Catalogue no. 75-006-X
ISSN 2291-0840

Insights on Canadian Society

Differences in tenure status and feelings of fairness in hiring and promotions among male and female faculty in Canadian universities

by Sharanjit Uppal and Darcy Hango

Release date: September 1, 2022

Statistics Canada Statistique Canada

Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

Email at infostats@statcan.gc.ca

Telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following numbers:

- Statistical Information Service 1-800-263-1136
- National telecommunications device for the hearing impaired 1-800-363-7629
- Fax line 1-514-283-9350

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed standards of service that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under "Contact us" > "Standards of service to the public."

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Published by authority of the Minister responsible for Statistics Canada

An HTML version is also available.

Cette publication est aussi disponible en français.

Differences in tenure status and feelings of fairness in hiring and promotions among male and female faculty in Canadian universities

by Sharanjit Uppal and Darcy Hango

This study was funded by Women and Gender Equality Canada (WAGE).

Overview of the study

This study uses 2019 data from the University and College Academic Staff System to examine gender differences in tenure status among faculty in Canadian universities. It also uses the Survey of Postsecondary Faculty and Researchers to examine feelings of fairness in hiring and promotions.

- In 2019, almost 6 in 10 full-time university faculty members in Canada were men. Male university faculty are older and more likely to be full professors than women.
- Female faculty are less likely to be in tenured positions than male faculty. In 2019, less than two thirds (63%) of female faculty held such positions, compared with three quarters (75%) of their male counterparts.
- Once multiple factors associated with tenure were considered (including time since completion of the highest degree and the highest level of education), the gender gap in tenure was reduced. However, women remained less likely to be in tenured positions than men (68% versus 71%).
- Female faculty were less likely to feel that hiring was fair and equitable at their institution. Specifically, around 20% of women surveyed disagreed or strongly disagreed that hiring was fair and equitable at their institution, compared with 12% of men.
- Women (23%) were also more likely than men (14%) to state that they disagreed or strongly disagreed that promotions were fair and equitable at their institution.
- Other groups that were less likely to feel that hiring was fair and equitable included faculty belonging to racialized groups, faculty members with a disability and sexual minority female faculty. In addition, faculty members with a disability and women who belong to racialized groups were less likely to feel promotions were fair and equitable.

Introduction

Achieving tenure is a key goal in the career progression of faculty in universities. Tenure grants a professor permanent employment at their university and protects them from being fired without cause. The concept is closely tied to academic freedom, as the security of tenure allows professors to research and teach on any topic.[1]

Past work suggests that—apart from the higher salary associated with being tenured—it is the prestige, stability, academic freedom and other benefits that go hand in hand with tenure that make it very appealing for individuals who pursue this type of career.[2] In fact, achieving tenure is often the goal among PhD students, even if it is less attainable today than in the past.[3] Recent PhD graduates face a highly competitive job market with more applicants competing for fewer tenure track jobs and a potential trend toward hiring contract sessional lecturers to fill the positions once held most frequently by tenured faculty.[4] Non-tenured positions are staffed by instructors on contracts and are characterized by lower pay and more teaching responsibilities, which can lead to less time to conduct research and publish.[5]

Achieving tenure is not necessarily experienced equally by men and women. Women are less likely than men to be in tenured positions. In 2019, 63% of tenured positions in Canadian universities were held by men compared to 37% by women.[6] However, this gap has been decreasing – in 1990 women accounted for 14% of tenured positions. Moreover, by 2019, women in tenure track positions almost reached parity at 49%, up from 33% in 1990.

Existing US research suggests that several factors may account for the persisting gender gap in tenure achievement, including differences between women's and men's fields of study and departments, time since the completion of highest degree, and workplace dynamics that may be less favourable to women.[7] Another important factor is the age structure of the tenured faculty, which continues to be dominated by older (mostly) male professors. Since there is no mandatory retirement age in academia, faculty continue to hold tenured positions and the younger, more diverse faculty, are in a holding pattern until these positions become vacant. Moreover, there is a differential impact on women and men of having children and becoming parents at the beginning of an academic career,[8] although this impact of childcare may be decreasing over time.[9]

This study uses 2019 data from the University and College Academic Staff System (UCASS) and the Survey of Postsecondary Faculty and Researchers (SPFR) to examine gender differences in employment and career progression among faculty in Canadian universities (see Data sources, methods and definitions).[10]

In the first section, UCASS data are used to profile men and women who are full-time faculty members, with a focus on tenure status. Several factors that could explain the difference between men and women in tenure achievement are considered, including the time since the completion of the highest degree, highest level of education and department.

In the second section, SPFR data are used to study the association between parental leave and time to tenure among men and women in tenured positions.

Finally, self-reported opinions on fairness and equity in hiring and promotion are examined in the last section. While differences between men and women remain the main focus, SPFR data allow further disaggregation, for example, by racialized groups[11], Indigenous identity and disability status. It is relevant since previous research has suggested that certain groups, such as those belonging to the racialized population, are less likely to obtain tenure track jobs and less likely to achieve tenure in their respective institutions.[12] As a result, they may also be more likely to perceive unfairness in hiring and promotion processes.

In 2019, almost 6 in 10 full-time university faculty members in Canada were men

In 2019, based on data from the UCASS, full-time university faculty in Canada were not equally distributed across gender—59% were men and 41% were women (Table 1). The majority of full-time university faculty were aged 45 to 64 (59%) and about onequarter were aged 35 to 44.

Most full-time university faculty (79%) held an earned doctorate as their highest level of education. The remaining 21% were distributed across other levels of education, with the highest proportion having a master's degree, at 10%.

Full and associate professors made up well over two-thirds (70%) of all full-time university faculty in Canada, while a further 19% were at the assistant level.

With respect to departments, about one in five (18%) were employed in social and behavioural sciences and law, while 17% were in health and related fields, and 28% were in science, technology, engineering and mathematics (STEM) fields, composed of physical and life sciences and technologies; mathematics, computer and information sciences; and architecture, engineering and related technologies.

Meanwhile, almost half of full-time faculty were employed in universities with medical and doctoral programs, nearly 3 in 10 worked in comprehensive universities, and 1 in 10 worked in primarily undergraduate institutions.[13]

Finally, almost two-thirds of full-time university faculty in Canada were Canadian citizens (64%), and 6 in 10 received their highest level of education in a Canadian institution. Meanwhile, almost 2 in 10 received their highest degree from an American school, while about 1 in 10 earned it from a European school.

Male university faculty are older and more likely to be full professors than their female counterparts

Female university faculty are younger than their male counterparts. In 2019, 34% were younger than 45 years of age, compared with 27% of men (Table 1). At the same time, there was a greater proportion of men (42%) aged 55 and older than women (34%).

