Huron Education

Statistical Analysis of Gender Equity in Faculty Salaries at the University of Texas Rio Grande Valley

Exclusively prepared for the University of Texas Rio Grande Valley by Huron Consulting Group

April 5, 2016

Kurt Dorschel
kdorschel@huronconsultinggroup.com

Heather Hyman
hhyman@huronconsultinggroup.com

UTRGV

Huron Education

YOUR MISSION | OUR SOLUTIONS

Introduction

In parallel with similar efforts at other University of Texas System campuses, the University of Texas Rio Grande Valley (UTRGV) sought to understand the equity of its pay practices, specifically in relation to gender. UTRGV requested the assistance of Huron Consulting to synthesize and analyze University data. Huron had previously worked with the University to develop its compensation philosophy and approach for staff positions and, at the time of this study, had already completed an initial analysis of faculty salary.

This study comes at unique time in the institution's history. In 2015, the campuses of University of Texas Brownsville (UTB) and University of Texas Pan American (UTPA) came together to form UTRGV. The new institution has positioned itself with a strengthened focus on student success as well as a greater emphasis on research productivity. While the two component institutions had often looked to each other for practices, and in some cases salary comparisons, they had operated independently for many years. The two campuses have both used external markets as a reference point, but the definition of those markets was different. The previous work done by Huron, using primarily descriptive statistics, suggested that the variance across campuses (by discipline) was not significant. This is likely due to recent faculty compensation adjustments at UTB which used UTPA as a reference point. Nonetheless, campus of hire is included as a variable in this analysis.

More importantly, within the component institutions, practices related to faculty salary have also varied. Most notably, the approach to faculty performance evaluation varies across Colleges. With no common approach or scale, and limited aggregated data, understanding the historical impact of performance as a variable in compensation is not possible. While UTB and UTPA had many years with limited annual salary adjustments, the cumulative impact of performance adjustments on faculty with longer terms of service could be significant, but is not known.

Based on previous work, UTRGV faces challenges very common to institutions that are growing and evolving in a competitive sector. The need to attract new faculty, and in some cases recruit distinguished high performers, requires

providing base compensation competitive with other research institutions. Current competitive compensation levels, particularly in key STEM and business disciplines, are sometimes higher than salaries of UTRGV incumbents whose salaries have not necessarily tracked to the market. The result is compression, and in some cases inversion, of salaries. The analysis presented here does not include market comparisons, but the University is currently performing a market analysis of faculty salary to evaluate UTRGV incumbent salaries in relationship to its aspirational competitive set.

Approach

The purpose of this study had two goals. The first was to evaluate whether gender as a variable had any statistically significant relationship with base salary at UTRGV. Gender is coded as female/male. Currently, these only gender identity response options captured on the forms completed at time of hire. If any impact was found, the analysis would isolate additional characteristics, such as College, that contribute to salary imbalance in order to narrow scope of the variation. While statistics allow an overall evaluation of variation or imbalance, they do not evaluate whether differences are the result of discriminatory practices. **Legitimate compensation administration practices could yield statistically-significant variation.**

This analysis does not identify gaps at the individual level, and no recommendations regarding individual salaries are proposed herein. Also, while other demographic variables were included as controls (Age, Ethnicity), the focus of this analysis was on impact of gender.

Multiple factors influence an individual faculty member's current salary: discipline, career focus, salary history, performance history, and even resources available at time of hire. Some of these factors can be controlled for in a statistical analysis while others cannot. The purpose of using quantitative methods is to identify issues, if any, and prioritize focus for additional analysis.

The analysis used data pulled in October 2015 which included information on 884 faculty members (non-tenure track and tenure-track). Variables included:

- Gender
- Base Salary
- Ethnicity
- Age
- Job title
- College
- Department
- Date of hire
- Campus of hire
- Exceptional faculty status (distinguished faculty hired to strategically advance particular programs or disciplines or who had salaries impacted by previous administrative appointments).

Given current data limitations, some additional variables were not included. As noted previously, variations in performance evaluation methods prevent it from being used as a variable. Also, while the university has data on date of hire to UTRGV, data related to time in a particular rank exists only within individual faculty files. For example, an individual could have been at the assistant professor rank at another institution for several years before coming to UTRGV in that same rank. That length of experience by rank is not systematically captured.

