

# Salary Equity Committee Report - Nov 2008

## Discussion of Literature

Case Studies - U of C (Wallace 2005)

U of W. O. (Campbell et al. 2005)

University of Manitoba (Brown, Prentice, + Trout 2006)

## Data set:

incl all academic staff members employed as of April 30, 2006

professors of all ranks → lecturers, academic assistants, + librarians

(no admin assts  
no sessionals) n = 437

(full, part, + term)

(no post-retirement  
no long-term disability) anomalies in data resulted in n = 428

## Sample VS Census

Represents a portion of pop'n + ∴ is

generalizable outside of sample

- used sample b/c greater doubts

exist about variables + measurements

of variables (eg. merit points)

represents all of the pop'n + ∴ inferences

+ generalizations unnecessary

\* must be reasonably confident in reliability/validity

of the variables; ∴ multiple regression model  
is completely correct

**SALARY EQUITY COMMITTEE  
REPORT  
TO THE UNIVERSITY OF  
LETHBRIDGE COMMUNITY**

**November 2008**

**Committee Members:**

**Muriel Mellow (Co-chair)**

**Chris Nicol (Co-chair)**

**Debra Basil**

**Michelle Duke**

**Don Macdonald**

**Toni Nelson**

**Jane O'Dea**

**Ilsa Wong**

**Resource person: Cheryl Wheeler**

## EXECUTIVE SUMMARY

### **This study:**

- examines whether systematic differences in current salaries exist and are dependent on the gender of the academic staff members at the University of Lethbridge.
- looks at patterns among the professoriate, academic assistants, lecturers and librarians. We separate the analysis for academic assistants from other groups because merit awards are organized in a different manner for this group.
- presents University-wide findings as well as findings for some individual Faculties or Schools.
- includes all academic staff members who were employed here on April 30, 2006, with a total of 428 individuals in the data set.
- is a joint project of ULFA and the University's administration.

### **Methodology**

- We have used a quantitative approach, using multiple regression analysis. This approach is in keeping with many other studies of this kind.
- In addition to gender, we control for rank, Faculty or School, terminal degree, whether a person is employed full-time, years worked at the University, whether one holds a term position, years since highest degree, and three measures of merit. Section D.5 (pages 10-14) includes a rationale for the inclusion of these variables, a discussion of debates surrounding some of them, and a description of how they are measured.
- There has been a debate within the committee about whether to understand this data set as a census or a sample. *This issue has profound effects on the interpretation of our findings.* (Please read section D.4.a on pages 9-10 for a full discussion of this issue.)
- In the discussion of our findings, we consider the results from both perspectives—that is viewing the data as a census and as a sample.

## Findings

### 1. All academic staff members across the University, except academic assistants (Table 3).

- In treating the data as a sample, salary differences between women and men, are not statistically significant.
- In treating the data as a census, men, on average, appear to make \$98.73 more than their female colleagues, holding all other variables constant.

### 2. Academic assistants alone, across the University (Table 4).

- There is no statistically significant gender difference in salary when viewing the data as a sample.
- When considering the data as a census, it appears that men's salaries are lower than women's on average, by \$1517.

### 3. Results for individual Faculties and Schools

- In the Faculty-by-Faculty analyses, we exclude academic assistants because of the differences in the way that merit is awarded for this group. We cannot present a faculty-by-faculty analysis of academic assistants alone because the numbers in most faculties are too small for analysis.
- We also do not present an analysis for either the School of Health Science or the Library, due to the small number of people in each.
- When treating the data as a sample, there is no statistically significant difference in women's and men's salaries in any faculty examined.
- When treating the data as a census, men's salaries appear to be greater than women's in the following faculties by the amount identified in parentheses: Arts and Science (\$1512.90 – Table 5); Education (\$1601.60 – Table 6); and Fine Arts (\$2162.50 – Table 7). However, in Management, women appear to make more than men by \$1486.50 (Table 8).

### 4. Conclusions

- If one accepts the approach that treats the data as a sample, any apparent salary differences between women and men are simply due to random variation and do not warrant further action.
- If one takes the view that the data should be treated as a census, salary differences between men and women do exist, though they vary in size depending on the unit or group of teaching staff that one examines. This interpretation suggests that the University must deal with these differences.
- Regardless of which interpretation one accepts, this University is doing better than many other institutions that have carried out similar studies.
- In either case, the committee recommends regular monitoring of salary equity in future years. For additional recommendations, see section G on page 25.

## **SALARY EQUITY COMMITTEE REPORT TO THE COMMUNITY**

### **A. Introduction and Overview**

#### **1. Our mandate**

The purpose of our study is to try to establish whether systematic differences in current salaries exist and are dependant on the gender of the academic staff members at the University of Lethbridge. This study looks at broad-based patterns among faculty, academic assistants, and librarians, taken as a group. It does not allow us to identify individuals in any way. This group includes all academic staff members who were employed here on April 30, 2006, when we began our data analysis. This study is quantitative in nature, and we have used multiple regression as our method. This approach is widely used in equity studies at other universities and it allows us to clearly identify the relative influence of many factors contributing to salary differences. This gender equity study was initiated by the University of Lethbridge Faculty Association (ULFA) but was carried out with the full participation and cooperation of the University's administration.

#### **2. Equity for other groups**

Gender is only one status among several that may have an influence on one's life chances and rewards. Individuals who are members of visible minorities, Aboriginal groups, or who have a disability<sup>1</sup> also face disadvantages in income and opportunity, and any negative impact of these statuses may interact with that of gender (Euben 2001; Haignere 2002, 37-48; Haignere and Eisenberg 2002, 27-36). The committee considered including self-identified membership in these groups among the variables in this analysis, using data collected through the University's Diversity Advantage Initiative survey. We agreed that we could only use data for those individuals who had given permission on the survey for their information to be used for future human resource management purposes. When we considered the number of cases that this made available to us, we felt that there were so few that it might lead to the identification of individuals. As a result, we are unable to consider how salary might vary for those who are members of these groups, relative to their gender. Nevertheless, we believe that this comparison has merit in a future study of this kind.

#### **3. Committee membership and selection**

The committee responsible for this study has included representatives from ULFA and from the University administration. ULFA recruited volunteers from among its membership. They include Debra Basil (Management) and Michelle Duke (Chemistry), Muriel Mellow (Sociology), and Ilsa Wong (Kinesiology). At earlier stages in the life of this committee, Ellen Retelle (Education) and Rossitsa Yalamova (Management) also participated but left the committee for personal reasons during the process. President Bill Cade appointed representatives from the administration, including Don Macdonald (Human Resources), Chris Nicol (Arts and Science), Toni Nelson (Management) and Jane

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<sup>1</sup> This formulation of the groups that have faced barriers in the workplace is in keeping with the broader literature on equity in the workplace, the Canadian government's Employment Equity programs (Human Resources and Social Development Canada 2003), and the Diversity Advantage Initiative survey mentioned above. We acknowledge that the term "Aboriginal groups" is beginning to be replaced by First Nations, Metis, and Inuit.

O'Dea (Education). As our work progressed, it became apparent that we needed someone who was intimately familiar with the salary and Human Resources data base. Thus, Cheryl Wheeler (Human Resources) began to act as a resource person for us. Muriel Mellow and Chris Nicol co-chaired the committee.

#### **4. Timeline of the Committee's work**

In fall 2005, ULFA initiated the formation of this committee by requesting volunteers from their membership. A group of four volunteers began to review studies done in other universities and related literature. It was recognized that the cooperation of the administration was essential for the study's success. At ULFA's request, the President's Office named representatives to this committee in January 2006. In March, the first meeting of the joint committee was held; we agreed on a basic approach for the study and reviewed possible variables for inclusion. At the end of April, we asked HR to compile an initial data base for the study, including the aggregation of information and the removal of individuals' names, and any other personal identifiers, from the data. Cheryl Wheeler presented descriptive statistics to us in June. Over the following 7 months, we compiled data on additional variables, such as date of highest degree and information on merit awarded, which was not available in the Human Resources database. We asked the Deans' offices of the various Faculties to compile this information for us. In November 2006, we struck a data-analysis sub-group (Debra Basil, Michelle Duke, and Christ Nicol) to do the hands-on analysis of data. Michelle and Debra each signed confidentiality agreements with Human Resources before having access to the data. From the winter to the spring of 2007, this sub-group prepared the data for inclusion in a statistical analysis and considered how to deal with such factors as historical changes in the process of awarding merit adjustments. Over the summer of 2007, they worked on the statistical analysis, presenting the first results to the committee in the fall of 2007. From November 2007 to the fall of 2008, refinements of the analysis and drafts of this report were prepared. This process has taken longer than we initially envisioned, but we have filled gaps in existing Human Resource files and have laid a firm groundwork for any future studies of this type.

#### **5. Acknowledgements**

The committee wishes to acknowledge some individuals who are not formally committee members, but whose labour has been essential to this study. We are grateful to Cheryl Wheeler for many hours spent inputting and extracting data, as well as answering key questions about the data base. We also are indebted to the administrative assistants in each Dean's office who searched personnel files for additional information at our request

### **B. Pay History at the University of Lethbridge**

Current salaries are influenced by many variables, including historical changes in the way career progress and merit have been awarded, and previous adjustments to correct for salary anomalies. As well a one-time salary reduction for those hired prior to 1994 had an impact on salary; 1993-1994 salaries were reduced by 2.25% and this reduction was implemented as 7.5 unpaid leave days over a three-year period from July 1, 1994 to June 30, 1997. Members with appointments less than full-time had their leave calculated in

proportion to their appointment status. Those hired after July 1, 1994 were not subjected to the salary reduction. Our analysis has to be understood in the context of these events.