This difference in the age profile of female and male faculty can be explained in part by time since the completion of the highest degree. Almost half (48%) of women completed their highest degree between 2004 and 2019, compared with more than one-third (35%) of men.[14] This trend reflects a growing number of women in academia in recent decades. It is also evident when looking at rank: men were much more likely to be full professors (43%) compared with women (26%). Rank is directly related to the age of faculty (or time since the completion of the degree), with older faculty more likely to be full professors.[15]

Female faculty are also less likely to have an earned doctorate degree as their highest level of education. About 75% of female faculty had a PhD, while this proportion was 82% for male faculty. In contrast,

Table 1
Profile of full-time university faculty in Canada, 2019

Characteristics	All	Men	Women
	percentage		
Gender			
Men	59	100	...
Women	41	...	100
Age			
20 to 34	5	4	6
35 to 44	25	23	28
45 to 54	31	31	32
55 to 64	28	29	27
65 and older	11	13	7
Number of years since earning highest degree			
0 to 5	9	8	12
6 to 10	15	13	17
11 to 15	16	15	19
16 to 20	16	16	16
21 to 25	13	14	11
26 to 30	10	11	8
31 to 35	7	8	4
More than 35	7	9	3
Not reported	8	7	8
Highest level of education			
Earned doctorate	79	82	75
Professional degree	3	3	3
Master's degree	10	7	13
Bachelor's degree	1	1	2
All other credentials	1	0	1
Unknown	6	6	7

Table 1
Profile of full-time university faculty in Canada, 2019

Characteristics	All	Men	Women
	percentage		
Department			
Education	5	3	7
Visual and performing arts	4	4	5
Humanities	12	10	13
Social and behavioural sciences and law	18	16	21
Business, management and public administration	11	11	11
Physical and life sciences and technologies	12	14	8
Mathematics, computer and information sciences	7	9	4
Architecture, engineering and related technologies	9	13	4
Agriculture, natural resources and conservation	2	3	2
Health and related fields	17	14	22
Multidisciplinary and interdisciplinary	1	1	1
Security and protective services	0	0	0
Not reported or not applicable (researchers)	2	2	2
University type			
Medical and doctoral	48	50	46
Comprehensive	29	29	29
Primarily undergraduate	10	9	10
Other	13	12	15
Country of highest degree			
Canada	60	57	63
United States	18	19	16
Europe	11	12	8
Rest of the world	3	3	3
Not reported	9	9	10
Country of citizenship			
Canada	64	62	66
United States	5	5	4
Europe	5	6	4
Rest of the world	6	7	4
Not reported	21	20	22
Rank			
Full professor	36	43	26
Associate professor	34	32	36
Assistant professor	19	16	23
Lecturer, instructor or other teaching staff	9	7	12
Other (ungraded)	2	2	3

Note: The totals may not add up to 100 because of rounding.
Source: Statistics Canada, University and College

women (13%) were more likely to have a master's degree as their highest level of education than men (7%). One explanation for this difference relates to the instructional program—women were more likely than men to be employed in health and related fields (22% versus 14%), and these fields less often require a PhD.

With respect to departments, women were more likely than men to be employed in education (7% versus 3%), while men were considerably more likely than women to be employed in STEM-related fields, including physical and life sciences and technologies; mathematics, computer and information sciences; and architecture, engineering and related technologies (36% versus 16%). A gender gap among postsecondary students and graduates in STEM fields is well documented.[16] Women also appear to be slightly less likely than men to be employed in universities with medical and doctoral programs (46% versus 50% for men).

Finally, female full-time faculty were more likely than men to be Canadian citizens (66% versus 62%) and trained in Canada

(63% versus 57%).[17] Conversely, men were more likely than women to have their highest degree from the United States or Europe (31% versus 24%)

Women are less likely to be in tenured positions than men

University faculty positions are composed of three types: tenured, tenure track, and non-tenured. Tenure is highly sought-after given that it entails greater job security and higher earnings.[18]

According to the UCASS, in 2019, tenured positions accounted for 70% of all full-time university faculty positions, while tenure track accounted for 18% and non-tenure track made up 8% (see Table 2). Women are less likely to be in tenured positions than men. Less than two-thirds (63%) of female faculty held such positions, compared with threequarters (75%) of men. In contrast,

Table 2
Type of appointment among full-time university faculty in Canada, 2019

Characteristics	Tenured	Leading to tenure, probationary	Non-tenured staff or non-tenure track	Other
	percentage			
All	70	18	8	4
Gender				
Men	75	16	7	3
Women	63	22	11	5
Age				
20 to 34	10	66	21	3
35 to 44	45	40	12	3
45 to 54	77	12	7	3
55 to 64	86	4	6	4
65 and older	91	1	5	3
Number of years since earning highest degree				
0 to 5	16	63	17	4
6 to 10	46	39	11	4
11 to 15	74	14	7	4
16 to 20	85	6	5	3
21 to 25	86	5	6	4
26 to 30	89	2	5	3
31 to 35	90	1	5	3
More than 35	91	1	5	3
Not reported	53	29	16	3
Highest level of education				
Earned doctorate	75	18	5	2
Professional degree	52	15	32	1
Master's degree	48	18	21	13
Bachelor's degree	37	10	33	20
All other credentials	35	17	34	15
Unknown	56	26	16	2
Department				
Education	71	17	7	5
Visual and performing arts	71	18	5	6
Humanities	73	14	9	4
Social and behavioural sciences and law	72	19	6	3
Business, management and public administration	66	20	10	4
Physical and life sciences and technologies	76	15	6	3
Mathematics, computer and information sciences	70	17	8	5
Architecture, engineering and related technologies	75	18	5	2
Agriculture, natural resources and conservation	72	19	5	3
Health and related fields	60	22	15	3
Multidisciplinary and interdisciplinary	67	20	7	6
Security and protective services	F	F	F	F
Not reported or not applicable (researchers)	72	15	12	2

Table 2
Type of appointment among full-time university faculty in Canada, 2019

Characteristics	Tenured	Leading to tenure, probationary	Non-tenured staff or non-tenure track	Other
	percentage			
University type				
Medical and doctoral	68	21	9	2
Comprehensive	73	16	9	2
Primarily undergraduate	68	18	8	6
Other	72	13	6	9
Country of highest degree				
Canada	69	17	9	4
United States	74	20	4	2
Europe	77	15	6	2
Rest of the world	63	21	13	4
Not reported	61	23	14	2
Country of citizenship				
Canada	72	17	9	3
United States	70	25	5	1
Europe	76	17	6	1
Rest of the world	66	25	8	1
Not reported	64	19	8	8
Rank				
Full professor	97	1	1	0
Associate professor	90	7	2	0
Assistant professor	11	73	14	1
Lecturer, instructor or other teaching staff	15	15	43	27
Other (ungraded)	38	4	29	30

F too unreliable to be published

Note: The totals may not add up to 100 because of rounding.

Source: Statistics Canada, University and College Academic Staff System, 2019.

women were more represented than men in non-tenured or non-tenure track positions (11% versus 7%) and tenure track positions (22% versus 16%).

