow us to distinguish these different types of experience, the pay returns for these experiences, and whether they attributed to any pay gaps.

Table 4. Descriptive Statistics and Gender Bivariate Analysis of Variables Used in T/TT Analysis

	All T/TT Faculty	Female T/TT	Male T/TT
Female	32%	--	--
Race/Ethnicity			
Asian	18%	11%*	21%
Black	4%	5%	4%
Hispanic	15%	22%*	12%
International	7%	5%	7%
Other	5%	5%	4%
White	52%	53%	52%
Years Since Degree	17.16	14.08*	18.62
Rank			
Assistant	26%	32%*	23%
Associate	38%	45%*	34%
Full	36%	23%*	42%
N	611	196	415

\*Indicates gender differences are statistically significant at least at the  $p < 0.05$  level (using either a chi-square or two-tailed t-test).

Table 5. Descriptive Statistics and Racial/Ethnic Bivariate Analysis of Variables Used in T/TT Analysis

	Asian T/TT	Black T/TT	Hispanic T/TT	Intl. T/TT	Other T/TT	White T/TT
Female	19%*	38%	46%*	24%	36%	32%
Years Since Degree	17.19	14.88	16.78	4.61*	14.39*	19.31
Rank						
Assistant	17%	17%	18%	88%*	57%*	21%
Associate	33%	46%	52%*	12%*	18%*	40%
Full	50%*	38%	30%	0%*	25%	39%
N	108	24	93	41	28	317

\*Indicates racial/ethnic group differences are statistically significant difference from White faculty at least at the  $p < 0.05$  level (using either a chi-square or two-tailed t-test).

### Current Rank

Rank reflects UTSA's assessment of a faculty member's performance. If faculty members were productive in their research, teaching, and service, then they advanced in rank. A set of dichotomous variables were included in the model to indicate whether a faculty member was an Assistant Professor, Associate Professor, or Full Professor (as provided by the coordinating board faculty file (CBM008)). Women were more likely than men to be Assistant ( $\chi^2(1) = 5.02, p < 0.05$ ) or Associate Professors ( $\chi^2(1) = 6.78, p < 0.01$ ), while men were more likely to be Full Professors ( $\chi^2(1) = 21.81, p < 0.001$ ) (see Table 4). International faculty were more likely than White faculty to be Assistant Professors ( $\chi^2(1) = 78.74, p < 0.001$ ), while Asian faculty were more likely than White faculty to be Full Professors ( $\chi^2(1) = 4.16, p < 0.05$ ) (see Table 5).

A weakness of using rank as a proxy for productivity was that it could not account for differences in productivity between those professors who hold the same rank (Haignere 2002). A professor may meet the minimum criteria for Assistant Professor, while another Assistant Professor may exceed these criteria and be closer to the criteria for Full Professor. Additionally, women and racial/ethnic minorities may experience problems obtaining promotions. If this is the case, including rank in the model would mask inequities in salary that stemmed from women and racial/ethnic minorities not being fairly promoted. To account for this possibility, a model was estimated that did not control for rank.

## Results

### Gender

Gender differences in pay were analyzed before and after centering on department salary and by estimating stepwise linear regression models. In stepwise regression, a series of submodels were estimated, each increasing in complexity by adding control variables. Examining the gender pay gap after centering and the gender pay gap in each model allowed us to identify the main source or sources of the salary differences.

Another rationale for centering salary on department is that women tended to work in lower-paying departments than men. A larger percent of T/TT women worked in Bicultural/Bilingual Studies ( $\chi^2(1) = 15.58, p < 0.001$ ), English ( $\chi^2(1) = 13.65, p < 0.001$ ), Interdisciplinary Learning and Teaching ( $\chi^2(1) = 11.94, p = 0.001$ ), and History ( $\chi^2(1) = 4.41, p < 0.05$ ). According to national CUPA data, Associate Professors averaged around \$70,000 in these disciplines. In contrast, T/TT men were more likely to work in Chemistry, Civil and Environmental Engineering ( $\chi^2(1) = 5.51, p < 0.001$ ), Computer Science ( $\chi^2(1) = 7.45, p < 0.01$ ), Mathematics ( $\chi^2(1) = 5.08, p < 0.05$ ), and Mechanical Engineering ( $\chi^2(1) = 4.40, p < 0.05$ ). Nationwide, Associate Professors averaged around \$94,000 in these fields. As shown in Table 6, before centering on department mean, women earned about 15% less than men ( $p < 0.001$  using a two-tailed t-test), but after centering, women earned about 5% less ( $p < 0.001$  using a two-tailed t-test).

Table 6. Gender Pay Differences among T/TT Faculty Before & After Centering on Department Mean

	Female T/TT Mean	Male T/TT Mean	% Difference in Pay
Log10 Salary	4.92***	4.98	-15%
Log10 Department-Centered Salary	-0.03**	0.00	-5%
N	196	415	

Note: Gender differences in pay are shown without controlling for other characteristics. The percent difference between men and women's pay was calculated by raising 10 to the difference in mean value; this value was subtracted from one and multiplied by 100.

\*\*Indicates gender differences in pay are statistically significant at the  $p < 0.05$  level using a two-tailed t-test.

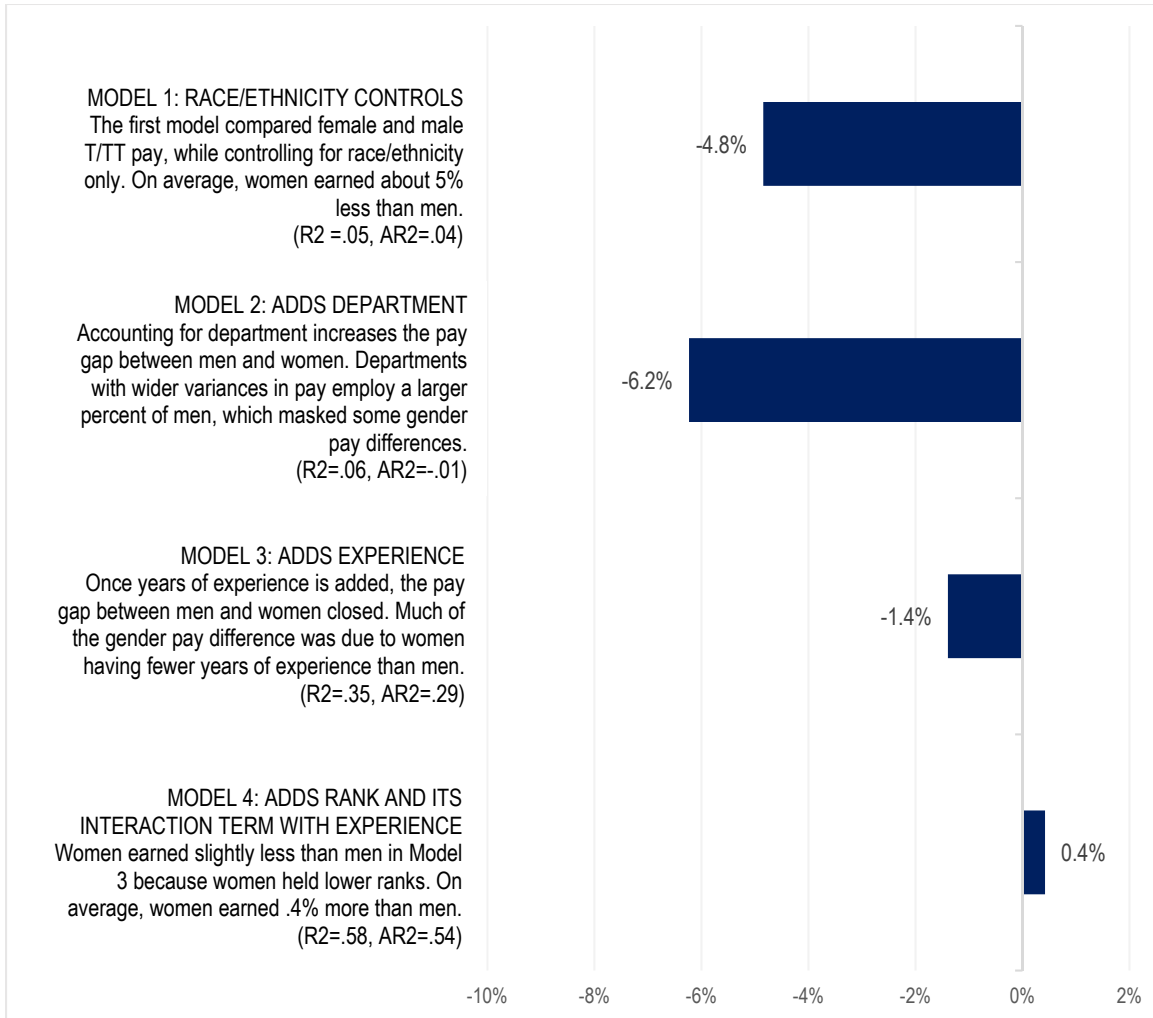
\*\*\*Gender differences in pay are statistically significant at the  $p < 0.01$  level using a two-tailed t-test.

After centering the dependent variable, stepwise regression models were conducted. Figure 5 depicts the average percent difference between men and women's salaries for each of the stepwise models estimated.<sup>5</sup> The first model examined gender differences in pay while holding race/ethnicity constant, but not accounting for experience, rank, or pay variation by department. When race/ethnicity alone was considered, women earned 4.8% less than men ( $\beta_{\text{female}} = -0.022, p < 0.05$ ). The model itself explained only 5% of the variation in pay.

<sup>5</sup> Because the dependent variable was centered, the gender regression coefficient represents the average within-department gender gap in log10 pay, weighted by department size.

Figure 5. Stepwise Models Predicting T/TT Gender Pay Differences

Stepwise models added variables in phases to examine how each reduced or increased the log-centered pay gap between men and women. The following models show what women earned compared to men:



N = 611 (415 males, 196 females); The coefficients predicting log mean centered pay were transformed to a percent difference (shown above) by raising 10 to the value of the female coefficient, subtracting this result from 1, and then multiplying it by 100  $((1-10^{\beta}) \times 100)$ . See Appendix B for coefficients and statistical significance.

Model 2 added department control variables. With department in the model, women earned 6.2% less than men ( $\beta_{\text{female}} = -0.028, p < 0.01$ ). Without controlling for department, the pay gap between men and women was suppressed, as department variation in pay was negatively correlated with percent female in the department ( $R^2 = -0.37$ ). However, this model must be interpreted with caution due to the small number of faculty members in each department. Further, this model explained only 6% of variation in faculty remuneration, which was offset by the large number of variables entered into the model (adjusted R-squared = -0.01).



In Model 3, with the addition of the experience measure, women earned only 1.5% less than men ( $\beta_{\text{female}} = -0.006, p=0.44$ ). On average, women had fewer years of experience, which accounted for most of the remaining gender gap in pay.

Model 4 included a control for current rank and an interaction term between current rank and years of experience. The interaction term (see Appendix B) showed that years of experience affected pay at different rates depending on a faculty member's rank. These additional controls increased the R-squared of the model; this model explained over half of the variation in faculty pay (58%). When including rank and its interaction terms, female faculty no longer earned less than men. In fact, men and women averaged similar salaries, with women earning only .4% more than men ( $\beta_{\text{female}} = .002, p=0.774$ ). The average salary for tenured/tenure-track faculty at UTSA was \$96,900 in fiscal year 2017 – the average gender pay difference would be \$388 dollars.

### Race/Ethnicity

Racial/ethnic differences in pay were also analyzed before and after centering on department salary and by using stepwise regression. The same stepwise models used to assess gender salary differences were used, but this section focuses on the racial/ethnic coefficients in these models (instead of the female coefficient) to examine racial/ethnic salary differences.

Centering salary on department accounted for racial/ethnic differences in pay (see Table 7). Without centering for department or accounting for control variables, Asian faculty made 22% more than White faculty ( $p<0.001$  using a two-tailed t-test). However, Asian faculty were more likely than White faculty to work in departments in the College of Business and College of Sciences,<sup>6</sup> higher-paying fields. After centering on department, Asian faculty earned 1.4% more than White faculty, and a two-tailed t-test indicated that this pay difference was not statistically significant.

Table 7. Racial/Ethnic Pay Differences among T/TT Faculty Before & After Centering on Department Mean

		Asian	Black	Hispanic	Intl	Other	White
Log10 Salary	Mean	5.04***	4.97	4.93	4.92	4.93	4.95
	% Difference from White Faculty	23%	4%	-4%	-6%	-4%	
Log10 Department-Centered Salary	Mean	0.01	-0.02	-0.01	-0.08***	-0.03	0.00
	% Difference from White Faculty	1%	-4%	-1%	-15%	-6%	
N		108	24	93	41	28	317

Note: Racial/ethnic differences in pay are shown without controlling for other characteristics. The percent difference between a racial/ethnic group and White faculty's pay was calculated by raising 10 to the difference in their mean values; this value was subtracted from one and multiplied by 100.

\*\*\*Indicates racial/ethnic group's pay significantly differences from White faculty's pay at the  $p<0.001$  level using a two-tailed t-test.

On the other hand, without centering for department or accounting for any control variables, International faculty earned 6% less than White faculty, and this gap increased to 15% after centering ( $p<0.05$  using a two-tailed t-test). International faculty were more likely than White faculty to work in

<sup>6</sup> A greater percent of Asian faculty as compared to White faculty were in the following departments: Mechanical Engineering ( $\chi^2(1) = 12.07, p=0.001$ ), Management Science and Statistics ( $\chi^2(1) = 13.34, p<0.001$ ), Electrical and Computer Engineering ( $\chi^2(1) = 14.95, p<0.001$ ), Computer Science ( $\chi^2(1) = 8.34, p<0.01$ ), Biomedical Engineering ( $\chi^2(1) = 5.92, p<0.05$ ), and Accounting ( $\chi^2(1) = 3.94, p<0.05$ ).



Computer Science ( $\chi^2(1) = 11.18, p=0.001$ ), Information Systems and Cyber Security ( $\chi^2(1) = 5.47, p<0.05$ ), and Marketing ( $\chi^2(1) = 4.08, p<0.05$ ), all higher-paying departments. International faculty working in higher-paying departments obscured the uncentered White-International pay gap.

