

**FACULTY COMPENSATION AT UNM:
IS THE REWARD SYSTEM EQUITABLE?**

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Key Results from the Study

1. White male faculty members earn higher salaries than do women and Hispanic men at UNM. For the 2004-2005 academic year, women earned 87% of white, non-Hispanic men. This percentage compares favorably with the national average of 85%. Average salaries for Hispanic men at UNM were 94% of white, non-Hispanic men.
2. Human capital and department affiliation account for most – but not all – of these raw gaps. After controlling human capital and department affiliation, a gender gap of 1.7% remains, and a 4.4% gap opens for African American faculty at the University level. In the College of Arts and Sciences the gender gap is about two percent and gaps of 2.5% and 6.1% remain for Hispanic and American Indian faculty members, respectively.
3. The reward structure at UNM is not uniform across groups. The rewards for teaching, publishing, grant writing and holding administrative posts vary substantially for men, women, and Hispanic and non-Hispanic faculty.
4. Despite the differences in the incentive structures, both men and women express a preference for spending more of their time in research and less in teaching. In addition, men and women express no significant differences in preferences for department attributes such as salary, rank, and teaching load. Nevertheless, women and Hispanic faculty do report more hours spent on teaching, compared with men and non-Hispanic faculty, respectively.

EXECUTIVE SUMMARY

Nationally, white male faculty members earn higher salaries than women and members of minorities. This study investigates the extent to which these patterns also exist at the University of New Mexico. The most recent AAUP study of gender equity identifies four indicators of equity: employment status, tenure status, achievement of the rank of full professor, and average salaries. In general, the University of New Mexico compares favorably with the national averages for public doctoral universities. At UNM, relatively more of the full-time faculty is female and relatively fewer non-tenure track faculty are women. Women at UNM represent a larger share of tenure track and tenured faculty, and that difference is particularly pronounced at the rank of full professor. Overall, women’s salaries at UNM are closer to those of men than the national average, but at the ranks of assistant and associate professor, the national average is slightly more equitable than at UNM. Table I summarizes these comparisons.

Table I: Four Equity Indicators: National Averages at Public Doctoral Universities Compared with the University of New Mexico: 2006

	National Average	UNM
Indicator 1: Employment Status		
Percent of full-time faculty who are women	34.4	40.1
Indicator 2: Tenure Status		
Percent non-tenure track who are women	53.8	50.0
Percent tenure track who are women	41.0	43.2
Percent tenured who are women	26.0	36.7
Indicator 3: Full Professor status		
Percent of full professors who are women	19.2	26.5
Indicator 4: Women’s salary as % of men’s		
Full Professors	90.8	94.7
Associate Professors	92.8	91.0
Assistant Professors	91.6	89.8
All	78.6	84.9

Source: AAUP Faculty Gender Equity Indicators 2006 (Curtis and West, 2006)

Aggregate statistics and averages across broad categories cannot definitively establish equity or inequity. Salaries differ for a number of reasons, some legitimate and some less so.

For example, a university that hopes to hire and retain faculty members in professional schools must offer compensation that is competitive with the professional salaries that could be earned outside of academia. Hiring and retaining humanities faculty requires a less competitive compensation package. If men and women are not equally represented across disciplines, their salaries will be unequal. And differences in human capital and productivity can lead to higher salaries even within a discipline. A complete investigation of equity in academia (and at UNM) requires consideration of alternative explanations for salary differences.

What are the data needs?

Limiting the investigation to a single campus allowed us to consider salary differences in detail. Unlike studies that have relied on single-year national surveys or single-campus averages, we began our investigation by creating an unusually rich dataset. The largest component of our dataset was university-wide administrative data covering salary, demographic, teaching and grants information for all tenured and tenure-track faculty (exclusive of the Medical School) between 1995 and 2004. Conventional wisdom suggests that faculty who are more mobile command a higher salary, either because they have moved in response to a generous offer or because the University has matched an outside offer in an effort to retain a valued employee. To capture mobility, we include in the dataset an indicator variable for whether the faculty member chose the portable pension plan, conditional on that choice being available. While teaching and grant activity provide productivity data at the University level, we refine our measure of productivity for all current tenured and tenure track faculty in the College of Arts and Sciences (which comprises approximately 45% of the entire UNM faculty). For these faculty members we include life publications records drawn from faculty Curriculum Vitae and discipline-specific

academic search engines on the internet. We also conducted a university-wide web-based survey of current tenured and tenure-track faculty to gather data about faculty attitudes and activities, information that is not available from other sources. Approximately two-thirds of the UNM faculty completed the survey.

Do differences in human capital, productivity, mobility, and department affiliation explain the differences?

Using this detailed dataset, we estimated the effect of human capital, productivity, mobility, and department affiliation on salary. As expected, faculty members at higher ranks earn more, as do those with more years of experience and those who were older. At the same time, years at UNM have a slight dampening effect on salaries. However, faculty members whose UNM experience included terms as college administrators or department or division chairs had significantly higher salaries.

Mobility, as proxied by choice of the portable pension plan, was associated with a higher salary. Productivity, however, is unevenly rewarded at UNM. Publication and grant activity tends to increase salary. But the more new course preps a faculty member takes on, the lower his or her salary.

Our results confirm that a gender gap that is smaller than the national average exists at UNM. For the 2004-05 academic year, we find that white women, on average, earned 88.7% of white, non-Hispanic men. Hispanic, American Indian, African American and Asian women earned even less. Average salaries for Hispanic men were 94% of white, non-Hispanic men. (See table 3.1). When we control measures of human capital, productivity, mobility and department, we can explain most – but not all – the raw earnings gaps among groups: a

statistically significant gender gap of 1.7% and a statistically significant penalty for African American faculty of 4.4% remain. No gap, however, remains at the University level for Hispanics, American Indians or Asians.

Do more detailed productivity measures explain the gap?

When we limit the population to faculty in the College of Arts and Sciences where we have more detailed measures of publication productivity we estimate a statistically significant gender gap of up to two percent, a statistically significant 2.5% penalty for Hispanic faculty and a statistically significant penalty of 6.1% for American Indian faculty. We are unable to estimate a gap for African American faculty due to the small number present in the data. These results suggest that there is little difference in gender equity across the schools and colleges that make up the University, but that Hispanics and American Indians face greater salary inequity in the College than elsewhere in the University. That a gap is found for Hispanic and American Indian faculty at the College level, but not at the University level, indicates that compensation for members of these subgroups outside the College of Arts and Sciences must be high enough to offset the penalties present in the College.

Is the reward structure consistent across groups?

We employ the Oaxaca decomposition technique, a standard method in the economics literature, to consider systematic differences in the way productivity and other characteristics are rewarded. The Oaxaca decomposition allows us to separate the salary effects of differences in observable characteristics, like human capital and productivity, from the effects of differences in returns to those characteristics. Faculty salaries will understandably reflect differences in human

capital and productivity. Faculty who publish more, who have more experience, or who take on additional administrative responsibilities earn higher salaries. The Oaxaca decomposition allows us to test whether the returns to those characteristics are the same regardless of gender or ethnicity. We find that, at the University and at the College, the returns to these characteristics are very different.

What are the incentives provided to female faculty?

Human capital variables and department variables account for nearly the entire raw earnings gap between men and women. Thus the greatest contribution to women's lower pay at UNM is fewer years of experience and being affiliated with lower salary departments. However, differences in returns contribute to the remaining gap and, in some cases, offset the gap. At both the University and College levels, women earn lower returns to grant activity and are penalized more for time spent at UNM. On the other hand, women earn higher returns than men due to ethnicity, teaching and department affiliation. At the University level only, women earn lower returns to human capital. In the College of Arts and Sciences, returns to human capital slightly favor women. The returns to trend (annual salary increases), mobility and publications favor men.

The measured returns to the constant term favor men, and the magnitude of that difference is substantial, particularly in the College of Arts and Sciences. This means that women face a large and unexplained penalty that is not related to any particular characteristic or return.

What incentives are provided to ethnic groups?

As was true for women, human capital and department affiliation explain most of the wage gap for ethnic groups. At both the University and the College, the returns to trend and department affiliation favor white, non-Hispanic faculty over Hispanic faculty, as do returns to human capital and grant activity at the University level. Returns to U.S. Citizenship, UNM experience – in particular experience in administration – and teaching all favor Hispanic faculty members, offsetting some of the gap.

The measured returns to the constant term favor non-Hispanic whites, and, as was true for the gender analysis, the magnitude of that difference is substantial, particularly in the College of Arts and Sciences. Hispanics, like women, face a large and unexplained penalty that is not related to any particular characteristic or return.

The Oaxaca decomposition suggests that women and men and Hispanic and non-Hispanic faculty face different incentive structures at UNM. The higher returns to administrative positions suggest that the University encourages those from traditionally underrepresented groups to assume leadership roles. At the same time, the lower rewards to publication and grant writing, in the case of women, may discourage these activities.

Are these differences explained by differences in faculty attitudes or preferences?

On average, men and women do not differ significantly in terms of average hours of work per week, but they have quite different time allocations. Women spend significantly more time on teaching/advising, serving clients, and service to the campus and public. Men spend significantly more time on research and creative works, professional service, and non-UNM paid consulting. Hispanics spent significantly more time teaching than whites. These time allocations

are somewhat at odds with stated preferences, with the average faculty member saying that while they have interests in both, they lean towards research.

Results from the choice question included in the survey indicate that on average, men and women do not express any significant differences in preferences over characteristics of the workplace or their jobs. The job components examined included salary, average departmental salary, average salary by rank, teaching load, departmental rank, and rank by field: men and women did not significantly differ in how they valued each of these job attributes. Thus, we can conclude that men and women do not have different preferences over compensation, teaching load, the rank of their department, or salary equity within a department.

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CHAPTER 1: Equity in Academia

In general, women, Hispanics and African American faculty earn less than white non-Hispanic men throughout academia. Among tenured and tenure-track faculty at doctorate-granting universities, women's salaries are, on average, slightly more than 78% of men's, a difference that has not changed since 1996 (West and Curtis, 2006). This raw difference in salaries has led at least 75 different universities in 36 states to conduct internal reviews of faculty equity¹. At the University of New Mexico, tenured and tenure-track women's salaries are almost 85% of men's, suggesting a smaller gap than is observed nationally. However, the smaller gap at UNM is attributable entirely to a high degree of salary equity at the rank of full professor. At UNM, women who have attained the rank of full professor earn salaries that are 94.7% of male full professors' salaries, while the national average is 90.9%. Among associate professors, the national average is 92.7%, while at UNM it is 91.0%. Among assistant professors, the national average is 91.5%, but at UNM it is 89.8%².

While gender gaps in academia have been widely studied, less attention has been paid to salary discrepancies by race. Using the 1993 National Study of Post-Secondary Faculty (NSOPF) data, Toutkoushian (1998) finds that, after controlling productivity and human capital, Asian males earn a 1% wage premium relative to white males but that Hispanic, black, and other non-white males earn a 1%-8% unexplained wage penalty. Relative to white women, Hispanic women earn a 1% wage premium and black women a 5% wage premium after controlling

¹ For links to those reviews, see http://www7.nationalacademies.org/cwse/gender_faculty_links.html last accessed: October 30, 2006.

² Source: AAUP Faculty Gender Equity Indicators 2006. <http://www.aaup.org/AAUP/pubsres/research/genecq2006> last accessed November 6, 2006. Our calculations are based on 2004-05 salaries, and so differ slightly from the AAUP's 2005-06 salary calculations.

productivity. No difference is observed between white and Asian women. The only measured gap that is statistically significant is the premium earned by black women.

University internal reviews have focused on gross salary differences by gender, rank and race, but salary discrepancies in aggregate measures of differences in pay obscure possible explanations for those differences. While internal salary equity studies typically do not investigate the effects of explanatory variables, in large part because this information is costly to collect, researchers have exploited national-level datasets to tease out explanations for salary inequity. Economists posit that wages are determined by the supply of and demand for workers with particular skills and degrees of productivity. Thus models strive to explain observed differences in wages as a function of human capital, productivity, demographic, workplace and market characteristics. In academia, we would expect these kinds of considerations to lead to higher wages for faculty members who are relatively more productive, who have more lucrative non-academic career opportunities, or who work in fields in which there is a shortage of qualified candidates. In this study we combine the single campus view taken by university-specific studies with the multivariate approach that detailed surveys allow to consider equity at the University of New Mexico.

We use the two standard approaches found in the economics literature to determine whether groups of workers are disadvantaged in compensation, after productivity is controlled. In the first approach, we simply add indicator variables for women and minorities to a standard wage equation that controls measures of productivity. Significant, negative parameter estimates for these indicator variables would show that women and minorities with similar productivity characteristics earn less than their male, non-minority counterparts. Insignificant parameter estimates would suggest that women and minorities are paid according to their productivity.

The second approach is to estimate separate equations by group. A well-known technique, called the Oaxaca decomposition, allows us to identify the extent to which differences in observable characteristics and differences in the degree to which these characteristics are rewarded contribute to a raw wage gap. A typical finding in this literature is that some of the gender gap and the black-white wage gap in the labor market as a whole is due to the lower human capital of women and black workers (i.e, a characteristic) and some is due to differential rewards to human capital investments (i.e., women and black workers reap lower returns for their human capital than do white men). Economists interpret differential rewards as evidence of discrimination.

Salary studies in academia have employed both techniques, and these studies have generally found negative parameter estimates in the single-equation approach and systematic differences, by gender, in the way productivity is rewarded in the Oaxacan approach.

1.1 Rank vs. Experience

Researchers have also investigated equity in promotion, by modeling the probability of promotion as a function of time in rank and the same human capital controls used in wage models. While evidence of systematic differences in promotion, when productivity is controlled, would be interesting by itself, evidence of discrimination in promotion has serious implications for including rank as an explanatory variable in wage equations. If rank explains a substantial fraction of observed salary differences, but rank is awarded in a discriminatory way, then the explained salary difference is confounded by bias in promotion. The estimated remaining salary gap, controlling for rank, will understate bias because of the inherent bias in rank.

In the AAUP's 2005 national survey of full-time faculty members approximately 47% of women had tenure while 70% of men did, proportions that have remained constant for more than two decades. Because promotion to a higher rank is typically accompanied by a salary increase, including rank as an explanatory variable in wage equations reduces the gender gap. Toutkoushian and Conley (2005) find that inclusion of rank as an explanatory variable reduces the unexplained gender gap from 5.2% to 3.6%. Monks and Robinson (2000) estimate wage equations separately for men and women and find that, of the observed 21% raw earnings differential, 8.2 percentage points can be explained by rank and 4.5 points can be explained by experience and seniority. No other explanatory variable accounts for more than three percentage points of the 21-point difference. They conclude that, since experience, seniority, rank and tenure status account for the lion's share of wage differences, "...as women and minorities achieve parity with white males in experience, seniority and promotion, the aggregate gender and racial gaps should continue to narrow" (670). Monks and Robinson's optimism appears unfounded in light of the AAUP's 2005 finding that the proportion of women who are tenured has not changed in two decades despite increases in the number of women entering the academic pipeline.

A number of studies have found differences in the probability of promotion for men and women. Using the 1995 Survey of Doctorate Recipients (SDR) Olson (2002) found that, for science and engineering faculty, family status, work activities, and publication record differentially affected the probability of tenure for men and for women. She estimates that a female would have to publish eleven more articles than a man to face the equivalent probability of promotion. Ginther and Hayes (1999) use the 1977–1993 SDR to consider both salary and promotion equity in the humanities and, like Olson, find that women are disadvantaged when it

comes to promotion. Controlling for productivity measures, age, and time since degree, they find that women are approximately 25% less likely to be promoted. Ginther and Kahn (2004) use the 1973–2001 SDR to consider promotion equity among economics PhD recipients. Ten years following receipt of a PhD, men are 15% more likely to have tenure than women when controls for publications, family characteristics, primary work activity and institution characteristics are controlled.

In short, the evidence suggests that the determination of rank is not gender-blind. It follows that models designed to test equity in wage determination should control experience and direct productivity measures, rather than rank. If experience is not available, then rank may be a second best proxy, with the understanding that estimated wage penalties will likely be too small.

1.2 Labor Markets

Bellas (1994) investigated wage disparity in academia using data collected in a 1984 national survey of faculty sponsored by the Carnegie Foundation. The survey data allowed her to identify socioeconomic characteristics, education and work experience. Her measure of professional productivity is a count of articles published in the two years preceding the survey and the number of books ever published. To investigate the effect of market characteristics on faculty salaries, she calculated the unemployment rate, the proportion of doctoral (or other terminal) degree holders employed in non-academic careers, the median non-academic wage and the proportion of doctoral degrees earned by women between 1981-1984 in twenty-eight disciplines and professions. As expected, she found that academic salaries were higher for faculty in fields characterized by lower unemployment rates, higher nonacademic salaries and higher rates of nonacademic employment. After accounting for these market forces and for

productivity, Bellas observed a wage penalty for all faculty members employed in fields with high concentrations of women faculty, and an additional gender-specific penalty for women faculty in those fields.

While the market may seem to provide a neutral metric for an academic's worth (the premise we adopt for the UNM study), it is also true that salary differences explained by market-driven differences perpetuate inequities. As Bellas finds, women academics are concentrated in lower-paying disciplines, explaining part of the observed gross gender gap. Why this concentration occurs and persists is beyond the scope of this paper.

1.3 Job Mobility

At the individual faculty member level, differences in salary offers have been used to explain salary differences within disciplines at a single university. In its review of salary equity, the California State Auditor identified a handful of instances in the University of California system of unequal starting salaries for professors hired at the same level and salary step in the same campus department. Of five cases described, the men were offered a higher starting salary in four. In every case, the justification given was that the higher salary was necessary because “the male candidate had higher competing salary offers...”³ This practice of matching competing offers means that those academics who earn more now will continue to earn more regardless of the reasons for lack of parity in competing offers.

Conventional wisdom suggests that mobility is associated with higher salaries as universities compete for faculty members and as individual faculty members seek a better job match, i.e., one that enhances their productivity. If this were the case, faculty who are, or who are perceived to be, less mobile than others would suffer a wage penalty. But while anecdotal

³<http://www.bsa.ca.gov/pdfs/reports/2000-131.pdf>

evidence supports the idea that universities “bid” on valued faculty members by making and matching external offers, statistical evidence does not support the belief that mobility necessarily increases salaries. Using data from the 1988 National Study of Post-Secondary Faculty (NSOPF) Barbezat and Hughes (2001) find that women academics had a slightly higher rate of mobility than did men, and that mobility was more damaging to women’s pay than to men’s. Among women, a single job change was associated with an 8% decrease in salary; among men, job changes did not affect salaries until the fourth job, when men experienced a 4% salary decrease. It is possible that the reasons for the job changes differed systematically between the men and the women in this survey, but the data were inadequate to address that question. Moreover, it may be the threat of mobility that is rewarded, more than the mobility itself. In this case, faculty who actually move (and especially repeatedly) would not be expected to enjoy salaries as high as those who negotiate a better deal in response to a threatened move.

1.4 Direct Productivity Measures

Higher productivity is expected to lead to higher salaries through a number of mechanisms. Universities that benefit from faculty productivity in terms of prestige or grant revenue can encourage productivity by rewarding it. Over time, those who are rewarded for higher productivity will have higher salaries. Universities will also be able to attract the most productive faculty members at other universities by hiring them away with attractive compensation packages. Productivity is also rewarded in academia through the promotion and tenure process, and salaries typically step up with each promotion. But study after study has shown that productivity alone, or in concert with mobility and market forces, cannot fully explain salary disparities. Barbezat and Hughes estimate wage equations using broad categories

of lifetime publication productivity and, controlling for productivity, find a statistically significant wage premium, in favor of men, of 8.5%. Toutkoushian's (1998) female wage penalty of 8.6% using the 1993 NSOPF data and exact counts of lifetime publications is remarkably similar.