There is a strong relationship between tenure status and the time since the completion of the highest degree. For example, 16% of faculty who had completed their highest degree in the past five years were tenured. That percentage climbs to 46% for 6 to 10 years since completion and 74% for 11 to 15 years since completion. Conversely, nearly two-thirds (63%) of faculty for whom it had been five years or less since the completion of their highest degree were in tenure track positions, and 17% were in non-tenure track positions. At the same time, university faculty with an earned doctorate were more likely to be tenured (75%) and much less likely to be working in non-tenured or non-tenure track positions (5%).

With respect to the department, certain programs have greater proportions of tenured faculty than others. More than three-quarters (76%) of university faculty in physical and life sciences and technologies were in tenured positions, while slightly lower proportions of faculty held tenured positions in architecture, engineering and related technologies (75%); humanities (73%); social and behavioural sciences and law (72%); and agriculture, natural resources and conservation (72%). On the other hand, business, management and public administration (66%) and health and related fields (60%) had relatively lower proportions of tenured faculty.

Tenure status also varies by type of university. For instance, faculty in universities with medical and doctoral programs were somewhat less likely than their counterparts in comprehensive universities to be in tenured positions (68% versus 73%) and, conversely, more likely to be in tenure track positions (21% versus 16%).

Faculty in full-time positions who obtained their highest level of education in Europe had the highest proportion of tenured positions. For example, 77% of the European-trained faculty were in tenured positions, while 74% of

the American-trained faculty were in similar positions, and slightly less than 7 in 10 (69%) of the Canadian-trained faculty held a position with tenure.

From the preceding discussion, it is clear that differences exist among some groups when it comes to holding a tenured position. Some of these differences may be driven by differing characteristics. For example, while women are less likely to be in a tenured position, they are, at the same time, less likely to have an earned doctorate, an attribute associated with a higher likelihood of being in a tenured position, and are more likely to be younger.

To determine whether personal characteristics account for all or some of the differences in holding a tenured position between men and women, regression models were estimated (Table 3). In the base model (Model 1), only gender was included. Results show that male faculty had a higher predicted probability (12-percentage-point gap) of being in a tenured position compared with female faculty (0.75 versus 0.63).

After the model was adjusted for the time since the completion of the highest degree, the gap between men and women is reduced from a 12-percentage-point gap to a 5-percentage-point gap (predicted probability of 0.72 for men and 0.67 for women) (Model 2). After the highest level of education was taken into account, the gap between male and female faculty decreases further to a 3-percentage-point gap (0.71 for men and 0.68 for women) (Model 3). As mentioned earlier, female faculty are more likely to have graduated in the recent past than male faculty, and, as a result, when the time since the completion of the highest degree is considered, most of the gender difference is explained. Moreover, women are less likely to have an earned doctorate,[19] and this finding also explains some of the gender gap.

In an additional model (Model 4), controls for the university type, department of instruction, country of highest degree, country of citizenship and province of residence were included. The inclusion of these variables did not close the gap between men and women in the probability of being tenured (0.71 for men and 0.68 for women).

The foregoing results are important because they establish that some gender gap in tenure, although more modest, holds even after considering other important factors. However, a shortcoming of this analysis is that information on indicators of productivity, such as research output and funding, is not available in the dataset. These indicators have an impact on tenure decisions and might differ across groups.

Time to tenure is affected by parental leave, but more so for women than men

While women are less likely to be in tenured positions, those who are in such positions have often taken longer to achieve tenure than their male counterparts. This may have implications for female faculty, since delaying tenure may affect salary later in one's career.[20]

In the SPFR, tenured faculty[21] were asked about the number of years it took them to obtain tenure after their first tenure track appointment. This is an important measure because taking longer to achieve tenure may indicate that some faculty face potential barriers. One such example is that women who have children while in tenure track positions may have to delay their tenure due to time off for maternity leave.[22] The same effect of starting or having a family may be lower for men, as male faculty have been found to provide fewer hours of childcare than female faculty.[23]

For the purpose of this article, the duration to achieve tenure was grouped into three categories: less

Table 3
Predicted probabilities of being in a tenured position - full-time university faculty, 2019

	All				Men	Women
	Model 1	Model 2	Model 3	Model 4	Model 4	Model 4
Characteristics	predicted probabilities					
Gender						
Men (ref.)	0.75	0.72	0.71	0.71*	...	...
Women	0.63*	0.67*	0.68	0.68*	...	...
Number of years since earning highest degree						
0 to 5 (ref.)	...	0.16	0.16	0.14	0.14	0.14
6 to 10	...	0.47*	0.47*	0.45*	0.45*	0.43
11 to 15	...	0.75*	0.74*	0.73*	0.75*	0.71*
16 to 20	...	0.85*	0.85*	0.85*	0.87*	0.82*
21 to 25	...	0.86*	0.86*	0.86*	0.88*	0.84*
26 to 30	...	0.89*	0.90*	0.90*	0.92*	0.88*
31 to 35	...	0.90*	0.92*	0.92*	0.94*	0.89*
More than 35	...	0.91*	0.94*	0.95*	0.96*	0.93*
Not reported	...	0.53*	0.41*	0.45*	0.52*	0.36*
Highest level of education						
Earned doctorate (ref.)	...	...	0.73	0.74	0.78	0.69
Professional degree	...	...	0.36*	0.47*	0.54*	0.39*
Master's degree	...	...	0.47*	0.45*	0.48*	0.38*
Bachelor's degree	...	...	0.28*	0.25*	0.32*	0.18*
All other credentials	...	...	0.24*	0.26*	0.34*	0.17*
Unknown	...	...	0.79*	0.73	0.76	0.70
Department						
Education	...	...	...	0.75	0.80*	0.67
Visual and performing arts	...	...	...	0.76*	0.80*	0.69
Humanities	...	...	...	0.69*	0.74*	0.62*
Social and behavioural sciences and law (ref.)	...	...	...	0.73	0.78	0.67
Business, management and public administration	...	...	...	0.71*	0.75*	0.65
Physical and life sciences and technologies	...	...	...	0.67*	0.73*	0.57*
Mathematics, computer and information sciences	...	...	...	0.68*	0.73*	0.60*
Architecture, engineering and related technologies	...	...	...	0.71*	0.76*	0.64*
Agriculture, natural resources and conservation	...	...	...	0.68*	0.74*	0.60*
Health and related fields	...	...	...	0.66*	0.69*	0.59*
Multidisciplinary and interdisciplinary	...	...	...	0.67*	0.75	0.57*
Security and protective services	...	...	...	0.74	0.82	0.63
Not reported or not applicable (researchers)	...	...	...	0.76*	0.81*	0.68
University type						
Medical and doctoral (ref.)	...	...	...	0.65	0.71	0.57
Comprehensive	...	...	...	0.72*	0.77*	0.66*
Primarily undergraduate	...	...	...	0.70*	0.75*	0.63*
Other	...	...	...	0.80*	0.83*	0.76*
Country of highest degree						
Canada (ref.)	...	...	...	0.70	0.74	0.63
United States	...	...	...	0.71*	0.76*	0.64
Europe	...	...	...	0.68*	0.73*	0.62
Rest of the world	...	...	...	0.61*	0.67*	0.54*
Not reported	...	...	...	0.72*	0.77*	0.65
Country of citizenship						
Canada (ref.)	...	...	...	0.70	0.74	0.63
United States	...	...	...	0.68	0.74	0.60
Europe	...	...	...	0.71	0.77*	0.62
Rest of the world	...	...	...	0.69	0.75	0.59*
Not reported	...	...	...	0.71*	0.75	0.64