Centering for discipline also explained Black faculty's small pay advantage, as they were more likely than White faculty to work in Accounting ( $\chi^2(1) = 4.04, p<0.05$ ), Education Leadership and Policy Studies ( $\chi^2(1) = 11.62, p=0.001$ ), and English ( $\chi^2(1) = 4.62, p<0.05$ ). These departments averaged \$113,000 in salaries at UTSA, higher than the overall faculty average pay of \$97,000. After centering, they earned 4% less than White faculty, although this difference was not statistically significant. Further, centering for discipline accounted for Hispanic faculty's 4% pay penalty, as they were more likely to work in Bicultural/Bilingual Studies ( $\chi^2(1) = 36.01, p<0.001$ ), which averaged \$72,000.

Figure 6 shows the percent difference between White, non-Hispanic faculty and each racial/ethnic group for each of the stepwise models. When controlling for gender and accounting for department through centering, Asian, Hispanic, and White faculty earned similar salaries (see Model 1). Black and other/unknown faculty earned about 4 to 5% less than White faculty (although these differences were not statistically significant). International faculty experienced the largest penalty at 16% ( $\beta_{Intl} = -0.073, p<0.001$ ).

Adding department in Model 2 did little to change the racial/ethnic gaps, but Model 3 shows that the salary difference between International faculty and White faculty closed to -0.4% ( $\beta_{Intl} = -0.002, p=0.908$ ). International faculty averaged fewer years of experience than White faculty, which accounted for their lower levels of pay. In this model, Asian faculty earned about 5% more than Whites ( $\beta_{Asian} = 0.022, p<0.05$ ), despite their similar years of experience.

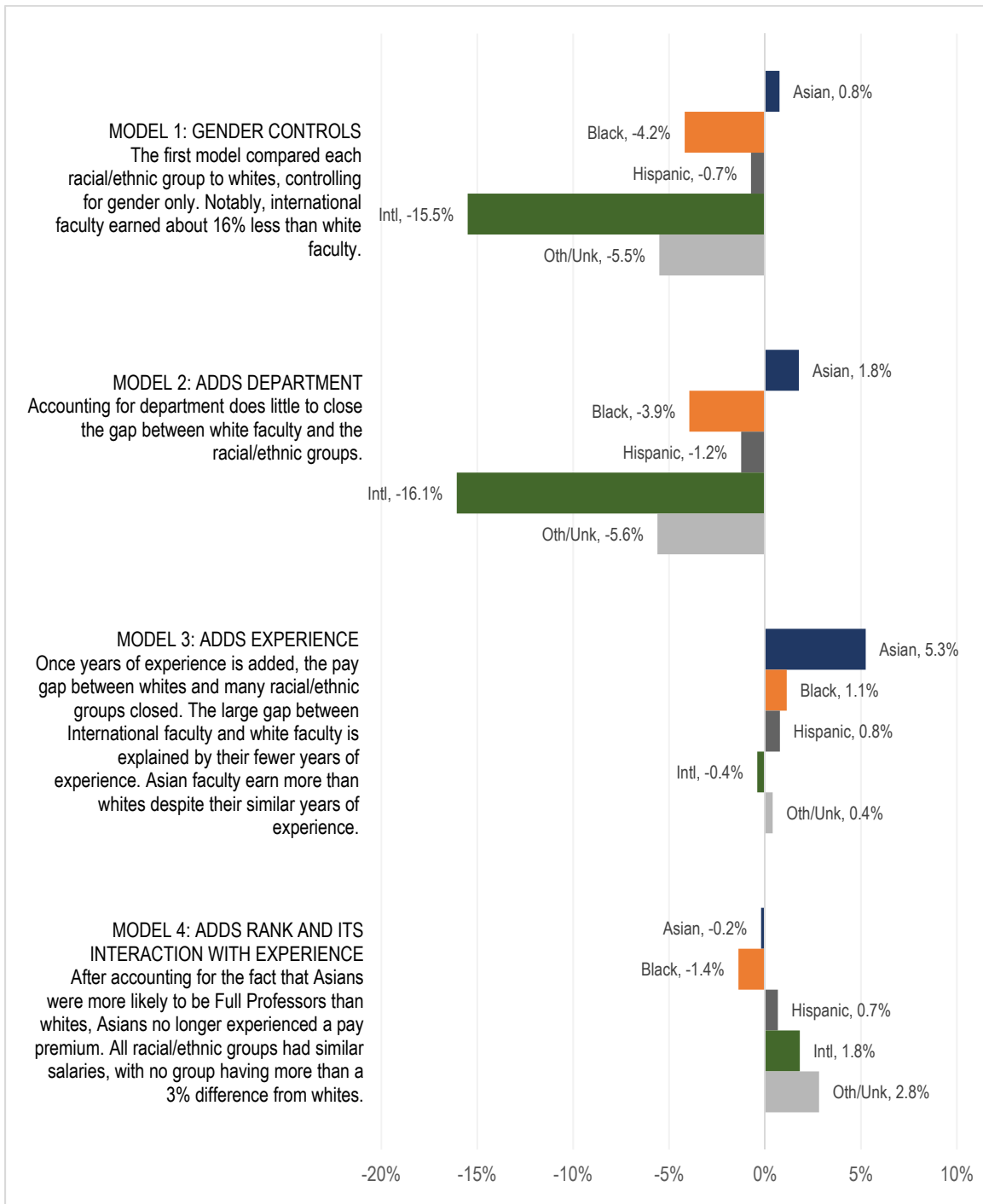
Model 4 accounts for the fact that Asian faculty were more likely to be Full Professors than White faculty by including rank and its interaction with years of experience. In Model 4, Asian faculty no longer received a pay premium. Model 4 shows that Asian, Hispanic, and White faculty were paid within 1% of one another. In fact, no racial/ethnic group had a salary with more than a 3% difference from White faculty, and a Wald test indicated that the racial/ethnic coefficients were not jointly statistically significant ( $F(5, 561) = 0.29, p=0.92$ ).

#### Alternative Model Specifications

Additional explanatory variables were considered for the model assessing gender and racial/ethnic pay differences. The highest degree obtained was included in the model, but most faculty had a doctoral degree, and it did not have a statistically significant relationship with the salary variable. A model was estimated including years of experience at UTSA. However, this variable was dropped from analyses because it had a negative slope after adjusting for other controls. The negative slope implied that the longer faculty worked at UTSA, the less they earned. Interaction terms between female and rank were included in the model, but the interaction terms were not statistically significant and did not suggest that the gender gap varied at different ranks. Interactions between female and racial/ethnic groups were not statistically significant, and estimates were less reliable due to the small number of female faculty in some racial/ethnic groups.

Figure 6. Stepwise Models Predicting T/TT Racial/Ethnic Pay Differences

Stepwise models added variables in phases to examine how each reduced or increased the pay gap between racial/ethnic groups. The following models show what each racial/ethnic group earns compared to Whites:



N = 611 (108 Asian, 24 Black, 93 Hispanic, 41 International, 28 Other/Unknown, 317 White, non-Hispanic faculty); The coefficients predicting log mean centered pay were transformed to a percent difference (shown above) by raising 10 to the value of the racial/ethnic coefficient, subtracting this result from 1, and then multiplying it by 100  $((1-10^{\beta}) \times 100)$ . See Appendix B for coefficients and statistical significance.

### Limitations of the Statistical Model

Due to data limitations, this model omitted some variables that are known to influence salary and that may systematically differ between male and female faculty or between the racial/ethnic groups. First, our final model did not include measures of faculty performance, such as research productivity, citation counts, or teaching evaluations. Faculty with higher evaluations are expected to earn higher compensation. Second, this model did not account for whether faculty had received a retention offer and, if so, how much the offer was. Retention offers and adjustments would probably lead to higher pay. Third, while the model controlled for overall years of experience, it did not account for time in current rank. A professor who reached his or her current rank within the past year would probably earn less than a professor who has been in the rank for ten years. If there are gender and/or racial ethnic differences in any of these variables, then accounting for them in the model could change the results presented above. Future analyses with good measures of faculty performance, retention dynamics, and years in current rank are needed.

## Tenured/Tenure-Track Faculty Paid Less than their Expected Compensation

### Overview

This section examined whether pay equity prevailed throughout the ranks, colleges, and departments at UTSA. An expected salary for each tenured/tenure-track faculty member was determined by using the predicted value from a linear regression model. Then, the number and percent of faculty who earned less than 95% of their predicted value were identified and the gender and racial/ethnic breakdowns across ranks, colleges, and departments were examined.

Across the university a similar percent of male and female T/TT faculty earned less than predicted (33% and 29%, respectively). However, in eight departments, a much higher percent of women were paid less than predicted, and in six departments, a much higher percent of men were paid less than predicted.

Using the same predicted pay method showed differences in the percent of White and under-represented minority (Asian, Black, and Hispanic) faculty at the college level. Compared to White faculty, a larger percent of under-represented minority faculty earned less than predicted in the College of Engineering and the College of Education and Human Development. In contrast, a larger percent of White faculty earned less than predicted in the College of Business.

### Methodology

Regression analysis indicated that on average there were no statistically significant gender or racial/ethnic pay differences at UTSA. However, because of the small number of faculty in each department, the regression analysis did not allow for an examination into whether this pattern holds across all units. To assess whether there were pockets of disparity, faculty who received compensation less than the range of their expected compensation were identified. A gender and racial/ethnic breakdown of those who earned less than expected was calculated by rank, college, and department.

An expected compensation amount for each faculty member was calculated by using the predicted pay value from a regression model.<sup>7</sup> A similar linear regression model was used as in the previous section; the outcome variable was faculty's department-centered log pay value, and predictors included department, years of experience, rank, and an interaction term between experience and rank. However, this model omitted gender and race/ethnicity as predictor variables. The omission of these variables avoided adding or subtracting dollars to the predicted pay value based on these characteristics (for example, a .4% increase for being a woman). After calculating the predicted value, it was converted back into salary in dollars from the log-centered amount.

Each faculty member's predicted pay value was compared to his/her actual nine-month salary. In the following analyses, faculty who earned within 5% of their predicted pay value were considered within a range of expected compensation. Only those faculty who earned less than 95% of their predicted pay were included in analyses. See Appendix C for a discussion of why the 5% range was used.

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<sup>7</sup> A regression model first calculates coefficients for each predictor included in the model. These coefficients represent the average returns for each variable. Then, each faculty member's own values of the variable are multiplied by the coefficient (the average return) and summed to calculate his/her predicted log-centered salary.

## Results

### Gender

Figure 6 is a scatterplot juxtaposing faculty's actual salary and their predicted salary value (which is 5% below the actual predicted value from the regression equation). Faculty plotted below the dashed red line earned less than 95% of their predicted salary. Importantly, most of the female faculty (represented in orange) are **not** falling below the dashed red line and most of the male faculty (represented in blue) are **not** falling above the dashed red line. Instead, the graph displays a similar share of female faculty below the dashed line (earning less than predicted) as male faculty below the line. Overall, among female faculty, 29% were paid less than predicted, and a similar percent of men earned less than predicted: 33%. This difference was not statistically significant using a chi-square test.

Figure 7. Actual Salary vs. Predicted Salary (5% Cutpoint Applied) for T/TT Faculty

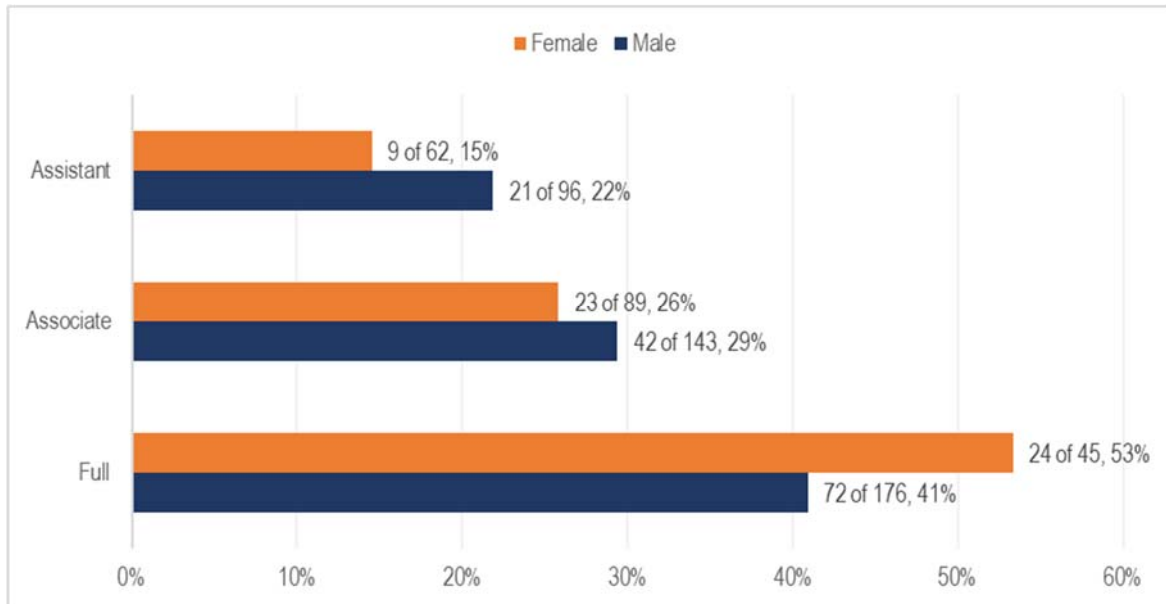


N = 611, predicted salary value estimated from a regression model including department, experience, and rank predictors; 5% was then subtracted from the value.

*Gender Differences in Percent Paid Less than Predicted by Rank*

Figure 8 shows the percent of men and the percent of women who earned less than predicted by rank (Full, Associate, Assistant). Overall, a similar percent of men and women earned less than predicted in each rank. Associate professors were especially close – 26% of female Associates earned less than predicted, while 29% of male Associates earned less than predicted. There was a larger gender gap for Assistant and Full Professors: 53% of female Full Professors earned less compared to 41% of male Full Professors. On the other hand, only 15% of female Assistant Professors were potentially underpaid compared to 22% of male Assistant Professors. However, neither of these differences was statistically significant according to chi-square tests.

