

UNIVERSITY OF
Waterloo



**REPORT OF THE WORKING GROUP ON
WOMEN'S SALARY EQUITY**

Waterloo, Ontario

14 April 2009

Working Group Members

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1. Introduction

This report continues the tradition of investigating issues related to salary equity for female faculty at the University of Waterloo. Previous reports were completed in 1977 (Ad Hoc Advisory Committee on Equity of Salary, Promotion and Tenure of Women Faculty Members), 1988 (Salary Review Committee) and 1993 (Advisory Committee on Academic and Human Resources).

The Working Group, with responsibility for the current review and whose names appear below, met for the first time on 20 June 2008, and met thereafter on a biweekly basis during the spring and fall terms of 2008. During the winter term of 2009, meetings became weekly. This frequency of meetings reinforced what had been observed related to the three previous reviews: such work involves significant time and effort.

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During the review process, the Working Group observed instances for which anomaly payments have already been made. At the same time, however, we noticed various circumstances which either create, or have the potential to create, salary anomalies. We identify those and discuss them later in this report.

2. Terms of Reference

In the summer of 2008, the Vice President Academic and Provost, after consultation with the President of the Faculty Association (FAUW), established a Working Group on Women's Salary Equity. The Working Group was requested to:

- (1) determine, by an appropriate method of its own choosing, if faculty salary inequities exist related to gender, and

- (2) where such inequities are found to exist for women faculty members, recommend how such cases should be resolved.

The Working Group was asked to report in writing by not later than 1 February 2009 to the Vice President Academic and Provost, with a summary report to the President of FAUW. The intent was to implement recommended salary adjustments before 30 April 2009.

By November 2008, the Working Group became aware that it would not finish its work by the beginning of February 2009, and reported that conclusion to both the Provost and the President of FAUW. The Provost indicated it was important for the Working Group to complete the work in the best way possible, and if some extra time was required that was acceptable. Subsequently, the Chair of the Working Group provided periodic progress reports to the members of the Faculty Relations Committee.

3. Approach and Method

Institutional Analysis and Planning provided data regarding the number of regular full-time and part-time female faculty at UW, effective on 1 May 2008, included in the Faculty Salary Increase (FSI) process. The FSI includes individuals defined under Policy 76, 2A: regular faculty with a definite term, probationary, tenured, or continuing appointment, and with a load of full-time, reduced- or fractional-load. The term ‘part-time’ refers to regular faculty with either reduced- or fractional-load intensities. The initial target population for this work was the 236 female colleagues. A slightly smaller number was actually considered, as explained below and in the Appendix.

Table 1: Number of faculty at UW, 1 May 2008

| | Male | Female | Total |
|-----------------|------|--------|-------|
| Full-time | 705 | 224 | 929 |
| Reduced-load | 5 | 5 | 10 |
| Fractional-load | 5 | 7 | 12 |
| Total | 715 | 236 | 951 |

During the summer and fall of 2008, the main task was to develop an overall approach and methodology, and test it. The Working Group examined the earlier reviews, and various comments made about them. It became clear that there was no perfect method for such an evaluation. Options exist, each with strengths and weaknesses.

The Working Group decided to use a two-stage process: (1) establishing a data base and initial screening, and (2) examining files of faculty members. The possibility of a third stage – interviews of faculty or others – was recognized.

3.1 Data Base and Screening Process

The Working Group developed a screening process to identify women with salaries considerably lower than expected, given their current performance, average starting salaries in

their departments or Faculties, and the time since their highest degree. The screening process involved creating an accurate data base and developing a screening tool.

First, we established with the help of IAP a data base of 963 records corresponding to faculty with ranks of Lecturer, and Assistant, Associate and Full Professor. Once duplicate records due to joint appointments and records with no merit rating for 2008 were removed from the file, 236 pertained to women, shown in Table 1.

Second, for the screening activity we postulated a ‘model salary’ for all individuals. Using data from IAP files which did not allow individuals to be identified, we calculated model salaries by taking into account current starting salaries, recent merit increases, years of service at UW as well as other experience.