The quantitative analysis was completed using one way analysis of variance (ANOVA) to measure the main relationship of gender with salary. ANOVA is a statistical method used to assess the difference between two or more means. This is completed by computing the difference between each data point and the grand mean and then summing all of these differences. The assumption is that the salary means across genders will be equal and ANOVA determines whether or not this is the case and if gender as a variable is the source of the difference.

Additional ad hoc testing was completed to ensure that additional variables were not related to salary differences. Ad hoc tests were completed by running univariate general linear models (GLM). GLM is an extension of regression models where the role of multiple independent variables can be assessed at once. This analysis evaluates the relationships between variables to explain any variability in a model.

For each of the analyses, we provide two measures of statistical significance. An *F* statistic and a *p* value. These two numbers are interrelated. A higher *F* statistic will correlate with a lower *p* value. A *p* value lower than .05 indicates statistical significance.

Note: This report alternately presents both averages and medians. Averages (means) are used in the statistical analysis. Medians, however, are often useful for comparison since they tend to reduce the impact of outliers.

Summary Results

The overall faculty population of UTRGV skews male, with a distribution of 61% men and 39% women. Most faculty members came from the Edinburg campus (63%), followed by the Brownsville campus (23%), and finally new UTRGV hires (14%). The ethnically diverse population consisted primarily of White (43%), Hispanic or Latino (31%), and Asian (16%) individuals. Only 15 faculty members were characterized as having an "exceptional" salary status, but only 20% of those individuals are women.

At an aggregate level, men across the campus had a median salary of $67,464 while women had a median salary of $59,253. While initial one way ANOVA analysis indicated that gender does have a statistically significant relationship with base salary at UTRGV, this result could occur even if that relationship existed only for certain titles or certain parts of the organization. It was found in subsequent ad hoc analyses that this effect is in fact **not** uniform across the campus and is limited to tenure track and tenured positions. Gender does not have a statistically significant relationship with base salary for individuals that are not eligible for tenure.

Further breakdown by college revealed that the two largest colleges on campus, the College of Liberal Arts and the College of Sciences, show statistically significant salary variation in relation to gender, with men receiving higher salaries than women. This variance was not found in the Colleges of Business and Entrepreneurship, Education and P-16 Integration, Engineering and Computer Science, Fine Arts, nor Health Affairs.

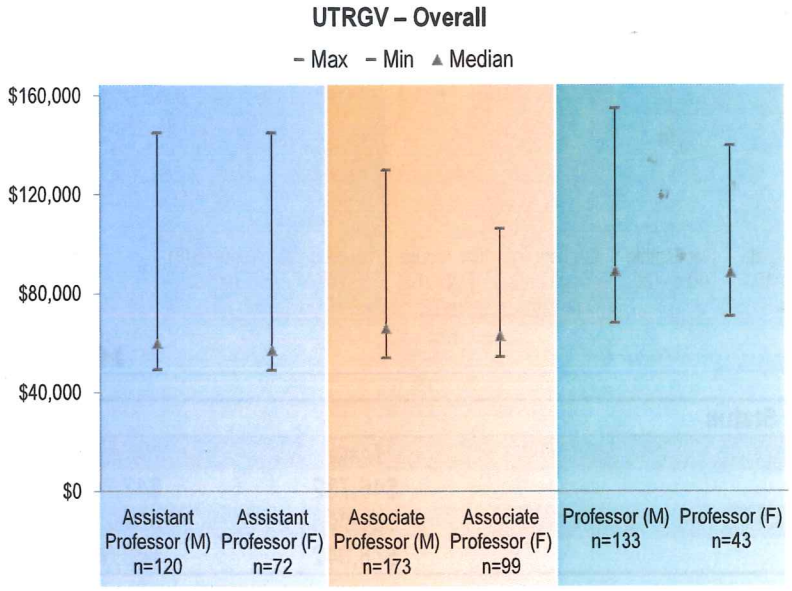
The following sections provide additional detail related to the University and individual colleges. Data analysis was performed on all titles/ranks. The following charts illustrate only the ranges for tenured/tenure-track faculty. The final section of this report provides suggestions for next steps.