Figure 8. Percent of T/TT Faculty Paid Less than Predicted (5% Cutpoint Applied), by Gender & Rank

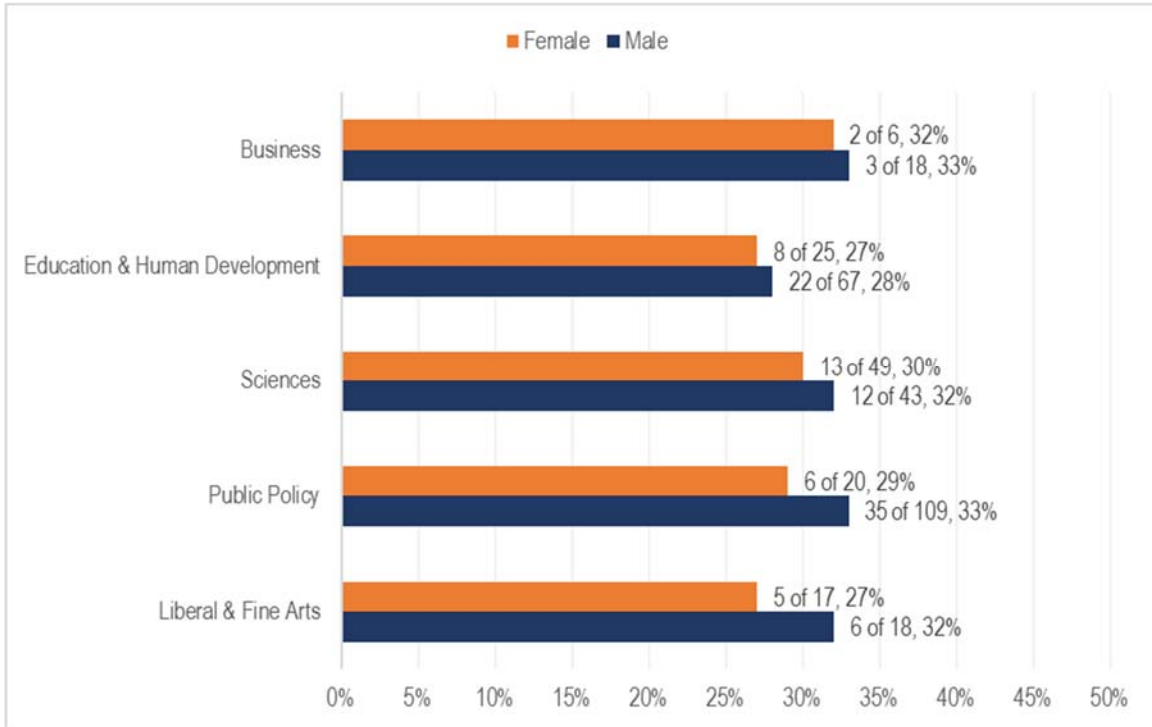


N = 611; Faculty identified as being paid less than predicted if their actual pay was less than 95% of their predicted salary value. None of the gender differences in paid less than predicted were statistically significant using chi-squared tests.

*Gender Differences in Percent Paid Less than Predicted by College*

A similar percent of men and women earned less than predicted in each college (see Figure 9) and chi-square tests indicated that the gender differences in each college were not statistically significant.

Figure 9. Percent of T/TT Faculty Paid Less than Predicted (5% Cutpoint Applied), by Gender & College



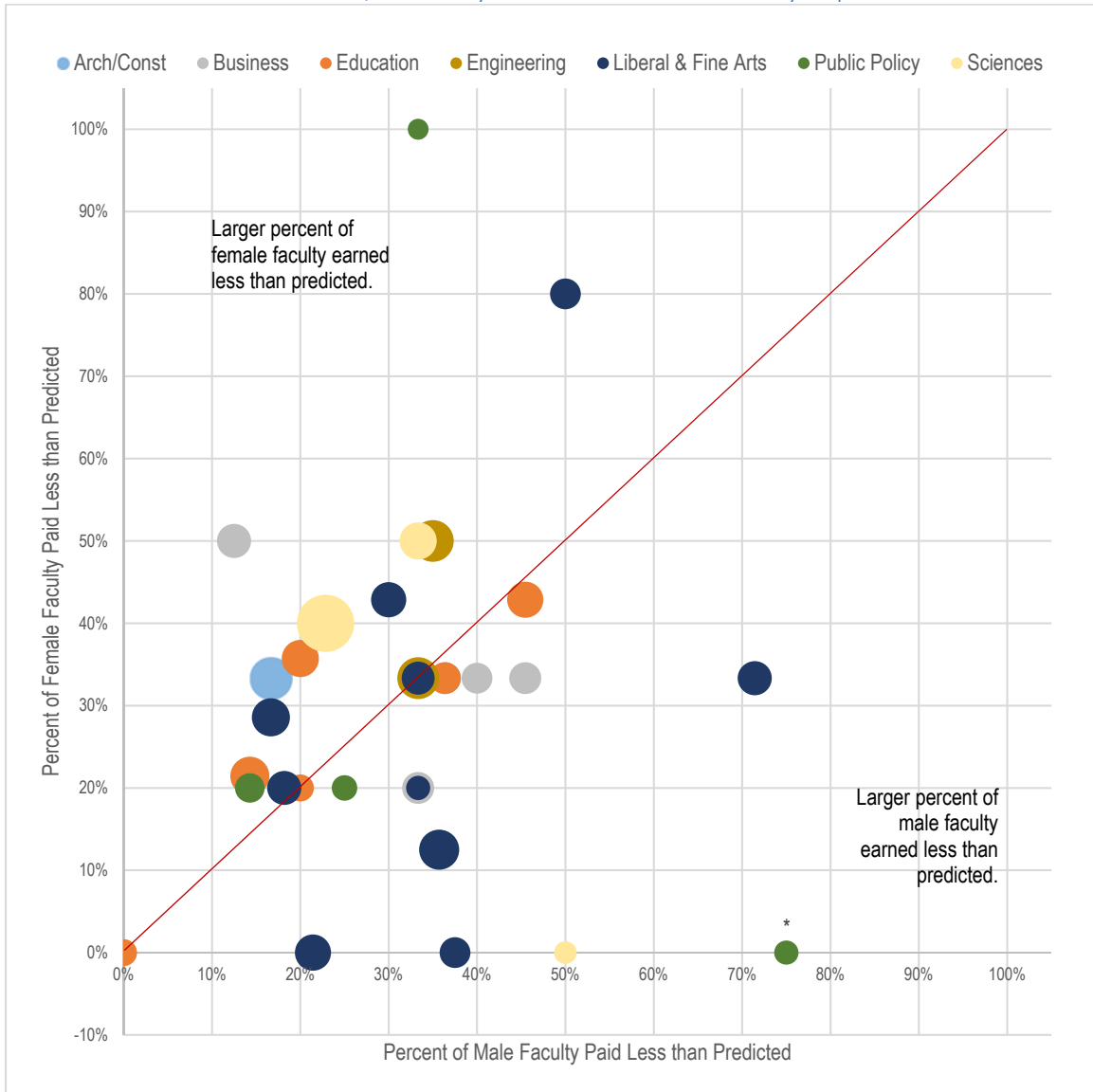
N = 611; Faculty identified as being paid less than predicted if their actual pay was less than 95% of their predicted salary value. None of the gender differences in paid less than predicted were statistically significant using chi-squared tests. College of Architecture, Construction & Planning and College of Engineering not shown because fewer than 5 faculty in one of the gender groups were paid less than expected.

*Gender Differences in Percent Paid Less than Predicted by Department*

Finally, Figure 10 considers whether there were some departments with gender disparities in percent paid less than predicted. Figure 10 is a bubblechart contrasting the percent of male faculty who earn less than predicted with the percent of female faculty who earn less than predicted in each department. Each department with more than 3 male and 3 female faculty is indicated with a bubble proportional to the total department size.

The bubblechart shows that in some departments, there was a higher percentage of women potentially underpaid than men, but there were also departments where there was a higher percentage of men potentially underpaid. For example, in one department in the College of Business (indicated by a grey dot in the left center of the graph), 50% of women in the department earned less than predicted, while only 13% of men in the department did, a 37% difference. On the other hand, in one department in the College of Public Policy, 75% of men were potentially underpaid, but none of the female faculty earned less than predicted. In eight departments, a much higher percent of women were paid less than predicted, and in six departments, a much higher percent of men were paid less than predicted.

Figure 10. Percent of Female T/TT Paid Less than Predicted vs. Percent of Male T/TT Faculty Paid Less than Predicted by Department



Note: Faculty were considered as paid less than predicted if their actual pay was less than 95% of their predicted salary value. Departments must have at least 3 male and 3 female faculty to be included in the graph (7 departments omitted). Bubble size is proportional to the total number of faculty in the department.

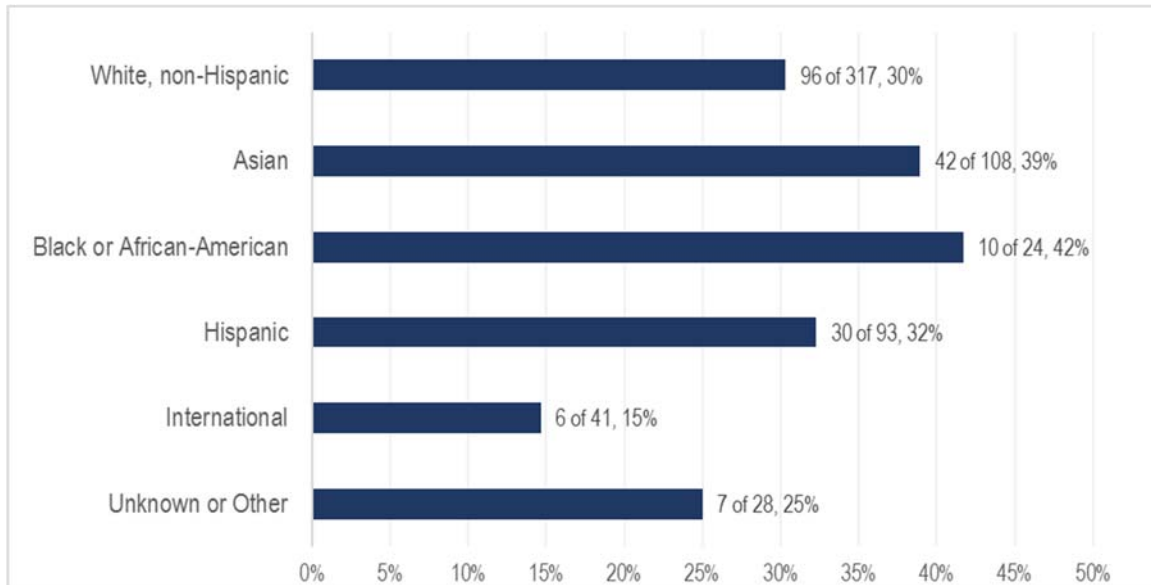
\*Gender differences in percent paid less than predicted are statistically significant at the  $p < 0.05$  level using a chi-square test.



## Race/Ethnicity

We also examined faculty paid less than predicted by racial/ethnic group. Figure 11 shows that 30% of White faculty at UTSA were potentially underpaid. Similarly, 32% of Hispanic faculty earned less than predicted. However, a higher percentage of Asian and Black faculty earned less than predicted. 39% of Asian faculty ( $\chi^2(1) = 2.72, p < 0.10$ ) and 42% of Black faculty (not statistically significant using a chi-square test) were paid less than predicted. Because we focused on faculty falling below the 5% predicted range, this set of results was not strictly comparable to the regression results in the previous section. The regression includes all faculty, while these analyses focused on the subset of the faculty that were potentially underpaid at higher amounts. However, the regression results did suggest that average Asian and Black faculty pay fell further from White faculty pay levels than Hispanic faculty did.

Figure 11. Percent of T/TT Faculty Paid Less than Predicted (5% Cutpoint Applied), by Race/Ethnicity



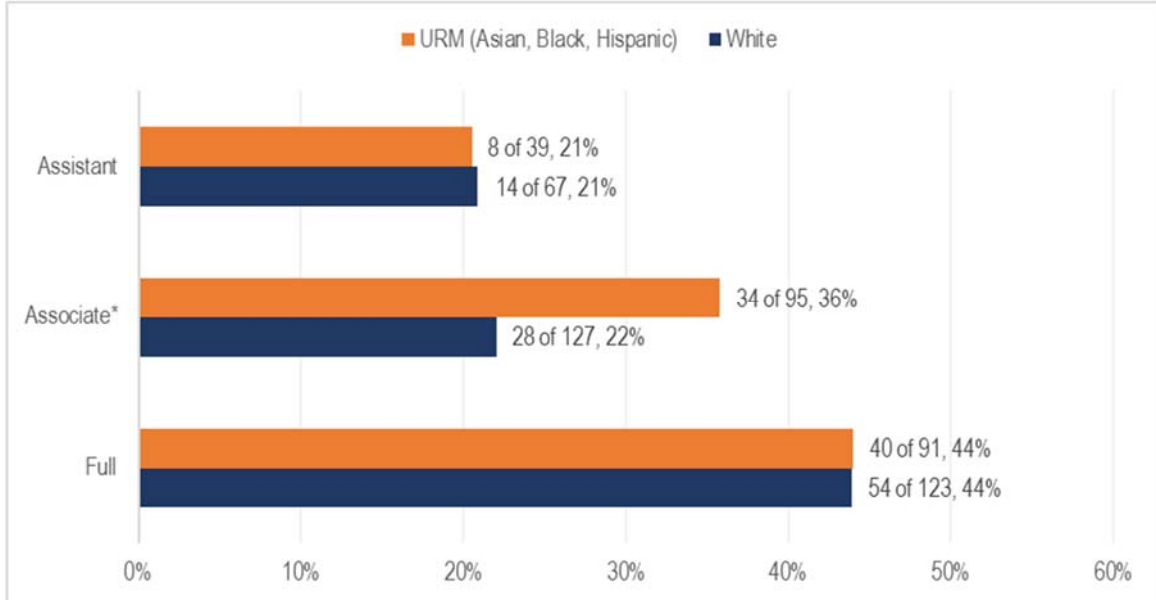
N = 611; Unknown and other faculty include American Indian/Alaskan native, 2 or more races, and unknown race. Faculty are considered to be paid less than predicted if their actual pay was less than 95% of their predicted salary value. Racial ethnic differences in percent paid less than predicted are marginally statistically significant ( $\chi^2(5) = 10.10, p = 0.07$ ).

## Racial/Ethnic Differences in Percent Paid Less than Predicted by Rank

Figure 12 compares the percent of White faculty earning less than predicted with the percent of under-represented racial minority (URM) faculty earning less than predicted in each rank. As defined by UT system, URM faculty included Asian, Black or African-American, and Hispanic faculty.<sup>8</sup> These racial/ethnic groups were combined into one group due to their small size. The percent of Assistant and Full Professors potentially underpaid did not differ by race/ethnicity. Among Associate Professors, however, 36% of URM faculty were potentially underpaid, but only 22% of White faculty earned less than predicted ( $\chi^2(1) = 5.10, p < 0.05$ ). Additional analyses verified that the percent of White Associate Professors (22%) was less than the percent of Asian (36%), Black (45%), and Hispanic (33%) Associate Professors earning less than predicted.