Toutkoushian (1998) uses 1993 NSOPF data to compare total salary gaps observed among faculty with different racial and marital status with those that remain after taking into account measures of productivity. This dataset included self-reported information on the number of published articles, books, and book chapters a faculty member had produced over his or her career, allowing him to test whether the observed salary gaps between white and non-white faculty are attributable to lower productivity. He finds that productivity measures fully explain wage differences between black and white faculty members, but that Hispanic men suffer an unexplained 4% to 8% wage penalty relative to white men. Toutkoushian did not observe salary discrepancies by race among women.

How a faculty member spends his or her time can affect productivity, and thus wages. Bellas finds that reported time spent teaching at the undergraduate level is associated with a statistically significant wage penalty. Graduate student teaching conferred neither a penalty nor a premium. In the NSOPF-93, Monks and Robinson (2000) find that, relative to faculty who report that teaching is their primary activity, faculty who report that research is their primary activity earn a slight premium, and those who report that administration is their primary activity earn a 10% premium.

Most of these studies used NSOPF data from 1993. Toutkoushian and Conley (2005) compared results from the NSOPF 1999 survey with the earlier studies and found that the unexplained gender wage gap in academia had fallen, but had not been eliminated. Estimating a

model that controls productivity, but not rank, the 1999 data reveal a 5.2% gap. A similar model using the 1993 dataset revealed a 9.1% gap. As was true in Toutkoushian's earlier study, the unexplained wage gap was highest in more research-intensive universities. In the 1999 data, there was no statistically significant unexplained wage gap in an estimation that included only Liberal Arts I and II institutions, and a statistically significant 7.3% gap in Research I and II institutions. (Under the classification in effect at that time, UNM was a Research I institution.) Toutkoushian also finds differences by field. No statistically significant gap is observed in the arts and humanities or professional fields, but a gap remains between men and women in the social and physical sciences.

Studies using national surveys identify gender gaps that persist when productivity is controlled. Controlling rank reduces the observed gender gap, but rank itself is not free of gender bias. Controlling discipline reduces the observed gender gap, but does not explain why women are concentrated in lower-paying disciplines. While a gender gap is consistently estimated in the data, race and ethnicity gaps are measured less frequently, and when they are they are less likely to show bias. These studies shed some light on the issue of equity in academia, but the data limit the conclusions that can be drawn. Single-year surveys cannot show changes over time, and so limit a researcher's ability to draw causal inferences. For example, in Barbezat and Hughes' study, counts of job moves had some explanatory power, but the circumstances surrounding those job changes could not be discerned. In studies that use the NSOPF surveys productivity is measured as the number of articles, with no correction for the rank or prestige of the journals in which the articles appeared. Furthermore, all variables in the NSOPF surveys are self-reported. In contrast, internal university studies can use administrative records to investigate wage equity, but those studies typically do not account for variance in

productivity. In this study we have the advantage of access to extensive longitudinal administrative data that we couple with detailed productivity measures and survey responses. As a result we have an unusually rich dataset with which to investigate equity at UNM.

CHAPTER 2: The UNM Study

Our study draws on three data sources: (1) university-wide administrative data covering salary, demographic, teaching and grants information for all tenured and tenure-track faculty (exclusive of the Medical School) between 1995 and 2004; (2) life publications records drawn (mostly) from faculty Curriculum Vitae for all current tenured and tenure track faculty in the College of Arts and Sciences (which comprises approximately 45% of the entire UNM faculty); and (3) a university-wide web-based survey of current tenured and tenure-track faculty.

2.1 Administrative Data

The UNM administration, through the Office of Institutional Research (OIR), provided identity-protected contract salary data for tenured and tenure-track faculty in all main campus schools and colleges exclusive of the School of Medicine, who worked for the University between 1995 and 2004. The data cover the schools and colleges of Management, Architecture and Planning, Arts and Sciences, Education, the Engineering, Fine Arts, Law, Nursing, Pharmacy, and Public Administration, the General Library and University College. Since we are most interested in current faculty, we restricted the data to faculty with contracts for the 2004-2005 academic year. We convert all salaries to 1 FTE units. Contract salaries include Supplemental Administrative Compensation (SAC). Unfortunately, SAC appointments and salaries were available separately only since 2001, so true base salaries were not known for six of the ten years of data. We did analyze base salaries separately for the more recent data. However, since the results were very similar, we concentrate on the complete series of contract salaries in this report.

The OIR salary file also included gender, race and ethnicity, rank, current position (including administrative) and tenure department and college. Several other campus offices provided individual-level data that was merged with the salary data. In all cases, the data were merged using identification codes and names were purged from the dataset. That dataset includes data from the registrar's office (provided by the OIR) that listed course number and class size for all courses offered from Fall 1994 through Spring 2005. We used these data to generate academic year counts of undergraduate and graduate students (identified by course number) and to tabulate the number of cumulative preps for each faculty member.⁴ The Office of Grants and Awards provided data that allowed us to construct annual and cumulative grant dollars disbursed for each PI and co-PI. Data from the Human Resources Department included UNM hire date, and whether faculty had chosen a portable pension.

2.2 Publications Data

We created a dataset of publications for all current Arts and Sciences Faculty. We contacted Department Chairs during the Summer of 2005 to determine the best method for compiling publication records. Most Chairs recommended using Curriculum Vitae, which they either solicited directly from faculty on our behalf, or directed their administrators to provide. For several Departments, Chairs recommended a web search of publications.⁵

We collected data on four types of publications: articles published in academic journals, books (including field guides and edited volumes for which the faculty member was the editor), translations, and published creative works (especially relevant for the English Department). We

⁴ There is likely some measurement error in these variables because the data reported class size for only one course number, even when the course was cross-listed.

⁵ We used *Sci-Search* for Chemistry, Physics, and Math and Statistics and *Econlit* for Economics. In a few cases, *Sci-Search* proved to be inaccurate because of our inability to distinguish between professors with similar names. For these cases, we requested a CV directly from the faculty member.

noted the year for each publication, and for articles, the number of pages, number of authors and journal name code and impact factor from the 2004 Journal Citation Report (JCR). The impact factor divides the number of citations a specific journal receives in a given year by the number of articles published in that journal. The JCR measurement covers the natural and social sciences, and includes over 8,400 journals.

From this information, we constructed book and article counts, article pages and total impact by calendar year. We measured impact by calculating total impact per year (summing over all publications). We also calculated per author values of these measures. We use last five year and earlier (lifetime excluding last five years) counts of these measures.⁶ The publications data that we compiled includes more than 10,000 publications records for 319 current Arts and Sciences faculty members. Because publication records necessarily include faculty names, this component of the dataset was collected and recorded on a secure computer and then merged with the administrative data using the OIR's identifiers. The resulting dataset includes only the numerical measures of productivity described above and no author names or other identifying information.

We also pulled degree date from the Curriculum Vitae (for faculty who did not report it in the survey), which gives us years since degree, our preferred experience measure, for all A&S faculty.⁷

⁶ For faculty with fewer than five years of experience, we use five times their average annual publication measures for years since degree.

⁷ Calculated this way, a few faculty members who completed their highest degree since coming to UNM have more years at UNM than they do years since degree. For these faculty, we use years at UNM as their years of experience.

2.3 Web Survey Data

We also designed an on-line survey to solicit information that was not available in administrative data, including degree date, time use, service obligations at the professional, college and community levels, family structure, job market activities and job satisfaction measures. The survey also provided degree date, which allowed us to calculate experience, an important determinant of earnings in the economics literature. The survey was conducted of all UNM faculty in October and November of 2005. A variety of contact methods were used including four emails, a letter from the Provost, and reminder postcards.

	Number	Percent of population
Population size	770	100%
Logged in	536	70%
Answered at least 50% of primary questions	515	67%
Answered at least 75% of primary questions	507	66%
Excludes administrators		

Note: We exclude college-level administrators, although they did receive an invitation to complete the survey. We thank those who did so.

Table 2.1 shows the survey response rate. Seventy percent of the population responded to the survey and there was little drop-off as the survey progressed: 66% answered at least 75% of the questions on the survey.⁸ We compared the sample and population on several variables from the administrative data provided by the university: age, tenure status, salary, rank, gender, ethnicity, and years in rank. Table 2.2 shows that the sample generally matches the population well. For the variables examined, the only differences between the sample and population are that the survey sample significantly under-represents American Indians and contains marginally more individuals who started their current rank more recently.

⁸Calculations are based on 37 questions and excludes follow-up questions and two questions for which "none" was not an option. Providing at least one answer to a matrix question or question with multiple parts was defined as answering the questions.

Characteristic	Sample	Population	Non-Responders	Sample/Population	Sample/Non-responders
2004-05 Contract salary	\$68,868	\$68,927	\$69,062		
Year started in rank	1997.4	1996.98	1995.96	*	**
Age	49.57	50.03	51.09		**
White	0.81	0.79	0.74		**
Hispanic	0.10	0.10	0.11		
Black	0.01	0.01	0.01		
American Indian	0.01	0.02	0.05	**	**
Asian	0.04	0.06	0.08		*
US citizen	0.86	0.86	0.87		
Female	0.41	0.39	0.35		**
Assistant	0.26	0.24	0.80		**
Associate	0.33	0.33	0.03		
Full	0.41	0.43	0.47		**

†Difference is statistically significant at 10%; ** Difference is statistically significant at 5%.

Table 2.2 also shows the means of these same demographic variables for responders and non-responders. Here more significant differences appear. Compared to non-responders, responders started their current rank more recently, are younger, are more likely to be white and less likely to be American Indian or Asian, are more likely to be female, more likely to be an assistant professor, and less likely to be a full professor.

CHAPTER 3: Productivity and Equity

In most labor markets, women earn less than men and minority workers earn less than their non-minority counterparts. UNM exhibits a gender gap, but minority compensation varies by group. In the 2004-2005 academic year, the average contract salary for women was \$62,911, compared with \$72,872 for men, a 13.5% difference. And compared to white, non-Hispanic men, Hispanic men earned six percent less. But other male minority faculty members earn more than white, non-Hispanic men. Female minorities earn less than white non-Hispanic women, with the highest discrepancies, of almost 20%, for American Indians and Asians. (See table 3.1.) In this chapter we investigate the extent to which these differentials can be explained by differences in productivity.

To begin, we estimate the rewards, or “returns,” to various productivity measures for all UNM faculty and for faculty in the College of Arts & Sciences. The returns are the percentage change in earnings that result from a one-unit increase in a given productivity trait. The direction, size and precision of the estimated returns tell us the degree to which traits that UNM officially values, such as students taught and research activity, are systematically rewarded by its compensation process. Next we see whether gender and ethnicity independently predict wages, with productivity characteristics controlled. An equitable system would show no systematic earnings effect related to a person’s gender or ethnicity after productivity is taken into account. As we will see, women and Hispanic, African American and Native American faculty face a statistically significant earnings penalty, even when “all else” is held equal.

Table 3.1 UNM Faculty Contract Salary, 2004-05 Academic Year

	Men	% of White Male Earnings	Women	% of White Male Earnings	% of White Female Earnings
All	\$72,872		\$62,911	86.5%	
White, Non- Hispanic	72,733	100.0%	64,496	88.7%	100.0%
Hispanic	68,322	93.9%	59,639	82.0%	92.5%
American Indian	73,742	101.4%	53,074	73.0%	82.3%
African American	77,319	106.3%	62,776	86.3%	97.3%
Asian	79,317	109.1%	52,513	72.2%	81.4%
Foreign National	72,431	99.6%	54,298	74.7%	86.3%

Note: Excludes college-level administrators.

3.1 Human Capital

Our starting point for estimating the returns to different productivity characteristics is human capital theory, which posits that productivity depends on a person’s “investments” in learning in school and on the job. We measure learning in school by whether or not the faculty member has a Ph.D. The standard measure for learning on the job is years since date of highest degree (potential work experience),⁹ combined with its square. Including the squared term allows returns to experience to increase at a decreasing pace, following the prediction from human capital theory that workers invest less as they near retirement. While we prefer experience over rank for the reasons discussed in chapter 1, we use rank as a proxy for experience in the University-wide sample, for which degree date is not always available. We compare models using rank and experience for Arts and Sciences, where we do have degree date.

We also include age as a separate explanatory variable. Faculty members with the same number of years of experience, but who differ in age, bring different kinds, and possibly levels,

⁹ In a very few cases, years at UNM exceed years since degree. Where this occurs, we use years at UNM to measure experience.

of human capital to their positions. For example, the older faculty member may have prior professional experience or additional education.

3.2 Other Productivity Characteristics

Although standard human capital characteristics go a long way in determining wages, characteristics of the job and direct productivity on the part of the worker likely also contribute at least as much. For example, administrative positions require more responsibility and typically merit higher compensation. Similarly, we expect that more productive teachers and researchers would be more likely to receive merit pay. We also investigate the conventional wisdom that more mobile faculty—those who can generate outside offers—earn more.

We include indicators for whether the faculty member is Chair, Assistant Chair or a director in the given year, whether the faculty member previously held this post, and whether he or she previously held a college-level administrative post. We exclude years in which faculty members worked as college administrators. We also include years at UNM, which should capture whether there are positive returns to UNM-specific human capital.

We capture mobility by a faculty member's choice of the portable or non-portable pension plan, conditional on the faculty member starting at UNM when that option was available. We can control for mobility independent of observed productivity by including direct productivity measures in teaching, grants and publications.

For direct measures of teaching output we count the cumulative number of course preps since 1994, and the number of undergraduate and graduate students taught in a given academic year.¹⁰ For direct measures of grant activity, we use grant dollars received for all Co-PI's listed

¹⁰ We count preps as distinct course numbers and include independent studies and thesis hours. Graduate student counts include all students enrolled in course numbers 500 and higher. Undergraduate student counts include all

on a grant for the given academic year and cumulative grant dollars since 1995. Finally, for the subset of faculty in the College of Arts and Sciences, we measure the following publications outcomes: (1) number of books, (2) number of articles, (3) number of article pages, and (4) article impact. Article impact sums the impact factor for articles published in a year and relies on the 2004 Journal Citation Report (JCR).¹¹ For each publication measure we use counts of recent publications (defined as having been published in the past five years) and counts of publications six or more years ago. For the article measures, we also calculate per author values.

Our model also includes indicators for each faculty member's tenure department. This is an important control for two reasons. First, we want to know whether different groups receive similar treatment for the same job. Since disparities among disciplines reflect nationwide markets, it would be erroneous to suggest that a female English professor who earns considerably less than a male Engineering professor is experiencing discrimination. It would, however, be discrimination if the female English professor earned less than a male English professor with similar productivity characteristics. The second reason for including department controls is that departments value different output. For example, books are important in History, but not in Chemistry. The inclusion of department controls means that all of our estimates compare each faculty member with other faculty members in the same department.

Finally, because the data span ten years, we include a trend control, which accounts for annual raises.

We estimate four models that allow us to compare the wage structures for different specifications. Each successive specification can be directly compared with the previous

students enrolled in course numbers lower than 500. Because our teaching data are based on classroom counts, we may incorrectly identify graduate and undergraduate students in the small portion of cases where they share a classroom in cross-listed courses. Similarly, we may undercount preps when courses are co-taught, or cross-listed, since there is only one professor of record for each set of classes taught in the same classroom and at the same time.

¹¹ See chapter 2 for a description of the JCR impact factor.

specification, since only one feature of the model changes at a time. The first model uses the University population and includes rank as a proxy for experience. The second model also uses rank, but provides estimates for A&S faculty only. The third model uses years of experience instead of rank for the A&S faculty. Finally, the fourth model adds the publications measures for A&S faculty.

Table 3.2 presents our estimates of the returns to productivity traits in these four models, shown as the percent change in salary for a one-unit change in the productivity trait. A positive return means that UNM rewards the trait, a negative return means that UNM penalizes the trait. The size of the return should be evaluated relative to the mean and standard deviation of the trait. A small estimated return on a trait that has a large standard deviation may have a large impact for faculty members far from the mean value of the trait. (Means and standard deviations of the traits are provided in table 3A.1 in the Appendix to this chapter.) The statistical significance of the estimates reported in table 3.2 indicates the precision of the result. Estimates marked with asterisks were estimated with a high degree of precision. Large standard errors relative to returns (estimates not marked with asterisks) suggest lower precision, meaning that the purported relationship is weak.¹²

Comparing across the University and A&S faculties, the wage structures are very similar. Rank confers a large salary increment, with the University-wide gap between associate and full (at 20%) nearly double the $(31.7\% - 20.0\% = 11.7\%)$ gap between assistant and associate. For the A&S faculty, the increment at each rank is even greater. With rank controlled, having a Ph.D. does not precisely predict salary, and curiously even has a negative overall effect for A&S

¹² Because all models were estimated using the entire populations rather than samples, the standard errors can be interpreted as a measure of dispersion in the distribution of the characteristic in that population. The standard errors and measures of statistical significance cannot be interpreted as arising from differences between an analyzed sample and the underlying population.

faculty. Administrative experience appears to pay somewhat more in the University-wide population than at A&S, but for both populations, chairing a department confers a sizeable benefit with a 10.6% premium for the University population and an 8.5% premium for A&S. Past administrative experience is also rewarded: former chairs earn between 6.4% and 7.4% more than their counterparts, and former college-level administrators earn even more. In both populations, years at UNM (controlling rank) are slightly penalized. For example, a newly hired Full Professor would earn 32% more than a newly hired Assistant Professor, while a Full Professor with ten years at UNM earns 32% minus $(10 \times -0.2) = 2\%$, for a total of 30% more.

Choosing a portable pension plan, which is our proxy for mobility, confers a 3% wage premium in both University and A&S faculties.

The teaching measures show a mixed story. On the one hand, faculty members with more cumulative preps are penalized at the rate of 0.5% per course in the University population and 0.9% at A&S. Although this is a small point estimate, a professor with preps one standard deviation above the mean of 11.6 in the University faculty earns $(-.5\% \times 6.2 =)$ 3.1% less than his or her colleague with the mean number of preps. For A&S faculty, a professor teaching one standard deviation above the mean of 12.4 preps earns $(-.9\% \times 5.3 =)$ 4.8% less than his or her colleague with the mean number of preps. The number of undergraduates taught in these specifications has no effect on salary at all, while teaching more graduate students provides a small boost in pay, especially in A&S. Teaching 25 more graduate students in A&S, which is one standard deviation above the mean, would increase earnings by $(.6\% \times 2.5 \text{ times ten graduate students} =)$ 1.5%.

In short, developing a larger teaching portfolio is a mistake, and taking on large undergraduate classes is not rewarded. At the same time, taking on many graduate students

boosts pay, if only by a small amount. These results point to a pay structure that discourages faculty from contributing to the University's undergraduate teaching mission.

Grants, on the other hand, are associated with higher faculty pay. The grants variables enter our model as percentages. Thus, a University faculty member with ten per cent more grant money than a colleague earns ($.5\% \times 10 =$) five percent more, and an A&S faculty member in the same situation earns ($.7\% \times 10 =$) seven percent more. Note that these estimates are averages for the grants premium *within* departments: we are not comparing grant activity across departments. In short, big grant holders, relative to their colleagues with smaller grants, are highly rewarded.

