

2015-16 Faculty Salary Study

Executive Summary and Recommendations

Qualitative Analysis

The goal of the qualitative analysis was to provide contextual information about how salary decisions are made, under what circumstances, and based on what arguments. This analysis allows us to delve into more explanatory questions like, why? To what effect? Although salaries are largely affected by structural factors, such as market values of different disciplines, university budgets, and university cultures, they are also the product of social negotiations. Qualitative data analysis focuses on the social processes of salary negotiations.

In collecting data for the qualitative portion of this analysis, we used three data collection techniques: Salary narratives (N=15), face-to-face interviews with administrators (17 chairs and four deans), and focus group interviews with associate professors (N=13). The qualitative data reveal several ways that faculty salaries can be impacted before, during, and after each faculty member is hired at NIU.

Findings reveal that salaries are usually the product of negotiation, affected by market data, candidates' portfolios of skills and experience, the culture of the unit and college, available resources, and the negotiation skills of the faculty members.

1. **Starting salaries** are decided between the unit and the upper administration, based on a series of agreed-upon market data. A narrow salary range is pre-approved by the upper administration before each position is approved. Which salary a candidate is offered depends upon the candidate's experience; market demand for the candidate; and the chair and/or dean's philosophy of negotiation.

Starting salaries are also the product of negotiation with each new faculty member. New faculty have the ability to negotiate several aspects of their contract, including starting salary, start-up packages, workload, and partnership accommodations. Partnership negotiations have become increasingly commonplace, yet, because there is no university-wide or even college-specific set of policies in place at NIU, there is a great deal of variance in how those are handled.

A new faculty member's ability to successfully negotiate starting salary is affected by the following factors: years in the field; level of productivity; market value of the discipline/field; marketability of/demand for the particular candidate; effective training in empirically-grounded negotiation; departmental culture/norms; and the experience level of the chair/dean who is facilitating negotiations.

2. **Salary increments among existing faculty** occur through several mechanisms: raises and off-cycle increments; promotion; awards, grants, and administrative adjustments; and competing outside offers. Problems with each mechanism are addressed.
3. **Perceived patterns in negotiation:** In interviews, close to half of the administrators indicated a perception that women negotiate less effectively than men. However, more than half of the administrators interviewed argued that women have been trained to negotiate effectively. The percentage of women in a field may also impact women's ability to negotiate effectively. There is not enough racial diversity among the professorate at NIU for subjects

to assess racial/ethnic differences in negotiation, although there was a clear perception that international faculty negotiate effectively.

Because salaries are, in large part, the result of social processes that involve negotiation and the discretion of administrators, those processes should be as transparent as possible.

Quantitative Analyses

The goal of the quantitative analyses of faculty salaries for the 2015-16 academic year is to conduct a comprehensive, transparent, and replicable salary study for tenured and tenure-track faculty members at Northern Illinois University. Because it is impossible to control for all possible characteristics related to productivity, an empirical analysis such as this is only able to identify instances of *potential salary inequities* that merit further consideration by the University.

The first part of the quantitative analysis, which provides **simple descriptive comparisons** of White male, female, Asian, Black, and Hispanic faculty members, reveals several instances of statistically significant differences in average monthly salary:

4. Female, Black, and Hispanic faculty members earn lower monthly salaries than White male faculty members. Across disciplines, we find significant differences between the average monthly salary earned by White male faculty members and that of focus group members in the behavioral and social sciences, humanities, and the libraries. The largest and most significant differences in average monthly salary occur at the rank of full professor.
5. For White male and all female faculty members, years at NIU are positively correlated with monthly salary. Years of work at prior academic institutions is positively correlated with monthly salary for White male, Asian, and Black faculty members.
6. The average monthly salary of female faculty members whose merit scores lie in the top quintiles of their respective college is significantly lower than the average monthly salary of similar White male faculty members.
7. Female faculty members who received a college salary adjustment continue to have significantly lower average monthly salaries than their White male peers and Hispanic faculty members who received a University salary adjustment continue to earn less than White male faculty members.
8. For almost all groups of NIU faculty members, the average national monthly salary in the faculty member's discipline is significantly greater than the average monthly salary earned at NIU.

Although the findings of the simple comparisons above are suggestive of potential salary inequities, it is impossible to reach a conclusion concerning possible discriminatory differences across groups unless we use regression methods to control for relevant characteristics that may influence productivity. To estimate the effect of sex, race, and Hispanicity on faculty salary, we estimate earnings regressions for faculty members' monthly salaries. We also perform decomposition analyses to explain the portion of the wage gap that is unrelated to productivity measures. The regression and decomposition analyses are performed at the mean as well as at several quantiles of the salary distribution.

We use independent regression analyses to assess salary inequities in our decomposition analyses. The decomposition analyses examine average effects and effects across the salary distribution:

9. Using standard regressions estimating effects at the mean of the salary distribution, we find no empirical evidence that potential discrimination contributes to a wage gap between Female, Asian, or Black or Hispanic faculty members and their White male peers. Indeed, it appears that being female or Asian reduces the wage gap with White males.
10. When we consider differing quantiles of the salary distribution, we find evidence of salary inequities. In the lowest decile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gaps between White male and both Asian and Black or Hispanic faculty members. At the 25th quantile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gaps between White male and both female and Black or Hispanic faculty members. In the highest decile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gap between White male and Asian faculty members.

Although estimates obtained using regression methods are more reliable than simple comparisons, empirical analyses of salary differentials are inherently limited by the quality of information describing each faculty member's productivity. Another difficulty is that low numbers of Black and Hispanic faculty members may have caused lack of statistical significance in some of the analyses. For these reasons, the findings described above should be considered to be identification of potential discrimination that points to the need for further investigation.

The last quantitative study of faculty salaries, which analyzed salary data for academic year 2010-11 in a pooled regression model, found that gender and ethnicity were not related to faculty salaries. Our decomposition analyses using independent regressions for each group (female, Asian, Black, and Hispanic) yields similar findings when we consider effects at the mean of the salary distribution. However, further analyses across the salary distribution reveals potential salary inequities in several instances.

Finally, we examined the extent of **salary compression and inversion** across the colleges and departments. We find that salary compression appears to be widespread across the colleges, but not universal. Instances of salary inversion occur in the College of Business (Departments of Accountancy and Management) and the College of Engineering and Engineering Technology (Department of Industrial and Systems Engineering). Several other departments have compression ratios for associate professors that are close to 1.0, indicating serious salary compression.

Recommendations

We have several recommendations based on the qualitative and quantitative analyses. Data substantiating these recommendations are analyzed in the body of this report.

- Create a university-wide policy or college-specific policies for partnership hiring. Some units have been very successful and their practices could be used as models for the various colleges to adapt, based on their cultures, needs, and expectations of faculty. Other universities can also provide effective models.
- Instead of using the language of “trailing spouse,” use “partnership hires.”
- Assess and rectify salary disparities for those who were hired in order to recruit or retain their partners, if they were paid less than market value. They are separate employees of NIU.
- Be more transparent and consistent with regard to additional pay and non-permanent resource adjustments. There appears to be great variability as to who can access what additional resources without any clear communication as to what criteria are used to assess the value of additional work provided by faculty.
- Being mindful of the service burden on associate professors, discuss workload policies that create incentives for service as well as penalties for opting out.
- Invest in leadership mentoring programs, which identify, train, and support faculty interested in and skilled at administration. This will help create a structure that rewards service and recognizes it as valuable, while also developing a pool of people to shoulder the heavy administrative workload at NIU.
- Assess the diversity pipeline issue and devote financial resources to addressing it.
- The lack of raises is taking a toll on faculty: on morale, on their investment in NIU, and on their career-satisfaction. Dissatisfied faculty may leave the university. Those who stay find it hard to serve as strong ambassadors for the university—which eventually affects students, current and future donors, and the community at large. Until raises are reinstated on a regular basis, NIU should reconsider large-scale hiring of new faculty (except in dire cases) and consider re-investing in existing faculty who are experiencing salary compression/inversion.
- Consider all instances in which the quantitative analyses found evidence of potential discrimination and take necessary steps to rectify any salary inequities.
- Given that women are less likely to be full professors and that the quantitative analysis indicates that there may be discrimination against female associate professors, we recommend that the University undertake a study of promotion to full professor to ascertain if there is sex discrimination present.
- Undertake a *systematic* effort to counteract the problem of salary compression and inversion.

2015-16 Faculty Salary Study

Table of Contents

Executive Summary and Recommendations	i - iv
1. Introduction	1
2. Qualitative Analysis	3
2-1 Introduction	3
2-2 Research Methods	3
2-3 Analysis Technique	4
2-4 Findings	5
2-5 Discussion	18
3. Quantitative Analysis	22
3-1 Introduction	22
3-2 Description of the 2015-16 Faculty Salary Data . .	23
3-3 Regression Methods	30
3-4 Regression Findings	39
3-5 Salary Compression	47
4. References	70

2015-16 Faculty Salary Study

1. Introduction

In university settings, faculty salaries vary based on multiple considerations that include academic discipline, rank, and annual merit scores. Although salaries differ, it is important to assure that these differences are not due to systemic bias toward any group. Toward this end, Northern Illinois University conducted prior studies of faculty salaries in 2008 and 2010. Neither report identified systemic bias.

Over the last six years, Illinois has experienced significant budgetary challenges and provided NIU less financial support each year. In addition, faculty members have not had cost of living increases or merit-based pay increases over this period. In response to these challenges, former CFO Al Phillips and then-Provost Lisa Freeman asked Faculty Senate President Greg Long to form a faculty salary taskforce. The study was announced in the April 11, 2016 *Northern Star* with an explicit goal of conducting a comprehensive, transparent, and replicable study of NIU Faculty salaries to investigate any systematic bias (e.g., gender, race, ethnicity) as well as issues of salary compression and inversion.

Professors Virginia Wilcox (Economics) and Kristen Myers (Sociology) served as co-chairs of the task force. Their backgrounds provided the leadership and knowledge to investigate salary issues both quantitatively and qualitatively. In addition, the task force membership included 29 faculty members from across campus. These individuals provided a diverse membership with expertise in research design, data analysis, labor relations, and/or NIU policies and procedures. A list of task force members is included in Table 1-1. The Provost's Office provided two Graduate Assistants, and they hired an outside firm to transcribe interviews.

The remainder of this document will provide an executive summary, as well as technical reports regarding the quantitative and qualitative data analyses.

Table 1-1: Faculty Salary Task Force Membership

Name	College	Department
Terry Bishop	Business	MGMT
James Burton	Business	MGMT
Gena Flynn	Center for Black Studies	Center for Black Studies
Joe Flynn	Education	LEED
Laura Johnson	Education	ETRA
Todd Reeves	Education	ETRA
Leslie Sassone	Education	LEPF
Tom Smith	Education	ETRA
Santhi Muthuswamy	Engineering and Engin Technology	TECH
Christine Nguyen	Engineering and Engin Technology	ISYE
David Schroeder	Engineering and Engin Technology	TECH
Jane Rose Njue	Health and Human Sciences	FCNS
Tom Pavkov	Health and Human Sciences	FCNS
Mike Ezell	Liberal Arts and Sciences	SOCI
Beth Gaillard	Liberal Arts and Sciences	BIOS
Anne Hanley	Liberal Arts and Sciences	HIST
Kristine Huffine	Liberal Arts and Sciences	HIST
Jeff Kidder	Liberal Arts and Sciences	SOCI
Michelle Lilly	Liberal Arts and Sciences	PSYC
Virginia Naples	Liberal Arts and Sciences	BIOS
Karen Samonds	Liberal Arts and Sciences	BIOS
Alecia Santuzzi	Liberal Arts and Sciences	PSYC
David Valentiner	Liberal Arts and Sciences	PSYC
Simon Weffer	Liberal Arts and Sciences	SOCI
Yolanda King	Law	
Leanne Vandecreek	University Libraries	
John Siblik	Visual and Performing Arts	ARTD
Richard Siegesmund	Visual and Performing Arts	ARTD
Paula Frasz	Visual and Performing Arts	THED

2. Qualitative Analysis

2-1 Introduction

Quantitative methods can tell us whose salaries increase, when they increase, by how much, and how often. These are important questions to answer. Qualitative data can provide contextual information about how salary decisions are made, under what circumstances, and based on what arguments. This analysis allows us to delve into more explanatory questions like, why? To what effect? Although salaries are largely affected by structural factors, such as market values of different disciplines, university budgets, and university cultures, they are also the product of social negotiations. This section of the report analyzes data on the social processes of salary negotiations.

Qualitative data were collected for the first faculty salary study in 2005. An external firm was hired to conduct seven focus group interviews with faculty. Interviews were designed to capture faculty perceptions about salary equity. Focus group data with faculty revealed five themes: First, faculty perceived that salaries at NIU were not nationally competitive. Second, faculty wanted more institutional recognition of the challenges of excelling at both research and teaching. Third, faculty noted a disconnect between institutional reward systems and faculty work efforts in a context of increasing workload expectations. Fourth, systemic mentoring efforts needed enhancement. Last, faculty called for increased diversity in leadership, particularly at the department chair and dean levels. The subsequent salary studies did not employ a qualitative approach.

While faculty perceptions of salary equity are important as they reflect and contribute to the campus climate, we focused qualitative data collection in this study on social processes related to faculty salaries. We collected data on factors that affect decisions made by faculty and administrators, which in turn may impact faculty salaries.

2-2 Research Methods

In collecting data for the qualitative portion of this analysis, we used three data collection techniques: Salary narratives, face-to-face interviews with administrators, and focus group interviews with associate professors. For the salary narratives, faculty were asked to provide their starting salaries, and to note every time they had salary increases since being at NIU, including raises, promotions, awards, and retention offers. They also provided their current

salaries. Faculty were recruited through the Faculty Salary Study steering committee and through Faculty Senate. Fifteen narratives were submitted. The goals of this method were to help reveal important experiences that positively impact salary. Data collection using this method was completed once the data became saturated. The narratives revealed information that could be gleaned through quantitative analysis: merit raises matter for faculty salaries.

Kristen Myers conducted face-to-face interviews with chairs and deans, across colleges, who have conducted salary negotiations with faculty. Participants were recruited through email solicitations with chairs and deans who had experience with hiring negotiations at NIU. Seventeen chairs and four deans were interviewed. Four colleges were represented (others were not included either because their chairs or deans were too new to have experience negotiating at NIU, or because they did not respond to requests for interviews).

Dr. Jeff Kidder and Kristen Myers conducted focus group interviews with associate professors who have been in rank for more than 6 years. We recruited participants through department chairs, asking for a list of faculty who meet this criterion. Then we contacted each professor through email, inviting them to participate. We held three focus groups with 13 people. The goal of these interviews was to explore factors that impeded faculty's progress toward full professor. Because promotion to full is one major way for faculty to increase their salaries, we wanted to understand if there are ways that the university could better facilitate faculty advancement. We asked questions about the challenges facing associate professors, especially regarding increased and uneven service loads, mentorship, and support within different units.

2-3 Analysis Technique

All interviews were transcribed by an external firm. Then written transcripts were uploaded into NVivo software to facilitate coding. Every interview was coded through a grounded (Charmaz 2014) technique. In open coding, all potentially relevant insights were coded, even if they did not seem centrally relevant to the project at hand. This first phase of analysis yielded 39 codes. Not all of these codes remained analytically fruitful as the analysis developed. In axial coding, the initial codes were re-evaluated. Redundant codes were eliminated. Other codes were merged so that richer, more conceptual codes were formed. This phase yielded patterns on several key issues, including ways that salary is positively affected, the importance of candidates' negotiating skills, and the role of administrator discretion in setting starting salaries. In the final phase of coding, selective coding, relationships between major concepts were explored. This

phase produced more complex insights into social processes related to salaries. For example, how is gender related to salary negotiation?

2-4 Findings

The data collected reveal several ways that faculty salaries can be impacted before, during, and after each faculty member is hired at NIU. Salaries are usually the product of negotiation, affected by market data, candidates' portfolios of skills and experience, the culture of the unit and college, available resources, and the negotiation skills of the faculty members. While specifics vary by the position, the unit, and the college, the overall patterns are similar across the units included in this sample. It is important to note, however, that there is no single negotiation strategy that can be generalized, even within one unit. As such, these findings focus on patterns with the caveat that context matters a great deal.

A. Salary decisions and negotiations with new hires

Starting salaries are decided between the unit and the upper administration, based on a series of data, which we discuss below. These salaries are also the product of negotiation with each new faculty member. In fact, new faculty have the ability to negotiate several aspects of their contract, including starting salary, start-up packages, workload, and partnership accommodations.

(1) Salary range and starting salary

Before each faculty position is approved, a salary range must be proposed by the hiring unit and approved by the deans and provost. Salary ranges are typically grounded in market data specific to the discipline and/ or sub-discipline of the proposed hire. Typical data sources used to substantiate a proposed salary range include the Oklahoma State University Salary Study, the Delaware Study, data from departments at peer institutions, and data from discipline-specific professional associations. Some chairs are also mindful of the salaries earned by the most recent hires in their department. Not all colleges use the same data sources or strategies. For example, the College of Business uses data from the International Accrediting Body for Business Schools, who conduct an annual salary study of its 575 members. CBUS's proposed salary range is derived from the 50-75% percentiles in this annual study.

