The University at Buffalo

Internal 2016-2017 Faculty Salary Equity Study

March, 2018

Table of Contents

Executive Summary 1
Introduction 2
Statistical Models 5
Methodology 7
Results 9
Discussion and Conclusion 13

Appendix A: Frequently Asked Questions 16
Appendix B: Additional Faculty Demographics 20
Appendix C: GESS Committee Models Regression Results 24
Appendix D: Residual (Outlier) Analysis Results 26
Appendix E: Model Fit and Reliability Discussion 29
Appendix F: Model Fit – Changes in Variance 35
Appendix G: SPSS Statistical Analysis Regression Charts 39

Executive Summary

In the fall of 2017, the University at Buffalo investigated whether there was evidence of pay discrimination in gender for ladder faculty in the 2016-2017 academic year. The cohort consisted of full-time, tenured and tenure-eligible faculty. The dataset consisted of demographic and discipline information for 1,042 faculty members. Multivariate statistical techniques were applied to the dataset to investigate the issue. The approaches and model specifications that were followed are accepted practices of analysts in the field.

The results of the analysis are summarized as follows: After taking into account work-related characteristics that should affect salary, there was no evidence of an average unexplained earning difference in favor of male faculty members. The average unexplained earnings gap between men and women ranged from 0.1% to 1.3% and in no instance was statistically significant at the 5% significance level. The result held regardless of whether the department or discipline market factor was used to control for discipline differences. Additionally, reliability checks were performed to consider if faculty salaries at each end of the salary spectrum that were considered outliers, could influence the statistical significance of the previous results. The conclusion was that the results were not affected by inclusion of outliers in the dataset.

Overall results, therefore, support the hypothesis that there is no evidence of systemic salary inequity among ladder faculty employed by the University at Buffalo during the 2016-2017 academic year.

This report provides a description of the methodology and statistical procedures used to investigate gender inequity in salary. The data and subsequent variables are described in the second section and the third section provides results and discussion from the analyses. An appendix additionally provides substantial information regarding the statistical analyses, results and reliability and validity checks done throughout the process.

Introduction

Since the 1970s, federal legislation has specified that the fair and equitable treatment of employees with regard to compensation also extends to institutions of higher education. The University at Buffalo (UB) has continually monitored their internal salary structures for evidence of inequitable treatment, particularly among gender groups of faculty members. In the recent past (2009 and again in 2011), UB has conducted two salary equity studies with the intent to investigate salary equity among ladder faculty members. Persistent in both studies is that average received salaries were comparable between male and female faculty members after taking into account work-related factors such as rank, experience and discipline that are thought to have an effect on pay. In the fall of 2017, the university once again conducted an internal salary equity study to address the possible presence of inequities associated with gender.

Charge

The Gender Equity Salary Study (GESS) Committee was jointly appointed by the University Provost and the Chair of the Faculty Senate to assess whether there is statistically significant inequity in ladder faculty salaries by gender at the University at Buffalo. The committee members decided upon two statistical analysis methodologies to conduct the study and were then charged to recommend strategies for disseminating results to both the internal community and the external public.

Membership, Roles and Consultation

The committee was comprised of a reasonably diverse group of faculty by gender, race, and discipline, joined by administrative staff who contribute to the university's efforts to ensure gender salary equity. Other involved university offices (Academic Planning, Equity and Inclusion, Human Resources, Faculty Affairs and University Communications) were available to assist as needed for the project. The committee also drew upon the expertise and perspectives of the Faculty Senate Executive Committee, the Faculty Senate Committees on Equity and Inclusion and Budget Priorities and the Dean's/Vice-President's/Vice Provost's Council at all decision points.

Committee Members

Co-Chairs (in alphabetical order)

- Craig Abbey – Associate Vice President and Director of Institutional Analysis
- Glenna Bett – Chair of the Faculty Senate Committee on Equity and Inclusion, Vice Chair for Research, Obstetrics and Gynecology, Jacobs School of Medicine and Biomedical Sciences, Deputy Director, Institute for Research and Education on Women and Gender
- Peter Elkin – Chair of the Faculty Senate Committee on Budget Priorities, Professor and Chair, Biomedical Informatics, Professor of Internal Medicine, Jacobs School of Medicine and Biomedical Sciences
- Sharon Nolan-Weiss – Director, Office of Equity, Diversity and Inclusion, Title IX and ADA Coordinator

Faculty Representatives (in alphabetical order)

- Sharmista Bagchi-Sen – Professor, Geography
- Rajan Batta, – Associate Dean for Faculty Affairs, Human Resources & Diversity, School of Engineering and Applied Sciences
- Lucinda Finley – Professor, Law
- Brenda Moore – Associate Professor, Sociology
- Neel Rao – Assistant Professor, Economics
- Gregory Wilding – Professor, Chair, Biostatistics

Staff Advisors (available as necessary)

- Sean Sullivan – Vice-Provost for Academic Planning
- Mark Coldren – Associate Vice-President for Human Resources
- Robert Granfield – Vice-Provost for Faculty Affairs
- Teresa Miller – Vice-Provost for Equity and Inclusion
- Nancy Paton – Vice-President for University Communications

Craig Abbey and members of his team, Gregory Wilding and Neel Rao worked together in the assembly of the data sets used for the study, the determination of the methodologies for conducting the study and the analyses of the study itself. Other members of the committee provided various measures of input and approved the final product.

Town Hall Meetings - Frequently Asked Questions

Two town hall meetings were held (one on North Campus, and another one on South Campus) to present information about the study, the methodologies and statistical analyses that were agreed upon by the committee members. In addition, written feedback was solicited from the entire University community. This was done to gather feedback from faculty prior to conducting the analyses. A list of frequently asked questions was generated specifically to

provide an in-brief explanation for who could not attend. The list of questions is provided in Appendix A.

Rationale for the Study

Gender equity in salaries is a reasonable expectation of everyone at the University at Buffalo. This study was designed to determine if there is a systemic gender bias in the salaries of tenured and tenure-track faculty at UB and to provide senior leadership sufficient evidence to assess any possibly statistically relevant results.

Factors that should be considered in order to assess salary equity should be factors that are known to impact salary differences. These should include for example, different department and/or disciplines, educational attainment, experience and research productivity. Factors that should not impact salary differences among faculty are gender and race/ethnicity.

Specific Aims

The focus of the internal salary equity study was twofold:

1. Determine if there are departmental effects that lead to a statistically significant difference in the pay of tenured and tenure-track faculty by gender when controlling for academic rank, time in rank, rank at hire and department.
2. Determine if there are discipline effects that lead to a statistically significant difference in the pay of tenured and tenure-track faculty by gender when controlling for academic rank, time in rank, rank at hire and market factor discipline when comparing the salaries to a national database of academic salaries by discipline.

Secondary Aim

Within gender, the contribution of race and/or ethnicity to any gender pay gap was evaluated.

Statistical Models

Regression Analysis

The standard procedure that researchers use most often to measure the unexplained wage differences for gender is an ordinary-least squares (OLS) multiple regression analysis. The advantage of multiple regression is that it allows the researcher to control for or remove the influence of other factors such as rank, experience, educational attainment, and discipline fields. The log of salary is most often used as the dependent variable in salary equity studies due to its appropriateness in situations where salaries reflect a compounding process.
The regression model coefficients are estimated for each factor and are assessed for statistical significance. The regression coefficients, in turn, can be interpreted as the (approximate) percentage change in salary due to a one-unit change in each of the factors. Therefore, a regression analysis will provide information on the average percent difference in salaries between male and female faculty members and whether this change is significantly different from a zero percent (0%) difference.

Two statistical models were proposed to address each of the specific aims.

Proposed Model 1 - Departmental Salary Comparison

This model was designed to study the relationship between gender and wages using a multiple regression analysis. This model tested for gender differences in faculty pay conditional on current and initial rank, time in rank and also involves comparisons within departments at UB and does not include external salary market factors. This model will controlled for the effects of seniority and specialization.