Using experience instead of rank as a predictor for the A&S faculty improves the return on holding a Ph.D., substantially raises the premia for holding administrative posts and increases the penalty for years at UNM, as shown by comparing the wage structure estimates in the second and third columns in table 3.2. A professor with ten years more experience than a colleague would earn ($3.1\% \times 10 =$) 31% more, but if all the years were at UNM, the net effect would be ($31 - 1.2\% \times 10 =$) 19% more. This is similar to the premia between ranks in the second column. Those with a pension choice in this model—the relative newcomers—also face a penalty, which further distinguishes Full Professors. There is still, however, a sizeable 2.5% premium for choosing the portable pension. The penalty for preps is similar between the two specifications, but teaching undergraduates now also exacts a penalty, albeit a small one. The premia for teaching graduate students and for grants are similar across the specifications.

Adding publications measures in the last column does not change the point estimates of the other measures much. Publications also use percent comparisons: a faculty member with 10% more books than his or her colleague enjoys a ($.5\% \times 10 =$) 5% wage premium, and recent articles are similarly rewarded, although earlier articles don't count at all.

Because publication productivity is central to the University's mission, we consider several different specifications to estimate the effect of publication productivity on earnings. The first block of table 3.3 provides estimates of the effect on earnings of A&S faculty without considering the number of authors listed for each publication. The second block of table 3.3 provides estimates of the effect on earnings when we divide the publication measure by the number of authors listed for each article. The straight and per-author measures are rewarded almost identically. Counts of articles and pages that appeared more than five years ago have virtually no separate effect on salary, but the impact factors of earlier articles and earlier books continue to have separate, positive, and statistically significant effects on earnings. In the first three specifications, every one percent increase in recent publication activity, regardless of how measured, is associated with an approximately one-half of one percent increase in earnings. The only exception to this pattern appears in column 4, which shows the results for a model that includes both pages and impact. Including both "quantity" and "quality" measures simultaneously allows us to assess the contribution of each, holding the other constant. Curiously, recent impact has only half the value of recent pages, although earlier impact is valued similarly to recent pages. This suggests that the publication record that A&S most rewarded in the past ten years was one in which past impact and current pages were high. This would have rewarded older faculty members with high impact publications earlier in their careers and younger faculty with prolific—but not necessarily high quality – output. Clearly the faculty with lower recent quantity but higher recent quality fared worse under this salary structure.

Table 3.2. Estimated Percent Differences in UNM Salary for a One Unit Change in Productivity Characteristics, 1995-2004

	Uses Rank as Predictor		Uses Experience as Predictor	
	University	A&S	A&S	A&S
Human Capital Variables				
Has PhD	0.9%	-1.5%	5.3%**	6.2%**
Associate (Compared with Full)	-20.0%**	-23.7%**		
Assistant (Compared with Full)	-31.7%**	-37.6%**		
Years since Highest Degree			3.1%**	2.9%**
Years since Highest Degree, Squared			-0.0%**	-0.0%**
Age	0.6%**	0.9%**	0.3%**	0.3%**
UNM Experience				
Chair, Asst Chair or Director	10.6%**	8.6%**	14.1%**	13.3%**
Was Chair or Director in Past, but not in Present Year	7.4%**	6.4%**	11.5%**	10.7%**
Previously College Administrator	9.9%**	6.9%**	8.4%**	7.3%**
Years at UNM	-0.2%**	-0.4%**	-1.2%**	-1.0%**
Mobility				
Chose Portable Pension	2.7%**	3.2%**	2.5%**	2.6%**
Had Pension Choice	0.4%	1.9%	-4.7%**	-3.8%**
Teaching				
Cumulative Course Preps	-0.5%**	-0.9%**	-0.8%**	-0.8%**
Number of Undergrad Students (x10)	0	0	-0.1%**	-0.1%**
Number of Grad Students (in 10s)	0.2%**	0.6%**	0.6%**	0.6%**
Grants				
Grant Dollars (%)	0.5%**	0.7%**	0.5%**	0.5%**
Grant Dollars, Cumulative (%)	0.1%	-0.1%	0.2%*	0.1%
Publications				
Books in Last 5 Years (%)				0.5%**
Earlier Books (%)				0.4%**
Articles in Last 5 Years (%)				0.6%**
Earlier Articles (%)				-0.0%
Trend				
	3.4%**	3.6%**	3.7%**	3.8%**
Observations	5908	2696	2696	2696
R-squared	0.79	0.74	0.69	0.70

* Significant at the 10% level; ** significant at the 5% level.

Note: Models include a constant term and an indicator variable for each department.

Table 3.3: The Earnings Effect of Increasing Publication Productivity by One Percent				
	(1)	(2)	(3)	(4)
Straight Counts				
Books in Last 5 Years	0.5%**	0.5%**	0.5%**	0.5%**
Earlier Books	0.4%**	0.4%**	0.5%**	0.5%**
Articles in Last 5 Years	0.6%**			
Earlier Articles	-0.0%**			
Pages in Last 5 Years		0.5%**		0.4%**
Earlier Pages		-0.0		-0.1
Impact in Last 5 Years			0.5%**	0.2%*
Earlier Impact			0.3%**	0.4%**
Per Author Counts of Articles				
Books in Last 5 Years	0.4%**	0.5%**	0.5%**	0.5%**
Earlier Books	0.4%**	0.4%**	0.5%**	0.5%**
Articles in Last 5 Years	0.6%**			
Earlier Articles	0.0%			
Pages in Last 5 Years		0.5%**		0.4%**
Earlier Pages		0.1%		-0.1%*
Impact in Last 5 Years			0.4%**	0.2%*
Earlier Impact			0.2%*	0.5%**

* Significant at the 10% level; **significant at the 5% level.

Taken together, tables 3.2 and 3.3 demonstrate that mobility, administrative service, publication and grant productivity are positively associated with earnings, while some measures of teaching productivity are negatively associated with earnings. It is possible that systematic differences in earnings between men and women and among racial and ethnic groups can be explained by systematic differences in the traits that UNM most rewards.

Table 3.4 shows department-controlled differences for women and Hispanic faculty, relative to white, non-Hispanic men. For many of the characteristics that matter for earnings, we observe statistically significant differences. In particular, experience, age and rank, which are all positively related to earnings, are significantly lower for women and Hispanics. Women are also less likely to chair their departments, they tend to teach fewer graduate students and, in A&S, they bring in fewer grant dollars. Their earlier publication records are weaker, and they publish fewer articles and article pages. Other characteristics of women are associated with higher

Table 3.4 Differences for Female and Hispanic Faculty, Relative to White, Non-Hispanic Men, Controlling for Department Affiliation

	UNIVERSITY		ARTS & SCIENCES	
	Female	Hispanic	Female	Hispanic
Human Capital Variables				
Has PhD	-0.01	0.02	0.00	-0.03 *
Full Professor	-0.12 *	-0.14 *	-0.15 *	-0.15 *
Associate Professor	0.03 *	0.11 *	0.04 *	0.11 *
Assistant Professor	0.09 *	0.03	0.11 *	0.04
Years since Degree			-3.63 *	-2.35 *
Age	-1.52 *	-0.85 *	-2.02 *	-0.98
UNM Experience				
Years at UNM	-2.97 *	-0.73	-4.04 *	-1.60 *
Chair, Asst Chair or Director	-0.03 *	0.01	-0.06 *	0.01
Previously Chair or Director	-0.02 *	0.00	-0.02	-0.03
Previously College Administrator	0.02 *	0.02 *	0.03 *	0.01
Mobility Variables				
Chose Portable Pension (among those who had a choice)	0.10 *	-0.08	0.15 *	-0.09
Teaching Variables				
Course Preps, Cumulative	-0.70 *	-0.40	-0.35	-0.38
# of Undergrad Students	-1.91	-3.62	-6.28	-7.29
# of Grad Students	-4.15 *	-3.28 *	-0.39	-2.39
Grants (in log points)				
Grant Dollars	0.06	0.53 *	-0.47 *	0.40
Cumulative Grant Dollars	-0.01	0.59 *	-0.83 *	0.87 *
Publications (in log points)				
Books in Last Five Years			0.02	-0.40
Earlier Books			-0.60 *	-0.83 *
Articles in Last Five Years			-0.45 *	-0.22
Earlier Articles			-1.00 *	-0.26
Article Pages in Last Five Years			-0.75 *	-1.58 *
Earlier Article Pages			-1.18 *	-1.95 *
Impact in Last Five Years			0.30	-2.00 *
Earlier Impact			-0.14	-1.88 *

* Significant at 5% level.

Note: Differences are estimated coefficients from a model that includes a constant term and indicator variables for each University and A&S Department. Grants and publications are presented as log point differences. Log points are roughly equivalent to percentages, especially for small values. For example, women have .06 log points more of grant dollars, which is about 6%.

earnings: women hold college-level administrative posts more frequently, have fewer years at UNM, more frequently choose a portable pension, teach fewer preps and undergraduate students, have published more recent books and tally a higher recent impact than men.

Hispanic faculty are favored in salary determination for having fewer years at UNM, and, especially in the University population, for holding relatively more college-level administrative posts. They also teach fewer preps and undergraduates, and raise more grant money. Like women, they tend to teach fewer graduate students, though, and their publication counts are lower. In sum, women and Hispanic faculty possess characteristics that both contribute to and detract from their earnings relative to non-Hispanic white men. The next section explores whether these differences in characteristics are behind the earnings differentials shown in table 3.1.

3.2 Are There Gender and Ethnicity Earnings Gaps at UNM?

To test whether differences in traits can account for the earnings gaps for women, Hispanics and other minority groups, we re-run our salary models with variables that indicate gender and ethnicity. If UNM's salary structure were gender and ethnicity blind, these variables should have no relationship to earnings. On the other hand, if gender and ethnicity do matter in earnings determination, they will matter less than the gaps reported in table 3.1, provided that some of the gaps can be explained by productivity characteristics. The first column of table 3.5 shows the effect of gender and ethnicity for the University population. We see that for most groups the effect is less than one percent, and that this average effect is not precisely measured. Women, however, face a precisely measured 1.7% earnings penalty and African Americans, face a 4.4% penalty. The gap for women after controlling productivity traits is a marked

improvement over the 13% gender gap in table 3.1. Still, the fact that a precisely measured and non-trivial gap remains between men and women suggests that the compensation system at UNM discriminates against women. The gap for African Americans after controlling productivity traits is markedly worse than the six percent premium shown for African American men and the rough parity for African American women relative to their white non-Hispanic counterparts in table 3.1. The gap that opens when we control productivity suggests that African Americans are not being compensated on an equal basis. Given the small number of African American faculty, we recommend a case-by-case review of African American compensation relative to that of their colleagues.

The University analysis does not include publication records, which might close the estimated gaps. Before moving directly to the publications specification, which we can only estimate for A&S faculty, we repeat the University model (which uses rank as a proxy for experience) for the A&S faculty. This allows us to separate the effects of including publications from those of using a sub-population. We do not include the African American category, since there is only one African American faculty member in our A&S data. The results, shown in the second column, are discouraging. Whereas the University population indicated no significant penalty for Hispanic and American Indian faculty, the A&S population shows a 2.4% penalty for Hispanics and a 9.5% penalty for American Indians. Why are these results so different from the University population? It must be because these groups do relatively better outside of A&S, so that when A&S is combined with the rest of campus, the penalties at A&S are balanced by the premia elsewhere. Controlling experience, instead of rank, in the third column raises the penalty for Hispanics and reduces it for American Indians. This suggests that Hispanic faculty members are not advancing at the same rate as their white non-Hispanic colleagues, and that American

Indians are advancing more quickly. The 2.5% penalty for Hispanics in the last column, which controls publication productivity, suggests that the slower pace of promotion may be due to lower publication productivity. Yet even while this suggests that Hispanics are not facing discrimination in promotion, why are they earning 2.5% less even after we account for productivity characteristics? The same question needs to be asked for the compensation of American Indian faculty. After controlling publication output in the last column, American Indians face a 6.1% wage penalty.

Women at A&S face an earnings penalty similar to women University wide. The penalty in the last column, which controls publication output, is 1.6%, essentially the same as the University wide penalty of 1.7%.

Foreign nationals earn a premium in A&S, amounting to 1.3% in the last column and Asians face about a one percent penalty. The estimates for both of these groups are imprecise, which suggests a wide variation in outcomes for individuals, and that discrimination or privilege is not a systematic feature of the salary structure.

To summarize, in terms of measured productivity—including counts of books and journal articles—there is evidence that women, Hispanics and American Indians systematically earn less than their non-Hispanic male counterparts within A&S, and, for women, throughout the University.

Table 3.5. The Effect of Gender and Ethnicity on Salary, Holding Productivity Characteristics Constant

	University	A&S	A&S	A&S
Female	-1.7%**	-1.5%**	-1.8%**	-1.6%**
Hispanic	0.5%	-2.4%**	-3.1%**	-2.5%**
African American	-4.4%**	--	--	--
American Indian	-0.7%	-9.5%**	-4.5%	-6.1%*
Asian	-0.4%	-0.7%	-1.3%	-0.9%
Foreign National	-0.4%	0.5%	1.4%	1.3%
Controls Rank	x	x		
Controls Experience			x	x
Controls Publications				x
R-squared	0.79	0.74	0.69	0.71
Observations	5908	2696	2696	2696

* Significant at the 10% level; ** significant at the 5% level.

Table 3.6 shows the equity estimates when we consider alternative measures of publication productivity, repeating the models shown in table 3.3. Recall that results from table 3.3 suggested that both article pages (quantity) and article impact (quality) are rewarded at UNM. The estimated penalties for women and Hispanics fall when we measure pages, suggesting that some of the gap reported in table 3.5 can be explained by the lower output of pages (as opposed to number of articles). But for American Indians, the estimated gap rises slightly when we control pages. If we measure article output by impact only, the penalty for women rises to two percent, the Hispanic penalty falls to 1.2%, and the American Indian penalty falls to 3.8%. In the final column, which considers pages and impact jointly, women face a 1.8% penalty, Hispanics a 1.2% penalty, and American Indians a 5.3% penalty. Note that the Hispanic and American Indians estimates in the last column are not statistically significant, suggesting that outcomes may vary widely for individuals.

Note also that the premium for foreign nationals is highest when impact alone is controlled, and that this premium is precisely measured in the per author measures in the second panel.

Because pages and impact are rather blunt measures of a faculty member’s publication productivity, we would hesitate to point to the last column as a metric of whether compensation is or is not equitable among groups. Taking each column as a different dimension of publication productivity, any discrepancy larger than one percent, especially one measured with precision, suggests that UNM’s compensation system may systematically undervalue the contributions of some faculty members based on their gender and ethnicity, and, in our opinion, warrants a case-by-case review.

Table 3.6. The Effect of Gender and Ethnicity on Salary Using Different Productivity Measures, Arts & Sciences Faculty 1995-2004

	# Books, #Articles	# Books, #Article Pages	# Books, Sum of Articles Impact	#Books, #Articles Pages & Sum of Impact
Straight Counts				
Female	-1.6%**	-1.5%**	-2.0%**	-1.8%**
Hispanic	-2.5%**	-1.9%	-1.2%	-1.2%
American Indian	-6.1%*	-6.3%*	-3.8%	-5.3%
Asian	-0.9%	-0.8%	-0.6%	-0.6%
Foreign National	1.3%	1.2%	1.6%	1.4%
Per Author Counts				
Female	-1.6%**	-1.5%**	-2.0%**	-1.8%**
Hispanic	-2.6%**	-2.0%*	-1.2%	-1.2%
American Indian	-6.1%*	-6.2%*	-3.7%	-5.3%
Asian	-1.0%	-0.9%	-0.8%	-0.8%
Foreign National	1.3%	1.2%	1.6%*	1.4%
Observations	2696	2696	2696	2696

* Significant at the 10% level; ** significant at the 5% level.

The estimates shown in tables 3.5 and 3.6 demonstrate that a significant fraction of the raw gaps reported in table 3.1 can be explained by human capital and productivity differences, but for women, Hispanics and American Indians, the wage disparity persists.

Table 3.7 illustrates how those disparities increase over time even when the annual percentage salary increase is the same for all faculty members. The numbers presented in table

3.7 were calculated based on hypothetical faculty members, and do not necessarily represent any single individual. The simulated wage gaps assume that the estimated disparities are present in the initial year and that the base salary for a white male faculty member is \$50,000. The hypothetical female faculty member is assumed to receive 1.7% less than this; the Hispanic faculty member, 2.5% less; and the American Indian 6.1% less. Each receives a 3% increase per year, a \$3000 increase for promotion and tenure in Year 7 and an additional \$4000 increase for promotion in Year 13. Because we assume complete equity in raises and promotion, this simulation can be interpreted as estimating the lower-bounds of the long-term effects of slightly lower salaries compounded over time.

Individual annual salary differences by Year 20 range from almost \$1500 to more than \$5000; aggregate lifetime earning differentials range from \$22,840 to almost \$82,000. These simulations do not consider secondary effects of lower salaries. For example, retirement contributions under the portable plan are based on a percentage of salary and retirement compensation under the traditional plan is based on an average of the highest salary years. On the other hand premiums for health benefits are based on FTEs and not salary (in the ranges we use here).

Table 3.7. Simulated Salary Trajectories by Sex, Race and Ethnicity				
	Beginning Salary	Ending Salary (20 Years)	Salary Difference After 20 Years	Lifetime Earnings Differential
White, Non-				
Hispanic Male	\$50,000	\$97,000		
Female	\$49,185	\$95,510	-\$1490	-\$22,840
Hispanic	\$48,525	\$94,809	-\$2192	-\$33,588
American Indian	\$46,150	\$91,652	-\$5348	-\$81,955

APPENDIX TO CHAPTER 3

Table A3.1. Summary Statistics for Productivity Characteristics

(Standard Deviations in Parentheses)

	University Sample	A&S Sample
Has PhD	85.3%	97.0%
Years since Highest Degree		17.4 (9.6)
Years since Highest Degree, Squared		395.9 (374.0)
Age	48.1 (8.6)	48.0 (9.1)
Trend	6.0 (2.8)	6.0 (2.9)
Assistant Professor	25.0%	22.8%
Associate Professor	35.4%	32.9%
Full Professor	39.6%	44.3%
Chair, Asst Chair or Director	7.6%	8.9%
Previously Chair, Asst Chair or Director	4.9%	6.2%
Previously College Administrator	2.1%	1.0%
Years at UNM	12.8 (8.7)	13.3 (9.2)
Chose Portable Pension	32.3%	35.1%
Had Pension Choice	53.0%	51.0%
Course Preps, Cumulative	11.6 (6.2)	12.4 (5.3)
# of Undergrad Students	28.5 (68.6)	37.8 (86.5)
# of Grad Students	24.5 (36.5)	15.5 (24.7)

CHAPTER 4: Wage Gaps and Wage Structure

Our results in the previous chapter tell us two things. First, identified sub-groups at UNM systematically differ from white males in characteristics and productivity that are correlated with earnings. Second, even when those differences are econometrically controlled, significant gaps remain. In this chapter we employ a standard technique in the literature of discrimination, known as the Oaxaca decomposition, to identify the relative contributions of returns and characteristics to the wage gap by gender and Hispanic origin at UNM. Small sample sizes prevent us from conducting the analysis for African Americans and American Indians. We also present department level data on characteristics gaps for men and women in A&S, to show that our faculty-wide estimates—which are averages over departments—mask a tremendous amount of variation in women’s experiences on campus. Small sample sizes again restrict our ability to perform this analysis on other sub-groups of faculty.