### **1. Merit**

The way merit and career progress increments have been awarded to the professoriate has changed over the history of the University. In 1976, career progress and merit pay were closely linked together rather than separated. Over the years, however, these components have been separated, salary ceilings for all professorial and librarian ranks have been removed, and the way in which merit is measured has shifted. Notable changes occurred in 1981, 1983, 1985, 1988, 1991, and 2004. The change in 1988 was the one that established the basis for the way these awards are currently adjudicated. In that year, the decision was made to evaluate teaching, research and service separately, with merit being awarded on a 3-point scale. Appendix 2 describes these changes in detail. Changes in the way that merit has been awarded have not affected academic assistants during the time period under consideration.

The committee has endeavored to take these changes into account in this study. We initially considered partitioning the data, completing separate regressions for those who began their employment in 1988 or later and another for the entire data set. Because this reduced numbers for the Faculty-by-Faculty regressions, we decided instead to make adjustments in the way the data on merit was recorded for those who began their employment prior to 1988, making it more comparable to the post-1988 data. For details on how this was done, see Appendix 2. This adjustment process allowed us to produce a single regression that accounted more adequately for the effects of merit for all individuals regardless of when their employment began. We also acknowledge that a debate exists about whether or not to include merit as a variable in such a study; this debate is discussed in the Methodology section (C6) below.

### **2. Earlier efforts to adjust for anomalies in salaries**

This is not the only study of salary anomalies that has been undertaken at the University of Lethbridge. In 1991-1993, ULFA evaluated the question of gender equity in salaries, with the assistance of J. Allen. We have not attempted any direct comparison of our findings with this earlier report because the variables used and the means of collecting data differ. In 2002-2003, the University undertook an examination of anomalies in salaries and made adjustments for faculty members who appeared to have lower salaries than were warranted by their qualifications and experience. However, at that time results for faculty members as a group were not published, nor were differences by gender the primary focus.

It is important to note that although corrections in salaries may be made by institutions, gender inequities can return over time regardless of the best intentions that may be in place to prevent this (Euben 2001, 35) Thus, discussions of best practices for universities emphasize regular re-examination of this question. Several universities in Canada and elsewhere have carried out more than one salary equity study.<sup>2</sup>

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<sup>2</sup> For example, the University of Calgary, The University of Manitoba and the University of Western Ontario have all done this.

## **C. Background literature on salary equity**

The intent of this section is to identify several important sources of background material that we have relied on during the formulation of this study. We do not intend to give a complete review of the existing literature on salary or pay equity. Some of the issues highlighted in the broader literature are also discussed in following sections of this report.

### **1. Case studies from other universities**

In preparing this report, we have considered studies of salary equity done by other universities. Most notably, these include the University of Calgary (Wallace 2005)<sup>3</sup> and the University of Western Ontario (Campbell et al. 2005), both of which provided detailed reports. Studies from McGill University, Sir Wilfred Laurier University, and the University of Regina were also considered but the reports available to us in these cases provided less detailed models than the first two mentioned. Finally, we obtained a draft of a more detailed study from the University of Manitoba (Brown, Prentice and Troutt 2006) later in our process. All of these studies revealed some degree of gender-related salary differences.

We have chosen to use several of the same independent variables used in regressions by the University of Calgary and/or the University of Western Ontario, including: gender, rank, highest degree, years since highest degree, Faculty or School, and indicators of the amount of merit received.<sup>4</sup> The University of Calgary also used years in a full-time continuing academic position, whereas we have included years worked at the University of Lethbridge and a variable designating full-time status or not.

### **2. Guides for conducting salary equity studies**

In addition to these specific studies, we have made extensive use of the book, *Paychecks* (Haignere 2002), which outlines best practices derived from studies done in American and Canadian universities and lays out a number of debates related to variables used in such studies. We have reviewed documents available on the Canadian Association of University Teachers (CAUT) website and an earlier, influential manual for studying salary equity written for CAUT by J. Allen (1984) from the University of Lethbridge.

### **3. Literature related to salary determination**

The broader literature on salary determination and gender-related wage differentials also has informed our choice of variables. This literature is drawn from such disciplines as economics and sociology. Studies of salary determination typically include measures of human capital such as education or experience and productivity-related variables such as hours of work (Blau and Kahn 2000; Gunderson 2006); it is assumed that more human capital and higher levels of productivity are rewarded with higher earnings. Occupation and industry variables may also be included with the acknowledgement that supply and demand varies across sectors and this affects salary levels (Gunderson 2006). Analyses of

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<sup>3</sup> The University of Calgary study included both quantitative and qualitative components.

<sup>4</sup> In the case of the University of Calgary, this was the average number of merit increments received over the last 5 years (p. 5 in their report). For UWO, the measure was an individual's average of "performance level points" in each area of responsibility, relative to that of their department or faculty (p. 9).



gender-related salary differentials in universities use similar variables, measured in ways that are appropriate to the academic setting. Thus, education may be assessed by whether one has the terminal degree in one's field; experience may be measured using age, age at which individuals began teaching full-time, or years since highest degree; and Faculty or discipline may be used instead of industry (for examples, see Ferber and Loeb 2002; Langton and Pfeiffer 1994; Ornstein and Stewart 1996; Warman, Wooley and Worsick 2006.) Academic rank is used as a measure of experience and may serve to assess productivity. Productivity may also be measured through the number of merit awards received or counts of the number of articles or books produced by an individual (Langton and Pfeiffer 1994, 245; Ornstein and Stewart 1996).

We note that debates exist regarding the inclusion and the measurement of some variables based on the way such variables may be related to gender. Some researchers have argued that using age as a proxy for experience is problematic since it tends to "over-state the actual work experience of women" (Drolet 2002: 3) and does not account for interruptions in work due to child-bearing or family care-giving (Blau and Kahn 2000, 82-3; Drolet 2002). Other studies have raised questions about the use of rank to measure experience, suggesting that women are less likely to be promoted than men with similar human capital attributes (Ferber and Loeb 2002, 47-8; Becker and Toutkoushian 2003); on the other hand, a review of the literature by Ferber and Loeb (2002, 47) indicates that gender-related differences in the rate of promotion may be declining. There also are cautions in the literature regarding productivity-related variables such as merit (Caplan 1993, Euben 2001). Gunderson (1990, 3-4) points out that findings may be distorted when variables are included that are themselves "important mechanisms through which discrimination occurs"; he suggests that "performance pay" could be among these variables (11). Researchers sometimes use the term "tainted variables" to refer to those variables "that are likely to have discrimination embedded in them and, thus, mask or suppress gender effects" (Office for Equal Opportunity 2001). In later sections of this report, we describe how we have dealt with some of these problematic variables. We also note Ferber and Loeb's pragmatic advice: they suggest that studies should include attributes that the institution uses in setting salaries but that the analysis should acknowledge that the choice of certain measures or variables could lead to either an underestimation or overestimation of gender-related differences in salary (Ferber and Loeb 2002, 51)

## **D. Methodology**

### **1. Approaches to studying salary equity**

Salary equity can be studied either quantitatively or qualitatively. Quantitative approaches could be simply descriptive, comparing average salaries for groups of male and female workers. However, this approach would not take into account how salary is affected by multiple factors, besides gender, and would lead to misleading conclusions. Studies of salary or pay equity<sup>5</sup> typically use a more sophisticated statistical approach

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<sup>5</sup> In some cases in the literature, these terms are used interchangeably, but this is not consistent. Sometimes pay equity is only applied to comparisons of salaries by gender across different jobs, rather than within the same job. Because we are comparing salaries within the same job, we have chosen to opt for salary equity as the term we have used for our committee. However, our search of the literature has included both terms.

which allows researchers to consider the impact of a number of variables. In keeping with this convention, we use the statistical procedure of multiple regression analysis in this report. This approach involves identifying a range of variables which may influence salary and calculating a statistical equation that shows the degree to which each variable influences salary, while holding all others constant. A further explanation of how to understand multiple regression as a method is given in Appendix 1.

Multiple regression analysis has strengths and weaknesses. The strengths include the ability to assess the influence of specific variables, the use of well-defined analytical procedures, and the ability to show results for a large aggregation of individuals. However, there are also weaknesses. Multiple regression is most effective when looking at large groups and becomes less reliable when smaller groups are studied. In addition, multiple regression can only capture the likely influence of the variables that are included in the equation. If key influential variables are excluded from the regression equation, results will be misleading. Researchers must carefully consider which variables to use since debates exist about which variables are important to include (e.g. merit and rank; see section 5b below). Finally, regression analysis can miss subtleties in how variables interact in people's experience and it tells us nothing about how individuals understand the importance of different variables in their own lives. Multiple regression may show that men and women make the same salaries, holding things like rank or years of experience constant. However, such a study may fail to measure key variables appropriately, thereby yielding an appearance of equity. In such cases, diagnostic statistical tools can sometimes be used to test for such effects.

Equity could also be studied qualitatively, collecting data through interviews, focus groups or surveys, and applying analytic strategies such as grounded theory or content analysis. The strengths of qualitative approaches are that they may uncover influences that are masked or normalized by quantitative data analysis and that are not anticipated by a researcher. Qualitative approaches can provide an in-depth understanding of how individuals view various influences in the workplace, which may not be captured in a quantitative analysis. However, this in-depth understanding is gained at the cost of not being able to so readily collect or process data from a large number of individuals, less certainty of the reliability of one's results, and the inability to generalize results to a larger group. An ideal study would incorporate both components.

Because of widespread use of multiple regression analysis, the relative clarity of this methodology, and the availability of much of the required data in the Human Resources database, we chose to use multiple regression analysis. However, we acknowledge that it can explain only part of any observed differences in salaries and reveals little about more subtle influences that may be at play. We did not attempt a study that combined qualitative and quantitative components because the time demands involved were prohibitive. This could be a direction for future research, following on from this study.

## **2. Data sources**

The data used for this study have been taken from the Human Resources data base as well as from personnel files in the various Deans' offices. This means we have been able to collect data for all individuals who were employed at the University on April 30, 2006 when we began the statistical analysis. Names were removed before analysis began,

and the data has been processed in the aggregate, so individual identities have been protected in the analysis and the display of any results.