A departmental effect was included which can be regarded as fixed. The fixed effects approach treats department membership as a control variable, generates a parameter estimate for each department, and covers the case where the departmental effects are correlated with the covariates.

$$\begin{aligned}\ln(Y_{ij}) = {} & \beta_0 + \beta_1(\text{Gender}) + \beta_2(\text{URM}) + \beta_3(\text{Professor}) + \beta_4(\text{Associate Professor}) \\ & + \beta_5(\text{YearsinTitle}) + \beta_6(\text{RankAtHireProf}) + \beta_7(\text{RankatHireAssociate}) + \\ & + \beta_8(\text{Gender x MinorityStatus}) + \beta_9(\text{Anthropology}) + \ldots + \beta_{94}(\text{SocialWork}) + e_{ij}\end{aligned}$$

Proposed Model 2 - Discipline Salary Comparison

This model was also designed to study the relationship between gender and wages using a multiple regression analysis. Instead of comparing faculty within a department against one another, faculty were instead be compared to a discipline-specific salary market factor to identify if differences in salary are explained by the market for particular disciplines and rank.

$$\begin{aligned}\ln(Y_{ij}) = {} & \beta_0 + \beta_1(\text{Gender}) + \beta_2(\text{URM}) + \beta_3(\text{Professor}) + \beta_4(\text{Associate Professor}) \\ & + \beta_5(\text{YearsinTitle}) + \beta_6(\text{RankAtHireProf}) + \beta_7(\text{RankatHireAssociate}) + \\ & + \beta_8(\text{Gender x MinorityStatus}) + \beta_9(\text{Salary Market Factor}) + e_{ij}\end{aligned}$$

Given the rightward skew of income distributions, the natural logarithm of salary was used as the dependent variable in both models, and the estimated coefficients were interpreted as percent differences in earnings.

Methodology

Dataset – Study Group

Data were collected using Pay Period 17 (November 3 – November 16, 2016) for the 2016-2017 academic year.

Inclusion Criteria:

- All ladder faculty including full professors, associate professors and assistant professors
- Primary unqualified appointments with FTE 1.0
- State faculty title and annualized base state salary only

Did Not Meet the Inclusion Criteria:

- Faculty with a qualified title (e.g., clinical, research, visiting)
- Educational Opportunity Center (EOC) faculty
- Librarians

Excluded from analysis because their salary is not correlated with discipline and effort

- Geographic Full-Time (GFT) faculty
- Tenured faculty serving in an administrative capacity (e.g. President, Provost, Vice Provosts, and Deans)

Data Collection from University at Buffalo Human Resources Data Tables

From Payroll 17 of 2016-2017 academic year

- Faculty ID (masked)
- Current academic rank (state title)
- Full-time annualized salary
- FTE
- Entity code (used to link department/unit)
- Gender
- Race/ethnicity
- Tenure status
- Rank at hire (ladder state title)

2016-2017 Oklahoma State University Salary Study by Discipline

The 2016-2017 Oklahoma State University Salary Study by Discipline was used to assign corresponding market factors based on discipline and rank. The OSU study has been published each year since 1974 and its focus is to produce a national sample of average faculty salaries by discipline, Carnegie Classification and faculty rank. The OSU study identifies discipline by the 6-digit CIP codes with 2-digit and 4-digit summary pages also included. Specifically, from the study, Carnegie Classification R1: Doctoral Universities – Highest Research Activity (RU/VH) category was used to identify the appropriate market factor per discipline.

Disciplinary market factors are assigned by department and/or discipline based on UB official 2010 6-digit CIP code designations or when a corresponding OSU CIP code was not present, the 4-digit CIP code was used.

Dataset – Construction

See 2017 Faculty Salary Equity Technical Documentation (OIA) for discussion regarding the compilation of the faculty roster.

Statistical Analyses

A joint effort between the GESS committee members and the Office of Institutional Analysis staff was undertaken to conduct the statistical analyses separately using the same dataset. Statistical tests were performed at a 5% statistical significance level on both models. Neel Rao conducted the analysis for the GESS committee using STATA statistical software and Melinda Whitford conducted the analysis for the Office of Institutional Analysis using SPSS statistical software.

Results

2016-2017 Faculty Demographics

Table 1 provides a breakdown of the distribution by rank and gender. Approximately 33% of the ladder faculty in the study group are female and 67% male. This can be further broken down to 36% of assistant professors, 40% of associate professors and 25% of professors are female.

Table 1

Gender and Rank Distributions

Rank	Female	Male	Total
Assistant	94	165	259
Associate	144	214	358
Professor	105	320	425
Total	343	699	1042

Table 2 provides a breakdown of the distribution by ethnicity/race. Approximately 70% of the ladder faculty in the study group identified as White, 23% as Asian, 3% as Hispanic and 2% as Black or African American.

Table 2

Ethnicity/Race Distributions

American Indian/Alaskan Native	5
Asian	238
Black or African American	23
Hispanic	34
Multiple Races	8
White	734
Total	1042

Additional demographic information regarding departmental size can be found in the Appendix B.

Regression Analysis (OIA) Results

The regression summary results (as determined by the Office of Institutional Analysis) for each of the models appears below. Regression results (as determined by the GESS committee) can be found in the Appendix C.

Table 3

Coefficient Estimates for Model 1 and Model 2

	Model 1-Department		***Model 2-Market Factor***	
Model	Unstandardized Coefficients, β		Unstandardized Coefficients, β	
Constant	11.428*	(.027)	1.634*	(.310)
Gender	-.001	(.011)	-.012	(.012)
Underrepresented Minority	.049	(.025)	-.005	(.029)
Gender x URM	.001	(.036)	.028	(.043)
Current Rank Professor	.404*	(.014)	-.071*	(.022)
Current Rank Associate	.146*	(.013)	-.009*	(.015)
Time in Current Rank	.192*	(.018)	.004*	(.001)
Rank at Hire Professor	.056*	(.014)	.217*	(.020)
Rank at Hire Associate	.005*	(.001)	.040*	(.015)
Departmental Fixed Effects	Yes		No	
Market Factor	No		.857*	(.027)
Adjusted R^2	0.828		0.745	
N	1042		1042	

Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%. Dependent Variable: natural logarithm of the base salary.

Overall, with both the department and market factor discipline models, there was no significant differences in base salaries between male and females, controlling for URM status, current rank, time in current rank, rank at hire and either departmental fixed effects (model 1) or discipline market factor (model 2).

Additionally, the model was also run with regular base salary (in dollar amounts). The regression summary results are in Table 4 below. Again, there was no significant differences in base salaries between male and females, controlling for URM status, current rank, time in current rank, rank at hire and either departmental fixed effects (model 1) or discipline market factor (model 2).

Table 4

Coefficient Estimates for Model 1 and Model 2 in Dollar Amounts

	Model 1-Department		***Model 2-Market Factor***	
Model	Unstandardized Coefficients, β		Unstandardized Coefficients, β	
Constant	98,353.78*	(4002.09)	17,716.62*	(3329.91)
Gender	60.56	(1621.20)	-1,951.04	(1779.58)
Underrepresented Minority	6,553.35	(3757.35)	-129.81	(4234.88)
Gender x URM	441.21	(5323.84)	2,798.04	(6237.72)
Current Rank Professor	44,023.72*	(2126.23)	-5,436.58	(2991.97)
Current Rank Associate	12,956.68*	(1894.59)	-658.62	(2170.28)
Time in Current Rank	594.91*	(88.39)	452.37*	(98.98)
Rank at Hire Professor	30,641.73*	(2655.58)	36,016.84*	(2869.10)
Rank at Hire Associate	5,858.36*	(2065.01)	4,031.68	(2254.80)
Departmental Fixed Effects	Yes		No	
Market Factor	No		0.82*	(.03)
Adjusted R^2	0.770		0.670	
N	1042		1042	

Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%. Dependent Variable: base salary.

Comparisons with GESS Committee Analysis Results

OIA models were run with IBM SPSS Statistics 24 and the GESS committee models were run with Stata. The overall results for gender were comparable between both analyses, with slight differences in the unstandardized beta coefficients and R^2 and adjusted R^2 values. This can be attributed to differences in the statistical software.