Findings

University of Texas Rio Grande Valley – Overall

The 349 female faculty had an average salary (mean) of $64,564 (*SD* = $19,020), whereas the 535 male faculty had an average salary (mean) of $72,668 (*SD* = $22,283). At the aggregate level, the relationship of gender and pay showed statistical significance $F(1, 882) = 31.3$, $p < .001$, though subsequent analysis demonstrated that this effect was isolated to only certain titles and certain Colleges. Ad hoc analyses were completed to control for age, ethnicity, date of hire, campus of hire, and removal of exceptional faculty salaries. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

Gender Equity

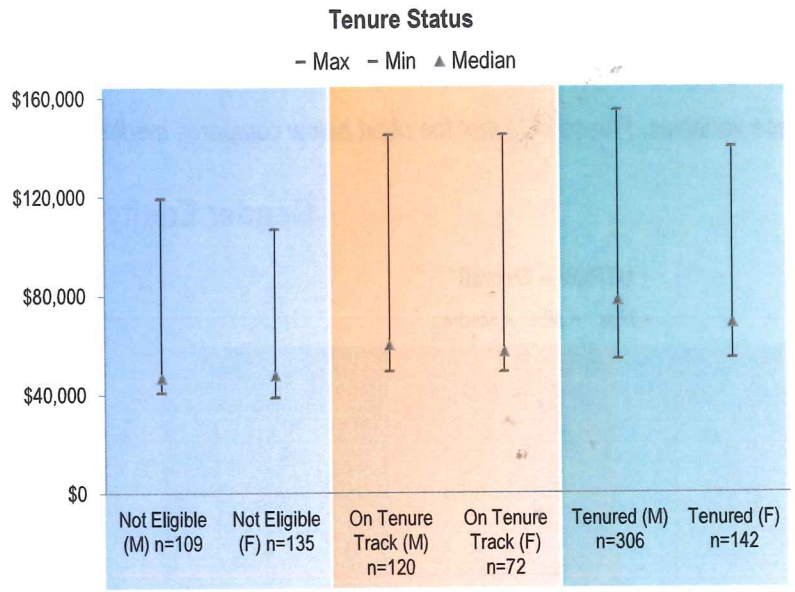


Median salary by Job Title – Overall

	Male	Female
Assistant Professor	$60,000	$57,211
Associate Professor	$66,205	$63,003
Professor	$89,129	$88,528

Tenure Status

Additional ad hoc testing was performed on tenure status. Gender was found to have a statistically significant relationship with compensation (p <.05) for tenure track and tenure positions. Gender was not a significant predictor (p = .46) for positions not eligible for tenure. *Please note that the chart below compares medians instead of means.*



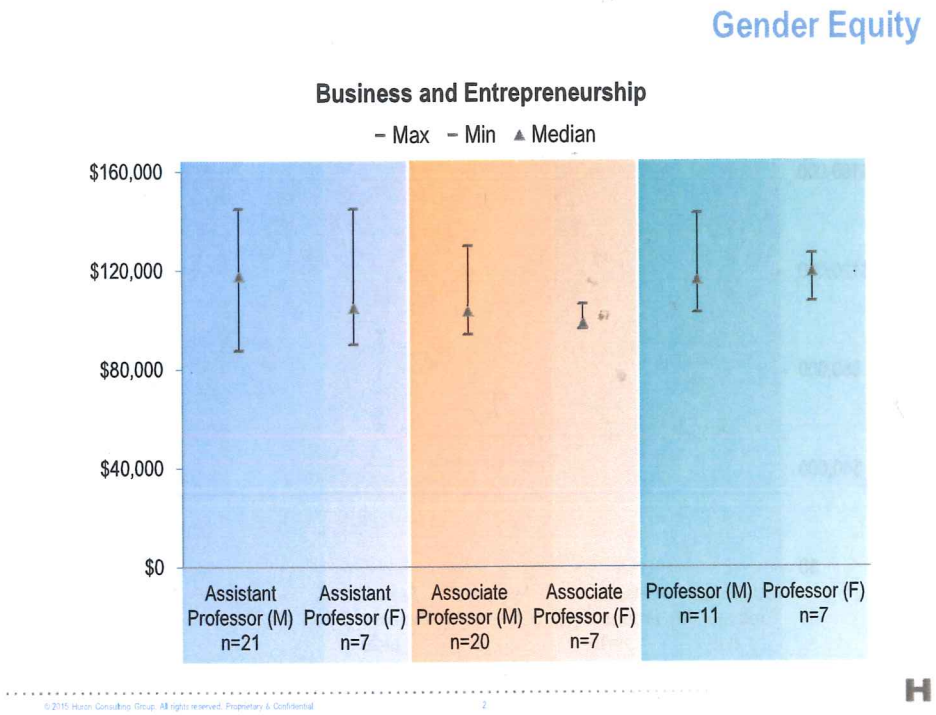
Median salary by Tenure Status

	Male	Female
Not Eligible	$46,732	$47,760
On Tenure Track	$60,000	$57,211
Tenured	$78,042	$68,694

