Report to the Faculty Senate Council on Gender and Race Pay Equity on Danforth Campus

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Executive Summary

Findings

1. There has been a 7% increase in the number of tenured and tenure-track women[1] faculty on the Danforth Campus from 218 (32%) to 234 (33%) over the five years from 2014-15 to 2019-20, with the percentage remaining steady. This varied by school; the number of women faculty decreased in Law (-41%) and Brown (-15%). Overall, the number of underrepresented minority (URM) faculty[2] increased from 8% in 2014-15 to 12% in 2019-20, with larger increases in Arts & Sciences and the Brown School. The number of Asian faculty increased from 13% in 2014-15 to 16% in 2019-20, with the greatest increases in Arts & Sciences and McKelvey. The committee applauds the increase in faculty of color.

2. Our analysis of the gender pay gap focused on three models, which used these measures of faculty compensation: Base Pay, Total Pay, and Total Pay Minus Summer Research. Paying particular attention to coefficients with a ratio to the standard error of greater than 2.0, the business school has a substantial negative pay gap for women in Total Pay. Models included the control variables years since degree, years at WU, rank, academic discipline, and department-chair-equivalent and other administrative roles.

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Results of Final Models Using Three Different Dependent Variables –
Coefficients for Female (negative values indicate women paid less than men)

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	Base Pay	Total Pay	Total Pay minus Summer Research
Arts & Sciences	*-.07%*	*-3.2%*	*-0.4%*
Business	*-5.5%*	**-10.5%**	**-11.7%**
Design & Visual Arts	*-1.2%*	*-0.8%*	*-0.7%*
Engineering	*-3.6%*	*-4.5%*	*-0.5%*
Law	*2.1%*	*2.5%*	*2.4%*
Brown School	*0.6%*	*0.3%*	*-0.3%*
Danforth campus	*-1.4%*	**-3.6%**	*-1.8%*

Note that italics indicate coefficients for which the ratio of the coefficient to the standard error is less than 2.0, and bold font indicates those that exceed this criterion.

3. Our analysis of the race pay gap focused on the Danforth campus as a whole, due to the small sample sizes in the individual schools. Three models used these measures of faculty compensation: Base Pay, Total Pay, and Total Pay Minus Summer Research. Paying particular attention to those coefficients whose estimate was greater than 2.0 times the standard error of their estimate, URM faculty members have higher Total Pay Minus Summer Research than

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[1] This report uses men/women and male/female interchangeably.

[2] Underrepresented (URM) faculty include African American/Black, Hispanic, American Indian, Alaskan or Hawaiian native, and other Pacific Islander. We encourage announcing an opportunity for faculty to update their ethnic identity this system, as some categories may not have been presented as options at the time each particular faculty member was hired.

white faculty members. Models use control variables which could include years since degree, years at WU, rank, academic discipline, and department-chair-equivalent and other administrative roles.

Results of Final Models Using Three Different Dependent Variables –
Coefficients for Race (negative values indicate members of the group are paid less than white faculty members)

	Base Pay	Total Pay	Total Pay Minus Summer Research
URM	*3.4%*	*3.0%*	**4.9%**
Asian	*-2.7%*	*0.7%*	*-0.2%*

Note that italics indicate coefficients for which the ratio of the coefficient to the standard error is less than 2.0, and bold font indicates those that exceed this criterion.

4. In the Olin School, paying particular attention to those coefficients whose estimate was greater than 2.0 times the standard error of their estimate, the difference in Base Pay between men and women did not pass this threshold, in contrast with the coefficient for Total Pay. The key types of supplemental pay beyond the Base Pay are extra-load teaching and paid administrative positions. Tenured male vs. female faculty receive 2.3 times as many dollars for additional teaching.

5. Overall, women are less likely than men to hold additional roles that are associated with supplemental salary (15% vs. 22%), which varies by School.

6. The Committee noted that the years since degree were greater for male vs. female faculty, and for White vs. URM and Asian faculty. This indicates that there is greater diversity among faculty members who are earlier in their careers. Consistent with this observation, a series of nested models shows that there is an absolute difference in pay for male vs. female faculty that is large but greatly reduced when controlling for rank and time variables (in addition to academic discipline). If faculty across gender and race/ethnic groups experience similar rates of promotion and retention, we expect that the absolute pay gap should decrease over time.

7. The Committee also compared the results for Total Pay with those of the previous report conducted in 2016 using data from the 2014-15 academic year. In the 2016 analysis, all six schools showed a negative coefficient indicating a gender pay gap. In the 2021 analysis, this pay gap reversed for three of the six schools, and was negligible for all schools except for Olin. We applaud the progress on gender pay equity since the 2016 report.

Limitations

1. The results of this study are correlational, not causal, and do not establish whether or not any gender or race/ethnicity pay gap is the result of discrimination. The work is descriptive and does not provide evidence of discrimination. The coefficients reflect average differences across groups, after controlling for several factors, and do not provide evidence that any individual faculty member is over- or under-paid based on gender or any other factor.

2. The Committee did not have data to control for the quality or quantity of research, teaching, or service contributions of individual faculty members. It is possible that some observed differences in pay result from objective differences in contributions. Testing this hypothesis would require data that was not available to the Committee.

3. Likewise, the Committee did not have data to examine competing hypotheses to explain gender gaps in supplemental forms of pay. For example, it is not clear whether opportunities to earn supplemental pay through administrative roles or extra teaching assignments are not offered to male and female faculty on an equal basis, whether male and female faculty make different choices about whether to pursue and/or accept these types of opportunities, and/or whether structural factors shape these choices. Either of these explanations, or a combination of them, could account for the observed data.

4. The Committee's analyses were restricted to financial compensation. We did not investigate whether there are gender differences in teaching load and/or teaching releases, the number of unique course preparations, the quantity of lab space, assistance with spousal hiring, or the magnitude of start-up packages, among other resources.

5. As in the past, the R-squared for analyses of Law was substantially lower than for that of other Schools, which indicates it is a less precisely estimated statistical model. (R-squared indicates how well the variables in the model explain differences in pay from one person to another.)

Recommendations

1. *Examining gender differences in paid administrative roles.* There are gender difference in paid administrative roles, which are a source of supplemental pay. It is not clear whether such opportunities offered to male and female faculty on an equal basis, whether male and female faculty make different choices about whether to pursue and/or accept these types of opportunities, or whether structural factors shape these choices. Any or a combination of these explanations could account for the observed data. The Committee recommends the university release information regarding invitations for paid leadership roles and add faculty survey questions regarding offers for such roles.

2. *Examining gender and race/ethnicity differences in summer pay.* Where summer salary is typically paid with extramural grants, women and/or URM faculty receive less summer salary (as a percentage) in certain schools. Additional investigation can determine to what extent this results from differences in support and mentoring, differences in outcomes by the grant agencies, and/or differences in faculty decisions about how to allocate grant funds to their own salary vs. other expenditures. We recommend that the university release information about the average allocation of grant resources, including the typical amounts (expressed in percentage of salary) that individuals use to increase their pay.

3. *Examine retention rates by gender and race/ethnicity.* The committee recommends the university release information about retention rates across race/ethnicity and gender, particularly promotion rates for junior faculty members. Data on promotion and tenure rates are important to understanding pay equity at Washington University. Further, an exit survey is critical for faculty members. This report contains a detailed protocol that the Committee members developed together for this brief exit survey, which should be administered to all departing faculty members as well as those who have departed for the past 10 years. It is

important for the survey results to be available to future Pay Equity Committees, because an anonymous survey has little if any value. The urgency of collecting this information cannot be overstated.

4. *Monitor for gender and/or race differences in retention packages.* We recommend a yearly report from deans and department chairs regarding negotiations for retention packages, in the form of collecting an external offer log using a detailed protocol in this report. The purpose is to monitor for potential differences by gender and/or race in retention offers.

5. *Promotable vs. non-promotable tasks.* We recommend greater transparency and equal distribution across gender and race/ethnicity of both paid and unpaid service. The recent creation of a task force for service equity is applauded. In general, the inclusion of individuals with diverse backgrounds on committees creates a greater burden on these individuals to allocate time to non-promotable tasks that detract from their career advancement.

6. *Examine potential group differences in non-financial compensation.* Given that the Committee's analyses were restricted to financial compensation, we recommend that an additional committee or subcommittee examine potential group differences in non-financial topics such as service contributions and expectations, teaching load and/or teaching releases, the number of unique course preparations, the quantity of lab space, the magnitude of start-up packages, partner hiring, and access to sabbaticals.

7. *Business School gender inequity.* At the Olin School, there was a gap of 10.5% for Total Pay, and the causes should be examined. Supplemental pay is a substantial proportion of compensation at Olin, and access to extra-load teaching assignments and paid administrative roles should be equitable.

8. *Small numbers for intersectionality and non-binary gender.* We encourage the university to be sensitive to intersectionality in faculty backgrounds, which are often associated with a cumulative disadvantage, and to ensure that there are no barriers for gender minorities to be hired or to express their gender identity.

9. *Continue pay equity analysis.* We urge FSC to request future pay equity studies on a regular basis with intervals of 4-5 years. Future investigations of equity should consider not only pay equity, but equity in rates of retention and promotion, and equity in non-financial compensation. In advance of the Pay Equity Committees, the FSC should encourage faculty to confirm that Human Resources has correct records regarding the race/ethnicity and gender with which they identify. The information in this report is based on the racial/ethnic identity reported by faculty members to Washington University's Human Resources.

10. *Examine pay equity for non-tenured/tenure-track faculty.* An additional committee should be formed to examine pay equity for full-time faculty members who are not tenured or on the tenure-track.

11. *Expand longitudinal analysis.* The Committee conducted an initial longitudinal analysis of pay over time, and we recommend that such work be expanded. This would require use of data from the new exit survey, as the optimal analysis will classify individuals differently depending on the reasons why they departed.

12. *Implementation of the pay equity recommendations.* For the sake of accountability and transparency, we ask the Faculty Senate Council (FSC) to request an update every year from the Chancellor and Provost regarding the implementation of recommendations by the Pay Equity Committee.

Report to the Faculty Senate Council on Gender and Race Pay Equity on Danforth Campus

I. Introduction

In January of 2021, Vijay Ramani, Chair of the Faculty Senate Council (FSC) appointed a Gender and Race Pay Equity (GRPE) Committee to review and assess the 2019-20 pay equity data on the Danforth Campus. This report provides the findings of this study to the FSC. Analyses for the pay-equity study were conducted by Lisa Wiland, Director of Institutional Research, and Tao Zhang, Senior Research Analyst, with direction and feedback from the Committee. The Committee met every two weeks throughout the spring 2021 semester and on an ad hoc basis during the summer of 2021 and fall 2021.

Faculty members on the Committee had access only to the results of analysis and to aggregate information; the underlying individual salary data were available only to the Washington University Institutional Research team. Institutional Research provided the committee with information about the available data, reviewed the data for errors, conducted analyses, and reported summary results.

II. Inclusion in the Current Study

This study examines tenured and tenure track faculty on the Danforth Campus as of November 1, 2019. It excludes a small number of faculty on the basis of their current roles: administrative roles that were full-time (13) or nearly full-time (1), unpaid leaves of absence beyond one full year (2), and not holding a regular faculty appointment in any specific school (1). These exclusions were consistent with the rules discussed and formalized by the 2016 Pay Equity Committee.

Faculty considered increased from 671 in 2014-15 to 702 in 2019-20. Table 1 offers faculty counts by rank, gender, race/ethnicity, and four aspects of paid additional roles. Table 2 further specifies faculty by race/ethnicity across ranks. Appendix Table A1 includes the five-year percentage change of faculty counts by school and gender.

Gender composition

The 2019-20 data consist of 468 male and 234 female tenured or tenure-track faculty on the Danforth Campus (see Table 1). Detail about tenure-line faculty members for each of the six Danforth schools by gender appears in Appendix Tables A2 through A7.

Overall, the number of women faculty increased by 7%, from 218 (32%) in 2014-15 to 234 (33%) in 2019-20, with the percentage remaining steady. The number of male faculty increased by about 3%, from 453 (68%) in 2014-15 to 468 (67%) in 2019-20. All Schools have more women in 2019-20 vs. 2014-15 except the Brown School (decreasing 15%) and Law (decreasing 41%). McKelvey and Olin attained the greatest percentage growth in women faculty over these five years.