In addition, the GESS committee model added an additional independent variable, TimeInCurrentRank^2. This allows the model to take into account the differential in time individuals spend at rank. Individuals generally will spend more time at full professor than at assistant or associate professor. This additional variable, could influence the unstandardized coefficients in the model, but this would not change the overall non-significance of gender on salaries.

Additional Analysis

Additionally, some concern was expressed regarding differences in contract length. Faculty members are either on a 10-month or 12-month contract. Therefore, additional analyses were conducted to investigate whether contract length would have an impact in differences in salaries. Table 5 below provides OIA results showing that contract length was not a statistically significant factor and therefore did not affect or change the previous results and conclusions.

Table 5:

Coefficient Estimates for Model 1 and Model 2 with Contract Length

Model	Model 1-Department Unstandardized Coefficients, β		Model 2-Market Factor Unstandardized Coefficients, β	
Constant	11.435*	(.027)	1.961*	(.280)
Gender	-.002	(.011)	-.013	(.011)
Underrepresented Minority	.041	(.025)	.009	(.026)
Gender x URM	.001	(.036)	.018	(.039)
Current Rank Professor	.399*	(.014)	-.066	(.020)
Current Rank Associate	.146*	(.013)	-.011	(.014)
Time in Current Rank	.005*	(.001)	.004	(.001)
Rank at Hire Professor	.194*	(.018)	.195	(.018)
Rank at Hire Associate	.050*	(.014)	.043	(.014)
Departmental Fixed Effects	Yes		No	
Market Factor	No		.826	(.025)
Contract Length	.196*	(.044)	.183	(.012)
Adjusted R^2	0.846		0.793	
N	1042		1042	

Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%. Dependent Variable: natural logarithm of the base salary.

Outlier (Residual) Analysis

In order to assess the impact of faculty salaries considered outliers at each end of the salary range, a residual analysis was done. A residual (predicted value – observed value) for each faculty member was calculated and standardized. If the standardized residual was +/- 3 standard residuals they were considered outliers. In each model, a total of 17 faculty members were identified as outliers with 7 faculty members considered outliers within both regression models. Each model was re-run excluding the outliers and the results did not change. There was no statistically significant effect for gender. Therefore, the addition of outliers in the dataset did not influence the overall regression results.

The distribution of residual outliers and regression results can be found in the Appendix D.

Model Fit and Reliability/Validity Results

The model fit and reliability for each regression model were assessed using accepted practices of analysts in the field. For a full discussion of the results see Appendix E. Model Fit and R-squared changes are provided in Appendix F.

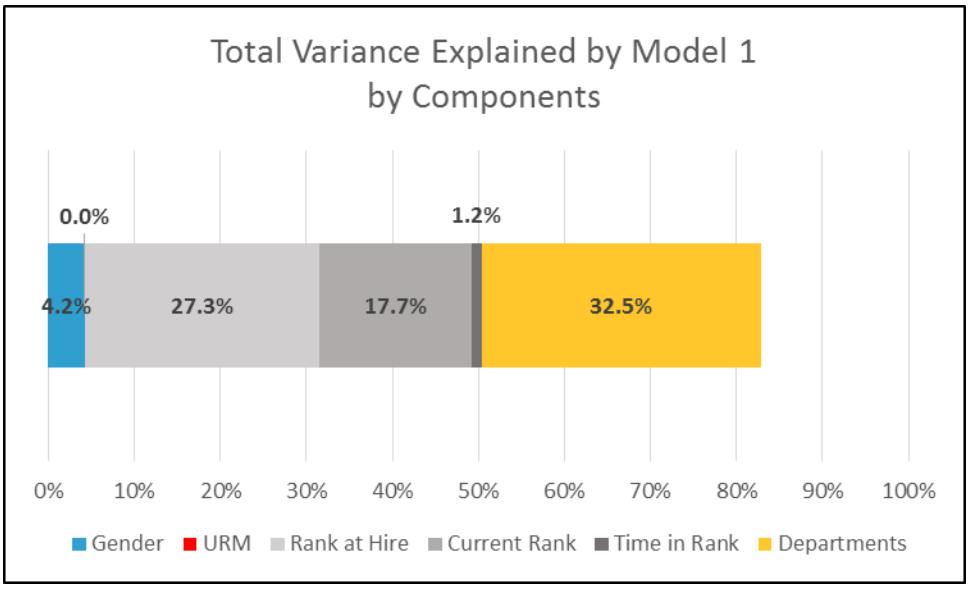
Discussion and Conclusion

The GESS Committee was charged with investigating whether there was evidence of pay inequity based on gender and race/ethnicity for ladder faculty in the 2016-2017 academic year. After controlling for the effects of current academic rank, time in current rank, rank at hire, departmental affiliation and discipline market factors, the unexplained wage gap varied between 0.1% and 1.3% and was statistically insignificant. Likewise, there was no evidence of a systematic pay bias against faculty in underrepresented race/ethnicity categories relative to non-underrepresented faculty.

The adjusted R^2 value for Model 1 – Department is 0.828 indicating that the model accounts for or the factors in the model can explain approximately 83% of the total variance in faculty salaries. This leaves approximately 17% of the variance unexplained.

Additionally, if we inspect the individual components of the model, gender only accounts for approximately 4.1% of the variance, the URM status does not account for any additional explanation. Current rank, time in rank, and rank at hire combined account for 46.2% of the explained variance and lastly the addition of the departmental factors adds an additional 32.5% of the explained variance. This can be seen in Chart 1 below.

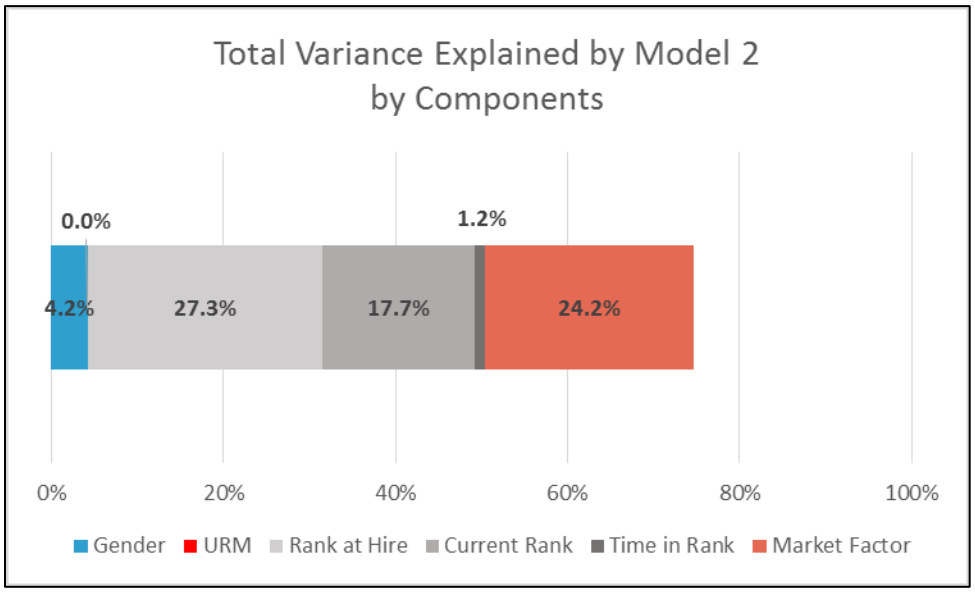
Chart 1



The adjusted R^2 value for Model 2 – Market Factor is 0.745 indicating that the model accounts for or the factors in the model can explain approximately 75% of the total variance. This leaves approximately 25% of the variance unexplained.

Additionally, just as in the previous model, the base components only account for 50.4% of the explained variance. The addition of the market factor adds an additional 24.2% of the explained variance. This can be seen in Chart 2 below.

Chart 2



Therefore the market factor and departments individually account for approximately 24-33% of the total explained variance.

Appendix A

Frequently Asked Questions (FAQ)

FAQ1: What is this purpose of this study? What are the main objectives?

As stated in the GESS Committee's Charge, the main purpose and objectives were as follows:

The Ladder Faculty Gender Equity Salary Study Committee is appointed jointly by the Provost and the Chair of the Faculty Senate to assess whether there is a statistically significant inequity in ladder faculty salaries by gender at UB. This study will use statistical methods to indicate whether there is or is not a statistically significant difference between salaries of male and female ladder faculty at an institutional level only. The members of the Committee will decide whether or not to employ multiple available methodologies that may be used to conduct this study.