### 3. Caveats on the data

These data have not been collected specifically for this study, nor have they been collected in a consistent way across the forty years of the University's existence. We have had to make some approximations in data used to study certain variables. For example, "years since highest degree" is a proxy measure of years of experience that some people may have before coming to the University of Lethbridge, but on its own it does not tell us whether a person worked continuously throughout this period. Most notably this caveat applies to decisions about how to assess merit within this analysis and to account for changes in the merit system over time. We also recognize that there may be some variations between Faculties regarding how merit is distributed (for example, in the Faculty of Education compared to the Faculty of Arts and Science).

Hiring situations and career paths are varied. Some individuals have served the University in a variety of capacities, and their status with the University has changed as their level of educational attainment changed. We have attempted to use the most recent position title when performing our analyses. Years worked includes the years of continuous employment as an academic staff member at the University of Lethbridge.<sup>6</sup> However, changes in positions with gaps in employment (for example, a break of a few months between the end of a term position and the beginning of a tenure track appointment) has meant this calculation is not always clear cut and therefore presented a challenge in some cases. Further along in our discussion, we outline how we have dealt with some of these situations.

Finally, these data tell us nothing about the impact of market forces on salaries, including the supply of and demand for academics over time and across Faculties. Although such variations should affect women and men equally, a low supply of candidates in one area could affect people's ability to bargain for better wages, minimizing the effects of gender in some circumstances more than others. Along with this, we have no way of controlling for shifts in the number of male and female Ph.D.s over time. Changing gender representation in the academy as a whole and in certain disciplines could affect the numbers of women and men who have had time in their careers to progress to the rank of full professor.

### 4. The data set

The data set for this study includes all academic staff members who were employed at the University on April 30, 2006. It covers professors of all ranks, lecturers, academic assistants and librarians, whether in full-time, part-time, or term positions: a total of 437 cases. This data set does not include sessional instructors or those in administrative positions, or those in post-retirement contracts or on long-term disability. Tables 1.1 and 1.2 categorize the data set by position or rank (1.1) and by Faculty and position (1.2). In the course of our analysis we discovered missing or anomalous data for 9 of these cases, thus reducing the data set available for analysis to 428 cases. The reasons for omitting these cases are explained in the section entitled, "Errors in the data," (D.5.b).

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<sup>6</sup> Continuous employment does not include years spent as a research assistant, graduate student or APO for anyone who may have begun their career at the University in these roles and later moved into a faculty position.

**TABLE 1.1: Academic Staff at the University of Lethbridge, by Gender and Rank or Position, April 30, 2006**

Rank	Women		Men		Total	
	Count	%	Count	%	Count	%
All ranks/positions <sup>1</sup>	170	40	258	60	428	100
Academic Assistants	43	59	30	41	73	100
Assistant Professors	66	43	87	57	153	100
Associate Professors	28	25	82	75	110	100
Full Professors	10	18	46	82	56	100
Professional Librarians <sup>2</sup>	13	81	3	19	16	100
Lecturers <sup>3</sup>	10	50	10	50	20	100

<sup>1</sup> This includes term positions as well as tenure track appointments.

<sup>2</sup> We have not separated librarians into their separate ranks for this analysis.

<sup>3</sup> Refers to those on yearly contracts, but not term appointments made at any of the other ranks listed above.

**TABLE 1.2: Academic Staff at the University of Lethbridge by Gender, Position, and Faculty, April 30, 2006**

Faculty	Professors, Lecturers, & Librarians			Academic Assistants		
	Women	Men	Total	Women	Men	Total
Arts and Science	58 (31%)	131 (69%)	189 (100%)	25 (61%)	16 (39%)	41 (100%)
Education	19 (46%)	22 (54%)	41 (100%)	3 (100%)	0 (0%)	3 (100%)
Fine Arts	17 (32%)	37 (69%)	54 (100%)	5 (63%)	3 (38%)	8 (100%)
Health Sciences	9 (60%)	6 (40%)	15 (100%)	5 (83%)	1 (17%)	6 (100%)
Library	12 (86%)	2 (14%)	14 (100%)	0 --	0 --	0 --
Management	12 (29%)	30 (71%)	42 (100%)	5 (33%)	10 (67%)	15 (100%)

**a) Sample versus census:** The committee debated and disagreed on whether to understand the data set as a sample or a census of a population, and thus whether or not to use significance levels to interpret the results. *This issue has profound effects on the interpretation of our findings.* In the discussion of our findings, we consider the results from both perspectives. Because some readers of this report may be unfamiliar with statistical procedures, the following few paragraphs explain the crux of this debate.

In statistical analysis, it is often difficult to have data on all members of the group or population under study. In these cases, a representative *sample* of the population is taken, and following pre-established rules for inferential statistics one can decide if it is possible to generalize the results from the sample to the larger population. Key to this is the generation of probability or significance levels for the results; significance levels show the likelihood of whether the results for the sample are due to chance or may be true for the whole group or population. Usually, one accepts results that have a significance level of .05 or less and rejects all others; that is to say that there is only a 5% probability or less that the results are due to the random chance that the sample does not match the population.

However, in situations where data on the whole population are available, one may say that one is looking at a *census* of the population. In other words, data are available for each and every case in the group being examined, and it is not necessary to infer or generalize from a sample to the whole group. Thus, significance levels or probability levels are not necessary for the interpretation of the results. One's results for the variables measured can be taken at face value. However, even when one concludes one has a census or population of data available for analysis, the appropriate methodology for the analysis of such data may be different from the methodology one would use to analyse sample data. Due to the implicit and explicit assumptions made when undertaking multiple regression analysis, this methodology is not always well-suited to the conduct of analysis with population data.

Our data set has information on all academic staff members at the University of Lethbridge on April 30, 2006, with the exception of sessional instructors. One approach, then, is to consider this data set to be a complete census of the population of academic staff members employed on that date, and interpret our findings without reference to significance levels. Haignere (2002: 53-54) argues that if a university can access data on all of its teaching staff who are relevant to a study, then it is plausible to treat that data set as a census of that institution's academic staff. However, this means that we cannot generalize these findings to any cases outside of this population. It also assumes that we are reasonably confident that we have included, accurately measured, and controlled for variables that might otherwise explain salary differences, such as years of experience or rank. In addition, this assumes the specified multiple regression model is completely correct.

An alternate approach is to say that although we have an extensive data set, we still should treat it as though it is a sample of the population, due to doubts about whether the variables under consideration have been measured equally well for every case in the data set or whether all relevant variables have been included in the analysis. Merit may be a case in point; we have tried to incorporate the best measures of merit that are available to us but even then one might argue that our measures are uncertain because of the way its administration has varied over time. In other words, one might want to exercise greater caution if one has any doubt that one's explanatory model does not accurately reflect what is occurring in the empirical world. Taking this stance, one exercises extra caution in

retaining the use of significance levels as an indication of the degree of confidence one has in the results. In addition to the above caveats, some researchers would argue that the data set is a sample of faculty members in post-secondary education in Canada. The university sector in Canada is fairly homogeneous, in terms of the quality of education offered, criteria for selection and appointment of faculty members, and the criteria for career progression. In that light, one might expect a similar analytical multiple regression model to “explain” variations in salary across universities in Canada. This perspective carries some weight, when one considers that multiple regression models of the kind estimated in this study are similar in structure across many universities in Canada, where such analyses have been conducted.

**b) Errors in the data:** We have developed a relatively complete data base for the group under study. However, as result of inaccurate data for a few cases, our initial data set was reduced from 437 to 428 persons. In the cases that were dropped, we were either unable to calculate the years since highest degree or a change in rank or position for individuals created unusual merit score calculations (arising from the adjustments described in appendix 2). The 9 omitted cases are a relatively small number with respect to the overall size of the data set and as such are not likely to have a great impact on our analysis.

*are they all from one faculty or one departments? Systematic bias at all?*

### 5. Variables used

Annual salary is the dependent variable for this study, measured in dollars. Salary refers to the baseline salary received; it does not include stipends received for administrative work or one-time payments for courses if a person is teaching on overload. Table 2 outlines the independent variables and a rationale for their inclusion is presented in the second part of this section.

**Table 2: Variables used in multiple regression**

Variable	Code/Metric	Definition or comments
Gender	GENDER Female = 0; Male = 1	Categorical variable. Female is the reference category.
Rank	ASSO = 0 or 1 FULL= 0 or 1 LIB= 0 or 1 LEC = 0 or 1 AA = 0 or 1	Categorical variable referring to rank or position held. Assistant professor is the reference rank therefore it is not specifically included in the regression equations. The ranks of Lecturer, Academic Assistant, Associate Professor, Full Professor and Librarian are included. If an individual is not one of these ranks then he or she is an Assistant Professor by default for the regressions analyzing these ranks. We have not differentiated librarians by rank.
Faculty (or School)	FACED = 0 or 1 FACHS = 0 or 1 FACFA = 0 or 1 FACMGT = 0 or 1 FACLIB = 0 or 1	Categorical variable. Arts and Science is the reference Faculty and therefore is not specifically included in the analyses. If an individual is not a member of the other Faculties or Schools, then he or she is a member of Arts and Sciences by default for the regressions that utilize Faculty.

Terminal degree	TERMDEG; yes or no.	Categorical variable. Indicates if a person has a terminal degree in their field (usually a Ph.D). For librarians and those in Fine Arts, Masters are coded as terminal degrees. Professional Accounting degrees are coded as equal to a Master's.
Employed Fulltime	FT; yes or no	Categorical variable. Indicates whether the individual was employed fulltime on April 30, 2006.
Years worked	YRSWORK; years	Continuous variable. Indicates years of continuous employment at the U. of L. Individuals with repeating consecutive contracts of at least 9 months per year are deemed continuously employed.
Term	TERM; No=0; Yes=1	Categorical variable. Indicates whether or not a person holds a term position.
Years since highest degree	YRSINHD	Continuous variable. Indicates how long since the individual earned his or her highest degree. Differs from "years worked" since people may have previous academic experience or may have completed their degree after starting at the U of L.
Merit dichotomous measure	MERITDICSUM	Continuous variable. Represents the summation of annual dichotomous variables indicating for each year of employment whether the individual was (1) or was not (0) awarded merit. Note the conversions in the raw data for professors and librarians hired prior to 1991, described in Appendix 2.
Merit continuous measure	MERITSUM	Continuous variable. The sum of all merit units earned by a person across his/her employment. Note the conversions in the raw data for professors and librarians hired prior to 1991 described in Appendix 2.
Ineligible for merit in more than first year	MERITINEL; yes or no.	Categorical variable. Identifies those who were <u>not eligible</u> for merit, even after their first year of employment. This distinguishes between those who were eligible but did not earn merit, and those who were ineligible.