Appendix Table A8 includes data on gender by rank. The gender composition of untenured faculty became more equal over time. For tenured faculty, the gender composition remained similar, moving slightly in the direction of more men. The number of tenured men increased by 35, while the number of tenured women remained the same.

Figure 1 illustrates the distribution of Danforth campus faculty by gender across years since degree. In general, women tend to have much more recent degrees than men. In the chart below, one can see differences especially beyond 35 years since degree.

Race/ethnicity composition

The 2019-20 data consist of 702 faculty who self-reported their ethnicity: 84 identified in one or more of the groups considered Underrepresented Minorities (African American/Black, Hispanic, American Indian, Alaskan or Hawaiian native, or Other Pacific Islander), 113 Asian, and 505 white, not multiracial (see Appendix Table A9 for the total and by school).

Race/ethnicity was based on faculty self-report, usually at the time of hiring, when new individuals complete a form that asks their race/ethnicity with the option to check all that apply. In the tables and analyses that follow, faculty are shown in each of the categories they selected, with one exception: "white" should be understood as "white, not multiracial". This approach was chosen to maximize our ability to see differences and effects that may be due to race or ethnicity; including multiracial faculty in the baseline category would tend to obscure such differences.

Overall, the number of URM tenured and tenure track faculty increased from 56 (8%) in 2014-15 to 84 (12%) in 2019-20, with the greatest increases in Arts & Sciences (31 to 51) and the Brown School (10 to 15). The number of Asian faculty increased from 86 (13%) in 2014-15 to 113 (16%) in 2019-20, with the greatest increases in Arts & Sciences (27 to 38) and McKelvey (33 to 47). The total number of untenured faculty was similar in 2014-15 (185) and 2019-20 (181), whereas there was growth in the number of tenured faculty from 2014-15 (486) to 2019-20 (521).

Table 2, appearing on page 8, includes data on race/ethnicity by rank. At the untenured level, between 2014-15 and 2019-20 URM faculty increased from 27 (15%) to 30 (16%), Asian faculty increased from 34 (18%) to 42 (23%), and white faculty decreased from 124 (67%) to 110 (60%). At the tenured level, between 2014-15 and 2019-20 URM faculty increased from 29 (6%) to 55 (11%), Asian faculty increased from 52 (11%) to 71 (14%), and White faculty decreased from 405 (83%) to 395 (76%).

We applaud these increases in the proportions of Asian and URM faculty at both the tenured and untenured levels.

Figure 2 illustrates the distribution of Danforth campus faculty by race/ethnicity across years since degree. In general, URM and Asian faculty members tend to have more recent degrees than white faculty members.

Table 1: Danforth Tenured and Tenure Track Faculty:

Gender by rank, race/ethnicity, additional salaried roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	110	24%	63	29%	173	92	20%	79	34%	171
	Associate Professors without Tenure	8	2%	4	2%	12	6	1%	4	2%	10
	Associate Professors with Tenure	96	21%	71	33%	167	102	22%	70	30%	172
	Full Professors	129	28%	46	21%	175	151	32%	43	18%	194
	Full Professors with Endowed Chairs	110	24%	34	16%	144	117	25%	38	16%	155
	Total	453	100%	218	100%	671	468	100%	234	100%	702
By race /ethnicity*	African American	13	3%	21	10%	34	24	5%	31	13%	55
	Hispanic	15	3%	5	2%	20	20	4%	9	4%	29
	American Indian, Alaskan Native	1	0.2%	0	0%	1	1	0.2%	0	0%	1
	Hawaiian Native, Other Pacific Islander	1	0.2%	0	0%	1	1	0.2%	1	0.4%	2
	Underrepresented Minority Subtotal	30	7%	26	12%	56	46	10%	39	17%	85
	Asian	62	14%	24	11%	86	81	17%	32	14%	113
	White, not multiracial	361	80%	168	77%	529	342	73%	163	70%	516
	Total	453	100%	218	100%	671	468	100%	234	100%	702
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	33	7%	10	5%	43	36	8%	11	5%	47
	Other Appointed Role	39	9%	15	7%	54	67	14%	25	11%	92
	Subtotal Holding Administrative Roles	72	16%	25	11%	97	103	22%	36	15%	139
	No Additional Role	381	84%	193	89%	574	365	78%	198	85%	563
	Total	453	100%	218	100%	671	468	100%	234	100%	702
Received Pay for Summer Research	Yes	239	53%	89	41%	328	260	56%	113	48%	373
	No	214	47%	129	59%	343	208	44%	121	52%	329
	Total	453	100%	218	100%	671	468	100%	234	100%	702
Received Pay for Additional Teaching	Yes	82	18%	26	12%	108	78	17%	37	16%	115
	No	371	82%	192	88%	563	390	83%	197	84%	587
	Total	453	100%	218	100%	671	468	100%	234	100%	702
Received Other Misc. Pay	Yes	98	22%	49	22%	147	126	27%	70	30%	196
	No	355	78%	169	78%	524	342	73%	164	70%	506
	Total	453	100%	218	100%	671	468	100%	234	100%	702

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table 2: Danforth Campus: Race/Ethnicity by Rank

	2014-15 GPE Analysis				2019-20 GRPE Analysis				5-year % change (2014-15 to 2019-20) in number of	
	Asian	URM	White	Total	Asian	URM	White	Total	Asian faculty	URM faculty
Assistant Professors	32	26	115	173	41	29	102	171		
Associate Professors without Tenure	2	1	9	12	1	1	8	10		
Subtotal Untenured	34	27	124	185	42	30	110	181	24%	11%
as % of total untenured	18%	15%	67%	100%	23%	16%	60%	100%		
Associate Professors with Tenure	23	13	131	167	21	31	120	172		
Full Professors	14	9	152	175	27	10	157	194		
Full Professors with Endowed Chair	15	7	122	144	23	14	118	155		
Subtotal Tenured	52	29	405	486	71	55	395	521	37%	90%
as % of total tenured faculty	11%	6%	83%	100%	14%	11%	76%	100%		
Total	86	56	529	671	113	85	505	702	31%	52%

Note that faculty were able to indicate more than one race/ethnicity category. Faculty members whose selections include an underrepresented category and include Asian are shown in both groups. White should be understood here to mean "white, not multiracial". Values in "Total" column are unduplicated counts, and may not be equal to the sum of the individual columns.

Figure 1: Danforth Campus: Faculty Time Since Degree, by Gender
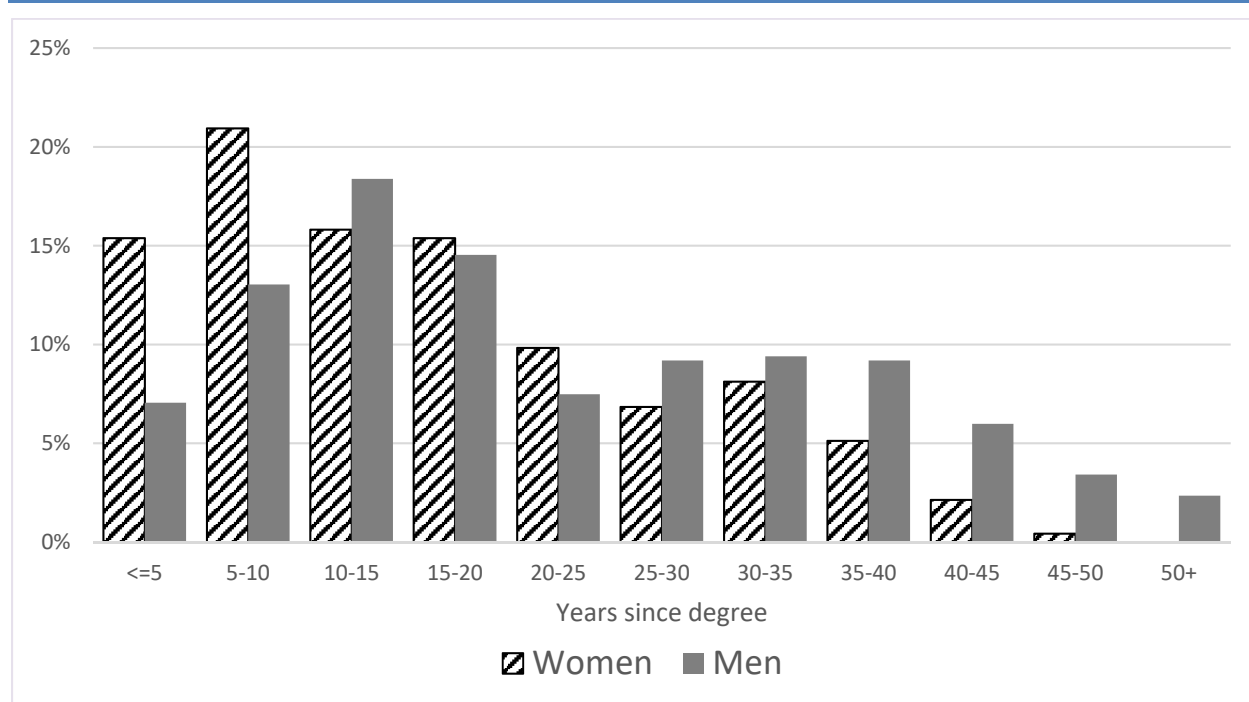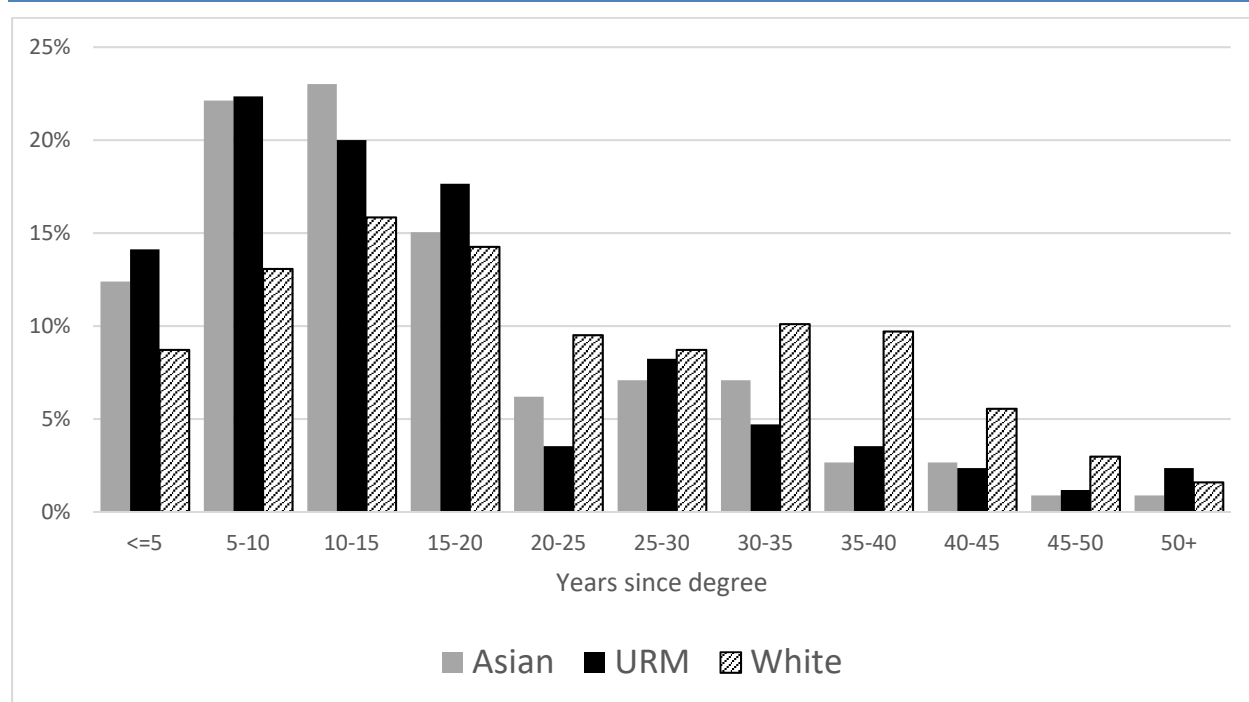

Figure 2: Danforth Campus: Faculty Time Since Degree, by Race/Ethnicity

III.   Methodology

The first goal of this work is to uncover potential gaps in pay between men and women and among people identifying with different race and ethnicity groups. The second goal of this work is to examine longitudinal changes to determine whether any such gaps have become smaller or larger since the last analysis. Serving both of these goals benefits from maintaining the methods used by the most recent 2016 Pay Equity Committee. For these reasons, the Gender and Race Pay Equity Committee (GRPE) followed the precedents set by previous pay equity committees.