4.1 The Oaxaca Decomposition

The Oaxaca decomposition technique allows us to quantify the contribution of returns and characteristics to the wage difference in two groups of workers, thereby allowing us to identify which differences contribute most to the wage gap. While we can eyeball the differences in characteristics (in table 3.4) and the differences in returns (presented below), the Oaxaca decomposition provides a way to determine which differences matter most. Since the decomposition relies on simple computational equivalence, the sum of all the weighted differences equals the total raw wage gap.

Tables 4.1 and 4.2 provide University and A&S returns to productivity characteristics estimated separately by gender and Hispanic origin, respectively. Almost every estimated return

for men appears to be quite different from the return estimated for women. For example, table 4.1 shows that ethnicity typically commands a premium for women, compared with a penalty for men. The exception is a large penalty for American Indian women at A&S. Women have higher returns for holding a PhD, but lower returns, by half, for years of experience. Women command a higher premium than men for chairing their departments, and, in the University faculty, for having held a college-level administrative post. Women face a higher penalty than men for years at UNM, especially in A&S, where their salary is reduced an additional .5%. Being mobile (by choosing a portable pension plan) helps men more than women. Men also benefit much more from grant money than do women. University wide, women faculty members gain nothing from grants, compared to .7% for every additional 1% of grant money for men. At A&S, current grants benefit men at five times the rate of women. In terms of teaching, men are penalized much more than women for additional preps. And as for publications, women receive twice the premium for recent books, but a third the premium for articles.

In short, women and men face very different pay structures. The path to higher earnings for women at UNM appears to be mainly administrative, and much less associated with research activities, although recent books are rewarded more. The path to higher earnings for men is to be mobile, raise grant money and publish.

Table 4.2 shows returns estimated separately for white, non-Hispanic and Hispanic faculty. As with gender, the wage structures for the two groups appear to be distinct. Most returns to human capital are much lower for Hispanic faculty. For example, Hispanic Full Professors at UNM earn 16.1% more than Associate Professors, compared with 33.1% more for white non-Hispanic Full Professors. Similar to the wage structure for women, Hispanic faculty

earn high premia for administrative experience. Unlike women, Hispanic faculty also earn a premium for years at UNM, compared with the penalty in the white, non-Hispanic wage

Table 4.1. Returns Estimated Separately for Men and Women

	University Faculty		Arts & Sciences Faculty		
	Men	Women	Men	Women	
Hispanic	0.7%	1.3%	-4.7%	** 0.5%	
African American	-8.5%	** -3.3%	--	--	
American Indian	-0.8%	2.1%	-2.2%	-6.4%	
Asian	-0.7%	4.6%	** -1.7%	3.3%	
US Citizen	-0.4%	4.0%	** -3.6%	** 5.7%	**
Has PhD	0.5%	1.4%	3.2%	7.9%	**
Associate Professor (relative to Full)	-19.7%	** -19.4%	**		
Assistant Professor (relative to Full)	-32.1%	** -29.6%	**		
Age	0.7%	** 0.6%	** 0.2%	0.5%	**
Trend	3.4%	** 3.5%	** 4.0%	** 3.6%	**
Chair, Asst Chair or Director	9.0%	** 12.5%	** 12.0%	** 16.6%	**
Previously Chair or Director	6.1%	** 10.1%	** 10.3%	** 11.4%	**
Previously College Administrator	9.0%	** 12.8%	** 40.4%	** 7.3%	
Years at UNM	-0.2%	** -0.4%	** -0.9%	** -1.4%	**
Chose Portable Pension	2.2%	** 1.7%	** 3.9%	** -0.6%	
Had Pension Choice*	0.9%	-3.0%	** -5.4%	** -3.0%	
Course Preps, Cumulative**	-0.6%	** -0.1%	-1.1%	** 0.0%	
# of Undergrad Students	0.0%	0.0%	0.0%	** 0.0%	
# of Grad Students	0.0%	** 0.0%	0.0%	** 0.1%	**
Grant Dollars (%)	0.7%	** 0.0%	0.5%	** 0.1%	
Grant Dollars, Cumulative (%)	0.1%	** -0.1%	0.1%	-0.2%	
Years since Highest Degree			3.2%	** 1.4%	**
Years since Highest Degree, Squared			0.0%	** 0.0%	
Books in Last Five Years (%)			0.3%	** 0.6%	**
Earlier Books (%)			0.4%	** 0.4%	**
Articles in Last Five Years (%)			0.9%	** 0.3%	**
Earlier Articles (%)			0.1%	0.0%	
Constant (Starting Point)	10.513	** 10.468	** 10.442	** 10.218	**
Observations	3693	2215	1812	884	
R-squared	0.79	0.80	0.73	0.70	

* Significant at the 10% level; ** significant at the 5% level.

structure. The Hispanic and non-Hispanic wage structures give similar rewards for grants, teaching and journal articles, albeit with a greater weight on earlier publications for Hispanics.

The difference in returns at the University level is curious, since Hispanic origin was not associated with a penalty in the single equations models presented in the previous chapter.

Table 4.2. Returns Estimated Separately for White Non-Hispanic and Hispanic Faculty

	University Faculty		Arts & Sciences Faculty	
	Non-Hispanic White	Hispanic	Non-Hispanic White	Hispanic
Female	-1.9% **	1.2%	-1.9% **	-0.9%
US Citizen	0.4%	7.6% **	-0.1%	8.1%
Has PhD	0.2%	-1.0%	7.4% **	2.3%
Associate Professor (relative to Full)	-21.0% **	-11.5% **		
Assistant Professor (relative to Full)	-33.1% **	-16.1% **		
Years since Highest Degree			3.0% **	0.9%
Years since Highest Degree, Squared			0.0% **	0.0%
Age	0.6% **	0.4% **	0.3% **	1.1% **
Trend	3.5% **	2.9% **	3.9% **	3.0% **
Chair, Asst Chair or Director	9.8% **	17.9% **	13.4% **	17.4% **
Previously Chair or Director	6.4% **	5.5% **	11.9% **	-1.7%
Previously College Administrator	9.4% **	12.6% **	0.3%	26.9% **
Years at UNM	-0.3% **	0.8% **	-1.1% **	0.6%
Chose Portable Pension	2.9% **	2.4%	0.9%	10.3% **
Had Pension Choice*	0.3%	-0.1%	-2.2%	-0.1%
Course Preps, Cumulative**	-0.5% **	-0.4% **	-0.9% **	-0.8% **
# of Undergrad Students	0.0%	0.0%	0.0% **	0.0%
# of Grad Students	0.0% *	0.1% **	0.1% **	0.2% **
Grant Dollars (%)	0.5% **	0.6% **	0.5% **	0.4%
Grant Dollars, Cumulative (%)	0.1%	-0.1%	0.0%	0.2%
Books in Last Five Years (%)			0.5% **	0.1%
Earlier Books (%)			0.3% **	0.9% **
Articles in Last Five Years (%)			0.6% **	0.2%
Earlier Articles (%)			0.0%	0.5% *
Constant (Starting Point)	10.514 **	10.386 **	10.326 **	9.988 **
Observations	4814	580	2283	250
R-squared	0.78	0.90	0.70	0.81

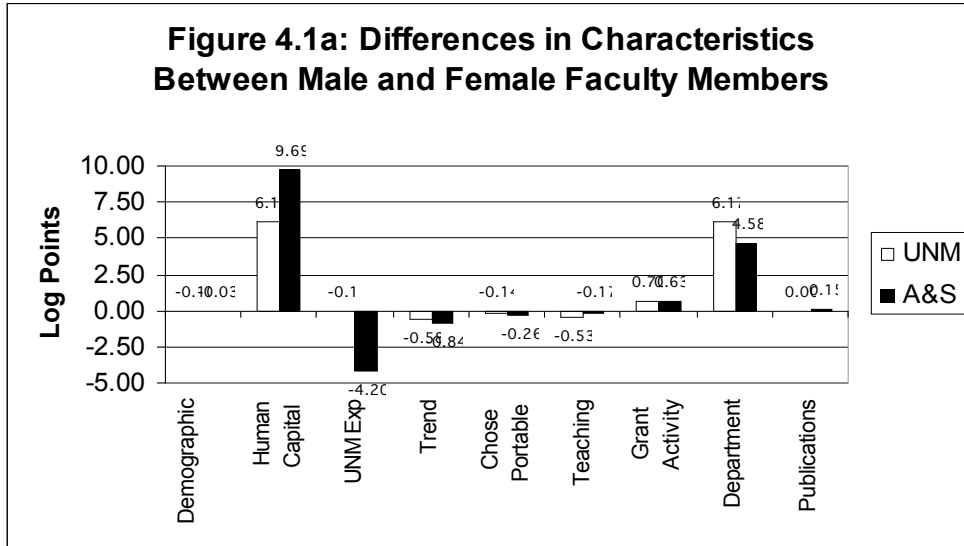
* significant at 10%; ** significant at 5%; *** significant at 1%

The differences in returns by gender and Hispanic origin suggest that at least some of the earning gap (where it exists) may be caused by a differential reward system. The Oaxaca decomposition allows us to identify which returns and which characteristics contribute most to the gender and Hispanic origin earnings gaps. Figures 4.1, 4.2, and 4.3 summarize the Oaxaca

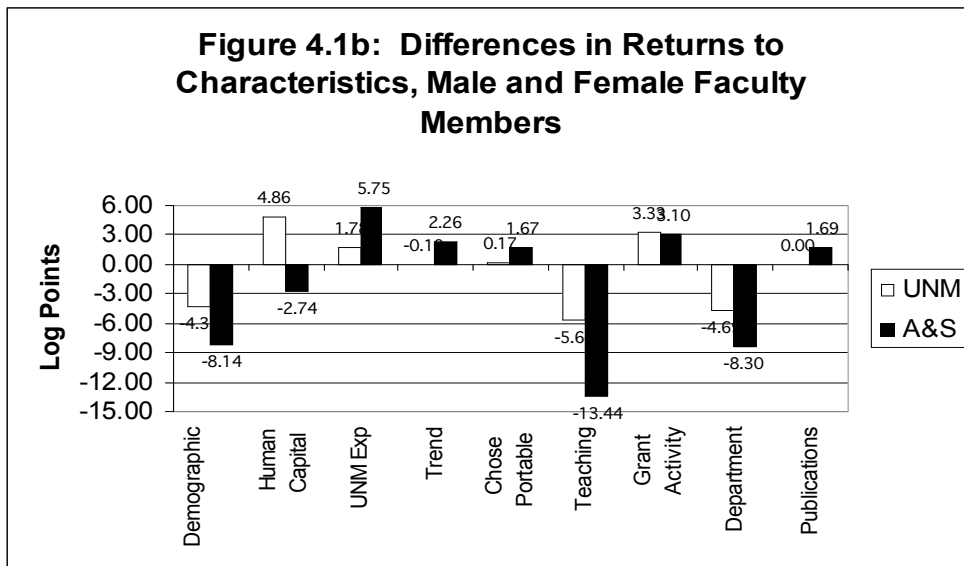
decompositions. (For the underlying data see tables A4.1 and A4.2 in the Appendix to this chapter.) In the figures, bars above the zero line indicate that the characteristics and returns for the reference group (men, non-Hispanics) are greater, and so contribute to greater inequality. Bars below the zero line indicate that the reference group characteristics and returns are smaller, and so contribute to greater equality.

Figure 4.1a shows that human capital variables and department variables account for nearly all of the raw 13.5% gap between men and women reported in table 3.1. Thus the greatest contribution to women's lower pay at UNM is fewer years of experience and being affiliated with lower salary departments. For A&S, though, women's UNM experience tends to reduce the gap. The high proportion of the raw gap explained by characteristics is consistent with the approximately two percent wage gap we find after productivity characteristics are controlled.

Figure 4.1b shows that in the University data, the largest discrepancies lie in lower returns to human capital, UNM experience, grant activity and the constant term. Together, these would reduce female pay by 14 to 17 log points. (Log points approximate percentage points.) The total sum of differences in returns is, however, much lower, because women have higher returns than men to ethnicity, teaching and department affiliation. What we see, then, is a wage structure that differs markedly between men and women, with men's returns higher than women's in some areas, and lower in others. The story is similar in the A&S sample, except that human capital returns slightly favor women, and the trend and publications terms favor men. The constant term, or starting point, shown separately in Figure 4.2, favors men. In fact, the constant term sets women back by 22.5 log points. What that means is that women face a large and unexplained penalty in A&S that is not related to any particular characteristic or return.

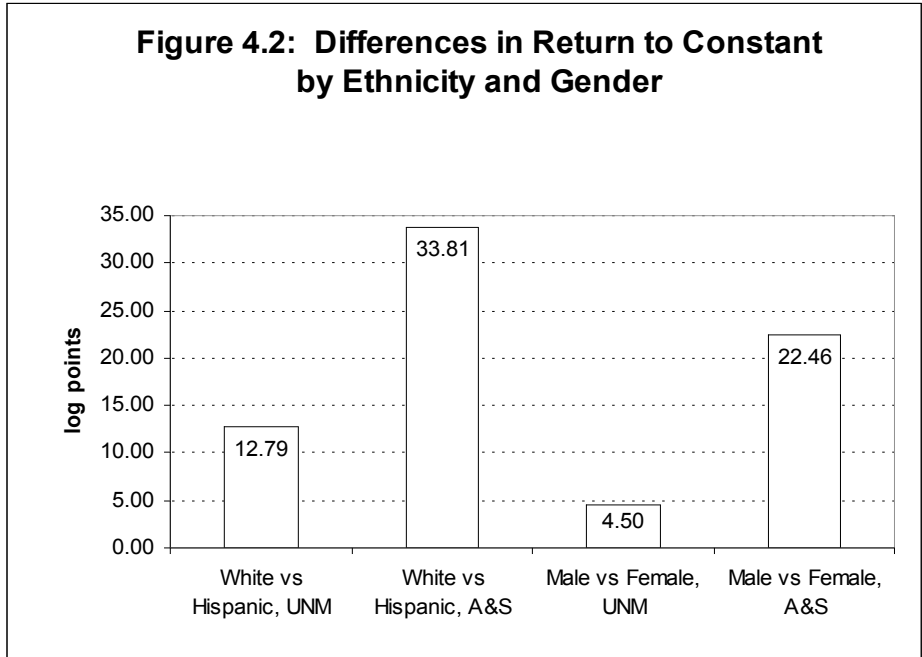


Source: Table A4.1 in the Appendix to this chapter.



Source: Table A4.1 in the Appendix to this chapter.

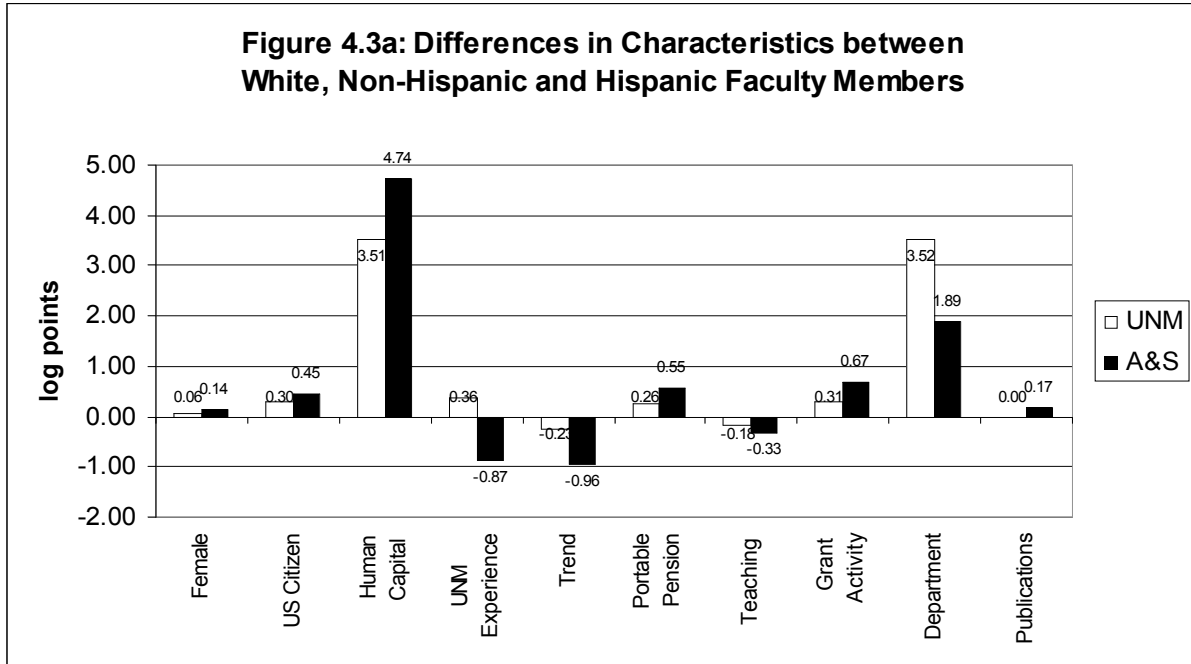
In the college of Arts and Sciences and, to a lesser degree, University wide, differences in the constant are much larger than differences in returns to a particular characteristic. Those differences are displayed separately in Figure 4.2.



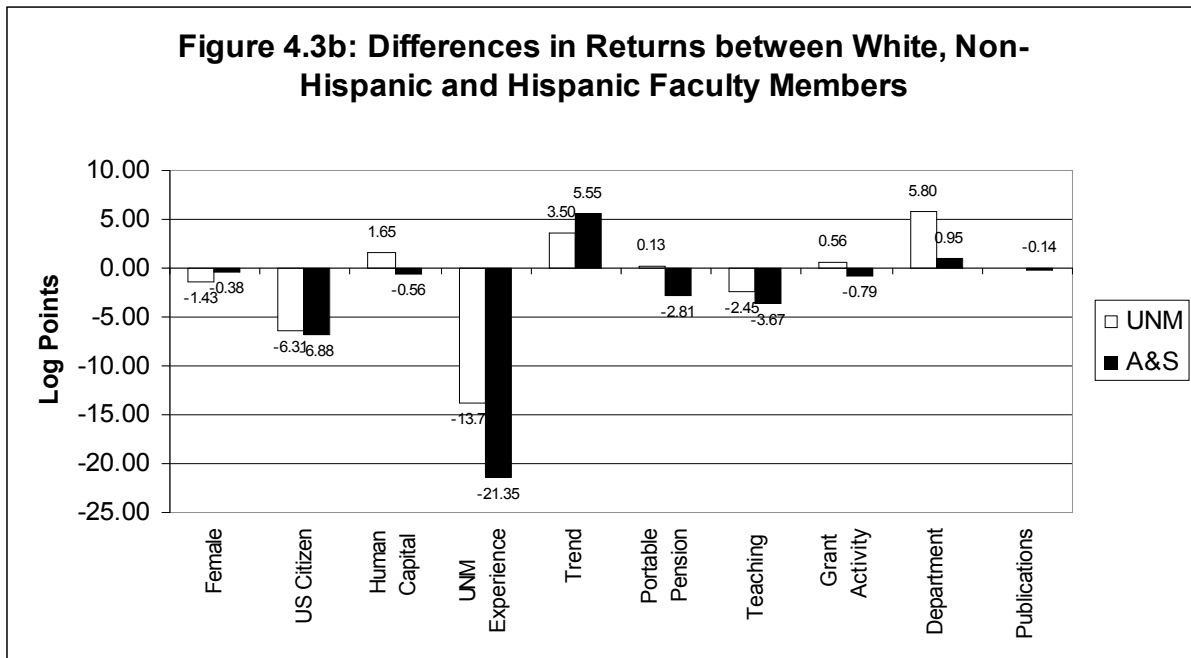
Source: Tables A4.1 and A4.2 in the Appendix to this chapter.

