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University of Toronto,
Faculty Salary Equity Report

February 2025

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Contents

1 Executive Summary

This is a report on the fall 2022 base salaries of tenured/tenure stream and continuing stream, teaching stream faculty. It follows on a 2019 report that looked at 2015/16 base salaries for the same faculty categories. The purpose of the analysis is to determine whether otherwise comparably situated male and female faculty are paid equitably.

Our analysis finds:

1. For tenured/tenure stream faculty: There is no statistically significant gap in fall 2022 base salaries for otherwise comparable male and female faculty in the tenured/tenure stream once we control for experience and field of study.
2. For continuing stream, teaching stream faculty: There is no statistically significant gap in fall 2022 base salaries for otherwise comparable male and female faculty in the continuing stream, teaching stream even prior to controlling for experience and field of study.

We are confident in the robustness of our analysis which follows the best practice approach used across the higher education sector of controlling for experience and field of study. This analysis is based on full population data for faculty in the tenured/tenure stream and, separately, for faculty in the continuing stream, teaching stream.

2 Introduction

This report follows on the 2019 ***Report of the Provostial Advisory Group on Faculty Gender Pay Equity: University of Toronto*** which looked at the 2015/2016 salaries of continuing full-time appointed faculty.

The 2019 report found:

- A statistically significant gap in salary using fall 2015 data for female faculty in the tenured/tenure stream at the University of Toronto of 1.3% when compared to comparably situated faculty who were male, after controlling for experience, field of study, and other factors.
- The report did not find a statistically significant difference, using fall 2016 data, between the salaries of male and female faculty in the continuing stream, teaching stream faculty appointments.

In response to the 2019 report, the University paid all female faculty (and 'other' faculty) in the tenured/tenure stream at the University of Toronto an increase of 1.3% to their June 30, 2019 base salary.

In announcing this remedy, Vice-President and Provost Cheryl Regehr committed to undertake a periodic review of continuing faculty salaries to assess whether the measures in place continue to support pay equity between male and female faculty and to ensure that sex-based pay gaps do not reappear over time.[1]

This new report is the product of that commitment. It is part of our ongoing work to ensure that otherwise comparably situated male and female faculty are being paid equitably.

3 Who are we looking at?

This report uses data from the University of Toronto's Human Resources Information System (HRIS) which includes three indicators for sex: 'female,' 'male,' and 'another.'[2]

[1] Vice-President and Provost Cheryl Regehr, "Response to the Report of the Provostial Advisory Group on Faculty Gender Pay Equity at the University of Toronto," April 15, 2019.

[2] The category 'another' was added in December 2017, to the main Human Resources Information System (HRIS) to allow all employees, including transgender individuals, and those who do not identify as male or female, to have an alternative to the binary male/female categories. This category was not present at the time of our original analysis but it was at the time the 1.3 % increase was paid out and faculty entered in

Because of the very small number, faculty identified as 'another' are combined in our analysis with those who are entered as 'female.[3]'

It focuses exclusively on faculty in continuing (full-time) appointments and analyzes, separately, the base salary of both tenured/tenure stream and continuing stream, teaching stream faculty. These two groups make up the largest proportion of appointed faculty at the University of Toronto (roughly 80%).

Base salary excludes any payments that faculty may receive for services that are additional to normal faculty workload, such as administrative stipends or payments for overload teaching responsibilities.

The following provides the number of faculty in each category by academic rank. The percentage in parentheses indicates the share of females.

Table 1. Breakdown of tenured/ tenure stream faculty by rank [4]

Academic rank	**Number of faculty members (percentage of total who are female)**	
	2015	**2022**
Assistant Professor	383 (43%)	529 (52%)
Associate Professor	733 (45%)	696 (43%)
Professor	965 (27%)	1,140 (33%)
All tenure stream faculty	2,081 (36%)	2,365 (40%)

this category received the increase. The number of faculty in this category is exceptionally small in our 2022 data. Including these faculty with females in our analysis does not meaningfully change our results.