Business and Entrepreneurship

The 30 Business and Entrepreneurship female faculty had an average salary (mean) of $97,190 (*SD* = $21,936), whereas the 63 Business and Entrepreneurship male faculty had an average salary (mean) of $104,406 (*SD* = $22,403). Base salaries by gender were not significantly different, $F(1, 91) = 2.1$, $p = .147$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, and campus of hire. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

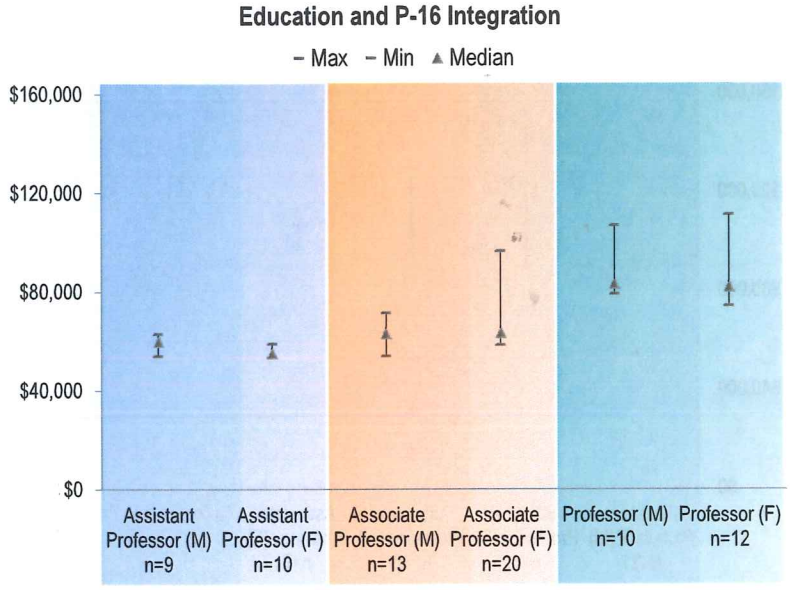


Median salary by Job Title – Business and Entrepreneurship		
	Male	Female
Assistant Professor	$118,000	$105,000
Associate Professor	$103,636	$98,704
Professor	$116,425	$119,573

Education and P-16 Integration

The 48 Education and P-16 Integration female faculty had an average salary (mean) of $67,172 (*SD* = $15,413), whereas the 34 Education and P-16 Integration male faculty had an average salary (mean) of $67,735 (*SD* = $13,799). Base salaries by gender were not significantly different, $F(1, 80) = 0.03$, $p = .865$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, campus of hire, and removal of exceptional faculty salaries. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*



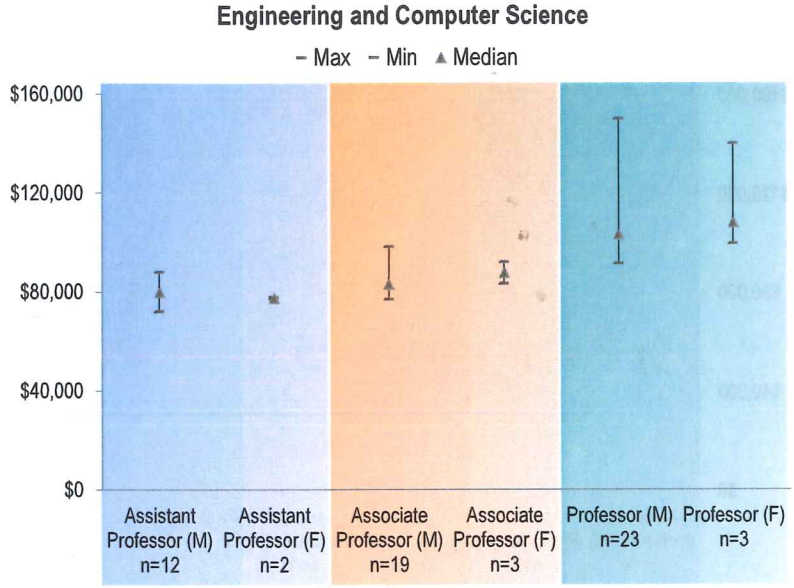
Median salary by Job Title – Education and P-16 Integration