Most proposed ranges are rather narrow. For example, a position may be approved with a starting range of \$63,000 to 67,000. Ranges are typically not advertised when the position is made public. Instead, salaries are advertised as “competitive” and “commensurate with experience.”

Starting salary is constrained by the pre-approved salary range, but it is usually negotiable to an extent. When a top candidate has been selected, the chair makes an offer. Initial salary offers vary according to several factors:

- The candidate’s experience. This includes years in the field and professional productivity. Typically, the more experienced a candidate, the higher the initial offer.
- Market demand for the candidate. This factor takes account of competition and market forces, such as whether the candidate is being highly recruited. Candidates with other offers have more leverage than those without offers. Minority candidates are often heavily recruited and may have more leverage in the process of negotiation. Some sub-fields also more marketable than others, particularly in the sciences.
- The chair and/or dean’s philosophy of negotiation. Interviews revealed that chairs and deans differ in their perspectives on what figure to use in the initial salary offer. Some start at the low end of the range and others start at the high end of the range. The “low end” negotiators argue that they want to leave room for negotiations. The “high end” negotiators recognize that raises are rare and that starting salary is increasingly important in times of fiscal uncertainty.

Most chairs expect candidates to try to negotiate their starting salary. Depending on where the negotiations begin (low or high end of the range) candidates may have varying degrees of success in increasing starting salary above the initial offer. Highly marketable candidates may get offers above the pre-approved range. Most candidates will not. Some candidates opt out of negotiating and accept the initial offer, sometimes unwittingly accepting the low end of the range. In those cases, chairs occasionally advise the candidates to “ask for more.”

(2) Start-up packages

Start-up packages are more negotiable than base salary. They are temporary rather than permanent, with funds that must be spent within two to three years. Depending on the unit, start-up packages may include the following:

- Funds for professional development (e.g. travel money for conferences, data collection, professional memberships, etc.)
- Funds to hire graduate assistants or other personnel to assist with research
- Equipment—this is especially important in the sciences.
- Laboratory or other research space

Start-up packages are a relatively new part of faculty negotiations at NIU. In the College of Liberal Arts and Sciences, for example, they were introduced by Chris McCord when he became dean. These funds can be the deciding factor for a professor who is debating whether or not to come to NIU. They are especially important when starting salary is lower than the market, and/or in the context where future salary increases are unlikely.

Although some units have standardized their start-up packages, there is a great deal of flexibility with them. Across colleges and units, start-ups range from \$1,000 to \$250,000. There is a largely standard start-up package of \$8000 for faculty in the Humanities and Social Sciences. This standard makes hiring negotiations more efficient, and it can be amended if the circumstances necessitate that. Start-ups in the natural and physical sciences can be hundreds of thousands of dollars for equipment and to renovate space.

Although they are more flexible, these funds requested still require justification through a specific research proposal. The use of data is necessary. Some units require faculty to report back on how the funds were spent and how they benefited them professionally. Usual procurement rules apply.

(3) Workload

The standard workload for all academic units at NIU is three 3 credit hours courses per semester, or a 3-3 for the year. Many units have adjusted teaching loads due to research productivity, indirect instruction of undergraduate and graduate students, and other forms of student mentorship. In CLAS, units with doctoral programs have lower teaching loads than those with Master's only, etc. The Academic Planning and Procedures Manual (APPM) guarantees all newly hired faculty on the tenure track a reduction of one three (3) credit hour course during the first two years of their employment regardless of what unit they are in. However, other workload adjustments can be negotiated during the hiring process. For example, Anthropology typically has a 2-2 teaching load, but they offer first year faculty a

1-1 load. The department of Counseling, Adult, and Higher Education typically has a 3-3 load, but new faculty can negotiate a 2-3 teaching load for one year.

Other units treat teaching load as non-negotiable, explaining that teaching is a core mission of the university. However, even those units that do not offer course reductions sometimes minimize the number of new courses prepared by new faculty member, which does help manage the workload.

(4) Partnership accommodations

Increasingly, faculty candidates require a partnership accommodation in order to accept a position at NIU. One dean said that this was a “pretty constant phenomenon.” Faculty who have partners/spouses with PhDs attempt to negotiate tenure track positions, Visiting Assistant Professorships, and instructor positions for them. Because NIU has no official policy or practice regarding partnership hires, these requests are managed on a case-by-case basis. Sometimes, the partner is seeking a position in the same department as the candidate. In others, the partner is in a different discipline altogether. Hurdles to clear in order for a successful partnership hire include:

- Negotiations between the dean and the chair or chairs affected by the hire.
- Negotiations between two deans, if different colleges are involved.
- Approval by the provost.
- Creating buy-in from the faculty of the unit(s) involved in the partnership hire.
- Managing largely false perceptions within a unit that creating an extra position means losing a line.
- Managing false perceptions that a “trailing spouse” is a less valuable/qualified faculty member.

Successful partnership hires require a great deal of investment and effort on the part of the chairs, deans, and provost. All of these people must “go to bat” for the candidate. They must combat the perception by some faculty and administrators that a partner is “less than” a traditional candidate in various ways. For example, in arguing for a partnership hire in her unit, one chair became frustrated with resistance from administrators in her college. She said,

And so it was only when I stood on a table- I joke about that, standing on a table – and stamped my foot and said, "You know, why do you want to do damage to a department that serves the entire campus?"

She was eventually able to make her case and the partner was hired as a tenure track faculty member. Success depends upon administrators' willingness and ability to make that argument successfully. There is a great deal of discretion at the unit level in these cases. The various decision-makers typically only undertake these negotiations when the candidate's partner is highly qualified and they fill a gap in the unit in academic expertise. As such, it is important to recognize that partnership hires are qualified faculty members who are valuable to NIU. Chairs in units who have had successful partnership hires speak highly of the contributions of the faculty, and they argue that NIU is a stronger place as a result.

Unsuccessful partnership hires occur for a variety of reasons including the following:

- Other unit(s) decline to consider the partner.
- No money can be found to pay for a position.
- The position does not pay enough.
- The position is not permanent, as with an instructorship or Visiting Assistant Professorship (VAP).
- The partner's skill-set is redundant of other faculty/instructors in relevant units.
- No unit is a good fit for the partner's skill-set.
- The partner does not appear to be tenurable.

According to these interviews, many strong candidates were lost due to the inability to accommodate a partner. Further, many existing faculty left NIU because living apart from a partner was too great of a hardship.

Those with non-academic partners seek assistance in finding employment for them in surrounding communities. The College of Business has a well-developed network of alumni to help with partner placement. Other Colleges are less able to accommodate such requests.

B. Factors that Impact Negotiation

As described in the previous section, there are several factors that impact the process and outcomes of negotiations. These factors impact negotiations in that they might result in more

resources for the candidate. Resources include base salary but also non-permanent resources like research funds, travel funds, summer salary, access to graduate assistants, flexible workload, etc. Some of these are self-explanatory. Others require elucidation.

- (1) Years in the field—the more years, the more resources a candidate can successfully argue for.
- (2) Level of productivity—the more extensive a candidate’s scholarly record, the more resources a candidate can successfully argue for.
- (3) Discipline/field – the market value for some fields is higher than for others. Market value is higher in Business fields and in natural/physical science fields than in others, on average. This is because, in part, people in those fields can earn more money outside of academia than inside, and so the salaries must be higher to be attractive. This dynamic varies by college—CLAS sciences offer higher salaries than many CHHS sciences, despite similar market forces.
- (4) Competition/leverage—candidates who are highly recruited can successfully argue for more resources. Those with offers from other universities have more leverage. Faculty of color are often highly recruited and, if so, have more leverage.
- (5) Training as a negotiator—There are three general categories of negotiator, as described by the chairs. These styles lead to different outcomes.
 - Trained negotiators know to request non-permanent resources, they ask for a higher salary than the initial offer, and they ground their requests in relevant comparative data. These are the most successful negotiators.
 - Non-trained negotiators accept the first offer without countering. Often, but not always, chairs or deans will go back to these candidates and tell them to “ask for more.” These candidates often end up with fewer resources overall.
 - “Coached” candidates appear to have been told by a mentor to “ask for more,” but they have not necessarily been well trained in how to ground those requests in baseline data. For example, they ask for salaries that are well-outside the pre-approved range. They ask for untenable workloads (such as no teaching in the first two years). These candidates are often perceived as naïve and/or “pushy.” And yet, if they are highly marketable, they might be successful in obtaining some of their requests.
- (6) Department culture/norms—There are categories of resources that are more negotiable than others depending on the culture or norms of the unit itself. These include the following:

- Workload—Some departments are more open to course reductions than others.
 - Salary—Units whose chairs and/or faculty are concerned about salary compression/inversion may be less willing to negotiate salary. Salary compression occurs when newly hired faculty members earn more than the previously hired faculty. This can damage morale for the faculty in the unit as a whole. Salary inversion occurs when new faculty earn more money than senior faculty. Some units will constrain base salary so that a new person’s salary does not “do damage” to the unit’s overall salary structure. In this case, new faculty might negotiate lower individual salaries, but the faculty in the unit have more equitable salaries. Other units pay no heed to the threat of salary compression so as to better recruit their top candidates. These units recognize that compression and, in the case of CBUS, inversions, are an unavoidable, built-in aspect of the market.
- (7) The experience level of the chair/dean who is facilitating negotiations—Several chairs noted that they had grown more comfortable with negotiation after having done one or more. At least two reflected that they would have done things differently with their first hires once they had acquired more knowledge of the process. One of these chairs had successfully increased a faculty member’s salary after realizing that the salary was below market value. As this chair said, “And so you negotiate what you feel is fair. And what’s fair I think is a moving target depending upon what the hire is, what the current conditions are at the university, and... your experience as chair. If you’re a brand new chair, you might want to consult with other chairs who’ve been in the position for a while.”

C. Negotiations with Existing Faculty

Once faculty have been hired at NIU, there are several avenues for increasing salary. Some involve adjustments to base salary, and some are additional pay. These include merit and cost of living raises, off-cycle increments, promotion, administrative adjustments, awards, creative arrangements, and retention adjustments.

(1) Raises and off-cycle increments

All academic units are required by the Academic Planning and Procedures Manual to conduct an annual review of productivity, including assessments of scholarship, teaching, and service. Each unit must have its own procedure for reviewing and scoring faculty

productivity and those scores must be submitted to the appropriate College. When money is available, those merit scores are used to determine raises. They have also been used by chairs to help determine which faculty should be targeted for off-cycle incremental adjustments to their salaries, people who, as one chair explained, have experienced “real or perceived injustices” with regard to their salaries. At the time this report was written, there had been no merit-based salary increases since January 2012. There have been no cost-of-living raises for Illinois state employees for several years, until Fall of 2017 when every NIU employee received a 3% raise. All chairs report that most of their faculty’s salaries are “too low,” and yet they have little to no recourse to increase them. Without a reliable state budget, it is extremely difficult to adjust salaries.

(2) Promotion

Faculty earn raises when they are promoted to associate professor and when they are promoted to full professor. NIU has done a lot of work to make the process for tenure and promotion to associate professor transparent, including making tenure criteria available to candidates and providing annual feedback to faculty on the tenure track. Units typically do not hire faculty they deem untenurable, and most units have created scaffolding to support junior faculty on the tenure track. As such, the promotion rate for junior faculty is high.

However, there appears to be greater variability across units regarding the clarity of the criteria and processes for promotion to full. Faculty are eligible to be promoted to full professor after 6 years at the assistant level, if they have met the criteria for promotion. Many faculty remain at the associate level long after this 6 year period, with many remaining associate professors for the rest of their academic careers. Based on focus group interviews with faculty who have been at the associate level longer than 6 years, we know there are many reasons why faculty do not become full professors. Some of these reasons are structural, and some are personal.

Structural reasons for delays on the road to promotion to full:

- a. The service demands on associates can be high, detracting from faculty’s ability to meet publication goals.
 - Heavy service burdens occur for many reasons:

- Some units protect junior faculty from service burdens. While this is good for junior faculty, it means associates are often doing a disproportionate amount of service.
 - Some faculty opt out of service. While it may be rational to opt out of service (there are no consequences for doing so, and the rewards of opting out can be great), the bureaucratic work must still get done, and that work falls on the people who are willing to do it (or less likely to say no).
 - The bureaucratic demands on each unit have increased.
 - Associates may take on administrative roles, often to supplement annual salaries. Some units have so few full professors that they rely heavily on associates to take on these roles. Administrative positions are extremely time consuming and, subjects say, increasingly so.
 - While many faculty report benefits of doing service, such as feeling more connected to and involved in university business, there are also tangible costs for doing more service. Subjects said they have less time for scholarship, including less time to prepare grant applications. They reported that once they had agreed to do one thing, they were repeatedly asked to do more. Thus, service becomes a slippery slope.
- b. The standards for promotion change over time: Subjects reported that they felt like the standards keep getting harder to attain and the “benchmark keeps moving.”
 - c. Workloads are increasing: On the one hand, more bureaucratic demands are placed on faculty, more committees are created, etc. And on the other hand, the size of the faculty is shrinking in many units. As such, workloads have increased for many faculty. Some units, such as in the College of Education, have a great many doctoral students and few faculty to supervise dissertations. The burden on those faculty is overwhelming.
 - d. Compressed salaries: Because salaries have been compressed and there have been no raises for so long, many faculty seek other ways to supplement their income, such as taking on administrative roles, as discussed above, and also taking on summer teaching and teaching overloads. This work detracts from time devoted to scholarship.
 - e. Lack of institutional support for research: Although NIU does offer internal grants for research, those grants tend to favor junior over senior people. Subjects noted that senior people often resort to funding projects themselves, and not all faculty have the economic resources for that. Although they know there are external funds that can be won, not all

disciplines have such funds, and applying for them takes time. Time, as discussed above, is at a premium.

- f. Lack of institutional mentorship of associates. In particular, subjects noted that units should be cautioning associates from taking on so many service roles, and be more effective at ensuring that all senior faculty take their share of the service burden.
- g. Some units' definitions of scholarship may be too narrow to include the work of all faculty.

Personal reasons for delays on the road to promotion to full:

- a. Some faculty take time off from scholarship after earning tenure, so as to invest in things they deferred while on the tenure track. Sometimes that hiatus from research is several years long.
- b. Some faculty make a conscious decision to invest in teaching and service rather than scholarship, which are not weighted heavily in most unit's criteria for promotion to full.
- c. Some faculty have set other goals for themselves.

(3) Awards, grants, administrative adjustments, and creative arrangements

Faculty can increase their salaries through other non-permanent means as well, most of which are competitive:

- a. Winning awards (can affect base salary and non-permanent income)
 - For example, NIU Presidential Teaching, Research, and Engagement Professorships increase base salary by \$5000 and provide \$5000 per year (4 years) to spend on related expenses. These awards are available only for Full Professors.
- b. Winning grants (non-permanent)—may permit the Primary Investigator to earn summer salary, for example.
- c. Taking on administrative roles such as
 - Director of Graduate Studies, Director of Undergraduate Studies, Chair/Director, Associate Deans, etc.
 - Some of these positions pay additional funds per month for 12 months, some have a course release, sometimes a month of salary over summer. Additional pay amounts are negotiated at higher rates by some people as compared to others.
- d. Other arrangements include

- Teaching overloads
 - Summer teaching
 - Earning additional pay for additional work, such as serving on a university level task force like
- e. In some units, it is possible for faculty to increase their salary by winning named Professorships.

Note: non-permanent funding is more flexible than permanent adjustments to base pay. They are also not predictable and do not seem to create precedents. One task force may pay its members \$1000 each. Another task force may pay more, and yet another may pay nothing. It is unclear what criteria are used to determine additional pay in different contexts.

(4) Competing offers

According to the chairs and deans, the best way for an existing faculty member to increase salary is to secure a competing offer from another university or applied sector. Some chairs require an “offer in hand”—a written offer with details including the salary being offered, while others are willing to start negotiations with the promise that an offer is forthcoming. If the department wants to retain the faculty member, the chair will work with the dean and provost to determine a counter-offer. Not all counter-offers are successful. Some faculty leave anyway. Having a competing offer can lead to an increase in permanent base salary, and/or it can generate non-permanent resources. One chair said that a faculty member successfully argued for an annual travel budget of \$9000 as part of a retention offer.

There are problems with this model, according to several administrators.

1. This model forces faculty to go on the market and focuses their attention away from NIU.
 - a. Being on the job market is time consuming. Time spent researching other universities/job sectors, preparing applications, preparing job talks, and doing campus visits is time taken away from a faculty member’s work at NIU.
 - b. One chair said that, once faculty become outwardly focused, it is hard to get them to refocus on NIU. They keep looking at job ads and often eventually leave, even after receiving a counter-offer.
2. This model is time-consuming for other employees at NIU, as it creates emergency situations for the upper administration when a faculty member brings an external offer to a chair. If the department wants to retain the faculty member, the chair, the dean, and

the provost must work fast, disrupting their existing workloads. As one chair said, “Once there’s an offer, then everybody scrambles. It’s like they’re on a 24 hour hamster wheel.” This chair went on to problematize this approach, saying that it would be better for everyone—less work and sometimes less money—if NIU could just give faculty a little more salary in the first place.