<sup>8</sup> UT System also included American Indian or Alaskan native in the definition of an under-represented minority. However, because of their small number at UTSA (N=4), we combined them with the other category in regression analysis and so do not include them in the URM analyses here.

Figure 12. Percent of T/TT Faculty Paid Less than Predicted (5% Cutpoint Applied), by Race/Ethnicity & Rank



N = 611; Faculty are paid less than predicted if their actual pay was less than 95% of their predicted salary value.

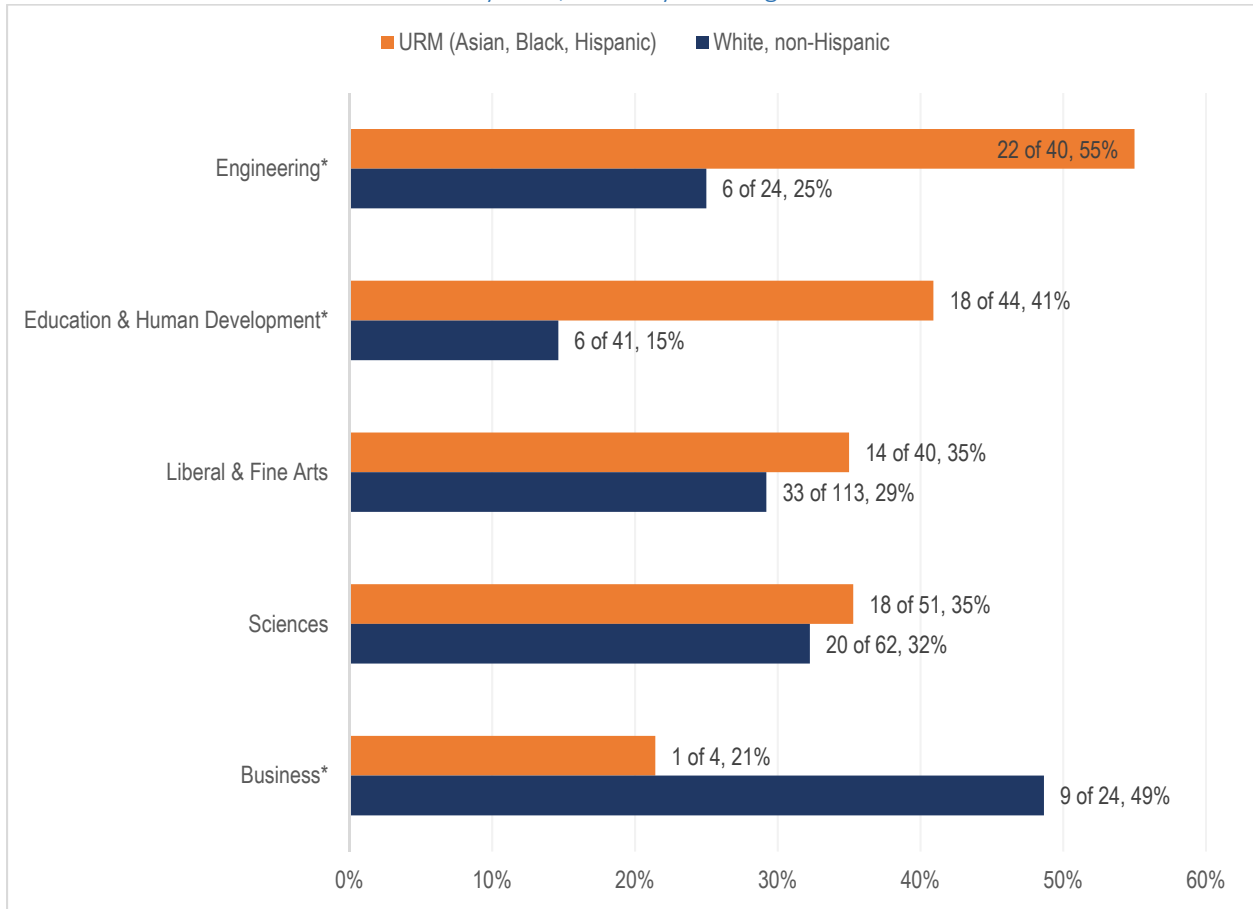
\*Indicates statistically significant White-URM difference in percent paid less than predicted ( $p < 0.05$  using a chi-square test).

#### *Racial/Ethnic Differences in Percent Paid Less than Predicted by College*

In some colleges, there was a higher percentage of URM faculty potentially underpaid than White faculty. As shown in Figure 13, 55% of URM engineers (22 of 40) earned less than predicted, while 25% of White engineers (6 of 24) earned less ( $\chi^2(1) = 5.49, p < 0.05$ ). In the College of Education and Human Development, 41% of URM faculty earned less than predicted compared to 15% of White faculty ( $\chi^2(1) = 7.23, p < 0.01$ ). One racial/ethnic minority group did not drive the White-URM differences – additional analyses showed that the percent of White faculty earning less than predicted was lower than the percent earning less for each URM racial/ethnic group (Asian, Black, and Hispanic faculty).

On the other hand, in the College of Business, 49% of White faculty earned less than predicted, while only 21% of URM faculty are potentially underpaid ( $\chi^2(1) = 6.48, p < 0.05$ ). Again, additional analyses show that the percent of White faculty who were paid less than predicted was lower than the percent of Asian, Black, and Hispanic faculty paid less than predicted in the College of Business.

Figure 13. Percent of T/TT Faculty Paid Less than Predicted (5% Cutpoint Applied), by Race/Ethnicity & College



N = 611; Faculty are paid less than predicted if their actual pay was less than 95% of their predicted salary value.

\*Indicates statistically significant White-URM difference in percent paid less than predicted ( $p < 0.05$  using a chi-square test).

College of Architecture, Construction & Planning and College of Public Policy not shown because fewer than 5 faculty in one of the racial/ethnic groups were paid less than expected.

#### Racial/Ethnic Differences in Percent Paid Less than Predicted by Department

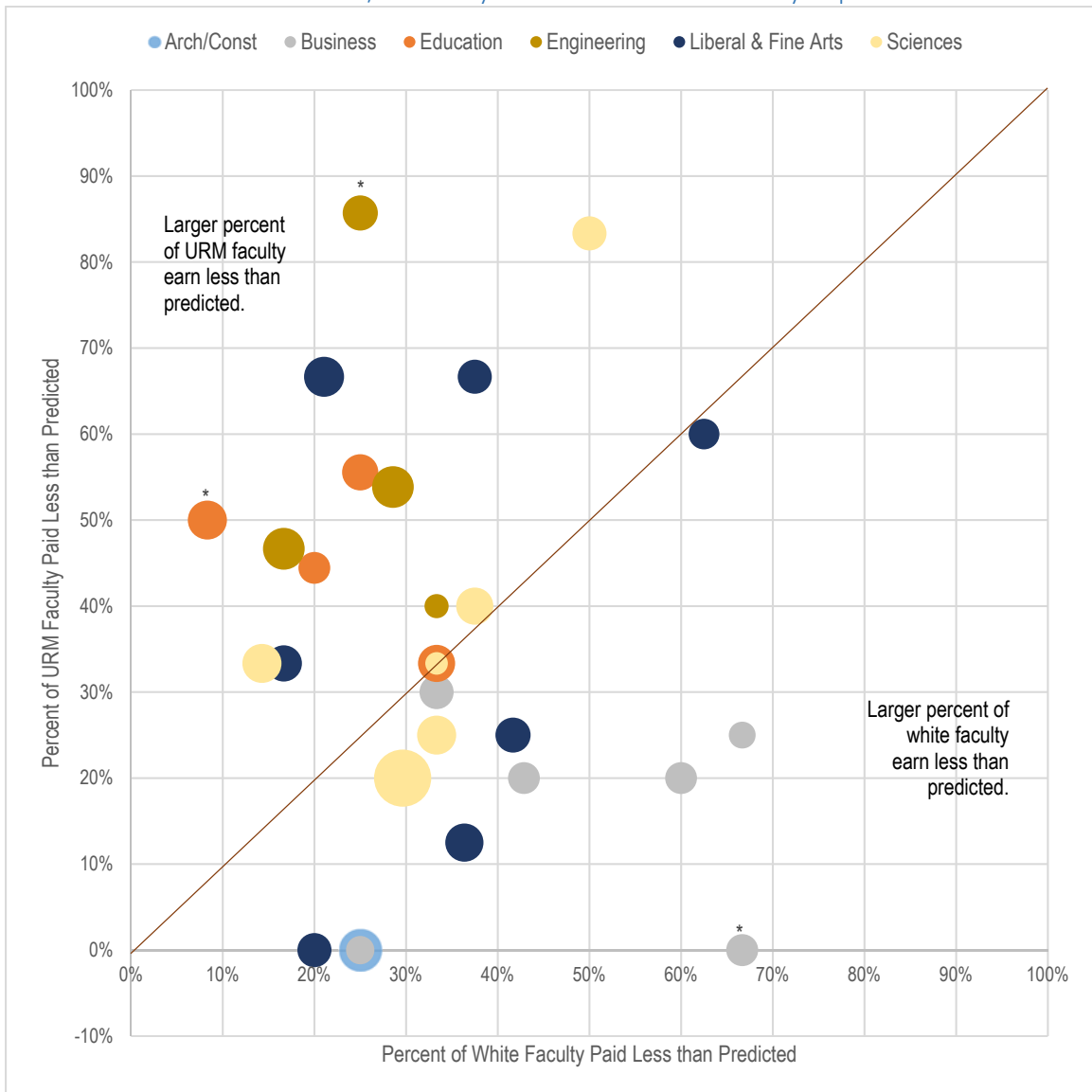
Figure 14 shows that the URM-White differences at the College level were borne out by the departments. Departments were only included in analyses if they had at least 3 White and 3 URM faculty. In the three departments in the College of Engineering which had at least three URM and three White faculty, a larger percent of URM faculty were potentially underpaid compared to the percent of White faculty. Three of the four Education departments had a larger percent of URM faculty earning less than predicted. But other departments outside of the College of Engineering and the College of Education, including some in the Liberal Arts and the Sciences, had a larger percent of URM faculty paid less than predicted.

#### Limitations of the Predicted Pay Values

A regression equation estimated the predicted pay values based on experience, rank, and department, and identified faculty that were potentially underpaid compared to their UTSA peers. However, the predicted value did not take into consideration whether departments were paying their faculty more or less than market rates. Faculty earning their predicted salary could still be underpaid compared to the

market value. Additionally, the model estimating predicted pay values did not account for compression – in some departments, more recent hires were paid more than faculty who have been at UTSA for several years. Therefore, faculty could be earning their predicted salary as estimated by the model, but because years at UTSA was omitted from the model (and in fact had a negative value), no additional pay was given for time of service. In short, this model should be used to identify gender and racial/ethnic pay differences only, and other factors should be considered when reviewing and adjusting pay values.

Figure 14. Percent of Under-represented Minority T/TT Faculty Paid Less than Predicted vs. Percent of White T/TT Faculty Paid Less than Predicted by Department



Faculty were considered as paid less than predicted if their actual pay was less than 95% of their predicted salary value.

Departments must have at least 3 URM (Asian, Black, and Hispanic) and 3 white faculty to be included in the graph (8 departments omitted). Bubble size is proportional to the total number of faculty in the department.

\*Racial/ethnic differences in percent paid less than predicted are statistically significant at the  $p < 0.05$  level using a chi-square test.

## Pay Inequities among Tenured/Tenure-Track Faculty

### Overview

College Deans, in partnership with Human Resources, reviewed tenured/tenure-track faculty members' predicted and actual compensation. College Deans also considered factors not included in the regression analysis, such as faculty member evaluations and years of experience within their specific discipline, to identify faculty whose salaries should be adjusted. While 191 tenured/tenure-track faculty members earned less than 95% of their predicted value, the Deans identified 72 who warranted a pay adjustment.

Of the 72 who warranted salary adjustments, 31 were women and 41 were men. Sixteen percent of all female faculty at UTSA will receive a pay adjustment, compared to 10% of all male faculty. In terms of racial/ethnic group members, 41 of the 72 faculty were under-represented minorities (Asian, Black, or Hispanic), 27 were White, non-Hispanic, and 4 were International or faculty of another/unknown racial/ethnic group. Eighteen percent of all URM faculty at UTSA will receive a pay increase, compared to 9% of White, non-Hispanic faculty and 6% of International or faculty of another/unknown race/ethnicity.

### Methodology

The predicted pay model identified 191 faculty members who earned less than 95% of their predicted value,<sup>9</sup> and the cost to bring all faculty within a range of expected compensation was an estimated \$1.7 million dollars (see Table 8). However, the UT System Faculty Gender Pay Equity Assessment Guidelines recommended a further review of each faculty member receiving compensation below their expected pay value, stating that a designated person should

*consider all elements of the faculty member's pay and any additional relevant factors affecting pay but not accounted for in the Statistical Analysis (Relevant Factors), such as productivity, performance, and service. Relevant Factors may be qualitative. The review is intended to be a holistic contextual evaluation that is completed in a fair and consistent manner as part of the annual faculty performance evaluation.*

Consistent with the above approach, Human Resources met with each of the seven Deans who employ faculty and reviewed the following information for each faculty member in their College:

- Predicted salary (as provided by the statistical advisors)
- Current academic year salary data
- Performance ratings (teaching, research, and service)
- Years since terminal degree
- Years of UTSA service
- Gender & ethnicity

While years since degree was included in the statistical model, performance ratings and years of service at UTSA were additional relevant factors that affect pay but were not accounted for in the regression analysis. Human Resources also provided FY 2017-18 salary averages by discipline and rank for male and

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<sup>9</sup> The 5% variance is based on the 2017 OFCCP guideline when reviewing salary discrepancies (see Appendix C for details applying to the 5% range).

female faculty,<sup>10</sup> and the current College and University Professional Association (CUPA) market data by discipline and rank so that Deans could benchmark faculty salary competitiveness to an outside source.

After reviewing these data and taking into consideration additional relevant factors, the Deans identified 72 faculty who were experiencing pay inequity – these made up 38% of the faculty who earned less than 95% of their predicted value and 12% of all faculty at UTSA (see Table 8). Faculty members who earned less than predicted but did not receive a salary adjustment usually exhibited low performance (primarily related to research endeavors) or had fewer years of experience as it related to the specific discipline. Additionally, 4 faculty who were paid less than predicted no longer worked at UTSA.

