

TO: Standing Committee on Science and Research

FROM: Laura Neals, Director of Academic Staff Relations, Dalhousie University

DATE: October 23, 2023

SUBJECT: Pay Equity Gaps Among Faculty

Background

In 2017, Dalhousie University conducted a comprehensive pay analysis on faculty salaries to investigate whether there were any differences in salary rates between gender and/or self-identified equity-deserving status.

The analysis was done in partnership with the Dalhousie Faculty Association and based on the current rank, y-value (a Dalhousie calculation of service, experience, and education), and the annual full-time salary rate.

For members of our teaching and research staff, a y-value is calculated to reflect:

- number of years of creditable service in the rank of Lecturer or its equivalent;
- other relevant experience, including traditional ways of knowing and/or non-traditional scholarship; and
- level of education

A faculty member's y-value dictates their minimum salary. Our y-value system helps to ensure faculty members with comparable experience and education are paid comparable annual salaries.

Methodology

As previously stated, our pay equity analysis was based on the current rank, y-value, and annual full-time salary rate. The population included all current faculty. Faculty with post-retirement appointments, former Deans and faculty with salaries at or above the maxima were removed from the population, as these salaries would skew the data set. Pay equity variables included gender identification, from the faculty member's personnel records, and designated group status (aboriginal/indigenous, racially visible, persons with a disability, and SOGI), from self-identification records.

Four different models of linear regression analysis were run on the data for each rank, with salary rate as the dependent variable, and y-value and gender and/or designated group status as independent variables.

The first model compared the regression lines of salary rate and y-value at each rank for male designated group, female non-designated group, and female designated group to male non designated group. Separate analysis was run only on faculty in Law, Computer Science, Engineering and School of

Business (to recognize the higher salary maxima in these faculties), all faculty excluding those in the above faculties, and all faculties combined.

A second model ran similar analysis with gender only, comparing female to male salaries. A third model was run on designated group status only, comparing salaries of designated group members to non-designated group members. And lastly, regression analysis was conducted with salary rate as the dependent variable, and gender, y-value and faculty as the independent variables to examine any interrelatedness between gender and faculty.

Outcomes

Tests of significance were run to determine whether salary rates by y-value and rank of the comparator group (either female non-designated group, female designated group, or male designated group, all female, or all designated group depending on the model) were statistically different from the base group (either male non-designated group, all male, or all non-designated group depending on the model).

The only statistically significant difference occurred in the regression comparing male and female salary rates by y-value at the rank of Full Professors.

As a result, pay equity salary adjustments were calculated and awarded to 81 female Full Professors. These adjustments were based on the difference between the male and female regression lines of y-value and salary rate, with salaries of female faculty capped the maximum salary rate. Individual one-time adjustments ranged from approximately \$1500 to \$12000.

Further Analysis

In September 2020, a second pay equity analysis was conducted on faculty to determine whether the salary adjustments provided to female Full Professors in 2017 had successfully resulted in closing the gap between female and male salaries.

Linear regression analysis was run on faculty at the rank of Full Professor, Associate Professor and Assistant Professor as the number of faculty in other ranks are not large enough to ensure the validity of the analysis. Similar adjustments were made to the population as in 2017, that is, all former Deans and post retirement faculty were removed from the analysis as were, faculty whose salary was at or over the maxima.

Our analysis revealed almost no difference between male and female regression lines for each rank. Regression analysis confirmed the results as there are no statistically significant differences ($P \leq 0.05$) between male and female salaries at any of the three ranks. Therefore, we concluded that the pay equity adjustments awarded to female Full Professors in 2017 had the desired effect of closing the gap between male and female salaries.

This analysis was repeated in 2022, in advance of bargaining our latest faculty collective agreement, and found no statistically significant gaps.