	Male	Female
Assistant Professor	$60,000	$55,162
Associate Professor	$63,157	$63,479
Professor	$83,383	$82,019

Engineering and Computer Science

The 9 Engineering and Computer Science female faculty had an average salary (mean) of $90,227 (*SD* = $25,486), whereas the 65 Engineering and Computer Science male faculty had an average salary (mean) of $86,745 (*SD* = $19,082). Base salaries by gender were not significantly different, $F(1, 72) = 0.2$, $p = .624$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, campus of hire, and removal of STAR faculty. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

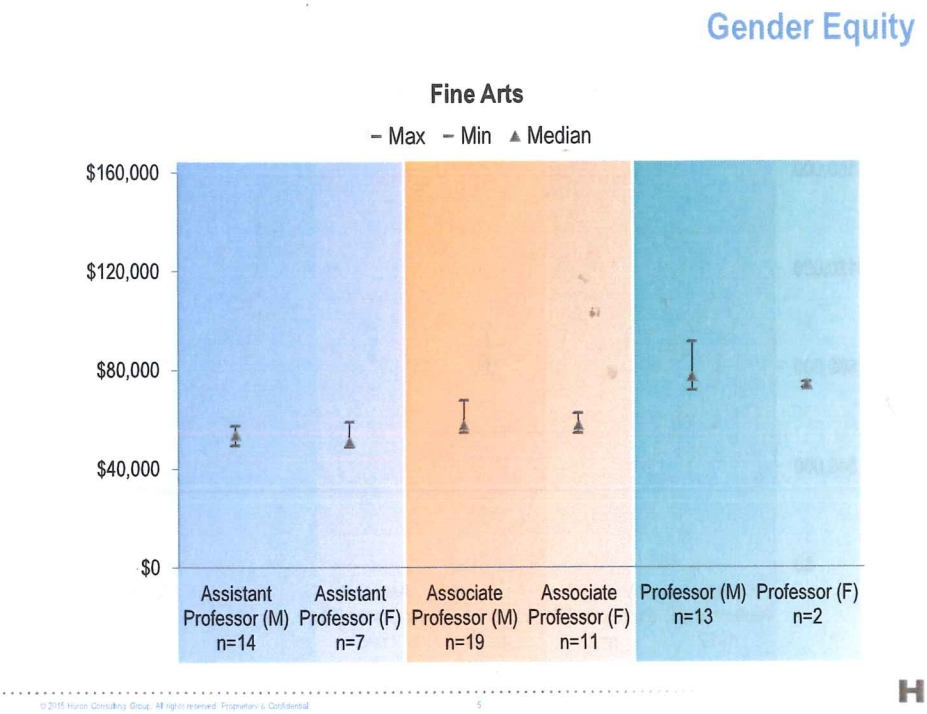


Median salary by Job Title – Engineering and Computer Science		
	Male	Female
Assistant Professor	$80,111	$77,601
Associate Professor	$83,254	$87,723
Professor	$103,268	$108,090

Fine Arts

The 23 Fine Arts female faculty had an average salary (mean) of $56,049 (*SD* = $7,772), whereas the 60 Fine Arts male faculty had an average salary (mean) of $59,271 (*SD* = $12,133). Base salaries by gender were not significantly different, $F(1, 81) = 1.4$, $p = .241$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, and campus of hire. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