Table 8. T/TT Faculty Earning Less than Predicted vs. Faculty Identified for a Pay Adjustment, by Gender

College	Gender	Faculty Earning Less than Predicted			Faculty Needing Pay Adjustment		
		# of T/TT Faculty	# Below Predicted	Total Amount Below Predicted	# To Be Adjusted	% of Faculty To Be Adjusted	Amount Needed
Business	Female	25	8	\$83,352	6	24%	\$120,350
	Male	67	22	\$508,845	15	22%	\$267,452
Education & Human Development	Female	49	13	\$31,128	8	16%	\$61,500
	Male	43	12	\$38,705	6	14%	\$25,622
Liberal & Fine Arts	Female	70	19	\$105,202	9	13%	\$53,000
	Male	96	31	\$151,886	6	6%	\$34,000
Public Policy	Female	17	5	\$14,211	--	--	--
	Male	18	6	\$50,878	--	--	--
Sciences	Female	20	6	\$61,544	--	--	--
	Male	109	35	\$434,781	--	--	--
Total	Female	196	56	\$325,211	31	16%	\$262,007
	Male	415	135	\$1,382,987	41	10%	\$369,074
<b>GRAND TOTAL</b>	All	611	191	\$1,708,198	72	12%	\$631,081

Note: (1) Four of the faculty who were paid below their predicted value no longer work at UTSA. (2) Percent of faculty to be adjusted is based on total faculty by college. (3) College of Architecture, Construction & Planning and College of Engineering not shown because fewer than 5 faculty in one of the gender groups were paid less than expected. (4) -- indicates that fewer than 5 faculty received pay adjustments.

### Number and Dollar Amount of Gender Pay Inequities

Of the 72 tenured/tenure-track faculty who warranted salary adjustments, 31 were women and 41 were men (see Table 8). These numbers are down from the 56 female and 135 male faculty whose actual salary was below 95% of their predicted salary. Sixteen percent of all female faculty at UTSA warranted a pay adjustment, compared to 10% of all male faculty. Around \$262,000 would be awarded to female faculty and \$369,000 would be awarded to male faculty.

<sup>10</sup> HR included FY 17/18 salary data to identify potential salary inequities and/or anomalies based on current salary data and as a mode to include new faculty hired for the 17/18 academic year. These data were not available at the time of statistical analysis.

A larger percent of women than men warranted pay adjustments in the Colleges of Architecture, Construction & Planning, the College of Engineering, and the College of Sciences (exact numbers not shown due to fewer than 5 faculty receiving a pay adjustment in some colleges). On the other hand, a larger percent of men in the College of Public Policy warranted pay increases; and similar percentages warranted adjustments in the College of Business and the College of Education and Human Development.

At the department level (table not shown due to the small number of faculty in each department), 10 departments had a larger share of male faculty who warranted pay adjustments, while 14 departments had a larger share of female faculty who warranted a salary increase.

### Number and Dollar Amount of Racial/Ethnic Pay Inequities

Of the 72 tenured/tenure-track faculty identified as warranting pay adjustments, 41 were under-represented (Asian, Black, or Hispanic) faculty, 27 were White, non-Hispanic faculty, and 4 were International or other faculty (see Table 9). Of the URM faculty, 18% were identified as warranting a pay adjustment; 9% of White, non-Hispanic faculty warranted a pay adjustment, and 6% of International or faculty of another/unknown race/ethnicity will receive an increase in pay. Salary increases totaled around \$285,000 for URM faculty, \$303,000 for White, non-Hispanic faculty, and \$43,000 for other racial/ethnic faculty.

A larger share of URM faculty will receive a pay adjustment in the College of Education and Human Development, Engineering, Liberal and Fine Arts, and Public Policy. On the other hand, a larger percent of White, non-Hispanic faculty will receive a pay increase in the College of Business. At the department level (table not shown due to the small number of faculty in each department), 13 departments had a larger percent of URM faculty than White faculty warranting adjustments, while 11 departments had a larger percent of White faculty than URM faculty warranting adjustments.

### Next Steps

The numbers presented in Tables 8 and 9 are accurate as of June 18, 2018. However, Deans have remained in contact with Human Resources and may request that additional faculty receive a pay adjustment or that faculty receive a different salary amount.

Each Dean has identified priorities for implementation and outlined a plan to address outstanding salary issues within the next two to three academic years.<sup>11</sup> As of June 2018, five of the seven colleges have planned to begin to adjust faculty pay in the 2018-19 academic year.

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<sup>11</sup> Please note that college plans and timelines may change after the publication of this report.

Table 9. T/TT Faculty Earning Less than Predicted vs. Faculty Identified for a Pay Adjustment, by Race

College	Racial/Ethnic Group	# of T/TT Faculty	# Below Predicted	# To Be Adjusted	% of Faculty To Be Adjusted	Amount Needed
Business	URM (Asian, Black, Hispanic)	42	9	7	17%	\$130,240
	White, non-Hispanic	37	18	12	32%	\$224,999
	International/Other/Unknown	13	--	--	--	--
Education & Human Development	URM (Asian, Black, Hispanic)	44	18	13	30%	\$83,622
	White, non-Hispanic	41	6	--	--	--
	International/Other/Unknown	7	--	--	--	--
Engineering	URM (Asian, Black, Hispanic)	40	22	12	30%	\$30,000
	White, non-Hispanic	24	6	--	--	--
	International/Other/Unknown	9	--	--	--	--
Liberal & Fine Arts	URM (Asian, Black, Hispanic)	40	14	7	18%	\$33,000
	White, non-Hispanic	113	33	8	7%	\$54,000
	International/Other/Unknown	13	--	--	--	--
Sciences	URM (Asian, Black, Hispanic)	51	18	--	--	--
	White, non-Hispanic	62	20	--	--	--
	International/Other/Unknown	16	--	--	--	--
Total	URM (Asian, Black, Hispanic)	225	82	41	18%	\$284,962
	White, non-Hispanic	317	96	27	9%	\$303,056
	International/Other/Unknown	69	13	4	6%	\$43,063
<b>GRAND TOTAL</b>	All	611	191	72	12%	\$631,081

Note: (1) Four of the faculty who were paid below their predicted value no longer work at UTSA. (2) Percent of faculty to be adjusted is based on total faculty by college. (3) College of Architecture, Construction & Planning and College of Public Policy not shown because fewer than 5 URM or White faculty were paid less than expected. (4) -- indicates that fewer than 5 faculty received pay adjustments.

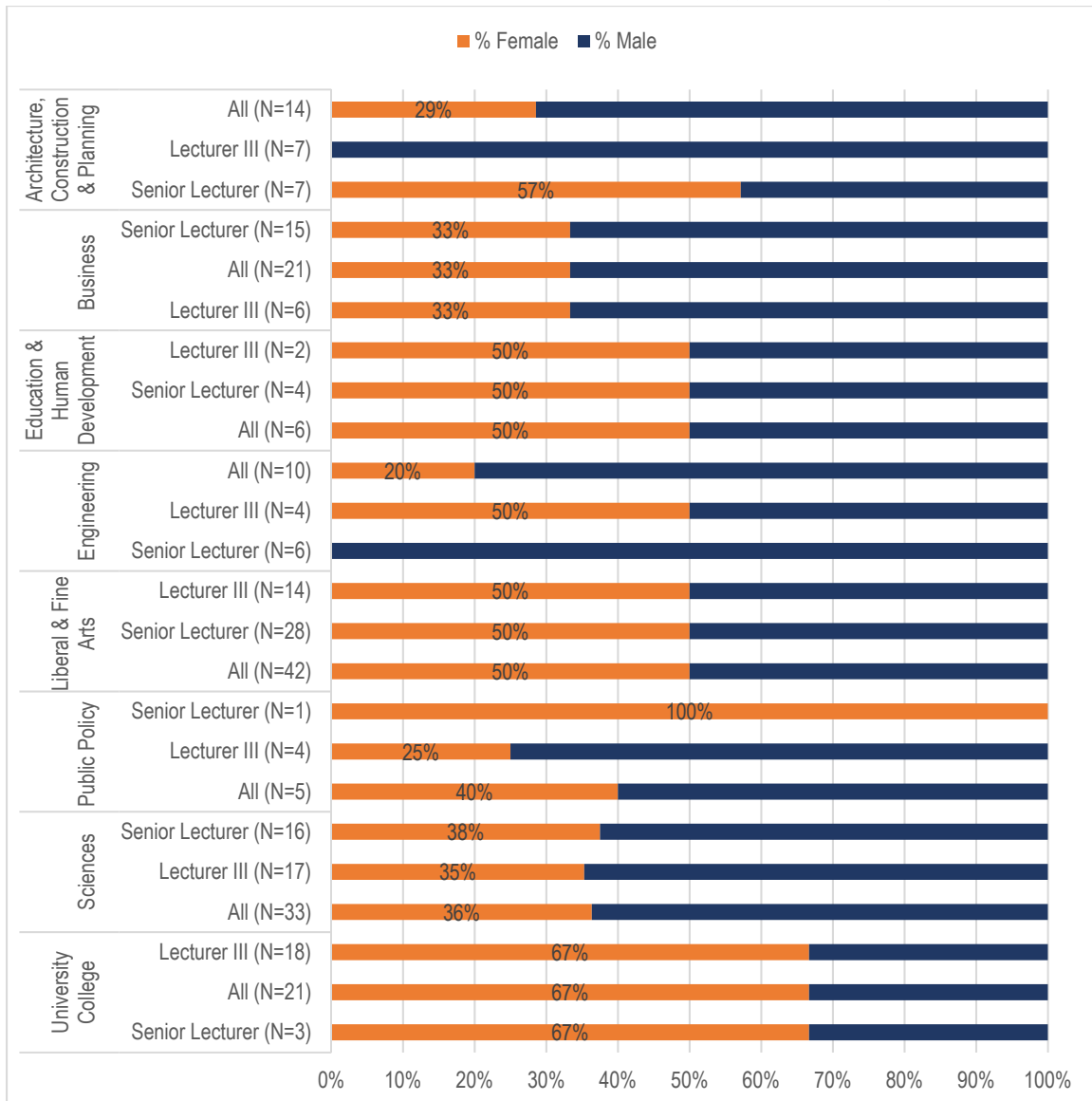


## Gender & Racial/Ethnic Composition of Full-time Non-Tenure Track Faculty

The University of Texas at San Antonio (UTSA) employed 152 benefits-eligible non-tenure track faculty in fiscal year 2017. A much larger share of NTTs were women – 65 of the 152 NTTs, or about 43%. In the College of Liberal & Fine Arts and the College of Education & Human Development, half of the NTTs were women, while in the University College, over half (67%) were women (see Figure 15). On the other hand, women were less than a third of the NTTs in the College of Architecture, Construction & Planning and the College of Engineering.

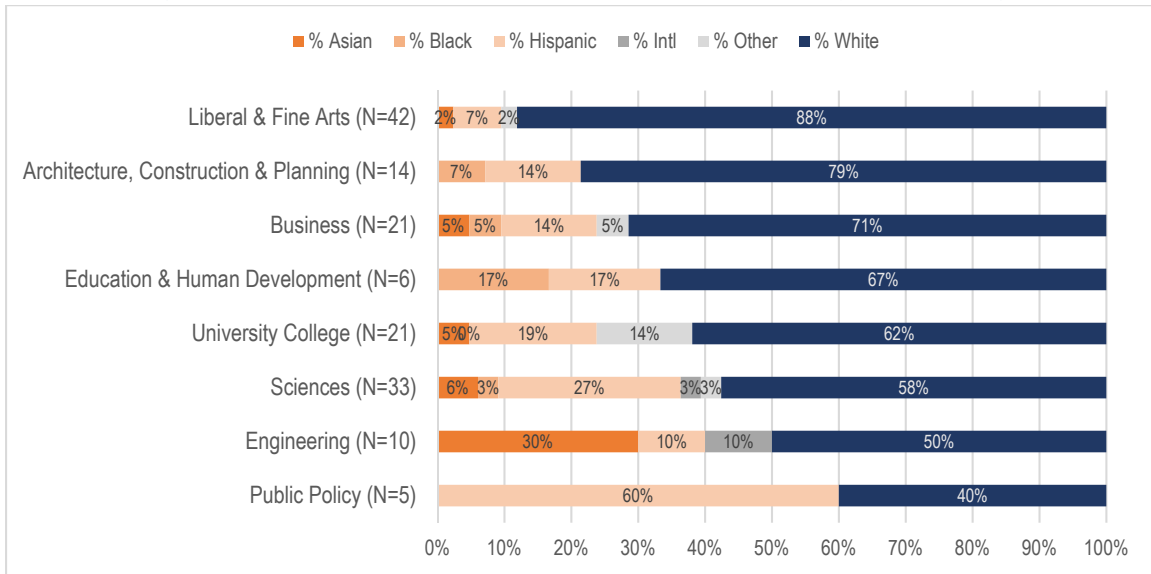
Women were evenly distributed throughout the ranks of non-tenure track faculty: they were 43% of Lecturer III and Senior Lecturers. In most Colleges, the percentage of Lecturer IIIs who were female was similar to the percentage of Senior Lecturers who were female. However, none of the Senior Lecturers in Engineering were female, and none of the Lecturer IIIs in the College of Architecture, Construction & Planning were female.

Figure 15. Gender Distribution of Full-time Non-Tenured-Track Faculty within College, Overall and by Rank



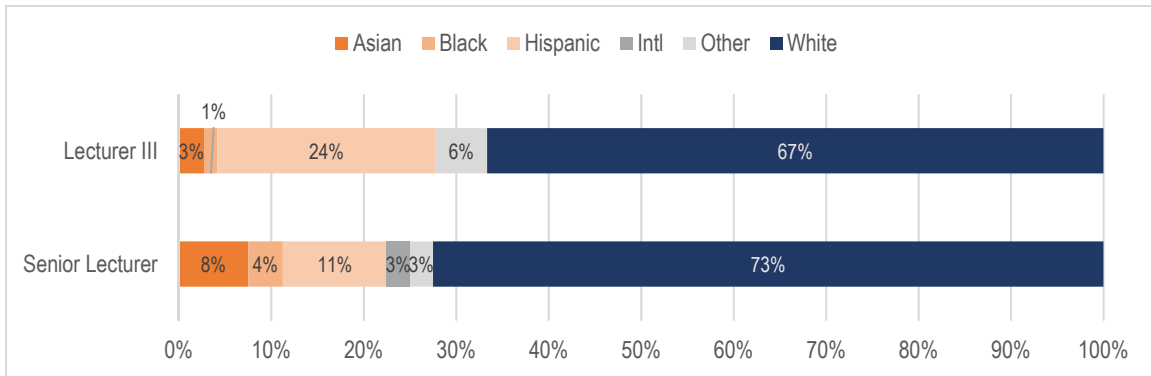
Seventy percent of NTTs were White, 17% were Hispanic, 5% were Asian, 3% were Black/African-American, and 1% were International. The remaining 4% of NTTs had an unidentified race/ethnicity or were multiracial. White faculty made up a larger share of NTTs in Liberal & Fine Arts and Architecture, Construction & Planning, and Business (see Figure 16). White faculty made up a smaller percentage of NTTs in the Sciences and Engineering, but they were still over half of the NTTs in these colleges.