Figure 4.3a shows that much of the observed wage gap by Hispanic origin can be explained by human capital and department affiliation. Like women, Hispanics earn less at UNM because they have fewer years of experience and belong to departments with lower salaries. In addition, figure 4.3b shows that Hispanic faculty members earn lower returns to department affiliation and annual increases (trend). Averaged across the entire University, but not when limited to the College, they earn lower returns to human capital. Hispanics earn higher returns than Non-Hispanic White faculty on UNM experience, teaching, and demographic characteristics. In particular, being a United States citizen provides an eight to ten percent premium for Hispanics, compared with an insignificant premium or penalty (as shown in tables 4.1 and 4.2). But these effects are small compared with the 13 point gap (University) and 34 point gap (A&S) in the constant term illustrated in Figure 4.2. Similar to women, this suggests a large unexplained “starting point” penalty for Hispanics. Again we see very different wage

structures between groups, with Whites and Hispanics receiving higher returns for different characteristics.



Source: Table A4.2 in the Appendix to this chapter.



Source: Table A4.2 in the Appendix to this chapter.

The Oaxaca decomposition suggests that women and men and Hispanic and non-Hispanic faculty face different incentive structures at UNM. The higher returns to administrative positions suggest that the University encourages those from traditionally underrepresented groups to assume leadership roles. At the same time, the lower rewards to publishing articles and grant writing, in the case of women, may discourage these activities. How should the University address these issues? A practical approach would be to review the equity attributes of each department. Our analysis identifies average effects across departments. This is helpful for finding patterns of potential discrimination. Having demonstrated there is reason for concern, the next step would be to review the equity position of each department. The next section provides some direction in how this might be done.

4.2 Departments in the College of Arts and Sciences

To this point we have sought to identify patterns across campus. By controlling department affiliation, our estimates give us the average equity and productivity effects across departments, and the Oaxaca decomposition matches these estimates to the characteristics of the average male and female faculty member. Nevertheless, even when estimated effects are precise, underlying differences of potential inequities within departments will be masked by results that, by construction, seek to provide an overall assessment.

In this section we illustrate some of the departmental differences that were present in 2004 within the College of Arts and Sciences. Due to the small sample sizes for ethnic groups within departments, we limit the discussion to gender differences. Because some departments are small enough that individual faculty members might be identified in this data, we identify departments only by number. We focus on four areas:

- Faculty composition,
- Publications,

- Course preps, and
- Compensation.

The gender composition of faculty depends on a number of factors including the availability of qualified candidates in the year of hire as well as the ability of departments to hire new faculty. Aggregate national trends for all institutions have not changed considerably. In 2003 the percentage of female faculty across all surveyed institutions was approximately 36% (National Center for Education Statistics (NCES) 2005), which is virtually unchanged from 1998 (NCES 2002). Some areas, however, have seen substantial changes. For example at four-year institutions, the natural sciences showed an increase in female faculty from 20% to 24% between 1998 and 2003 and the number of women faculty in engineering increased from 9% to 22% over the same period. During the same period, the percent of social sciences faculty who were women remained constant at about 30%, while the percent of women in the humanities declined from 41% to 37% (NCES 2002, 2005).

Employing a comparison of the percentage of faculty who are female and Full Professors to the percentage of faculty who are female and Assistant Professors in the College of Arts and Sciences at UNM in 2004, we find that twelve departments show an increase in the percentage of female faculty at the junior rank, while four departments show a decrease and four departments are unchanged. As stated before, faculty composition depends on available qualified applicants and the ability to hire new faculty. However, individual department trends may warrant additional attention.

Research and teaching are the two categories of excellence that are considered for salary determination and promotion at UNM. The following tables present a comparison of the recent (last five years) published articles by department and gender for Associate and Full Professors. Given the relatively short tenure of Assistant Professors, we do not present the statistics for this

rank. In addition, no statistic can be calculated for departments in which where there are not both male and female faculty members at a specific rank.

Figure 4.4 illustrates differences in publications by department for full and associate professors respectively. The data were calculated as

$$\%AverageFemalePublications = \frac{(AverageFemalePublications - AverageMalePublications)}{AverageMalePublications}$$

Thus departments for which the bar is to the left of zero are departments in which men publish more. The numbers on the x-axis indicate the percent gap between men and women. For example, among Full Professors in department 10 (an extreme case), the female faculty did not publish any articles during the five year period and in department 6, female faculty published slightly less than 50% of what their male counterparts did. Note that department 14 does not have a bar indicated. In this case, the average number of recent articles published by male and female faculty members was identical. Departments for which bars are to the right of zero are those in which women publish more. In most departments (12 of the 15 reported), men out-publish women at the Full Professor level. At the Associate level (Figure 4.4b), the difference between male and female publishing rates is much smaller. Women's average publishing rates are lower in seven of the fifteen departments, higher in seven, and identical in one.

Figure 4.4a: Percent Difference Average Female Publications to Average Male Publications (A&S Full Professors)

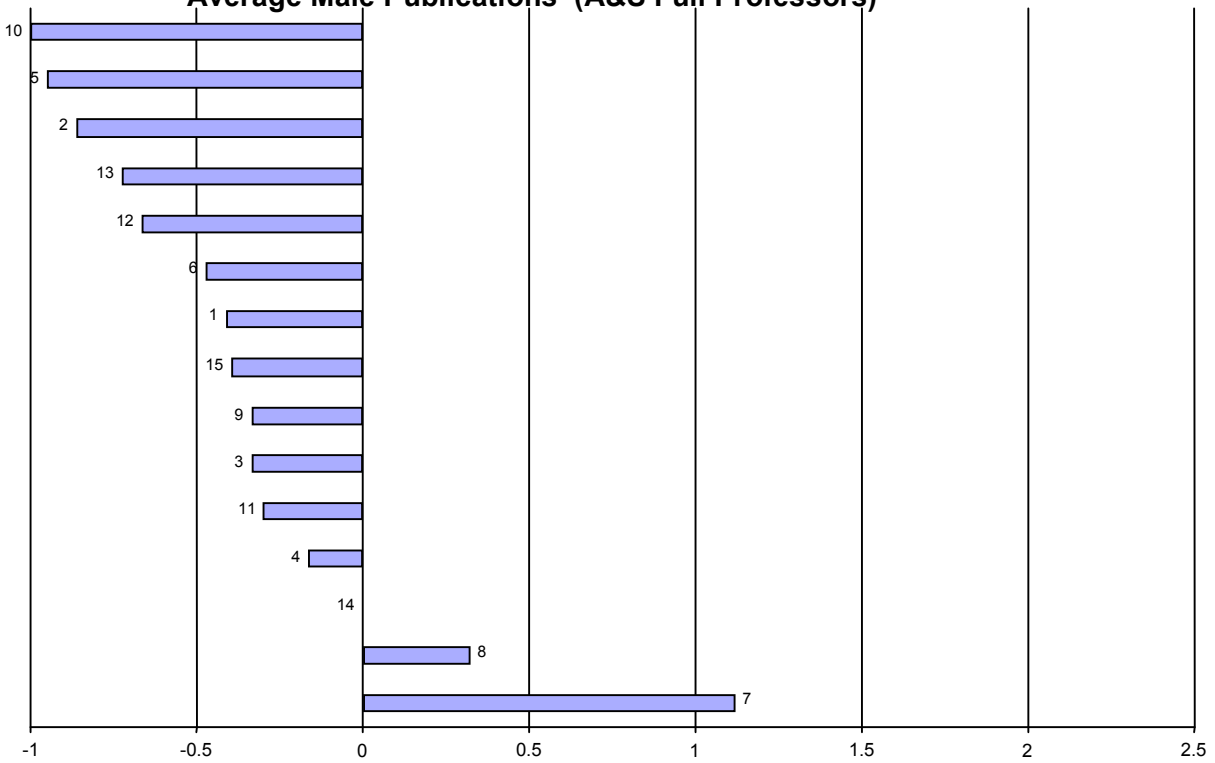
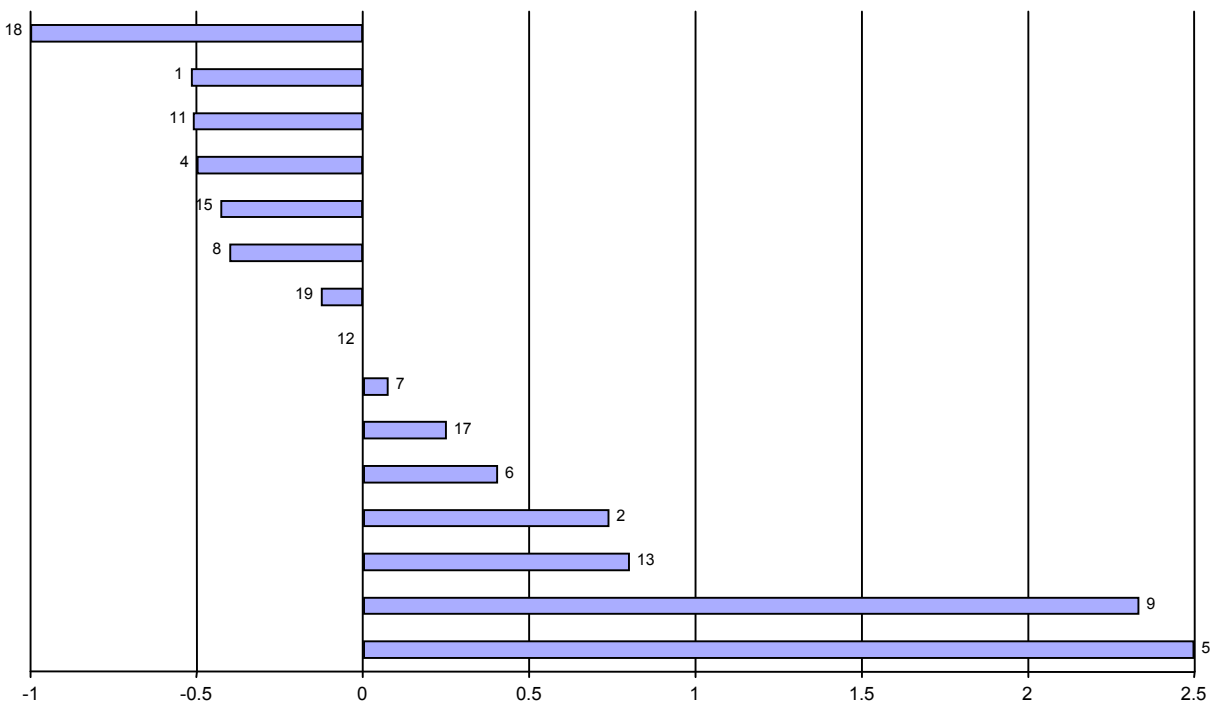


Figure 4.4b: Percent Difference Average Female Publications to Average Male Publications (A&S Associate Professors)



Turning to teaching, we compare the average number of course preps for the years in the sample of male and female faculty at the same rank. Figure 4.5 illustrates differences by department in the number of course preps per year, calculated and displayed as was done for figures 4.4.

$$\%Female = \frac{(\text{AverageFemalePrepsPerYearsInSample} - \text{AverageMalePrepsPerYearsInSample})}{\text{AverageMalePrepsPerYearsInSample}}$$

As in Figures 4.4 a and b, bars to the left of zero indicate departments in which males had more course preps than did females; bars to the right indicate departments in which female faculty members had more preps than males. At the Full Professor level, the majority of departments are between a plus and minus 40%. At the Associate level, the range is between plus and minus 20%. However, at both levels, there are a few exceptions that appear so extreme as to warrant review.

Figure 4.5a: Percent Difference Average Course Preps per Time in Sample (A&S Full Professors)

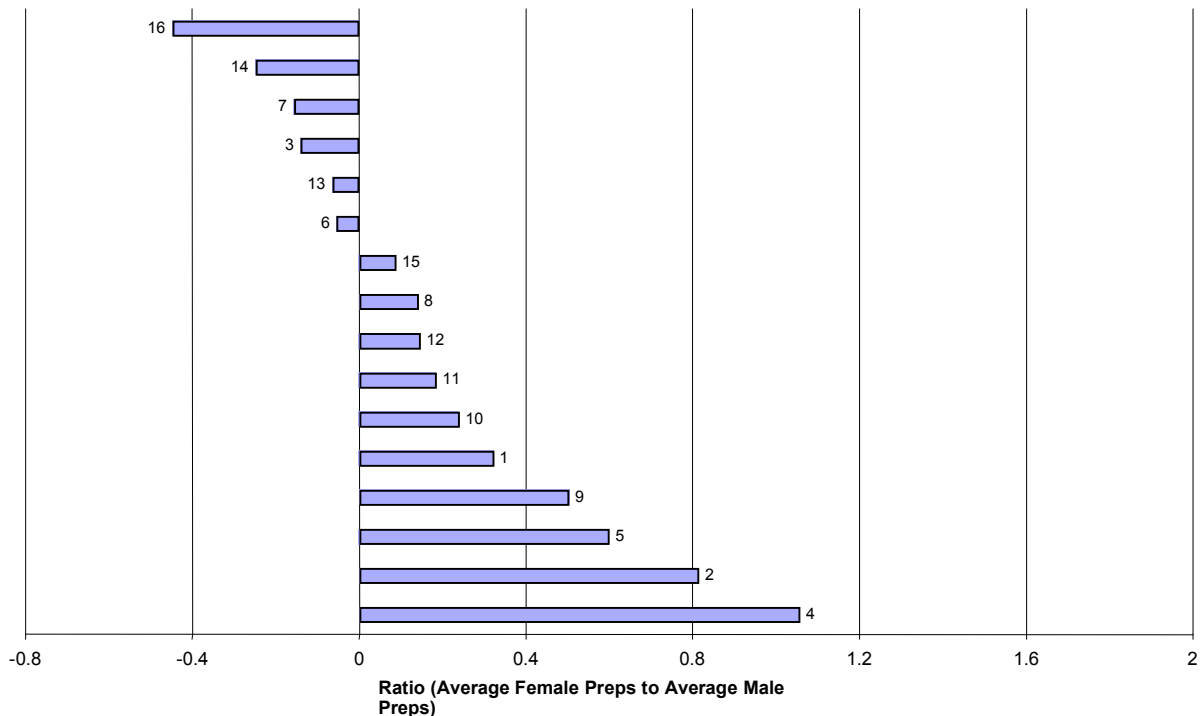
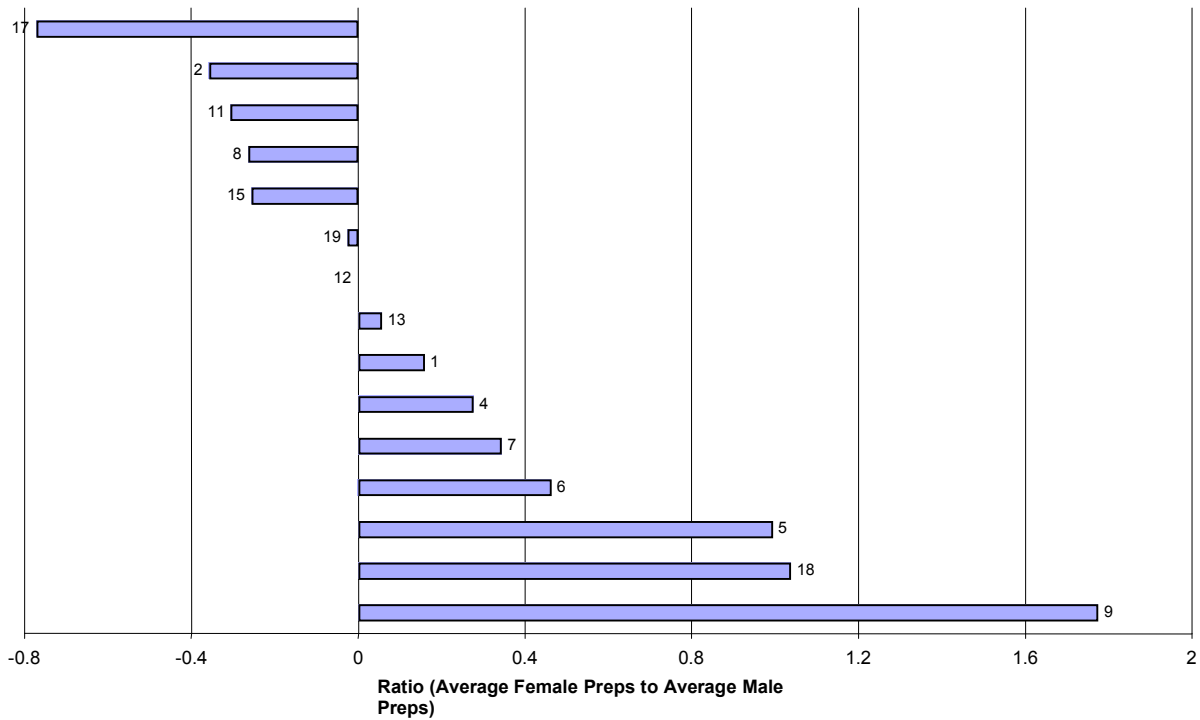


Figure 4.5b: Percent Difference Average Course Preps per Time in Sample (A&S Associate Professors)



Finally, we consider average compensation by department. Figures 4.6a, b, and c illustrate differences in compensation by department, calculated as

$$\%AverageFemaleCompensation = \frac{(Average\ Female\ Compensation - Average\ Male\ Compensation)}{Average\ Male\ Compensation}$$

As in the preceding figures, bars to the left of zero indicate departments in which males earn more; bars to the right of zero indicate departments in which female faculty members earn more. We include the Assistant rank for completeness.

At the Full Professor level, we see that in ten of 16 department average compensation for female faculty is less than for their male counterparts. The percentage difference ranges from about 5% less to about 30% less. At the Associate level, in nine of 15 departments compensation is less for women than men. However, the magnitude percentage difference is slightly smaller

than at the Professor level. At the Assistant level in six of eleven departments the average compensation for women is greater than for men.