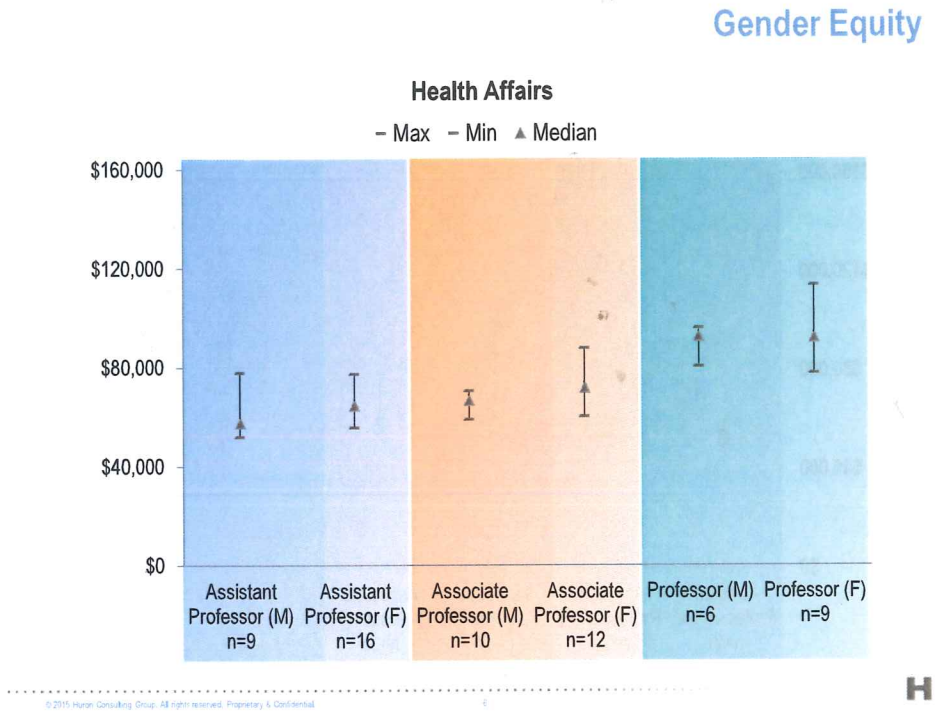


Median salary by Job Title – Fine Arts		
	Male	Female
Assistant Professor	$53,726	$51,175
Associate Professor	$57,841	$57,841
Professor	$77,543	$73,960

Health Affairs

The 80 Health Affairs female faculty had an average salary (mean) of $68,057 (*SD* = $17,796), whereas the 39 Health Affairs male faculty had an average salary (mean) of $68,608 (*SD* = $17,796). Base salaries by gender were not significantly different, $F(1, 117) = 0.03$, $p = .865$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, and campus of hire. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

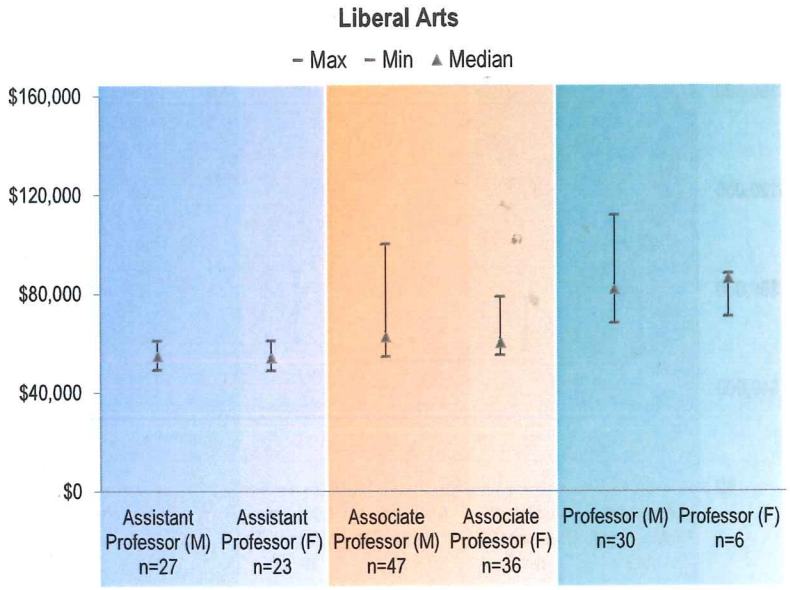


Median salary by Job Title – Health Affairs		
	Male	Female
Assistant Professor	$57,739	$64,715
Associate Professor	$66,773	$71,861
Professor	$92,548	$92,193

Liberal Arts

The 108 Liberal Arts female faculty had an average salary (mean) of $55,091 (*SD* = $10,843), whereas the 135 Liberal Arts male faculty had an average salary (mean) of $62,698 (*SD* = $15,217). Differences in pay by gender were statistically significant, with men having higher salaries than women, $F(1, 241) = 19.2$, $p < .001$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, campus of hire, and removal of exceptional faculty salaries. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*