Table 3
Predicted probabilities of being in a tenured position - full-time university faculty, 2019

	All				Men	Women
	Model 1	Model 2	Model 3	Model 4	Model 4	Model 4
Characteristics	predicted probabilities					
Province						
Newfoundland and Labrador	…	…	…	0.70	0.75	0.62
Prince Edward Island	…	…	…	0.66	0.72	0.57
Nova Scotia	…	…	…	0.68	0.74	0.60
New Brunswick	…	…	…	0.74*	0.77*	0.69*
Quebec	…	…	…	0.80*	0.84*	0.74*
Ontario (ref.)	…	…	…	0.68	0.72	0.61
Manitoba	…	…	…	0.70*	0.75*	0.64
Saskatchewan	…	…	…	0.74*	0.77*	0.70*
Alberta	…	…	…	0.72*	0.76*	0.65*
British Columbia	…	…	…	0.55*	0.61*	0.47*

… not applicable

* significantly different from reference category (ref.) ($p < 0.05$)

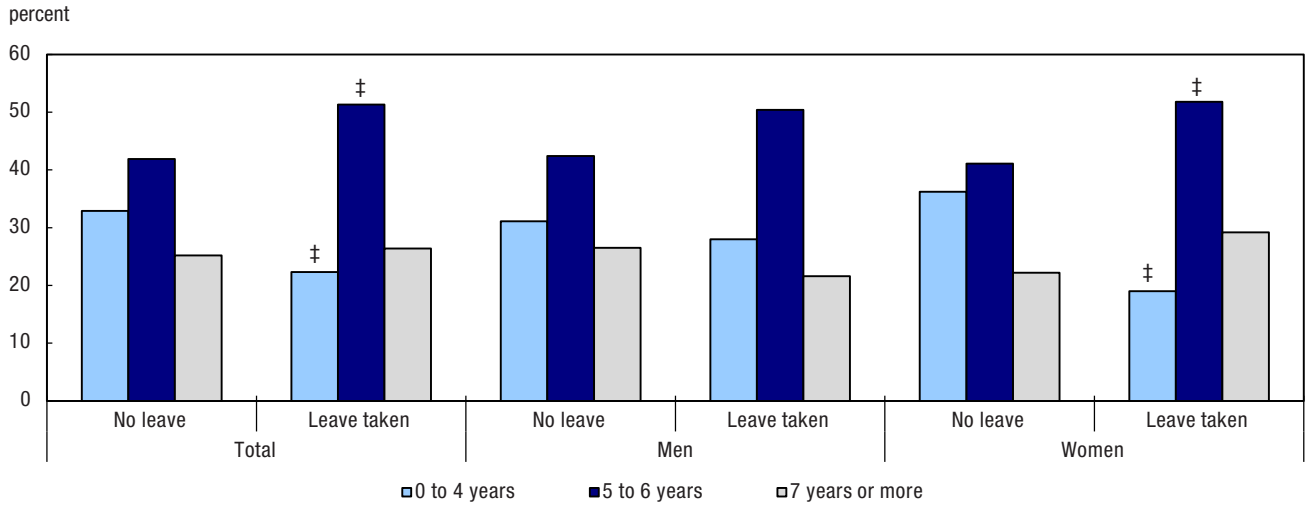
Source: Statistics Canada, University and College Academic Staff System, 2019.

than five years, five to six years and more than six years.[24] In general, one in three tenure track faculty obtained tenure in less than five years after their first tenure track appointment. Another 44% got tenured in five to six years, and the remaining 26% took seven years or more. These proportions were almost the same for men and women.

These values change, however, when the incidence of taking parental leave is considered (Chart 1). In this survey, the timing of the birth of children is not known, but information was collected on whether faculty members had ever taken parental leave since their first tenure track appointment.[25] Among those who took no leave, 33% obtained tenure in zero to four years. In comparison, among those who took leave, 22% obtained tenure in zero to four years. When men and women are examined separately, the impact of family leave on the time to achieve tenure appears to be much stronger for women.

Among women who took parental leave, fewer than one in five (19%) obtained tenure before year 5, while about 36% of women who did not take parental leave obtained tenure during these early years. In contrast, 41% of women who did not take parental leave achieved tenure in 5 or 6 years, while 52% of women who took parental leave achieved tenure during this same time frame. The same trend is prevalent beyond year 6, but the effect of taking time off for parental leave is not as large. For men meanwhile, there were no significant differences related to time to tenure between men who took parental leave and those who did not.[26] Thus, these results suggest that women who did not take parental leave may have had an advantage in terms of obtaining tenure faster than their counterparts who took parental leave.[27]

Chart 1
Time to tenure (years) by gender and whether parental leave was taken, 2019



‡ significant difference between leave and no leave for total and women ($p < 0.05$)
Source: Statistics Canada, Survey of Postsecondary Faculty and Researchers, 2019.

Table 4
Profile of full-time university faculty in Canada, 2019

Characteristics	All	Men	Women
	predicted probabilities		
Gender			
Men (ref)	0.13	…	…
Women	0.21*	…	…
Age			
20 to 34	0.16	0.13	0.20
35 to 44 (ref.)	0.17	0.13	0.22
45 to 54	0.17	0.13	0.21
55 to 64	0.18	0.12	0.24
65 and older	0.14	0.10	0.18
Highest level of education			
Earned doctorate (ref.)	0.18	0.14	0.23
Master's degree	0.17	0.12	0.23
Degree in medicine, dentistry, veterinary or optometry	0.13	0.07	0.22
Bachelor's degree or university certificate or diploma above bachelor's degree level	0.11*	0.09	0.14*
Lower than a university degree	0.10	0.06	0.16
Racialized group status			
Racialized	0.21*	0.15*	0.28*
Non-racialized (ref.)	0.16	0.12	0.20
Indigenous identity			
Indigenous	0.20	0.19	0.23
Non-Indigenous (ref.)	0.17	0.12	0.22
Disability status			
Persons with a disability	0.30*	0.19*	0.41*
Persons without a disability (ref.)	0.16	0.12	0.20
Sexual orientation			
Sexual minority	0.23*	0.14	0.32*
Heterosexual (ref.)	0.16	0.12	0.21