[3] This report looks at the 'sex' indicator in HRIS and not how faculty self-identify in respect of gender. Data concerning how faculty self-identify in respect of gender (i.e., as women or men rather than female or male) forms part of the University's Employment Equity data analysis.

[4] Faculty at the rank of Assistant Professor (Conditional) are included in the count of Assistant Professors.

Table 2. Breakdown of continuing stream, teaching stream faculty by rank [5]

Academic rank	Number of faculty members (percentage of total who are female)	
	2016[6]	**2022**
Assistant Professor, Teaching Stream	90 (51%)	245 (48%)
Associate Professor, Teaching Stream	246 (50%)	192 (53%)
Professor, Teaching Stream	---[7]	36 (56%)
All continuing stream, teaching stream faculty	336 (50%)	473 (51%)

[5] Faculty at the rank of Assistant Professor, Teaching Stream (Conditional) are included in the count of Assistant Professors, Teaching Stream.

[6] The role of teaching stream faculty at the University of Toronto gradually evolved over a number of years, culminating in a Special Joint Advisory Committee (SJAC) and amendments to the Policy and Procedures on Academic Appointments (PPAA) introduced in 2015. The SJAC agreement resulted in changes to the rank of full-time teaching stream faculty (from Lecturer and Senior Lecturer to professorial rank) and the establishment of a clear distinction between continuing and non-continuing appointment types in the teaching stream. The data used in our 2019 analysis consequently were for the 2016-17 academic year, the first year in which accurate teaching stream data for continuing stream, teaching stream faculty are available.

[7] ***The Policy and Procedures Governing Promotion in the Teaching Stream*** was approved in 2016. For the first time, this new policy provided for the promotion of teaching stream faculty to the rank of Professor, Teaching Stream. As a consequence, there were no faculty members at the rank of Professor, Teaching Stream among teaching stream faculty in 2016.

4 Methodology

Multiple linear regression analysis is well established as the best practice approach to determine whether otherwise comparable faculty are paid equitably.[8]

4.1 Overarching Approach

Our analysis uses full population data (ie. all faculty in our two categories are included in our analysis).

1. The data for tenured and tenure stream faculty and continuing stream, teaching stream faculty are analyzed separately: a decision that reflects the fact that these are different jobs, with different expectations, and distinct criteria for promotion between ranks.

2. The sex-based pay gap is estimated as a percentage difference in earnings between males and females. To calculate this percentage difference, we regress the natural log of the annual salary on a sex indicator variable, which equals one if the individual is female.[9]

4.2 Controls

The sex-based pay gap cannot be properly estimated by looking only at the raw differences in earnings between males and females.

Analyses of faculty salaries customarily include some kind of control for experience (at least one of rank, or age, or years since highest degree) and a control for discipline or field of study. This is because experience and field of study are the two factors that most directly and clearly influence faculty compensation.

As a matter of common sense, we can understand that a faculty member who is older and more experienced will normally earn more than a faculty member who is younger and more junior. We expect the base salary of faculty to increase as they continue to work at the University and move through the ranks.[10] This is why the control for experience is important.

[8] "Regression Analysis: Legal Applications in Institutional Research," Frizell, Julie A.; Shippen, Benjamin S., Jr.; Luna, Andrew L., New Directions for Institutional Research, n138 p85-103 Sum 2008

[9] Because salaries at the University of Toronto have approximately a log-normal distribution, working with log-transformed salaries allows for direct estimation of percentage differences, and improves statistical inference. This is the conventional approach taken in gender pay equity studies. Using dollar salary amounts in place of log-transformed salaries does not change our interpretation of results.

[10] Note that at the University of Toronto there is no step increase tied to a promotion in rank.

In addition, it is well-established that faculty salaries vary significantly across different fields of study, in part reflecting differences in exposure to competition and market forces.[11] This is why the control for discipline or field of study is important.