Figure 16. Racial/Ethnic Distribution of Full-time NTT Faculty within College



Among Senior Lecturers, 73% were White and among Lecturer IIIs 68% were White (see Figure 17). Hispanic faculty made up a larger share of Lecturer IIIs than Senior Lecturers, while Asian faculty made up a larger share of Senior Lecturers than Lecturer IIIs.

Figure 17. Racial/Ethnic Distribution of Full-time NTT Faculty within Rank



## Average Pay Differences among Benefits-Eligible Non-Tenure Track Faculty

### Overview

Full-time non-tenure track faculty analyses provided indeterminate results with regard to gender and racial/ethnic pay differences. A linear regression model that controlled for gender, race/ethnicity, college, years of experience, and rank poorly predicted non-tenure track faculty pay ( $R^2 = .26$ ). The poor fit of the model suggests that NTT pay levels were largely based on factors besides individual experience and field of expertise. Therefore, caution must be used when evaluating pay differences with this model. The model indicated that female NTTs earned about \$1,660 *more* than male NTTs. This difference was not statistically significant and was about 3% of the average NTT pay.

Although racial/ethnic groups were included as predictors in the model, we do not show racial/ethnic pay differences because of the small number of NTT faculty in non-White racial/ethnic groups.

### Data and Methodology

This section analyzes the pay of all benefits-eligible (full-time) non-tenure-track faculty. Non-tenure track faculty included Lecturers and Senior Lecturers who worked at UTSA during FY 2017 (N=152). To identify average gender pay differences, we estimated a linear regression model. A review of the dependent, predictor, and control variables follows.

#### Independent Variables: Gender and Race/Ethnicity

PeopleSoft provided NTTs' gender (either male or female). At UTSA, women were more likely to be NTTs than men ( $\chi^2(1) = 6.51, p < 0.05$ ). Among NTTs, 43% were women. IPEDS race/ethnicity was derived from the Texas Higher Education Coordinating Board Faculty Report (CBM008). Seventy percent of NTTs were White, 17% were Hispanic, 5% were Asian, 3% were Black/African-American, and 1% were International. The remaining 4% of NTTs had an unidentified race/ethnicity or were multiracial.

#### Dependent Variable: Nine-Month Salary

UTSA's PeopleSoft system provided nine-month salary data for benefits-eligible NTTs, and the salary reflected the amount that NTTs should have been paid for the nine month period from September 1, 2016 through May 31, 2017. Because 31 benefits-eligible NTTs did not reach full-time equivalency, their salaries were adjusted to what they would have been paid if they were full-time.

As with tenured/tenure-track faculty pay, we centered each NTT faculty member's salary on the average salary in his or her department. The average salary in each department was calculated using only full-time NTTs' salaries. Centering subtracted the average department salary from each NTT member's salary and removes pay differences between departments.

Unlike tenured/tenure-track faculty pay, the centered nine-month salaries followed a normal distribution. Therefore the pay variable was not logged. As a result, the coefficients in the regression model represent actual dollar differences in pay (Appendix E shows model coefficients).

#### Control Variables

In the linear regression model, we controlled for field, experience, and rank. Of the 34 departments with full-time NTTs, only 11 departments had five or more NTTs. Therefore, the model used College indicators to control for field. Women were more likely to work in the University College ( $\chi^2(1) = 5.69, p < 0.05$ ). Adding College to the model helps control for variation in pay between the different fields.

Years since highest degree controlled for experience differences and an indicator for Senior Lecturer (vs. Lecturer) controlled for rank. Benefits-receiving male NTTs averaged about five more years of experience than benefits-receiving female NTTs ( $p < 0.05$  using a two-tailed t-test). However, women were just as likely to be Senior Lecturers as men: 52% of women and 53% of men were Senior Lecturers (see Table 9).

Table 9. Descriptive Statistics and Bivariate Analysis of Variables Used in the Benefits-Eligible NTT Analysis

	All NTT Faculty	Female NTT Faculty	Male NTT Faculty
Female	43%	--	--
Race/Ethnicity			
Asian	5%	3%	7%
Black	3%	2%	3%
Hispanic	17%	17%	17%
International	1%	2%	1%
Other	4%	6%	2%
White	70%	71%	69%
Years Since Degree	19.01	16.25*	21.08
Rank			
Lecturer	47%	48%	47%
Senior Lecturer	53%	52%	53%
College			
Architecture	9%	6%	11%
Business	14%	11%	16%
Education	4%	5%	3%
Engineering	7%	3%	9%
Liberal & Fine Arts	28%	32%	24%
Public Policy	3%	3%	3%
Sciences	22%	18%	24%
University College	14%	22%*	8%
#	152	65	87

\*Indicates gender differences are statistically significant at least at the  $p < 0.05$  level (using either a chi-square or two-tailed t-test).

## Results

To identify the main source of the salary gap between NTT men and women, the gender difference in pay was examined both before and after centering on department and by estimating stepwise regression models. In stepwise regression, each model added an additional control variable, which affects the pay difference between men and women. We can then identify which model (variable) decreased the pay difference the most.

Table 10 shows the unadjusted pay difference between female and male NTTs. On average, without accounting for any other characteristics, female NTTs earned \$1,900 less than male NTTs. However, women were more likely than men to work in the University College, which was considered its own department in these analyses. The University College was one of the lowest-paying departments, and its

NTT faculty averaged about \$39,700. After centering pay on department mean, women earned about \$2,300 *more* than men, although this difference was not statistically significant.

Table 10. Gender Pay Differences among Benefits-Receiving NTT Faculty Before & After Centering on Department Mean

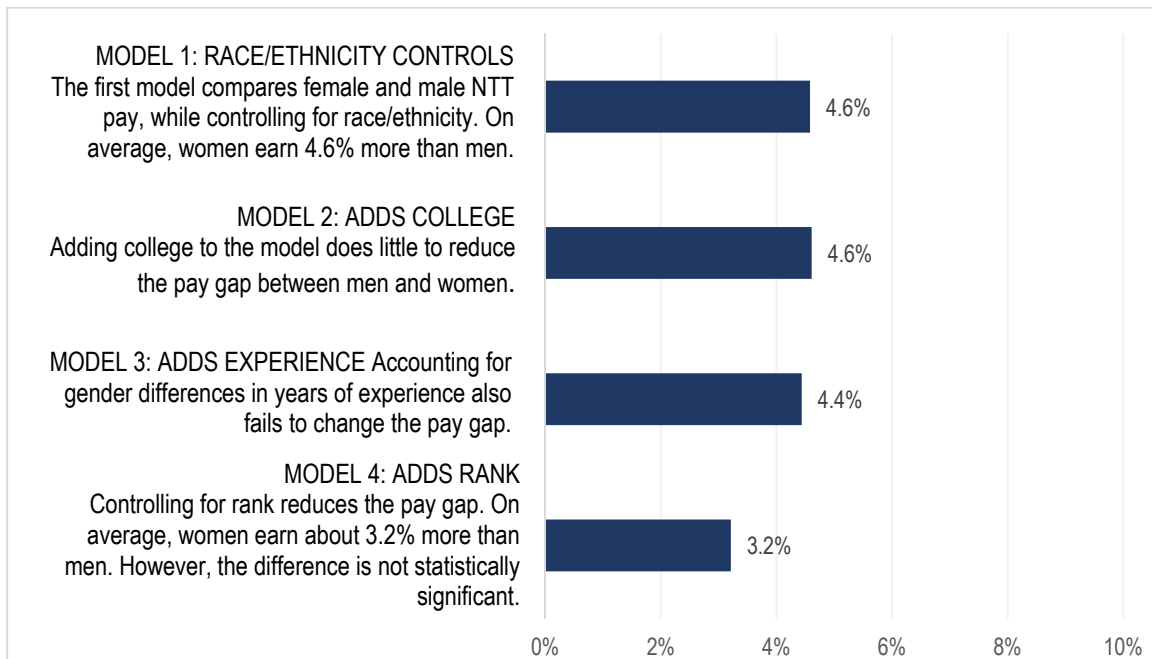
	Female NTT Faculty	Male NTT Faculty	\$ Difference in Pay
Nine Month Pay	\$50,600	\$52,500	-\$1,900
Department-Centered Pay	\$1,296	\$-968	+\$2,264
#	65	87	

Note: neither of the gender differences in pay were statistically significant using a two-tailed t-test.

Figure 18 shows the percent difference between men and women’s salaries for each of the four regression models estimated. The percent difference was calculated by taking the coefficient value (equal to the dollar difference between men and women) and dividing it by \$51,676, or the average pay full-time NTTs receive. In the first model, which only controls for racial/ethnic differences, female NTTs earned around 4.6% more than male NTTs. This advantage held when Model 2 added college, and when Model 3 added experience. When accounting for rank in Model 4, the difference in pay declined. In this final model, female NTTs earned about 3% more than male NTTs.

Figure 18. Stepwise Models Predicting Benefits-Eligible NTT Gender Pay Differences

Stepwise models add variables in phases to examine how each reduces or increases the pay gap between men and women. The following models show what women earn compared to men:



N = 152 (87 men, 65 women); Percent differences shown are equal to the female coefficient divided by the NTT average pay value (\$51,676). Coefficients are shown in Appendix E; none of the coefficients are statistically significant.

Results for racial/ethnic pay differences are not presented for NTTs because of the small number of faculty in each racial/ethnic category. There were only four Black NTTs, eight Asian NTTs, and 26 Hispanic NTTs. Estimates were not stable and changed considerably if the highest or lowest earning person in each racial/ethnic group was omitted. When multiple years of data are available, future analyses must consider racial/ethnic pay differences among NTTs.

### Limitations of the Statistical Model

The final model estimated to assess gender pay differences explained only 26% of the variation in NTT pay. The remaining 74% of variation in salary is due to unobserved variables. Because the model explains such a small amount of variation in pay, we conclude that NTT expertise and experience played a small part in determining their pay levels.

To better estimate gender differences in NTT pay, other factors at the individual-level, department-level and outside the university should be included. Work experience inside an academic setting could not be differentiated from work experience and outside of an academic setting, and non-academic experience may be given a pay premium, especially in some disciplines. Superior teaching performance is likely to increase pay, and the types of classes that NTTs generally teach, such as large introductory classes versus labs or smaller seminars, may influence their salary levels. Department budgets may limit the amount NTTs earn, especially if departments are experiencing a budget shortfall. NTT pay may also be affected by the local job market. If certain economic sectors are expanding, the university may have to increase NTT pay. If there are gender differences in any of these variables (for example, if men have more years of non-academic experience, or if women are more likely to work in booming sectors), then the gender gap in pay is likely to change when these variables are added in the model. Given our data limitations, we were cautious when interpreting the results of this analysis.

Other factors were included to evaluate whether or not they improved the statistical fit of the model and/or reduced the gender pay gap. Highest degree level and years at UTSA failed to provide a pay premium and coefficients were statistically insignificant. Interaction terms between female and rank were tested, but the gender pay gap did not differ by rank. The model was also estimated excluding the retiree-aged population (anyone over the age of 65) and the statistical fit of the model did not improve.

## Non-Tenure-Track Faculty Paid Less than their Expected Compensation

### Overview

The predicted value that was used for Non-Tenure-Track Faculty's expected pay was derived from a regression model that did not explain much of the variation in NTT pay ( $R^2 = .25$ ). The poor fit of the model suggests that the predicted value may not be suitable for setting NTT pay and identifying those NTT faculty who were paid less than predicted. Analyses found 43% of male NTTs were paid less than predicted, compared to only 26% of female NTTs, and the difference was more pronounced within the Lecturer III rank.

### Methodology

NTT gender pay differences were investigated in further detail by identifying faculty whose remuneration was less than an expected value and analyzing those faculty by gender, rank, and college. Predicted values from a regression model were used as expected compensation amounts for each NTT faculty member. The regression model predicted department-centered pay given NTTs' years of experience, rank, and UTSA college. Again, gender and race/ethnicity variables were omitted as predictor variables so that dollars were not added or subtracted based on these characteristics.

The predicted value estimated by the model was converted back into un-centered dollars so that each faculty member's predicted pay value could be compared to his/her actual nine-month salary. We considered faculty who earned within 5% of their predicted pay value to be within a range of expected compensation. Only those faculty who earned less than 95% of their predicted pay were considered to be potentially underpaid, or paid less than predicted.

### Results

Overall, there was a statistically significant difference between the percent of female and male NTTs who were paid less than predicted. Among female full-time NTTs, 26% were paid less, but among male full-time NTTs, 43% were paid less ( $\chi^2(1) = 4.36, p < 0.05$ ). Males were more likely to be potentially underpaid at the lower ranks: 40% of male Lecturer IIIs were potentially underpaid, compared to 13% of female Lecturer IIIs ( $\chi^2(1) = 6.00, p < 0.05$ ).

Examining these underpaid differences by college showed that a larger percent of men earned less than predicted in the University College, the College of Sciences, and the College of Architecture, Construction & Planning (exact numbers are not shown due to the small number of NTT faculty in each college). These differences were not statistically significant using chi-square tests, but they were considerable.

### Limitations of the Statistical Model & Predicted Pay Values

The statistical model used to predict NTT faculty's expected value explained 25% of the variation in NTT pay. The low R-squared indicates that the model has omitted factors influential in setting pay. Therefore, the predicted value, which was derived from this regression model, may not be a meaningful or useful pay value and may misidentify faculty who were potentially underpaid. Furthermore, all of the limitations of the predicted value for the tenured/tenure-track faculty outlined above, also apply for the non-tenure track faculty. A case-by-case individual review of NTT faculty may provide more useful results.