3. This model allows some faculty to “play the system,” according to some people interviewed: “Sadly what’s happened is for a lot of those people [who get counter-offers at NIU] then they get a higher salary and then they retire in two or three years. So, you always think are they playing the system a little bit. On the other hand, we had them for two or three more years [than we would have if they left NIU].” The system may instill some distrust of the faculty who negotiate for a retention offer, which is problematic for both faculty and administrators, especially because faculty *are told* by administrators to go on the market in order to increase their salaries.

D. Do factors such as gender, race, and sexuality impact negotiation?

The literature has shown that gender, race, and other social categories affect the negotiation process in several ways (Babcock and Laschever 2009; Barron 2003; Small et al. 2007): how well candidates have been trained in negotiation, and how well they are received by units in the negotiation process. In our interviews, three of the four deans reported noticing gendered patterns in negotiations with new faculty hires. Further, 40% of the chairs (7 out of 17) across three colleges noticed gendered patterns. Specifically, they report that women ask for less, and what they do ask for is tied to what one chair called “lifestyle issues”—such as family accommodations.

One dean described the ways the negotiations are gendered in this way:

To the person, the men negotiate better. The women candidates that we’ve worked with, if they have another offer that’s more [than we offer at NIU], they will come back with that number. Posed that way too: “Well, I have another offer from another school for you know \$100,000 and you’re offering me \$95,000...” and see what happens. But the men ... won’t necessarily feel like they have to couch in that regard.

This dean is saying that women faculty feel the need to justify their requests for higher salaries, whereas men faculty do not. This dean said that men “also ask for more other stuff,” such as

extra summer teaching, and for summer teaching and health care benefits to begin the summer before their contracts start. The dean said, “Never had any female do that.” Other deans and chairs corroborated these data.

However, 60% of chairs and one dean said that women did not negotiate less aggressively than men. The larger gender dynamics of the field seem to be relevant. For example, in STEM fields (Science, Technology, Engineering, and Math), there was some evidence that women negotiated more aggressively than men. This may be due to the fact that there has been a concerted national effort to increase the number of women and girls in STEM, and therefore, women faculty might have been better coached for negotiations. As one STEM chair said this about negotiations with three women faculty:

Well actually all three are very assertive. They are very assertive and I think that's one of the reasons why they've been so successful. ... You've always heard like, “We need to get more girls into the STEM.” ... And what you find is that the successful women in science are very assertive. And they come in and they have their facts and they are very focused. ... I find that [women] are actually better [negotiators]. ... I want to say that's probably [happened] within the last ten to fifteen years. I think it's because they've kind of gone through what is traditionally been a male dominated area. And so they become a little battle hardened.

Thus, it is possible that women in some male-dominated fields—particularly those where the faculty are reflexive about the mechanisms that keep women in the minority—may have received training in how to negotiate effectively.

At the other end of the spectrum, there are some fields where women are in the numerical majority. In those fields, the ways that gender impacts negotiation may be less obvious. As the dean who had not observed the impact of gender on negotiation said,

I think because in our college many of our disciplines tend to be more heavily staffed by women and traditionally have been that way... It's very interesting how some of them come in and they're negotiating from the moment they shake my hand and walk in this office. And others you know are oblivious to the fact that they should negotiate. And so, I think for us, it's really more of a function, at least my observation... of doctoral

preparation and mentoring. Because I've had women who negotiated hard, I had women who didn't negotiate at all, we had men who negotiated hard, and we had men who didn't negotiate at all. I think it really for us has depended on kind of the preparation, and also how much they want the job and how many other offers they may be juggling. So, I think for us, at least my observation, has been that there may be other variables that are more predictive of how they're going to negotiate as compared to just gender.

It is possible that gender is not a factor in fields dominated by women. Nevertheless, four of the other administrators who reported observing gendered patterns in negotiation also worked in women-dominated fields. The importance of the ratio of men to women in certain fields with regard to salaries will be discussed further in the analysis and recommendations sections.

With regard to the impact of race on faculty negotiations, it is more difficult to tell because there is so little racial diversity at NIU. The few faculty of color discussed were African American men (US citizens) and faculty from other countries. All of the African American men were described as needing mentoring in terms of negotiation. In all cases, they received that mentoring from the chair or the dean. Most international faculty were described as strong negotiators. It should be a goal of NIU to recruit and retain more faculty of color, as the paucity of data speaks to NIU's weakness in this area.

Overall, there is indication that gender, race, and nationality matter in negotiations. However, it is also important to note that negotiators who have been trained well, trained poorly, and trained ineffectively are people of different genders and race/ethnicities. Thus, one's race/ethnicity/gender does not determine the effectiveness of negotiation.

2-5 Discussion

Salaries are social products with great consequences. Starting salary matters for a faculty member's entire career at NIU. As one chair said, "The fact that somebody came in when the going salary for an assistant professor was \$35,000, you know, and now they find themselves at \$70,000 or whatever. And they are wondering why they are a full professor making 70. It's like, well, it's because you came in making \$35,000." Salaries can and do increase over a faculty member's career, as the salary narratives show, but merit and cost-of-living raises are key to that salary growth. In the absence of raises and off-cycle increments, salaries are stagnating.

Faculty who are very productive are earning the same as those who are not productive. Salaries are compressed, and, as in the case of the College of Business, inverted.

Being properly valued financially helps to integrate faculty into the university, socially and professionally. As this chair explained, starting salary affects many other aspects of a faculty member's relationship to the university:

[During negotiations, new faculty] need to ask for more because the last thing I want is to recruit someone here who is going to get low-balled. That does two things: one is, if they are not supported as best they can be to get their work done and establish their research program, you increase the risk they might not meet the bar for research. That's one. The second thing is – you don't want to set somebody up here to be kind of like bitter and resentful once they get tenure because then you have a retention issue.

Morale and commitment to the institution are both negatively affected when salaries are not right-sized to a faculty member's market value. According to the chairs and deans, most faculty at NIU have been patient and understanding about the lack of raises because they know that the state is in financial crisis. However, the tension is still there. When the major avenue for increasing one's salary is to secure a competing offer, marketable faculty are encouraged to divert attention from NIU. They also may end up leaving NIU altogether.

Although this tension exists for all faculty, one of the main reasons for undertaking this most recent salary study was to examine the diversity-related dynamics that underlie salary at NIU. As such, we will discuss four major problematics that emerge from the data, many of which repeat themes from the 2005 qualitative salary study: service, partnership hiring practices, the imperative of hiring and retaining faculty of color, and the feminization of market value.

(1) Service:

Although service is technically required of all faculty, service is valued much less than research and teaching, both for annual merit evaluations and in tenure and promotion decisions. Faculty willing to do more service can easily become overburdened and stall out in their research programs. Service is also gendered. That does not mean that women do all of the service and men do very little. Men certainly do service at all levels of the university structure. But the research shows that service is associated with helping

and sacrifice, behaviors that society associates with femininity. Femininity in society is devalued. Another gendered concern is that women may feel less able than men to say no when asked to serve on various committees (Mitchell and Hesli 2013). As such, it is possible that women bear a bigger service burden than men, particularly at the associate professor level.

(2) Partnership Hiring Practices:

As the report submitted by the Presidential Commission on the Status of Women to President Baker shows, NIU has no official policies or guidelines for partnership hires. The lack of a standardized partnership policy creates unevenness in hiring /retention ability.

- a. Partners, who are often referred to as “trailing spouses,” may be used as leverage when a faculty member has a competing offer. This means that those partner/spouses may be devalued as bargaining chips rather than treated as full-fledged members of the faculty.
- b. Chairs discussed offering “trailing spouses” lower starting salaries than might have offered had these candidates been negotiating independently for a stand-alone position. This is problematic. Although they are hired in recognition of a family unit, they are in fact separate employees of the university. Paying them less as part of a consolation to the primary candidate is short-sighted, as the secondary candidate may eventually develop feelings of resentment and feel less valued by NIU.
- c. The very term, “trailing spouse,” is negatively value-laden, and those who become faculty at NIU have to work to manage a certain stigma.
- d. Further, without a policy, the ability of one unit to successfully hire a partner depends on networks of chairs, faculty, and deans. It also depends of the experiences of those brokers.

Partnership hiring is a gendered issue. When a partner with a PhD is hired to be an instructor, a status differential occurs in that household. The literature shows that most of these partners are women (American Association of University Professors; Ferber and Loeb 1997; Schiebinger et al. 2008; Wolf-Wendell et al. 2003). This approach to partnership accommodations helps to create a gendered tiering of the professoriate. All in all, this variability and high degree of discretion may lead to perceptions of, if not actual, improprieties with regard to partnership hiring.

(3) Racial/ethnic Diversity Among Faculty:

Faculty and administrators at NIU are aware that NIU's faculty lacks racial diversity. Lack of racial/ethnic diversity among the professorate is bad for the university in a variety of ways. For example, it affects future pipelines. Young scholars of color in NIU's classrooms do not see faculty who look like themselves, and they do not pursue career paths in academia. NIU is working toward efforts to diversify faculty. However, in doing so, we must be mindful that most faculty of color are highly recruited by other universities who are also trying to diversify their faculty. Universities must be willing to offer more resources for those faculty in order to recruit and retain them. There is some evidence that, when the academy is reflexive about the lack of diversity—as with the low population of women in STEM fields—they can and do make strides toward diversifying those populations. While the gender problem for STEM fields has not been solved, it has become widely recognized as an important issue. The same approach can and should be applied to race, ethnicity, and the professorate, and commensurate resources should be invested to rectify this gap.

(4) Feminization of Market Value:

The data collected for this study indicate that, the more marketable a person is in their discipline, the more resources they can negotiate in the hiring process. This is particularly clear in the sciences where, as several chairs said, their faculty could “walk out that door today” and find higher paying jobs in the field. That pressure to retain positively impacts salaries for those faculty. However, it is important to note that this pattern may not hold for women-dominated disciplines. The science dynamic seems not to work in CHHS, for example, according to interview data. Despite the fact that many CHHS faculty require extensive training, and despite the fact that many can (and many do) leave academic positions for more lucrative careers in the field, the salaries remain low. This leads some departments to continually recruit and hire new faculty, only to have them leave. For example, one unit has undertaken 9 searches in four years, because, as the chair said, “We are a revolving door.” Revolving-door situations are costly in time, money, and other resources. One explanation for the non-competitive salaries allocated to some of the CHHS science positions is that these are fields dominated by women. The literature shows that female-dominated fields tend to have lower salaries (Bellas 1994; Elvira and Graham 2002; Levanon et al. 2009; Murphy and

Oesch 2016; Reid 1998). The feminization of market value may be problematic at NIU as well. Note: The quantitative analysis indicates that the ratio of average NIU monthly salary to the national average for faculty in CHHS is not significantly lower than other colleges. Further analyses indicate that the department ratios within CHHS vary from 0.9 to 1.06. These values fall within the range of other units of the University. Thus, feminization of market value in these disciplines may be more a matter of perception more than an empirical reality. However, we note that the salary compression ratio for associate professors in the Physical Sciences (College of Liberal Arts and Sciences) may indicate that there are trends in science disciplines that are not (yet) apparent in the national salary data.

3 Quantitative Analyses

3-1 Introduction

The goal of the quantitative analyses of faculty salaries is to conduct a comprehensive, transparent, and replicable salary study for faculty members at Northern Illinois University. Specifically, we investigate any systematic salary inequities related to sex, race, or ethnicity, as well as salary compression and inversion. Data for the analyses for 2015-16 were collected from multiple sources at NIU, including Human Resource Services, the Office of the Executive Vice President and Provost, and the Offices of the Deans of the seven colleges and the University Libraries.¹

In section 2 we report cross-tabulations of faculty salaries with several relevant characteristics. Because simple cross-tabulations do not control for confounding factors, in section 3 we introduce regression methods that allow us to control for several important confounding factors. In section 4 we describe the regression findings. In section 5 we report salary ratios describing the compression and inversion of faculty salaries by college and department.

¹ For the quantitative part of the study, data collection and management stretched from September 2015 through July 2017, econometric analyses were conducted from August to December 2017, and writing and revising the report occurred from December 2017 through February 2018.

3-2 Description of the 2015-16 Faculty Salary Data

Throughout this report, we use the term ‘faculty’ to refer to tenured and tenure-track faculty members.² For academic year 2015-16, we have 575 observations of faculty members. Missing information that we were unable to procure reduced the study sample from the original 655 observations of faculty members.³ In Tables 3-1 through 3-7, we examine several relevant characteristics of the faculty in 2015-16 and their relationship to monthly salary.

Table 3-1 reports the number and percentage of all faculty members, as well as those in each of five sex, racial, and ethnic groups. For each group, as well as for a group combining both Black and Hispanic faculty members, we report the average monthly salary for 2015-16. The “White Male” group includes all male faculty members not designated in human resources records as Asian, Black, or Hispanic.⁴ The Asian, Black, and Hispanic groups include both men and women. The White male group is the reference group against which the average salaries of the other groups are compared.

As reported in Table 3-1, the percentages of male (44.3%) and female (43.1%) faculty members are similar. In comparison, there are 15.1% Asian, 4.2% Black, and 3.3% Hispanic faculty members. The low numbers of Black and Hispanic faculty members may lead to a lack of statistical significance in some analyses, so for those analyses these two groups are combined.⁵ For this reason the average monthly salary of the combined group is also reported in Table 3-1. The highest average monthly salaries are earned by White male and Asian faculty members. Both exceed \$9000 per month. The average monthly salaries of female, Black, and Hispanic faculty members range from \$8111 to \$8412. Based upon these averages, the largest salary gap is between White male faculty members and Black faculty members (\$971). This is followed by the gap between White male faculty members and female faculty members (\$761) and that for Hispanic faculty members (\$670). There is only a small salary gap between White male faculty and Asian faculty members. The difference in average salaries between White male and all female faculty members, as well as that between White male and combined Black and Hispanic faculty members, are statistically significant at standard levels of significance (p-value

² The study does not consider the salaries of other types of faculty members (non-tenure track instructors, clinical faculty, and research faculty) or Supportive Professional Staff.

³ All departments are represented except for the College of Law. Faculty members of the College of Law are excluded from the study sample because no merit scores were provided.

⁴ Terms used to name minority groups are preserved from the original data sets to permit replication.

⁵ Low numbers also preclude separate consideration by sex of Asian, Black, and Hispanic faculty members.

≤ 0.05). The difference between White male and all Black faculty members is weakly statistically significant ($0.05 < p\text{-value} \leq 0.10$). The ratios comparing the average monthly salaries of other faculty members to that of White male faculty members range from .89 (Black faculty members) to .99 (Asian faculty members).

Table 3-2 reports average monthly salaries for each of the groups across the discipline groups of the university. A discipline group is the faculty member's college with two exceptions: (1) The faculty of the College of Liberal Arts and Sciences is divided into three discipline groups: physical sciences, behavioral and social sciences, and humanities. (2) Faculty members working in the University Libraries are represented as a discipline group.

Average monthly salaries range from a low of \$5095 (University Libraries) to a high of \$14,769 (College of Business). The ratio of female faculty members' average monthly salary to the average monthly salary of White male faculty members varies between .82 (College of Engineering and Engineering Technology) and 1.06 (College of Business), with the remaining discipline groups having values between .92 and .99. The ratio of Asian faculty members' average monthly salary to the average monthly salary of White male faculty members varies between .75 (CLAS Humanities) and 1.02 (College of Business). The remaining discipline groups have values between .92 and .99. The ratio of Black or Hispanic faculty members' average monthly salary to the average monthly salary of White male faculty members varies between .84 (CLAS Behavioral & Social Sciences) and 1.08 (College of Engineering and Engineering Technology). The ratios for the remaining discipline groups have a wider range than we observed for female and Asian faculty members: The values range from .84 to 1.03. Note that in only three instances are the differences in average monthly salary statistically significant: Female faculty members are paid significantly less than White male faculty members in the CLAS Humanities group, the CLAS Behavioral & Social Sciences group, and in the University Libraries. In the last two instances, the difference is only weakly statistically significant.

An important characteristic influencing average monthly salary is professorial rank. Table 3-3 reports that full professors in the minority groups are consistently paid less than their White male peers. The differences for female and Black and Hispanic (combined) full professors are statistically significant. In contrast, associate professors who are Hispanic are paid higher average monthly salaries than their White male peers (weak significance). Black associate

professors appear to be paid a lower average monthly salary than their White male peers, but the difference is not statistically significant. Finally, among assistant professors, female, Black, and Hispanic faculty members appear to be paid lower monthly average salaries than their White male peers, while Asian assistant professors appear to be paid more than their White male peers. However, none of these differences differ significantly from zero. Overall, it appears that the largest and most significant differences occur at the full professor level.