Impact on Retirement Pay

Dalhousie University has a defined benefit pension plan based on the best three years of a faculty member's earnings. This structure helps to mitigate impact on retirement earnings. If pay equity gaps are identified and remedied in the three years prior to retirement, the impact on pension will be minimal. That being said, our pay equity adjustments were made on a go-forward basis and we cannot discount the impact this pay gap had on faculty members' life-time earnings. Equity pay gaps at institutions with defined contribution pension and retirement savings plans will lead to a more significant impact on faculty retirement pay.

Lessons Learned

Moving forward, we have adopted the practice of conducting a faculty pay equity analysis in advance of bargaining new collective agreements. This gives us and our Dalhousie Faculty Association partners an opportunity to assess whether there are pay gaps that need to be addressed.

Our y-value system was critical the execution of this exercise. To that end, we have also revised our y-value system to ensure it captures a diversity of experience and knowledge (Appendix A).

Appendix A

Please note, the bolded language represents our newly negotiated collective agreement language.

Calculation of Y Values

For Members of the teaching and research staff, Y represents the number of years of creditable service (s) in the rank of Lecturer or its equivalent or above in universities or equivalent institutions; plus other relevant experience: **the sum of weighted years of periods of paid employment (E1) and years of traditional ways of knowing and/or non-traditional scholarship (E2)**; plus 3 added to Y for possessing the Ph.D. degree or its equivalent. S shall include the year in which the appointment is taken up. **The limit for E1 is 5; for E2 is 6; and for (E1 + E2) is 6.**

For all Y-values, a period of one year can result in no more than one (1) point, even when multiple appointments were held simultaneously and/or one's full-time equivalency exceeded 100%. There is one exception to this rule: in the case of e (or c for Instructor members), up to one (1) point may be awarded under E2 (C2) (traditional ways of knowing and/or non-traditional scholarship) despite overlap with other elements of the Y-Value.

The Evaluation of s

Equivalents of Universities

This is interpreted rather strictly: such an institution shall be degree-granting at least. Thus service teaching in community colleges, C.E.G.E.P.s and teaching students in hospitals to prepare them for diploma examinations is not treated as the equivalent of teaching in universities. Being a senior research scientist, with post-doctoral fellows to supervise, in institutions which are "commercial" rather than "educational", even though such institutions encourage and contribute to "basic research", is not considered the equivalent of working in a university. A very close, formal connection between such an institution and a university would be required to qualify it for equivalence to a university.

Equivalents of Lecturers

Taking full responsibility for teaching courses leading to a degree or diploma, setting examinations, grading them and reporting grades to be used for credit towards a degree or diploma and being a voting member of a faculty are the characteristics of being a Lecturer or above (no matter what one's title was). If the teaching responsibilities fall short of the criteria, it is counted under e ("Other Relevant Experience") rather than here under s. It is not always easy to resolve questions about "team-taught" classes. If it appears that teaching was part of one's duties as a graduate student, that is entirely disallowed. Analogously, someone who set up a new laboratory in a university, staffed it, planned and carried out research in it, and applied for grants to fund it, is considered to be the equivalent of a Lecturer or above.

Overlaps in s and Ph.D. Study

In some cases a Member may have held the post of Lecturer or equivalent or above while studying for the Ph.D. degree. The question that then arises is whether years of creditable service(s) should be granted for those same years which represent work for the Ph.D. (which will eventually result in 3 being

added to Y). The following rules hold in such cases. Two or three years is taken to be the normal period of full-time study for the Ph.D. degree. When two or three years of full-time study for the Ph.D. has not been done, scholarly works during the overlapping years should be evaluated, and s will be reduced for one or two of them if the work beyond that done for the Ph.D. is insufficiently creditable.

The Evaluation of e

There are two components of the (e) calculation, although both may not be applicable in all cases. The first component is E1, periods of paid employment. The second component is E2, traditional ways of knowing and/or non-traditional scholarship.

The evaluation of E1:

Relevance Weight 0

Some experience is discounted (given weight 0) as too remote from current duties. Examples are "being a native speaker" in a language professor, working in army intelligence in a social sciences professor and a variety of other (but not all) duties in the armed forces. Some claimed experience is voluntary (unpaid) work and little or no credit weight is given for that.