## Strategies and Practices to Promote & Sustain Faculty Pay Equity

To summarize, the results of the statistical analyses indicated that on average at UTSA, there were no gender or racial/ethnic pay inequities among tenured/tenure-track faculty after accounting for rank, department, and years of experience. However, analyses of tenured/tenure-track faculty earning less than their predicted value suggested that overall pay equality was not reflected at every level of the university: some departments had a higher percentage of female faculty potentially underpaid than male faculty (or vice versa), and some colleges had a higher percent of under-represented minority faculty potentially underpaid than White faculty (or vice versa). When the College Deans examined tenured/tenure-track faculty who fell below their predicted pay values, they identified individuals who warranted a pay increase. This increase sought to remedy pay differences between faculty members that was unrelated to performance, experience, and rank.

Overall, systematic strategies and practices would assist UTSA in reducing salary differences between equally-accomplished faculty. The Provost has the responsibility to provide oversight through Academic Affairs to ensure that pay equity is maintained on the basis of gender and membership in an underrepresented racial/ethnic group. The following strategies are recommended:

1. The Provost will ensure that College Deans and Department Chairs continue to consider the guidance provided in the Faculty Recruitment Manual regarding salary offers to new faculty. The Dean has the oversight responsibility of their Chairs to ensure that the offered salary balances the needs for market competitiveness and the reasonable range of salaries for faculty at the same level for which the candidate is being considered, as well the factors individual to the candidate such as the candidate's record, candidate's potential contribution to the department, and the candidate's current position and salary (if appropriate).
2. HR will provide an annual national market data report by field/departments based on CUPA data to each College Dean, Department Chair, and the Provost to assist decision making and oversight described above.
3. The Provost will initiate a discussion regarding salary ranges by discipline and rank to provide Deans and Department Chairs broad guidance regarding faculty salaries. The Provost will emphasize to Deans the importance of continuing to apply a merit system based on performance based factors.
4. The University is undertaking an evaluation of improvement of the electronic data systems used for annual faculty review.
5. The Provost will undertake a review of our faculty affairs services, including how ongoing salary and pay equity is monitored and/or addressed; the current methodology for overload and other non-base salary compensation for administrative appointments; the strategies that Department Chairs may consider and implement to rectify gender pay inequities in keeping with the goals and expectations of the UT System, and the role of intersectional impacts on gender pay inequities, such as racial underrepresentation, compounds gender pay inequities at UTSA.
6. The Provost will review the process used by the College Deans and Department Chairs to determine non-tenure-track faculty pay, and work with the Chairs and Deans to develop a more consistent methodology to determine pay offerings within each department.



## Opportunities & Challenges Identified in the Course of Identifying & Reviewing Pay Differences

### Data challenges

- The configuration, in PeopleSoft, of the various payroll related salary entities, e.g. salary supplements, made it difficult to extract all the data that was necessary. It took several iterations to develop a dataset.
- Multiple years of salary data would provide better estimates for department/college-level gender and racial/ethnic differences. The earliest possible year would be Fiscal Year 2015, as legacy salary data does not align with new system.
- Issues were found in evaluation data, such as missing data, data entry errors, and a limited number of years of data available.
- No system is currently in place to track offers and retention adjustments.

### Plan to refine data collection processes

- Extract and add additional years of data, back to fiscal year 2015 and each year going forward. Accessing the other payroll related data entities, e.g. supplemental pay, should not be an issue going forward as we learned where and how to extract that data.
- Identify an approach to ensure evaluation data is complete and accurate (for example, data mask for key fields or validation tables).
- Implement a system to collect offers and retention adjustments.

## References

Haignere, Lois. 2002. *Paychecks: A Guide to Conducting Salary-Equity Studies for Higher Education Faculty*. Washington, D.C.: American Association of University Professors.

National Center for Education Statistics. 2005. *Trends in Educational Equity of Girls and Women: 2004*. Accessed 4-19-2018. <https://files.eric.ed.gov/fulltext/ED492634.pdf>.

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Appendix A: Gender & Racial/Ethnic Distributions by Department

Figure A1 and Figure A2 combine Architecture, Construction & Planning, and General College of Architecture due to the small number of faculty in the Construction & Planning department (N=3) and General College of Architecture (N=2).

Figure A1. Gender Distribution of Tenured/Tenure-Track Faculty within Department

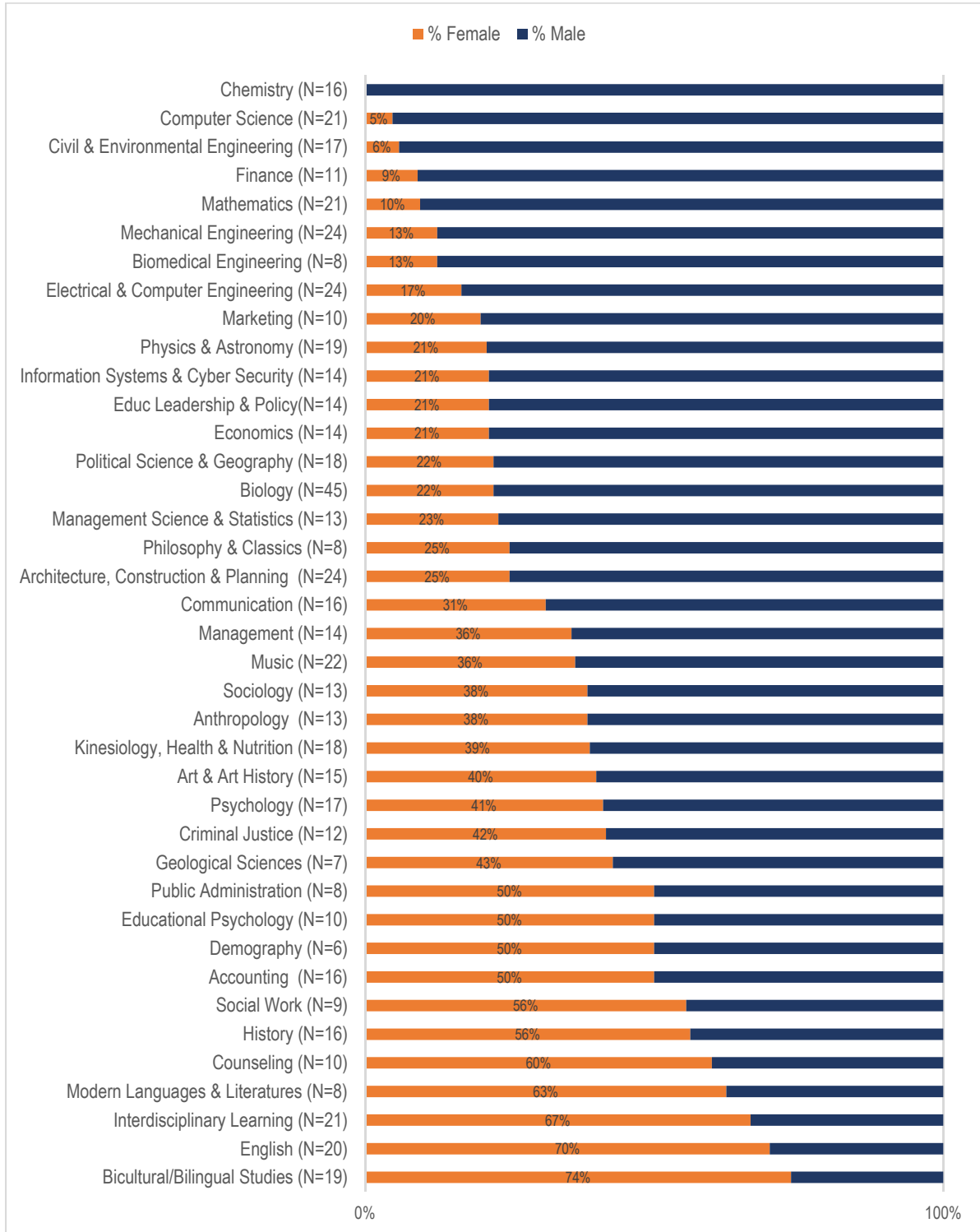
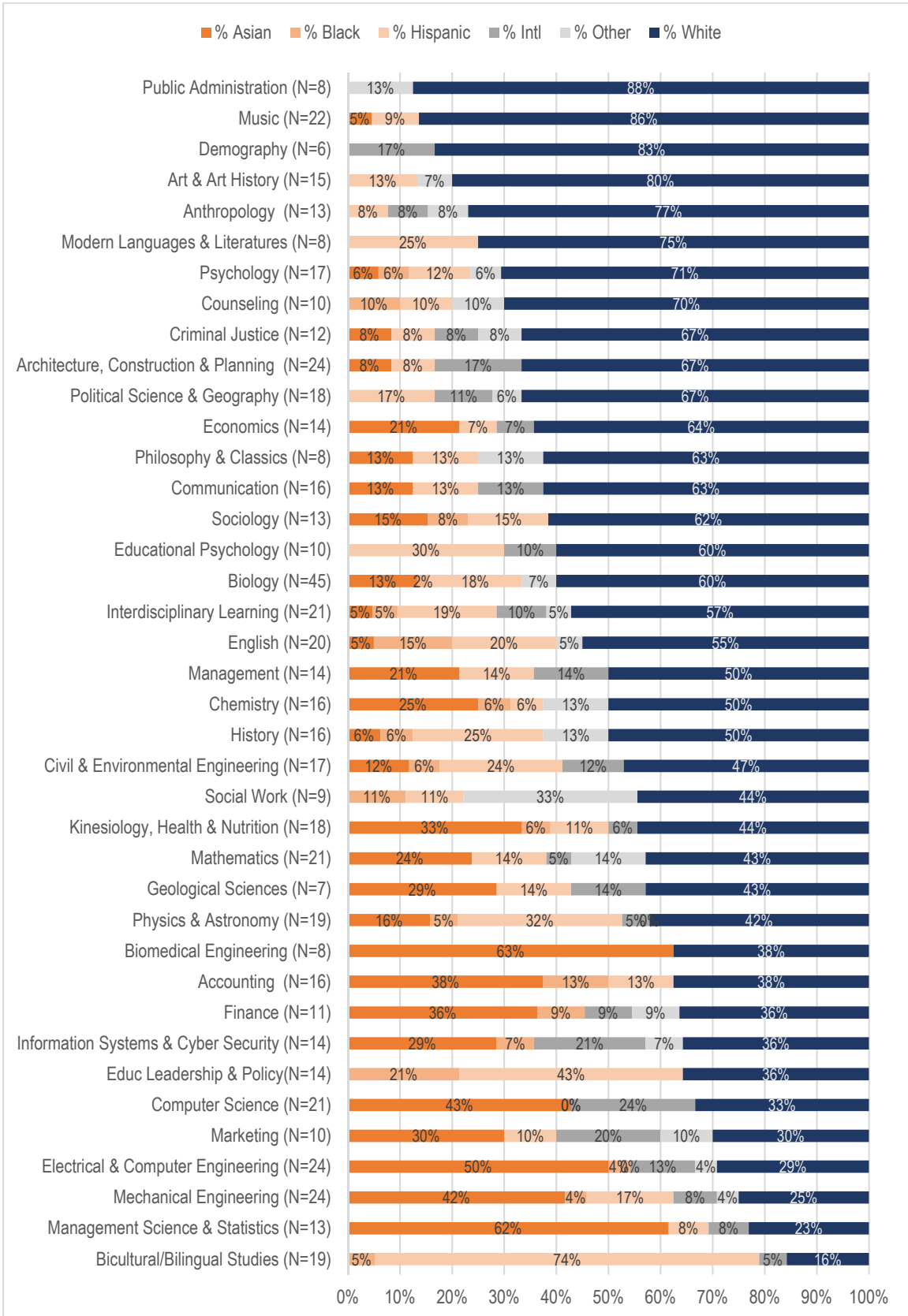


Figure A2. Racial/Ethnic Distribution of Tenured/Tenure-Track Faculty within Department



Appendix B: Stepwise Regression Models Predicting Log-Centered T/TT Faculty Nine-Month Pay

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
	Demography Only	+ Department	+ Experience	+ Rank
<b>Gender (vs. Male)</b>				
Female	-0.0215619603* (0.008)	-0.0279417299** (0.009)	-0.0060813094 (0.008)	0.0018359776 (0.006)
<b>Race/Ethnicity (vs. White)</b>				
Asian	0.0032928700 (0.011)	0.0076197639 (0.012)	0.0222376187* (0.010)	-0.0008649740 (0.008)
Black	-0.0185542173 (0.020)	-0.0174527379 (0.022)	0.0048868530 (0.018)	-0.0060576035 (0.015)
Hispanic	-0.0031745866 (0.011)	-0.0054264776 (0.012)	0.0033830041 (0.010)	0.0029123850 (0.008)
Intl	-0.0731283269*** (0.016)	-0.0760667074*** (0.017)	-0.0017384490 (0.015)	0.0078346895 (0.013)
Other	-0.0245960827 (0.019)	-0.0250416651 (0.020)	0.0017509547 (0.017)	0.0120778602 (0.014)
<b>Department (vs Arch/Const)</b>				
Accounting		-0.0043878021 (0.032)	-0.0135137776 (0.027)	-0.0302420586 (0.022)
Anthropology		0.0039852809 (0.034)	0.0371937492 (0.028)	0.0167702958 (0.023)
Art & Art History		-0.0088554903 (0.032)	0.0075169760 (0.027)	0.0160384023 (0.022)
Bicult/Biling Studies		0.0156634985 (0.031)	0.0381997810 (0.026)	0.0170960127 (0.021)
Biology		-0.0134386239 (0.025)	-0.0251531206 (0.021)	-0.0300235100 (0.017)
Biomedical Eng		-0.0452879409 (0.041)	-0.0234171418 (0.034)	-0.0171608278 (0.027)