For the central analyses, the Committee oversaw a series of multiple regression models ("ordinary least squares") to examine the potential results of gender and race/ethnicity. The American Association of University Professors (AAUP) recommends multiple regression analysis as the statistical method of choice for pay equity studies.[3] This method provides descriptive information about the association of a variable such as gender or race/ethnicity with pay, after controlling for the effect of other variables. In particular, models should control for variables that prescriptively should help to determine pay, namely academic discipline, rank, years since degree, and years at the university. The AAUP recommends against other methods, such as paired comparisons in which women and/or non-white individuals are matched with hand-selected individuals who have similar qualifications and who are male and/or white, because it is difficult to select appropriate counterparts for comparison. For this reason, the current report presents analysis conducted with the methodology recommended by the AAUP.

In order to maintain privacy regarding faculty pay, Institutional Research ran these models and Committee members did not have access to individually identifiable pay information.

IV.   Predicting Pay for Tenure-line Faculty

This report does not include p-values that indicate the results of Null-Hypothesis Significance Testing—that is, the determination of which results are statistically reliable. Although the group of faculty members examined by this study can be seen as a 'population' in that it includes all tenured and tenure-track faculty (with few exclusions detailed earlier), in fact the group of individuals is a 'sample' resulting from a process whereby a specific group of faculty members was present at Washington University on November 1, 2019 starting with the population of all academics. However, the Committee recognizes the value of having a threshold below which a coefficient is of insufficient confidence to interpret. For this report the threshold is that a coefficient is at least 2.0 times the standard error of its estimate.

The Committee analyzed three different measures of pay:
1. *Base Pay*: The pay a faculty member receives for their responsibilities as a professor.
2. *Total Pay*: All of the pay received by a faculty member from Washington University during an academic year; this includes base pay, pay for additional appointed administrative roles (e.g. department chair, associate dean, director of a program or center), plus supplemental forms of pay: summer research pay, overload / additional teaching pay, and other miscellaneous pay. Due to the Covid-19 pandemic it also includes some school-controlled summer research pay for Law and Business that was delayed but paid in the second half of 2020.

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[3] https://files.eric.ed.gov/fulltext/ED476226.pdf

3. *Total Pay minus Summer Research Pay*: Total pay as described above, excluding summer research pay. Although the situation differs by school, summer research pay often originates—directly or indirectly—from grants that faculty earn. This is often outside of the direct control of deans; these models are offered to help deans distinguish between aspects of pay that they influence more vs. less.

Note that pay was log-transformed in each case before analysis.[4]

The study employed regression analysis ("ordinary least squares") to model the relationship between gender and race and the log of pay while controlling for a set of covariates described below.

Control variables used to predict pay include:

Indicator for Female	
Indicator for Underrepresented Minority (where n ≥ 15)	
Indicator for Asian (where n ≥ 15)	
Discipline & rank index of peer salaries	
Tenure & Rank indicators	Tenured*
	Tenured Associate Professor*
	Full Professor
	Endowed Professor
Salaried Additional Roles	Chair / equivalent
	Other administrative role
Time	Years since degree
	Years since degree, squared
	Years at WU on Tenure Track
	Years at WU, squared

The control variable for academic discipline was based on data from peer institutions of Washington University. This number consists of the ratio for each rank and discipline compared with the peer universities' lowest-paid faculty discipline and rank: Assistant Professors in Music. These values appear in Appendix Table A10. This external market factor was first adopted by the 2016 Gender Pay Equity Committee to help account for disciplinary differences in pay. The 2021 Gender and Race Pay Equity Committee endorsed the continuation of this practice, with updated market salary data. We extracted available salary data for a peer group of research universities, 23 private and 23 flagship public institutions, representing 2018-19 salary data for over 40,000 ladder rank faculty, by discipline group and rank, to create an index variable referenced to the minimum value in the data set. Note that these data did not provide discipline distinctions with as much granularity as is used by the Olin Business School. For this reason, Olin provided additional data from 16 peer business schools for the 2019-20 academic year, offering the desired level of granularity. By combining data for the two sources, we were able to create an external market index factor including the disciplines of all the Danforth schools, to be used both in within-school and campus-wide analyses.

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[4] The transformation provides a more normal distribution of the dependent variable and helps in fitting models to the data. Using log of pay as the dependent variable also means that regression coefficients for the gender and race / ethnicity indicator variables can be interpreted as the approximate percentage difference in pay associated with membership in that group.

Other modeling considerations (variations by school, models attempted):

Models were run for each of the measures of pay for the Danforth campus as a whole, and for each of the six Danforth schools. To the extent feasible, models were run similarly across schools; special circumstances did lead to some variation, detailed here.

- The Danforth model contains a tenure flag and three rank flags; the school models flag tenured associate professor, combining these (so, do not have a separate tenure flag). The reference category is untenured faculty (which for many schools is the same as the Assistant Professor rank). Special details by school described below.
  - For most of the Danforth schools (with the exception of Law), untenured faculty members on the Tenure Track generally have the rank of Assistant Professor, and are promoted to Associate Professor at the time of granting tenure. In Business, however, there are a small number of Associate Professors who do not have tenure. This group is too small to be analyzed by itself (4 individuals); for the purpose of this analysis the Committee directed that they be combined with Assistant Professors.
  - Law is unusual in that they do not use the rank of Assistant Professor; in Law, all untenured faculty members on the tenure track have the title of Associate Professor.

  For all schools except for Law, the first rank flag is for Tenured Associate Professor. For Law, the only rank flag is for Full Professor.
- The two variables to flag salaried additional roles are used in the Total Pay models; they are not used in the Base Pay model (because Base Pay does not include salary from additional roles).
- Models for Law include time since first tenure track job, years since first tenure track job squared, and an indicator for lateral hire, and omit other timing variables.
- Models for the Danforth Campus as a whole include indicators for schools, and an indicator for tenured.
- We tried an alternate approach for handling tenure and rank in the Business School. Results were very similar; the Committee agreed to use the same approach as used for other schools.

Table 3 contains the regression coefficients for gender and race/ethnicity for the Danforth campus, as well as coefficients for gender for each school separately. It includes R-squared coefficients for each model, which indicate how well the control variables, gender, and race/ethnicity predict pay.

Figure 3 presents the coefficients of gender and race/ethnicity predicting Base Salary, Total Pay, and Total Pay Minus Summer Research pay for the Danforth Campus.

Table 3: Gender and Race Pay Equity on the Danforth Campus, 2019-20 data

School		Base Pay	Total Pay*	Total Pay minus summer research
A&S	Adjusted R squared	.79	.73	.79
	Coefficient for female	*-0.7%*	*-3.2%*	*-0.4%*
Olin	Adjusted R squared	.83	.71	.78
	Coefficient for female	*-5.5%*	**-10.5%**	**-11.7%**
Sam Fox	Adjusted R squared	.78	.74	.76
	Coefficient for female	*-1.2%*	*0.8%*	*0.7%*
McKelvey	Adjusted R squared	.71	.74	.84
	Coefficient for female	*-3.6%*	*-4.5%*	*-0.5%*
Law	Adjusted R squared	.48	.44	.49
	Coefficient for female	*2.1%*	*2.5%*	*2.4%*
Brown School	Adjusted R squared	.89	.74	.81
	Coefficient for female	*0.6%*	*0.3%*	*-0.3%*
Danforth Campus Schools	Adjusted R squared	.83	.82	.85
	Coefficient for female	*-1.4%*	**-3.6%**	*-1.8%*
	Coefficient for URM	*3.4%*	*3.0%*	**4.9%**
	Coefficient for Asian	*-2.7%*	*0.7%*	*-0.2%*

Note that italics indicate coefficients for which the ratio of the coefficient to the standard error is less than 2.0, and bold font indicates those that exceed this criterion.

Figure 3: Analyses of gender and race/ethnicity for three outcomes

Showing each coefficient with 2x standard error of estimate of that coefficient.
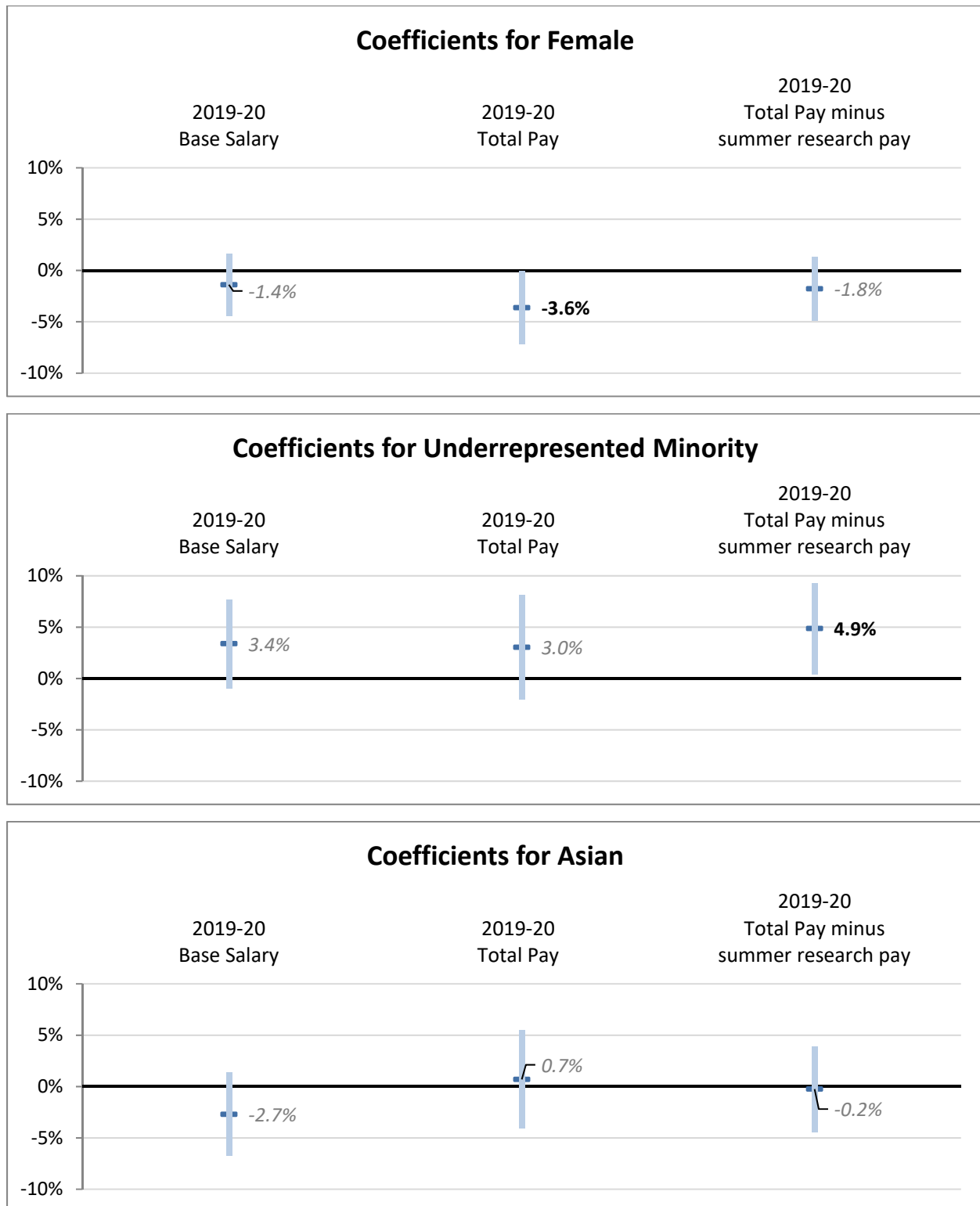
Coefficients for Female

2019-20 Base Salary	2019-20 Total Pay	2019-20 Total Pay minus summer research pay
-1.4%	**-3.6%**	*-1.8%*

Coefficients for Underrepresented Minority

2019-20 Base Salary	2019-20 Total Pay	2019-20 Total Pay minus summer research pay
3.4%	*3.0%*	**4.9%**

Coefficients for Asian

2019-20 Base Salary	2019-20 Total Pay	2019-20 Total Pay minus summer research pay
-2.7%	*0.7%*	*-0.2%*

Coefficients in *grey italics* are smaller than 2.0 times their standard error, which is the threshold in this report used for interpreting an effect.