We then fitted a regression line of actual salaries to model salaries for each of three subgroups: (1) those in professorial rank positions in 2008, hired in 2006-2008; (2) those in professorial rank positions in 2008, hired before 2006-2008; and, (3) those who were lecturers in 2008. For each subgroup, individuals who fell below predicted salary levels were identified. Based on these results, we selected anyone who was more than 10% or more than \$5000 below the predicted salary. These thresholds were chosen to reflect ‘rough justice’, given the many variables that affect salary. We concluded it was not reasonable to strive for a higher level of ‘precision’ at the screening stage about what constituted an inequity. In other words, the screening was intended to flag only ‘possible inequities’. More detail is provided in Appendix 1.

We recognized that since the screening tool is based on a formula with simple inputs, it might identify some individuals whose salary is appropriate, and might also fail to identify some whose salary should be reviewed. The Working Group also anticipated that it would identify other factors that reasonably explain discrepancies between actual and model salaries. Thus, the Working Group did not use the screening process in a mechanical way, but as a first step in identifying possible anomalous situations.

3.2 Review of Individual Faculty Files

After the screening was completed, we contacted two groups of female colleagues. The first group involved those who had been identified as having salaries lower than expected based on the screening process. Each person in this group was contacted, both by hard copy and email, on 27 November 2008. Each was asked, if she wanted us to investigate her case, to contact Sharon Dahmer in the office of the Associate Provost Academic and Student Affairs by Friday, December 12, 2008.

It was explained that the Working Group would need written permission from each colleague (an enclosed form was provided) to pursue the case and also to access individual personnel files. It was indicated that if there was no response by 12th December, we would conclude there was no interest in the case being investigated. Colleagues were also asked that, if they had other relevant documentation, they provide it to the committee members.

The second group involved those for whom the screening process had not identified a possible anomaly. Each person in this group also was contacted by hard copy and email on 27th

November to say that, if anyone believed the screening had overlooked a possible anomalous situation, we would be pleased to be informed, and that we would investigate further if permission were granted by the individual.

Colleagues in each group were informed that all the Working Group members had signed a confidentiality agreement, promising that any information provided and the information in personnel files would remain confidential to the Working Group members.

Colleagues also were told that once the Working Group had considered all information with regard to a case, it would decide whether it considered a current salary to be equitable. If the decision was that the committee believed that a salary was not equitable, then a recommendation to resolve the issue would be forwarded to the Vice President Academic and Provost with a copy to the individual. If the conclusion was that a salary was equitable, then it would send a letter with its decision only to the individual colleague.

4. Findings Related to Salary Equity for Women Faculty at the University of Waterloo

Of the 67 female colleagues whose situations were reviewed, the Working Group identified three different situations.

4.1 Immediate adjustment to salaries (6)

Six colleagues were identified for action by the Vice President Academic and Provost.

The anomalies in these six instances are significant, and, combined with other information, justify immediate action. For each case, the Working Group recommended a specific anomaly payment into the base salary of the individual.

4.2 Referral to Dean/Chair to monitor with possibility for future adjustments (27)

Twenty-seven colleagues are in a situation where the possibility exists for an anomaly to emerge in the short- or medium-term. As a result, relevant Deans and/or Chairs/Directors are recommended to monitor each of these cases, to determine whether adjustments might be appropriate.

4.3 No adjustment (34)

Thirty-four individuals are in a situation for which the Working Group deemed that no action is needed at this time. The individuals have each been informed, but no communication has been sent to a Dean or Chair/Director. If individuals disagree with the conclusion of the Working Group, they can raise their situation directly with their Chair/Director or Dean.

The overall pattern of results for the above three categories by Faculty is shown in Table 2.

Table 2: Findings of Salary Inequity Relative to Faculties

| Faculty | Total | No further Action | Refer to Dean | Refer to Provost |
|--------------|-----------|-------------------|---------------|------------------|
| AHS | 7 | 4 | 3 | 0 |
| Arts | 21 | 14 | 5 | 2 |
| Engineering | 6 | 2 | 4 | 0 |
| Environment | 5 | 3 | 1 | 1 |
| Mathematics | 8 | 6 | 2 | 0 |
| Science | 20 | 5 | 12 | 3 |
| Total | 67 | 34 | 27 | 6 |

5. Systemic Matters

Five systemic matters need attention. Several of these are generic; all are relevant to the issue of gender equity but have broader implications as well. Furthermore, in some instances the impact of one matter on its own may not be serious. However, the cumulative effect of two or more can and does contribute to anomalous situations.