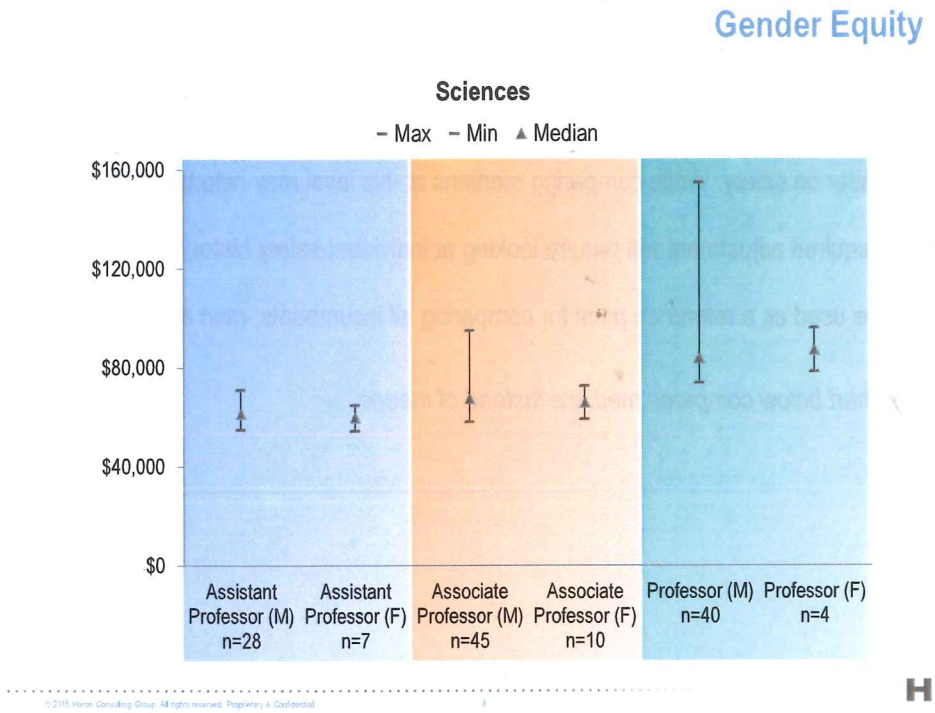


Median salary by Job Title – Liberal Arts		
	Male	Female
Assistant Professor	$54,912	$54,350
Associate Professor	$62,593	$60,147
Professor	$81,965	$86,034

Sciences

The 45 Sciences female faculty had an average salary (mean) of $58,252 (*SD* = $12,905), whereas the 136 Sciences male faculty had an average salary (mean) of $70,053 (*SD* = $18,747). Differences in pay were statistically significant, with men having higher salaries than women, $F(1, 179) = 15.4$, $p < .001$.

Ad hoc analyses were completed to control for age, ethnicity, date of hire, campus of hire, and removal of STAR faculty. There was no change in significance levels when controlling for these variables. *Please note that the chart below compares medians instead of means.*



Median salary by Job Title – Sciences		
	Male	Female
Assistant Professor	$61,625	$60,000
Associate Professor	$67,692	$66,111
Professor	$83,984	$87,140

College of Liberal Arts and College of Sciences Detail

The effect of gender, controlling for available variables appears localized to UTRGV's largest colleges, the College of Liberal Arts and the College of Sciences. *It is imperative to note that the tables below present aggregate medians for all ranks. A specific analysis must be done to examine individual cases within each department.*

Huron compared median salaries for men and women in each department-rank for the College of Liberal Arts and the College of Sciences. This analysis helps to narrow the focus even further. In some cases, the median salary for men does exceed the median for women while in others, the reverse is true. At this level of analysis, however, the number of incumbents being compared is often very small. Some departments may only have one woman incumbent, or none at all. The comparisons in these instances, therefore, cannot be immediately interpreted as demonstrating a negative impact of gender on salary. While comparing medians at this level may help target specific cases, making a determination of any required adjustment will require looking at individual salary history. Here, reference to the external market may be used as a reference point for comparing all incumbents, men and women.

Please note that the chart below compares medians instead of means.