Due to the log transformation of the pay variable used here, the coefficients shown can be interpreted as percentage differences. In the figures above, an error bar is drawn that is 2x the standard error of the estimate of each coefficient; when this bar does not cross zero, we interpret the coefficient. As discussed above, this is an arbitrary threshold chosen for the sake of this report.

1. 2019-20 Pay Equity, Danforth Overall

For the Danforth Campus overall, women have lower Total Pay (-3.6%) than men. The gender difference in Base Pay and Total Pay Minus Summer Research does not reach the threshold of exceeding 2.0 times the standard error of the estimate.

The 2021 Pay Equity committee is the first to report on race as a potential predictor of salary at Washington University. In particular, models compared the pay for white faculty with the pay of underrepresented ethnic and racial minority (URM) and Asian faculty members. The designation of URM includes the groups under-represented at U.S. research universities compared to their proportion in the U.S. population: African American, Hispanic or Latino, and Native American, Alaskan, Hawaiian or other Pacific Islander.

Figure 3 contains plots of coefficients for URM and Asian faculty with 2x standard error of estimate of the coefficients for 2019-20 data, showing all six Danforth schools together and three dependent variables. URM faculty are paid more than white faculty, with a coefficient of 5.2% for Total Pay minus Summer Research, after accounting for other covariates, which crosses the threshold of 2.0 times the standard error (i.e., with a ratio greater than 2.0 for the coefficient to the standard error). Asian faculty are not paid different amounts than white faculty.

2. 2019-20 Pay Equity, by School

Figure 4 (next page) presents gender coefficients separately by school. The only effects for which the bar representing 2 times the standard error does not cross zero are for the Olin School of Business. In particular, the coefficient for female was -10.5% for Total Pay, and -11.7% for Total Pay Minus Summer Research.

Examining the six Danforth schools individually, and reporting regression coefficients for the individual schools only where the ratio of the coefficient to the standard error is greater than 2.0, there was one reliable finding: In Arts & Sciences, URM faculty are paid more for Base Pay (6.4%), Total Pay (5.3%), and Total Pay minus Summer Research (7.7%). Note that, due to uneven numbers of faculty across race, we included coefficients only for those racial/ethnic groups for which there were 15 or more members.

We now turn to examining supplemental sources of pay, for which some group differences were observed.

Supplemental Sources of Pay

Appendix Table A11 lists counts and percentages of paid administrative roles by gender, and Appendix Table A12 does the same by race / ethnicity. We note that these numbers do not account for job rank, and so differences could result from differences in rank given that the most senior faculty tend to be tapped for these opportunities. Note that below we report differences by

Figure 4: Analyses of gender for three outcomes: Individual Schools

Showing coefficient for female with 2x standard error of estimate of coefficient for female

Coefficients in *grey italics* are smaller than 2.0 times their standard error, which is the threshold in this report used for interpreting an effect.

racial/ethnic group only for groups with at least 15 members in the particular School. (In the data being examined there were no situation in which we had between 5 and 14 cases to consider.) We also note that this study did not examine the salary amounts provided for administrative roles across schools.

Arts & Sciences

Summer research pay: Women receive a lower percentage of their base pay in summer research funding than men did (5.8% vs. 8.4% of base pay), but this difference disappears when examining only those who receive this type of pay (19.7% vs. 20.9% of base pay).

There appear to be differences across race/ethnicity in summer research pay, with Asian faculty (9.3%) receiving a larger percentage of their base pay in summer research pay than white (7.6%) or URM (5.4%) faculty. When examining only those who receive this type of pay, Asian (19.5%) and white (21.5%) faculty receive more than URM faculty (15.2%), expressed as a percent of base pay.

Further analyses examined summer research only for individuals in Arts & Sciences STEM (Science, Technology, Engineering, and Mathematics) fields, because these are the primary fields for which faculty seek external funding. STEM fields within Arts & Sciences include Biology, Chemistry, Earth and Planetary Sciences, Mathematics, Physics and Psychological & Brain Sciences. In these fields, women earned a slightly higher percentage of their base pay in summer research funding than did men (18.6% vs. 16.2%), but this difference disappears when examining only those who receive this type of pay (22.5% vs. 22.0%). In STEM fields, still looking at summer research pay as a percent of base pay, white faculty (17.2%) receive more than Asian (15.4%) or URM (12.6%) faculty. When examining only those who receive this type of pay, white faculty (22.7%) receive more than Asian (20.5%) or URM (18.0%) faculty.

Paid administrative roles: Women hold paid administrative roles at a slightly lower rate than men (15% vs. 19%). Paid administrative roles were more common for White (19%) than Asian (13%) or URM (12%) faculty.

Olin School of Business

Summer research pay: All untenured faculty typically receive internally-funded summer pay each year, whereas this is negotiated for tenured faculty members. The percentage of base pay was essentially equal for men (20.8%) and women (21.6%) who receive this type of pay. The percentage of base pay was essentially equal for faculty across race/ethnicity (white 21.0%, URM 22.0%, and Asian 21.2%).

Additional teaching: In the Olin School, a major source of supplemental pay is teaching includes executive programs, global programs, and additional courses in standard degree programs. Among tenured faculty—the primary individuals asked to do additional teaching—men received an average of $40,099 compared with women receiving $17,239. This means that men are earning about 2.3 times as much as women are for overload teaching. Faculty who are white (not multiracial) received an average of $43,190 compared with Asian faculty receiving $19,617. This means that white faculty are earning about 1.6 times as much as their Asian counterparts from overload teaching. (There were insufficient numbers of URM faculty to include in this comparison.)

Paid administrative roles: Women hold paid administrative roles at a lower rate than men (21% vs. 45%). Paid administrative roles were 45% for Asian faculty and 37% for White faculty.

McKelvey School of Engineering

Summer research pay: Women receive approximately the same percentage as men of their base pay in summer research funding (23.3% vs. 24.3% of base pay), but a gender difference appears when examining only those who receive this type of pay (23.3% vs. 28.1% of base pay). There appear to be differences across race/ethnicity in summer research pay, expressed again as a percent of base pay, with URM (33.3%) faculty receiving more than Asian (26.2%) or white (21.0%) faculty. When examining only those who receive this type of pay, again expressed again as a percent of base pay, URM (33.3%) faculty receive more than Asian (28.0%) or white (25.6%) faculty.

Paid administrative roles: Women hold paid administrative roles at a lower rate than men (13% vs. 21%). Paid administrative roles were 29% for White faculty and 13% for Asian faculty

Sam Fox School of Design & Visual Arts

Summer research pay: There is very little supplemental pay in Design & Visual Arts, with no summer research pay.

Paid administrative roles: Women hold paid administrative roles at a lower rate than men (15% vs. 19%).

Law

Summer research pay: The amount of summer pay was essentially the same for women and men, for all faculty (8.4% vs. 8.0%) and for only those receiving this type of pay (9.1% vs. 8.9%). The number of individuals of URM or Asian race/ethnicity was insufficient for analysis.

Paid administrative roles: Women hold paid administrative roles at a higher rate than men (38% vs. 30%).

Brown School

Summer research pay: Women receive lower levels of summer research pay (13.7% vs. 16.2%), and this difference remains when examining only those who receive this kind of pay (15.8% vs. 18.5%). There appear to be differences across race/ethnicity in summer research pay, with white (16.2%) faculty receiving more than URM (14.0%) or Asian (8.4%) faculty. When examining only those who receive this type of pay, white (18.1%) faculty receive more than URM (16.2%) or Asian (12.5%) faculty

Paid administrative roles: Only two faculty hold paid administrative roles, and both of these roles are held outside of the Brown School.

3. 2019-20 Pay Equity, Nested Models

A series of models were calculated to explain why there are nearly no significant coefficients for gender, and yet there are sometimes reports of a common intuition that male faculty are more highly paid. The models in this analysis are called *nested models* because they build upon each other in a progressive fashion. By comparing effect size for individual coefficients and adjusted R-squared for whole models, one can see the influence of the explanatory variables added to successive models.

Here, we used four models to examine base pay and total pay.
- Model 1 predicts pay using only an indicator variable for gender.
- Model 2 predicts pay using indicator variables for gender and race.
- Model 3 adds a set of rank and time variables, to model the effect of time since degree, time at Washington University, being promoted and tenured, and being granted an endowed chair.
- Model 4 includes all of the predictors in Model 3, and adds a term to account for discipline differences – the external market index factor.

These nested models for Base Pay and Total Pay appear in Tables 4 and 5, respectively.

Both models illustrate that large apparent gender differences in Model 1 (-18.1% for Base Pay and -21.2% for Total Pay) are mostly explained away by control variables. This is particularly the case for the difference between Model 1 and Model 3, in that women tend to occupy lower ranks and have had fewer years of experience. For this reason, controlling for these factors vastly reduces the coefficient for female (-6.7% for Base Pay and -10.1% for Total Pay). Finally, Model 4 reduces the gender coefficients further as the control variable for academic discipline is added (-1.6% Base Pay and -3.8% Total Pay), which happens because women tend to be concentrated in lower-paying fields.

In terms of race/ethnicity, Model 3 for both Base Pay and Total Pay have significant coefficients indicating greater pay for Asian faculty, and in both cases these coefficients disappear in Model 4 when the discipline variable is added. (Note that for Total Pay the variable for administrative pay is also added during this step.) This change indicates that Asian faculty serve in greater number in disciplines that have higher vs. lower pay. For this reason, controlling for discipline is important when attempting to draw conclusions from these data.

4. Comparison with Previous Pay Equity Models

The Total Pay model examined here is directly comparable to the Total Pay model examined in the 2016 report that analyzed 2014-15 data.

Figure 5 illustrates these coefficients separately by school. In analyses of the 2014-15 data, all six schools showed a negative gender coefficient. In the current analyses of 2019-20 data, three schools have a negative coefficient (Arts & Sciences, Olin, and McKelvey) and three schools have a positive coefficient (Sam Fox, Law, and the Brown School).

We note that the Sam Fox School, Law, and the Brown School all have gender coefficients that have flipped from negative to positive signs, and Arts & Sciences has a negative coefficient that is closer

Table 4: Nested models, decomposing effects: Base Pay

Decomposition of effects on base pay during 2019-20, using nested models.
Dependent variable is the natural log of base pay.

School	Model statistics	Model 1	Model 2	Model 3	Model 4
		Coefficients included:			
		• Female	• Female • URM, Asian (where n>=15)	• Female • URM, Asian • Rank & time variables	• Female • URM, Asian • Rank & time variables • Peer discipline ratio
Arts & Sciences	Coefficient for Female	**-20.0%**	**-19.7%**	**-5.7%**	*-0.7%*
	Adjusted R Squared	0.054	0.054	0.640	0.789
Olin	Coefficient for Female	**-22.3%**	**-22.5%**	**-9.4%**	*-5.5%*
	Adjusted R Squared	0.154	0.157	0.713	0.83
Sam Fox	Coefficient for Female	-17.6%		*-2.9%*	*-1.2%*
	Adjusted R Squared	0.083		0.762	0.778
McKelvey	Coefficient for Female	*-12.9%*	*-12.8%*	*-3.6%*	*-3.6%*
	Adjusted R Squared	0.015	0.014	0.688	0.713
Law	Coefficient for Female	*-0.8%*		*2.1%*	
	Adjusted R Squared	-0.032		0.484	
Brown School	Coefficient for Female	*-13.8%*	*-15.7%*	*0.7%*	*0.6%*
	Adjusted R Squared	0.027	0.088	0.887	0.886

School	Model statistics	Model 1	Model 2	Model 3	Model 4
Danforth	Coefficient for Female	**-18.1%**	**-17.4%**	**-6.7%**	*-1.4%*
	Coefficient for Asian		*2.1%*	**7.3%**	*-2.7%*
	Coefficient for URM		*-8.4%*	*0.2%*	*3.4%*
	Adjusted R Squared	0.037	0.038	0.459	0.835

Models 3 and 4 for A&S, Business, D&VA, Engineering, and Social Work include variables for years since degree, years since degree squared, years at WashU on the tenure track, years at WashU on the tenure track squared, indicator for tenured associate professor, indicator for full professor, and indicator for endowed professor. Model 4 also contains the peer discipline ratio variable. Model 3 for Law includes time since first tenure track job, years since first tenure track job squared, and an indicator for lateral hire. Model 4 for Danforth also includes indicators for schools. Coefficients in grey italics are smaller than 2.0 times their standard error, which is the threshold in this report used for interpreting an effect.