Controlling for these two factors allows us to make closer peer-to-peer comparisons of the salaries of male and female faculty, and to isolate average differences in pay between males and females that can be directly attributable to sex.

The model used in this report controls for:

a. Experience: measured by years since highest degree (and its square).
    i. Age, rank, and years since highest degree correlate positively to salary. At the University of Toronto, years since highest degree has a greater effect on salary than either age or rank and so that was our preferred control.[12]
b. Field of study: measured using one of 10 Disciplinary Groupings. The 10 Divisional Groups are: [13]

- Health Sciences
- Humanities
- Life Sciences
- Physical Sciences - Engineering & Computer Science
- Physical Sciences - (All) Other
- Social Sciences - Economics
- Social Sciences - Education
- Social Sciences - Law
- Social Sciences - Management
- Social Sciences - (All) Other

[11] The Berkeley gender pay equity report has an illuminating discussion of the emergence of pay differences across disciplines, and how they intersect with salary determination at public universities. "Report on the UC Berkeley Faculty Salary Equity Study," Office of the Vice-Provost for the Faculty, January 2015. See also University of Oregon, Office of Institutional Research, "Faculty Salary Comparisons."

[12] There is some concern in labour economics that rank can be unfairly impacted by sex. At the University of Toronto there is no step increase in salary tied to a promotion in rank; despite this, we chose to be conservative and not control for rank. We similarly preferred not to control for age because that implies a certain 'conventional career path' that is not necessarily the norm for all our faculty. Omitting these controls strengthens our analysis: we are allowing for the possibility that there are sex-based differences in rank or age that result in a salary gap between males and females. If we control for rank or age (and either affected salary) we risk artificially masking a sex-based salary gap driven by either.

[13] Appendix A is a table that shows how our Academic Units map to the 10 Divisional Groups.

A detailed technical report describing our analysis is available here.

4.3 Understanding our results

We build our analysis incrementally to see the impact of the various controls as we incorporate them into our analysis. Our multiple linear regression analysis shows whether or not there is a gap in base salary between males and females for each specification.

Any gap is shown as a percentage, suggesting that that one group may be paid x% more or less than the other. The sex indicator variable is coded “one” for female and “zero” for male. Thus, a negative gap in salary should be interpreted as an indication that female faculty, on average, are paid lower salaries than their male colleagues.

The percentage gap is a simple point estimate. It does not in itself indicate the existence or size of any gap. Each figure includes a black line with an upper and lower bound for every result. This is a confidence interval which, in our analysis, is set at the 95% level. This indicates that there is a 95% chance that the true gap lies between the lower and upper ends of the bar. If a confidence interval does not contain a value of zero, the estimated pay gap is considered statistically significant and we can conclude that there is a difference in earnings between males and females. If the confidence interval crosses zero we cannot conclude that there is a gap.

In this report, we talk about whether a result is significant or not at the five percent (5%) level. To say that a result is significant at the 5% level, simply means that the confidence interval does not cross zero and therefore there is evidence of a real gap. When a result is not significant at the 5% level, this means that we cannot conclude that any gap we ‘appear’ to have found, is real.

4.4 Project Team

This analysis was undertaken and the report prepared by:

- Professor Dwayne Benjamin, Vice-Provost, Strategic Enrolment Management,
- Dr. Jane E. Harrison, Senior Strategist for the Vice-Provost, Faculty & Academic Life,
- Natalia Vigezzi, Doctoral candidate in Economics,
- Taryn Eames, Doctoral candidate in Economics.

The project team worked closely with an advisory group comprised of:

- Professor Kelly Hannah-Moffat, Vice-President, People Strategy, Equity & Culture,
- Professor Heather Boon, Vice-Provost, Faculty& Academic Life,
- Professor Randy Boyagoda, Acting Vice-Provost, Faculty& Academic Life (2023),
- Kate Enros, Executive Director, Academic Life and Faculty Relations,

- Andrew Ebejer, Senior Legal Counsel.