Low Relevance Weights

Some experience is weighted 1/3 or 1/4. Examples are education testing in the navy, being a teacher in an Army Education Corps, being a bibliographic assistant (all in humanities professors), practising one's profession but just after the first degree was achieved (from Members in the social sciences and in pre-clinical medicine). The criteria for low weight are junior status, limited previous experience or training, and/or some degree of remoteness from the Member's present duties.

Relevance Weight 1/2

A weight of 1/2 is used for staff nursing (by nursing professors), for school teaching (but not in one's present discipline), for university teaching below the rank of Lecturer and for practising one's profession (but without advanced qualifications, where these are appropriate, or in related but not closely-related fields). The general criteria here are the same as for 1/3 but a weight of 1/2 is given for more seniority and responsibility, and a closer relationship to present duties in the occupations experienced. Examples of professional experience weighted 1/2 are acting (in a theatre professor), independent research, editor of scholarly works (in humanities professors), chemist, pharmacist (in Biochemists), clinical fellow, and the director of clinical unit (in medical professors). It should be noted that regular, classroom school teaching is placed here, but higher weight is given to such general experience for those applicants who now are involved in training teachers.

High Relevance Weights

Being a community health nurse or assistant head nurse (in nursing professors) is weighted 2/3, as is school teaching one's present subject, general school teaching (if one's present duties include training teachers) and social work (if one now trains social workers).

Weight 3/4 is used for experience as a head nurse, nursing supervisor (in nursing professors), head teacher (in people who now train teachers), research associate at a fairly responsible level in one's present field but outside universities (usually such work is done after receiving the Ph.D. degree, where that is appropriate).

Relevance Weight 1

Unit weight is given to post-doctoral fellowships in universities, to directors of nursing (in nursing professors) and to teaching one's present subject in diploma schools. In many disciplines, especially in the sciences, experience as a post-doctoral fellow in a university for a year or two has become an almost essential condition for a subsequent appointment as a full-time faculty member. Such experience is very close to that of faculty members, often involving a good deal of independence and effective supervision of students (especially at the graduate level). If reduced weight were given to such experience under e, those requiring such experience for subsequent faculty appointment might be unfairly treated when compared to those whose disciplines do not require it.

The evaluation of E2:

Members may have qualifications or experience that do not meet the requirements under the sections above titled "Degrees," "Years of Creditable Service," or "Periods of Paid Employment," and that may be recognized as traditional ways of knowing and/or non-traditional scholarship. E2 is intended to capture the following:

- 1) non-traditional scholarship in keeping with the Boyer model, as noted in Clause 17.17, which includes the scholarship of discovery, the scholarship of integration, the scholarship of application and/or the scholarship of teaching; and**
- 2) traditional ways of knowing or experience that is specific to Indigenous, African Nova Scotian, Black, or other cultural communities.**

To be counted under E2, the scholarship or experience may be paid or unpaid, but must fall into the category of non-traditional scholarship or traditional ways of knowing.

Relevance weight of one (1) shall be given under E2.

The Ph.D. and its Equivalents

Doctorates in Education possessed by Members are accepted as equivalent to the Ph.D. Credit is not given for the Ph.D. degree unless all the work is completed, fully evaluated and accepted for the award of the degree. Professional experience or training is not equivalent to the Ph.D. Master of laws degrees and Agregation des Lettres are not accepted as equivalent to the Ph.D. Some people have the equivalent of two Ph.D. degrees. Multiple degrees justify no more than a total of 3 units, to be added to Y. In some cases, Members had been given leave of absence from university appointments to study for their doctorates. Such leaves of absence are subtracted from the years of university service(s).