Table 3-4 presents information describing the average monthly salary of faculty members conditional on the rank at which they were hired. Compared with 41.9% of new assistant professors who are White men, 72.7% of faculty members hired as associate professors and 66.7% of faculty members hired as full professors were White men. Much higher percentages of women and Asian faculty members were hired as assistant professors. A higher percentage of Black faculty members were hired at the associate or full rank than at the assistant rank, but the numbers are small. There are no Hispanic faculty members in the study sample who were hired as associate or full professors. White male faculty members who were hired as associate and full professors earn significantly higher average monthly salaries than their female counterparts, but the difference is only weakly significant.

In Table 3-5, we examine academic work experience across the groups of faculty members and the correlation between work experience and monthly salary. The two measures of experience examined are years worked at NIU and years worked in an academic institution prior to joining NIU. The top part of the table reports information for all faculty members regardless of rank. White male faculty members have significantly greater years at NIU than female, Asian, and Hispanic faculty members. They also have significantly greater years at prior institutions than female and Asian faculty members. Years at NIU are positively correlated with monthly salary for all groups, although only for White male and female faculty members does the correlation differ significantly from zero. Years of work at prior academic institutions is also positively correlated with monthly salary, although the correlation does not differ significantly from zero for female and Hispanic faculty members.

Not surprisingly, full professors have the greatest number of years of experience of both types. Female, Asian, and Hispanic full professors have significantly fewer years of experience at prior institutions than their White male counterparts, as do female and Asian associate professors. In contrast, female and Asian assistant professors have significantly more years of experience at

prior institutions than their White male counterparts. However, the difference in years employed at NIU is only significantly lower for Asian associate professors. The average number of years at NIU among Black assistant professors is influenced by one faculty member who has completed 20 years at NIU. The average number of years at NIU for the remaining three Black assistant professors is 4.34.⁶

When the sample is divided by rank, years at NIU and monthly salary are negatively correlated or have no relationship to monthly salary. However, for full and associate professors, years worked at an academic position prior to joining NIU are significantly associated with higher monthly salaries. This is consistent with productive faculty members being recruited at competitive salaries. This relationship is statistically significant for the pooled group as well as White male and Asian full professors, weakly significant for Black and Hispanic full professors, Asian associate professors, and Black assistant professors. A positive relationship between prior experience and monthly salary is not observed for female faculty members at any rank. In contrast, years worked at an academic institution prior to joining NIU are negatively correlated with monthly salary for most of the groups of assistant professors (although only statistically significant for all assistant professors and for White male assistant professors). The exception is the positive correlation between prior experience and monthly salary for Black assistant professors.

Table 3-6 reports information describing performance measures that may influence a faculty member's monthly salary. The measures include the faculty member's college merit quintile. Because the colleges have differing methods of measuring performance, it is not appropriate to compare the merit scores of individual faculty members across colleges. Instead, we create quintile indicator variables that have a value of 1 if the faculty member's merit score lies in a particular college quintile. For example, the variable QUINT-TOP has a value of 1 if the faculty member's merit score is in the top 20% of scores in his or her college and has a value of zero otherwise.⁷ We then compare the average monthly salaries of faculty members across quintiles. While this is a more reliable measure than the raw merit score, because of differences across colleges does not guarantee that the top quintile indicator will have a value of 1 for the most

⁶ In some disciplines, prior experience in non-academic settings may be valuable in determining a faculty member's productivity and salary. We do not have information describing this type of work experience.

⁷ Because individuals must be wholly allocated to a single quintile, the percentages only approximate 20%.

productive 20% of faculty overall. Nevertheless, we generally expect that more productive faculty members will have higher quintile scores.

In Table 3-6, the average monthly salary of female faculty members whose merit scores lie in the top quintiles of their respective college is \$8272. This is significantly lower than the average monthly salary of White male faculty members whose merit scores lie in the top quintiles of their respective college. In contrast, Hispanic faculty members whose merit scores lie in the top quintiles of their respective college have a significantly higher average monthly salary than their White male peers. We also report the average monthly salary of faculty members whose merit scores lie in the bottom quintile, but the observed differences are not statistically significant.

The next measure of productivity that we consider is having been awarded a university professorship. In years prior to and including 2015-16, the University awarded four types of professorships: Presidential Teaching Professorships; Presidential Research, Scholarship and Artistry Professorships; Presidential Engagement Professorships; and Board of Trustees Professorships. Because only full professors are eligible for these awards, we include only full professors in the comparisons reported in Table 3-6. Eleven percent of White male full professors have been awarded a professorship. In comparison, smaller percentages of female, Asian, and Black full professors have been selected for these awards. While all awardees have higher salaries than full professors in their respective groups who were not selected, White males have the highest average monthly salary among awardees. However, the observed differences among awardees are not statistically significant.

Two other possible indicators of productivity are variables representing whether a faculty member received a college salary adjustment or a university salary adjustment. The college salary adjustment includes offers matching offers received from other institutions and the university salary adjustment includes critical retention increases in salary. Both of these are indicative of high performance. However, because both categories of salary increases may also include other types of salary increases that may be unrelated to performance, these variables may not accurately reflect performance.⁸ Averages reported in Table 3-6 indicate that female faculty members who received a college salary adjustment have significantly lower average monthly salaries than their White male peers. While the average monthly salaries of faculty members in all groups who received a university salary adjustment appear to be lower than that

⁸ We do not have data describing the amount of the salary increase.

of White male faculty members, the sole statistically significant difference is for Hispanic faculty members.

Table 3-7 reports information describing the monthly salary for an NIU faculty member and the corresponding salary reported in a national survey for a faculty member of the same rank and discipline. The national survey was conducted by the College and University Professional Association for Human Resources (CUPA-HR). This organization conducts annual salary surveys of colleges and universities and provides the summary data to its member organizations. Average salaries are available by Classification of Instructional Programs (CIP) code and professorial rank. The majority of programs coincide with the department at NIU and the average monthly CUPA salary value is that for the highest degree program offered by the department.⁹

For all faculty members as a group and for most of the designated groups shown in Table 3-7, the average CUPA monthly salary is significantly greater than the average NIU monthly salary. The exceptions are Hispanic assistant and associate professors and Black assistant professors, for whom the average CUPA monthly salary is consistently, but insignificantly, greater than the average NIU monthly salary.

Next we examine the difference in average monthly CUPA salary and average monthly NIU salary across groups of faculty members. When all professorial ranks are pooled, the average CUPA and average NIU monthly salary for female and Black faculty members are significantly lower than those of their White male peers. Among full professors, the average CUPA monthly salary for Black faculty members is significantly lower than those of their White male peers. This indicates that when controlling for discipline at the national level, Black full professors are paid less than White male professors. As reported in Table 3-3, among full professors the average NIU monthly salaries for female, Black, and Hispanic faculty members are significantly lower than those of their White male peers. Because the salaries of faculty members who remain in the same rank for many years may rise more slowly than those of faculty members who are new to the rank, we repeat the comparison of average monthly CUPA salary and average monthly NIU salary across groups of faculty members for full professors who have been in that rank for

⁹ For departments in the College of Education and the College of Health and Human Sciences which offer multiple programs in differing disciplines (as covered in the CUPA-HR surveys), the values used are averages for programs offered in the department.

less than ten years. For this group, the average CUPA monthly salary for Black faculty members is again significantly lower than those of their White male peers.

Among associate professors, the only statistically significant difference observed is that the average NIU monthly salary for Hispanic faculty members is lower than that of their White male peers. This is again observed among associate professors who have been at that rank less than ten years. Among assistant professors, the only statistically significant difference observed is that the average NIU monthly salary for Asian faculty members is higher than that of their White male peers.

In summary, Tables 3-1 through 3-7 report several instances in which statistically significant differences in average NIU monthly salary are found between faculty members belonging to the focus groups and the comparison group of White male faculty members:

1. Female, Black, and Hispanic faculty members earn lower monthly salaries than White male faculty members.
2. Among disciplines, we find significant differences between the average monthly salary earned by White male faculty members and that of focus group members in the behavioral and social sciences, humanities, and the libraries.
3. The largest and most significant differences across groups in average monthly salary occur at the rank of full professor.
4. Years at NIU are positively correlated with monthly salary for White male and female faculty members. Years of work at prior academic institutions is also positively correlated with monthly salary (except for female and Hispanic faculty members). For full and associate professors, years worked at an academic position prior to joining NIU are significantly associated with higher monthly salaries. However, a positive relationship between prior experience and monthly salary is not observed for female faculty members at any rank. Years worked at an academic institution prior to joining NIU are negatively correlated with monthly salary for most of the groups of assistant professor.
5. The average monthly salary of female faculty members whose merit scores lie in the top quintiles of their respective college is significantly lower than the average monthly salary of similar White male faculty members.
6. Female faculty members who received a college salary adjustment have significantly lower average monthly salaries than their White male peers and Hispanic faculty

members who received a University salary adjustment earn less than White male faculty members.

7. For almost all groups of NIU faculty members the average CUPA monthly salary is significantly greater than the average NIU monthly salary. Among full professors, the average CUPA monthly salary for Black faculty members is significantly lower than those of their White male peers, while the average NIU monthly salary for Hispanic faculty members is lower than that of their White male peers among associate professors.

The comparisons described in this section can only be suggestive of salary inequities because it is impossible to reach a conclusion concerning possible discriminatory differences across groups unless we control for relevant characteristics that may influence productivity. This can be done using regression methods. The following two sections describe the regression analyses conducted and the corresponding findings.

3-3 Regression Methods

A. Earnings Regressions

By using regression methods we are able to identify an effect of sex or minority status while controlling for confounding factors. We define salary discrimination as occurring when two individuals are equally productive, yet one is paid less than the other solely because of his or her membership in a group. It should be noted that while sex, race, and ethnicity may be influential in the determination of many factors that influence salary, if these factors are determined prior to employment at NIU they are beyond the control of the University and are a source of societal discrimination rather than discrimination by NIU. For example, if more men than women earn doctoral degrees in engineering and engineering is a highly paid discipline, the average salary of male faculty members will be greater than that of female faculty members because in competing with other employers, the University must pay higher salaries to attract faculty members with doctorates for the engineering program. While there may be societal discrimination causing fewer women to study engineering, to address discrimination in the national labor market a broader study using national data is required. However, if a salary gap is observed between two faculty members in the same discipline who are identical in every way except sex, this is consistent with salary discrimination. However, because an empirical analysis cannot control for all possible characteristics related to productivity, we are only able to identify instances of *potential salary discrimination* that should be further examined by the University.

To estimate the effect of sex, race, and Hispanicity on faculty salary, we estimate **earnings regressions**. An earnings regression posits a causal relationship between the independent variables and the dependent variable. In our analysis, the dependent variable is the faculty member's *monthly salary* for the 2015-16 academic year. Because monthly salary is skewed with a longer right-hand tail, we use the natural log of monthly salary as the dependent variable, transforming the distribution to near normal. This means that the estimates should be interpreted as the *percentage* impact on monthly average salary.

We estimate the relationship between several types of explanatory variables and logged monthly salary. The explanatory variables included in the analyses represent the individual faculty member's relevant work experience and other factors that represent productivity. Because our measures of experience and productivity are imperfect, we considered multiple variables and allowed the data to guide us in choosing the relevant measures. We started with a small set of variables and added additional variables. At each step we conducted sensitivity analyses to assess the appropriateness of the regression specification.

(1) To test the effect of **experience** on monthly salary, we assume that more experienced faculty members are more productive and that this increases salary, holding other factors constant. We include four variables representing experience:

Years Worked at NIU – This variable (YRSNIU) represents the number of years (including leaves) since the faculty member was hired at NIU. Because the effect of experience on salary is typically found to be nonlinear, we also include the squared value of years worked at NIU (YRSNIU-SQ). Monthly salary is expected to increase with years of work experience, other things equal.

Prior Years at Other Academic Institutions – Years spent as faculty members in academic institutions prior to joining NIU (YRSOTH) is another relevant form of professional experience. We also include a squared value of years in other positions (YRSOTH-SQ) to allow for a nonlinear effect. Similar to the effect of YRSNIU, we expect YRSOTH to have a positive effect on monthly salary, other things equal.¹⁰

¹⁰ While experience in non-academic positions may also increase a faculty member's productivity, we do not have this information.

Current Rank - We represent the faculty member's current rank with two dichotomous variables, FULL and ASSOCIATE. Each of these variables is equal to one if the faculty member has the indicated rank and equal to zero otherwise. Assistant Professors form the reference group of faculty members (FULL=0 and ASSOCIATE=0). The estimated coefficient of FULL (or ASSOCIATE) is interpreted as the incremental percentage effect on monthly salary of being a full (or associate) professor compared to being an assistant professor. Other things equal, we expect associate professors to earn more than assistant professors, so we expect to observe a positive coefficient for ASSOCIATE. Similarly, we expect full professors to earn more than assistant professors, other things equal, so we expect to observe a positive coefficient for FULL. Further, we assume that full professors will earn relatively more than associate professors, other things equal, so we expect the coefficient for FULL to have a greater magnitude than that for ASSOCIATE. These hypotheses will be tested in the regressions.

(2) To test for the effect of **productivity** in research and teaching (other than the productivity effects of experience) on monthly salary, we include several variables as potential measures of productivity. None are ideal measures, but we are limited to available information.

Merit ratings – We first use a five year average (or fewer years for new hires) of annual merit ratings to create a variable representing the college quintile (lowest 0-20th percentile, 21st-40th percentile, 41st-60th percentile, 61st-80th percentile, and highest 81st-100th percentile) in which the faculty member's average falls. To avoid statistical issues involved in using a categorical variable as an independent variable, we then use the quintile score of each faculty member to create three dichotomous variables to represent the college quintile merit rating. The first variable, QUINT-TOP, has a value of one if the faculty member's average merit rating is in the highest quintile of his or her college's average ratings and a value of zero if not. The second variable, QUINT-2ND, has a value of one if the faculty member's average merit rating is in the second highest quintile of his or her college's average ratings and a value of zero if not. The third variable, QUINT-MID, has a value of one if the faculty member's average merit rating lies in the third (middle) quintile of his or her college's average ratings and a value of zero if not. The reference category for these three variables contains average merit scores falling in the bottom two quintiles of the faculty member's college merit distribution.

If a merit score in a highest college quintile leads to a larger raise, we will observe that faculty members who have QUINT-TOP = 1 will have higher average monthly salaries than those in the reference category, other things equal. Similarly, faculty members with QUINT-2ND or QUINT-MID are expected to earn more than those in the reference category, holding other factors constant. Further, we expect that the estimated effect for those in the top quintile should be the largest, followed by the effect for those in the second quintile, and those in the middle quintile, other things equal.

Professorships – PROFSHIP is a dichotomous variable with a value of one if the faculty member was appointed by the University as a Presidential Research Professor, a Presidential Teaching Professor, a Presidential Engagement Professor, or a Board of Trustees Professor (and a value of zero if not). While the salary increase associated with a professorship award may be temporary, selection indicates that the faculty members is highly productive, other things equal, so we expect the coefficient to be positive.

Salary Adjustments – While employed at NIU, a faculty member may have received a salary adjustment that may represent his or her productivity. Two variables are considered to represent salary adjustments: SALADJ is a dichotomous variable with a value of one if the faculty member received a college-level salary adjustment (and a value of zero if not). These adjustments, granted by the faculty member's college, include salary increases given to match an outside offer. SEADJ is a dichotomous variable with a value of one if the faculty member received a Salary Equity or Critical Retention salary adjustment from the University (and a value of zero if not). To the extent that these variables represent a faculty member's productivity, we expect them to have positive effects on monthly salary, other things equal.

(3) NIU competes with other universities and employers in hiring faculty members. Because conditions in the labor markets for some disciplines lead to higher salaries than others, the salary that NIU must pay to recruit a faculty member depends importantly on the faculty member's **discipline**.

Discipline-Specific Salary - To control for the effect of discipline on monthly salary, we include a variable (CUPA_D) which is the average national monthly salary in the faculty member's discipline. The CUPA variable is constructed from data downloaded from the College and University Professional Association for Human Resources. As explained in

section 2, this organization conducts annual salary surveys of colleges and universities and provides the summary data to its member organizations. Average salaries for participating colleges and universities are available by CIP code and professorial rank. In our regression analyses, we include the department average for academic year 2014-15 to control for discipline salary effects. This average is calculated by using the CUPA monthly salary values for each department weighted by the composition (number of faculty members at each rank) of each NIU department.¹¹

(4) **Personal characteristics** that are not associated with experience, productivity, or discipline are included to indicate if there are significant effects on monthly salary that may be due to factors not controlled for in the analyses, including potential discrimination.

Sex – The sex of a faculty member is represented by the variable FEMALE. This is a dichotomous variable with a value of one if human resource records indicate the faculty member is a woman and a value of zero otherwise. Male faculty members form the reference group for this variable.¹²

Race & Hispanicity – Two variables are included to represent racial groups among the faculty. Other groups were considered, but lacked sufficient numbers for the analysis. ASIAN is a dichotomous variable with a value of one if the faculty member is identified in human resource records as Asian (and a value of zero if not). BLACK is a dichotomous variable with a value of one if the faculty member is identified in human resource records as African-American and a value of zero if not. In addition, HISPANIC is a dichotomous variable with a value of one if the faculty member is identified in human resource records as being of Hispanic ethnicity (and a value of zero if not). These three categories are mutually exclusive.¹³ Faculty members not identified as Black, Asian, or Hispanic form the reference category (White) for this variable.