Table 5: Nested models, decomposing effects: Total Pay

Decomposition of effects on total pay during 2019-20, using nested models.
Dependent variable is the natural log of total pay.

School	Model statistics	Model 1	Model 2	Model 3	Model 4
		Coefficients included:			
		• Female	• Female • URM, Asian (where n>=15)	• Female • URM, Asian • Rank & time variables	• Female • URM, Asian • Rank & time variables • Peer discipline ratio • Admin roles
Arts & Sciences	Coefficient for Female	**-22.0%**	**-21.7%**	**-8.2%**	*-3.2%*
	Adjusted R Square	0.061	0.060	0.598	0.731
Olin	Coefficient for Female	**-27.7%**	**-28.2%**	**-13.6%**	**-10.5%**
	Adjusted R Square	0.159	0.179	0.674	0.712
Sam Fox	Coefficient for Female	*-14.4%*		*0.4%*	*0.8%*
	Adjusted R Square	0.032		0.722	0.744
McKelvey	Coefficient for Female	*-11.2%*	*-11.2%*	*-3.9%*	*-4.5%*
	Adjusted R Square	0.007	-0.003	0.671	0.742
Law	Coefficient for Female	*1.1%*		*2.8%*	*2.5%*
	Adjusted R Square	-0.032		0.312	0.436
Brown School	Coefficient for Female	*-20.8%*	**-22.8%**	*-1.3%*	*0.3%*
	Adjusted R Square	0.053	0.088	0.748	0.741

School	Model statistics	Model 1	Model 2	Model 3	Model 4
Danforth	Coefficient for Female	**-21.2%**	**-20.3%**	**-10.1%**	**-3.6%**
	Coefficient for Asian		**10.3%**	**13.9%**	*0.7%*
	Coefficient for URM		*-8.3%*	*-0.7%*	*3.0%*
	Adjusted R Square	0.040	0.048	0.422	0.818

Models 3 and 4 for A&S, Business, D&VA, Engineering, and Social Work include variables for years since degree, years since degree squared, years at WashU on the tenure track, years at WashU on the tenure track squared, indicator for tenured associate professor, indicator for full professor, and indicator for endowed professor. Model 4 also contains the peer discipline ratio variable and additional paid administrative roles. Model 3 for Law includes time since first tenure track job, years since first tenure track job squared, and an indicator for lateral hire. Model 4 for Danforth also includes indicators for schools. Coefficients in grey italics are smaller than 2.0 times their standard error, which is the threshold in this report used for interpreting an effect.

Figure 5: Historical Comparison Graphs – Total Pay Models

Showing coefficient for female with 2x standard error of estimate of coefficient for female

Arts & Sciences
2014-15 Total Pay: -4.5%
2019-20 Total Pay: -3.2%

Olin
2014-15 Total Pay: -1.5%
2019-20 Total Pay: -5.5%

Sam Fox
2014-15 Total Pay: -5.0%
2019-20 Total Pay: 0.8%

McKelvey
2014-15 Total Pay: -3.0%
2019-20 Total Pay: -4.5%

Law
2014-15 Total Pay: -7.5%
2019-20 Total Pay: 2.5%

Brown School
2014-15 Total Pay: -7.9%
2019-20 Total Pay: 0.3%
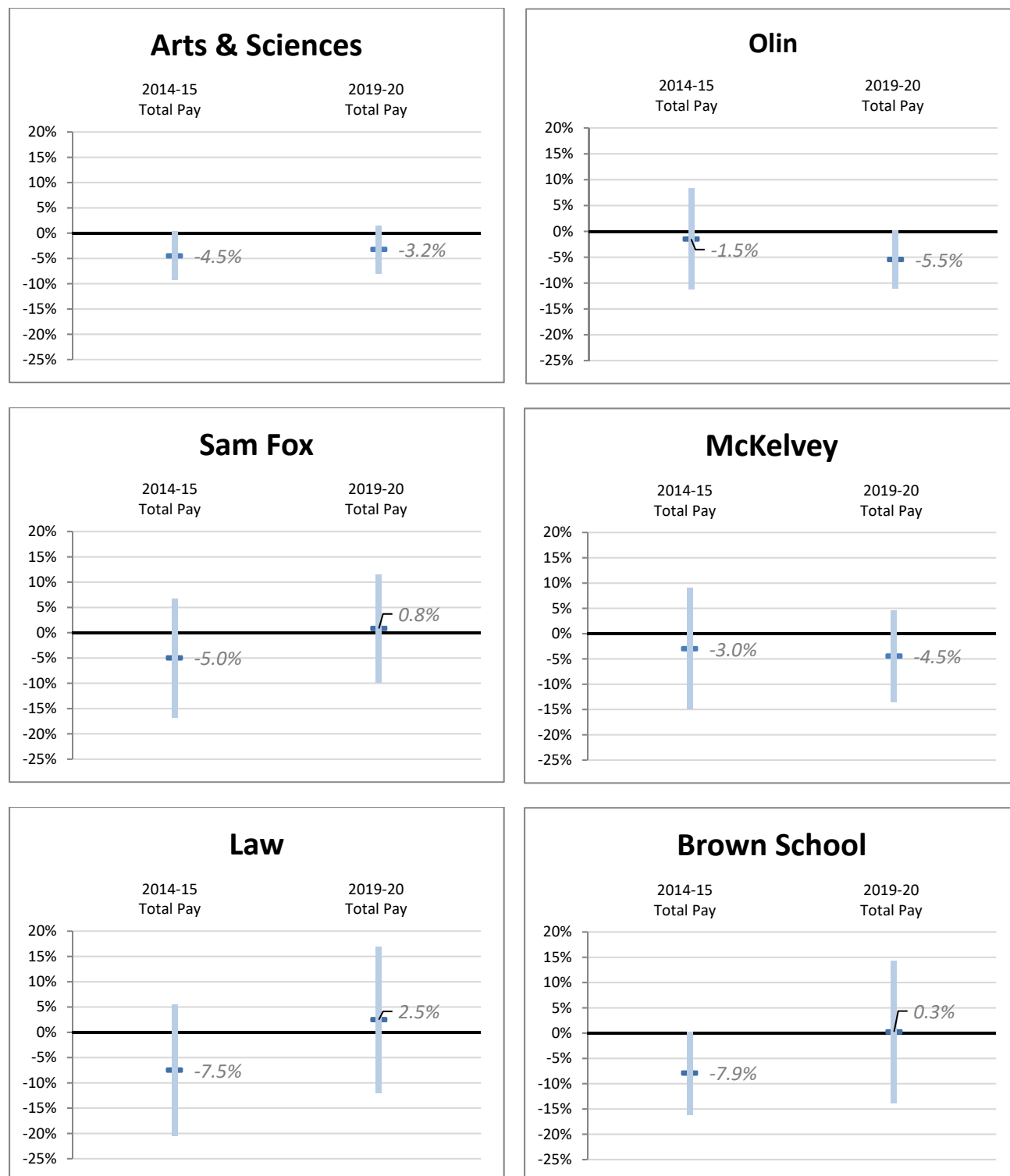
Coefficients in *grey italics* are smaller than 2.0 times their standard error, which is the threshold in this report used for interpreting an effect.

to zero. McKelvey and Olin have coefficients that are in a greater negative direction. Of these, Olin's coefficient is greater than two times the standard error

Note that the 2016 report analyzing data from 2014-15 did not report on race/ethnicity, and so no comparison is presented here.

V.   Rates of Faculty Retention

The committee explored whether retention differed by gender or race/ethnicity.

The first method examined the retention of faculty in five-year starting cohorts. In this analysis, a faculty member receives an integer value for the number of years they remain at Washington University, which is defined as being present on November 1 of the new fiscal year.

Looking at faculty here between 1997 and 2001, women stayed an average of 2.0 years less than did men. In the subsequent cohort – 2002 to 2006 – women stayed 2.2 years less than did men. This difference was quite a bit less in later cohorts (0.6 years, 0.3 years, and -0.1 years for the cohorts 2007-2011, 2012-2016, and 2017-2021, respectively). Race differences are present here as well: in the cohort here between 1997 and 2001, URM faculty stayed 3.0 years less than non-URM faculty. Again, this difference decreased and became negligible in later cohorts (see Table A13 for more detail). For Asian faculty, there was little difference in the 1997 to 2001 cohort, but non-Asian faculty hired in the 2002 to 2006 cohort spent 1.1 years longer than Asian faculty at WashU. The difference was negligible for later five-year cohorts.

These data suggest there were noteworthy differences in retention for female (vs. male) and URM (vs. non-URM) faculty who began at Washington University between 1997 and 2006—in the direction of lower retention for women and URM faculty—but not for those who began in 2007 or later.

The second method was to examine the percentage of individuals employed on November 1, 2009 who remained employed 10 years later on November 1, 2019. Although there are differences across schools, on an overall Danforth campus level there are no apparent differences for male vs. female faculty or Asian vs. non-Asian faculty. However, URM faculty were more likely to be retained over this ten-year period.

Further examining specific schools when race/ethnicity categories contained 10 or more individuals, there is a greater than 5% difference in retention rates for the following groups: In Arts & Sciences, URM faculty were retained at greater rates than non-URM (76% vs. 57%). In the Olin School, Asian faculty were retained at greater rates than non-Asian faculty (64% vs. 49%). In Sam Fox, there was greater retention for women vs. men (40% vs 68%). In McKelvey, Asian vs. non-Asian faculty were retained at a greater rate (61% vs. 47%). In the Brown School, women were retained at a greater rate than men (56% vs. 44%).

VI.   Longitudinal Analysis of Pay

Following the recommendation of the 2016 committee, the 2021 committee analyzed longitudinal trends in pay and pay increases.

First, we examined annual raises. Data were analyzed from 11 years from 2009-2019, to provide 10 annual increases. Analyses examined the same group as the pay equity analyses above, i.e., tenured and tenure-track, excluding administrators, etc.

Gender: During this time period, the mean raise for women was 4.04% and the mean raise for men was 3.71%; the medians for both groups were 3.00%. This indicates that raises were largely similar by gender, with a small advantage to women. Note that women tend to be concentrated in lower ranks and lower-paid academic fields, which means that a raise of any given dollar value would constitute a greater percentage increase. Further examining raises by rank and school, the same small advantage for women appears to be similar across these factors. It is possible that some differences resulted from adjustments made disproportionately for women following previous Pay Equity studies.

Race/ethnicity: Based on this analysis, raises for URM, Asian, and white (not multiracial) faculty were a mean of 4.16%, 4.07%, and 3.74%, and medians for all three groups were 3.00%. From the results, we conclude that raises were largely similar across race/ethnicity, with a small advantage to non-white faculty. Note that non-white faculty tend to be concentrated in lower ranks, which means that a raise of any given dollar value would constitute a greater percentage increase.

Second, we examined raises at the time of promotion to a higher rank. For the promotion from assistant professor to associate professor with tenure, women received larger raises on average in Arts & Sciences (11.57% vs. 10.64%), Olin (17.71% vs. 15.59%), and the Brown School (11.56% vs. 10.92%). (Other schools did not have enough women experiencing this promotion during this time period to report.) For the promotion from associate professor with tenure to full professor, women received larger raises on average in Arts & Sciences (14.38% vs. 11.31%) and men received larger raises on average in Olin (18.59% vs. 17.67%).