**a) Rationale for independent variables:**

**i. Gender:** Since the primary focus of this study is to look at the question of gender equity in salaries the rationale for including the variable is obvious.

**ii. Rank:** Rank may be viewed as a measure of performance and experience. At the University of Lethbridge we have salary floors associated with rank, though not salary ceilings. Like the University of Western Ontario and the University of Calgary, we have included rank in our study. However, we acknowledge that the inclusion of rank within studies of academic salaries is a subject of debate. Some authors, such as Strathman (2000, 237) or Becker and Toutkoushian (2003), have argued that it is a tainted variable.<sup>7</sup>

<sup>7</sup> See page 5 for a definition of tainted variables.

In other words, if gender discrimination affects the attainment of rank and salary it is wrong to assume that rank is an unbiased predictor of salary.<sup>8</sup> For this reason, Allen (1984, 14) has argued strongly that rank should be omitted from such an analysis in favour of years of experience. On the other hand, Ferber and Loeb suggest that gender differences in rates of promotion may be less pronounced than in the past (2002, 47). Haignere and Lin (2002, 22) suggest using rank with caution and only if other measures of performance are also included. Our inclusion of rank is tempered with the additional inclusion of measures such as years worked, years since highest degree, and several merit variables.

**iii. Faculty:** Inclusion in a particular Faculty or School may be linked to salary in several ways. Negotiations for starting salary are done between Faculty Deans and individuals; the distribution of merit is calculated within Faculties; and supply and demand factors may vary across disciplines creating, in turn, salary variations between Faculties for the same type of position.

**iv. Terminal degree:** This is a measure of educational attainment; more education is usually rewarded with a higher salary and in some cases a higher rank. Disciplines may differ somewhat with respect to what their “terminal” degree is. For example, across Arts and Science the terminal degree is generally a Ph.D.; having this or being very near completion is necessary for tenure track positions. However, in the Fine Arts and in Library Science, the terminal degree may often be at the Master’s level. Thus we have treated a Master’s degree as equivalent to a Ph.D. in Fine Arts and in the Library.

**v. Employed fulltime:** Salary can logically be explained by hours worked, or more precisely whether one is of full-time or part-time status. Full Time Equivalent or FTE status is the measure that identifies this variation.

**vi. Years worked:** This refers to the total number of years worked at the University of Lethbridge as a faculty member, and is a measure of experience. It does not include time spent in previous position such as an APO or a graduate research assistant. Part-time work is pro-rated. Note how years worked is also linked to an understanding of the merit variables discussed in section ix below.

**vii. Term:** This variable indicates whether or not a person is in a term position. People on term contracts may be awarded merit, but will not have long term continuous employment like those in tenure track positions. Holding a series of term contracts may result in a lower salary, even if someone gains years of experience while doing so.

**viii. Years since highest degree:** This is a second measure of academic experience. This may differ from years worked at the University as some individuals may have had previous academic employment or may have completed their highest degree after starting at the university. Ferber and Loeb (2002, 45) recommend using years since highest degree as a measure of experience for academics as “few individuals with advanced degrees are unemployed or drop out of the labour market.” These authors also suggest that this measure of experience is preferable to age when comparing salaries by gender.

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<sup>8</sup> To address this problem, the University of Manitoba has estimated models with and without rank.



**ix. Merit variables:** Similar to the issue of rank, there is a debate in the literature about whether merit should be included in such studies. Merit as an indicator of productivity is often difficult to model as a variable (Hearn 1999) or to interpret (Euben 2001, Guppy 1989), and some have argued that the ways in which merit has been awarded have tended to disadvantage women (Caplan 1993) making it a tainted variable. We have nevertheless chosen to include it because of its profound affect on people's earnings. We are also in an advantageous situation, compared to some universities who have studied salary equity, because we have relatively complete data on merit awards for those who are in our data base along with a historical framework through which to interpret these figures, particularly for the specific time frame of 1998 to 2006.

In total, three variables related to merit are included in this study: **meritdicsum**, **meritsum** and **meritinel**. These variables are used to highlight the distinction between whether or not one receives any level of merit and just what that level is. Specifically, one of the merit variables, "**meritdicsum**," is a summed dichotomous measure of whether or not the individual attained merit at any level. In other words, for each year a person receives merit he or she is coded as 1 (regardless of the amount the person receives), and a person who is eligible for but does not receive merit is coded as 0; all the 1's are then summed and this summation is treated as a continuous variable. This provides an indicator of a base level of performance across one's career.<sup>9</sup> The second merit variable, "**meritsum**," is a sum of the number of merit units earned in one's career; this continuous measure serves as an indicator of the actual level of performance across one's career. The overall regression also includes a measure of years of service, which serves to scale these summed merit variables for the number of years the individual has worked. With respect to these variables, please see Appendix 2 for an explanation of how the values in these variables have been calculated for individuals in the professoriate hired before 1991.

Additionally, some individuals were ineligible for merit for certain reasons. Properly coding for several individuals who were not eligible for merit presented a challenge. These could not be scored as zero merit, as that would indicate a performance detriment rather than ineligibility. In other words, not earning merit is different than being ineligible for it. Thus, we included a separate indicator variable (**meritinel**) to denote those who were ineligible to earn merit.

The first two merit variables (**meritdicsum** and **meritsum**) are highly correlated at .90. Note that generally there is concern when independent variables are correlated at more than .80. Inclusion of both variables is not problematic for the overall regression, but interpretation of the individual regression coefficients for these two independent variables becomes problematic given their high level of correlation. As such, we do not individually interpret the regression coefficients for these variables.

## **b) Missing and omitted variables**

**i. Starting salary:** One's starting salary obviously has a strong impact on one's current salary. This would suggest including the variable in these equations. However,

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<sup>9</sup> The dollar value of a merit increase may vary from Faculty to Faculty. However, because we also control for Faculty, this variation should not be a problem in understanding how merit contributes, on average, to people's salaries. Controlling for Faculty—in other words, holding Faculty constant—we are actually comparing those who are in the same Faculty even when we are looking at a regression analyses that encompass information on teaching staff across the university, such as in Tables 3 or 4.

starting salary also is seen by some as a tainted variable as men have been shown to negotiate starting salary more effectively than women (Gerhart and Rynes 1991). The committee debated the inclusion or exclusion of this variable. We ran the regression model with and without this variable and found that starting salary did not have a strong impact on our overall results. Therefore, we have not included starting salary in our analyses, even though the literature suggests that starting salary may be a concern.

**ii. Age:** In some equity studies, age is included as a proxy measure of academic experience. It is somewhat problematic as an indicator of experience, however, because not all people progress from secondary education to post-secondary education, or through graduate school at the same rate. In particular, it may be skewed in relation to gender since women on average tend to receive degrees at older ages (Haignere and Lin 2002, 21) and may be more likely to take time away from work for family-related reasons ((Drolet 2002). Based on these observations, we have chosen to omit age as a variable in the regressions presented in the main body of this text. Instead, we use other measures of experience (years worked at the University of Lethbridge, years since highest degree, and rank). However, it is possible that age may be linked to salary in different ways for some disciplines as compared to others. In a professional Faculty, such as Education, people may acquire practical experience that is later rewarded with higher earnings, independently of, or prior to, earning their highest degree. For the sake of comparison, we present regression models in Appendix 3 that include age as well as years worked and years since highest degree.

## **E. Results and Discussion**

We present separate results for 1) all academic staff, including librarians, lecturers, and term positions, but exclusive of academic assistants (N=355); 2) for academic assistants on their own (N=73) and 3) for Faculty-by-Faculty analyses of all academic staff members, exclusive of AA's. In quantitative analysis, the notation "N" refers to the number of cases in a data set. We have had to omit academic assistants from the Faculty-by-Faculty analysis as different factors drive their salaries compared to the professoriate, including differences in the way that they receive merit; thus, including both groups in the same regression would complicate the interpretation of results. It is not feasible to present separate analyses for academic assistants in most Faculties due to confidentiality and methodological issues arising from the small numbers involved. When presenting results for Faculties and Schools, we do not display results for the Library or for the School of Health Sciences because displaying results for the relatively small numbers of people in these two groups may compromise anonymity.

We note that in most of the regression equations that follow, the  $R^2$  is .849 or higher.  $R^2$  represents the percent variance for which the model accounts; an  $R^2$  of .849 suggests that the regression model explains 84.9% of the variance in salaries. In other words, these models appear to account for a high degree of the observed variation in salaries around the mean.

### **1. Academic staff members, except academic assistants**

This part of the analysis includes assistant, associate, and full professors, librarians and lecturers. The career trajectories of lecturers differ from professors or librarians since

they are not tenure-track positions and may have more varied qualifications, but they have been included in this part of the analysis for two reasons. First, they are a recognized rank within the university and are included in the ULFA mandate, and second, their numbers (24) are too small to warrant a separate analysis. There are a number of ways in which AA's are treated differently from the professoriate so they cannot be folded into that group; they may be hired with lesser degrees, their job descriptions and performance expectations are more varied, they may receive lower salaries and merit awards have been handled differently over the history of the university (see appendix 2).