FAQ2: What do we know about gender equity on a national level, and why are we performing our own study at UB?

The issue of gender pay equity has been studied widely on a national level. The American Association of University Women (AAUW)'s summary and analysis of the gender pay gap and its causes is included in this document and summarizes the issue on a national level: http://www.aauw.org/aauw_check/pdf_download/show_pdf.php?file=The-Simple-Truth.

The GESS Committee performed a UB-specific study for a number of reasons. The most basic reason is that UB strives to be a place in which everyone is respected equally, and everyone is given the tools to succeed. As stated in the Study Methods document, gender equity "speaks to our moral fabric." Additionally, we are required by law to ensure that compensation is equitable and is not discriminatory. Finally, equity in compensation is essential to promoting inclusion and to ensuring that UB can attract and retain excellent faculty. It is a core component of inclusive excellence.

FAQ3: What prompted this study?

UB's administration (Office of Institutional Analysis and Office of Equity, Diversity and Inclusion) have conducted salary analyses in the past. The reason this study is unique and particularly important is that it is a partnership between the faculty (as represented by the Faculty Senate) and the administration. The Chair of the Faculty Senate, Dr. Phillip Glick, and the University's Provost, Dr. Charles Zukoski, charged the committee in March 2017. There was no one external event or situation that prompted the study – it was created out of a joint agreement from UB administration and faculty that the issue of gender equity is important and warrants a careful examination.

FAQ4: Who is included in the gender equity salary study?

The inclusion and exclusion criteria are included in the document describing the methodology. A few things are important to note:

- The study includes "ladder" faculty institution-wide, meaning faculty who are either tenured or tenure-track. It does not include staff or non-ladder faculty.

- Examining salaries of clinical, research or other non-ladder faculty is a complicated matter. The expectations of research scholarship is different from ladder faculty, and varies widely between departments.
- Geographic full time (GFT) faculty derive most of their income from their medical practice. Accordingly, the study excludes clinical, research and GFT faculty.
- Tenured faculty who serve in the administrative roles of Dean, Vice Provost, Vice President, President and Provost are excluded since their salaries are based on their administrative and not faculty roles.

FAQ5: Who serves on the Gender Equity Salary Study Committee?

As stated in the Charge, the Gender Equity Salary Study Committee includes the following people:

- Co-Chairs (in alphabetical order)
    - Craig Abbey – Associate Vice President and Director of Institutional Analysis
    - Glenna Bett – Chair of the Faculty Senate Committee on Equity and Inclusion (Vice Chair for Research, Obstetrics and Gynecology, Jacobs School of Medicine and Biomedical Sciences, Deputy Director, Institute for Research and Education on Women and Gender
    - Peter Elkin – Chair of the Faculty Senate Committee on Budget Priorities (Professor and Chair, Biomedical Informatics, Professor of Internal Medicine, Jacobs School of Medicine and Biomedical Sciences)
    - Sharon Nolan-Weiss – Director, Office of Equity, Diversity and Inclusion and Title IX and ADA Coordinator

- Faculty Representatives (in alphabetical order)
    - Sharmista Bagchi-Sen – Professor, Geography
    - Rajan Batta, – Associate Dean for Faculty Affairs, Human Resources & Diversity, School of Engineering and Applied Sciences
    - Lucinda Finley – Professor, Law
    - Brenda Moore – Associate Professor, Sociology
    - Neel Rao – Assistant Professor, Economics
    - Gregory Wilding – Professor, Chair, Biostatistics

FAQ6: Why focus on gender? Did the Committee also consider race/national origin?

Women comprise a large percentage of the faculty, and it is imperative to ensure that UB's methods of compensation do not have a discriminatory impact. It is important to note that while not specifically in the Charge, the committee also analyzed race/national origin data in determining whether salary inequity exists.

FAQ7: Is this the first study of its kind at UB?

This is the first gender equity study performed at UB as a joint effort between the faculty and the administration.

FAQ8: Does the outcome of this study mean that we are satisfied that there is no gender inequity at UB?

Even though the study did not find statistical evidence of gender inequity in terms of salaries, UB's work is not done. We need to continue to run the study on a regular basis to ensure that salaries remain equitable. Additionally, it is important to keep in mind that this is an overall picture of UB. Individual inequities within departments may exist even though the study did not reveal a statistically significant inequity institution-wide. Any faculty or staff member who believes they have been discriminated against with respect to their compensation should request an individual salary review by contacting the Office of Equity, Diversity and Inclusion at (716) 645-2266 or diversity@buffalo.edu.

FAQ9: Will there will be a similar salary study for non-ladder faculty?

The Faculty Senate and University administration will consider this in the future. Differences in non-ladder faculty duties across departments may make a statistical analysis challenging. It is important to underscore that anyone – including non-ladder faculty as well as staff – can contact the Office of Equity, Diversity and Inclusion for an individual consultation and review.

FAQ10: EOC are recognized as faculty and are represented as part of the Faculty Senate. Why didn't they meet the inclusion criteria?

EOC faculty serve a very important role at UB. They are not directly comparable with ladder faculty, however. EOC faculty's state job titles contain the qualifier "for EOC." This qualifier recognizes EOC faculty's unique status as providing workforce development, academic training and college preparatory programs to meet the needs of disadvantaged students. EOC is under the auspices of the SUNY University Center for Academic and Workforce Development (UCAWD) as part of a statewide network of ten EOCs. EOC faculty do not have the same teaching, research and service expectations as non-EOC faculty as a condition for obtaining tenure, and are not subject to the Policies, Procedures and Criteria for Faculty Personnel Actions that govern promotion and tenure for non-EOC faculty. Finally, there are no corresponding disciplines for EOC faculty in the 2016-2017 Oklahoma State University Salary Study by Discipline, which is used to assign corresponding market factors based on discipline and rank. It should be noted that any EOC faculty member who feels that there is a salary disparity based on gender, race, or any other discriminatory factor may obtain a review through UB's Office of Equity, Diversity and Inclusion.

FAQ11: Faculty librarians publish and must undergo the same tenure and promotion process as other faculty. Why weren't they considered as part of this study?

It is the case that faculty librarians obtain tenure and promotion through the same Policies, Procedures and Criteria for Faculty Personnel Actions, but are evaluated differently from professional faculty, in recognition of their different function. While the Associate Librarian and Librarian ranks are listed as directly comparable to Associate Professor and Full Professor ranks, the rankings of Senior Assistant Librarian and Assistant Librarian are not each comparable to Assistant Professor, as Assistant Librarian is listed as comparable to Instructor titles. It should be noted that Instructors were not included in the salary study. While the faculty included in the study and librarians are both assessed on research/creative activity and service, the faculty included in the study have teaching obligations that

are different from those of librarians. Additionally, there are no corresponding disciplines for librarians in the 2016-2017 Oklahoma State University Salary Study by Discipline, which is used to assign corresponding market factors based on discipline and rank. Any faculty librarian who feels that there is a salary disparity based on gender, race, or any other discriminatory factor may obtain a review through UB's Office of Equity, Diversity and Inclusion.

FAQ12: Did the study account for differences in initial rank and other conditions of the faculty member's position, including research leaves, research money, course loads, and/or allowing a faculty member to go up for tenure early?

The study tested for gender differences in faculty pay conditional on current and initial rank. Other factors such as research leaves, research money, course loads, and early tenure were not available through centralized university data systems and therefore could not be considered in the statistical analysis.

FAQ13: Does the study's methodology account for professional accomplishments, such as research productivity?

The methodology did not directly account for professional accomplishments, other than to the extent that professional accomplishment correlates with rank. The Committee considered whether it would be possible to factor in research productivity or other professional accomplishments. Because of the pronounced differences in how productivity is measured – even within disciplines in some cases – the Committee could not identify a reliable and quantitative measure to account for productivity. It also should be noted that measuring productivity solely by research or creative activity may itself be problematic, as gender bias may hinder publication rates for female faculty through fewer opportunities to coauthor, fewer invitations to special conferences, and higher demands for service-related work.