Figure 4.6a: Percent Difference Average Female Compensation to Average Male Compensation (A&S Full Professors)

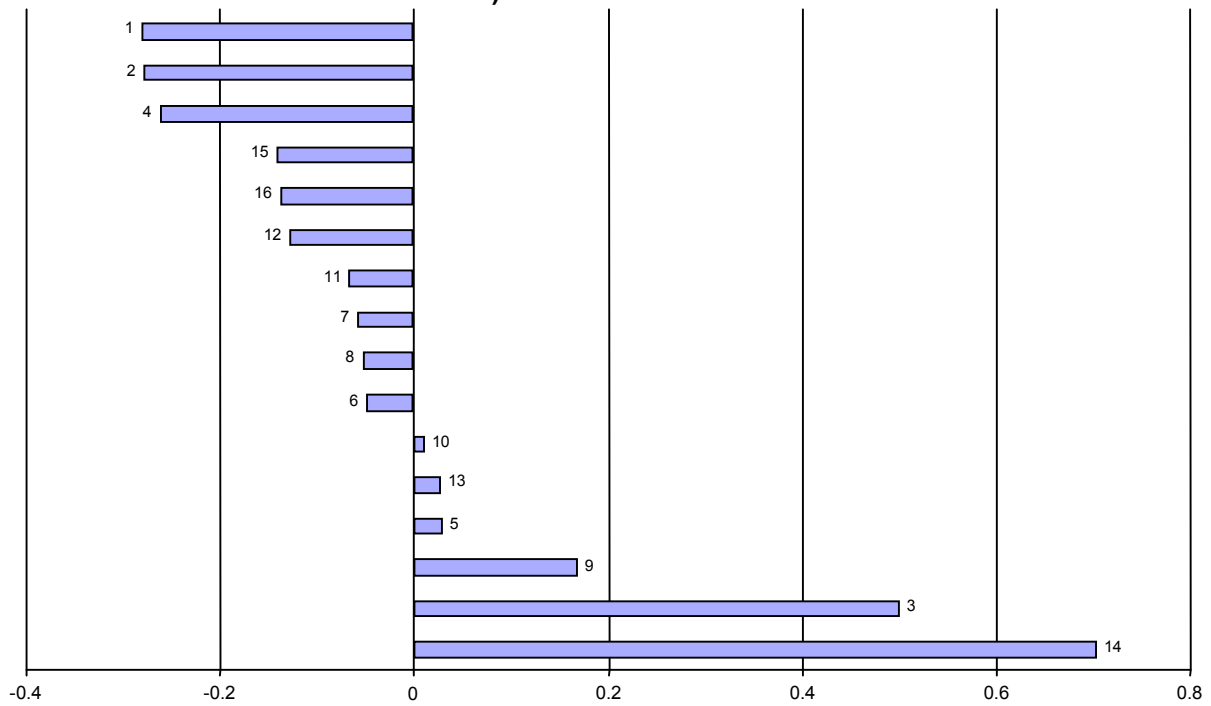


Figure 4.6b: Percent Difference Average Female Compensation to Average Male Compensation (A&S Associate Professors)

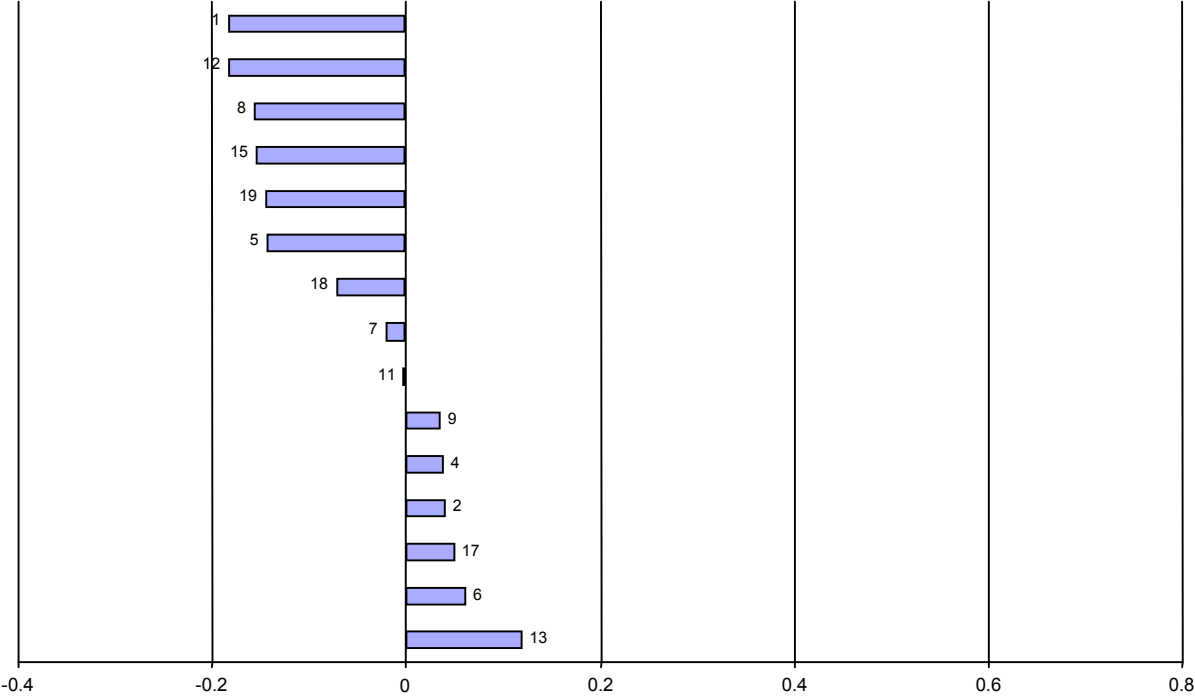
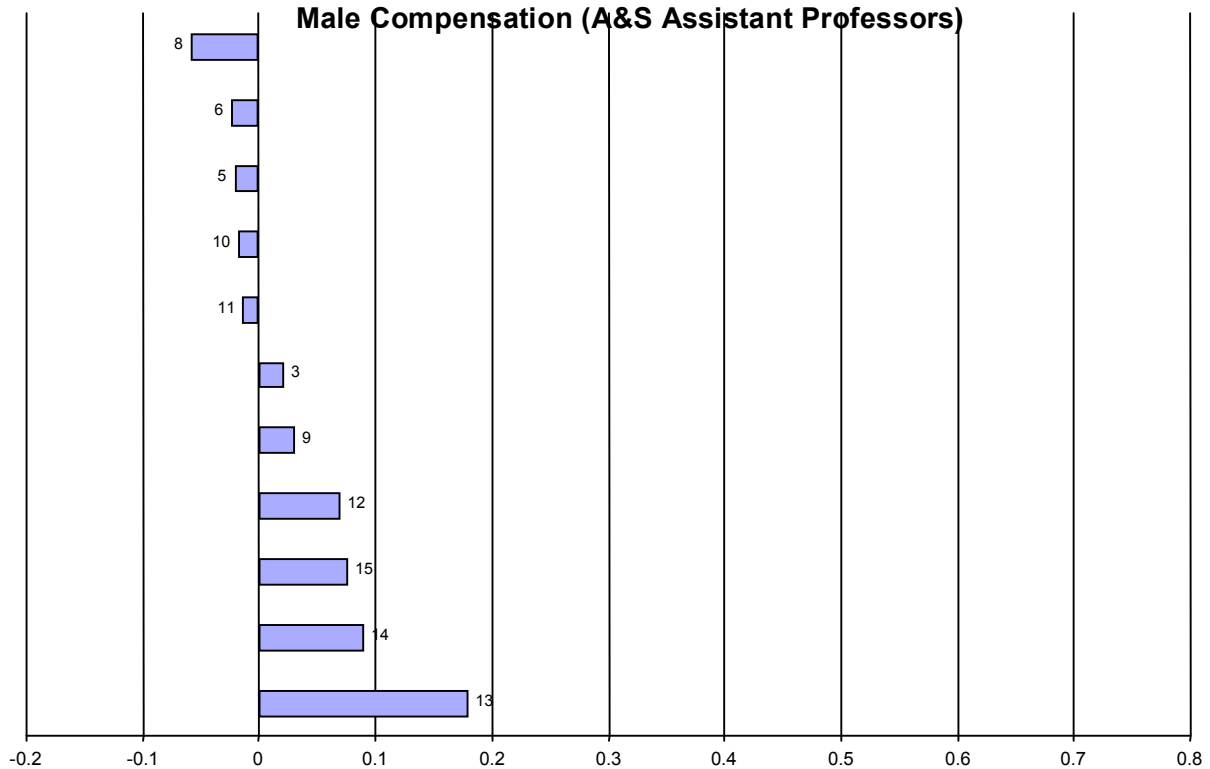


Figure 4.6c: Percent Difference Average Female Compensation to Average Male Compensation (A&S Assistant Professors)



Taken together, these figures indicate that Arts and Sciences departments vary substantially in composition, the relative productivity of the faculty, and compensation. Theory suggests that those departments in which males are more productive than females should be the same departments in which male compensation exceeds female compensation. We find that, in some departments, this relationship is reversed. Tables 4.4a and 4.4b indicate whether females have lower compensation or productivity by a negative sign for each department. Measures in departments for which females have greater compensation or productivity are indicated with a positive sign. Departments in which the sign for compensation differs from both measures of productivity are in bold italics. We find five of the 15 departments have reversal at the Full Professor level, while only one of 19 exhibits the reversal at the Associate level.

There are some cases for which the compensation sign is the same as either preps or papers, but reversed for the other. At the Full Professor level, the compensation sign is consistent with the papers sign in seven of 15 cases, while it is consistent with preps in only three cases. At the Associate level there are also differences between compensation and productivity. For example, in six of 15 cases, the sign on compensation is consistent only with the sign on papers, while it is consistent only with preps once. The results at both levels suggest different departments, as might be expected, have different methods for determining compensation. In any case, departments in which the compensation signs are opposite of both measures of productivity may warrant additional scrutiny.

Department	Compensation	Preps	Papers
1	-	+	-
2	-	+	-
3	+	+	-
4	-	+	-
5	+	+	-
6	-	+	-
7	-	+	+
8	-	+	+
9	+	+	-
10	+	-	-
11	-	-	-
12	-	-	-
13	+	-	-
14	+	-	0
15	-	-	-

Departments in which the sign for compensation differs from both measures of productivity are in bold italics.

Table 4.4b. Relative Productivity and Relative Compensation by Department, Associate Professors

Department	Compensation	Preps	Papers
1	-	+	-
2	+	-	+
4	+	+	-
5	-	+	+
6	+	-	+
7	-	-	+
8	-	-	-
9	+	+	+
11	-	-	-
12	-	-	0
13	+	+	+
15	-	+	-
17	+	-	+
18	-	+	-
19	-	-	-

Departments in which the sign for compensation differs from both measures of productivity are in bold italics.

APPENDIX TO CHAPTER 4

Table A4.1. Oaxaca Decomposition of Gender Gaps for University and A&S Faculties

	University		Arts & Sciences	
Male Salary	\$65,271		61529	
Female Salary	\$56,634		53616	
Male Log Salary	11.039		10.983	
Female Log Salary	10.902		10.856	
Salary Difference	8637		7913	
Log Difference	0.137		0.127	
% Difference	13.2%		12.9%	
	Characteristics	Returns	Characteristics	Returns
Hispanic	-0.001	-0.001	0.001	-0.005
African American	0.000	-0.001	0.000	0.000
Native American	0.000	-0.001	0.000	0.000
Asian	0.001	-0.003	0.000	-0.002
US Citizen	-0.001	-0.039	0.000	-0.081
Total Demographic Variables	-0.001	-0.043	0.001	-0.089
Has PhD	0.001	-0.008	0.002	-0.045
Associate Prof	0.014	-0.001	--	--
Assistant Prof	0.043	-0.007	--	--
Experience	--	--	0.106	0.299
Experience Squared	--	--	-0.018	-0.150
Age	0.004	0.064	0.006	-0.131
Total Human Capital Variables	0.061	0.049	0.097	-0.027
Chair or Director	0.005	-0.003	0.007	-0.004
Was Chair or Director	0.003	-0.002	0.003	-0.001
Was College Administrator	-0.001	-0.001	-0.005	0.004
Years at UNM	-0.007	0.023	-0.047	0.057
Total UNM Experience	-0.001	0.018	-0.042	0.058
Trend	-0.006	-0.001	-0.008	0.023
Chose Portable Pension	-0.001	0.002	-0.003	0.017
Had Portable Pension Choice	0.002	0.021	0.008	-0.013
Cumulative Number of Preps	-0.005	-0.061	-0.001	-0.129
Number of Undergrads Taught	0.000	0.000	0.000	-0.002
Number of Grad Students Taught	0.000	0.004	-0.001	-0.003
Total Teaching Variables	-0.005	-0.056	-0.002	-0.134
Grant Money (%)	0.007	0.020	0.006	0.015
Cumulative Grant Money (%)	0.000	0.013	0.000	0.016
Total Grant Variables	0.007	0.033	0.006	0.031
Books in Last 5 Years (%)	--	--	-0.005	0.021
Earlier Books (%)	--	--	-0.003	-0.001
Articles in Last 5 Years (%)	--	--	0.008	-0.004
Earlier Articles (%)	--	--	0.001	0.001
Total Publications Variables	--	--	0.002	0.017
Constant	0.000	0.045	0.000	0.225
Total Department Variables	0.062	-0.047	0.046	-0.083
Log Point Difference	0.117	0.020	0.105	0.023
% of Total Difference	85.4%	14.6%	82.1%	17.9%

Note: Positive values increase the gap; negative values reduce the gap. Figures combine effects using male and female wage structures by averaging the two.

Table A4.2. Oaxaca Decomposition of Hispanic Origin Gaps for University and A&S Faculties

	University		Arts & Sciences	
White, Non-Hispanic Salary	\$62,416		59628	
White, Non-Hispanic Log Salary	\$57,274		54043	
Hispanic Salary	10.994		10.952	
Hispanic Log Salary	10.908		10.860	
	5142		5585	
	0.086		0.092	
	8.2%		9.4%	
	Characteristics	Returns	Characteristics	Returns
Female	0.001	-0.014	0.001	-0.004
Hispanic	--	--	--	--
African American	--	--	--	--
Native American	--	--	--	--
Asian	--	--	--	--
US Citizen	0.003	-0.063	0.005	-0.069
Total Demographic Variables	0.004	-0.077	0.006	-0.073
Has PhD	0.000	0.010	0.001	0.049
Associate Prof	0.018	-0.038	--	--
Assistant Prof	0.016	-0.045	--	--
Experience	--	--	0.069	0.340
Experience Squared	--	--	-0.029	-0.022
Age	0.001	0.090	0.007	-0.373
Total Human Capital Variables	0.035	0.016	0.047	-0.006
Chair or Director	0.000	-0.006	-0.002	-0.004
Was Chair or Director	0.000	0.000	0.001	0.007
Was College Administrator	-0.002	-0.001	-0.001	-0.003
Years at UNM	0.005	-0.131	-0.008	-0.213
Total UNM Experience	0.004	-0.138	-0.009	-0.213
Trend	-0.002	0.035	-0.010	0.055
Chose Portable Pension	0.003	0.001	0.006	-0.028
Had Portable Pension Choice	0.000	0.002	0.001	-0.011
Cumulative Number of Preps	-0.001	-0.013	-0.005	-0.009
Number of Undergrads Taught	0.000	0.000	0.001	-0.013
Number of Grad Students Taught	-0.001	-0.011	0.002	-0.014
Total Teaching Variables	-0.002	-0.025	-0.003	-0.037
Grant Money (%)	0.003	-0.003	0.005	0.002
Cumulative Grant Money (%)	0.000	0.008	0.001	-0.010
Total Grant Variables	0.003	0.006	0.007	-0.008
Books in Last 5 Years (%)	--	--	-0.001	-0.031
Earlier Books (%)	--	--	-0.002	0.035
Articles in Last 5 Years (%)	--	--	0.003	-0.003
Earlier Articles (%)	--	--	0.002	-0.003
Total Publications Variables	--	--	0.002	-0.001
Constant	0.000	0.128	0.000	0.338
Total Department Variables	0.035	0.058	0.019	0.010
Log Point Difference	0.079	0.007	0.066	0.026
% of Total Difference	92.3%	7.7%	71.3%	28.7%

Note: Positive values increase the gap; negative values reduce the gap. Figures combine effects using white and Hispanic wage structures by averaging the two.

CHAPTER 5: Results from the Survey

We conducted an online survey to collect self-reported information from faculty about their attitudes, experience, and demographic characteristics that were not available in the administrative data. As described in Chapter 2, two-thirds of the population completed most of the questions on the survey. The composition of the survey respondents differs only slightly from that of the university population although there are some significant differences between responders and non-responders. Compared to non-responders, responders have been in their current rank a shorter time, are younger, are more likely to be white and less likely to be American Indian or Asian, are more likely to be female, are more likely to be an assistant professor, and are less likely to be a full professor.

The survey data can be grouped into five broad categories: Faculty Duties, UNM Career, Job Market Activity, Job Satisfaction, and Demographic Mobility. The survey also included Choice Questions. In a choice question, respondents are presented with different alternatives and asked to choose their preferred alternative.¹³ Each alternative is described through a set of attributes; each alternative can take different levels for each attribute. Economists use this approach to investigate the relative value people place on various attributes of a product, a situation or, as in this case, a job.

5.1 Descriptive Statistics

In this section we examine some basic descriptive statistics from the first five sections. We highlight differences by gender, Hispanic origin, and rank. Since the survey collected novel data, we chose to present the most basic statistics first, leaving for a later date a consideration of

¹³ There is an extensive literature on the theory and application of choice questions in marketing, transportation, and economics. For survey articles see Louviere [1988], Wittink and Cattin [1989], Green and Srinivasan [1990], Batsell and Louviere [1991], and Adamowicz et al. [1998].

the interaction among preferences, activity and department affiliation. Because of the relatively small number of Hispanics in the sample, differences by Hispanic origin should be considered as suggestive only. The reported statistics are for all individuals in the UNM administrative database, except college-level administrators, who responded to any questions in the survey.

5.1.1 Faculty Duties and Interests

Tables 5.1 and 5.2 show average responses to questions about faculty duties for the sample as well as by gender, race, and rank. On average, faculty members spent the majority of their weekly time on teaching (23 hours) and research (16 hours). On average, men and women have quite different time allocations. Women spend significantly more time on teaching/advising, serving clients, and service to the campus and public. Men spend significantly more time on research and creative works, professional service, and non-UNM paid consulting. They do not differ significantly in terms of average hours of work per week. Hispanics spent significantly more time teaching than whites. Assistant Professors spend marginally more time on teaching/advising than Associate Professors and significantly more time on these activities than Full Professors. Associate Professors spend significantly less time on research than Assistant Professors and marginally less time than Full Professors. Assistant Professors spend significantly less time on campus and public service than all other ranks while Full Professors spend significantly more time on professional service. Full Professors also spend more time on non-UNM paid consulting than do Assistant Professors. These time allocations are somewhat at odds with stated preferences, with the average faculty member saying that while they have interests in both, they lean towards research. Women had a significantly higher mean score than men, indicating that while they also had interests in both, they had a slightly greater leaning

towards teaching. Associate faculty had a significantly greater interest in teaching compared to all other ranks.

Twenty-nine percent of survey respondents have edited a journal in the past 10 years. Men are more likely than women to have served as a journal editor. Not surprisingly, Full Professors are significantly more likely than faculty of all other ranks to have held an editorship.

The average individual reviewed six papers or grants in the past year and submitted four grants in the past five years.¹⁴ Men did significantly more of both activities while Whites did significantly more of both activities than Hispanics. Full Professors reviewed and submitted significantly more grants than did Associate Professors. The average individual chaired 11 advisement committees (PhD, MA, undergraduate honors) and served as a member on an additional 14. Although women report more hours spent teaching and advising students, men served on significantly more dissertation committees and served and chaired significantly more MA committees than women. As would be expected given their length of tenure, Full and Associate Professors have served and chaired on significantly more MA and PhD committees than have Assistant Professors.

The average individual was a member of four committees (department, college, and university). The majority of these committees were in the department. Consistent with reported time allocations, women served on significantly more committees at all levels. In general, while Associate faculty serve on significantly more college and university committees than do Assistant faculty, there are not large differences between Associate and Full faculty.

¹⁴This represents a lower bound estimate as these means were calculated by using the lower bound on each category. This transformation was done for grants, reviews, collaborators, graduate colleagues, and membership/chair of advisory committees.