If one treats the data as a census there seems to be a small gender difference in salaries. Men, on average, appear to make \$98.73 more than their female colleagues, holding all other variables constant (Table 3). The results also suggest that other factors, including rank, the Faculty to which one belongs, years worked, the number of times the person has received merit, the sum of the merit points received, and whether the person has been ineligible for merit contribute to salary differences. Some of these factors indicate legitimate reasons for differences in earnings: more experience, for example, measured by years worked or years since highest degree, logically increases one's salary. These factors may also indirectly indicate differences of market realities for different Faculties. For example, those in the Faculty of Management or in Health Sciences appear to make substantially more than those in the Faculty of Arts and Science (which is the reference group). This makes sense since people in these areas may be able to bargain for higher wages if they have a

**Table 3 : Academic Staff, except AA's**  
N=355 R<sup>2</sup> = .860

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	36,574.000	4,272.00	8.562	0.000	0.000
GENDER	98.733	1,155.00	0.855	0.932	0.002
LIB	-3,955.600	7,211.00	-0.549	0.584	-0.033
LEC	-13,069.000	3,097.00	-4.219	0.000	-0.120
ASSO	10,055.000	1,767.00	5.690	0.000	0.185
FULL	23,776.000	2,613.00	9.099	0.000	0.344
FACED	10,181.000	1,767.00	5.760	0.000	0.129
FACHS	14,334.000	2,780.00	5.156	0.000	0.115
FACFA	-2,335.100	1,643.00	-1.421	0.156	-0.033
FACMGT	15,641.000	1,712.00	9.137	0.000	0.201
FACLIB	9,402.300	7,613.00	1.235	0.218	0.073
FT	21,837.000	3,488.00	6.262	0.000	0.136
TERM	-9,669.500	1,698.00	-5.693	0.000	-0.156
TERMDEG	5,399.500	2,201.00	2.453	0.015	0.067
YRSWORK	893.870	144.60	6.184	0.000	0.280
YRSINH	417.270	95.63	4.363	0.000	0.149
MERITDICSUM	-491.150	304.90	-1.611	0.108	-0.119
MERITSUM	247.110	55.33	4.466	0.000	0.240
MERITINEL	178.790	2,368.00	0.755	0.940	0.002

professional designation and are also in demand by non-academic institutions. In contrast, some disciplines in Arts and Science may have fewer employment options in the non-academic world. However, the focus of this study is whether gender differences, an indication of discrimination, exist or not. Most of the remaining discussion of results will stay focused on this aspect of the results. Further studies which investigate salary with respect to the issue of supply and demand may be necessary in the future.

If one treats the data set as a sample, it appears that the difference related to gender is not statistically significant; the difference is only significant at the .932 level—not at .05 or less—meaning that one cannot be confident enough in the results to reject the null hypothesis that there is no difference in the earnings for women and for men. This finding is unusual in that many other universities which have carried out salary equity studies have found a statistically significant gender difference. It could be that salary adjustments made to address anomalies in 2002-2003 helped to rectify some of the gender-based differences in salary. This finding begs the question of whether the situation at the University of Lethbridge is different than that at other universities or whether this is the effect of the combination of variables included in our analysis. Previous studies suggest that gender effects in salary can be masked by the inclusion of other variables which carry a gender bias but are not on the surface gender variables; for example merit variables are said to hold a gender bias and their inclusion can serve to mask gender effects (Becker and Toutkoushian 2003; CAUT 2004; Hearn 1999, Long, McGinnis et al. 1993). On the other hand, the University of Lethbridge is a newer institution than many in Canada and the United States. It is possible that such an institution may have less entrenched gender norms than older universities.

One may note that having the position as a librarian and working for the library produce different results, though neither is statistically significant. Several things need to be noted here. Being a librarian and working for the library is not exactly the same thing. Education employs some librarians to serve their own Faculty and although they work in the library they do not fall under the same auspice as the university librarians. In addition, the non-significant results related to being a librarian or employment in the library may be an artifact of the small numbers of people in these two groups. In addition, we do not differentiate librarians by rank in this analysis; librarians can occupy one of four grades with salary floors commensurate with those for lecturer, assistant, associate and full professor. This lack of differentiation may also skew the results.

Given their high level of correlation, we note that the merit coefficients must be interpreted with caution. One would logically expect that both the number of times one is in the merit pool and the amount of merit received would increase salary, thus producing a positive beta co-efficient. However in this regression, as in some of the ones that follow, the influence of the merit variables pull in opposite directions with one coefficient being positive and the other negative. On the surface, this is somewhat perplexing. One possible explanation may be that this reflects the fact that salary compression has occurred in many Faculties. There is a shortage of qualified faculty members for hire in many areas, thus new hires are often offered higher salaries than experienced staff. When this occurs, an individual with a low summated merit score, reflecting few years of experience, may have a higher salary than someone with a higher summated merit score, reflecting many years of experience. This may result in a negative coefficient for a merit score. It might also be explained partly by the process of “feathering”: that is the process whereby the values of salary increments become smaller for those reaching higher salary benchmarks.

## 2. Academic assistants

In the analysis of the salaries for academics assistants (Table 4), it appears that men's salaries are lower than women's on average (since the coefficient is negative) by \$1517. Taking this data as a census, this represents a substantial difference by gender, though in women's favour. Looking at this data as a sample, this difference is not statistically significant; it could simply be due to chance and measurement error.

Recall that the gender difference, significant or not, must be understood in regards to holding all variables constant, so it represents the average difference that exists when women and men are compared who otherwise have the same terminal degree, years of experience, years since highest degree, and who are in the same Faculty, etcetera. One should note that in the analysis for academic assistants, the terminal degree has been coded as a Ph.D. except for those in Fine Arts.<sup>10</sup> In reality, people's qualifications entering these positions are more varied than in the professoriate. It is only within the last three or so years that the terminal degree for academic assistants is a Ph.D. In our dataset, only 11 of the 73 academic assistants employed at the University in 2006 had doctorates. This includes 7 of 43 female academic assistants (16.3%) and 4 of 30 male academic assistants (13.3%); though women in this position are somewhat more likely to have a higher level of education, the difference is quite small and not statistically significant. Overall, most academic assistants hold a Master's or a Bachelor's degree. To address the variability in educational qualifications among this group, we tried re-running the analysis for academic assistants using a Master's degree or better as the terminal degree.<sup>11</sup> However, results were largely consistent with our original analysis and so we have not included them here; women still appeared to make more than men for this group.

**Table 4 : Academic Assistants only**

N= 73 R<sup>2</sup> = .849

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	10,838.000	4,976.000	2.178	0.033	0.000
GENDER	-1,517.300	1,182.000	-1.284	0.204	-0.070
FACED	6,364.900	2,945.000	2.161	0.035	0.118
FACHS	10,912.000	3,284.000	3.323	0.002	0.280
FACFA	-744.770	1,899.000	-0.392	0.696	-0.022
FACMGT	8,299.200	1,502.000	5.526	0.000	0.313
FT	41,547.000	4,527.000	9.177	0.000	0.633
TERM	5,183.300	2,212.000	2.343	0.022	0.179
TERMDEG	2,661.200	1,568.000	1.697	0.095	0.092
YRSWORK	565.000	258.100	2.189	0.032	0.348
YRSINH	204.580	93.120	2.197	0.032	0.159
MERITDICSUM	-1,317.900	687.500	-1.917	0.060	-0.804
MERITSUM	1,077.700	352.600	3.057	0.003	1.149

<sup>10</sup> There are no academic assistants in the Library.

<sup>11</sup> Among academic assistants, 79% of the women and 70% of the men held a Master's degree or better.

### 3. Individual Faculties and Schools

In addition to looking at results for tenure track faculty members and academic assistants, we considered the possibility that there could be gender differences within individual Faculties and Schools, which might not be apparent when looking at the data for the University as a whole. It is at the Faculty level where labour market variations between disciplines (such as supply and demand issues, differences in terminal degrees, or other Faculty-specific traditions in hiring practices and recognizing merit) may be most apparent. Such factors may interact with gender, inside and outside this university, to systematically contribute to salary differences. It is very important to stress that our results **do not necessarily imply** differential treatment by individual Deans in setting salaries. In addition to the systemic effects identified above, the salary data we analyzed are shaped by employment histories that extend beyond the tenure of specific Deans.

In this part of our analysis, academic assistants have been set aside. This is regrettable, but necessary. We outline several ways in which academic assistants differ from the professoriate on page 14. In regards to merit, AA's do not have separate merit pools by Faculty, as is the case for the professoriate. In addition, it is impossible to do a separate analysis for academic assistants in individual Faculties; the small number of AA's in most Faculties or Schools would potentially compromise the issue of confidentiality and make statistical interpretation of the results problematic.

Although data for the Library and for Health Sciences were available to us, we have decided not to present results for either of these groups due to the small numbers involved in each. We did not want to risk the possibility that individuals might be identifiable in the results. For a similar reason, the two librarians that work in the Faculty of Education are removed from the Education analysis.

Approaching the data as a census, results for individual Faculties suggest there are differing magnitudes and directions of salary differences for women and men. If the data are treated as a sample, then none of the regressions presented here reveal a significant difference for women and men.

**a) Faculty of Arts and Science (Table 5):** Looking at the data as a census there appears to be a gender difference in salaries, with men making \$1512.90 more than women. This difference is smaller than that in Fine Arts or Education; but larger than that for Management; however, in Management it appears that women make more than men. However, the size of the data set for Arts and Science (N=189) compared to these other Faculties (with data sets ranging in size from 39 to 54) makes it less likely that these results are skewed by outliers. However, when one uses inferential statistics, the difference is not statistically significant. When interpreting the data as a sample there appears to be no gender difference in salaries. In contrast, rank, being full- or part-time or term, years worked, years in highest degree and two of the three merit variables (meritdicsum and meritsum) are statistically significant predictors of differences in salary.