FAQ12: GFT faculty were excluded from the study. Does this mean that faculty who are tenured or on the tenure track in clinical departments were excluded? What remedy is available for someone who feels there is inequity in physician salaries?

All tenured and tenure track faculty were included. Only state salary funds were considered in the study, however. Funding from other sources, such as practice plans, was not considered in this salary study. Anyone with concerns about practice plan compensation may raise this with their practice plan, or contact the UBMD Compliance Office.

FAQ13: Is the study only considering state dollars or does it include other sources (UB Foundation, Research Foundation)?

The study includes solely state salary, and not compensation from the Research Foundation, UB Foundation, or other sources.

Appendix B

Additional 2016-2017 Ladder Faculty Demographics

Additional tables below show the distribution of faculty by contract and department membership.

Table B1

Faculty Distribution per Contract Length

10-month contract	815
12-month contract	227
Total	1042

Table B2

Faculty Counts by Department

College of Arts and Sciences	
Anthropology	17
Art	13
Biological Sciences	26
Chemistry	31
Classics	9
Communication	15
Communicative Disorders and Sciences	8
Comparative Literature	6
Economics	14
English	37
Geography	18
Geology	13
History	25
Humanities	2
Jewish Thought	5
Linguistics	13
Mathematics	27
Media Study	8
Music	13
Philosophy	17
Physics	23
Political Science	11
Psychology	26

Romance Languages and Literatures	16
Sociology	13
Theatre and Dance	11
Transnational Studies	15

Graduate School of Education	
Counseling, School, and Educational Psychology	14
Educational Leadership and Policy	11
Learning and Instruction	22
Library and Information Studies	8

Jacobs School of Medicine and Biomedical Sciences	
Anesthesiology	1
Biochemistry	24
Biomedical Informatics	3
Biotechnical and Clinical Laboratory Sciences	4
Dermatology	1
Family Medicine	1
Medicine	1
Microbiology and Immunology	13
Neurology	7
Neurosurgery	4
Obstetrics and Gynecology	4
Ophthalmology	4
Orthopaedics	1
Otolaryngology	1
Pathology and Anatomical Sciences	13
Pediatrics	6
Pharmacology and Toxicology	20
Physiology and Biophysics	14
Psychiatry	3
Radiology	2
Structural Biology	1
Surgery	3
Urology	2

Law School	38

School of Architecture and Planning	
Architecture	19
Department of Urban and Regional Planning	12

School of Dental Medicine	
SDM Oral and Maxillofacial Surgery	3
SDM Oral Biology	13
SDM Oral Diagnostic Sciences	8
SDM Orthodontics	1
SDM Periodontics and Endodontics	6
SDM Restorative Dentistry	8
School of Engineering and Applied Sciences	
Biomedical Engineering	8
Chemical and Biological Engineering	17
Civil, Structural and Environmental Engineering	28
Computer Science and Engineering	35
Electrical Engineering	24
Industrial and Systems Engineering	13
Materials Design and Innovation	5
Mechanical and Aerospace Engineering	29
School of Management	
MGT Accounting and Law	9
MGT Finance	13
MGT Management Science and Systems	6
MGT Marketing	8
MGT Operations Management and Strategy	10
MGT Organization and Human Resources	8
School of Nursing	14
School of Pharmacy and Pharmaceutical Sciences	
Pharmaceutical Sciences	14
Pharmacy	6
School of Public Health and Health Professions	
Biostatistics	10
Community Health and Health Behavior	7
Epidemiology and Environmental Health	11
Exercise and Nutrition Sciences	13
Rehabilitation Sciences	4
School of Social Work	22

Table B3 details the average time in current rank.

Table B3

Average Time in Current Title/Rank (in years)

Rank	Female	Male	Total
Assistant	2.7	2.9	2.8
Associate	7.0	10.0	8.8
Professor	9.3	15.0	13.6
Total	6.5	10.6	9.3

Appendix C

GESS Committee Models – Regression Results

Table C1

Coefficient Estimates for Model 1 and Model 2

	Model 1-Department Unstandardized Coefficients, β		**Model 2-Market Factor** Unstandardized Coefficients, β	
Model				
Gender	.0026	(.0108)	-.0092	(.0121)
Underrepresented Minority	.0482*	(.0249)	-.0065	(.0288)
Current Rank Professor	.3722***	(.0149)	-.1019***	(.0224)
Current Rank Associate	.1267***	(.0129)	-.0269*	(.0154)
Years in Title	.0171***	(.0019)	.0152***	(.0023)
Years in Title Squared	-.0004***	(.0001)	-.0004***	(.0001)
Rank at Hire Professor	.2192***	(.0181)	.2411***	(.0201)
Rank at Hire Associate	.0682***	(.0138)	.0509***	(.0155)
Female X URM	-.0062	(.0353)	.0214	(.0424)
Departmental Fixed Effects	Yes		No	
Market Factor	No		.8616***	(.0269)
R^2	0.8449		0.7530	
N	1042		1042	

Note: Standard errors appear in parentheses. Single, double, and triple asterisk denotes statistical significance at 10%, 5% and 1%.

Table C2

Coefficient Estimates for Model 1 and Model 2 with Contract Length

	Model 1-Department		**Model 2-Market Factor**	
Model	Unstandardized Coefficients, β		Unstandardized Coefficients, β	
Gender	.0013	(.0107)	-.0101	(.0109)
Underrepresented Minority	.0410*	(.0247)	.0078	(.0258)
Current Rank Professor	.3679***	(.0148)	-.0987***	(.0200)
Current Rank Associate	.1265***	(.0128)	-.0299**	(.0138)
Years in Title	.0172***	(.0019)	.0157***	(.0020)
Years in Title Squared	-.0004***	(.0001)	-.0004***	(.0001)
Rank at Hire Professor	.2212***	(.0179)	.2200***	(.0180)
Rank at Hire Associate	.0629***	(.0137)	.0552***	(.0138)
Female X URM	-.0067	(.0349)	.0109	(.0379)
Departmental Fixed Effects	Yes		No	
Market Factor	No		.8302***	(.2753)
Contract Length	.1955***	(.0426)	.1849***	(.0116)
R^2	0.8531		0.8021	
N	1042		1042	

Note: Standard errors appear in parentheses. Single, double, and triple asterisk denotes statistical significance at 10%, 5% and 1%.

Appendix D

Residual (Outlier) Analysis Results

Table D1

Frequency Distribution for Model 1 – Department Outliers

Rank	Female	Male	Total
Assistant	1	2	3
Associate	--	--	--
Professor	2	12	14
Total	3	14	17

A total of 17 faculty members had a +/3 standardized residual for the natural logarithm of annual salary. This indicates that the predicted ln(annual salary) was either higher or lower than what the actual ln(annual salary) that was observed. Of these 17 faculty members 3 were female (1-assistant professor and 2-professors) and 14 were male (2-assistant professor and 12-professor).

Table D2

Residual Distribution for Model 1 – Department Outliers by Gender and Rank

Rank by Gender	-5 Residual	-4 Residual	-3 Residual	3 Residual	4 Residual	5 Residual	Total
Assistant		1	1		1		3
Female Assistant			1				1
Male Assistant		1			1		2
Professor	2	1	3	4	2	2	14
Female Professor			1			1	2
Male Professor	2	1	2	4	2	1	12
Total	2	2	4	4	3	2	17

Looking at the actual residual values, 8 faculty members had predicted ln(actual annual salary) at or below -3 standardized residual, indicating that their observed ln(actual annual salary) was lower than the predicted ln(actual annual salary). Whereas 9 faculty member had a predicted ln(actual annual salary at or above the +3 standardized residual. Again indicating that their observed ln(actual annual salary) was higher than the predicted ln(actual annual salary).

In addition, of the 3 female faculty members who were considered outliers, the distribution is: one female assistant professor at -3 standardized residual, one female professor at -3 standardized residual and one female professor at +5 standardized residual.