Table 5.1: Faculty Duties: Means by Gender and Hispanic Origin

	N	Sample Mean	Male	Female	M/ F	Hispanic	White, Non-Hispanic	H/W
Hrs/wk teaching and advising students	510	23.26	22.33	24.65	**	26.80	22.84	**
Hrs/wk in research and creative works	510	15.86	17.24	13.82	**	14.53	15.74	
Hrs/wk serving clients	510	0.47	0.33	0.67	**	0.29	0.49	
Hrs/wk in service on campus and to public	510	12.29	11.22	13.87	**	15.19	12.11	
Hrs/wk in service to profession	510	2.53	2.74	2.21	**	2.15	2.61	
Hrs/wk in non-UNM paid consulting	510	0.85	1.08	0.50	**	0.49	0.86	
Hrs/wk on all activities	510	55.25	54.94	55.72		59.44	54.64	
Served as a journal editor in past 10 years	513	0.29	0.33	0.22	**	0.23	0.30	
# of papers/grants reviewed/yr ^a	514	6.46	7.48	5.00	**	3.68	6.90	**
# of grants submitted in last 5 yrs ^a	515	4.18	4.89	3.16	**	3.04	4.21	**
# of dissertation committees: chair ^a	507	3.52	3.83	3.08		2.62	3.77	
# of dissertation committees: member ^a	513	6.96	7.57	6.05	**	5.68	7.31	*
# of MA committees: chair ^a	504	5.31	5.84	4.52	**	4.20	5.60	
# of MA committees: member ^a	513	7.22	7.72	6.48	**	5.84	7.55	*
Undergrad honors projects supervised ^a	515	2.55	2.56	2.54		2.42	2.71	
# of departmental committees served on last year	470	2.36	2.25	2.51	*	2.41	2.36	
# of college committees served on last year	422	1.05	0.89	1.27	**	1.34	1.02	
# of university committees served on last year	417	0.68	0.58	0.84	**	0.60	0.68	
Interests lie primarily in teaching or research? ^b	515	2.30	2.25	2.36	**	2.38	2.30	

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Categories were calculated at their lower level

^b Numbers reported are mean levels for: (4=Very heavily in teaching, 3=In both, but leaning toward teaching, 2=In both, but leaning toward research, 1=Very heavily in research)

Table 5.2: Faculty Duties: Means by Rank

	N	Sample Mean	Asst	Assoc	Full	Asst/ Assoc	Assoc / Full	Full/ Asst
Hrs/wk teaching and advising students	510	23.26	25.34	23.07	22.07	*		**
Hrs/wk in research and creative works	510	15.86	17.02	14.27	16.38	**	*	
Hrs/wk serving clients	510	0.47	0.45	0.64	0.34			
Hrs/wk in service on campus and to public	510	12.29	9.26	12.90	13.77	**		**
Hrs/wk in service to profession	510	2.53	1.98	2.43	2.96	*	**	**
Hrs/wk in non-UNM paid consulting	510	0.85	0.61	0.73	1.09			**
Hrs/wk on all activities	510	55.25	54.66	54.04	56.61		*	
Served as a journal editor in past 10 years	513	0.29	0.18	0.23	0.41		**	**
# of papers/grants reviewed/yr ^a	514	6.46	5.64	5.27	7.97		**	**
# of grants submitted in last 5 yrs ^a	515	4.18	3.91	3.63	4.81		**	*
# of dissertation committees: chair ^a	507	3.52	1.04	2.17	6.29	**	**	**
# of dissertation committees: member ^a	513	6.96	3.17	5.86	10.31	**	**	**
# of MA committees: chair ^a	504	5.31	2.36	5.20	7.35	**	**	**
# of MA committees: member ^a	513	7.22	4.27	7.08	9.21	**	**	**
Undergrad honors projects supervised ^a	515	2.55	1.23	3.06	3.00	**		**
# of departmental committees served on last year	470	2.36	2.38	2.50	2.22		*	
# of college committees served on last year	422	1.05	0.82	1.25	1.04	**		
# of university committees served on last year	417	0.68	0.48	0.76	0.75	**		**
Interests lie primarily in teaching or research? ^b	515	2.30	2.24	2.42	2.23	**	**	

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Categories were calculated at their lower level

^b Numbers reported are mean levels for: (4=Very heavily in teaching, 3=In both, but leaning toward teaching, 2=In both, but leaning toward research, 1=Very heavily in research)

5.1.2 Career at UNM

Tables 5.3 and 5.4 show average responses to questions about faculty members' UNM careers for the sample as well as by gender, Hispanic origin, and rank. The average UNM faculty member received his/her terminal degree in 1987 and has been working at UNM since 1992. The average male faculty member received his degree four years earlier and has been working at UNM for three years longer than the average female faculty member. Some of these differences may help explain differences in other characteristics.

On average, individuals spent six years as an Associate Professor. Women spent less time at the Associate rank than did men. Hispanic and non-Hispanic white faculty did not spend significantly different times in this position.

In the past ten years, ten percent have taken leave without pay. The primary reason for this was for professional activity such as serving as a visiting professor or conducting research. Associate Professors are significantly more likely to have done this than Assistant Professors and women are significantly more likely to have used this option than men.

On average, faculty members have three collaborators at other academic institutions and keep in touch with three colleagues from graduate school. Men are more likely to have outside collaborators while Full Professors have significantly more outside collaborators than Assistant Professors. Not surprisingly, Assistant Professors keep in contact with more graduate school colleagues than do faculty members of all other ranks.

Table 5.3: UNM Career: Means by Gender and Hispanic Origin

	N	Sample Mean	Male	Female	M/ F	Hispanic	White, Non-Hispanic	H/ W
Year received terminal degree	510	1987.2	1985.5	1989.6	**	1989.5	1986.3	*
Year began working at UNM	513	1991.6	1990.4	1993.3	**	1993.5	1990.7	**
# of years spent as assistant professor	379	4.94	5.00	4.84		4.72	5.02	
# of years spent as associate professor	347	5.95	6.52	5.07	**	6.46	6.00	
# of years full professor spent as associate	159	6.07	6.39	5.30	**	6.33	6.06	
Ever took leave without pay (past 12 AYs)	511	0.10	0.08	0.13	*	0.20	0.09	*
Caretaker for ill family member (past 12 AYs)	511	0.00	0.01	0.00		0.02	0.00	
# of collaborators at other academic institutions ^a	439	3.35	3.60	3.03	**	3.17	3.39	
# of grad school colleagues in contact with ^a	472	3.37	3.39	3.35		3.57	3.33	

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Categories were calculated at their lower level

Table 5.4: UNM Career: Means by Rank

	N	Sample Mean	Asst	Assoc	Full	Asst/ Assoc	Assoc/ Full	Full/ Asst
Year got terminal degree	510	1987.2	1998.0	1988.3	1979.1	**	**	**
Year began working at UNM	513	1991.6	2000.3	1991.8	1985.5	**	**	**
# of years spent as assistant professor	379	4.94	4.11	5.56	5.15	**	**	**
# of years spent as associate professor	347	5.95	1.00	6.55	6.07	**		**
# of years full professor spent as associate	159	6.07	.	.	6.07	**	**	**
Ever took leave without pay (past 12 AYs)	511	0.10	0.07	0.13	0.10	*		
Caretaker for ill family member (past 12 AYs)	511	0.00	0.01	0.01	0.00			
# of collaborators at other academic institutions ^a	439	3.35	2.98	3.23	3.77			**
# of grad school colleagues in contact with ^a	472	3.37	3.99	3.23	3.03	**		**

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Categories were calculated at their lower level

5.1.3 Job Market Activity

Tables 5.5 and 5.6 report average job market activity. Sixty-eight percent participated in some job market activities over the last ten years while at UNM. Between 2002 and 2004, the average faculty member participated in 1.6 job market activities. Men engaged in significantly more activities in this period than women. Activities included sending a CV (34%), being invited to apply (57%), being invited to an on-campus interview (31%), attending an on-campus interview (26%), receiving a verbal offer (22%), receiving a written offer (12%), and discussing a job offer with the chair or dean (17%). Men were significantly more likely to be invited to and to go to an on-campus interview. Full Professors were significantly more likely to participate in certain job market activities than were Assistant Professors. Fourteen percent of faculty received a salary adjustment as a result of job market activity; this did not differ by Hispanic origin or gender. On average, faculty thought it would be somewhat easy to find an equivalent academic position. Women thought it significantly easier than men, Hispanics thought it marginally easier than white, non-Hispanic faculty and Assistant Professors thought it significantly easier than Full Professors.

Table 5.5: Job Market Activities: Means by Gender and Hispanic Origin

	N	Sample Mean	Male	Female	M/ F	Hispanic	White, non-Hispanic	H/ W
Number of job market activities 2002-04	536	1.62	1.80	1.36	**	2.02	1.54	
No job market activities (past 12 AYs)	536	0.32	0.34	0.29		0.27	0.34	
Sent CV in response to job opening (past 12 AYs)	536	0.34	0.36	0.33		0.27	0.35	
Invited to apply for an academic job (past 12 AYs)	536	0.57	0.54	0.61		0.67	0.54	*
Invited to on-campus interview (past 12 AYs)	536	0.31	0.34	0.26	**	0.25	0.31	
Went to on-campus interview (past 12 AYs)	536	0.26	0.30	0.21	**	0.21	0.27	
Got verbal offer for an academic job (past 12 AYs)	536	0.22	0.23	0.19		0.21	0.21	
Got written offer for an academic job (past 12 AYs)	536	0.12	0.13	0.10		0.15	0.11	
Discussed job offer with chair/Dean (past 12 AYs)	536	0.17	0.18	0.16		0.17	0.18	
Got job market salary adjustment (past 12 AYs)	536	0.14	0.14	0.14		0.17	0.13	
Ease of finding equivalent position ^a	509	1.45	1.53	1.32	**	1.18	1.51	**

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Number reported is mean ease (4=Very difficult, 3=Somewhat difficult, 2=Not sure, 1=Somewhat easy, 0 = Very easy)

Table 5.6: Job Market Activities: Means by Rank

	N	Sample Mean	Asst	Assoc	Full	Asst/ Assoc	/ Full	Full/ Asst
Number of job market activities 2002-04	536	1.62	1.86	1.37	1.66	*		
No job market activities (past 12 AYs)	536	0.32	0.33	0.28	0.35			
Sent CV in response to job opening (past 12 AYs)	536	0.34	0.35	0.34	0.34			
Invited to apply for an academic job (past 12 AYs)	536	0.57	0.53	0.59	0.57			
Invited to on-campus interview (past 12 AYs)	536	0.31	0.27	0.29	0.34			
Went to on-campus interview (past 12 AYs)	536	0.26	0.20	0.24	0.32		*	**
Got verbal offer for an academic job (past 12 AYs)	536	0.22	0.21	0.22	0.22			
Got written offer for an academic job (past 12 AYs)	536	0.12	0.11	0.11	0.13			
Discussed job offer with chair/Dean (past 12 AYs)	536	0.17	0.13	0.17	0.20			*
Got job market salary adjustment (past 12 AYs)	536	0.14	0.14	0.11	0.16			
Ease of finding equivalent position ^a	509	1.45	1.26	1.41	1.61			**

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

^a Number reported is mean ease (4=Very difficult, 3=Somewhat difficult, 2=Not sure, 1=Somewhat easy, 0 = Very easy)

5.1.4 Job Satisfaction

Tables 5.7 and 5.8 report job satisfaction measures. On average, UNM faculty are satisfied with the work they do. There are not significant differences in satisfaction level by gender or Hispanic origin. Full Professors tended to be most satisfied with the work they did.

Faculty members are most satisfied with the autonomy and independence of their jobs and least satisfied with availability of childcare at UNM (for those who felt this question was applicable). On average, faculty are satisfied with the opportunity for scholarly pursuit, teaching load, dependent tuition benefits, office space, library and research facilities, autonomy and independence, professional and social relationships with faculty, and competency of colleagues. Faculty are only marginally satisfied with the quality of the students, salary and health insurance benefits, retirement plan, availability of child care at UNM, other benefits, technical support, equipment, clerical and administration support, and their relationships with administration. In general, there were not large differences by gender or Hispanic origin on these attitudinal questions. Men were significantly more satisfied with the opportunity for scholarly pursuit; women were significantly more satisfied with the quality of students. Women were more satisfied with the social relationships with faculty. Hispanics were significantly more satisfied with the library and research facilities.

There was more variation in satisfaction levels by rank. While Full Professors tended to be most satisfied with the opportunity for scholarly pursuits, teaching load, and autonomy, they were least satisfied with their social relationships with other faculty, administration, and clerical support. Assistant Professors were least satisfied with the quality of students.

While on average most faculty say they would probably still want to be a college professor if they were to begin their career again, they were more equivocal about whether they

would want to be a college professor at UNM. Hispanic faculty were marginally more likely to want to be a college professor at UNM. Full Professors were significantly less likely to say they would want to be a college professor at UNM.

Table 5.7: Job Satisfaction: Means by Gender and Hispanic Origin

	N	Sample Mean	Male	Female	M/ F	Hispanic	White, non-Hispanic	H/ W
Satisfaction with work you do	500	3.13	3.14	3.11		3.02	3.15	
Satisfaction with opportunity for scholarly pursuits	504	2.83	3.02	2.56	**	2.59	2.87	*
Satisfaction with teaching load	500	2.80	2.85	2.74		2.66	2.83	
Satisfaction with quality of students	506	2.38	2.28	2.51	**	2.58	2.38	
Satisfaction with salary benefits	510	1.94	1.97	1.90		1.92	1.98	
Satisfaction with health insurance benefits	497	2.12	2.16	2.07		2.04	2.15	
Satisfaction with dependent tuition benefits	275	2.75	2.72	2.80		2.79	2.76	
Satisfaction with retirement plan	508	2.38	2.40	2.35		2.34	2.41	
Satisfaction with availability of child care at UNM	113	1.80	1.83	1.76		1.54	1.82	
Satisfaction with other benefits	340	2.26	2.25	2.28		2.11	2.30	
Satisfaction with office/lab/studio space	506	2.60	2.56	2.65		2.50	2.64	
Satisfaction with library/Research facilities	502	2.51	2.46	2.59		2.78	2.48	**
Satisfaction with technical support	496	2.20	2.21	2.18		2.38	2.21	
Satisfaction with equipment	451	2.28	2.32	2.22		2.45	2.28	
Satisfaction with autonomy and independence	509	3.38	3.42	3.32		3.20	3.43	*
Satisfaction with professional relationships w/ faculty	508	2.98	2.92	3.05		2.92	3.00	
Satisfaction with social relationships w/ faculty	490	2.77	2.71	2.87	**	2.87	2.78	
Satisfaction with competency of colleagues	504	2.85	2.80	2.91		2.78	2.87	
Satisfaction with relationship with administration	502	2.34	2.31	2.38		2.31	2.33	
Satisfaction with clerical/administration support	506	2.49	2.49	2.49		2.65	2.47	
Still want to be a college professor ^a	513	3.31	3.31	3.30		3.16	3.33	
Still want to be a college professor at UNM ^a	513	2.32	2.28	2.37		2.60	2.30	*

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

Numbers reported are mean satisfaction level (4=Very satisfied, 3=Somewhat satisfied, 2=Marginally satisfied, 1=Not at all satisfied)

^a Number reported is mean response (4=Definitely Yes, 3=Probably Yes, 2=Not Sure, 1=Probably No, 0 = Definitely No)

Table 5.8: Job Satisfaction: Means by Rank

	N	Sample Mean	Asst	Assoc	Full	Asst/ Assoc	Assoc / Full	Full/ Asst
Satisfaction with work you do	500	3.13	3.03	3.07	3.24		*	**
Satisfaction with opportunity for scholarly pursuits	504	2.83	2.69	2.66	3.06		**	**
Satisfaction with teaching load	500	2.80	2.68	2.70	2.98		**	**
Satisfaction with quality of students	506	2.38	2.18	2.53	2.38	**	*	**
Satisfaction with salary benefits	510	1.94	1.91	1.87	2.02			
Satisfaction with health insurance benefits	497	2.12	2.01	2.14	2.18			*
Satisfaction with dependent tuition benefits	275	2.75	2.87	2.68	2.72			
Satisfaction with retirement plan	508	2.38	2.41	2.30	2.43			
Satisfaction with availability of child care at UNM	113	1.80	1.63	1.88	1.93			
Satisfaction with other benefits	340	2.26	2.26	2.36	2.18		*	
Satisfaction with office/lab/studio space	506	2.60	2.54	2.66	2.58			
Satisfaction with library/Research facilities	502	2.51	2.49	2.58	2.47			
Satisfaction with technical support	496	2.20	2.19	2.17	2.22			
Satisfaction with equipment	451	2.28	2.38	2.24	2.26			
Satisfaction with autonomy and independence	509	3.38	3.36	3.31	3.46		**	
Satisfaction with professional relationships w/ faculty	508	2.98	3.01	2.94	2.98			
Satisfaction with social relationships w/ faculty	490	2.77	2.89	2.83	2.65		*	**
Satisfaction with competency of colleagues	504	2.85	2.91	2.82	2.82			
Satisfaction with relationship with administration	502	2.34	2.54	2.40	2.17		**	**
Satisfaction with clerical/administration support	506	2.49	2.70	2.49	2.36	**		**
Still want to be a college professor ^a	513	3.31	3.31	3.25	3.36			
Still want to be a college professor at UNM ^a	513	2.32	2.47	2.30	2.23			**

* and ** denote significant differences at the 10 and 5 percent levels, respectively.

Numbers reported are mean satisfaction level (4=Very satisfied, 3=Somewhat satisfied, 2=Marginally satisfied, 1=Not at all satisfied)

^a Number reported is mean response (4=Definitely Yes, 3=Probably Yes, 2=Not Sure, 1=Probably No, 0 = Definitely No)

5.1.5 Demographics

The majority of faculty are married and living with their partner (68%). Of those with a partner, 38% of the partners have a PhD or professional degree. Of those with a partner, 17% are faculty at UNM, 7% are faculty elsewhere, and 10% are staff at UNM. There are significant differences by gender in marital situation and spouse's education (see tables A5.1 - A5.3 in the appendix to this chapter). Male faculty members are more likely to be married than are women, and women are more likely to be unmarried, living with a partner. Men are more likely to be married to someone with less than a bachelor's degree or to someone whose highest degree earned is a bachelor's or master's degree. Men and women are approximately equally likely to be married to someone who has a Ph. D. or professional degree.

5.2 Choice Questions

In a choice question, respondents are presented with different alternatives and asked to choose which they prefer. Each alternative is described through a set of attributes or characteristics that are considered to be the most important in describing the good. In this study individuals were presented with two variants of their current department and asked in which they would prefer to work. A department was defined through several attributes: the individual's salary, the average salary in the department, the average salary of individuals of the same rank in their department, the teaching load, the rank of the department, and the rank of the department in the individual's particular field.

The general goal of a choice question survey is to determine the relative value of each of the attributes. By choosing which type of department she prefers, a respondent is providing information on the relative importance of each attribute.

5.2.1 Methods

Each individual received two sets of choice questions. Each individual in the sample was assigned to one of 18 possible survey versions; each survey version differed in terms of the range of values that the respondent would see in Option A and Option B. By varying these numbers through the 18 versions, we were able to econometrically determine the relative importance of the different attributes of a plan. In addition, the levels for salary, departmental average salary, and average salary by rank were based on an individual’s current salary and the appropriate salary information for their department and rank.