Combining the Elements

The elements of Y are s (years of creditable service in the rank of Lecturer or equivalent or above in universities or equivalent institutions), e (**the combination of E1, periods of paid employment, and E2, traditional ways of knowing and/or non-traditional scholarship**) and Ph.D. or its equivalent (which is counted as 3). Y is the sum of these, i. e.

$$Y = s + e + \text{Ph.D.}$$

For example, a professor of geography with an Ed.D. degree who spent 3 years as a Lecturer at York University, 2 years as a post-doctoral fellow at U.B.C., 4 years as a postal worker and 1 year as a primary school teacher, **and spent 1 year engaging in the scholarship of integration** should be allocated

$$Y = s + e + \text{Ph.D.} = 3 + (2 \times 1 + 4 \times 0 + 1 \times 1/2 + 1) + 3 = 10$$

Note that values of a half or more in the sum are rounded up (e.g. 8.5 goes up to 9). **It should also be noted that the maximum allowed for E1 + E2 is 6.**

Teaching Staff in the School of Dental Hygiene

In determining Y values for new Members the Dean, based on advice received through the normal appointment procedures given in Article 14, and using the Guidelines for Rank, Promotion and Tenure approved for the School of Dental Hygiene by the Faculty of Dentistry, shall reconstruct in the individual's career the point at which they would have achieved the standards necessary for appointment as a Lecturer and consider that that individual would have been appointed in the next academic year as a Lecturer with a Y value of 1. The minimum standards necessary for appointment as a Lecturer are either:

- (a) a Diploma in Dental Hygiene (or equivalent) and three years of professional practice in Dental Hygiene; or
- (b) a Bachelor's degree in a field relevant to Dental Hygiene and a Diploma in Dental Hygiene (or equivalent); or
- (c) a Bachelor's degree in Dental Hygiene (or equivalent) and one year of professional practice in Dental Hygiene.

If the individual qualifies in more than one of these categories, then the most advantageous would be used.

Similarly, if an individual has achieved the qualifications and experience necessary for appointment as an Assistant Professor, a reconstruction would be made which would identify the year in which they would have been appointed to the rank of Assistant Professor at Dalhousie University and assume that in the academic year next following they would have been given the Y value of 4 on the Assistant Professor scale.

Other relevant experience gained after the minimum standards as noted above have been achieved shall be evaluated in the same manner as for Members of the teaching and research staff as indicated above in this Appendix III and this shall include work experience gained in the professional practice of Dental Hygiene **and traditional ways of knowing and/or non-traditional scholarship. The limit for E1 is 5; for E2 is 6; and for (E1 + E2) is 6.**

Instructor Members

Creditable years of experience for instructor Members shall include the following:

- (a) the academic year in which the appointment at Dalhousie University is taken up; and
- (b) years of experience as an Instructor or similar position at Dalhousie University or other similar institution; for this purpose full-time employment for a period of eight (8) months, or more, in any twelve (12) month period shall be counted as one year; less than full-time shall be prorated according to the fraction of full-time duties the person worked; and
- (c) years of employment experience elsewhere that is related and relevant to the functions of their specific position. **As with members of the professoriate, this experience is broken down into periods of paid employment (C1) and years of traditional ways of knowing and/or non-traditional scholarship (C2). The maximum number of years under C1 shall be five (5); the maximum years under C2 shall be six (6); the maximum of C1 and C2 combined shall be six (6).**
- (d) the Dean and the Department shall consider and include as experience one year for a Master's degree or equivalent, one year for a Bachelor of Education degree or equivalent, or three years for a Doctorate degree or equivalent if such a degree or equivalent is in a related discipline;
- (e) creditable years shall not include any experience acquired while a full-time student engaged as a teaching or research assistant if credit is given for a graduate degree in (d).