Table 4
Profile of full-time university faculty in Canada, 2019

Characteristics	All	Men	Women
	predicted probabilities		
Instructional program			
Education	0.20	0.11	0.27
Visual and performing arts, and communications technologies	0.20	0.18	0.23
Humanities	0.19	0.15	0.24
Social and behavioural sciences and law (ref.)	0.21	0.18	0.23
Business, management and public administration	0.17	0.13	0.22
Physical and life sciences and technologies	0.16 *	0.10 *	0.22
Mathematics, computer and information sciences	0.15	0.10 *	0.22
Architecture, engineering and related technologies	0.16	0.13	0.14
Agriculture, natural resources and conservation	0.12 *	0.07 *	0.16
Health and related fields	0.12 *	0.07 *	0.18
Other	0.22	0.09	0.38
Province of institution			
Newfoundland and Labrador	0.27 *	0.26 *	0.28
Prince Edward Island	0.18	0.14	0.25
Nova Scotia	0.20	0.16 *	0.25
New Brunswick	0.20	0.15	0.25
Quebec	0.18	0.15 *	0.22
Ontario (ref.)	0.15	0.10	0.21
Manitoba	0.18	0.13	0.24
Saskatchewan	0.16	0.12	0.22
Alberta	0.15	0.11	0.20
British Columbia	0.16	0.10	0.22
Tenure status			
Tenured (ref.)	0.13	0.10	0.18
Leading to tenure, probationary	0.12	0.06 *	0.19
Non-tenured staff or non-tenure track	0.20 *	0.16 *	0.24 *

… not applicable

* significantly different from reference category (ref.) ($p < 0.05$)

Source: Statistics Canada, Survey of Postsecondary Faculty and Researchers, 2019.

Women are less likely to feel that hiring is fair and equitable

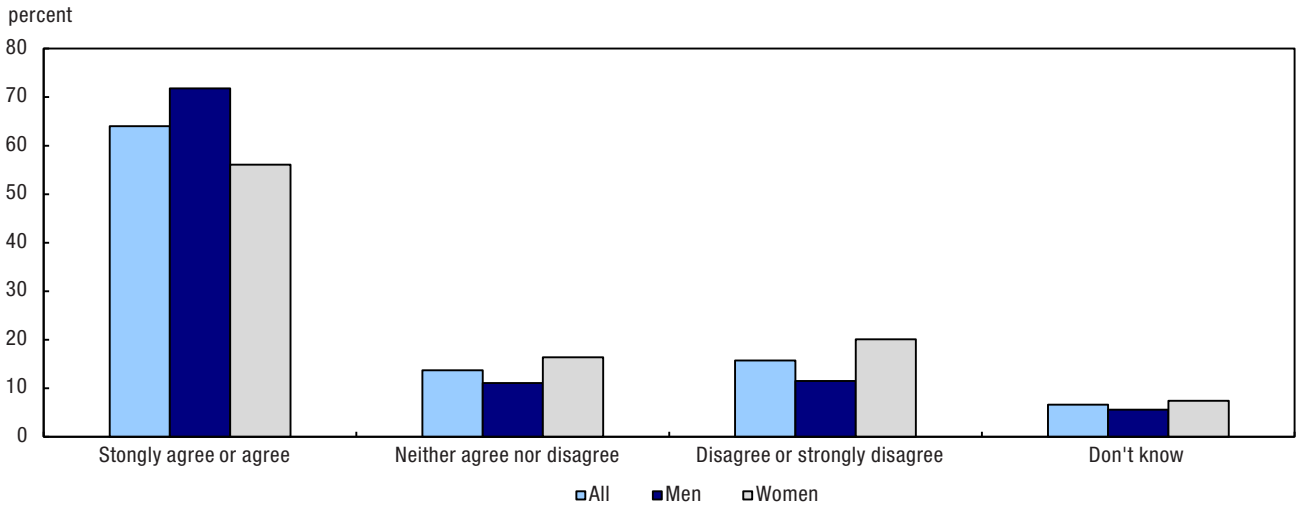
Bias and unfairness in hiring and promotion processes have been considered as possible factors to explain women's underrepresentation in academia and tenured positions.[28] To understand how common these perceptions are, faculty were asked whether they thought that decisions related to hiring and promotions at their institution were fair and equitable.

With respect to hiring, almost two-thirds (64%) of faculty in universities agreed or strongly agreed that hiring decisions were fair and equitable, while about 16% disagreed or strongly disagreed. Another 14% neither agreed nor disagreed, and the remaining 7% stated that they did not know (Chart 2).

There is a gender difference in self-reported perceptions of fairness and equity in hiring. Women were more likely than men to disagree or strongly disagree that hiring was fair and equitable at their institution (20% versus 12%). That conclusion remained unchanged after considering numerous important characteristics in a regression model, including personal characteristics, instructional program, province of institution, and tenure status (Table 4). The probability of women disagreeing or strongly disagreeing that hiring at their institution was fair and equitable was 0.21 compared with 0.13 for men.

Other groups that were more likely to disagree or strongly disagree included faculty belonging to racialized groups or a sexual minority[29], or faculty members with a disability. Among faculty belonging to racialized groups, the probability was 0.21, which was higher than that for non–racialized faculty (0.16) (Table 4). Persons with a disability were notably more likely than those

Chart 2
Self reported views on whether hiring decisions are fair and equitable, Canadian university faculty, 2019



Source: Statistics Canada, Survey of Postsecondary Faculty and Researchers, 2019.

Table 5
Predicted probabilities for disagreeing or strongly disagreeing about promotion decisions being fair and equitable - university faculty, 2019

Characteristics	All	Men	Women
	predicted probabilities		
Gender			
Men (ref.)	0.17	…	…
Women	0.26*	…	…
Age			
20 to 34	0.23	0.20	0.27
35 to 44 (ref.)	0.21	0.17	0.25
45 to 54	0.23	0.17	0.30
55 to 64	0.21	0.17	0.27
65 and older	0.16*	0.12	0.19
Highest level of education			
Earned doctorate (ref.)	0.21	0.17	0.26
Master's degree	0.24	0.17	0.31
Degree in medicine, dentistry, veterinary or optometry	0.15	0.11	0.22
Bachelor's degree or university certificate or diploma above bachelor's degree level	0.17	0.16	0.19
Lower than a university degree	0.25	0.16	0.31
Racialized group status			
Racialized	0.24*	0.17	0.33*
Non-racialized (ref.)	0.21	0.16	0.25
Indigenous identity			
Indigenous	0.19	0.10	0.29
Non-Indigenous (ref.)	0.21	0.16	0.27
Disability status			
Persons with a disability	0.32*	0.24*	0.42*
Persons without a disability (ref.)	0.20	0.16	0.25
Sexual orientation			
Sexual minority	0.26	0.22	0.29
Heterosexual (ref.)	0.21	0.16	0.27

Table 5
Predicted probabilities for disagreeing or strongly disagreeing about promotion decisions being fair and equitable - university faculty, 2019