VII.   Recommendations

The results above raised a number of areas for which we suggest further investigation and policy changes.

1. *Examining gender differences in paid administrative roles*
   It is important to understand better the reasons behind the gender gap in paid administrative roles and to consider potential remedies.

   There is a gender difference in holding paid administrative roles: men do more of this than women do. Similarly, the percentage of faculty taking on these roles is smaller from faculty who identify in racial or ethnic groups that are underrepresented than white or Asian faculty. (Appendix Tables A11 and A12).

   The Committee notes multiple potential explanations for these differences, and does not endorse any one explanation in particular. It is possible that access to these opportunities varies by gender and race/ethnicity. It is alternately possible that there is equal access, and these groups make different choices or are unable to partake in these opportunities. This could result from other demands on their time, interests, and/or priorities, or from inadequate support to take on these roles that are often associated with demands outside of business hours. However, other data speak against this explanation, notably that the Washington University Faculty Work Life Survey (https://provost.wustl.edu/institutional-data/faculty-work-life-survey/) found that

men are more likely to be asked to take on a leadership role but express no greater willingness to serve. Understanding the cause of this gender difference is important for determining how to address it.

The Committee makes two recommendations. First, we suggest that the Faculty Senate Council (FSC) request a report from the Provost approximately every three years with **a list of all individuals invited for paid leadership roles and whether they accepted these roles.** This will contain information provided by the deans and/or department chairs. Second, we request that the Provost direct Institutional Research to add to the next possible **faculty survey questions regarding whether individuals have been offered paid leadership roles, and if declined then the reasons**.

2. *Examining gender and race/ethnicity differences in summer pay*
It is important to understand better the reasons behind the gender and race/ethnicity gaps in summer salary in certain schools and to consider potential remedies. In particular, women who receive summer pay in McKelvey and the Brown School earn a lower amount as a percentage of their salary than men earn. URM faculty in Arts and Science STEM fields receive lower percentages of summer salary than their Asian or white peers. However, in Engineering and the Brown School, URM faculty receive a higher percentage of their base pay in summer salary than do Asian or white peers.

The Committee recognizes that summer pay in McKelvey, Brown, and Arts & Sciences is typically the result of grants that are determined outside the discretion of the university. However, the University may still have a role to play in enhancing grant-writing success, depending on the deeper cause of the difference. Below the Committee presents hypotheses without endorsing any of them. The university also has a role to play in sharing information with faculty members about typical rates of allocating grant funds to their own pay.

a. One possible explanation for differences in summer pay is that members of some faculty groups may submit proposals that are objectively more competitive and/or in greater frequency or volume. If so, this difference could potentially be addressed with mentoring and support for grant writing. Much of the information about how to write a successful grant proposal is provided informally through senior colleagues and other professional network connections. These informal sources might be less available to members of some groups than others. There are unwritten norms about how to craft a successful proposal and what amounts and types of expenses are considered reasonable by granting agencies. Further, there are informal sources about special calls for proposals, and information about these solicitations is often disseminated through faculty members' networks. **A different committee might further investigate differences in grant funding. It could study to what extent there are group differences** in, e.g., the number of proposals, amounts, sources, acceptance rates, and other factors, and could consider resources to remedy any differences in a manner that is neutral with respect to race/ethnicity and gender.

b. A second possible explanation is that grant resources are similar across groups and faculty members make different choices about how to allocate their grant funding.

We also ask that **the FSC request that the university release information about the average allocation of grant resources, including the typical amounts (expressed in**

percentage of salary) that individuals use to increase their pay. The goal is to be transparent about norms. The university should examine possible group differences in how faculty members allocate their grant funds. Greater summer salary for men could result from men having larger grant resources or it could result from differences in men's choices about how to use these resources. Women might choose to spend more of their grants not on their own salary but on the salary of other individuals such as students and post-docs. This might result from an active choice, or it might result from a lack of information about the norms for paying oneself. If these decisions result from a deliberate tradeoff by men vs. women about how they invest in their research program—as opposed to lower access to resources or an incomplete understanding of norms for using those resources—then that offers a different interpretation for women's lower summer research pay. Making this information transparent might encourage some individuals to allocate more grant funding to their own pay and, by contrast, it might encourage some individuals to allocate more grant funding to supporting the generation of researchers. We also recommend that the Provost direct Institutional Research to add to the next possible **faculty survey questions about grant allocation choices** for individuals in STEM fields.

c. Another possible explanation could be discrimination in the grant review process. The Committee recommends that **the Vice Provost for Faculty Affairs and Diversity review grant mentorship resources and consider programming and other resources** that enhance support for faculty members who are the most likely to experience this discrimination, i.e., women and URM faculty, in order to counteract potential disadvantages in the grant evaluation process that are outside of Washington University's control.

Dedicated staff members could help to identify potential sources of funding for each interested faculty member. A mentorship program could systematically encourage more 'friendly review' of proposals and informal discussions about grant writing. Resources could be provided in the form of seed funds to demonstrate the feasibility of proposals, the paid external review of manuscripts, and potentially course releases. An internal committee could be used for vetting proposals and providing feedback in advance of submitting them to grant agencies. To the extent that group differences in grant funding could result from differences in informal networks, this gap could be bridged through targeted efforts.

Note that any new programs should be offered to all faculty members, regardless of gender or race, although they will disproportionately help those whose existing networks do not already provide systematic mentorship.

3. *Examine retention rates by gender and race/ethnicity*
The current analysis controls for faculty rank, but it does not investigate the possibility that individuals across groups may experience differential treatment in their promotions to higher ranks. For example, women may face greater difficulty in gaining promotions to tenure and/or full professor. If the sorting process into rank is more strenuous for some groups than others, then the act of controlling for rank may hide inequities in pay. Note that the promotion to full professor does not happen on a pre-determined timetable, and so decisions are made in a potentially idiosyncratic way about when to begin this promotion process.

The Committee notes that there is a relationship between retention rates and pay equity. If the lowest paid individuals who are female and/or non-White depart from Washington University,

this would give the appearance of greater pay equity, when it instead results from the dynamic effects of inequity over time. For this reason, we suggest that the university release annual reports on faculty promotion rates.

The Committee makes two recommendations:

First, we suggest the FSC request that **the Provost release to the Faculty information about retention rates across race/ethnicity and across gender, particularly promotion rates for junior faculty members**. Data on promotion and tenure rates are critical to understanding pay equity at Washington University.

Second, we suggest that **the FSC request that the administration implement a faculty exit survey**. It is critical for Washington University to determine the reason for faculty departures. This topic is related to pay equity because the lowest paid female and/or non-White individuals depart more often from Washington University, this would give the appearance of greater pay equity, when it would instead result from the dynamic effects of inequity over time.

Our analyses of retention were able to account only for the binary variable of whether or not the faculty member remained at the university. However, there are many reasons why a member might leave, and these reasons should be treated distinctly in analysis. Some reasons for departure represent a potential step up (i.e.., raise, promotion, more prestigious institution) vs. a step down (i.e., denied tenure), some represent concerns with the school (e.g., work-life balance), some reflect the school's absence of concern about the departure (e.g., the school might prefer to have the line open to hire someone else), some are neutral to the school's role (i.e., geography), and some should be removed from analysis (i.e., retirement).

The exit survey should be administered prospectively to departing faculty members as well as retrospectively to those who have departed in the past 10 years. The exit survey should *not* be anonymous nor strictly confidential, because the data need to be available to the next Pay Equity Committee—both for potential follow-up as well as matching with other information such as demographic background, length of service, rank, field, etc. An anonymous or strictly confidential survey has little use, because there is no way to act on most information that may be revealed. Instead, the survey should be identifiable to members of the university administration and faculty committees. Respondents can be advised that they should share only information that they are comfortable with being known to their department chair and dean, those in the Provost's and chancellor's offices, and committees appointed by the FSC. Any public release of information would be strictly in aggregated form.

The Committee developed the brief survey below, which contains a checklist of reasons for departure.

> Please indicate the reasons why you left Washington University.
> Check all that apply:
> - Compensation
>   - Greater financial compensation in my new position
>   - Greater non-financial compensation in my new position (e.g., laboratory space)
> - Promotion
>   - Received a promotion at my new university

- o Tenure was unlikely at Washington University
- o Spouse's tenure was unlikely at Washington University
- o Did not get tenure at Washington University
- o Will now obtain a desired administrative role
- Improved professional environment
  - o Moving to a more prestigious department
  - o Moving to a more prestigious university
  - o Moving for more colleagues in a particular research topic area
  - o Moving for a more supportive work environment
  - o Moving for a more inclusive work environment
  - o Moving for increased time for research
  - o Moving for better work-life balance
- Physical location
  - o Preferred/needed the new location over St. Louis
  - o Moving to a location closer to family
- Personal
  - o Left to pursue a non-academic job
  - o Exited the workforce for personal reasons
  - o Transitioned to part-time employment
  - o Left to improve spouse/partner employment
  - o Caregiving responsibilities
  - o Retirement
- Other [open-ended opportunity to fill in]

Two additional optional open-ended questions could ask:
1. Is there anything else you would like to tell the university about your reason for leaving?
2. Is there anything that Washington University could have done for you to stay?

The urgency of collecting this information cannot be overstated.

4. *Monitor for gender and race/ethnicity differences in retention packages*
Retention negotiations should be monitored for potential differences by gender and/or race. We do not know if these factors are involved in setting pay at Washington University, and for this reason we ask **th**e FSC to request that the Deans and department chairs collect data on retention.

Salary adjustments are often made when negotiating retention offers due to outside job offers. It is possible that there are gender and/or racial differences in seeking outside opportunities. For example, female faculty members may be less likely to obtain outside offers, controlling for quality of scholarship. The first reason is structural, in the sense that they may be less willing to disrupt their family life. The second reason is perceptual, as they may be seen by colleagues at other universities as less 'movable', and for this reason they may not be considered in the applicant pool when senior-level positions are filled through searches that rely heavily on informal networks. When female faculty do receive outside offers, they may not receive a retention offer to the extent that her department assumes she is less serious about moving to a new position due to hesitation to relocate family members.

Given the far-reaching implications of negotiated agreements on salary, the Committee urges that Deans be particularly mindful of potential group differences in salary negotiations, at both the time of initial hiring and retention negotiations. Initial salary serves as an important benchmark for future salary increases. The Committee recognizes the dilemma during salary negotiations to balance equitable treatment with market forces based both on quality of scholarship and the ability to negotiate. Given that there may be gender differences in the willingness to seek outside opportunities, Deans should be mindful of how gender inequity could seep into the process.

Accordingly, the Committee urges the FSC to request that the Provost **require a brief record for each dean or department chair to complete any time when presented with an outside offer**. This record should contain the items below. The information should be recorded at the time the offer is presented, and at the close of each fiscal year these logs should be provided to the Provost.

External offer log:
- Name of faculty member
- Gender and race/ethnicity of faculty member
- Institution of outside interest
- Is the alternate institution / department more highly ranked, a peer, or less highly ranked?
- Did the outside institution extend a firm offer?
- Amount of the outside offer
    i. Financial compensation
        1. Base Pay
        2. Additional pay (e.g., housing assistance, assistance with children's daycare or school tuition expenses)
    ii. Additional non-financial compensation in the offer (e.g., promotion to a new rank, new administrative role, additional research support, employment of partner).
    iii. A copy of the outside offer should be retained.
- Did WU make a counteroffer? If so, list all offers and counteroffers.
- If additional compensation was offered, were any other faculty members offered additional compensation in order to preserve equity?
- If no additional compensation was offered, list reasons why not.
- Was the faculty member retained?

We ask that future Pay Equity Committees or other university representatives examining pay equity be provided access to these logs for analysis.

In addition, we also recommend that the Provost direct Institutional Research to add to the next possible **faculty survey questions about pursuing outside offers**. This would be in a separate survey from the Washington University Faculty Work Life Survey, so that it can be fully anonymous. In particular, individuals should be asked to report (a) the number of occasions on which they have interviewed for outside opportunities, and (b) how likely they would be to interview for an outside opportunity that they would not actually accept if offered.