(5) Finally, because there may be unobserved differences among departments and colleges that are not accounted for in the explanatory variables described above, we also consider specifications of the regression analyses in which we include variables representing the faculty

¹¹ See footnote 8.

¹² Sex information provided by NIU Human Resource Services includes only two categories.

¹³ The coding follows the categories in the data received from NIU Human Resource Services.

member's **college and department**. While it may be important to control for department and college in the regression analyses, it should also be noted that discrimination may occur at the department (or college) level. If this occurs, then controlling for department (or college) in the analyses may incorrectly eliminate effects of discrimination. For this reason, we report estimates from regressions with and without department (and college) controls.

Department – DEPT is a set of dichotomous variables (values of zero or one) representing the 42 departments of the University represented in the study.

Discipline Group – We include a variable (DISC GRP) in which we include five colleges and the University Libraries, but divide faculty members in the larger College of Liberal Arts and Sciences into three discipline groups: Physical sciences, behavioral and social sciences, and humanities. Thus, DISC GRP represents a set of dichotomous variables (values of zero or one) representing the nine groups in this measure.¹⁴

Although we considered additional explanatory variables for the regression model, the variables described above are those that are included in the final models reported in section 3-4. In general, the process of selecting variables for a regression analysis involves multiple issues: First, we would like the regression model to have *strong explanatory power*. This is often measured by a high R^2 value and a statistically significant F-statistic for the model. When regression models are used for prediction, it is appropriate to focus entirely on finding the highest possible R^2 values. However, our goal is to test whether the coefficient estimates for the focus variables (FEMALE, ASIAN, BLACK, and HISPANIC) are negative and statistically significant. Thus, while we want the model to have strong explanatory power (R^2), to obtain precise and statistically unbiased estimates we must carefully examine the explanatory variables of the model to minimize *multicollinearity* and *omitted variable bias* as much as possible.

Multicollinearity occurs when correlations among one or more variables included in the model cause the standard errors of the point estimates to be too large. This may lead us to incorrectly conclude that an estimate is not statistically significant. On the other hand, in avoiding multicollinearity, we need to be careful not to drop variables that significantly contribute to the

¹⁴ All departments are represented except for the College of Law. (See footnote 2.)

explanatory power of the model because omission of relevant variables may cause the estimated effects of the variables in the model to be incorrect. This occurs because the effects associated with the omitted variables may be attributed incorrectly to included variables that are correlated with the omitted variables. So we must consider the relationships among the explanatory variables carefully in the process of selecting the specification of the regression model.

To assess the possibility of multicollinearity for this study, we calculated variance inflation factors for the regression model. A variance inflation factor (VIF) quantifies the severity of multicollinearity in a linear regression.¹⁵ We use a VIF of four or less to indicate that the variable is not a source of multicollinearity.¹⁶ Omitted variable bias was assessed by carefully considering the contribution of each potential variable to the model's explanatory power by performing robustness checks of the regression specification.

Excluded from the model reported here are variables representing the faculty member's age, starting salary, starting rank, and years in current rank. These variables are not included because they were found to be statistically insignificant when added to the final specification and, in some instances, a source of multicollinearity. For example, age has often been used in earnings regressions to represent experience when actual measures of experience are lacking, but we find that when our experience variables are included and nonlinear effects allowed (by including squared values), age is statistically insignificant. Instead, once experience is controlled for in the model, we consider age to be a potential source of discrimination that may be masked if the variable is included in the regression model.¹⁷ Similarly, starting salary, years in current rank, squared years in current rank, and starting rank were variables considered for the model, but eventually dropped when the overall performance of the regression model including the nonlinear experience variables was found to be stronger without them.¹⁸

¹⁵ For further information regarding variance inflation factors, see Wooldridge (2008).

¹⁶ A cutoff of four is a conservative value. In the literature, values as high as 10 are used.

¹⁷ To address this possibility, we perform an Oaxaca decomposition to assess whether older faculty members are paid less than their younger peers. The findings are discussed in section 3-4.

¹⁸ Prior NIU salary studies reported estimates of models that included these variables, but do not appear to have allowed for nonlinear effects of experience. Although the nonlinear experience effects are very effective in explaining salary levels, we cannot know how our model would perform with the data used in prior studies.

We also considered *multiple constructions of the variables* considered for the model. For example, for faculty merit, we considered direct inclusion of a faculty member's merit score, as well as a formulation in which we added a squared value to capture potential nonlinearity. We rejected these and constructed dichotomous indicator variables. Alternative sets of indicators were considered before we selected the three indicator variables (and the reference category) included in the final model. Similarly, a large amount of time was dedicated to the construction of the CUPA variable. For the variable used in the analyses, we carefully reweighted the national data to fit the composition of NIU's departments.

In summary, alternative specifications of the regression model were carefully compared to the final model reported here. The final model was chosen because it was the 'best' in terms of consistency with the underlying theoretical framework, coefficient significance and low VIF values, high R^2 , and little evidence of omitted variable bias. Once the final regression specification was selected, it was used throughout (with and without the department control variables).

B. Quantile Regression Analyses

The earnings regressions described above provide estimates of the effects of the included characteristics at the mean of the distribution. For example, if we find a statistically significant effect of being female on monthly salary, this is the average effect for a female faculty member in the study sample. Limiting ourselves to estimating average effects may lead to an incorrect conclusion that there is no effect due to sex. While it may be that there is no effect at the mean, there may be an effect at a different part of the salary distribution, such as among more highly paid faculty members. For this reason, we conduct **quantile regression analysis** to assess if there is a significant difference at the quantiles even if not observed at the mean in regular regression analyses. In our analyses, we estimate the regression model at the .10 quantile, the .25 quantile, the .5 quantile (median), the .75 quantile, and the .9 quantile.

C. Analyses of Intermediate Factors

It is possible that explanatory factors discussed in part A above may be **intermediate factors** that contribute to a faculty member's salary.¹⁹ By this term we mean the values of variables included in the model may be dependent upon sex, race, or Hispanicity. For example, it may be that female faculty members are less likely than their male peers to receive matching offers or

¹⁹ These variables are also termed mediating, intermediary, or intervening variables.

other college level adjustments (SALADJ), critical retention adjustments or salary equity adjustments (SEADJ), and/or professorships (PROFSHIP). If this is the case, inclusion of these explanatory variables in the model will mask the full effect of FEMALE on salary. A full examination of this possibility would require that we model how SALADJ, SEADJ, and PROFSHIP are determined. While we do not have adequate data to do this, we consider this possibility by estimating an earnings model that includes *interactions* of the primary explanatory variables with FEMALE, ASIAN, BLACK, and HISPANIC. In the presence of statistically significant interactions, the simple pooled regression model is not appropriate. Instead, we use separate regressions for each group that allow the estimates to vary across groups. Our findings are reported in section 3-4.

D. Oaxaca Decomposition Analyses

Estimating earnings regressions and quantile earnings regressions permits us to examine whether sex, race, or Hispanicity have a statistically significant effect on monthly salary. In our final analyses, we use decomposition methods to estimate the amount of the gap in monthly salary between White male faculty members and faculty members in the other groups that may be due to discrimination within NIU.

In 1973, Ronald Oaxaca pioneered a method of estimating the effects of discrimination on wages using regression methods (Oaxaca, 1973).²⁰ Over the intervening years, many studies have used this method to assess salary inequities between employee groups.²¹ An **Oaxaca decomposition** of a wage gap is a statistical method that explains the difference in the means of wages between two groups by decomposing the wage gap into two components.

(a) The first component is the portion of the wage gap attributable to differences in the productive characteristics of the groups' members. Productive characteristics are those expected to correspond to an individual's labor productivity, such as work experience. This component is not a source of potential salary discrimination.

(b) The second component is the portion of the wage gap not explained by differences in productive characteristics. If this component is statistically significant, it is consistent with potential salary discrimination.

²⁰ Blinder (1973) proposed a similar method the same year.

²¹ Relevant publications are Oaxaca and Ransom (2002, 2003) and Geisler and Oaxaca (2005).

For our analyses, the Oaxaca decomposition estimates (1) the proportion of the gap in monthly faculty salaries that are attributed to faculty experience, productivity, and possibly discipline and (2) the proportion attributed to personal characteristics such as sex, race, Hispanicity, and age. We estimate the decomposition for both the standard earnings regressions and quantile earnings regressions. The estimates are reported in the following section.

3-4 Regression Findings

A. Earnings Regressions

Tables 3-8 and 3-9 describe the variables used in the regression analyses. Table 3-8 provides definitions for the explanatory variables describe in the previous section and Table 3-9 reports the mean, standard deviation, and the maximum and minimum values for each variable. In the interest of transparency, readers may find links on the Faculty Senate webpage to an appendix containing output files for all analyses reported here.

Tables 3-10 and 3-11 provide estimates of the effect of the various explanatory factors on the average monthly salary of NIU faculty members using a pooled data set containing observations of all faculty members. The bottom rows of each table report the number of observations (N), the R^2 value for the regression reported in that column, and the probability of exceeding the calculated F-statistic value for the regression reported in that column. The R^2 value, also known as the coefficient of determination, describes how well the data fit the estimated regression. The probability of exceeding the calculated F-statistic is the probability that the model performs better than an intercept-only model. This provides a statistical test of model performance.

To provide insight into the construction of the regression model, four specifications of the model are reported in the first four columns, labeled (a) through (d), of Table 3-10. The fifth through eighth columns, labeled (e) through (h), report estimates from the same four models while also controlling for the faculty member's department by adding a series of (0,1) indicator variables representing the departments. Regressions also were run with both college and discipline group indicator variables, but the estimates from the models with department variables are reported in Table 3-10 because these models have greater explanatory power. (When department variables are included in the regression, the college or discipline group variables are not statistically significant.)

Because all of the models reported in Table 3-10 have probabilities of the calculated F-statistics less than .05, the variables included in the models can be assumed to jointly differ from zero. That is, the models are statistically significant. Adding the department variables in columns (e) through (h) leads to higher R^2 values. As explained in part A of section 3-3, this may be because productive characteristics of the department that are not controlled for by the other explanatory variables in the model are represented by the department variables. However, because it may also be that discrimination occurs at the department level, it is possible that controlling for department in the analyses may incorrectly eliminate effects of discrimination. For this reason, we report estimates from regressions with and without department controls.

For the regression model including all non-squared variables listed in Table 3-10, column (d), the highest VIF value is 3.57 and the average VIF value is 1.42. When the squared variables (YRSNIU-SQ and YRSOTH-SQ) are added to the model, the VIF values for YRSNIU, YRSNIU-SQ, FULL, YRSOTH, YRSOTH-SQ all exceed four. This is not surprising given the definitional correlations between the squared and non-squared values of YRSNIU and YRSOTH and between FULL and YRSNIU. However, the VIF values for FEMALE, ASIAN, BLACK, and HISPANIC range from 1.02 to 1.11. In summary, multicollinearity is low overall and does not appear to be a problem in estimating the statistical significance of the focus variables.

The estimates in column (a) of Table 3-10 indicate that on average a female faculty member earns .091 percent less than her white male peer, a difference of \$826 per month. To assess if this is potentially discriminatory, we need to control for the characteristics of individuals in these two groups. For this reason, in columns (b) through (d), we successively add control variables. In the final model in column (d), the monthly salary of female faculty members does not differ significantly from that of their White male peers. However, in column (d) we observe that being Black contributes positively (\$427) to monthly salary compared to being a White male, other things equal. Being an Asian faculty member also raises monthly salary (\$272) compared to a White male faculty member, although this difference is only weakly significant (p -value $\leq .10$). Note that there does not appear to be a negative differential for any of the focus variables in column (d). However, when department control variables are added in column (h), we observe a negative and statistically significant effect for Hispanic faculty members: Despite the inclusion of several variables that control for productivity differences, being a Hispanic faculty member reduces average monthly salary (\$336) compared to a White male peer.

B. Quantile Regression Analyses

Because the average effects reported in Table 3-10 may not be representative of effects at other parts of the monthly salary distribution, in Table 3-11 we report estimates for the focus variables from quantile regressions of specifications (d) and (h). Estimated effects are reported at the 10th, 25th, 50th, 75th, and 90th quantiles. Without department controls, we observe positive and significant effects for female, Asian, and Black faculty members. However, we observe that at the 25th quantile, being a Hispanic faculty member reduces monthly earnings compared to a White male colleague, other things equal. When departments are controlled for, we see only one statistically significant effect: At the 75th quantile of the salary distribution, being Black reduces the salary gap with a White male peer, other things equal.

C. Analyses of Intermediate Factors

The effects of sex or minority status reported in Tables 3-10 and 3-11 may be confounded when the values of the explanatory variables included in the regression model are themselves influenced by sex and/or minority status, i.e., when intermediate factors are present.

While we do not have sufficient data to estimate full models explaining the relationship between sex, race, and Hispanicity and possible intermediate factors, we assess the presence of intermediate factors by estimating regression models including a full set of interaction variables.

The interaction variables are created by multiplying each of the focus variables (FEMALE, ASIAN, BLACK, HISPANIC) by each of the other explanatory variables (FULL, ASSOC, YRSNIU, YRSNIU-SQ, YRSOTH, YRSOTH-SQ, QUINT-TOP, QUINT-2ND, QUINT-MID, PROFSHIP, SALADJ, SEADJ). The inclusion of interactions in the model will alter the estimated effects of FEMALE, ASIAN, BLACK, and HISPANIC if the effect of membership in these groups operates through one or more of the explanatory variables.

Table 3-12 reports the estimated effects of the interaction models. The first column includes the variables included in column (d) of Table 3-10 and the second column also includes department control variables (similar to column (h) of Table 3-10). To limit the size of Table 3-12, only statistically significant interactions are reported.²² The inclusion of interactions adds slightly to the explanatory power of the regressions as seen in the increased R² values. In comparison to column (d) of Table 3-10, we see that the statistically significant effects of ASIAN and BLACK

²² A link to output containing the full set of interaction estimates is available on the Faculty Senate webpage.

are missing in column (d) of Table 3-12. This occurs because several interactions of ASIAN and BLACK with other explanatory variables are statistically significant. FEMALE and HISPANIC were not statistically significant in column (d) of Table 3-10 and remain largely insignificant in Table 3-12 with only one statistically significant interaction for each of these two focus variables. Comparing column (h) of Tables 3-10 and 3-12, we see that the negative and statistically significant effect of HISPANIC in Table 3-10 is not found in Table 3-12, but the inclusion of interactions in Table 3-12 leads to a negative and statistically significant effect of BLACK. When departments are controlled for in column (h), only ASIAN interactions are statistically significant.

A final regression adding interactions between the focus variables and discipline groups was also run. The estimates are similar to those reported in the first column of Table 3-12 with three additional statistically significant estimates: Being an Asian faculty member in the CLAS Humanities group and being a Hispanic faculty member in the College of Education leads to a reduction in monthly salary compared to White male peers, other things equal. Similarly, being a Hispanic faculty member in the University Libraries reduces monthly salary compared with White male peers, other things equal.

The many statistically significant interactive effects of sex and minority status reported in Table 3-12 indicate that it is appropriate to estimate separate regressions for each group of faculty members rather than performed pooled analyses.²³ In Table 3-13, we report estimates from separate regressions for White male, female, Asian, and Black or Hispanic faculty members. Because of the low numbers of Black and Hispanic faculty members, the two groups are combined so that the small number of observations does not cause a loss of statistical significance.

The first column of Table 3-13 for each group includes the variables included in column (d) of Table 3-10 and the second column for each group also includes the department control variables (column (h) of Table 3-10). The model statistics reported at the bottom of Table 3-13 indicate that the regression models fit reasonably well, even for the 'Black or Hispanic' group (BLACK=1 or HISP=1) which has the fewest observations. Many of the explanatory variables are statistically significant. However, as expected, the magnitudes and statistical significance of the coefficient estimates vary considerably across the groups. Consistently significant variables

²³ Although an alternative would be to continue using the regression model with interactions, this would preclude decomposition analyses of potential discrimination.

include CUPA_D, FULL, ASSOC, YRSNIU, YRSNIU-SQ, OTHYRS-SQ, PROFSHIP, and SEADJ. In general, the estimates have the expected signs: Full professors and associate professors earn higher monthly salaries than assistant professors (the difference is not significant among Black or Hispanic faculty members) and the estimated effects are consistently higher for full professors. YRSNIU has statistically significant effects on average monthly salary for all groups except BLACK or HISPANIC faculty members. The effects are nonlinear. YRSNIU negatively affects average monthly salary, but this negative effect diminishes over time so that a minimum is reached at approximately 20 years for White male and female faculty members and at approximately 25 years for Asian faculty members. For White male and Asian faculty members, YRSOTH's effect does not differ from zero, but YRSOTH-SQ is positive and significant.

The final rows of Table 3-13 report the estimated percentage effects of the merit score quintiles, professorships, and salary adjustments. The coefficient estimates of the merit quintile variables are positive and significant (compared to the reference group comprising faculty members whose merit scores lie in their college's two lowest quintiles) in a few instances, but not consistently. Most interesting is the negative and significant percentage effect on monthly salary observed for Black or Hispanic faculty members: For these individuals, when the faculty member's department is controlled for, the average effect of having a merit score in the top quintile of his or her college is to reduce monthly salary by over 13 percent.