**Table 5 : Arts and Science, Faculty only (no AA's)**  
**N=189 R<sup>2</sup> = .892**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	31,192.000	7,539.000	4.137	0.000	0.000
GENDER	1,512.900	1,381.000	1.095	0.275	0.029
LEC	-15,157.000	5,623.000	-2.695	0.008	-0.100
ASSO	8,118.100	1,992.000	4.075	0.000	0.160
FULL	24,029.000	3,000.000	8.011	0.000	0.385
FT	22,717.000	6,136.000	3.702	0.000	0.096
TERM	-8,068.900	2,031.000	-3.973	0.000	-0.115
TERMDEG	7,536.500	4,218.000	1.787	0.076	0.066
YRSWORK	766.290	154.800	4.951	0.000	0.261
YRSINH	842.710	119.800	7.033	0.000	0.321
MERITDICSUM	-1,063.800	339.400	-3.134	0.002	-0.283
MERITSUM	298.110	55.070	5.413	0.000	0.351
MERITINEL	-2,418.200	3,023.000	-0.800	0.425	-0.020

**b) Faculty of Education (Table 6):** In the regression equations for Education, the following variables, fulltime, and ineligible for merit for more than 1 year (meritinel) have constants. As a result they have been automatically deleted from the analysis. In other words, all academic staff in Education worked full-time and none were ineligible for merit. Thus, since there is no variation in these parameters, they have no explanatory value and are automatically removed by the statistical program. Please note that we have also removed the two education librarians from these equations. Since there are only two persons, inclusion of their data may breach standards of confidentiality.

**Table 6 : Education, Faculty only (no AA's)**  
**N=39 R<sup>2</sup> = .967**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	62,991.000	4,319.000	14.590	0.000	0.000
GENDER	1,601.600	1,689.000	0.948	0.351	0.036
LEC	-1,597.400	5,519.000	-0.290	0.774	-0.016
ASSO	9,383.200	3,230.000	2.905	0.007	0.209
FULL	12,919.000	4,528.000	2.853	0.008	0.234
TERM	-3,648.000	3,925.000	-0.929	0.361	-0.050
TERMDEG	3,545.300	4,077.000	0.870	0.392	0.035
YRSWORK	1,017.400	392.300	2.593	0.015	0.327
YRSINH	437.420	203.800	2.146	0.041	0.161
MERITDICSUM	431.500	377.200	1.144	0.262	0.119
MERITSUM	201.520	127.700	1.578	0.126	0.171

Interpreting the data as a census, and recalling that it excludes librarians in this Faculty, the analysis for the Faculty of Education reveals a gender difference in earnings with men making \$1601.60 more than women. This appears to be a larger salary difference than in the Faculty of Arts and Science, but smaller than that in Fine Arts. However, numbers of individuals included in this Faculty analysis is smaller than that for either of these other two Faculties, as well as being somewhat smaller than that for Management where women appear to earn more than men. This means that this finding is more likely to be skewed by outliers—those individuals making substantially more or substantially less than the majority of individuals.

In contrast, interpreting the data as a sample would suggest that no statistically significant gender difference in salary exists. Within this Faculty, professorial rank (though not being a lecturer), years worked, and years since highest degree are statistically significant predictors of salary, while none of the merit variables helps to explain differences.

Within Education, it is likely that salary is influenced by particularly varied career paths between individuals. As a professional Faculty, Education has sometimes drawn on the expertise of individuals who may be excellent practitioners but who may lack a Ph.D. when they start to teach in the Faculty. If they later attain a terminal degree in their field, they may or may not entirely catch up in terms of salary if they are able to make the leap to a tenure-track position, despite their years of experience at this University. In other words, their salaries might appear low relative to their total years of experience, and current rank and this would affect the average that is displayed in the regression. It is also worthwhile noting that Education has a higher percentage of people with long-term employment at the University (particularly those beginning their work here prior to 1988) than other Faculties, and a large number of those who began work before 1988 were males.

**c) Faculty of Fine Arts (Table 7):** This Faculty appears to have the largest gender difference in salaries if one interprets the data as a census; in this case, the analysis suggests that men make \$2162.50 more than women, on average, holding all other variables constant.

As in other Faculties, this difference is not statistically significant. However, in contrast to Arts and Science and to Education, professorial rank also does not seem to be a statistically significant predictor of salary, nor does years since highest degree. Instead, being a lecturer, being in a term appointment, and the number of times that you are in the merit pool (meritdicsum) are the variables that appear to be statistically significant.

Again, it is important to note that the data set for this Faculty is much smaller than for the Faculty of Arts and Science and, as such, may be influenced by extreme cases. People's career histories and levels of educational attainment may be more diverse than in Arts and Science, with people accumulating practical experience in their area before entering an academic career. Recall that in this Faculty the terminal degree has been taken to be a Masters, not a Ph.D., due to differing educational practices in certain disciplines.



**Table 7 : Fine Arts, Faculty only (no AA's)****N=54 R<sup>2</sup> = .949**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	55,197.000	2,675.000	20.630	0.000	0.000
GENDER	2,162.500	1,955.000	1.106	0.275	0.044
LEC	-32,540.000	7,710.000	-4.220	0.000	-0.191
ASSO	1,413.300	3,316.000	0.426	0.672	0.025
FULL	8,685.900	7,025.000	1.236	0.223	0.119
TERM	-4,517.100	2,198.000	-2.055	0.046	-0.096
TERMDEG	1,881.900	1,920.000	0.980	0.333	0.037
YRSWORK	618.620	378.600	1.634	0.110	0.207
YRSINH	89.381	125.600	0.712	0.481	0.036
MERITDICSUM	2,359.600	649.800	3.631	0.001	0.608
MERITSUM	-39.319	156.700	-0.251	0.803	-0.034
MERITINEL	1,211.500	3,693.000	0.328	0.745	0.014

**d) Faculty of Management (Table 8):** Management is the only Faculty where the data, if taken as a census, suggest that women on average appear to make more than men by \$1486.50. This may result from a general desire among Management and Business Faculties to hire women and minorities, in an effort to diversify the Faculty. In order to attract this highly sought-after group, salaries for women may be enhanced. Management is the second smallest group in the Faculty-by-Faculty analysis and so one may also be concerned about the effects of outliers.

**Table 8 : Management, Faculty only (no AA's)****N=42 R<sup>2</sup> = .885**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	25,104.000	0.184	1.368	0.182	0.000
GENDER	-1,486.500	4,882.000	-0.305	0.763	-0.023
LEC	-27,680.000	8,809.000	-3.142	0.004	-0.370
ASSO	14,185.000	6,893.000	2.058	0.049	0.218
FULL	23,499.000	0.104	2.266	0.031	0.259
FT	46,748.000	0.146	3.213	0.003	0.243
TERM	2,079.600	8,640.000	0.241	0.811	0.032
TERMDEG	17,995.000	7,276.000	2.473	0.019	0.241
YRSWORK	745.080	707.100	1.054	0.301	0.183
YRSINH	-342.820	372.500	-0.920	0.365	-0.106
MERITDICSUM	-857.390	2,135.000	-0.402	0.691	-0.145
MERITSUM	442.120	550.500	0.803	0.428	0.273
MERITINEL	20,107.000	7,104.000	2.830	0.008	0.201

However, looking at the data as sample implies that the gender difference in salaries is not statistically significant. Rank appears to be statistically significant, though the significance level for Associate is marginally so. In addition, being full-time, having a terminal degree and being ineligible for merit for more than one year are statistically significant predictors. Surprisingly, measures of experience such as years worked and years in highest degree do not appear to be significant.

## **F. Summary and Conclusions**

Salary is an element of the workplace environment that frequently is examined in relation to gender and the possibility of gender-related differences has been a concern for many universities. Discrimination in pay based on gender is illegal under human rights legislation. Policies set by the Canadian Association of University Teachers (CAUT) also state that all discriminatory pay standards must be eliminated and emphasize that it is the responsibility of employers as well as faculty associations to ensure that this is done (CAUT 2004). Ensuring equitable treatment for women and other groups in regards to hiring, promotion and working conditions is an obligation for federal agencies and contractors under employment equity standards set by the federal government. Salary equity related to gender is only one component of broader equity concerns within the workplace.

Differences in wages arise, persist, and re-occur due to the cumulative effects of long-term, systematic processes; they are the result of more than the intentional discrimination of one person towards another. For example, women are only now beginning to be represented in academia in equitable numbers, particularly in some Faculties and disciplines where women have been grossly underrepresented in proportion to their numbers in the population. As such, many institutions have found women who have been in academia or are currently in academia are disadvantaged in salary with often lower salaries than men, both initially and cumulatively, for the same position in the same Faculty (Brown et al. 2006; Campbell et al. 2005; Haignere 2002; Wallace 2005). Over the course of a career lifetime this can result in a significant cumulative dollar difference. Such research has shown that if women have different (lower) start-up packages than men, then this is likely to have a long-term cumulative affect, resulting in a significant dollar difference in later salaries. In addition, even when gender-linked salary differences are corrected at one point in time, they tend to creep back in after a number of years (Euben 2001, 35). Institutional responses are necessary to address these larger systematic effects, and may need to be repeated periodically (CAUT 2004).

The intent of this current study has been to examine the question of whether systematic gender-based differences in salary exist at the University of Lethbridge. We evaluated salary equity across the University using regression analysis as the methodology. The data we had at hand were evaluated from both a census and a sample perspective. Tables 9.1 and 9.2 summarize our findings considering the data as a census and as a sample.

**Table 9.1: Summary of Results for Gender Differences in Salary, Comparing Treatments of the Data Set as Census versus Sample, for All Academic Employees by Position<sup>1</sup>**

Position	Census <sup>2</sup>		Sample <sup>3</sup>	
	Males	Females	Males	Females
Academic Staff, without AA's	+\$98	-	NS >.05	-
Academic Assistants	-	+\$1,517	-	NS >.05

**Notes:**

1. This table indicates whether women or men make the greater amount and the magnitude of the difference; the dash (-) indicates the opposing, reference category. The column for "sample" indicates whether the difference, to the benefit of a particular group, as shown in the regression analysis is statistically significant.
2. Results for treating the data as a census are the unstandardized beta co-efficients.
3. Results for treating the data as a sample are the significance levels based on the unstandardized beta co-efficients. NS = not statistically significant at the .05 level.