College of Liberal Arts Median Salaries (tenure track)			
Department	Male	Female	Female Median As Percentage of Male Median
Communication	$69,037 n=9	$56,961 n=5	82.5%
Criminal Justice	$73,303 n=8	$65,734 n=3	89.7%
History	$58,314 n=14	$56,943 n=8	97.6%
Interdisciplinary Programs & Community Eng.	N/A n=0	$59,000 n=3	N/A
Literatures & Cultural Studies	$72,834 n=21	$55,257 n=15	75.9%
Philosophy	$58,200 n=7	$54,675 n=4	93.9%
Political Studies	$54,677 n=10	$56,276 n=4	102.9%
Psychological Science	$77,142 n=11	$64,739 n=4	83.9%
Public Affairs & Security Studies	$61,000 n=3	$68,802 n=4	112.8%
Sociology & Anthropology	$61,088 n=11	$66,878 n=3	109.5%
Writing & Language Studies	$62,977 n=10	$58,656 n=12	93.1%
Overall	$63,500 n=104	$58,273 n=65	91.8%

College of Sciences Median Salaries (tenure track)			
Department	Male	Female	Female Median As Percentage of Male Median
Biology	$77,890 n=21	$60,000 n=7	77.0%
Chemistry	$68,511 n=16	$62,716 n=4	91.5%
Mathematical & Statistical Sciences	$69,894 n=42	$66,051 n=5	94.5%
Multidisciplinary Sciences	$65,975 n=15	$72,157 n=1	109.4%
Physics	$73,710 n=19	$69,385 n=4	94.1%
Overall	$70,000 n=113	$65,000 n=21	92.9%

Because of small n sizes within the individual departments, only four departments could be statistically assessed with a reasonable degree of confidence. Within the college of Liberal Arts both Literature and Cultural Studies and Writing and Language Studies were examined. This breakdown revealed the department of Literature and Cultural Studies to have statistically significant salary variation with men receiving higher salaries than women. This variation was not found in the department of Writing and Language Studies. Similarly, two departments within the college of Sciences were quantitatively evaluated, Biology and Mathematical and Statistical Sciences. The Biology department was found to have statistically significant salary variation with men receiving higher salaries than women whereas the Mathematical and Statistical Sciences department did not reveal the same variation.

Next Steps

The analysis presented here suggests that gender may have an impact on base salary at UTRGV, but that impact is likely constrained to tenure/tenure-track faculty in the College of Liberal Arts and the College of Sciences. Looking within these two colleges, the degree of variation ranges—and in some cases, female median salaries may be higher than their male median salaries. In most cases, looking within specific departments by gender, however, reduces population sizes to the point where purely statistical analysis is challenged.

These results suggest a few specific next steps:

1. Continue to perform more detailed analysis of median salary by gender, rank, and department within College of Liberal Arts and the College of Sciences.
2. Examine individual faculty salaries which fall below department-rank medians to understand any contributing factors (including, but not limited to performance, contribution type, credentials, and total years of experience).
3. Review history of compensation adjustments at the individual level.
4. As needed, develop College-level action plans when propose strategies to address any inequities which do not reflect legitimate business practices.

More broadly, the analysis highlights the importance of a comprehensive, long-term faculty compensation strategy. UTRGV has already begun to develop this approach. An updated market analysis will provide an understanding of how all faculty salaries relate to their relevant markets. Moreover, a faculty compensation philosophy will define the mechanisms and processes for maintaining competitive, equitable compensation going forward. In addition, UTRGV should develop a more comprehensive strategy to gather consistent data regarding faculty performance and advancement.

Additional Data Tables

Campus of Hire by Gender		
	Male	Female
UTRGV	59 (48%)	64 (52%)
Edinburg	344 (62%)	211 (38%)
Brownsville	132 (64%)	74 (36%)
Total	535 (61%)	349 (40%)

Job Titles by Gender		
	Male	Female
Assistant Professor	120 (63%)	72 (38%)
Assistant Professor in Practice	4 (31%)	9 (69%)
Associate Professor	173 (64%)	99 (36%)
Assistant Professor of Research	0 (0%)	1 (100%)
Clinical Assistant Professor	6 (21%)	23 (79%)
Clinical Associate Professor	2 (67%)	1 (33%)
Clinical Instructor	2 (29%)	5 (71%)
Clinical Professor	0 (0%)	1 (100%)
Lecturer	68 (49%)	71 (51%)
Lecturer II	21 (49%)	22 (51%)
Lecturer III	1 (100%)	0 (0%)
Professor	133 (76%)	43 (24%)
Senior Lecturer	5 (71%)	2 (29%)
Total	535 (61%)	349 (39%)

Exceptional Faculty Salaries by Gender and College		
	Male	Female
Business and Entrepreneurship	0	0
Education	0	2
Engineering and Computer Science	5	0
Fine Arts	0	0
Health Affairs	0	0
Liberal Arts	0	0
Sciences	7	0
Student Academic Success	0	0
Total	12	2

Gender Equity