5 Tenured/Tenure Stream Faculty: 2022

5.1 Sex-based pay gap – tenured/tenure stream faculty

We build our analysis incrementally to demonstrate the impact of our controls. Figure 1 shows four different specifications as follows:

1. The 'raw' sex-based pay gap. This is the average sex-based pay gap with no controls;
2. The average sex-based pay gap to which we have added a control for experience (measured as years since highest degree);
3. The average sex-based pay gap to which we have added a control for field of study (measured as one of 10 Disciplinary Groupings);
4. The average sex-based pay gap with both controls.

Figure 1. Sex-based pay gap – tenured/tenure stream faculty 2022

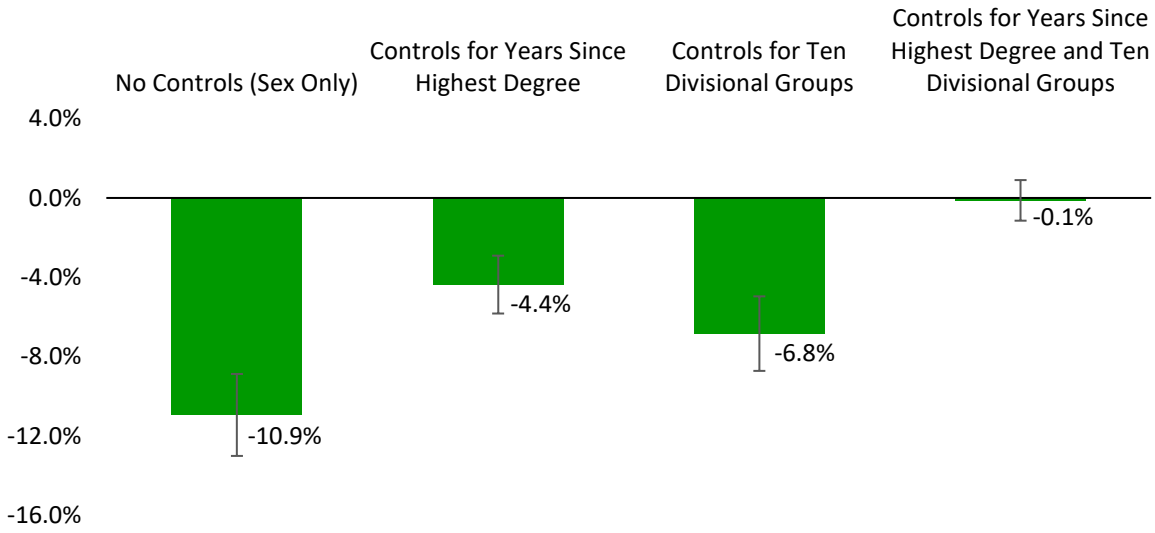

Figure 1 shows that:

- After controlling for experience and field of study, there is no salary gap for females compared to males in 2022.
- The model explains 79.1% of the variance in salary in 2022.

5.2 Robustness Analysis – tenured/tenure stream faculty

Figure 2 reports the results of three different specifications, where we provide some robustness tests to assess the sensitivity of our results:

1. The multiple linear regression model, replicated from Figure 1;
2. The multiple linear regression model excluding top 5% of earners;
3. The multiple linear regression model excluding 5% of the most influential observations.[14]