Characteristics	All	Men	Women
	predicted probabilities		
Instructional program			
Education	0.23	0.18	0.30
Visual and performing arts, and communications technologies	0.21	0.26	0.20
Humanities	0.24	0.14*	0.35
Social and behavioural sciences and law (ref.)	0.25	0.22	0.28
Business, management and public administration	0.25	0.21	0.28
Physical and life sciences and technologies	0.19*	0.14*	0.25
Mathematics, computer and information sciences	0.16*	0.13*	0.17*
Architecture, engineering and related technologies	0.22	0.18	0.24
Agriculture, natural resources and conservation	0.18	0.17	0.20
Health and related fields	0.19*	0.11*	0.26
Other	0.16	0.14	0.18
Province of institution			
Newfoundland and Labrador	0.36*	0.27	0.44*
Prince Edward Island	0.17	0.12	0.23
Nova Scotia	0.20	0.19*	0.22
New Brunswick	0.20	0.13	0.31
Quebec	0.22	0.17*	0.26
Ontario (ref.)	0.20	0.16	0.25
Manitoba	0.24	0.15	0.33
Saskatchewan	0.22	0.15	0.31
Alberta	0.19	0.13	0.24
British Columbia	0.24	0.17	0.30
Tenure status			
Tenured (ref.)	0.17	0.13	0.22
Leading to tenure, probationary	0.15	0.08*	0.22
Non-tenured staff or non-tenure track	0.26*	0.22*	0.31*

… not applicable

* significantly different from reference category (ref.) ($p < 0.05$)

Source: Statistics Canada, Survey of Postsecondary Faculty and Researchers, 2019

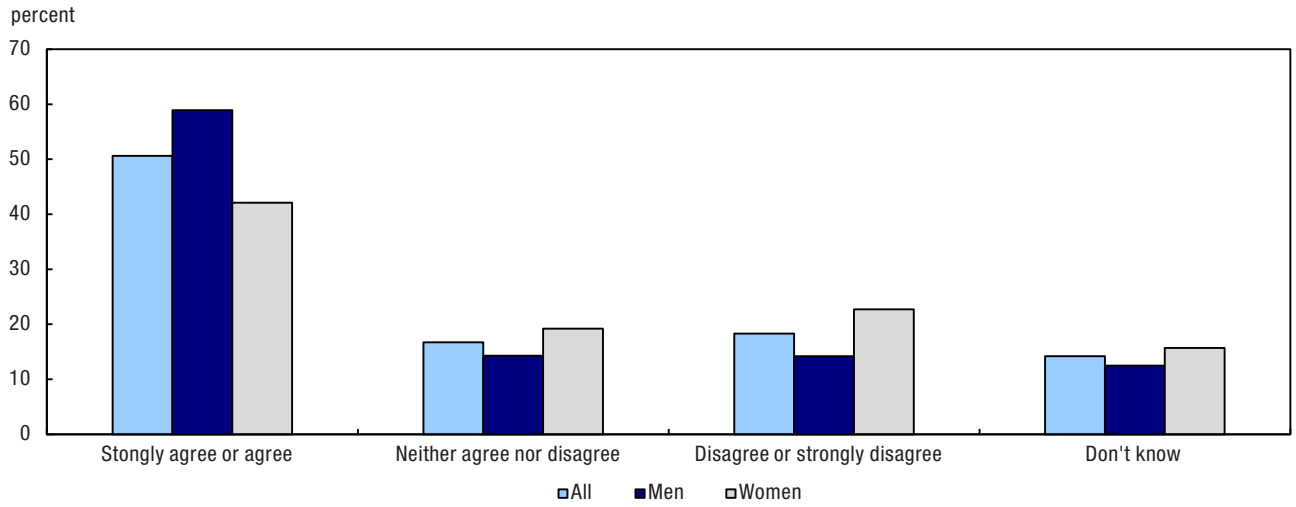
without a disability to disagree or strongly disagree (0.30 versus 0.16). Similarly, the probability was higher among sexual minorities (0.23 versus 0.16).

Compared with faculty in social and behavioural sciences and law (0.21), faculty in the following fields were less likely to disagree or strongly disagree: health and related fields (0.12); agriculture, natural resources and conservation (0.12); and physical and life sciences and technologies (0.16). Non-tenured or non-tenure track faculty were more likely to disagree or strongly disagree compared with tenured faculty (0.20 versus 0.13). Lastly, among the provinces, faculty in Newfoundland and Labrador (0.27) were more likely to disagree or strongly disagree compared with faculty in Ontario (0.15).

Analyses were conducted separately for men and women to see whether gender differences existed regarding feeling that hiring practices were unfair and inequitable. Results show that feelings of unfairness and inequity in hiring vary somewhat between men and women (Table 4). For instance, the probability for women who were sexual minorities to disagree that hiring was fair and equitable was 0.32 compared with 0.21 for their heterosexual counterparts. Among men, the difference was not statistically significant.

Based on some other characteristics, men and women had similar feelings about the fairness and equity of hiring practices at their institution. For instance, results showed that both men and women with a disability were significantly more likely than their peers without a disability to report feelings of unfairness and inequity in hiring. In particular, women with a disability were twice as likely (0.41) as women

Chart 3
Self reported views on whether promotion decisions are fair and equitable, Canadian university faculty, 2019



Source: Statistics Canada, Survey of Postsecondary Faculty and Researchers, 2019.

without a disability (0.20) to perceive unfairness in the hiring processes at their institutions.

Similarly, both male and female faculty members belonging to racialized groups were more likely to disagree or strongly disagree compared with their non–racialized counterparts.

Women are less likely to feel that promotions are fair and equitable

With respect to promotions, around one-half (51%) of faculty in universities agreed or strongly agreed that promotion decisions were fair and equitable, while about 18% disagreed or strongly disagreed (Chart 3). Another 17% neither agreed nor disagreed, and the remaining 14% stated that they did not know.

As was the case with hiring, proportionally more women than men perceived unfairness and inequity related to promotions. Specifically, women (23%) were more likely than men (14%) to disagree or strongly disagree that promotions were fair and equitable at their institution.

There was also a notable difference between faculty with a disability and those without—around 31% of the former disagreed or strongly disagreed compared with 17% of the latter. Faculty members belonging to racialized groups were also more likely to disagree or strongly disagree than the non–racialized population (22% versus 18%). A similar result was found for sexual minorities compared with their heterosexual counterparts (26% versus 18%).

None of the conclusions on promotions changed after adjusting for numerous characteristics in a regression model (Table 5). However, differences in views on fairness were noted by discipline, tenure status and province. Results from the model showed that, compared with faculty in social and behavioural sciences and law (0.25), those in the following fields were significantly less likely to disagree or strongly disagree that promotions were fair and equitable: mathematics, computer and information sciences (0.16); health and related fields (0.19); and physical and life sciences and technologies (0.19).

Some gender differences were also noticeable when estimating separate regressions related to promotions for men and women. For example, with respect to the population belonging to racialized groups, the effect was statistically significant only for women. Some gender differences were also found for the instructional programs and the province of the institution.

Conclusion

This study examined the tenure status, the time to achieve tenure, and ideas about fairness and equity in hiring and promotion among faculty at Canadian universities. A major finding suggests that women are less likely to be in tenured positions than men, but this difference is partially explained by gender differences in the time since the completion of the highest degree and highest level of educational attainment. A shortcoming of the analysis is that information related to research productivity and teaching could not be considered since this is not available in the dataset. Moreover, information on childcare and family responsibilities, which could also be associated with tenure—especially for women—was not available and could not be considered.