5. *Promotable vs. non-promotable tasks*
   There was no analysis of unpaid roles, and recent faculty climate surveys suggest that women and people of color perceive a greater burden from these roles. Such roles are generally what are called 'non-promotable tasks', in that performing them is valuable to the community and yet does not count towards career advancement and reduce time available for 'promotable tasks' such as research and paid administrative roles. (Whether a role is promotable often corresponds with whether or not the role is paid, although not always.) For example, the 'gender tax' refers to the notion that ad hoc committees wish to have gender representation, but the smaller number of women faculty members leads to disproportionate service on the part of women. The service differential is further enhanced by students' greater tendency to seek out women faculty for support and informal mentorship. A similar dynamic affects individuals from underrepresented racial/ethnic groups. Extensive time on non-promotable tasks may crowd out time for promotable tasks. Accordingly, **we applaud the university's recent initiatives to examine equity in service levels, including the recent creation of a task force for service equity**. The new initiative by Arts and Sciences to create a 'service dashboard' indicates one possible tool that all schools could implement. It is important to note that merely having a person's name on a committee assignment is not a guarantee that the person is doing heavy lifting on the committee. The dashboard might request objective data such as estimating the approximate number of hours spent on meetings and tasks outside meetings, with some initial examination of how to do so with the least burden to faculty providing this information. To minimize the reporting burden, faculty should be asked to log their service commitments once a year, to coincide with annual activity reports. These data should be available to administrators and future committees that attempt to recommend the optimal service load for faculty. Overall, we recommend greater transparency in the distribution of service loads.

6. *Examine potential group differences in non-financial compensation*
   The Committee's analyses were restricted to financial compensation. They did not review potential group differences in service contributions and expectations, teaching load and/or teaching releases, the number of unique course preparations, the quantity of lab space, the magnitude of start-up packages, partner hiring, and access to sabbaticals. These issues are important but were beyond the capacity of one Committee. For the sake of future analysis, we ask that the **FSC request from the Provost a report that includes information about non-financial compensation**, which can be accessed from faculty annual reports.

7. *Business school gender inequity*
   At the Olin School, there was no gender gap for Base Pay, but there was a gap for Total Pay. The causes for differences in supplemental pay should be examined, as it is a substantial proportion of compensation in Olin. To reduce this gender gap, female faculty members should have equitable access to coveted extra-load teaching assignments, particularly in the executive programs. Access to these assignments includes both offering women these opportunities as well as providing mentorship to succeed in them. We ask that **the dean of Olin share the findings in this report regarding extra-load teaching with the individuals who undertake staffing** so that they can be mindful of potential discrepancies. Women should also be considered for paid administrative positions that come available.

8. *Small numbers for intersectionality and non-binary gender*
   The concept of 'intersectionality' refers to the compound disadvantage that can result from an individual's membership in multiple groups that have experienced discrimination, for example being a woman of color. Although we attempted to include a statistical coefficient to examine

the interaction between gender and race/ethnicity, the number of women of color was so small that including such coefficients did not add predictive power. We **encourage the university to be sensitive to intersectionality in faculty backgrounds**, which are often associated with a cumulative disadvantage.

There were no individuals from non-binary or other gender minorities to analyze for the purpose of this report. We applaud the inclusion of non-binary options for gender identity in the current HR system. The university should **ensure that there are no barriers for gender minorities to be hired or to express their gender identity**. The faculty should be notified that they have the option to update the HR records to reflect their gender identity.

9. *Continue pay equity analysis*
   The **Faculty Senate Council should form Gender and Race Pay Equity committees for the Danforth Campus on a regular basis with intervals of 4-5 years**. This provides an opportunity to monitor gender differences and to praise improvements made by the Deans over time.

   In advance of the Pay Equity Committees, the **FSC should encourage faculty members to confirm that Human Resources has correct records** regarding the race/ethnicity and gender with which they identify.

   Future investigations of equity should consider not only pay equity, but equity in rates of retention and promotion, and equity in non-financial compensation. These could occur in separate committees, meeting in the "off" years between the Gender and Race Pay Equity analysis. If these topics are examined all at once, we suggest that separate subcommittees be formed, and that the study be adequately staffed from both faculty ranks and Institutional Research.

   As deans pursue equitable pay to their faculty, the Committee suggests that they consider the office of Institutional Research to be a resource with access to data and analytical capabilities.

10. *Examine pay equity for non-tenured/tenure-track faculty*
    The Committee recommends that **the FSC form an additional committee to examine pay equity for full-time faculty members on the Danforth Campus who are not tenured or on the tenure-track**, as the current report includes only the latter group. If resources permit, such a committee could also examine part-time faculty members.

11. *Expand longitudinal analysis.* The Committee conducted an initial longitudinal analysis of pay over time, and **we recommend that such longitudinal work be expanded by future Pay Equity Committees. This would require use of data from the new exit survey**, as the optimal analysis will classify individuals differently depending on the reasons why they departed.

12. *Implementation of the pay equity recommendations*
    We ask the **Faculty Senate Council to request an update every year from the Provost regarding the implementation of the recommendations above** and intended next steps related to implementation. This request is intended to provide a mechanism for accountability and transparency.

Appendix Tables

Table A1: Faculty size by gender over time on the Danforth Campus

School		2014-15 GPE Analysis	2019-20 GPE Analysis	5-year % change (2014-15 to 2019-20)
Arts & Sciences	Total	389	404	4%
	Men	260	265	2%
	Women	129	139	8%
	Women as % of Total	33%	34%	
Business	Total	68	75	10%
	Men	51	51	0%
	Women	17	24	41%
	Women as % of Total	25%	32%	
Design & Visual Arts	Total	41	47	15%
	Men	27	27	0%
	Women	14	20	43%
	Women as % of Total	34%	43%	
Engineering	Total	86	97	13%
	Men	76	81	7%
	Women	10	16	60%
	Women as % of Total	12%	16%	
Law	Total	43	33	-23%
	Men	21	20	-5%
	Women	22	13	-41%
	Women as % of Total	51%	39%	
Social Work	Total	44	46	5%
	Men	18	24	33%
	Women	26	22	-15%
	Women as % of Total	59%	48%	
Danforth Schools	Total	671	702	5%
	Men	453	468	3%
	Women	218	234	7%
	Women as % of Total	32%	33%	

Table A2: Arts & Sciences, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	55	21%	36	28%	91	49	18%	45	32%	94
	Associate Professors without Tenure	2	1%	1	1%	3	0	0%	0	0%	0
	Associate Professors with Tenure	61	23%	49	38%	110	59	22%	47	34%	106
	Full Professors	93	36%	29	22%	122	109	41%	29	21%	138
	Full Professors with Endowed Chairs	49	19%	14	11%	63	48	18%	18	13%	66
	Total	260	100%	129	100%	389	265	100%	139	100%	404
By race /ethnicity*	African American	9	3%	9	7%	18	13	5%	17	12%	30
	Hispanic	10	4%	3	2%	13	14	5%	7	5%	21
	American Indian, AK Native	0	0%	0	0%	0	0	0%	0	0%	0
	Hawaiian Native, Other Pacific Islander	0	0%	0	0%	0	1	0.4%	1	0.7%	2
	Underrepresented Minority Subtotal	19	7%	12	9%	31	28	11%	23	17%	51
	Asian	14	5%	13	10%	27	23	9%	15	11%	38
	White, not multiracial	227	87%	104	81%	331	215	81%	101	73%	324
	Total	260	100%	129	100%	389	265	100%	139	100%	404
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	20	8%	6	5%	26	22	8%	7	5%	29
	Other Appointed Role	19	7%	6	5%	25	28	11%	14	10%	42
	Subtotal Holding Administrative Roles	39	15%	12	9%	51	50	19%	21	15%	71
	No Additional Role	221	85%	117	91%	338	215	81%	118	85%	333
	Total	260	100%	129	100%	389		100%		100%	
Received Pay for Summer Research	Yes	100	38%	30	23%	130	106	40%	41	29%	147
	No	160	62%	99	77%	259	159	60%	98	71%	257
	Total	260	100%	129	100%	389	265	100%	139	100%	404
Received Pay for Additional Teaching	Yes	36	14%	13	10%	49	31	12%	14	10%	45
	No	224	86%	116	90%	340	234	88%	125	90%	359
	Total	260	100%	129	100%	389	265	100%	139	100%	404
Received Other Misc. Pay	Yes	48	18%	22	17%	70	61	23%	42	30%	103
	No	212	82%	107	83%	319	204	77%	97	70%	301
	Total	260	100%	129	100%	389	265	100%	139	100%	404

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A3: Business, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	20	39%	9	53%	29	14	27%	14	58%	28
	Associate Professors without Tenure	2	4%	1	6%	3	3	6%	1	4%	4
	Associate Professors with Tenure	8	16%	4	24%	12	8	16%	3	13%	11
	Full Professors	2	4%	2	12%	4	7	14%	3	13%	10
	Full Professors with Endowed Chairs	19	37%	1	6%	20	19	37%	3	13%	22
	Total	51	100%	17	100%	68	51	100%	24	100%	75
By race /ethnicity*	African American	0	0%	3	18%	3	0	0%	1	4%	1
	Hispanic	3	6%	0	0%	3	3	6%	0	0%	3
	American Indian, Alaskan Native	0	0%	0	0%	0	0	0%	0	0%	0
	Hawaiian Native, Other Pacific Islander	0	0%	0	0%	0	0	0%	0	0%	0
	Underrepresented Minority Subtotal	3	6%	3	18%	6	3	6%	1	4%	4
	Asian	12	24%	4	24%	16	13	25%	7	29%	20
	White, not multiracial	36	71%	10	59%	46	35	69%	16	67%	52
	Total	51	100%	17	100%	68	51	100%	24	100%	75
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	5	10%	0	0%	5	4	8%	1	4%	5
	Other Appointed Role	9	18%	0	0%	9	19	37%	4	17%	23
	Subtotal Holding Administrative Roles	14	27%	0	0%	14	23	45%	5	21%	28
	No Additional Role	37	73%	17	100%	54	28	55%	19	79%	47
	Total	51	100%	17	100%	68	51	100%	24	100%	75
Received Pay for Summer Research	Yes	42	82%	16	94%	58	44	86%	23	96%	67
	No	9	18%	1	6%	10	7	14%	1	4%	8
	Total	51	100%	17	100%	68	51	100%	24	100%	75
Received Pay for Additional Teaching	Yes	28	55%	6	35%	34	32	63%	13	54%	45
	No	23	45%	11	65%	34	19	37%	11	46%	30
	Total	51	100%	17	100%	68	51	100%	24	100%	75
Received Other Misc. Pay	Yes	21	41%	2	12%	23	23	45%	9	38%	32
	No	30	59%	15	88%	45	28	55%	15	63%	43
	Total	51	100%	17	100%	68	51	100%	24	100%	75

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A4: Design & Visual Arts, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	5	19%	3	21%	8	4	15%	8	40%	12
	Associate Professors with Tenure	8	30%	8	57%	16	9	33%	7	35%	16
	Full Professors	7	26%	1	7%	8	7	26%	3	15%	10
	Full Professors with Endowed Chairs	7	26%	2	14%	9	7	26%	2	10%	9
	Total	27	100%	14	100%	41	27	100%	20	100%	47
By race /ethnicity*	African American	0	0%	1	7%	1	1	4%	3	15%	4
	Hispanic	0	0%	1	7%	1	1	4%	1	5%	2
	American Indian, Alaskan Native	0	0%	0	0%	0	0	0%	0	0%	0
	Hawaiian Native, Other Pacific Islander	1	4%	0	0%	1	0	0%	0	0%	0
	Underrepresented Minority Subtotal	1	4%	2	14%	3	2	7%	4	20%	6
	Asian	2	7%	0	0%	2	2	7%	0	0%	2
	White, not multiracial	24	89%	12	86%	36	23	85%	16	80%	39
	Total	27	100%	14	100%	41	27	100%	20	100%	47
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	1	4%	1	7%	2	0	0%	1	5%	1
	Other Appointed Role	3	11%	4	29%	7	5	19%	2	10%	7
	Subtotal Holding Administrative Roles	4	15%	5	36%	9	5	19%	3	15%	8
	No Additional Role	23	85%	9	64%	32	22	81%	17	85%	39
	Total	27	100%	14	100%	41	27	100%	20	100%	47
Received Pay for Summer Research	Yes	0	0%	0	0%	0	1	4%	2	10%	3
	No	27	100%	14	100%	41	26	96%	18	90%	44
	Total	27	100%	14	100%	41	27	100%	20	100%	47
Received Pay for Additional Teaching	Yes	6	22%	1	7%	7	4	15%	4	20%	8
	No	21	78%	13	93%	34	23	85%	16	80%	39
	Total	27	100%	14	100%	41	27	100%	20	100%	47
Received Other Misc. Pay	Yes	5	19%	3	21%	8	7	26%	8	40%	15
	No	22	81%	11	79%	33	20	74%	12	60%	32
	Total	27	100%	14	100%	41	27	100%	20	100%	47