Having been awarded a professorship has a positive and significant effect for White male, female, and Black or Hispanic faculty members, but is not significant for Asian faculty members. The estimated effects are largest for Black or Hispanic faculty members. Because there are relatively few full professors in this group, it may be that the values of a few individuals have a large influence on the estimated effect. The final two variables represent salary adjustments made at the college or university level. We find positive significant effects for White male and Asian faculty members. The estimates for female faculty members are statistically insignificant and the estimates for Black or Hispanic faculty members are negative and statistically significant. This suggests that those Black or Hispanic faculty members who received salary adjustments continue to be paid less, other things equal.

D. Oaxaca Decomposition Analyses

The Oaxaca decomposition method builds on the regression analyses reported in Table 3-13. The differences in monthly salary between White male faculty members and members of other groups that may be attributed to (a) differences in the productive characteristics of the groups' members and (b) differences that are not attributable to productive characteristics. If an employer discriminates in setting salaries for different groups of equally productive individuals, the estimate of the unexplained component will be statistically significant. Thus, finding a statistically significant estimate of part (b) is consistent with potential discrimination. However, it is a necessary condition rather than a sufficient condition. We cannot "prove" discrimination because it is possible that the unexplained difference is due to unobserved productive characteristics. Rather, statistically significant unexplained components are indicators that salary inequities may exist and further investigation is merited. On the other hand, lack of a statistically significant effect indicates that, for the available data, there is no evidence of discrimination.

Table 3-14 reports the decomposition of monthly faculty salary for all faculty members.²⁴ As White male faculty members are the reference group, decompositions are provided between this group and the three focus groups (female, Asian, and Black or Hispanic faculty members). The first column reports the difference in average monthly salaries between the groups, with a negative difference indicating that the average salary for focus group is less than that for White males. The difference in average monthly salaries for female faculty members is \$761, the difference of Asian faculty members is \$67, and the difference for Black or Hispanic faculty members is \$838.²⁵ The second column reports the difference in average monthly salaries between the groups that is predicted by the regression models. Again, a negative difference indicates that the average predicted salary for White males exceeds the average predicted salary for the focus group. The regression models best predict the differences for the comparisons between White male and female and Asian faculty members for which we have more observations. Although the difference is predicted less precisely for Black or Hispanic faculty members, the regression model predicts surprisingly well even for this group of only 43 faculty members. (See Table 3-13.)

²⁴ Although the underlying regressions use $\ln(\text{monthly salary})$ as the dependent variable, the estimates reported in Tables 3-14 through 3-16 have been transformed to represent the effect on the *unlogged* monthly salary.

²⁵ Average monthly salaries for each group are reported in Table 3-1.

The last two columns report the percent explained by productive factors and the percent remaining that is not explained by productive factors. The third column is from the regressions without department control variables and the final column is from the regressions with department control variables included. Depending upon whether department controls are included, productive variables in the model explain 11.42 and 12.27 percent differences in average monthly salaries between White male and female faculty members. This implies that observed productive characteristics of female faculty members causes them to earn significantly less than their White male colleagues. However, the positive and statistically significant unexplained components indicate that unexplained differences *reduce* the salary gap between female faculty members and their White male counterparts. These percentage effects, evaluated at White male faculty members' average monthly salary, are equivalent to \$171 and \$205 per month. It cannot be discerned whether this is caused by productive characteristics not represented by the variables in the regression model or by efforts by the University to reward female faculty members.

Among Asian faculty members, the statistically significant positive unexplained component in the third column indicates that unobserved differences *reduce* the salary gap between Asian faculty members and their White male counterparts, other things equal. The percentage effect, evaluated at White male faculty members' average monthly salary, is equivalent to \$343 per month. Again, it cannot be discerned whether this is caused by productive characteristics not represented by the variables in the regression model or by efforts by the University to reward Asian faculty members.

Among Black or Hispanic faculty members, the only statistically significant effects are the negative explained components. This means that differences in productive characteristics significantly contribute to differences in the average monthly salaries between White male faculty members and Black or Hispanic faculty members, but there is no evidence of potential discrimination observed.

Finally, we performed an Oaxaca decomposition to assess whether there were indications of age discrimination. We constructed an indicator variable (OLDER) with a value of one if the individual faculty member's age was more than one standard deviation higher than the average age of faculty members at his or her rank (and zero otherwise). Among assistant professors, a standard deviation is 7.66 years, among associate professors a standard deviation is 8.21

years, and among full professors a standard deviation is 8.29 years. We performed an Oaxaca decomposition to assess the salary gaps between faculty members with values of OLDER=1 and OLDER=0. We found no statistically significant instances of faculty members earning less due to older age.

The explained and unexplained effects reported in Table 3-14 are estimated at the average of the salary distribution. Because these estimates may not be representative of effects at other parts of the distribution, in Table 3-15 we report estimates from quantile Oaxaca estimates using specification (d).²⁶ Estimates are reported at the 10th, 25th, 50th, 75th, and 90th quantiles. We observe significant negative effects due to unexplained factors for female, Asian, and Black faculty members: Unexplained factors contribute to the salary gap between White male and female faculty members at the 25th quantile. Similarly, unexplained factors widen the salary gap between White and Asian faculty members at the extremes of the salary distribution (10th and 90th quantiles), while among Black or Hispanic faculty members, unexplained factors contribute to the salary gap in the bottom two quantiles (10th and 25th), but lead Black or Hispanic faculty members to earn more than White male peers at the 75th quantile.

The last quantitative study of faculty salaries, which analyzed salary data for academic year 2010-11 in a pooled regression model, found that gender and ethnicity were not related to faculty salaries. In comparison, the estimates from our pooled regression analyses for 2015-16, which use a slightly different regression model and different data than the previous study, indicate statistically significant differences for female and Hispanic faculty members. However, further investigation revealed that there are important intermediate factors that significantly influence salary differently across groups. For this reason independent analyses for each group are required. We therefore used independent regression analyses to assess salary inequities in decomposition analyses. We estimated standard regressions (at the mean of the distribution) and quantile regressions. The estimates reported in Tables 3-14 and 3-15 indicate two types of findings regarding potential salary inequities:

1. Using standard regressions estimating effects at the mean of the salary distribution, we find no empirical evidence that potential discrimination contributes to a wage gap between Female, Asian, or Black or Hispanic faculty members and their White male

²⁶ We are unable to estimate specification (h) for the Oaxaca quantile analysis because the large number of department indicator variables causes the computational procedure to fail.

peers. Indeed, it appears that being female or Asian reduces the wage gap with White males. (Table 3-14)

2. Using regressions estimating effects at differing quantiles of the salary distribution, we find evidence of salary inequities. In the lowest decile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gaps between White male and both Asian and Black or Hispanic faculty members. At the 25th quantile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gaps between White male and both female and Black or Hispanic faculty members. In the highest decile of the salary distribution, unexplained factors consistent with discrimination contribute significantly to the salary gap between White male and Asian faculty members. (Table 3-15)

The estimates obtained using the regression models described in this report are more reliable than simple comparisons because the regressions control for several factors that may influence monthly salaries. The regression models described in this report are statistically significant with reasonably high explanatory power. Nevertheless, the estimates are limited by the lack of information fully describing the productivity of each faculty member: To the extent that factors not included in our data that influence monthly salary and that are correlated with membership in the focus groups, the estimated effects of unexplained factors may capture these factors. Another potential problem is that the small number of Black and Hispanic faculty members may lead to lack of statistical significance in some analyses. For these reasons, the findings described above should be considered to be identification of *potential* salary inequities that requires further investigation.

3-5 Salary Compression

Salary compression occurs when market forces increase the salaries of assistant professors so that they approach those of associate and full professors. Salary inversion occurs when the salaries of assistant professors rise above those of associate or full professors. The phenomenon is widespread and universities typically attempt to handle the problem by implementing salary adjustments to increase the salaries of tenured faculty.²⁷

²⁷ See Flaherty (2013) for a discussion of one such policy.

Although various methods have been used to assess salary compression and inversion, the most common method is the calculation of salary ratios.²⁸ In Table 3-16, we report the average, minimum, and maximum salaries paid to full, associate, and assistant professors in each college, the three discipline groups of the College of Liberal Arts and Sciences, and the University Libraries. In the last column of the table the first row for each unit reports the compression ratio for full professors, which is the ratio of the average salary of full professors in the unit to the average salary of assistant professors in the same unit. The second row for each unit reports the compression ratio for associate professors. The compression ratios for full professors vary between 1.10 in the College of Business and 1.62 in the College of Visual and Performing Arts. The low ratio in the COB indicates that on average, full professors earn only 10% more than assistant professors.

The compression ratios of associate professors range from 1.00 in the Physical Sciences group of the College of Liberal Arts and Sciences to 1.20 in the College of Visual and Performing Arts. The ratio of 1.00 for the Physical Sciences group indicates that the average salary of associate professors equals the average salary of assistant professors.

In Table 3-17, the same information is reported for each department included in the study. Although several departments have compression ratios for associate professors that are close to 1.00, the Departments of Accountancy and Management have ratios of .90 and .94, the lowest for the University. Both of these departments also have compression ratios for full professors that are less than 1.00, meaning that the average salary for assistant professors is greater than that of full professors.

In summary, salary compression appears to be widespread, but not universal. Instances of salary inversion occur in the College of Business (Departments of Accountancy and Management) and the College of Engineering and Engineering Technology (Department of Industrial and Systems Engineering). Several other departments have compression ratios for associate professors that are close to 1.0, indicating serious salary compression.

²⁸ See, for example, McDonald and Sorensen (2017) and Duncan, Krall, Maxcy, and Prus (2004).

**Table 3-1: Average Monthly Salary of NIU Faculty Members
(2015-16)**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members	Black & Hispanic Faculty Members
N¹	575	255	248	87	24	19	43
% of Faculty¹	100%	44.3%	43.1%	15.1%	4.2%	3.3%	7.5%
Average Monthly Salary	\$8755	\$9082	\$8321**	\$9015	\$8111*	\$8412	\$8244**
Salary Gap			\$761	\$67	\$971	\$670	\$838
Salary Ratio			.92	.99	.89	.93	.91

¹ Asian, Black, and Hispanic categories include male and female faculty members.

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t- test of difference between white male faculty members and faculty members in the specific group.

**Table 3-2: Average Monthly Salary of Faculty Members
by Discipline Group and Gender and Minority Status (2015-16)**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black & Hispanic Faculty Members
BUSINESS:					
N (%)	50	(44%)	(40%)	(22%)	(4%)
Average Monthly Salary	\$14,769	\$14,436	\$15,360	\$14,693	\$13,075
Salary Ratio			1.06	1.02	.91
EDUCATION					
N (%)	66	(30%)	(59%)	(12%)	(17%)
Average Monthly Salary	\$7586	\$7652	\$7543	\$7244	\$7902
Salary Ratio			.99	.95	1.03
ENGIN & ENGIN TECH					
N (%)	33	(52%)	(9%)	(30%)	(15%)
Average Monthly Salary	\$9479	\$9849	\$8088	\$9308	\$10,640
Salary Ratio			.82	.95	1.08
HEALTH & HUM SCI					
N (%)	56	(14%)	(79%)	(32%)	(11%)
Average Monthly Salary	\$7804	\$7885	\$7798	\$7771	\$7651
Salary Ratio			.99	.99	.97
VISUAL & PERF ARTS					
N (%)	72	(49%)	(39%)	(8%)	(8%)
Average Monthly Salary	\$7238	\$7192	\$7024	\$7143	\$8802
Salary Ratio			.98	.99	1.22
PHYS SCI (CLAS)					
N (%)	100	(66%)	(16%)	(21%)	(2%)
Average Monthly Salary	\$9221	\$9377	\$8868	\$9029	\$8086
Salary Ratio			.95	.96	.86
BEHAV & SOC SCI (CLAS)					
N (%)	84	(48%)	(45%)	(11%)	(2%)
Average Monthly Salary	\$8890	\$9230	\$8628*	\$8586	\$7765
Salary Ratio			.93	.92	.84
HUMANITIES (CLAS)					
N (%)	95	(43%)	(51%)	(1%)	(9%)
Average Monthly Salary	\$7982	\$8351	\$7709**	\$6222 ^{NA}	\$7969
Salary Ratio			.92	.75	.95
LIBRARY					
N (%)	19	(32%)	(63%)	(16%)	(0%)
Average Monthly Salary	\$5095	\$5426	\$4863*	\$5276	
Salary Ratio			.90	.97	

¹ Asian, Black, and Hispanic categories include male and female faculty members, so the row sum exceeds 575.

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-3: Average Monthly Salary of Faculty Members
by Rank and Gender and Minority Status (2015-16)¹**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members	Black & Hispanic Faculty Members
FULL							
N	192	58.3%	29.2%	12.0%	4.7%	2.6%	7.3%
Average	\$10,320	\$10,618	\$9879**	\$10,249	\$9079*	\$8569*	\$8897**
Salary Ratio			.93	.97	.86	.81	.84
ASSOCIATE							
N	256	37.1%	51.2%	15.2%	4.7%	2.7%	7.4%
Average	\$8168	\$8019	\$8165	\$8632	\$7668	\$9206*	\$8315
Salary Ratio			1.02	1.08	.96	1.15	1.04
ASSISTANT							
N	127	35.4%	51.2%	20.5%	3.1%	4.7%	7.9%
Average	\$7572	\$7574	\$7284	\$8484	\$7157	\$7223	\$7197
Salary Ratio			.96	1.12	.94	.95	.95

¹ Percentage of all faculty members at the indicated rank is reported below the number for each cell. Asian, Black, and Hispanic categories include male and female faculty members.

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-4: Percentage of Faculty Members
Starting at Full and Associate Professor
with Average Starting Salary and Current Salary (2015-16)**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members	Black & Hispanic Faculty Members
Starting Rank: Full Professor							
Average Monthly Salary in 2015-16	\$11,281	\$11,713	\$8940*	\$14,270 ^{NA}	\$11,000 ^{NA}		\$11,000 ^{NA}
N (%)	15	10 (66.7%)	3 (20.0%)	1 (6.7%)	1 (6.7%)	0	1 (6.7%)
Starting Rank: Associate Professor							
Average Monthly Salary in 2015-16	\$10,661	\$11,216	\$9167*	\$9512	\$8729		\$8729
N	44	32 (72.7%)	8 (18.2%)	2 (4.5%)	3 (6.8%)	0	3 (6.8%)
Starting Rank: Assistant Professor							
Average Monthly Salary in 2015-16	\$8519	\$8638	\$8285	\$8941	\$7875	\$8412	\$8137
N	516	216 (41.9%)	237 (45.9%)	84 (16.3%)	20 (3.9%)	19 (3.7%)	39 (7.6%)

¹ Percentage of faculty members at the indicated starting rank. Asian, Black, and Hispanic categories include male and female faculty members.

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-5: Average Years of Academic Experience
by Rank and Correlation with Monthly Salary (2015-16)¹**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members	Black & Hispanic Faculty Members
ALL							
Years at NIU	13.0	14.5	11.8**	11.0**	13.9	9.7**	12.0
Correlation	0.20 ^a	0.27 ^a	0.14 ^a	0.03	0.08	0.24	0.14
Years at other institutions	2.3	2.9	1.7**	1.7**	3.4	1.4	2.5
Correlation	0.26 ^a	0.35 ^a	0.07	0.28 ^a	0.52 ^a	0.28	0.34 ^a
N (%)	575	255	248	87	24	19	43
FULL							
Years at NIU	18.9	19.3	17.8	19.8	16.6	16.9	16.7
Correlation	0.01	0.06	-0.05	-0.35 ^b	-0.51	0.04	-0.37
Years at other institutions	4.0	4.8	2.7**	2.6*	4.7	0*	3.0
Correlation	0.31 ^a	0.28 ^a	0.22	0.54 ^a	0.51	NA	0.50 ^b
N (%)	192	112 (58.3%)	56 (29.2%)	23 (12.0%)	9 (4.7%)	5 (2.6%)	14 (7.3%)
ASSOCIATE							
Years at NIU	13.3	14.0	13.3	11.2*	13.7	11.1	12.6
Correlation	-0.13 ^a	-0.08	-0.12	-0.25	0.41	-0.05	-0.05
Years at other institutions	1.6	1.9	1.3*	0.9*	3.3	2.6	3.0
Correlation	0.08	0.14	-0.02	0.32 ^a	0.52 ^b	0.36	0.24
N (%)	256	98 (38.3%)	127 (49.6%)	38 (14.8%)	11 (4.3%)	8 (3.1%)	19 (7.4%)
ASSISTANT							
Years at NIU	3.7	3.8	3.9	3.1	8.3	2.0	4.5
Correlation	-0.08	0.08	-0.14	-0.23	-0.53	-0.24	-0.37
Years at other institutions	1.2	0.6	1.6**	2.1**	0.8	1.2	1.0
Correlation	-0.15 ^b	-0.26 ^b	-0.14	-0.15	0.98 ^a	-0.52	-0.09
N (%)	127	45 (35.4%)	65 (51.2%)	26 (20.5%)	4 (3.1%)	6 (4.7%)	10 (7.9%)

¹ Percentage of all faculty members at the indicated rank is reported below the number for each cell. Asian, Black, and

Hispanic categories include male and female faculty members.