Past research also suggested that family responsibilities may be affecting the time to obtain tenure. In this study, the time to attain tenure was affected by parental leave, especially for women. For instance, less than one-fifth (19%) of female faculty who had taken parental leave obtained tenure before year 5, while just over one-third (36%) of their counterparts who did not take parental leave obtained tenure during these early years. A similar trend is present at years 5 and 6 as well. For men, the impact of parental leave is also present, but more muted.

Not only were women less likely to be in tenured positions, they were also less likely than men to feel that hiring and promotions are fair and equitable at their institutions. This was true even after considering age, education, instructional program and other characteristics. Other groups that were also more likely to state that hiring and promotions at their institution were unfair and inequitable were the racialized population and individuals with a disability. The gap is especially large between those with and without a disability. In particular, women with a disability were twice as likely as women without a disability to feel that hiring at their institution was not fair or equitable.

To conclude, though women are less likely to be in tenured positions, this gap has been closing over the past three decades. Furthermore, women are equally likely to be in tenure track positions. Following retirement of older, mostly male faculty in the coming years, the gender gap in tenured positions is likely to narrow further.

Sharanjit Uppal *and* ***Darcy Hango*** *are senior researchers at the Centre for Social Data Insights and Innovation at Statistics Canada.*

Data sources, methods and definitions

This study uses data from the University and College Academic Staff System (UCASS) for 2019 and the 2019 Survey of Postsecondary Faculty and Researchers (SPFR). The UCASS is a mandatory census of full-time teaching staff in degreegranting Canadian institutions whose term of appointment is not less than 12 months. This includes all teachers within faculties, academic staff in teaching hospitals, visiting academic staff in faculties, and research staff who have an academic rank and salary similar to teaching staff. Administrative and support staff and librarians are excluded, as are staff solely engaged in research without academic rank or whose salary scales are different from teaching staff. Teaching and research assistants are also excluded.

The UCASS is conducted annually and collects information on the number and socioeconomic characteristics of full-time teaching staff at Canadian universities. The information has been collected for each individual staff member employed by an institution as of October 1 for every academic year since 1937.

The SPFR was a voluntary survey conducted in 2019 and sponsored by Innovation, Science and Economic Development Canada, in collaboration with the Canadian Association of University Teachers, Colleges and Institutes Canada, Polytechnics Canada, Universities Canada, the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council.

The objective of the survey was to fill data gaps on equity, diversity and inclusion (including gender, racialized group status, Indigenous identity, selfreported disability, sexual orientation and use of official languages) among those who teach or conduct research in Canada's postsecondary institutions. It covered various topics such as equity and inclusion, employment security, job duties and other employment, learning and development opportunities, access to research funding, and harassment and discrimination.

The target population consisted of faculty and researchers at publicly funded Canadian colleges and universities at the time of the survey, including fulltime and parttime university faculty, college instructors, postdoctoral fellows and doctoral students.

In the absence of a survey frame that would list all postsecondary institutions' faculty and researchers, several files were linked—including tax data (T1 and T4), census data, Postsecondary Student Information System data, immigration data and research funding datasets—to create a sampling frame. Survey weights were adjusted to account for nonrespondents but were not further calibrated because of the complexity of the survey frame design and the unavailability of external control totals that were aligned with the concepts and the coverage of the survey population. Therefore, the survey results are representative only of the surveyed population, not necessarily the targeted population. Because of the methodology used, survey results cannot be released for individual post-secondary institutions.

Notes

1. Several requirements are needed before achieving tenure. Following an appointment to a tenure track position, after a period of time, the staff are evaluated in three areas: research, teaching and service. This process is rigorous, and if it is considered to be satisfactory, then academic tenure is given. The time to reach a tenure position can range from three to seven years.
2. See Park (2011); Wijesingha and Ramos (2017).
3. See Etmanski et al. (2017); Rajagopal (2002).
4. It can often be difficult to quantify the issue of part time contract faculty versus full-time faculty. However, in one study, Brownlee (2015) collected data on academic staff from 18 universities in Ontario and found that there was a significant increase in part time and full-time contract appointments relative to tenure stream positions in Ontario universities.
5. See Dobbie and Robinson (2008); Field and Jones (2016).
6. See Statistics Canada (2021).
7. See research by Schoening (2009) and Wolfinger et al. (2008). Weisshaar (2017) also suggests that gender inequality in the evaluation process is a key issue in the persistent gender gap.
8. Having children could affect women's likelihood of achieving tenure more than men because women still spend on average more time on housework and childcare than men. These greater family responsibilities could affect women's ability to conduct research and to publish, and this would reduce their likelihood of achieving tenure. For more information on how Canadian men and women share childcare tasks, see Frank and Frenette (2021) and Moyser and Burlock (2018). For research examining whether having children actually impacts achieving tenure, see Perna (2005) and Goulden et al. (2004).
9. See recent research from Morgan et al. (2021).
10. Since the focus of this study is on faculty in Canadian universities, faculty working in other types of institutions, such as colleges, have been excluded from the analysis.
11. The concept of racialized groups is measured with the 'visible minority' variable. Visible minority refers to whether a person is a visible minority or not, as defined by the Employment Equity Act. The Employment Equity Act defines visible minorities as "persons, other than Aboriginal peoples, who are non Caucasian in race or non white in colour". The visible minority population consists mainly of the following groups: South Asian, Chinese, Black, Filipino, Arab, Latin American, Southeast Asian, West Asian, Korean and Japanese.
12. Research in this area is mixed. Important factors to consider are completed levels of education, discipline and institutional differences. See recent Canadian research by Wijesingha and Ramos (2017), Ornstein et al. (2007), and Stewart et al. (2009).
13. University type is based on the classification used by Maclean's magazine. **Medical and doctoral:** Dalhousie University, Université de Sherbrooke, Université Laval, Université de Montréal, McGill University, University of Ottawa, Queen's University, Western University, McMaster University, University of Toronto, University of Manitoba, University of Saskatchewan, University of Alberta, University of Calgary and University of British Columbia; **comprehensive:** Memorial University, New Brunswick University, Université du Québec à Montréal, Concordia University, Carleton University, Wilfrid Laurier University, University of Guelph, Brock University, University of Windsor, Ryerson University, University of Waterloo, York University, University of Regina, Simon Fraser University and University of Victoria; **primarily undergraduate:** St. Francis Xavier University, Saint Mary's University, Mount Allison University, Acadia University, Université de Moncton, University of Prince Edward Island, Bishop's University, St. Thomas University, Trent University, Nipissing University, Mount Saint Vincent University, Cape Breton University, Laurentian University, Ontario Tech University, Lakehead University, Brandon University, University of Winnipeg, University of Lethbridge and University of Northern British Columbia.
14. Around 7% of men and 8% of women did not report the year in which they completed their highest degree.