Figure 2. Robustness analysis – tenured/tenure stream faculty 2022

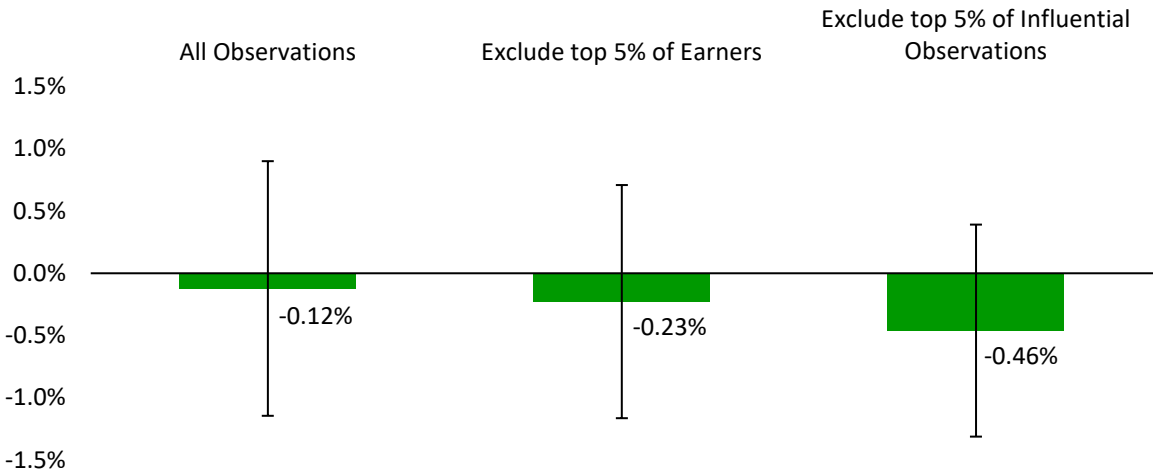

Figure 2 shows that:

- The estimated sex pay-gap does not change significantly when we exclude the top earners or the most influential observations. We do this to ensure that a small number of outliers are not driving the results.
- This shows that our model is robust, providing confirmation that our findings are not dependent on / driven by extreme cases.

[14] We use a standard methodology ("Cook's distance") to identify the most influential observations. This allows us to ensure that including these observations does not obscure a gap for the majority of female faculty. For example, suppose there are a small number of very highly paid female faculty who may be masking a gap that otherwise exists in salary for female faculty more generally. Removing them, would allow us to see this gap.

5.3 Differences in the Sex-Based Pay Gap by Salary Level – tenured/tenure stream faculty

Figure 3 uses a quantile regression analysis approach to investigate how the sex-based pay gap varies across the salary distribution. This analysis yields an estimated sex-based pay gap at five different points on the tenure stream salary distribution:

1. 10th percentile;
2. 25th percentile;
3. 50th percentile (median);
4. 75th percentile;
5. 90th percentile.

Figure 3. Quantile regression analysis – tenured/tenure stream faculty 2022

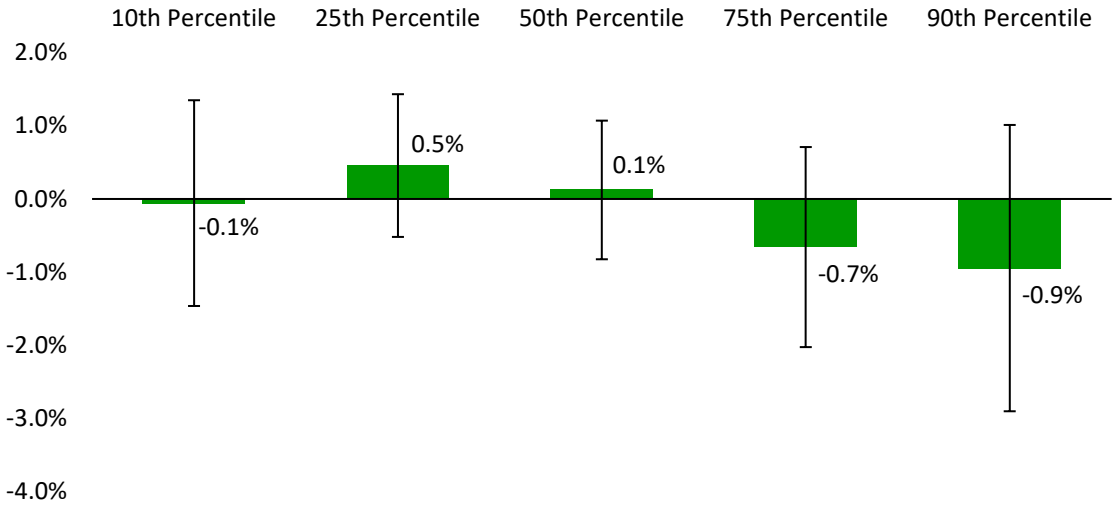

Figure 3 shows that:

- Our results for each quantile move slightly above and slightly below zero depending on the quantile. None of the results in any quantile are significant.
- There is no evidence of a gap in salary for females at any of the points across the salary distribution.