^a P-value \leq 0.05 for test of zero correlation.

^b P-value $>$ 0.05 and \leq 0.10 for test of zero correlation.

** P-value \leq 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value $>$ 0.05 and \leq 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-6: Average Monthly Salary
by Productivity and Salary Adjustments (2015-16)**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members	Black & Hispanic Faculty Members
Merit Quintiles of College							
TOP: Percent of Column Group	19.3%	18.8%	21.4%	23.0%	0.0%	31.6%	14.0%
TOP: Ave Monthly Salary	\$8927	\$9450	\$8272**	\$8914		\$9634*	\$9634*
BOTTOM: % of Column Group	20.5%	20.4%	20.2%	19.5%	33.3%	5.3%	20.9%
BOTTOM: Ave Monthly Salary	\$8752	\$8799	\$8582	\$9041	\$8474	\$7848	\$8464
Professorship (Full Professors Only)							
Percent of Column Group	8.0%	11.0%	5.2%	4.6%	8.3%	10.5%	9.3%
Ave Monthly Salary of Awardees	\$11,052	\$11,388	\$10,320	\$11,177	\$10,097	\$9243	\$9670
Ave Monthly Salary of Other Full Professors	\$10,089	\$10,361	\$9746	\$10,053	\$8788*	\$8120	\$8588**
College Salary Adjustment							
Percent of Column Group	3.1%	2.4%	4.0%	2.3%	4.2%	0%	2.3%
Ave Monthly Salary	\$9130	\$11,350	\$7656**	\$9840	\$8123 ^{NA}		\$8123 ^{NA}
Ave Monthly Salary of Other Faculty Members	\$8743	\$9027	\$8349**	\$8996	\$8111*		\$8247**
University Salary Adjustment							
Percent of Column Group	8.9%	11.0%	7.3%	4.6%	4.2%	10.5%	7.0%
Ave Monthly Salary	\$9750	\$10,040	\$9417	\$9802	\$9554 ^{NA}	\$8067*	\$8563*
Ave Monthly Salary of Other Faculty Members	\$8658	\$8964	\$8235**	\$8977	\$8049*	\$8453	\$8221*

** P-value \leq 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.
* P-value $>$ 0.05 and \leq 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-7: Average Monthly Salary and CUPA Monthly Salary
by Rank (2015-16)**

	All Faculty Members	White Male Faculty Members	Female Faculty Members	Asian Faculty Members	Black Faculty Members	Hispanic Faculty Members
ALL						
Ave CUPA Monthly Salary	\$9626	\$10,009	\$9096**	\$9999	\$8727**	\$9476
Ave NIU Monthly Salary	\$8755	\$9082	\$8321**	\$9015	\$8112*	\$8412
Ave Difference	\$871 ^a	\$927 ^a	\$775 ^a	\$984 ^a	\$615 ^a	\$1064 ^a
FULL						
Ave CUPA Monthly Salary	\$11,661	\$11,837	\$11,344	\$11,915	\$10,212*	\$10,539
Ave NIU Monthly Salary	\$10,320	\$10,618	\$9879**	\$10,249	\$9079*	\$8569*
Ave Difference	\$1341 ^a	\$1220 ^a	\$1465 ^a	\$1666 ^a	\$1134 ^b	\$1970 ^a
FULL (rank yrs<10)						
Ave CUPA Monthly Salary	\$11,675	\$11,873	\$11,399	\$11,996	\$10,212*	\$10,539
Ave NIU Monthly Salary	\$10,106	\$10,319	\$9837	\$10,287	\$9079	\$8569*
Ave Difference	\$1569 ^a	\$1554 ^a	\$1562 ^a	\$1710 ^a	\$1134 ^b	\$1970 ^a
ASSOCIATE						
Ave CUPA Monthly Salary	\$8869	\$8844	\$8807	\$9417	\$8032	\$9774
Ave NIU Monthly Salary	\$8168	\$8019	\$8165	\$8632	\$7668	\$9206**
Ave Difference	\$701 ^a	\$826 ^a	\$642 ^a	\$785 ^a	\$364 ^b	\$568
ASSOCIATE (rank yrs<10)						
Ave CUPA Monthly Salary	\$8890	\$8738	\$8906	\$9467*	\$8020	\$9774
Ave NIU Monthly Salary	\$8230	\$7963	\$8276	\$8735*	\$7650	\$9205*
Ave Difference	\$660 ^a	\$774 ^a	\$630 ^a	\$731 ^a	\$369 ^b	\$568
ASSISTANT						
Ave CUPA Monthly Salary	\$8075	\$7995	\$7725	\$9154**	\$7298	\$8194
Ave NIU Monthly Salary	\$7572	\$7574	\$7284	\$8484	\$7157	\$7223
Ave Difference	\$503 ^a	\$420 ^a	\$441 ^a	\$671 ^a	\$141	\$971

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the designated group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t-test of difference between white male faculty members and faculty members in the designated group.

^a P-value ≤ 0.05 for a two-tailed test of difference between average CUPA monthly salary and average NIU monthly salary for the designated group.

^b P-value > 0.05 and ≤ 0.10 for a two-tailed test of difference between average CUPA monthly salary and average NIU monthly salary for the designated group.

**Table 3-8: Variable Definitions
(2015-16)**

Variable	Definition
<i>Individual's Demographic Characteristics</i>	
FEMALE	=1 if female, =0 if male
ASIAN	= 1 if Asian, =0 otherwise
BLACK	= 1 if Black, =0 otherwise
HISPANIC	= 1 if Hispanic, =0 otherwise
<i>Salary Measure (\$US 2016)</i>	
MORATE	Current monthly salary (monthly rate)
<i>Discipline-specific Monthly Salary (\$US 2016)</i>	
CUPA_D	Average monthly salary by department from national CUPA survey (NIU weights)
<i>Individual's Work Characteristics and Performance Measures</i>	
FULL	=1 if current rank is full professor, =0 otherwise
ASSOC	=1 if current rank is associate professor, =0 otherwise
ASSIST	=1 if current rank is assistant professor, =0 otherwise
YRSNIU	Number of years employed at NIU
YRSNIU-SQ	Squared value of number of years employed at NIU
YRSOTH	Number of years employed at other university or college
YRSOTH-SQ	Squared value of number of years employed at other university or college
QUINT-TOP	=1 if the faculty member's average merit rating lies in the highest quintile, =0 otherwise
QUINT-2ND	=1 if the faculty member's average merit rating lies in the 2 nd quintile, =0 otherwise
QUINT-MID	=1 if the faculty member's average merit rating lies in the middle quintile, =0 otherwise
QUINT-4TH	=1 if the faculty member's average merit rating lies in the 4 th quintile, =0 otherwise
QUINT-BOT	=1 if the faculty member's average merit rating lies in the bottom quintile, =0 otherwise
PROFSHIP	= 1 if PRP, PTP, PEP, or BTP Award, =0 otherwise
SALADJ	= 1 if received college level salary adjustment/match, =0 otherwise
SEADJ	= 1 if received Salary Equity or Critical Retention adjustment, =0 otherwise
<i>Department and College Control Variables</i>	
DISC_GRP	Set of dummy variables representing discipline groups /and library
DEPT	Set of dummy variables representing departments of the university and library

**Table 3-9: Descriptive Statistics for Regression Variables
(2015-16)**

	Average	Standard Deviation	Minimum	Maximum
<i>Individual's Demographic Characteristics</i>				
FEMALE	.431	.496	0	1
ASIAN	.151	.359	0	1
BLACK	.042	.200	0	1
HISPANIC	.033	.179	0	1
<i>Salary Measure (\$US 2016)</i>				
MORATE	8755	2561	4084	19,444
<i>Discipline-specific Monthly Salary (\$US 2016)</i>				
CUPA_D	9516	2292	6348	16,693
<i>Individual's Work Characteristics and Performance Measures</i>				
FULL	.334	.472	0	1
ASSOC	.445	.497	0	1
ASSIST	.221	.415	0	1
YRSNIU	13.03	8.60	0	46.97
YRSNIU-SQ	243.68	281.44	0	2206.17
YRSOTH	2.30	4.03	0	33
YRSOTH-SQ	21.47	72.01	0	1089.00
QUINT-TOP	.193	.395	0	1
QUINT-2ND	.198	.399	0	1
QUINT-MID	.193	.395	0	1
QUINT-4TH	.210	.408	0	1
QUINT-BOT	.205	.404	0	1
PROFSHIP	.080	.272	0	1
SALADJ	.031	.174	0	1
SEADJ	.089	.285	0	1
N	575			

Table 3-10: Estimated Percentage Effects of Individual Characteristics on Monthly Faculty Salary¹

Independent Variables	(a) Percentage Effect	(b) Percentage Effect	(c) Percentage Effect	(d) Percentage Effect	(e) Percentage Effect	(f) Percentage Effect	(g) Percentage Effect	(h) Percentage Effect
<i>Personal Characteristics:</i>								
FEMALE	- 0.091**	- 0.033**	0.012*	0.021	- 0.047**	- 0.046**	0.005	0.004
ASIAN	0.030	- 0.0001	0.027	0.030*	- 0.023	- 0.024	- 0.001	0.001
BLACK	- 0.048	0.050*	0.039*	0.047**	0.031	0.031	0.013	0.015
HISPANIC	- 0.017	- 0.033	- 0.009	- 0.018	- 0.045	- 0.045	- 0.024	- 0.037**
<i>Discipline:</i>								
CUPA_D		0.083**	0.079**	0.079**		0.033**	0.031**	- 0.030**
<i>Experience:</i>								
FULL			0.325**	0.298**			0.336**	0.309**
ASSOC			0.131**	0.134**			0.131**	0.132**
YRSNIU			- 0.013**	- 0.015**			- 0.010**	- 0.011**
YRSNIUSQ			0.0004**	0.0004**			0.0003**	0.0003**
YRSOTH			0.002	0.003			0.001	0.0008
YRSOTHSQ			0.0003**	0.0003**			0.0004**	0.0004**
<i>Productivity:</i>								
QUINT-TOP				0.031**				0.026**
QUINT-2ND				0.028*				0.011
QUINT-MID				0.022				0.013
PROFSHIP				0.081**				0.080**
SALADJ				0.033				0.045**
SEADJ				0.057**				0.054**
<i>Department Controls Included</i>	No	No	No	No	Yes	Yes	Yes	Yes
N	575							
R ²	0.0321	0.5332	0.7225	0.7368	0.6815	0.6819	0.8921	0.9032
Prob > F	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

¹ Dependent variable is ln(monthly salary). All specifications include an intercept.

** P-value ≤ 0.05 * P-value > 0.05 and ≤ 0.10

**Table 3-11: Estimated Percentage Effects on Monthly Faculty Salary
by Quantile¹**

	Quantiles				
	10th	25th	50 th (median)	75th	90th
Without Department Controls:					
FEMALE	- 0.001	0.020*	0.017	0.023	0.038**
ASIAN	- 0.002	0.020	0.048**	0.030*	0.031*
BLACK	0.081**	0.047**	0.016	0.023	- 0.021
HISPANIC	0.013	- 0.069**	- 0.026	- 0.006	- 0.030
Pseudo R ²	0.3762	0.4162	0.4908	0.5639	0.6240
With Department Controls:					
FEMALE	0.009*	0.001	- 0.003	- 0.004	- 0.007
ASIAN	- 0.007	- 0.003	0.0003	- 0.004	0.010
BLACK	0.004	- 0.015	- 0.006	0.030**	0.039
HISPANIC	- 0.075	- 0.013	- 0.022	- 0.017*	- 0.017
Pseudo R ²	0.7173	0.6957	0.7050	0.7399	0.7789
<p>¹ Specification (d) of Table 1 is used. Each group is compared to white males. The “White Male” category includes all non-Asian, non-Black, and non-Hispanic male faculty members and is predominantly individuals identified as White.</p> <p>** P-value ≤ 0.05</p> <p>* P-value > 0.05 and ≤ 0.10</p>					

Table 3-12: Estimated Percentage Effects of Individual Characteristics on Monthly Faculty Salary – Models with Interaction Variables¹

Independent Variables	(d) Percentage Effect	(h) Percentage Effect
<i>Personal Characteristics:</i>		
FEMALE	- 0.044	- 0.015
ASIAN	0.049	0.051
BLACK	0.151	- 0.021*
HISPANIC	- 0.046	- 0.068
<i>Discipline:</i>		
CUPA_D	0.081**	0.027**
<i>Experience:</i>		
FULL	0.297**	0.308**
ASSOC	0.124**	0.131**
YRSNIU	- 0.017**	- 0.012**
YRSNIUSQ	0.0005**	0.0004**
YRSOTH	0.005	0.0001
YRSOTHSQ	0.0003	0.0004**
<i>Productivity:</i>		
QUINT-TOP	0.006	0.027 ^A
QUINT-2ND	0.004	0.008
QUINT-MID	- 0.006	0.004
PROFSHIP	0.094**	0.094**
SALADJ	0.104	0.103**
SEADJ	0.090**	0.062**
<i>Statistically Significant Interactions:</i>		
SEADJ*FEMALE	- 0.099**	
YRSOTH*ASIAN	- 0.020*	- 0.021**
YRSOTHSQ*ASIAN	0.002**	0.002**
QUINT2ND*ASIAN	0.102**	
QUINTMID*ASIAN	0.083*	
PROFSHIP*ASIAN	- 0.165**	- 0.085*
SEADJ*ASIAN		0.057*
ASSOC*BLACK		- 0.083*
YRSOTH*BLACK	0.020*	
YRSOTHSQ*BLACK	- 0.001*	
QUINT2ND*BLACK	0.067*	
QUINTMID*BLACK	0.112**	
SALADJ*BLACK	- 0.143*	
QUINT2ND*HISPANIC	- 0.126**	
<i>Department Controls</i>		
<i>Included</i>	No	Yes
N	575	
R ²	0.7566	0.9098
Prob > F	NA	NA
¹ Variables from (d) and (h) in Table 10 form the basis of interactions. Dependent variable is ln(monthly salary). All specifications include an intercept. ** P-value ≤ 0.05 * P-value > 0.05 and ≤ 0.10 ^A P-value < 0.11		

**Table 3-13: Estimated Percentage Effects on Monthly Faculty Salary
by Group¹**

	WHITE MALE		FEMALE		ASIAN		BLACK or HISPANIC	
Independent Variables	Percentage Effect	Percentage Effect	Percentage Effect	Percentage Effect	Percentage Effect	Percentage Effect	Percentage Effect	Percentage Effect
<i>Discipline:</i>								
CUPA_D	0.080**	0.046**	0.079**	- 0.100**	0.079**	0.027**	0.047**	- 0.209**
<i>Experience:</i>								
FULL	0.287**	0.309**	0.301**	0.315**	0.399**	0.418**	0.099	0.088
ASSOC	0.110**	0.124**	0.138**	0.133**	0.170**	0.187**	0.060	0.024
YRSNIU	- 0.016**	- 0.011**	- 0.012*	- 0.011**	- 0.025**	- 0.021**	0.009	0.005
YRSNIU-SQ	0.0004**	0.0003**	0.0003*	0.0004**	0.0005*	0.0005**	- 0.0003	0.00003
OTHYRS	0.003	- 0.0001	0.011	0.006	- 0.015	- 0.021**	0.010	0.007
OTHYRS-SQ	0.0003*	0.0004**	- 0.001	- 0.00002	0.002**	0.002**	0.0003	0.0005
<i>Productivity:</i>								
QUINT-TOP	0.010	0.035**	0.036	0.024~	0.080*	- 0.019	0.038	- 0.133**
QUINT-2ND	0.008	0.011	0.037	0.020~	0.109**	0.005	- 0.051	- 0.069
QUINT-MID	0.0003	0.011	0.049*	0.039**	0.078*	0.022	- 0.058	- 0.075
PROFSHIP	0.093**	0.101**	0.070*	0.072*	- 0.081	- 0.006	0.174**	0.503**
SALADJ	0.103	0.092**	- 0.012	0.033	0.113	- 0.013	- 0.127**	- 0.090**
SEADJ	0.086**	0.064**	- 0.020	0.021	0.126**	0.160**	- 0.104	- 0.390**
<i>Department Controls Included</i>	No	Yes	No	Yes	No	Yes	No	Yes
R ²	0.7674	0.8987	0.6936	0.9340	0.7818	0.9552	0.7879	0.9648
Prob > F	0.0000		0.0000		0.000			
N	255		248		87		43	

¹ Dependent variable is ln(monthly salary). Specifications (d) and (h) of Table 1 are used. All specifications include an intercept.