Table D3

Frequency Distribution for Model 2 –Market Factor Outliers

Rank	Female	Male	Total
Assistant	2	2	4
Associate	--	1	1
Professor	2	10	12
Total	4	13	17

A total of 17 faculty members had a +/3 standardized residual for the natural logarithm of annual salary. This indicates that the predicted ln(annual salary) was either higher or lower than what the actual ln(annual salary) that was observed. Of these 17 faculty members 4 were female (2-assistant professor and 2-professors) and 13 were male (2-assistant professor, 1-associate professors and 10-professor).

Table D4

Residual Distribution for Model 2 – Market Factor Outliers by Gender and Rank

Rank by Gender	-4 Residual	-3 Residual	3 Residual	4 Residual	Total
Assistant Female			2		2
Assistant Male			1	1	2
Associate Male			1		1
Professor Female	1			1	2
Professor Male	2	1	4	3	10
Total	3	1	8	5	17

Looking at the actual residual values, 4 faculty members had predicted ln(actual annual salary) at or below -3 standardized residual, indicating that their observed ln(actual annual salary) was lower than the predicted ln(actual annual salary). Whereas 13 faculty member had a predicted

ln(actual annual salary at or above the +3 standardized residual. Again indicating that their observed ln(actual annual salary) was higher than the predicted ln(actual annual salary).

In addition, of the 4 female faculty members who were considered outliers, the distribution is: one female professor at -4 standardized residual, two female assistant professors at +3 standardized residual and one female professor at +4 standardized residual.

Table D5

Coefficient Estimates for Model 1 and Model 2 – without Residual Outliers

	Model 1-Department		**Model 2-Market Factor**	
Model	Unstandardized Coefficients, β		Unstandardized Coefficients, β	
Constant	11.134*	(.022)	1.238*	(.280)
Gender	-.004	(.009)	-.005	(.011)
Underrepresented Minority	.029	(.016)	.014	(.019)
Current Rank Professor	.393*	(.012)	-.088*	(.020)
Current Rank Associate	.140*	(.011)	-.007	(.014)
Years in Title	.005*	(.001)	.005*	(.001)
Rank at Hire Professor	.188*	(.016)	.217*	(.018)
Rank at Hire Associate	.057*	(.012)	.038*	(.014)
Departmental Fixed Effects	Yes		No	
Market Factor	No		.891*	(.025)
Adjusted R^2	0.871		0.787	
N	1025		1025	

Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%.

Appendix E

Item	*Description*		
Annual_Salary_Distribution			
Graph 1: BaseSalary vs Frequency	This chart shows the distribution of annual base salaries. This graph shows that the distribution of salaries is skewed to the right with the majority of salaries less than $200,000.		
Graph 2: Ln_SalaryAnnualized vs Frequency	This chart shows the distribution of the natural logarithm of the annual base salary. The transformation produced a more bell-shaped or normal distribution. Therefore, it is reasonable to use the transformed variable as the dependent variable for the analysis.		
Reliability Measures		**Market Factor Output**	**Departmental Output**
Descriptive Statistics		Provided in output.	Provided in output.
Variable Correlations	Threshold level set at 0.8, indicating a possible collinearity between variables.	No correlations between independent variables reaches this threshold, suggesting that there is no collinearity in the model. High correlation between dependent variable (Ln_Annualized Salary) and independent variable	Correlations between the independent variables do not reach the threshold. Correlation table not included in output pdf file - too large to fit.

		(Ln_MarketFactor) indicates that a regression analysis is appropriate.	
Model Summary with Change Statistics with ANOVA		The regression model is statistically significant with F(1032, 9) = 338.585, *p=0.000*.	The regression model is statistically significant with F(948, 93) = 54.799, *p=0.000*.
R-square vs adjusted R-square	R-square values will generally increase as additionally predictors are added to the model, even by chance alone. Therefore it may appear the model is a better fit singularly because of the number of predictors. The adjusted R-square value is adjusted for the number of predictors in the model and will only increase if new terms improve the model fit than would be expected by chance.	R-square: 0.747 Adjusted R-square: 0.745	R-square: 0.843 Adjusted R-square: 0.828
Durbin-Watson statistic	An assumption of linear regression is that observations are independent of each other. The Durbin-Watson statistic provides a measure indicating whether there is a possibility that predictor variables are auto-correlated and should be looked at. This may suggest that the independence assumption may have been violated. Specifically, a range of 1.5 to 2.5 indicates that the data is not auto-correlated.	The Durbin-Watson statistic was 2.007, implying that the data is not auto-correlated.	The Durbin-Watson statistic was 1.998, implying that the data is not auto-correlated.

Coefficients		Predictor variables that are statistically significant include: Current rank of professor, time in rank, rank at hire professor, rank at hire associate and the market factor	Predictor variables that are statistically significant are Current rank of professor, current rank of associate, time in rank, rank at hire professor, and rank at hire associate. See output for list of all departmental variables that were statistically significant.
Collinearity Statistics	The VIF (or Variance Inflation Factor) is a measurement of the amount of multi-collinearity in a set of multiple regression predictor variables. It signals how much a variable is contributing to the standard error in the regression. A VIF of 1.00 means there is no correlation among the predictor with remaining predictor variables, and therefore the variance (standard error) is not inflated. A VIF exceeding 10 signals serious multicollinearity requiring correction.	The VIF for each predictor variable in the model is < 10.00 indicating that multicollinearity is not an issue.	The VIF for each predictor variable in the model is < 10.00 indicating that multicollinearity is not an issue.
	A low tolerance value indicates the predictor variable contains redundant information. Tolerance	The tolerances levels for each predictor variable in the model are greater than 0.10. Therefore, we can consider	The tolerances levels for each predictor variable in the model are greater than 0.10. Therefore, we can consider

	levels <0.10 indicate multicollinearity.	that there is no multicollinearity in the model.	that there is no multicollinearity in the model.
Collinearity Diagnostics	An eigenvalue is the variance of linear combinations with the predictor variable. It is decomposed from the correlations matrix of linear combinations. The condition index is a measure of the eigenvalue strength. Values greater than 15 indicate a potential problem, with values of 30 suggesting a serious problem with collinearity. We would then look for variance proportions in columns of 0.50 or higher. These variables have high linear dependence and multicollinearity is not a problem. It is possible that the condition index suggests multicollinearity when other measures of collinearity don't.	Eigenvalues and the condition index are all within acceptable limits with the exception of dimension 10. This dimension is the market factor variable and because of the scale of the variable, it is highly correlated with the constant term of the regression coefficient. This can be ignored.	Collinearity Diagnostics not included in output pdf file as it is too large to fit. The condition indexes are all less than 10 with the exception of the last dimension. The last dimension would correspond to social work.
Casewise Diagnostics	Table indicates participants that have +/- 3 standard residuals. This identifies individual faculty whose annualized base salary would be considered an outlier. Regression analysis was rerun without these outliers with no change in the overall results.	Each outlier was investigated and the regression was re-run. There was no change in the significance of gender or URM status.	Each outlier was investigated and the regression was re-run. There was no change in the significance of gender or URM status.
Residuals Statistics	Table provides descriptive statistics for predicted natural logarithm of annualized salary along with the		

	descriptive statistics for different types of residuals.		
Charts			
Histogram: Standardized Residuals	Frequency distribution of the standardized residual. It is approximately bell-shaped and approximates N(0,1).		
Normal P-P Plot of Regression Standardized Residual	Scatterplot of the Observed cumulative probability (based on percentiles in frequency distribution of the residuals) v. expected cumulative probability (based on taking standardized residual and computing the cumulative density). If the residuals are normally distributed, the values should fall on the diagonal line of identity.	There is a slight deviation, but it is a good approximation, indicating that residuals are normally distributed.	There is a slight deviation, but it is a good approximation, indicating that residuals are normally distributed.
Scatterplot: Standardized predicted value v. Observed ln_SalaryAnnualized	Ideally, this plot should show a linear association standardized predicted value and observed value.	Plot shows a positive linear association, with data values more spread at the upper range than the lower range.	Plot shows a positive linear association, with data values more concentrated around best fit line, than in the market factor model.
Scatterplot: Studentized Residual v. Observed ln_SalaryAnnualized	Studentized residuals are useful in identifying outliers in the dependent variable (Ln_SalaryAnnualized). Again, this	There appear to be a positive linear association The range of residuals between +/- 5.0 with the majority between	There appear to be a positive linear association The range of residuals between +/- 5.0 with the majority between +/-