Table 5.9: Design Attribute Levels

Attribute	Levels
Dept Rank	Top 10, 11-30, 31-50, 51-75, 76-100, 100+
Field Rank	Top 10%, 11-25%, 26-50%, 51-75%, Bottom 25%
Teaching Load Per Semester	1, 2, 3, 4
Academic Salary ^a	Current, -5%, -10%, -25%, +5%, +10%, +25%
Avg Salary for Rank in Department ^a	Current, -5%, -10%, -25%, +5%, +10%, +25%
Avg Dept Salary ^a	Current, -5%, -10%, -25%, +5%, +10%, +25%

^aCalculated based on individual’s current salary

Table 5.9 shows the possible levels that each attribute could take.¹⁵ Table 5.10 provides a description of the variables used in the model. Utility was modeled as the weighted sum of these variables plus a non-linear teaching term and a random error.¹⁶ For example, departmental rank

¹⁵Using the SAS %choiceffmacro (Kuhfeld 2000), we selected the choice sets for the final design and divided it into four different survey versions.

¹⁶ The basic model estimated was:

$$U_{ik} = \beta_{D1130}D1130_k + \beta_{D3150}D3150_k + \beta_{D5175}D5175 + \beta_{D76100}D76100 + \beta_{D101}D101 + \beta_{F1125}F1125 + \beta_{F2650}F2650 + \beta_{F5175}F5175 + \beta_{F125}F125 + \beta_{Sal}Sal + \beta_{DAv}DAv + \beta_{RAv}RAv + (1)$$

was modeled as a series of dummy variables for levels 11-30, 31-50, 51-75, 76-100, and over 100; the default level was top ten. Thus, the parameter estimate on *Dept Rank:11-30* represents how an individual feels about a move from a Top Ten department to a department that is ranked 11-30, all else held constant. Field rank was also modeled through a set of dummy variables. Here the levels were based on percentages: 11-25%, 26-50%, 51-75%, bottom 25%; the default was top 10%. Teaching load was captured through both a linear and non-linear term.¹⁷

Modifications of this model included allowing preference parameters to vary by gender and rank.

Table 5.10: Description of variables used in choice model

Variable	Description
Dept Rank: 11:30 _k	1 if Dept Rank in alternative k is 11-30
Dept Rank: 31:50 _k	1 if Dept Rank in alternative k is 31-50
Dept Rank: 51:75 _k	1 if Dept Rank in alternative k is 51-75
Dept Rank: 76:100 _k	1 if Dept Rank in alternative k is 76-100
Dept Rank: 100+ _k	1 if Dept Rank in alternative k is 100 or higher
Field Rank: 11:25% _k	1 if Field Rank in alternative k is 11-25%
Field Rank: 26:50% _k	1 if Field Rank in alternative k is 26-50%
Field Rank: 50:75% _k	1 if Field Rank in alternative k is 50-75%
Field Rank: Bottom 25% _k	1 if Field Rank in alternative k is in bottom 25%
Salary _k	Salary (in 100,000 dollars) in alternative k
Avg Salary _k	Avg departmental salary (in 100,000 dollars) in alternative k
Avg Salary by Rank _k	Avg departmental salary for rank (in 100,000 dollars) in alternative k
Teach _k	Number of classes per semester in alternative k (in 10s)
Teach _k ^{0.5}	Number of classes per semester in alternative k square-rooted
Female _i	1 if individual i is female
Asst _i	1 if individual i is an Assistant Professor
Assoc _i	1 if individual i is an Associate Professor
Full _i	1 if individual i is a Full Professor

Answers to A/B choices were estimated using a random utility model, assuming that the error term follows an extreme value distribution. Answers to the set of questions were assumed independent. After dropping administrators, 491 individuals answered at least one of the choice questions.

$$\beta_{Tch1}Tch + \beta_{Tch2}Tch^{0.5} + \varepsilon_{ik}$$

¹⁷Similar results were obtained from modeling teaching load through three dummy variables.

5.2.2 Results

The basic model (Equation 1), assumes preference homogeneity: equivalently, this model captures the preferences of the average individual in the sample. The results are shown in table 5.11. Most variables are of the expected sign and significant. Individuals are made better off by a higher salary and higher average departmental salary. While a higher average salary for their rank makes them worse off, suggesting a prestige or equity effect, this variable is not significant. The omitted departmental rank dummy is Top Ten. The average individual does not view belonging to either an 11-30 or 31-50 ranked department as being significantly worse than belonging to a top ten ranked department. However, they perceive working in a department ranked 51-75, 76-100, and 100 plus as being significantly worse. In the case of field rank, the average individual generally saw a drop in field rank as significant. The parameter on the linear teaching term is negative and significant while the parameter on the square root term is positive and significant. This suggests that at low levels of teaching, faculty enjoy teaching more but that at higher levels of teaching, they are made worse off. These values suggest that the optimal teaching load for the average faculty member is approximately one class per semester.

In table 5.9 we also present the change in the probability of choosing an option given a change in the particular attribute level. These changes in probabilities give a sense of the relative importance of the various attributes.¹⁸ Thus, we see that that an all else equal, a \$10,000 increase in salary increases the probability that an alternative is chosen by 76%. Teaching load is also highly important; an increase from a teaching load of one to two decreases the probability that a

¹⁸For continuous variables, the change in probability is the average of the change in probability for each individual. For dummy variables, all other variables were calculated at either their mean or modal values; the presented change in probability is the change in probability when a dummy variable changes from a value of zero to a value of one.

particular alternative will be chosen by 54%. All else equal, an individual was 28% less likely to choose an alternative if the field rank was in the bottom 25% as compared to the top ten percent.

Table 5.11: Homogeneous Model: Preferences of Average UNM Faculty Member

Parameter	Est	S.E.	SigLvl	ChgProb
Avg Salary by Rank	-0.207	0.54		-3.0
Salary	5.179	0.69	**	75.8
Dept Rank: 11-30	0.007	0.19		0.2
Dept Rank: 31-50	-0.173	0.20		-4.3
Dept Rank: 51-75	-0.570	0.19	**	-13.9
Dept Rank: 76-100	-0.719	0.22	**	-17.2
Dept Rank: 101+	-0.581	0.18	**	-14.1
Avg Dept Salary	1.978	0.53	**	29.0
Field Rank: 11-25%	-0.352	0.21		-8.7
Field Rank: 26-50%	-0.737	0.20	**	-17.6
Field Rank: 51-75%	-0.685	0.22	**	-16.5
Field Rank: Bottom 25%	-1.272	0.20	**	-28.1
Teach	-41.564	5.17	**	-54.2
Teach ^{0.5}	10.129	1.52	**	
LogL (N=491)			432.166	

* and ** denote significant estimates at the 10 and 5 percent levels, respectively.

We also explore differences in preferences by gender. The most striking result of table 5.12 is that on average, men and women do not express any significant differences in academic preferences. A significant female interaction term would say that women have significantly different preferences than men for a particular attribute. There is not one significant difference in the attributes examined. A likelihood ratio tests confirms this result: a model that assumes that on average men and women have the same academic preferences does not provide a significantly worse fit than a model in which preferences are allowed to vary. Thus, based on stated preferences, on average, men and women would choose to work in similar departments. The most important considerations to both are salary and teaching load. Men and women do not differ in terms of their preferences for teaching load, departmental rank, or field rank. In table A5.4 in the appendix to this chapter, we also present results for the case in which the basic model

was run on men and women separately. Again, one sees the same basic pattern in terms of which attributes men and women consider important in a department.

Table 5.12: Female: Interactions with All Attributes				
Parameter	Est	S.E.	SigLvl	ChgProb
Avg Salary by Rank	-0.286	0.69		-4.2
Avg Salary by Rank-female	0.237	1.13		3.5
Salary	4.933	0.87	**	71.8
Salary-female	0.821	1.47		12.0
Dept Rank: 11-30	0.069	0.25		1.7
Dept Rank: 11-30-female	-0.135	0.40		-3.4
Dept Rank: 31-50	0.012	0.26		0.3
Dept Rank: 31-50-female	-0.451	0.41		-11.1
Dept Rank: 51-75	-0.459	0.26	*	-11.3
Dept Rank: 51-75-female	-0.308	0.40		-7.6
Dept Rank: 76-100	-0.678	0.29	**	-16.3
Dept Rank: 76-100-female	-0.103	0.44		-2.6
Dept Rank: 101+	-0.484	0.24	*	-11.9
Dept Rank: 101+-female	-0.273	0.38		-6.8
Avg Dept Salary	1.768	0.68	**	25.7
Avg Dept Salary-female	0.675	1.11		9.8
Field Rank: 11-25%	-0.321	0.27		-7.9
Field Rank: 11-25%-female	-0.044	0.43		-1.1
Field Rank: 26-50%	-0.732	0.25	**	-17.5
Field Rank: 26-50%-female	-0.059	0.43		-1.5
Field Rank: 51-75%	-0.605	0.28	**	-14.7
Field Rank: 51-75%-female	-0.258	0.45		-6.4
Field Rank: Bottom 25%	-1.225	0.26	**	-27.3
Field Rank: Bottom 25%-female	-0.126	0.41		-3.1
Teach	-47.440	7.02	**	-61.4
Teach ^{0.5}	11.816	2.05	**	
Teach ^{0.5} -female	-4.029	3.10		
Teach-female	13.868	10.51		17.6
LogL (N=491)				429.968

* and ** denote significant estimates at the 10 and 5 percent levels, respectively.

Table 5.13 compares the academic preferences of untenured and tenured professors. Here we find a number of significant differences. Own salary is significantly more important to an Assistant Professor as compared to other ranks; they are 98% more likely than faculty at other ranks to choose an alternative that has a \$10,000 higher salary. Assistant Professors view a move from a Top Ten ranked department to one ranked 51-75 as significantly worse to a greater degree

than do faculty of other ranks; neither Associate nor Full faculty see this move as significantly worse. Assistant faculty also see falls in field rank as significantly worse than do tenured faculty. Tenured and non-tenured faculty members do not have significantly different preferences with regard to teaching load.

Table 5.14 shows results when the models are run separately on each rank. Intriguing results here include the fact that Associate faculty are the only ones to consider the average departmental salary an important attribute in choosing a department. Associate faculty also did not consider a drop in any of the presented departmental ranks as significantly worse than a Top Ten department. These results are consistent with the general survey, which tended to find that Associate faculty had different views than other ranks of faculty. Thus we conclude that while significant preferences for department characteristics do exist at UNM, these differences are based on academic rank, rather than gender. Men and women would make very similar choices in choosing a department. Of the many factors that comprise an academic job, own salary and teaching load are the most important to faculty at UNM.

Table 5.13: Assistant Professor: Interactions with All Attributes

Parameter	Est	S.E.	SigLvl	ChgProb
Avg Salary by Rank	0.149	0.60		2.1
Avg Salary by Rank-Asst	-2.640	1.62		-37.7
Salary	4.374	0.74	**	62.4
Salary-asst	6.876	2.42	**	98.1
Dept Rank: 11-30	0.160	0.22		4.0
Dept Rank: 11-30-Asst	-0.404	0.52		-10.0
Dept Rank: 31-50	-0.028	0.23		-0.7
Dept Rank: 31-50-Asst	-0.450	0.52		-11.1
Dept Rank: 51-75	-0.273	0.22		-6.8
Dept Rank: 51-75-Asst	-1.458	0.54	**	-31.1
Dept Rank: 76-100	-0.560	0.25	**	-13.6
Dept Rank: 76-100-Asst	-0.817	0.57		-19.4
Dept Rank: 101+	-0.485	0.21	**	-11.9
Dept Rank: 101+-Asst	-0.430	0.50		-10.6
Avg Dept Salary	1.941	0.60	**	27.7
Avg Dept Salary-Asst	-0.272	1.41		-3.9
Field Rank: 11-25%	-0.190	0.23		-4.7
Field Rank: 11-25%-Asst	-0.675	0.58		-16.3
Field Rank: 26-50%	-0.686	0.23	**	-16.5
Field Rank: 26-50%-Asst	-0.700	0.57		-16.8
Field Rank: 51-75%	-0.566	0.24	**	-13.8
Field Rank: 51-75-Asst	-0.815	0.63		-19.3
Field Rank: Bottom 25%	-1.177	0.22	**	-26.4
Field Rank: Bottom 25%-Asst	-1.110	0.64	*	-25.2
Teach	-37.390	5.90	**	-47.6
Teach ^{0.5}	8.946	1.73	**	
Teach ^{0.5} -Asst	7.492	4.78		
Teach-Asst	-26.680	16.08		-33.3
LogL (N=491)				421.485

* and ** denote significant estimates at the 10 and 5 percent levels, respectively.

Table 5.14: Models by Rank

Parameter	Est	S.E.	SigLvl	ChgProb	Est	S.E.	SigLvl	ChgProb	Est	S.E.	SigLvl	ChgProb
Avg Salary for Rank in Dept	-2.49	1.51		-26.4	0.71	1.17		10.0	-0.34	0.71		-5.3
Salary	11.25	2.31	**	119.1	6.70	1.48	**	93.7	3.76	0.87	**	59.5
Dept Rank:11-30	-0.24	0.47		-6.1	0.14	0.35		3.5	0.15	0.30		3.7
Dept Rank:31-50	-0.48	0.46		-11.7	0.44	0.38		10.9	-0.30	0.30		-7.6
Dept Rank:51-75	-1.73	0.49	**	-35.0	-0.47	0.35		-11.6	-0.02	0.31		-0.5
Dept Rank:76-100	-1.38	0.51	**	-29.9	-0.19	0.39		-4.8	-1.00	0.36	**	-23.1
Dept Rank:101+	-0.92	0.46	*	-21.4	-0.29	0.33		-7.2	-0.67	0.28	**	-16.2
Dept Salary	1.67	1.28		17.7	2.87	1.03	**	40.1	1.19	0.78		18.8
Field Rank: 11-25%	-0.86	0.53		-20.4	-0.16	0.36		-3.9	-0.43	0.34		-10.6
Field Rank: 26-50%	-1.39	0.52	**	-30.0	-0.76	0.37	*	-18.2	-0.64	0.31	*	-15.5
Field Rank: 51-75%	-1.38	0.58	**	-29.9	-0.42	0.38		-10.3	-0.75	0.33	**	-17.9
Field Rank: Bottom 25%	-2.29	0.60	**	-40.8	-1.06	0.33	**	-24.3	-1.38	0.32	**	-29.9
Teach	-64.07	14.96	**	-60.2	-33.64	9.11	**	-42.2	-38.33	8.10	**	-54.3
Teach ^{0.5}	16.44	4.45	**		7.72	2.67	**		9.12	2.38	**	
LogL		92.36				139.23				179.59		
N		132				160				199		

* and ** denote significant estimates at the 10 and 5 percent levels, respectively.

APPENDIX TO CHAPTER 5

Spouse or partner employed by academic institution?	Frequency	Percent
Faculty at UNM	67	17.49
Faculty elsewhere	28	7.31
Neither faculty nor staff at academic institution	245	63.97
Staff at UNM	40	10.44
Staff at another academic institution	3	0.78

Percent (Row Percent)	Male	Female	Total
Bachelor's Degree	13.35 (74.65)	4.53 (25.35)	17.88
Less than BA	4.53 (62.07)	2.77 (37.93)	7.30
Master's Degree	25.69 (70.34)	10.83 (29.66)	36.52
PhD or Professional Degree	19.40 (50.66)	18.89 (49.34)	38.29
Total	250 (62.97)	147 (37.03)	397 100.00

Frequency Missing = 139

Percent (Row Percent)	Male	Female	Total
Married, spouse absent	0.99 (38.46)	1.58 (61.54)	2.57
Married, spouse present	45.74 (66.96)	22.57 (33.04)	68.32
Never married	3.76 (43.18)	4.95 (56.82)	8.71
Separated or divorced	6.53 (49.25)	6.73 (50.75)	13.27
Unmarried, living with partner	2.38 (33.33)	4.75 (66.67)	7.13
Total	300 (59.41)	205 (40.59)	505 100.00

Frequency Missing = 31

Table A5.4: Models by Gender

Parameter	Est	S.E.	SigLvl	ChgProb	Est	S.E.	SigLvl	ChgProb
Avg Salary by Rank	-0.286	0.69		-4.2	-0.049	0.90		-0.7
Salary	4.933	0.87	**	72.1	5.755	1.19	**	82.3
Dept Rank:011-30	0.069	0.25		1.7	-0.066	0.32		-1.6
Dept Rank:031-50	0.012	0.26		0.3	-0.438	0.31		-10.8
Dept Rank:051-75	-0.459	0.26	*	-11.3	-0.767	0.31	**	-18.3
Dept Rank:076-100	-0.678	0.29	**	-16.3	-0.781	0.33	**	-18.6
Dept Rank:101pl	-0.484	0.24	*	-11.9	-0.758	0.30	**	-18.1
Avg Dept Salary	1.768	0.68	**	25.8	2.443	0.88	**	34.9
Field Rank: 11-25%	-0.321	0.27		-7.9	-0.364	0.34		-9.0
Field Rank: 26-50%	-0.732	0.25	**	-17.5	-0.792	0.35	**	-18.8
Field Rank: 51-75%	-0.605	0.28	**	-14.7	-0.862	0.36	**	-20.3
Field Rank: Bottom 25%	-1.225	0.26	**	-27.3	-1.351	0.31	**	-29.4
Teach	-47.440	7.02	**	-61.6	-33.572	7.83	**	-43.1
Teach 0.5	11.816	2.05	**		7.787	2.32	**	
LogL		257.888					172.080	
N		297					194	

* and ** denote significant estimates at the 10 and 5 percent levels, respectively.

CHAPTER 6: Equity at UNM

Our comprehensive investigation of equity at the University of New Mexico reveals disparities that are statistically significant but of smaller magnitude than have been estimated nationally. White male faculty members earn higher salaries than do women and members of minorities at UNM. For the 2004-2005 academic year, women earned 87% of men. Average salaries for Hispanic men were 94% of white, non-Hispanic men.

Access to detailed human capital and productivity data allow us to consider explanations for these gaps. We find that differences in human capital and differences in departmental affiliation account for the majority of the raw gap. However, after controlling these factors, gaps remain. At the University level a statistically significant 1.7% gender gap exists, as does a 4.4% gap for African American faculty. In the college of Arts and Sciences (using more detailed productivity data) women earn about two percent less than men with the same productivity characteristics. Hispanic and American Indian faculty members earn 2.5% and 6.1% less, respectively, compared with non-minority faculty. Given the small number of African American faculty, we recommend a case-by-case review of African American compensation relative to their colleagues.

In general we find that teaching productivity is rewarded differently from research productivity. University- wide, a larger portfolio of classes has a negative impact on salary. In the College of Arts and Sciences, quantity of publications is rewarded while, by some measures, the impact of those publications is not.

We find that the reward structure at UNM is not uniform across groups. The rewards for teaching, publishing, grant writing and holding administrative posts vary substantially between men and women, and between Hispanic and non-Hispanic faculty. Despite these differences in

the incentive structures, we find the largest share of both male and female faculty indicates that their preferences lie in both research and teaching, but lean towards research. Furthermore, we find that men and women do not differ in their preferences for workplace and job attributes.

Our study reveals that women, Hispanics and American Indians face unexplained wage penalties in the College of Arts and Sciences, and that women and African American faculty face unexplained wage penalties university-wide. We recommend that all departments conduct detailed reviews of the equity position of women and African Americans, and that Arts and Sciences departments additionally consider the positions of their Hispanic and American Indian faculty. Any wage discrepancy larger than one percent, especially one measured with statistical precision, suggests that UNM's compensation system may systematically undervalue the contributions of some faculty members based on their gender and ethnicity, and, in our opinion, warrants review.

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