** P-value ≤ 0.05 * P-value >0.05 and ≤ 0.10 ~ P-value >0.10 and ≤0.15 ^A Column (h): HISPANIC statistically significant at P>|0.10|

**Table 3-14: Decomposition of Differences in Monthly Faculty Salary
for All Faculty by Gender and Minority Status¹**

	Observed Difference	Predicted Difference	Percent Difference (no dept controls)	Percent Difference (dept controls)
FEMALE (vs. White male)	- \$761**	- \$747**	- 9.32**	
Productive Factors			- 12.27**	- 11.42**
Unexplained			+ 2.63*	+ 1.88**
ASIAN (vs. White male)	- \$67	- \$94	- 1.09	
Productive Factors			- 5.06	- 3.00
Unexplained			+ 3.78**	+ 1.85
BLACK & HISPANIC (vs. White male)	- \$838**	- \$630**	- 7.74**	
Productive Factors			- 10.71**	- 7.79**
Unexplained			+ 2.68	+ 0.04

¹ The "White Male" category includes all non-Asian, non-Black, and non-Hispanic male faculty members and is predominantly individuals identified as White. Specification (d) of Table 1 is used.

** P-value ≤ 0.05

* P-value > 0.05 and ≤ 0.10

**Table 3-15: Quantile Oaxaca Decompositions of Monthly Faculty Salary
by Gender and Minority Status¹**

	Percent Effects at Quantiles				
	10th	25th	50 th (median)	75th	90th
FEMALE (vs. White male)					
% Difference	+ 5.92**	+ 6.31**	+ 9.97**	+ 11.86**	+ 9.08
% Productive Factors	+ 8.43*	+ 10.67**	+ 13.28**	+ 13.39**	+ 11.52**
% Unexplained	- 2.51	- 4.35**	- 3.31*	- 1.53	- 2.44
ASIAN (vs. White male)					
% Difference	- 0.51	+ 1.66	+ 2.97	+ 1.12	- 6.65
% Productive Factors	+ 5.78**	+ 6.02**	+ 5.56**	+ 3.20*	- 0.62
% Unexplained	- 6.30**	- 4.36	- 2.59	- 2.08	- 6.03**
BLACK & HISPANIC (vs. White male)					
% Difference	- 5.44**	- 0.18	+ 8.03**	+ 16.31**	+ 18.58**
% Productive Factors	+ 5.85**	+ 7.60**	+ 9.48**	+ 10.07**	+ 14.55**
% Unexplained	- 11.30**	- 7.78**	- 1.44	+ 6.24**	+ 4.04

¹ Specification (d) of Table 1 is used for estimating the quantile effects. Standard errors are bootstrapped with reps=100. Percentage is white male minus the indicated group. The "White Male" category includes all non-Asian, non-Black, and non-Hispanic male faculty members and is predominantly individuals identified as White.

** P-value \leq 0.05

* P-value $>$ 0.05 and \leq 0.10

**Table 3-16: Compression of Average Monthly Salary
by Discipline Group (2015-16)**

	N	Mean	Minimum	Maximum	Compression Ratio¹
BUSINESS:	50				
Full	19	15,177	12,260	19,444	1.10
Associate	21	14,876	12,139	17,812	1.08
Assistant	10	13,767	8889	17,778	
EDUCATION	66				
Full	14	9308	8371	11,083	1.36
Associate	28	7386	6634	8800	1.08
Assistant	24	6815	6333	7222	
ENGIN & ENGIN TECH	33				
Full	13	11,420	9147	14,654	1.45
Associate	8	8733	7863	10,220	1.11
Assistant	12	7876	6667	9293	
HEALTH & HUM SCI	56				
Full	8	9231	8347	9992	1.30
Associate	27	7921	6631	8858	1.11
Assistant	21	7111	6222	8111	
VISUAL & PERF ARTS	72				
Full	31	8642	7118	12,487	1.62
Associate	33	6382	5808	8500	1.20
Assistant	8	5335	4783	6222	
PHYS SCI (CLAS)	100				
Full	43	10,579	4446	15,876	1.29
Associate	42	8186	5756	12,800	1.00
Assistant	15	8224	7000	10,000	
BEHAV & SOC SCI (CLAS)	84				
Full	29	10,233	8538	15,397	1.30
Associate	39	8313	7463	10,881	1.06
Assistant	16	7862	6333	9444	
HUMANITIES (CLAS)	95				
Full	32	9487	7928	13,065	1.45
Associate	48	7433	5564	8389	1.14
Assistant	15	6531	6111	7333	
LIBRARY	19				
Full	3	5774	5404	6316	1.29
Associate	10	5273	4727	6211	1.18
Assistant	6	4460	4084	4850	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

** P-value ≤ 0.05 for a two-tailed t-test of difference between white male faculty members and faculty members in the specific group.

* P-value > 0.05 and ≤ 0.10 for a two-tailed t-test of difference between all faculty members and faculty members in the specific group.

**Table 3-17: Compression of Average Monthly Salary
by Department (2015-16)**

	N	Mean	Minimum	Maximum	Compression Ratio¹
ACCOUNTANCY	17	1			
Full	8	15,433	14,096	16,321	.87
Associate	8	16,078	14,018	17,812	.90
Assistant	1	17,778	17,778	17,778	
FINANCE	7	2			
Full	2	18,032	16,619	19,444	1.12
Associate	4	16,322	16,080	16,444	1.01
Assistant	1	16,111	16,111	16,111	
MANAGEMENT	11	3			
Full	3	13,666	12,260	14,643	.97
Associate	5	13,234	12,139	14,280	.94
Assistant	3	14,074	13,333	14,444	
MARKETING	8	4			
Full	3	14,583	14,469	14,740	1.13
Associate	4	13,079	12,923	13,244	1.01
Assistant	1	12,889	12,889	12,889	
OMIS	7	5			
Full	3	14,699	13,980	15,419	1.21
Associate	0				
Assistant	4	12,167	8889	13,333	
ELEC ENGIN	9	13			
Full	3	11,974	11,631	12,577	1.56
Associate	4	9017	7863	10,220	1.18
Assistant	2	7667	7556	7778	
ENGIN TECH	10	14			
Full	5	10,427	9147	12,585	1.48
Associate	2	8006	7949	8064	1.14
Assistant	3	7037	6667	7222	
INDUS & SYS ENGIN	5	15			
Full	2	12,367	10,080	14,654	1.43
Associate	1	8228	8228	8228	.95
Assistant	2	8636	8333	8938	
MECH ENGIN	9	16			
Full	3	11,889	10,921	12,471	1.46
Associate	1	9552	9552	9552	1.17
Assistant	5	8159	7611	9293	
LIBRARY	19	42			
Full	3	5774	5404	6316	1.29
Associate	10	5273	4727	6212	1.18
Assistant	6	4460	4084	4850	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

Table 3-17 (continued)

	N	Mean	Minimum	Maximum	Compression Ratio¹
CAHE	8	6			
Full	3	8768	8371	9547	1.29
Associate	2	7259	7247	7271	1.07
Assistant	3	6778	6556	6889	
ETRA	12	7			
Full	3	10,124	9334	11,083	1.48
Associate	4	7107	6634	7318	1.04
Assistant	5	6844	6667	6889	
KINESIOLOGY & PE	11	8			
Full	3	8965	8474	9554	1.31
Associate	4	7369	7052	7725	1.08
Assistant	4	6833	6667	6889	
LEPF	13	9			
Full	2	9065	8557	9573	1.38
Associate	7	7465	7220	7893	1.13
Assistant	4	6583	6333	6889	
LIT & ELEM EDUC	11	10			
Full	2	9915	9823	10,007	1.44
Associate	6	7792	7250	8800	1.13
Assistant	3	6889	6889	6889	
SPEC EDUC & TEACHING	11	11			
Full	1	8785	8785	8785	1.27
Associate	5	7077	6866	7348	1.02
Assistant	5	6933	6663	7222	
ART & DESIGN	31	43			
Full	11	9265	7210	12,487	1.62
Associate	17	6459	5808	8500	1.13
Assistant	3	5704	5333	6222	
MUSIC	27	44			
Full	14	8192	7199	11,000	1.29 ²
Associate	13	6361	5811	6747	
Assistant	0				
THEATRE & DANCE	14	45			
Full	6	8548	7118	10,342	1.67
Associate	3	6033	5851	6172	1.18
Assistant	5	5113	4783	5556	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

² Because there are no assistant professors, the compression ratio reported is the ratio of the average monthly salary of full professors to that of associate professors.

Table 3-17 (continued)

	N	Mean	Minimum	Maximum	Compression Ratio¹
ALLD HLTH & COMM DIS	17	17			
Full	1	9992	9992	9992	1.40
Associate	7	8486	7888	8858	1.19
Assistant	9	7151	6667	8111	
FCNS	15	18			
Full	4	8991	8347	9830	1.29
Associate	7	7238	6631	7656	1.04
Assistant	4	6993	6222	7863	
HEALTH SCIENCE	10	19			
Full	2	9417	9017	9817	1.27
Associate	5	8250	8013	8601	1.11
Assistant	3	7407	6667	7778	
NURSING	14	20			
Full	1	9060	9060	9060	1.30
Associate	8	7820	7089	8621	1.12
Assistant	5	6956	6667	7222	
ANTHROPOLOGY	9	21			
Full	6	9665	8538	11,356	1.40
Associate	1	7689	7689	7689	1.11
Assistant	2	6917	6333	7500	
BIO SCIENCES	21	22			
Full	10	10,161	7902	12,701	1.30
Associate	7	7954	7076	8811	1.01
Assistant	4	7842	7708	8222	
CHEM & BIOCHEM	12	23			
Full	4	10,889	8508	14,270	1.40 ²
Associate	8	7793	5756	8506	
Assistant	0				
COMMUNICATION	20	24			
Full	9	9228	8443	10,993	1.29
Associate	9	7800	7225	8389	1.09
Assistant	2	7139	6944	7333	
COMPUTER SCIENCE	9	25			
Full	2	13,974	12,072	15,876	1.41
Associate	5	10,426	9305	12,800	1.05
Assistant	2	9944	9889	10,000	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

² Because there are no assistant professors, the compression ratio reported is the ratio of the average monthly salary of full professors to that of associate professors.

Table 3-17 (continued)

	N	Mean	Minimum	Maximum	Compression Ratio¹
ECONOMICS	9	26			
Full	2	13,543	11,689	15,397	1.48
Associate	3	10,332	9748	10,881	1.13
Assistant	4	9171	8889	9444	
ENGLISH	25	27			
Full	9	9020	7928	10,497	1.41
Associate	14	7366	6865	7778	1.15
Assistant	2	6417	6222	6611	
FOR LANG & LIT	15	28			
Full	2	8554	8231	8876	1.36
Associate	8	6869	5564	7928	1.09
Assistant	5	6293	6111	6688	
GEOGRAPHY	11	29			
Full	4	9973	9061	10,996	1.45
Associate	4	7839	7589	8177	1.14
Assistant	3	6889	6889	6889	
GEOLOGY & ENV GEOSC	11	30			
Full	5	10,409	8623	14,148	1.35
Associate	3	8328	7064	9381	1.08
Assistant	3	7704	7222	8000	
HISTORY	25	31			
Full	8	10,582	8389	13,065	1.62
Associate	12	7656	7119	8328	1.17
Assistant	5	6546	6333	6728	
MATH SCIENCES	22	32			
Full	8	10,199	7776	12,143	1.46
Associate	13	7632	6549	9087	1.09
Assistant	1	7000	7000	7000	
PHILOSOPHY	10	34			
Full	4	9396	8800	10,581	1.41
Associate	5	7323	7135	7700	1.10
Assistant	1	6667	6667	6667	
PHYSICS	20	35			
Full	13	10,401	9145	12,762	1.37
Associate	5	8087	7937	8300	1.06
Assistant	2	7611	7222	8000	
POL SCIENCE	10	36			
Full	3	9588	9022	10,545	1.35
Associate	6	7922	7638	8534	1.11
Assistant	1	7111	7111	7111	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

Table 3-17 (continued)

	N	Mean	Minimum	Maximum	Compression Ratio¹
PSYCHOLOGY	25	38			
Full	11	10,166	8614	13,567	1.22
Associate	11	8272	7463	9588	.99
Assistant	3	8352	7833	9000	
PUBLIC ADMIN	7	39			
Full	1	11,776	11,776	11,776	1.51
Associate	4	8878	8004	10,000	1.14
Assistant	2	7778	7778	7778	
SOCIOLOGY	13	40			
Full	2	9709	8289	10,128	1.41
Associate	10	8014	7568	8505	1.16
Assistant	1	6889	6889	6889	
STATISTICS	5	41			
Full	1	12,940	12,940	12,940	1.45
Associate	1	9015	9015	9015	1.01
Assistant	3	8926	8333	9778	
LAW		46			
Full	3	13,272	11,556	14,751	1.42
Associate	7	10,463	10,244	10,911	1.12
Assistant	5	9378	9111	9444	

¹ Compression ratio is the ratio of the average monthly salary of full professors (associate professors) to that of assistant professors.

4 References

- American Association of University Professors (AAUP). "Recommendations on Partner Accommodation and Dual-Career Appointments."
<http://www.aaup.org/AAUP/comm/rep/dual.htm>
- Babcock, Linda and Sara Laschever. 2009. *Women don't ask: Negotiation and the gender divide*. Princeton University Press.
- Barron, Lisa. 2003. "Ask and you shall Receive? Gender Differences in Negotiators' Beliefs about Requests for a Higher Salary." *Human Relations* 56: 635-662.
- Bellas, Marcia. 1994. "Comparable Worth in Academia: The Effects on Faculty Salaries of the Sex Composition and Labor-Market Conditions of Academic Disciplines." *American Sociological Review* 59: 807-821.
- Blinder, A. 1973. "Wage Discrimination: Reduced Form and Structural Estimates." *Journal of Human Resources* 8(4): 436-455.
- College and University Professional Association for Human Resources,
<http://www.cupahr.org/surveys/results.aspx>
- Charmaz, Kathy. 2014. *Constructing Grounded Theory*. Sage: Los Angeles.
- Duncan, KC, Krall, L, Maxcy, JG, and Prus, MJ. 2004. Faculty Productivity, Seniority, and Salary Compression. *Eastern Economic Review* 30(2): 293-310.
- Elvira, Marta and Mary Graham. 2002. "Not Just a Formality: Pay System Formalization and Sex-Related Earnings Effects." *Organization Science* 13: 601-617.
- Ferber, Marianne A., and Jane W. Loeb. 1997. *Academic Couples: Problems and Promises*. Champagne, IL: University of Illinois Press.
- Flaherty, C. 2013/02/11. Decompressing Salaries. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/news/2013/02/11/university-tries-deal-salary-compression-among-faculty-members?width=775&height=500&iframe=true>.
- Geisler, I, and Oaxaca, RL. 2005. "Faculty Salary Determination at a Research I University." Working Paper, University of Arizona, Department of Economics.
- Levanon, Asaf; Paula England; and Paul Allison. 2009. "Occupational Feminization and Pay: Assessing Causal Dynamics Using 1950-2000 U.S. Census Data." *Social Forces* 88: 865-891.
- McDonald, JB, and Sorensen, J. 2017. "Academic salary compression across disciplines and over time." *Economics of Education Review* 59: 87-104.
- Mitchell, Sara and Vicki Hesli. 2013. "Women Don't Ask? Women Don't Say No? Bargaining and Service in the Political Science Profession." *PS: Political Science & Politics* 46: 355-369.

- Murphy, Emily and Daniel Oesch. 2016. "The Feminization of Occupations and Change in Wages: A Panel Analysis of Britain, Germany, and Switzerland." *Social Forces* 94: 1221-1255.
- Oaxaca, RL. 1973. "Male-Female Wage Differentials in Urban Labor Markets." *International Economic Review* 14(3): 693-709.
- Oaxaca, RL and Ransom, MR. 2002. "Regression methods for correcting salary inequities between groups of academic employees." *New Directions for Institutional Research*, 2002: 91-104.
- Oaxaca, RL and Ransom, MR. 2003. "Using Econometric Models for Intrafirm Equity Salary Adjustments." *Journal of Economic Inequality* 1(3): 221-49.
- Reid, Lori. 1998. "Devaluing Women and Minorities: The Effects of Race/Ethnic and Sex Composition of Occupations on Wage Levels." *Work and Occupations* 25: 511-536.
- Schiebinger, L.; A Davies Henderson; and SK Gilmartin. 2008. "Dual-career academic couples: What universities need to know." Retrieved from Michelle R. Clayman Institute for Gender Research, Stanford University website:
http://gender.stanford.edu/sites/default/files/DualCareerFinal_0.pdf
- Small, Deborah; Michele Gelfand; Linda Babcock; and Hilary Gettman. 2007. "Who goes to the bargaining table? The influence of gender and framing on the initiation of negotiation." *Journal of Personality and Social Psychology* 93: 600-613.
- University of Oregon. "Dual Career Appointments/Faculty Hiring."
<http://facultyhiring.uoregon.edu/dual-career-appointments/>
- Wolf-Wendel, Lisa; Susan B. Wombly; and Suzanne Rice. 2003. *The Two-Body Problem: Dual-Career Couple Hiring Practices in Higher Education*. Baltimore, MD: Johns Hopkins University Press.
- Wooldridge, JM. 2008. *Introductory Econometrics: A Modern Approach*, 4 ed. Mason, OH: South-Western Cengage Learning.