5.4 Summary – tenured/tenure stream faculty

Our analysis of 2022 base salary data for tenured/tenure stream faculty in 2022 finds no evidence of a gap in salary for females as compared to males. Our robustness check and analysis of salary at five levels across the salary distribution give us confidence in our findings.

6 Continuing Stream, Teaching Stream Faculty: 2022

6.1 Sex-based pay gap – continuing stream, teaching stream faculty

We build our analysis incrementally to demonstrate the impact of our controls. Figure 4 shows four different specifications as follows:

1. The 'raw' sex-based pay gap. This is the average sex-based pay gap with no controls;
2. The average sex-based pay gap to which we have added a control for experience (measured as years since highest degree);
3. The average sex-based pay gap to which we have added a control for field of study (measured as one of 10 Disciplinary Groupings);
4. The average sex-based pay gap with both controls.

Figure 4. Sex-based pay gap – continuing stream, teaching stream faculty 2022

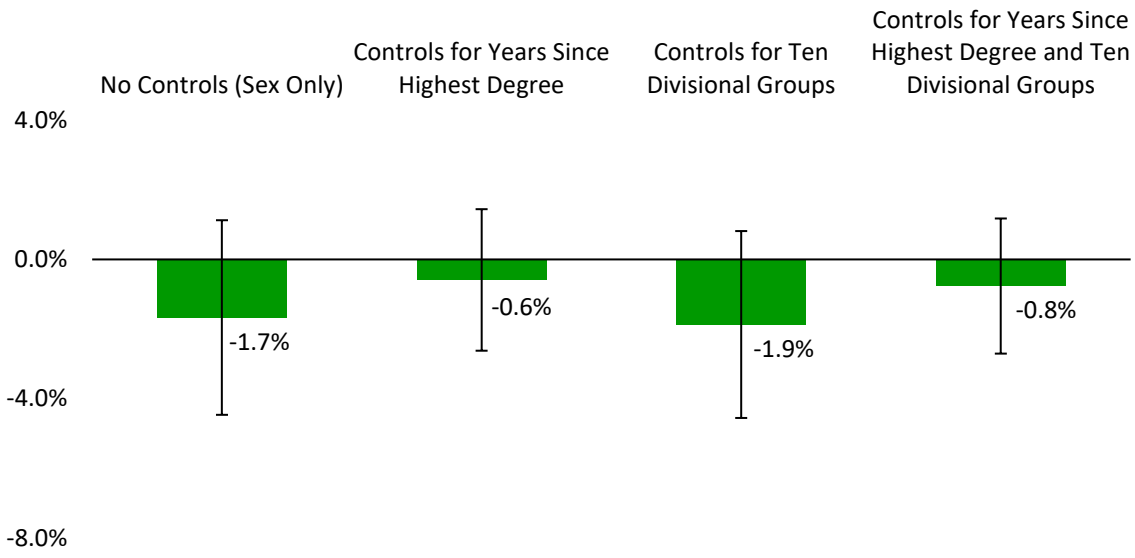

Figure 4 shows that:

- Across the specifications, there is no statistically significant gap, for females when compared with males.
- This is the case even without any controls.
- The simplified model explains 57.4% of the difference in salary in 2022.