5.1. *Allocating across-the-board scores of 1 in all four categories (scholarship, teaching, service, total) in the first year after hiring.*

It is common practice for Chairs/Directors to assign a score of 1 [on a 0 to 2 scale] in every category for a faculty member in the first year at UW, especially when there is less than a 12 month period between the time of hire at UW and the time of the evaluation. The rationale is that insufficient information exists to assign a score to reflect actual performance, and/or that when someone is starting her career much learning occurs and more representative performance appears several years later.

A downside is that the merit scales translate into incremental merit money that goes into the faculty member's base salary. All future merit calculations are based on the new base salary. If the individual has performed well or very well, receiving a score of 1 penalizes her, because the merit component from the first year of employment is lower than it otherwise should have been. For the rest of that person's career, there is a negative effect.

The Working Group recommends a stop to this practice. Individuals should receive a realistic score reflecting expectations for performance related to the stage they have reached in their career.

5.2. *Allocating low performance scores for initial years after hiring, then gradually increasing them in the run up to promotion and tenure.*

Another widespread practice is to give faculty members relatively low performance scores in their first few years after appointment without tenure, and then have the scores gradually increase in subsequent years. In some instances, this is a deliberate strategy to create a positive 'trajectory' for an individual by the time of application for promotion and tenure, at the end of a second probationary appointment.

The intent is clear: present an individual in a positive manner at the time of consideration for promotion and tenure. However, a negative effect is that lower scores for several successive years directly reduce the incremental merit money placed into base salary in each of those years. Two or more years of lower than appropriate merit scores have a cumulative effect that an individual is unlikely ever to

recover. Women choosing to have their maternity leaves during this early period of their careers could be particularly affected by this practice.

The Working Group recommends a stop to this practice. Individuals should receive evaluation scores each year which reflect their actual performance relative to expectations for their stage of career.

5.3 *Significance of starting salaries.*

A relatively low starting salary has the same effect as for the two points already discussed above. The analysis by the Working Group indicated instances for which it appears starting salaries may have been lower than appropriate. However, determining an appropriate starting salary requires understanding of disciplines and professions beyond the expertise of the Working Group.

The Working Group thus recommends that, when Chairs/Directors and Deans determine starting salaries, care be given not to create a condition which may lead to a steadily growing gap between a faculty member and the cohort hired in the same period in comparable disciplines or professions.

5.4 *Choices related to annual performance evaluations associated with a maternity leave.*

When a female faculty member takes a maternity leave, in instances in which productivity drops, the effect is likely to extend beyond the duration of the maternity leave. Determining the annual performance evaluation scores then becomes a challenge.

The Working Group recommends that the average of the previous three years of performance scores should be used for the year in which an individual is on maternity leave, as one way to fairly deal with the impacts associated with a maternity or paternal leave.

5.5 *Variation of scores for 'scholarship' relative to 'teaching'.*

The Working Group observed that in many instances the variation in scores related to 'scholarship' is greater than the scores for 'teaching'. This outcome is understandable, because it is easier to document when an individual has limited research output or impact, or is a recognized international leader. In contrast, virtually all faculty teach, and so basic teaching activity is not as useful in differentiating faculty from each other.

We also observed, however, that while outstanding research often is recognized by a score of '2', individuals described as outstanding or superlative teachers often received a score of 1.5.

We conclude that the above patterns provide a long-term advantage to faculty who give greater attention to scholarship. Given that the Sixth Decade Plan indicates that UW should strive to ensure the value of high quality teaching is recognized, we believe such patterns are not desirable.

The Working Group recommends that Chairs should aim for comparable variation in scores for 'teaching' as for 'scholarship'. This matter is not gender specific, but the rationale is that such practice is simply the right thing to do.

6. Conclusions and Implications

The Working Group offers two general conclusions.

First, salary anomalies are always likely to occur. This eventuality highlights the need for Chairs/Directors and Deans to be vigilant and apply a systematic, credible and transparent method to monitor salaries, and to make adjustments when salary anomalies are identified.