	plot should show a linear association and we would consider outliers to be at or above +/-3.	+/-2.5. Outliers seen on plot were identified using casewise diagnostics and regression was re-run with their removal. No substantial change was seen in the results.	2.5. Outliers seen on plot were identified using casewise diagnostics and regression was re-run with their removal. No substantial change was seen in the results.
Scatterplot: Standardized Predicted Value v. Regression Deleted (Press) Residual (studentized deleted residual)	Ideally, we are looking for residuals to be scattered randomly around zero on the y-axis. This implies that the constant variance assumption has not been violated.	Residuals appear to be distributed around the zero on the y-axis, with residuals associated with lower salaries more concentrated, and residuals associated with higher salaries more spread out. This implies that the constant variance assumption has not been violated.	Residuals appear to be distributed around the zero on the y-axis, with residuals associated with lower salaries more concentrated, and residuals associated with higher salaries more spread out, but not as much as in the market factor model. This implies that the constant variance assumption has not been violated.
Scatterplot: Standardized Predicted Value v. Standardized Residual	This chart is also useful in assessing regression assumptions. If residuals are homoscedastic, the spread of the residuals should balance around zero on the y-axis. And furthermore, by definition, residuals are uncorrelated with the predicted value.	Again, residuals do appear to be balanced around the zero on the y-axis, with residuals associated with lower salaries more concentrated, and residuals associated with higher salaries more spread out. Therefore we can assume that the regression assumptions are not violated.	Again, residuals do appear to be balanced around the zero on the y-axis, with residuals associated with lower salaries more concentrated, and residuals associated with higher salaries more spread out. Therefore we can assume that the regression assumptions are not violated.

Appendix F

Model Fit – Changes in Variance

Table F1

Model Fit per Factor Components

Model	Variables	Unstandardized Coefficients, β		Adjusted R^2	Δ Adjusted R^2
1	Constant	11.658	(.013)		
	Gender	-.147*	(.022)	0.041	
2	Constant	11.660	(.013)	0.041	0.000
	Gender	-.145*	(.022)		
	URM	-.044	(.041)		
3	Constant	11.537	(.013)	0.314	0.273
	Gender	-.099*	(.019)		
	URM	-.058	(.035)		
	Rank at Hire Professor	.512*	(.027)		
	Rank at Hire Associate	.249*	(.023)		
4	Constant	11.382	(.016)	0.491	0.177
	Gender	-.074*	(.016)		
	URM	-.032	(.030)		
	Rank at Hire Professor	.257*	(.027)		
	Rank at Hire Associate	.099*	(.021)		
	Current Rank Professor	.405*	(.022)		
	Current Rank Associate	.115*	(.020)		
5	Constant	11.365	(.016)	0.503	.012
	Gender	-.061*	(.016)		
	URM	-.033	(.030)		
	Rank at Hire Professor	.228*	(.028)		
	Rank at Hire Associate	.081*	(.022)		
	Current Rank Professor	.375*	(.023)		
	Current Rank Associate	.093*	(.021)		
	Time in Rank	.004*	(.001)		

6	Constant	11.428*	(.027)	0.828	0.325
	Gender	-.001	(.011)		
	URM	.049*	(.019)		
	Rank at Hire Professor	.192*	(.018)		
	Rank at Hire Associate	.055*	(.014)		
	Current Rank Professor	.404*	(.014)		
	Current Rank Associate	.146*	(.013)		
	Time in Rank	.005	(.001)		
	Department Fixed Effect	Yes			
7	Constant	1.624	(.309)	0.745	0.242
	Gender	-.010	(.012)		
	URM	.008	(.021)		
	Rank at Hire – Professor	.217*	(.020)		
	Rank at Hire – Associate	.039*	(.039)		
	Current Rank – Professor	-.071*	(.022)		
	Current Rank – Associate	-.009	(.015)		
	Time in Rank	.004*	(.001)		
	Market Factor	.858*	(.027)		

Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%. Dependent Variable: base salary.

Table F2

Model Fit per Factor Components in Dollar Amounts

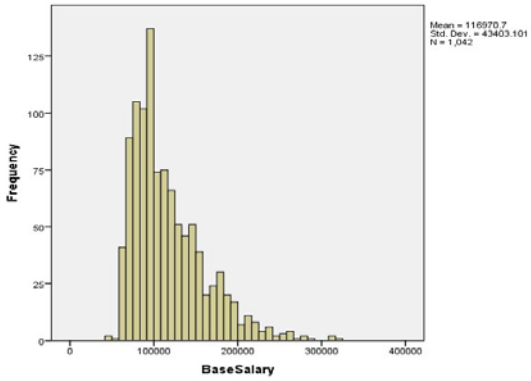
Model		Unstandardized Coefficients, β		Adjusted R^2	Δ Adjusted R^2
1	Constant	122,774.08*	(1612.22)	.036	--
	Gender	-17,630.10*	(2810.03)		
2	Constant	123,008.97*	(1636.61)	.035	-0.001
	Gender	-17,438.06*	(2819.75)		
	URM	-4,437.45	(5293.15)		
3	Constant	107,390.46*	(1591.40)	.322	0.287
	Gender	-11,070.16*	(2385.80)		
	URM	-6,071.31	(4440.42)		
	Rank at Hire Professor	69,384.02*	(3447.46)		
	Rank at Hire Associate	27,653.28*	(2915.95)		
4	Constant	91,848.52*	(2146.45)	.454	0.132
	Gender	-8,232.76*	(2150.37)		
	URM	-2,909.37	(3994.66)		
	Rank at Hire Professor	40,894.76*	(3577.533)		
	Rank at Hire Associate	11,539.64*	(2832.00)		
	Current Rank Professor	43,373.21*	(2959.24)		
	Current Rank Associate	9,226.90*	(2680.74)		
5	Constant	90,031.30*	(2190.78)	0.460	0.006
	Gender	-6,842.66*	(2171.13)		
	URM	-2,999.68	(3971.05)		
	Rank at Hire Professor	37,660.69*	(3664.54)		
	Rank at Hire Associate	9,577.29*	(2865.85)		
	Current Rank Professor	40,095.11*	(3075.14)		
	Current Rank Associate	6,810.54*	(2745.48)		
	Time in Rank	462.64*	(126.46)		
6	Constant	98.338.04*	(3995.49)	0.771	0.311
	Gender	96.35	(1561.80)		
	URM	6,761.82*	(2789.67)		
	Rank at Hire Professor	30,635.04*	(2652.97)		
	Rank at Hire Associate	5,851.55*	(2062.30)		
	Current Rank Professor	44,030.76*	(2123.42)		
	Current Rank Associate	12,964.72*	(1891.12)		

	Time in Rank	595.11*	(88.31)		
	Departmental Fixed Effects	Yes			
7	Constant	17,547.89*	(3307.32)	.670	0.210
	Gender	-1,731.22	(1710.11)		
	URM	1,158.61	(3110.73)		
	Rank at Hire Professor	35,991.93*	(2867.45)		
	Rank at Hire Associate	3,995.30	(2252.47)		
	Current Rank Professor	-5,440.97	(2990.80)		
	Current Rank Associate	-614.43	(2167.20)		
	Time in Rank	453.19*	(98.93)		
	Market Factor	0.82*	(.032)		

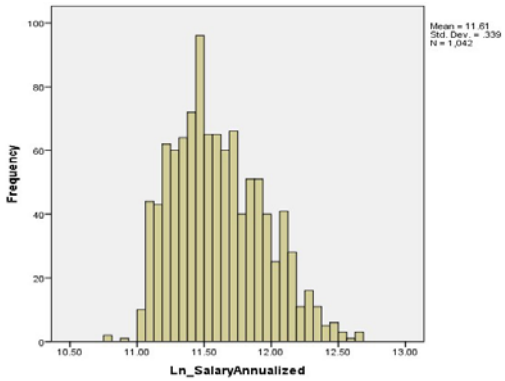
Note: Standard errors appear in parentheses. Single asterisk denotes statistical significance at 5%. Dependent Variable: base salary.