**Table 9.2: Summary of Results for Gender Differences in Salary, Comparing Treatments of Data Set as Census versus Sample, for Individual Faculties/Schools<sup>1</sup>**

Faculty	Census <sup>2</sup>		Sample <sup>3</sup>	
	Males	Females	Males	Females
A/S	+\$1,512	-	NS >.05	-
Education	+\$1,602	-	NS >.05	-
Fine Arts	+\$2,163	-	NS >.05	-
Management	-	+\$1,486	-	NS >.05

**Notes:**

1. This table indicates whether women or men make the greater amount and the magnitude of the difference; the dash (-) indicates the opposing, reference category. The column for "sample" indicates whether the difference, to the benefit of a particular group, as shown in the regression analysis is statistically significant.
2. Results for treating the data as a census are the unstandardized beta co-efficients.
3. Results for treating the data as a sample are the significance level based on the unstandardized beta co-efficients. NS = not statistically significant at the .05 level.

In treating the data as a census, there appear to be salary differences between men and women in the various Faculties and in most cases—though not all—men made more than women. If one takes the view that we have data on the whole group that is relevant to our study (with the few exceptions noted in section D.1.b.), that we have included and correctly measured the appropriate variables in our regression model, and that the statistical model we have specified is correct, then action to address gender-related salary differences must be taken. Although our explanatory model includes a wide range of variables and accounts for a high proportion of the variation in salaries, our model does not for all the variation that exists; the  $R^2$  for different groups ranges from .849 (for academic assistants) to .967 (for the Faculty of Education). Even if one views the data set as a population, it can be argued that the use of an inferential statistical methodology such as multiple regression is not appropriate. On the other hand, in her guide for conducting salary equity studies in academic institutions, Haignere (2002:53-54) states that multiple regression can be used with census level data.

Alternatively, interpreting the findings as specific to this sample, gender is not a statistically significant determinant of salary. This implies that no further action is required, save for continuing to monitor the situation of salary equity in future years. Regardless of whether one views the data as a census or as a sample, it is important to note that the literature suggests that the inclusion of variables such as rank or merit may distort findings or lead to an underestimation of salary differences between men and women (Becker and Toutkoushian 2003; Euben 2001; Ferber and Loeb 2002; Gunderson 1990).

It may be useful to consider our results in relation to those from other universities even though differing regression models make precise comparisons impossible. Given that findings in many other studies show that statistically significant gender differences in salaries exist, the findings at the University of Lethbridge are better than what might be expected relative to findings elsewhere.<sup>12</sup> Some of our past efforts have likely had a positive impact, notably the correction to salaries made in 2003 and possibly the Diversity Advantage Initiative. Considering the data as a census, differences between the salaries of women and men exist but the magnitude of the differences for professorial academic staff and for AA's do not appear to be as great as in the case of some other universities. This perspective suggests that we still have some corrections to make to rectify these differences.

Finally, it is important to note that quantitative statistics do not speak at all to the quality of work experience and the environment in which one works. If one treats the data as a sample, women may appear to be treated equitably by salary, but differences may remain in what women do to achieve the same salary as their male peers. This study does not address that issue. A shortage of women in academia, particularly in some disciplines, may mean that women are more burdened with service work (Acker and Feuerverger (1996); a university's attempt to improve the gender balance on some committees (for example, search committees), may lead to relatively few women being asked to fill multiple positions. Women may receive more burdensome teaching assignments (Kjeldal, Rindfeish and Sheridan, 2005) and more critical teaching evaluations (Baker and Copp, 1997; Basow, 1995; Basow, 2000). In addition, balancing work and home are issues that have historically had a greater impact on women than on men, with domestic demands impinging on the amount of time available for academic work.<sup>13</sup> At the same time, women are less likely to be streamed into routes that result in critical administrative roles such as department chairs, deans, or higher administration. In short, even if the salaries of women relative to men may look to be on par that does not address quality of work or workload issues. Additional studies could be done that would examine these issues.

This report has presented an examination of salary equity in relation to gender at the University of Lethbridge. We have included a wide range of variables in our study and have clearly described our methodology in hopes that we might offer a useful and replicable template for other studies in future years. We also have faced some ongoing

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<sup>12</sup> Although their regression models differ somewhat in terms of the variables included, at the University of Western Ontario it was found that on average men made \$2083 more than women men among probationary and tenured faculty (Campbell et al. 2005, 11) and at the University of Calgary, among full-time continuing academic staff members, men made \$2643 more than women (Wallace 2005, a). In each of these cases the difference was statistically significant.

<sup>13</sup> We acknowledge that balancing work and family is also increasingly a concern for men. Nevertheless, the most recent Canadian Census suggests that, on average, women still tend to spend more time than men on tasks related to housework and childcare (Statistics Canada 2006; Statistics Canada 2008).

debates within the committee, most notably on whether to treat the data as a census or more cautiously as a sample. As a result, we have interpreted our results in two ways. These two approaches lead to differing views of the state of salary equity at this University and consequently, differing implications for action. We have briefly outlined these implications above. It is beyond the mandate of this committee to decide which interpretation should guide the future actions of the Faculty Association and the Administration. Nevertheless, we hope that our work sheds new light on one component of equity within this institution and facilitates constructive discussion of this concern.

## **G. Recommendations**

### **1. Protect the data that has been collected**

The data for this study took much time to collect and distill and required the work, not only of Cheryl Wheeler but also of many other individuals. This data is now a very good starting point for further studies on gender equity and should be protected so that future studies can build on this rather than have to go back and ferret out the data.

### **2. Consider quantitative studies at regular intervals in the future years to monitor the issue of salary equity.**

### **3. Change the variables that HR collects to provide the information for future studies.**

In particular, this would include better documentation of when teaching faculty achieves their highest degrees.

### **4. Get permission to use data on visible minorities directly from faculty members.**

Underrepresentation of ethnic minorities and equity within visible minorities relative to the rest of the institution is of concern. Such analyses are critical and do need to be done. It is critical the data be collected and evaluated. Many though do not want to be singled out or isolated. It is important therefore that the specific reason for the request is made clear to all potential participants.

### **5. Consider doing additional qualitative studies that compare the experiences of men and women on campus.**

Collection of more in-depth data would allow us to gain a better understanding of how the experiences of women and men compare. It might also allow us to compare the workloads and working environments of groups such as professorial staff and academic assistants, or between members of different Faculties. Collecting data either through survey or interview is important in providing a complete picture of gender equity and quality in the work environment.

### **6. Consider doing an additional study of how merit gets awarded, and whether there are systematic differences in merit awards by gender.**

The literature raises questions about whether merit variables are tainted and the appropriateness of their inclusion in salary equity studies. We have included merit variables in this analysis, but acknowledge that it may be worthwhile looking more closely to see if any gender-related patterns exist in how merit is awarded within this university.

## H. Appendices

### Appendix 1: Understanding and interpreting regression analysis

For those not familiar with regression analysis this section presents some background on how to interpret the regression tables in this report.

The  $R^2$  statistic indicates the amount of the variation of salary data that is accounted for by the regression equation; the higher the  $R^2$  the greater the amount of variation that is accounted for. An  $R^2$  of 0.8 implies that the variables included account for 80% of the variation in salaries.

The interpretation of the B or beta scores for the unstandardized coefficients depends on the type of variable. If the variable is continuous (years worked, years since highest degree, meritdicsum, meritsum) the unstandardized coefficient gives an estimate of the dollar value impact on salary for a one-unit increase in the given variable. For example, with a continuous variable such as years worked, an unstandardized B score of 302.573 suggests that, on average, for each additional year a person has worked at this institution, he or she would make an additional \$302.57. For categorical variables, (gender, rank, Faculty or School, terminal degree, full-time, term, ineligible for merit > 1 year) it is necessary to be aware of the reference category which is used as the point of comparison. The coefficient indicates the average difference in salaries between the reference group and the stated category, with a positive score suggesting that the stated category makes more, and a negative score suggesting that it makes less.

## Appendix 2: Analysis of changes in merit system

Changes in the merit system since 1976 have affected the professoriate, lecturers, and librarians. In 1976, career progress and merit pay were closely linked together rather than separated. Three increments were the highest reward. STP committees evaluated and awarded merit pay based on yearly reports submitted by faculty members. In 1981 career progress and merit pay increased to ten increments, and pay ceilings were removed for professorial ranks, but not for librarians. At that time, teaching, research, and service were evaluated collectively rather than evaluating each component individually. In 1983, regular career progress was separated from merit. In 1985, partial increments were instituted; for example, faculty could be awarded 1.5 merits. Also, the pay ceilings were removed for librarians. In 1988, teaching, research, and service were evaluated separately, and merit was awarded was based on a 3-point scale. The 1988 merit pay system is the basis of the current way these awards are adjudicated. At this point, Deans were called upon to keep merit pay at 1.5 as an average across Faculties and Schools. In 1991, increments were awarded by .25 increments (e.g., research 1.25). In contrast, the system for academic assistants has remained much the same over the whole of the period covered in this report; in their case, scores have always reflected numbers of career progress increments.

The changes described above necessitated some adjustments to the raw reported scores in the merit variables for professors and librarians hired prior to 1991. These adjustments allow us to understand the amount of merit awarded in a more homogenous way for all individuals, regardless of when their employment began. We recognize this is not a perfect solution for accounting for changes in merit awards over time but these adjustments allows us to feel more comfortable about including all hires in the same regression model. The adjustments to the raw data have been calculated as follows:

- (1) From 1976 to 1987, the original data reported scoring in numbers of 1, 1.5, 2 and 3. These numbers relate to the value of career progress increments, in the current definition of the way career progress adjustment is awarded. A score of 1 reflects what we now call regular career progress, so is not "merit" at all. A score of 1.5 would then mean 1.5 career progress increments, with a 0.5 increment being awarded as merit, and so on. Under current conditions, a score of five merit units is often close in monetary value to a complete career progress increment. To convert scores in 1976-1987 to merit units, we allocated 3 merit units to a 1.5 score; 5 merit units to a 2.0 score; and 10 merit units to a 3.0 score. These numbers, for particular years, can then be summed with "regular merit units", in the later periods.
- (2) From 1988 to 1991, scoring could be at 1, 1.5, and 2, with the same mapping to career progress increments as in (1) above. So, again for this period, a score of 1.5 is equivalent to 3 merit units; and a score of 2 is equivalent to 5 merit units.
- (3) From 1992 onwards, the current system of merit units was implemented. So, a merit score of 1 means 1 merit unit; a score of 2 means 2 merit units, and so on, up to, typically a score of 5, for 5 merit units.