Second, the five systemic matters identified in Section 5, either by themselves, or more significantly through interactions among two or more of them, have a high likelihood of contributing to salary anomalies. Consequently, it is important that practices related to these five matters be monitored so that practices can be modified. In this context, we recommend that the Vice President Academic and Provost report biannually to the Faculty Relations Committee about progress in the Faculties to change practices as recommended in this report.

In addition to the two general conclusions noted above, we recommend four process issues be given attention by the University of Waterloo.

6.1 *Potential salary inequity related to men.*

During its analysis, the Working Group was aware that potential exists for salary anomalies regarding male faculty.

We recommend that UW determine when and how systematic attention should be given to identifying men who may be in a situation for which salary anomaly adjustments should be considered.

6.2 *Frequency of salary anomaly reviews for faculty at UW.*

At the beginning of this report, we observed that this is the fourth time that UW has initiated a review of possible salary anomalies for female faculty. Such reviews have been completed about once a decade.

While we have been impressed with the way in which monitoring and checks are used within Faculties to identify and address anomalous situations, we believe UW should 'institutionalize' a system-wide review of possible salary anomalies on some frequency less than once every 10 years. If this is not done, and if normal checks and balances fail, an individual could be left with a salary anomaly for a significant period of time.

We recommend that such a review addressing all regular faculty be completed on a 5 year cycle.

6.3 *Model salary approach for initial screening.*

The model used by the Working Group for initial screening was based on an approach developed by Alan George when he was Dean of Mathematics. While no approach is without limitations, the one used provided a useful way to screen for possible anomalies, without requiring detailed examination of the files of every faculty member to have comparators.

We recommend that this approach be used by all six Faculties to monitor for possible salary anomalies. The advantages are that there is considerable experience with this approach, and also that it should result in consistency regarding monitoring across Faculties. Such consistency should provide re-

assurance that an individual could not be disadvantaged due to the particularities of an approach specific to one Faculty. Such use would also reinforce an institutional commitment to such monitoring.

6.4 *Implications of new hires performing well initially and then slowing down, relative to those who start slowly and then become much better later on.*

While the approach recommended in Subsection 6.3 is very helpful for screening, it can not identify fundamental causes of inequities. In that regard, we observed two ‘trajectories’ which underlie the patterns identified in Subsection 5.4. Such trajectories can often be gender-specific, as the second one (starting slowly then performing at a higher level as time evolves) can be associated with maternity leaves.

In other words, a female faculty member who has one or more maternity leaves early in her career at UW may have a slower start in developing teaching, scholarship and service components. One outcome is that a female colleague, who has one or more maternity leaves during the start of her employment history at UW and may receive lower performance evaluations, is likely never to catch up to other colleagues who started more quickly. When this occurs, the potential for salary anomalies can arise. As a result, when the next review related to salary anomalies is conducted, we recommend that the group give particular attention to this aspect.

7. Acknowledgements

We are grateful for the support provided from the Office of Institutional Analysis and Planning with reference to salary histories and related data, and technical expertise.

The offices of Deans and Departments/Schools responded promptly and systematically to our requests for information for individual female faculty members, and this often required collating information from files from both Deans’ and Department/School’s offices. Without such cooperation, it would not have been possible for us to conduct the second stage of the analysis.

We also acknowledge the individuals who provided us with supplemental information, or messages in which they explained why they believed their case deserved attention.

8. References

Ad Hoc Advisory Committee on Equity of Salary, Promotion and Tenure of Women Faculty Members re Salary Discrepancies of Women and Men Faculty Members (1977)

Advisory Council on Academic Human Resources (1993), *The Status of Women at the University of Waterloo*, Chair: Phyllis Forsyth.

Brzustowski, T. (1987), *Analysis of Questions Raised by the Salary Review Committee*, 20 August.

Salary Review Committee (1988), *Report of the Salary Review Committee on the Salaries of Women Faculty at the University of Waterloo*, submitted to The Advisory Council on Academic Human Resources, April, Chair: George Soulis.