Chemistry	-0.0323555340 (0.032)	-0.0487051075 (0.027)	-0.0770794622*** (0.022)
Civil & Env Eng	-0.0122405862 (0.031)	0.0035516206 (0.026)	-0.0361114389 (0.021)
Communication	-0.0021519762 (0.032)	0.0317790114 (0.026)	0.0084687431 (0.021)
Computer Science	-0.0094798732 (0.030)	0.0106314290 (0.025)	0.0069088873 (0.020)
Counseling	0.0046698004 (0.037)	0.0529406929 (0.031)	0.0305605920 (0.025)
Criminal Justice	0.0058849894 (0.035)	0.0732192012* (0.029)	0.0533833281* (0.024)
Demography	-0.0156364837 (0.045)	-0.0052152261 (0.037)	-0.0295725507 (0.030)
Economics	-0.0181758966 (0.033)	-0.0634068768* (0.028)	-0.0694364272** (0.022)
Educ Lead & Policy	-0.0132616454 (0.034)	0.0053351485 (0.028)	-0.0239744546 (0.023)
Educational Psych	0.0080533559 (0.037)	0.0441431662 (0.031)	0.0176617788 (0.025)
Elec & Comp Eng	-0.0103034277 (0.029)	0.0086655268 (0.024)	-0.0008453896 (0.019)
English	0.0007771073 (0.030)	0.0053956868 (0.025)	-0.0205312228 (0.020)
Finance	-0.0183946366 (0.036)	-0.0224843273 (0.030)	-0.0444364873 (0.024)
Geological Sciences	0.0084434543 (0.042)	0.0243440390 (0.035)	0.0016942761 (0.028)

History	0.0013058582 (0.032)	0.0072570241 (0.027)	0.0078115870 (0.022)
Info Syst & Cyb Sec	-0.0025869960 (0.033)	-0.0077617639 (0.028)	-0.0126699179 (0.022)
Int. Learn & Teach	0.0136148693 (0.030)	0.0356489765 (0.025)	0.0030450928 (0.020)
Kin Hlth & Nutrition	-0.0104906227 (0.031)	0.0300668416 (0.026)	0.0098616307 (0.021)
Management	0.0065694799 (0.033)	0.0478251817 (0.028)	0.0408723047 (0.022)
Mgmt Sci & Stats	-0.0091291828 (0.034)	-0.0239996110 (0.029)	-0.0278391378 (0.023)
Marketing	0.0047600264 (0.037)	0.0203402136 (0.031)	0.0164480054 (0.025)
Mathematics	-0.0147215044 (0.030)	-0.0308107593 (0.025)	-0.0246345435 (0.020)
Mechanical Eng	-0.0123246324 (0.029)	0.0188067773 (0.024)	0.0132929522 (0.019)
Mod Lang & Lit	0.0010973519 (0.040)	-0.0467175267 (0.034)	-0.0366158230 (0.027)
Music	-0.0048579856 (0.029)	0.0199495373 (0.024)	0.0193769476 (0.020)
Philosophy & Classics	-0.0077590896 (0.040)	0.0076025432 (0.034)	-0.0172024243 (0.027)
Physics & Astronomy	-0.0183345571 (0.030)	-0.0192110356 (0.025)	-0.0221466409 (0.020)
Pol Sci & Geography	-0.0020931694 (0.031)	-0.0071343481 (0.026)	0.0027356090 (0.021)
Psychology	-0.0097227340	-0.0291142840	-0.0464159777*

		(0.031)	(0.026)	(0.021)
Public Administration		-0.0013403957 (0.040)	0.0101574934 (0.034)	0.0024341861 (0.027)
Social Work		0.0099048590 (0.039)	0.0326732687 (0.033)	0.0286616148 (0.026)
Sociology		-0.0273214617 (0.034)	-0.0289536562 (0.028)	-0.0611527044** (0.023)
<b>Experience</b>				
Years since Obtained Highest Degree			0.0053082227*** (0.000)	-0.0000055549 (0.002)
<b>Rank (vs Assistant)</b>				
Associate				0.0681139837*** (0.015)
Full				0.1269516985*** (0.018)
<b>Rank x Experience Interaction Terms</b>				
Assoc x Years				-0.0010417715 (0.002)
Full x Years				0.0021916812 (0.002)
Constant	0.0021286357 (0.006)	0.0104439093 (0.020)	-0.1082271653*** (0.019)	-0.0913308490*** (0.018)
Observations	611	611	611	611
R-squared	0.048	0.060	0.346	0.581
Adjusted R-squared	0.039	-0.013	0.294	0.544
BIC	-1099.4014047960	-863.3830307420	-1078.5493373647	-1324.9680121133

Standard errors in parentheses; Coefficients reflect change in log-centered pay.

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



Appendix C: Regression Model Used to Estimate T/TT Faculty Predicted Pay Values

	Coefficient
<b>Experience</b>	
Years since Obtained Highest Degree	-0.0001227247 (0.002)
<b>Rank (vs. Assistant Professor)</b>	
Associate	0.0649149145*** (0.014)
Full	0.1225932790*** (0.017)
<b>Rank x Experience Interaction Terms</b>	
Associate x Years	-0.0009255422 (0.002)
Full x Years	0.0023330061 (0.002)
<b>Department (vs. Architecture/Construction)</b>	
Accounting	-0.0315024347 (0.021)
Anthropology	0.0173822450 (0.023)
Art & Art History	0.0157410103 (0.022)
Bicultural/Bilingual Studies	0.0187391483 (0.020)
Biology	-0.0300916597 (0.017)
Biomedical Engineering	-0.0192502970 (0.027)
Chemistry	-0.0771833210*** (0.021)
Civil & Environmental Engineering	-0.0364060670

	(0.021)
Communication	0.0081204319 (0.021)
Computer Science	0.0064083259 (0.020)
Counseling	0.0298443831 (0.025)
Criminal Justice	0.0530037848* (0.024)
Demography	-0.0295071778 (0.030)
Economics	-0.0697972528** (0.022)
Educ Leadership & Policy Studies	-0.0251255143 (0.022)
Educational Psychology	0.0179126701 (0.025)
Electrical & Computer Engineering	-0.0019125621 (0.019)
English	-0.0209462806 (0.020)
Finance	-0.0446107307 (0.024)
Geological Sciences	0.0020851644 (0.028)
History	0.0090518184 (0.021)
Information Systems & Cyber Security	-0.0118420792 (0.022)

Interdisciplinary Learning & Teaching	0.0040830412 (0.020)
Kinesiology Health & Nutrition	0.0084830659 (0.021)
Management	0.0402265419 (0.022)
Management Science & Statistics	-0.0285136007 (0.023)
Marketing	0.0174227615 (0.025)
Mathematics	-0.0239243466 (0.020)
Mechanical Engineering	0.0121134726 (0.019)
Modern Languages & Literatures	-0.0367125928 (0.027)
Music	0.0185442450 (0.019)
Philosophy & Classics	-0.0165159155 (0.027)
Physics & Astronomy	-0.0225519556 (0.020)
Political Science & Geography	0.0031362099 (0.021)
Psychology	-0.0461701537* (0.021)
Public Administration	0.0032649333 (0.027)

Social Work	0.0307022213 (0.026)
Sociology	-0.0620804157** (0.023)
Constant	-0.0867718693*** (0.017)

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Observations	611
R-squared	0.580
Adjusted R-squared	0.548
BIC	-1361.7642195626

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Standard errors in parentheses; Coefficients reflect change in log-centered pay.

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

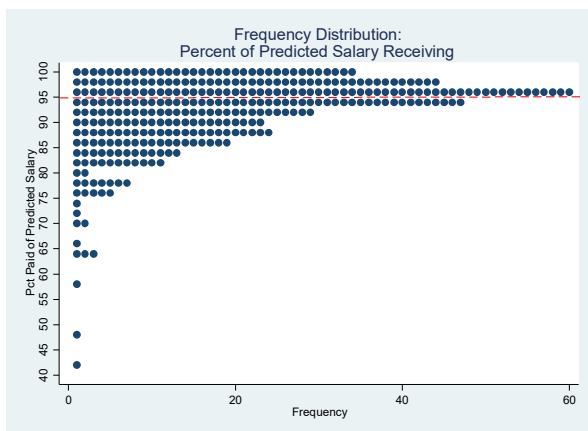
#### Appendix D: The Use of a Five Percent Cutpoint to Identify Faculty Paid Less than Predicted

The second objective of this study is to identify the number of faculty receiving compensation that is less than a range of expected compensation. We use a range of expected compensation, rather than one expected compensation value, due to the nature of the linear regression model.

When a linear regression model fits the data, usually about half of the sample falls below the line and half of the sample falls above the line (the line represents faculty member's predicted compensation values). As such, when comparing faculty member's predicted salary values to their actual salaries, about half of faculty earn less than their predicted value and half of faculty earn more than their predicted value. In the tenured/tenure-track data, 278 of 611 (or 45%) of faculty earned less than their predicted value.

We do not consider all faculty who earn less than their predicted value as potentially underpaid for two reasons. First, the exact predicted value does not account for any unobserved error in the regression model. Second, faculty falling very close to their predicted value would be treated in the same way as faculty earning much less than their predicted value. For these reasons, we set a range of expected compensation around the predicted value.

To establish a range of expected compensation, we examined all faculty members whose actual salary was less than their predicted salary. We calculated the percent of the predicted amount that faculty members' were actually paid (actual salary / predicted salary \* 100). Faculty ranged from earning 50% of their predicted value to 99.9% of their predicted value. We then examined the distribution of faculty members over this percent. The figure below shows that as percent of predicted salary declines from 99.9% to 95%, the number of faculty increases. However, below 95%, the number of faculty begins to decrease. This figure suggests that 95% is a good breaking point in the data. To calculate our range of expected compensation, we take the predicted value and subtract 5%. All those faculty earning 95% or more of their predicted value fall within this range.



Using a 5% cutpoint, rather than a range based on dollar amount, accounts for relative differences in salary. A \$2500 difference for faculty earning \$50,000 is much more than a \$2500 difference for faculty earning \$150,000. Additionally, Human Resources often uses a 5% margin of error, commonly used in pay evaluations.

Appendix E: Stepwise Regression Models Predicting Centered Non-Tenure-Track Faculty Nine-Month Pay

	Model 1 Demographic	Model 2 + College	Model 3 + Experience	Model 4 + Rank
<b>Gender (vs Male)</b>				
Female	2367.045 (1830.244)	2381.524 (1932.281)	2293.005 (1964.772)	1659.387 (1739.079)
<b>Race/Ethnicity (vs White)</b>				
Asian	4057.795 (4066.388)	4792.706 (4384.393)	4794.631 (4399.131)	1860.071 (3915.221)
Black or African American	-2352.245 (5639.612)	-2802.354 (5926.482)	-2653.292 (5970.545)	-4404.820 (5283.177)
Hispanic	-1701.765 (2418.926)	-1837.905 (2590.623)	-2013.199 (2674.786)	-788.701 (2371.574)
International	11262.900 (7889.607)	12208.794 (8351.196)	12168.992 (8380.482)	6413.617 (7461.798)
Unknown or Other	-1095.230 (4657.622)	-979.661 (4880.532)	-1173.303 (4946.270)	-579.013 (4371.746)
<b>College (vs Architecture/Construction)</b>				
Business		-361.703 (3919.016)	-420.059 (3937.789)	-2807.190 (3500.279)
Education & Human Development		-199.678 (5566.429)	-273.745 (5591.491)	-1954.406 (4948.105)
Engineering		-2733.496 (4972.072)	-2830.936 (5001.089)	-2711.960 (4419.203)
Liberal & Fine Arts		-932.562 (3546.886)	-1123.511 (3624.544)	-3028.169 (3217.114)
Public Policy		367.842 (6021.623)	194.260 (6074.066)	2757.626 (5382.779)
Sciences		-692.878 (3661.368)	-890.099 (3741.608)	-759.316 (3306.300)
University College		-1108.171	-1309.768	2619.943

		(4054.507)	(4132.319)	(3704.687)
<b>Experience</b>				
Years since Obtained Highest Degree			-25.083 (90.269)	-45.292 (79.830)
<b>Rank (vs Lecturer III)</b>				
Senior Lecturer				11323.265*** (1802.651)
Constant	-977.762 (1335.393)	-217.708 (3131.669)	477.719 (4017.086)	-4524.370 (3637.886)
Observations	152	152	152	152
R-squared	0.037	0.040	0.041	0.256
Adjusted R-squared	-0.003	-0.050	-0.058	0.174
BIC	3289.723	3324.418	3329.356	3295.660

Standard errors in parentheses; Coefficients reflect change in department-centered pay.

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

Appendix F: Regression Model Used to Estimate Non-Tenure-Track Faculty Nine-Month Pay Values

	Coefficient
<b>Experience</b>	
Years since Obtained Highest Degree	-57.984 (74.704)
<b>College (vs Architecture/Construction)</b>	
Business	-2679.414 (3450.242)
Education & Human Development	-2140.594 (4854.087)
Engineering	-1392.041 (4119.775)
Liberal & Fine Arts	-2440.180 (3141.922)
Public Policy	2873.126 (5250.937)
Sciences	-377.591 (3241.988)
University College	3524.129 (3567.942)
<b>Rank (vs Lecturer III)</b>	
Senior Lecturer	11692.145*** (1743.639)
Constant	-4330.191 (3373.578)
Observations	152
R-squared	0.241
Adjusted R-squared	0.193
BIC	3268.607

Standard errors in parentheses; Coefficients reflect change in department-centered pay. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001



Appendix G: Descriptions of Variables Used in Regression Analysis

Variable	Description	Values	Source/How Calculated
Annual_Allocation	Total pay that <i>should have been</i> received for 9 month period (9/1/16 to 5/31/17); logged and centered on department average	Continuous numeric	Source: PeopleSoft Annual allocation was adjusted to full-time equivalency; the log10 was taken and the department log10 average was subtracted from faculty members' values
Female	Gender	0 = Male 1 = Female	Source: PeopleSoft
IPEDS_Race	Race/ethnicity – coded to reflect IPEDS definitions	1 = Asian 2 = Black or African-American 3 = Hispanic 4 = International 5 = Other 6 = White	Source: Certified THECB CBM 008 Self-identified race is recoded to reflect IPEDS definitions; due to the small number of American Indian/Alaskan natives, two or more races, and unknowns, they were combined into the “other” category.
Years_Since_Degree	Years since highest degree	Continuous numeric	2016 minus the year that the highest degree was obtained (from Digital Measures)
Position	Faculty rank at UTSA	1 = Assistant Professor 2 = Associate Professor 3 = Professor 4 = Lecturer III 5 = Senior Lecturer	Source: Certified THECB CBM 008
College	Primary college (according to CBM008)	1 = Architecture, Const. & Planning 2 = Business 3 = Education & Human Dev. 4 = Engineering 5 = Liberal & Fine Arts 6 = Public Policy 7 = Sciences 8 = University College	Source: Certified THECB CBM 008
Department	Faculty member’s primary department	38 indicators for department	Source: Certified THECB CBM 008 Some departments combined due to small sample sizes