Appendix G

SPSS Statistical Analysis Regression Charts



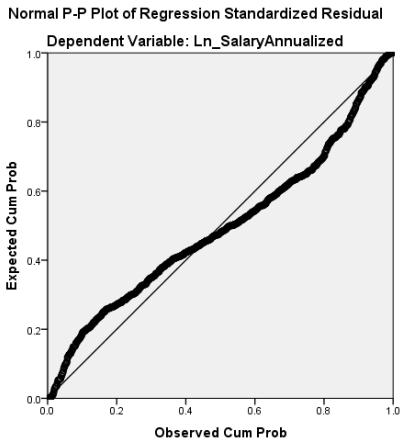
This chart shows the distribution of annual base salaries. This graph shows that the distribution of salaries is skewed to the right with the majority of salaries less than $200,000.



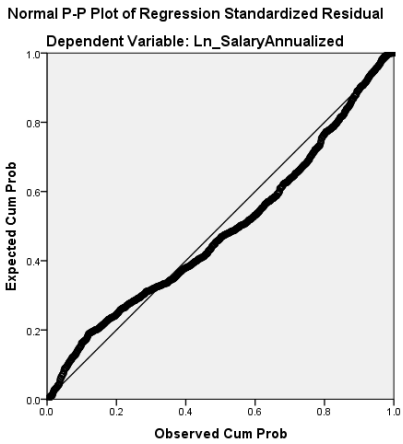
The transformation using log annual salary produced a more bell-shaped or normal distribution. Therefore, it is reasonable to use the transformed variable as the dependent variable for the analysis.

Normal P-Plot of Regression Standardized Residual

Model 1 – Department

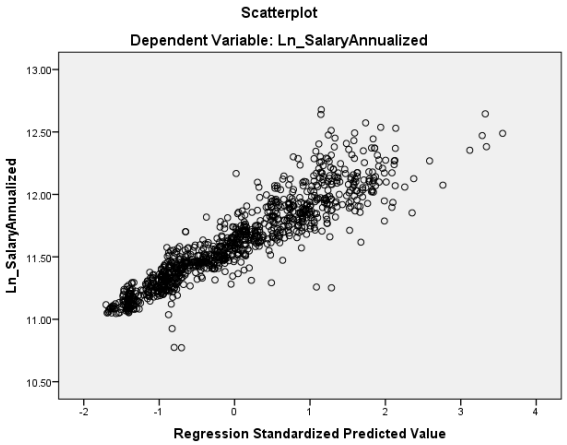


Model 2 – Market Factor

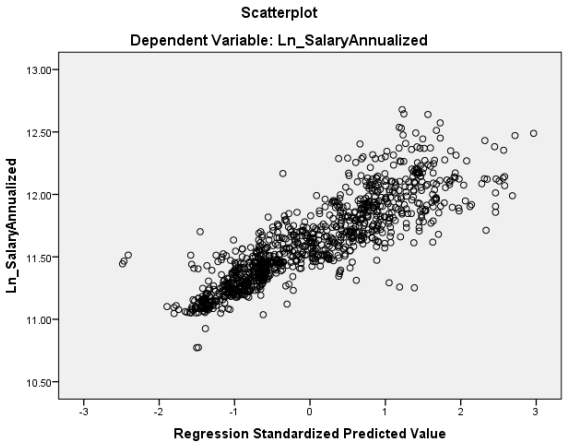


Standardized predicted value v. Observed ln_SalaryAnnualized

Model 1 – Department

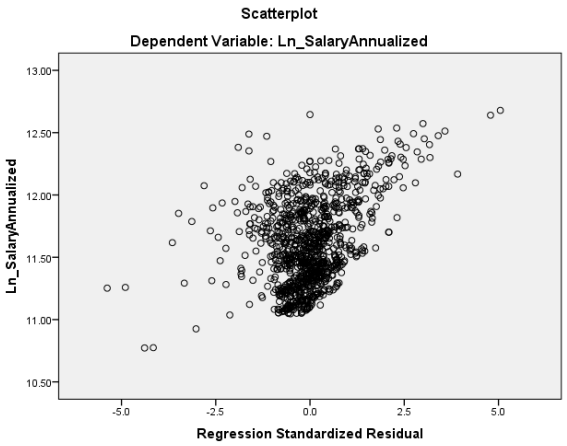


Model 2 – Market Factor

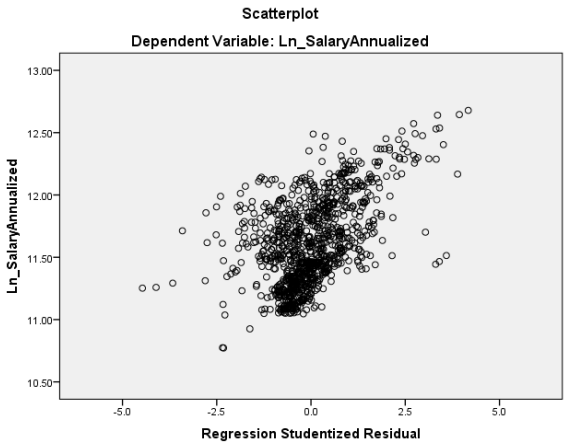


Studentized Residual v. Observed ln_SalaryAnnualized

Model 1 – Department

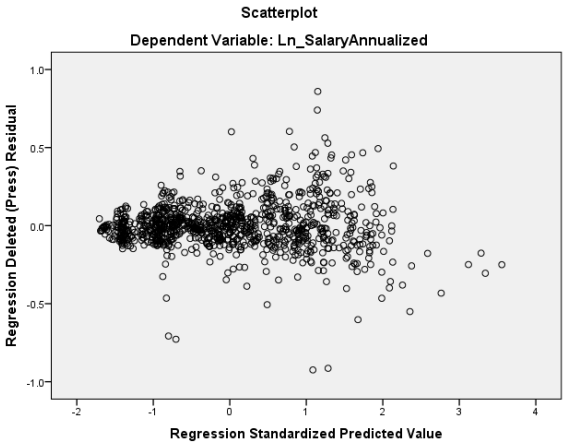


Model 2 – Market Factor

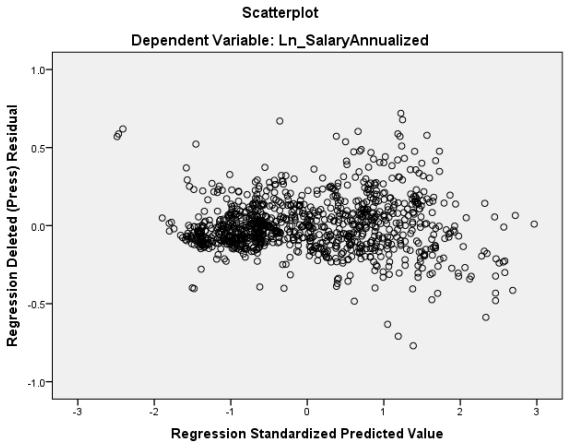


Standardized Predicted Value v. Regression Deleted (Press) Residual (studentized deleted residual)

Model 1 – Department

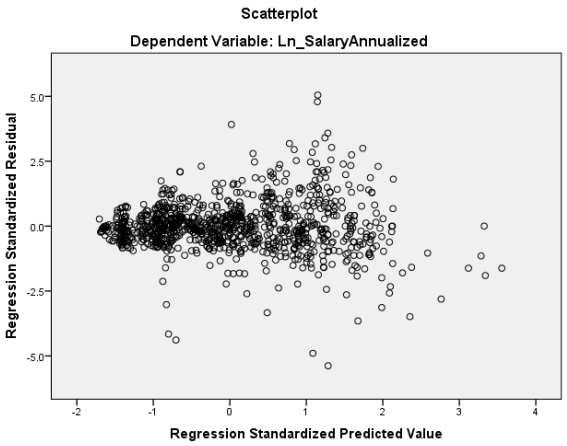


Model 2 – Market Factor



Standardized Predicted Value v. Standardized Residual

Model 1 – Department



Model 2 – Market Factor