9. Appendix: Screening Process

This appendix describes the process used to screen salaries of women faculty regarding possible inequities. The process used data from:

- IAP to get employment and salary history for all faculty members
- IAP to get 2008 selective increase units
- HR to link employee IDs to name
- Faculty Deans to get current starting salaries

Data Cleansing

1. Original file from IAP had 999 records with fields, including:
 - ID number
 - Faculty
 - Department
 - Gender
 - Current nominal salary
 - Current FTE
 - Current Department FTE
 - Current rank
 - 2008 – 2004 merit ratings
 - Starting salary
 - Starting date
 - Starting rank
 - Starting appointment type (definite term, probationary etc.)
 - Date of highest degree
2. Duplicate records, due to cross appointments and records with no merit rating for 2008 were removed from the file. There were records from 236 women and 715 men included in the subsequent analysis.

Calculations and New Variables

1. Average performance rating: Calculated over the last 3 years. Empty cells (no rating available) were excluded from the average.
2. Years between date of hire and date of highest degree.
3. Average starting salaries (2008) as provided by the Faculty Deans broken out by department are shown below. We used \$100k for Optometry Faculty, the same as for lecturers. The starting salary for lecturers in Engineering is based on experience from the last three years as no information was provided by the Dean.

| Faculty/Department | Faculty Model Starting Salary (\$000) | Lecturer Model Starting Salary (\$000) |
|---------------------------|--|---|
| AHS | 68 | 56.5 |
| ARTS | | |
| Accounting | 120 | 98 |
| Economics | 95 | 63 |
| Psychology | 76 | 63 |
| Arts (others) | 66 | 63 |
| ENG | | |
| Chemical | 95 | 75 |
| E&CE | 96 | 75 |
| Eng(other) | 84 | 75 |
| ENV | 70 | 58 |
| MATH | | |
| CS | 117 | 74.5 |
| Math(other) | 85 | 74.5 |
| SCIENCE | | |
| IQC | 83 | 73 |
| Optometry | 87 | 100 |
| Pharmacy | 87 | 73 |
| Science(other) | 75 | 73 |

4. For the six faculties, the 2008 selective increase units (SIU) provided by IAP were calculated for each Faculty separately, as described in the MOA section 13.3.

| Faculty | SIU |
|----------------|------------|
| AHS | 2108 |
| ARTS | 2036 |
| ENG | 1968 |
| ENV | 2049 |
| MATH | 2183 |
| SCI | 1956 |

5. In calculating model salaries, the following weights were used for the years between date of hire and date of highest degree. A weight of 1 was used for years after date of hiring. For example, a lecturer with highest degree awarded in 1988 and who was hired in 1998 is treated as if the highest degree were awarded $10 + .5 \times 10 = 15$ years ago.

| Initial rank | Weight |
|---------------------|---------------|
| Lecturer | 0.50 |
| Assistant professor | 0.50 |
| Associate Professor | 0.75 |
| Full Professor | 1.00 |

6. To calculate the model salary, we used:
- 2008 SIU and thresholds (as provided in the MOA)
 - current Assistant Professor starting salaries (Lecturers calculated separately)
 - average of available performance ratings within the last three years
 - weights for years between date of hire and date of highest degree
- The model salary is the salary (in current dollars) that a member would receive with performance equal to the three year average with years of service equal to actual years of service and years between date of hire and date of highest degree weighted accordingly.

Actual salaries were plotted against model salaries for three groups of Faculty:

- long-term lecturers
- assistant, associate and full professors with fewer than 3 years performance rating
- long-term assistant, associate and full professors

Recently hired lecturers were left to self select since their number was so small.

7. For each group, other than recently hired lecturers, a regression of actual versus model salary was used to screen for anomalies. The salary of women faculty who met either of the following initial criteria was eligible for further consideration.
- Actual salary less than 90% of the fitted salary
 - Actual salary more than \$5,000 below the fitted salary

The screening identified 72 women for further consideration. Not all of these agreed to continue.

Prepared by Jean Andrey, Geography and Environmental Management; Jock MacKay, Statistics and Actuarial Science; Bruce Mitchell, Associate Provost, Academic and Student Affairs; Catherine Schryer, English Language and Literature; Mary Thompson, Statistics and Actuarial Science.