(4) To come up with overall merit units (the variable meritsum ) over 1976 to 2006, for the professoriate and librarians, we therefore use the schema above, to come up with a common metric for merit units, and sum these up over all years.

(5) The earlier scoring of performance in (1) and (2) above also has implications for whether a member is "in the merit pool", or not. If a member scored 1 prior to 1991, this was regular career progress, so does not count for our analysis as a year in the merit pool. A member has to score at 1.5 or greater for that year to count as one in which they are in the merit pool. This is therefore the conversion factor which is used for (1) and (2) above, to establish how many years the member earned merit. These adjustments are used to calculate the values expressed in the variable meritdicsum.

(6) No changes have been made in the data in either of these variables for academic assistants, since the system for them has remained much the same over time.



### Appendix 3: Regression analysis including age

This appendix offers a brief presentation of the results for the regression model including age as a variable, in addition to other measures of experience (years worked and years since highest degree). Debates over whether it is appropriate to include age as a variable in explaining gender differences in salary are outlined in section 6.b.ii of the report.

Approaching the data as a census, the inclusion of age in the regression changes the magnitude of the gender differences in salary when compared to the results presented in the main body of this report. For all academic staff, except academic assistants (Table 10) the difference is much larger (600.71 compared to 98.73). There are also gender differences which are larger in Arts and Science (Table 12), and Management (Table 15), though again for Management, it appears that women make more than men. The gender difference in salaries for Fine Arts (Table 14) is also larger but only by a very small amount (about \$9). In contrast, among academic assistants (Table 11) and in the Faculty of Education (Table 13) the inclusion of age as an explanatory variable decreases the gender difference in salaries somewhat. Here, as in the earlier analysis, male academic assistants appear to be paid less than their female counterparts.

If one approaches the data as a sample, the inclusion of age does not alter the overall conclusions presented earlier. In all groupings of the data, gender still lacks statistical significance. Age itself is only statistically significant as a predictor variable in the analysis of all academic staff (except academic assistants), as shown in Table 12.

**Table 10: Academic Staff, except AA's, including Age**  
N= 355 R<sup>2</sup> = .866

Variable	Unstandardized B	Standard Error	T-Ratio	Significance	Standardized Beta
CONSTANT	25,260.000	5,258.000	4.804	0.000	0.000
GENDER	600.710	1,144.000	0.5253	0.600	0.011
LIB	-2,194.000	7,105.000	-0.3088	0.758	-0.018
LEC	-13,941.000	3,054.000	-4.565	0.000	-0.128
ASSO	9,221.300	1,753.000	5.261	0.000	0.169
FULL	22,601.000	2,589.000	8.728	0.000	0.327
FACED	8,182.400	1,825.000	4.484	0.000	0.104
FACHS	12,104.000	2,803.000	4.318	0.000	0.097
FACFA	-2,663.900	1,618.000	-1.646	0.101	-0.038
FACMGT	14,578.000	1,709.000	8.531	0.000	0.187
FACLIB	7,798.300	7,496.000	1.04	0.299	0.060
FT	22,174.000	3,429.000	6.466	0.000	0.138
TERM	-10,168.000	1,675.000	-6.07	0.000	-0.164
TERMDEG	4,420.000	2,180.000	2.027	0.043	0.055
YRSWORK	787.200	145.200	5.422	0.000	0.247
YRSINH	220.400	108.900	2.023	0.044	0.079
MERITDIC	-420.860	300.400	-1.401	0.162	-0.102
MERITSUM	254.910	54.430	4.683	0.000	0.247
MERITINEL	-548.200	2,337.000	-0.2346	0.815	-0.005
AGE	330.340	92.400	3.575	0.000	0.119

**Table 11: Academic Assistants with Age**  
**N=73; R<sup>2</sup>=.857**

Variable	Unstandardized B	Standard Error	T-Ratio	Significance	Standardized Beta
CONSTANT	5,089.900	5,818.000	0.875	0.385	0.000
GENDER	-1,155.400	1,177.000	-0.982	0.330	-0.053
FACED	4,956.400	2,992.000	1.656	0.103	0.092
FACHS	10,077.000	3,255.000	3.096	0.003	0.258
FACFA	-1,265.700	1,885.000	-0.671	0.505	-0.037
FACMGT	7,297.500	1,574.000	4.638	0.000	0.275
FT	41,997.000	4,450.000	9.438	0.000	0.639
TERM	5,160.000	2,171.000	2.376	0.021	0.178
TERMDEG	2,836.100	1,542.000	1.839	0.071	0.098
YRSWORK	571.660	253.300	2.257	0.028	0.352
YRSINHD	135.970	98.880	1.375	0.174	0.106
MERITDIC	-1,361.000	675.100	-2.016	0.048	-0.831
MERITSUM	1,076.000	346.000	3.110	0.003	1.147
AGE	149.900	82.500	1.817	0.074	0.122

**Table 12: Arts and Science, Faculty only (no AA's) with Age**  
**N= 189 ; R<sup>2</sup>=.900**

Variable	Unstandardized B	Standard Error	T-Ratio	Significance	Standardized Beta
CONSTANT	25,540.000	8,364.000	3.054	0.003	0.000
GENDER	1,818.900	1,390.000	1.308	0.192	0.035
LEC	-15,166.000	5,602.000	-2.707	0.007	-0.100
ASSO	7,778.200	1,997.000	3.895	0.000	0.153
FULL	23,317.000	3,024.000	7.711	0.000	0.374
FT	22,500.000	6,114.000	3.680	0.000	0.095
TERM	-8,573.700	2,050.000	-4.183	0.000	-0.122
TERMDEG	7,015.700	4,216.000	1.664	0.098	0.062
YRSWORK	729.030	156.100	4.671	0.000	0.248
YRSINHD	707.140	148.500	4.763	0.000	0.269
MERITDIC	-1,037.100	338.500	-3.063	0.003	-0.276
MERITSUM	305.040	55.040	5.542	0.000	0.359
MERITINEL	-2,440.200	3,011.000	-0.810	0.419	-0.020
AGE	180.510	117.600	1.535	0.126	0.068

**Table 13: Education, Faculty only (no AA's) with Age**  
**N=39; R<sup>2</sup>=0.969**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	55,937.000	7,278.000	7.686	0.000	0.000
GENDER	1,458.900	1,680.000	0.868	0.393	0.033
LEC	-4,712.300	6,061.000	-0.778	0.444	-0.047
ASSO	9,103.100	3,213.000	2.833	0.009	0.203
FULL	12,520.000	4,505.000	2.779	0.010	0.227
TERM	-3,192.900	3,913.000	-0.816	0.422	-0.043
TERMDEG	2,318.800	4,173.000	0.556	0.583	0.023
YRSWORK	1,016.400	389.300	2.611	0.015	0.327
YRSINH	333.520	220.000	1.516	0.141	0.123
MERITDIC	441.870	374.400	1.180	0.248	0.121
MERITSUM	199.840	126.700	1.577	0.126	0.170
AGE	187.940	156.700	1.199	0.241	0.066

**Table 14: Fine Arts, Faculty only (no AA's) with Age**  
**N= 54; R<sup>2</sup>= .950**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	53,769.000	5,328.000	10.090	0.000	0.000
GENDER	2,171.500	1,976.000	1.099	0.278	0.044
LEC	-32,365.000	7,814.000	-4.142	0.000	-0.190
ASSO	1,455.000	3,355.000	0.434	0.667	0.026
FULL	8,910.600	7,139.000	1.248	0.219	0.122
TERM	-4,582.800	2,232.000	-2.054	0.046	-0.097
TERMDEG	1,802.700	1,958.000	0.921	0.363	0.035
YRSWORK	598.560	388.200	1.542	0.131	0.200
YRSINH	69.713	141.800	0.492	0.626	0.028
MERITDIC	2,348.200	657.900	3.569	0.001	0.605
MERITSUM	-37.148	158.600	-0.234	0.816	-0.032
MERITINEL	1,116.700	3,746.000	0.298	0.767	0.013
AGE	41.501	133.500	0.311	0.757	0.016

**Table 15: Management, Faculty only (no AA's) with Age**  
**N=42; R<sup>2</sup>=.885**

Variable	Unstandardized B	Standard Error	T-ratio	Significance	Standardized Beta
CONSTANT	28,051.000	0.226	1.239	0.226	0.000
GENDER	-1,697.000	5,047.000	-0.336	0.739	-0.026
LEC	-27,440.000	9,017.000	-3.043	0.005	-0.367
ASSO	14,453.000	7,105.000	2.034	0.051	0.223
FULL	23,443.000	0.106	2.223	0.034	0.259
FT	47,176.000	0.149	3.164	0.004	0.245
TERM	2,358.600	8,868.000	0.266	0.792	0.036
TERMDEG	18,264.000	7,489.000	2.439	0.021	0.244
YRSWORK	786.380	741.000	1.061	0.298	0.193
YRSINHD	-300.870	420.400	-0.716	0.480	-0.093
MERITDIC	-770.390	2,203.000	-0.350	0.729	-0.130
MERITSUM	417.020	570.200	0.731	0.471	0.258
MERITINEL	20,606.000	7,542.000	2.732	0.011	0.206
AGE	-93.279	405.700	-0.230	0.820	-0.027

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