Y Values for Professional Counsellors

In the case of professional counsellors, s shall be the years of creditable service as a professional counsellor, clinical psychologist or equivalent, including a year spent as an intern, and **e shall be other relevant experience: the sum of weighted years of periods of paid employment (E1) and years of traditional ways of knowing and/or non-traditional scholarship (E2). The limit for E1 shall be 5, for E2 shall be 6, and for E1 + E2 shall be 6.** The highest weights for E1 shall be given to work as a teacher and for work as in research at universities. Two units shall be added to s for professional counsellors on the M.A. scale who meet one or more of the following criteria:

- (a) they are registered with the Nova Scotia College of Social Workers, or
- (b) they are certified by the Canadian Counselling and Psychotherapy Association, or
- (c) they are registered with the Nova Scotia College of Counselling Therapists.

Two units shall be added to s for professional counsellors who are registered by the Nova Scotia Board of Examiners in Psychology. For professional counsellors as for Members of the teaching and research staff, three units are given for possessing the Ph.D. degree or its equivalent and:

$$Y = s + e + \text{Ph.D.}$$

Y Values for Professional Librarians

In the case of professional librarians, s shall be the years of creditable service as a professional librarian. A professional librarian is a person who has a graduate degree in library service or library science or the equivalent of that.

Other relevant experience for professional librarians shall be divided into E1 and E2. Periods of paid employment (E1) shall include professional experience in other disciplines, which shall be weighted 1/2; non-professional experience in other disciplines, which shall be weighted 1/4; and non-professional experience as a library assistant or equivalent in a university library or equivalent, which shall be weighted 1/2.

Professional experience refers to that obtained after achieving the appropriate professional qualification. **The limit for E1 shall be 5, for E2 shall be 6, and for E1 + E2 shall be 6.**

Those involved in the process of setting Y values for professional librarians, whether for appointment under Clause 14.11 or otherwise, shall include credit for degrees possessed as follows. For a Master's degree 1; for the LL.B. degree or its equivalent 1; for the B.Ed. degree or its equivalent 1; and for the Ph.D. degree or its equivalent 3. Multiple degrees justify no more than a total of 3 units to be added to Y.

The above elements shall be combined in the same manner as specified above for the teaching and research staff, i.e.

$$Y = s + e + d$$

where d is the credit for degrees.

Y Values for Continuing Education Members at the College of Continuing Education

In the case of Continuing Education Members, s shall also include:

- (a) the years of creditable service as a Continuing Education Member at Dalhousie, and
- (b) the years of creditable service the Continuing Education Member was employed in continuing education and public affairs programmes, either in a college or university or in an institution associated with a college or university.

Other relevant experience (e) for Continuing Education Members shall be **the sum of weighted years of periods of paid employment (E1) and years of traditional ways of knowing and/or non-traditional scholarship (E2); plus 3 added to Y for possessing the Ph.D. degree or its equivalent. S shall include the year in which the appointment is taken up. The limit for E1 is 5; for E2 is 6; and for (E1 + E2) is 6.**

Those involved in the process of setting Y values for Continuing Education Members, whether for appointment or otherwise, shall include credit for the Ph.D. degree or its equivalent in the same manner as for Members other than instructors, professional counsellors and professional librarians. The maximum for Ph.D. shall be 3.

The elements of Y value for Continuing Education Members shall be as specified above but shall be combined in the same manner for the teaching and research staff, so that:

$Y = s + e + \text{Ph.D.}$

Calculation of Continuing Y Value

After initial appointment to Dalhousie University, a Member's Y value shall be increased as follows:

- (i) Each year of creditable service thereafter at Dalhousie University or each year of relevant experience thereafter shall increase the Y value by one, unless the C.D.I. is withheld in accordance with Clauses 31.08, 31.12, 31.25 or 31.29, in which case the Y value shall not increase for that year, as the result of creditable service.
- (ii) In case the Member achieves enhanced qualifications, the Member's Y value shall be increased in accordance with the provisions of this Appendix subject to (iii) below.
- (iii) Where a Member is given leave to pursue enhanced qualifications, at the option of the Member, either the year or years of leave shall be counted as years of creditable service, and Y increased as in (i), or Y shall be increased as in (ii), but not both.