15. Women are better represented at lower levels (assistant and associate), and with time as more men retire, the gender gap at the full professor level is expected to narrow.
16. See Ferguson (2016); Frank (2019); Holman et al. (2018); Wall (2019).
17. Around one fifth of men and women did not report information on the country of citizenship.
18. See Foster and Birdsell Bauer (2018).
19. See Ferguson (2016).
20. See Manchester et al. (2013); Stewart et al. (2009).
21. Tenured faculty are faculty who are tenured and permanent. They can be part time (around 6%) or full-time (around 94%) faculty. Contract faculty are not included.
22. See Goulden et al. (2004).
23. Goulden et al. (2004), using the University of California Work and Family Survey, found that female faculty aged 30 to 50 with children logged over 100 hours a week on professional duties, providing care to others and household activities, while male faculty with children of the same age logged 88 hours per week on these same activities.
24. In most cases, assistant professors are evaluated for tenure around year 7 (see the American Association of University Professors, 2014), but it often happens by year 6 as well. Setting up the time to tenure variable in this way allows for the separation of those who get early tenure (before five years), on time tenure (five to six years) and delayed tenure (seven years or more). These trends align with earlier work in Canada (see Stewart et al., 2009) showing that the probability of being promoted from assistant to associate professor is highest in years 5 and 6, then subsequently drops for both men and women.
25. The exact wording of the question in the SPFR is: "Since your first appointment as a postdoctoral fellow, professor, instructor, or researcher at any Canadian post secondary institution, have you taken […] maternity, paternity, parental, or adoption leave?"
26. In general, female university faculty were more likely than men to have taken parental leave since their first appointment (24% versus 10% for men).
27. There are no significant differences between genders with respect to tenure and parental leave taken.
28. See Moss Racusin et al. (2012); Reuben et al. (2014); Roper (2019).
29. Sexual minorities include lesbian, gay, bisexual, pansexual, or other sexual orientation that is not heterosexual.

References

American Association of University Professors. 2014. Recommended Institutional Regulations on Academic Freedom and Tenure. Washington, DC: American Association of University Professors.

Brownlee, J. (2015). Contract faculty in Canada: Using access to information requests to uncover hidden academics in Canadian universities. Higher Education, 1–19. DOI: 10.1007/s1073401598679

Dobbie, D., & Robinson, I. (2008). Reorganizing higher education in the United States and Canada: The erosion of tenure and the unionization of contingent faculty. Labor Studies Journal, 33(2), 117–140.

Etmanski, B., Walters, D., & Zarifa, D. (2017). Not what I expected: Early career prospects of doctoral graduates in academia. Canadian Journal of Higher Education, 47(3), 116–133.

Ferguson, S. J. (2016). Women and education: Qualifications, skills and technology. Women in Canada: A Gender Based Report. Statistics Canada Catalogue No. 89503X.

Field, C. C., & Jones, G. A. (2016). A Survey of Sessional Faculty in Ontario PubliclyFunded Universities. Toronto: Centre for the Study of Canadian and International Higher Education, Ontario Institute for Studies in EducationUniversity of Toronto.

Foster, K., & Birdsell Bauer, L. (2018). Out of the Shadows: Experiences of Contract Academic Staff. Canadian Association of University Teachers.

Frank, K. (2019). A gender analysis of the occupational pathways of STEM graduates in Canada (Analytical Studies Branch Research Paper Series, No. 429). Statistics Canada Catalogue No. 11F0019M.

Frank, K., & Frenette, M. (2021). Couples' perceptions of the division of household and child care tasks: Are there differences between sociodemographic groups? (Analytical Studies Branch Research Paper Series, No. 460). Statistics Canada Catalogue No. 11F0019M.

Goulden, M., Mason, M. A., & Wolfinger, N. (2004). "Do babies matter: Redefining gender equity in the academy." Mentoring Academic Careers in Engineering: Proceedings of the Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring/ Stanford School of Engineering Workshop, pp. 97–111. Retrieved March 31, 2021, from http://paesmem.stanford.edu/proceedings.pdf.

Holman, L., StuartFox, D., & Hauser, C. E. (2018). The gender gap in science: How long until women are equally represented? PLoS Biology, 16(4): https://doi.org/10.1371/journal.pbio.2004956

Manchester, C. F., Leslie, L. M., & Kramer, A. (2013). Is the clock still ticking? An evaluation of the consequences of stopping the tenure clock. ILR Review, 66(1), 3–31. DOI: 10.1177/001979391306600101

Morgan, A. C., Way, S. F., Hoefer, M. J. D., Larremore, D. B., Galesic, M., & Clauset, A. (2021). The unequal impact of parenthood in academia. Science Advances 7: 1996.

MossRacusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J., & Handelsman, J. (2012). Science faculty's subtle gender biases favor male students. Proceedings of the National Academy of Sciences, 109: https://www.pnas.org/doi/10.1073/pnas.1211286109

Moyser, M., & Burlock, A. (2018). "Time use: Total work burden, unpaid work, and leisure." Women in Canada: A Genderbased Statistical Report. Statistics Canada. Ottawa.

Ornstein, M., Stewart, P., & Drakich, J. (2007). Promotion at Canadian universities: The intersection of gender, discipline and institution. Canadian Journal of Higher Education, 37(3), 1–25.

Park, T. (2011). Do faculty members get what they deserve? A review of the literature surrounding the determinants of salary, promotion and tenure. The Journal of the Professoriate, 6(1), 28–47.

Perna, L. W. (2005). Sex differences in faculty tenure and promotion: The contribution of family ties. Research in Higher Education, 46, 277–307.

Rajagopal, I. (2002). Hidden academics: Contract faculty in Canadian universities. University of Toronto Press.

Reuben, E., Sapienza, P., & Zingales, L. (2014). How stereotypes impair women's careers in science. Proceedings of the National Academy of Sciences, 111, 4403–4408. https://doi.org/10.1073/pnas.1314788111

Roper, R. L. (2019). Does gender bias still affect women in science? Microbiology and Molecular Biology Reviews, 83, e00018–19. https://doi.org/10.1128/MMBR.0001819

Schoening, A. M. (2009). Women and tenure: Closing the gap. Journal of Women in Educational Leadership, 7(2), 77–92.

Statistics Canada (2021). Number and salaries of fulltime teaching staff at Canadian universities (final), 2020/2021. Statistics Canada, Ottawa.

Stewart, P., Ornstein, M., & Drakich, J. (2009). Gender and promotion at Canadian universities. Canadian Review of Sociology, 46(1), 59–85.

Wall, K. (2019). Persistence and representation of women in STEM programs. (Insights on Canadian Society, May 2). Statistics Canada Catalogue No. 75006X.

Weisshaar, K. (2017). "Publish and perish? An assessment of gender gaps in promotion to tenure in academia." Social Forces, 96(2), 529–560.

Wijesingha, R., & Ramos, H. (2017). Human capital or cultural taxation: What accounts for differences in tenure and promotion of racialized and female faculty? Canadian Journal of Higher Education, 47(3), 54–75.

Wolfinger, N. H., Mason, M. A., & Goulden, M. (2008). Problems in the pipeline: Gender, marriage, and fertility in the ivory tower. The Journal of Higher Education, 79, 388–405.