6.2 Robustness Analysis – continuing stream, teaching stream faculty

Figure 5 reports the results of three different specifications, where we provide some robustness tests to assess the sensitivity of our results:

1. The multiple linear regression model, replicated from Figure 10;
2. The multiple linear regression model excluding top 5% of earners;
3. The multiple linear regression model excluding 5% of the most influential observations.

Figure 5. Robustness analysis – continuing stream, teaching stream faculty 2022

Figure 5 shows that:

- The estimated sex pay-gap does not change significantly when we exclude top earners or the most influential observations. We do this to ensure that a small number of outliers are not driving the results.
- This shows that our model is robust, providing confirmation that our findings are not dependent on / driven by extreme cases.

6.3 Differences in the Sex-Based Pay Gap by Salary Level – continuing stream, teaching stream faculty

Figure 6 uses a quantile regression analysis approach, to investigate how the sex-based pay gap varies across the salary distribution. This analysis yields an estimated sex-based pay gap at five different points on the tenure stream salary distribution:

1. 10th percentile;
2. 25th percentile;
3. 50th percentile (median);
4. 75th percentile;
5. 90th percentile.

Figure 6. Quantile regression analysis – continuing stream, teaching stream faculty 2022

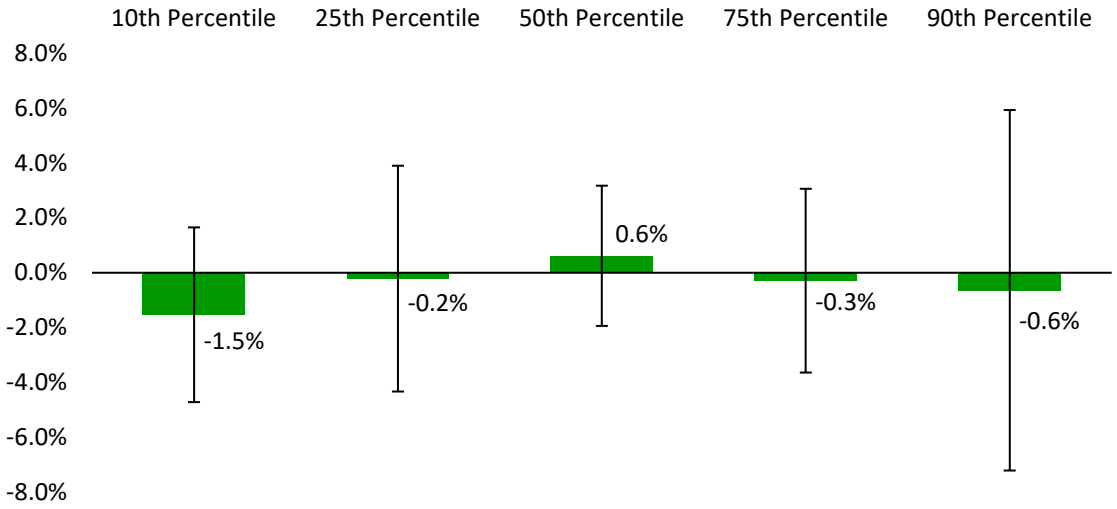

Figure 6 shows that:

- The results for each quantile move above and below the line depending on the quantile. None of the results in any quantile are statistically significant.
- There is no evidence of a salary gap for females at any point across the salary distribution.

6.4 Summary - continuing stream, teaching stream faculty

Using 2022 base salary data, we have no evidence of a gap in base salary for females in the continuing stream, teaching stream when compared to males, even without adding controls for experience and discipline.

7 Conclusion

The analysis of the base salaries of faculty members in the tenure stream in 2022 at the University of Toronto has found no evidence of a gap in salary for females as compared to comparably situated faculty members who are males, after controlling for experience and field of study. Our model follows the best practice for this type of analysis. We are confident in the robustness of our analysis.

The analysis of the salaries of male and female faculty in the continuing stream, teaching stream at the University of Toronto in 2022 finds that there is no statistically significant difference between the salaries of female and male faculty members in the continuing stream, teaching stream even prior to controlling for experience and field of study.