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A5: Engineering, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	23	30%	4	40%	27	22	27%	7	44%	29
	Associate Professors without Tenure	1	1%	0	0%	1	0	0%	0	0%	0
	Associate Professors with Tenure	17	22%	4	40%	21	17	21%	4	25%	21
	Full Professors	15	20%	1	10%	16	21	26%	3	19%	24
	Full Professors with Endowed Chairs	20	26%	1	10%	21	21	26%	2	13%	23
	Total	76	100%	10	100%	86	81	100%	16	100%	97
By race /ethnicity*	African American	1	1%	0	0%	1	2	2%	2	13%	4
	Hispanic	2	3%	0	0%	2	1	1%	0	0%	1
	American Indian, Alaskan Native	0	0%	0	0%	0	0	0%	0	0%	0
	Hawaiian Native, Other Pacific Islander	0	0%	0	0%	0	0	0%	0	0%	0
	Underrepresented Minority Subtotal	3	4%	0	0%	3	3	4%	2	13%	5
	Asian	28	37%	5	50%	33	39	48%	8	50%	47
	White, not multiracial	45	59%	5	50%	50	39	48%	6	38%	45
	Total	76	100%	10	100%	86	81	100%	16	100%	97
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	6	8%	0	0%	6	7	9%	1	6%	8
	Other Appointed Role	6	8%	2	20%	8	10	12%	1	6%	11
	Subtotal Holding Administrative Roles	12	16%	2	20%	14	17	21%	2	13%	19
	No Additional Role	64	84%	8	80%	72	64	79%	14	88%	78
	Total	76	100%	10	100%	86	81	100%	16	100%	97
Received Pay for Summer Research	Yes	62	82%	9	90%	71	70	86%	16	100%	86
	No	14	18%	1	10%	15	11	14%	0	0%	11
	Total	76	100%	10	100%	86	81	100%	16	100%	97
Received Pay for Additional Teaching	Yes	4	5%	0	0%	4	4	5%	0	0%	4
	No	72	95%	10	100%	82	77	95%	16	100%	93
	Total	76	100%	10	100%	86	81	100%	16	100%	97
Received Other Misc. Pay	Yes	12	16%	2	20%	14	17	21%	3	19%	20
	No	64	84%	8	80%	72	64	79%	13	81%	77
	Total	76	100%	10	100%	86	81	100%	16	100%	97

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A6: Law, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Associate Professors without Tenure	3	30%	2	20%	5	3	23%	3	43%	6
	Full Professors	8	38%	10	45%	18	4	20%	3	23%	7
	Full Professors with Endowed Chairs	10	48%	10	45%	20	13	65%	7	54%	20
	Total	21	100%	22	100%	43	20	100%	13	100%	33
By race /ethnicity*	African American	0	0%	3	14%	3	1	5%	3	23%	4
	Hispanic	0	0%	0	0%	0	0	0%	0	0%	0
	American Indian, Alaskan Native	0	0%	0	0%	0	0	0%	0	0%	0
	Hawaiian Native, Other Pacific Islander	0	0%	0	0%	0	0	0%	0	0%	0
	Underrepresented Minority Subtotal	0	0%	3	14%	3	1	5%	3	23%	4
	Asian	3	14%	1	5%	4	2	10%	1	8%	3
	White, not multiracial	18	86%	18	82%	36	17	85%	9	69%	28
	Total	21	100%	22	100%	43	20	100%	13	100%	33
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	1	5%	3	14%	4	3	15%	1	8%	4
	Other Appointed Role	1	5%	3	14%	4	3	15%	4	31%	7
	Subtotal Holding Administrative Roles	2	10%	6	27%	8	6	30%	5	38%	11
	No Additional Role	19	90%	16	73%	35	14	70%	8	62%	22
	Total	21	100%	22	100%	43	20	100%	13	100%	33
Received Pay for Summer Research	Yes	19	90%	17	77%	36	18	90%	12	92%	30
	No	2	10%	5	23%	7	2	10%	1	8%	3
	Total	21	100%	22	100%	43	20	100%	13	100%	33
Received Pay for Additional Teaching	Yes	5	24%	4	18%	9	4	20%	4	31%	8
	No	16	76%	18	82%	34	16	80%	9	69%	25
	Total	21	100%	22	100%	43	20	100%	13	100%	33
Received Other Misc. Pay	Yes	3	14%	3	14%	6	5	25%	3	23%	8
	No	18	86%	19	86%	37	15	75%	10	77%	25
	Total	21	100%	22	100%	43	20	100%	13	100%	33

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A7: Social Work, Tenured and Tenure Track Faculty:
Gender by rank, race/ethnicity, additional roles, and recipients of supplemental pay (summer research, additional teaching, other)

		2014-15					2019-20				
		Men		Women		Total	Men		Women		Total
		#	%	#	%	#	#	%	#	%	#
By Rank	Assistant Professors	7	39%	11	42%	18	3	13%	5	23%	8
	Associate Professors with Tenure	2	11%	6	23%	8	9	38%	9	41%	18
	Full Professors	4	22%	3	12%	7	3	13%	2	9%	5
	Full Professors with Endowed Chairs	5	28%	6	23%	11	9	38%	6	27%	15
	Total	18	100%	26	100%	44	24	100%	22	100%	44
By race /ethnicity*	African American	3	17%	5	19%	8	7	29%	5	23%	12
	Hispanic	0	0%	1	4%	1	1	4%	1	5%	2
	American Indian, Alaskan Native	1	6%	0	0%	1	1	4%	0	0%	1
	Hawaiian Native, Other Pacific Islander	0	0%	0	0%	0	0	0%	0	0%	0
	Underrepresented Minority Subtotal	4	22%	6	23%	10	9	38%	6	27%	15
	Asian	3	17%	1	4%	4	2	8%	1	5%	3
	White, not multiracial	11	61%	19	73%	30	13	54%	15	68%	28
	Total	18	100%	26	100%	44	24	100%	22	100%	44
Additional Appointed Administrative Roles	Major Roles: Dept Chair or Equivalent	0	0%	0	0%	0	0	0%	0	0%	0
	Other Appointed Role	1	6%	0	0%	1	2	8%	0	0%	2
	Subtotal Holding Administrative Roles	1	6%	0	0%	1	2	8%	0	0%	2
	No Additional Role	17	94%	26	100%	43	22	92%	22	100%	100%
	Total	18	100%	26	100%	44	24	100%	22	100%	44
Received Pay for Summer Research	Yes	16	89%	17	65%	33	21	88%	19	86%	40
	No	2	11%	9	35%	11	3	13%	3	14%	6
	Total	18	100%	26	100%	44	24	100%	22	100%	44
Received Pay for Additional Teaching	Yes	3	17%	2	8%	5	3	13%	2	9%	5
	No	15	83%	24	92%	39	21	88%	20	91%	41
	Total	18	100%	26	100%	44	24	100%	22	100%	46
Received Other Misc. Pay	Yes	9	50%	17	65%	26	13	54%	5	23%	18
	No	9	50%	9	35%	18	11	46%	17	77%	28
	Total	18	100%	26	100%	44	24	100%	22	100%	46

*Note that faculty were able to indicate more than one race/ethnicity category. Values in "Underrepresented Minority Subtotal" and "Total" are unduplicated counts, and may not be equal to the sum of the categories above.

Table A8: Danforth campus: Gender by rank

	2014-15 GPE Analysis				2019-20 GPE Analysis			5-year % change in number of women (2014-15 to 2019-20)
	Men	Women	Total		Men	Women	Total	
Assistant	110	63	173		92	79	171	
Associate without Tenure	8	4	12		6	4	10	
Subtotal Untenured	118	67	185		98	83	181	24%
as % of total untenured	64%	36%			54%	46%		
Associate with Tenure	96	71	167		102	70	172	
Full	129	46	175		151	43	194	
Full with Endowed Chair	110	34	144		117	38	155	
Subtotal Tenured	335	151	486		370	151	521	0%
as % of total tenured faculty	69%	31%			71%	29%		
Total	453	218	671		468	234	702	7%

Table A9: Faculty size by race/ethnicity over time on the Danforth Campus

School		2014-15 GPE Analysis	2019-20 GPE Analysis	5-year % change (2014-15 to 2019-20)
Arts & Sciences	Total	389	404	4%
	Asian	27	38	41%
	URM	31	51	65%
	White	331	316	-5%
Business	Total	68	75	10%
	Asian	16	20	25%
	URM	6	4	-33%
	White	46	51	11%
Design & Visual Arts	Total	41	47	15%
	Asian	2	2	0%
	URM	3	6	100%
	White	36	39	8%
Engineering	Total	86	97	13%
	Asian	33	47	42%
	URM	3	5	67%
	White	50	45	-10%
Law	Total	43	33	-23%
	Asian	4	3	-25%
	URM	3	4	33%
	White	36	26	-28%
Social Work	Total	44	46	5%
	Asian	4	3	-25%
	URM	10	15	50%
	White	30	28	-7%
Danforth Schools	Total	671	702	5%
	Asian	86	113	31%
	URM	56	84	50%
	White	529	505	-5%

Note that faculty were able to indicate more than one race/ethnicity category. Faculty members whose selections include an underrepresented category and include Asian are shown in both groups. White should be understood here to mean "white, not multiracial". Values in "Total" row are unduplicated counts, and may not be equal to the sum of the individual rows.

Table A10: External Market Index

Ratio of the average salary for ladder rank faculty among WU Peers in each discipline / rank,
to the minimum value in this set. Departments are shown alphabetically within each school.

WU School	Department / Discipline	Assistant Professor	Associate Professor	Professor
Arts & Sciences	African & African American Studies	1.12	1.56	2.32
	American Culture Studies	1.15	1.46	2.09
	Anthropology	1.14	1.34	2.08
	Art History	1.09	1.32	2.18
	Biology	1.28	1.44	2.20
	Chemistry	1.30	1.49	2.46
	Classics	1.06	1.33	2.04
	Earth & Planetary Sciences	1.27	1.52	2.18
	East Asian Languages & Cultures	1.08	1.31	2.04
	Economics	2.04	2.47	3.86
	Education	1.12	1.33	2.06
	English	1.07	1.29	2.10
	Environmental Studies	1.23	1.45	2.15
	Film & Media Studies	1.01	1.27	2.13
	Germanic Languages & Literatures	1.04	1.27	2.02
	History	1.11	1.36	2.26
	International Studies	1.11	1.40	2.14
	Jewish, Islamic & Middle Eastern Studies	1.07	1.30	1.90
	Mathematics	1.33	1.47	2.31
	Music	1.00	1.22	1.74
	Performing Arts	1.01	1.24	1.78
	Philosophy	1.11	1.38	2.35
	Physics	1.35	1.56	2.28
	Political Science	1.35	1.65	2.75
	Psychological & Brain Sciences	1.21	1.42	2.28
	Religion/Religious Studies	1.09	1.37	2.09
	Romance Languages & Literatures	1.05	1.21	1.96
	Sociology	1.24	1.47	2.42
	Women, Gender & Sexuality Studies	1.07	1.28	2.01
Olin School of Business	Accounting	2.98	3.08	4.08
	Economics	2.46	3.04	4.15
	Finance	3.09	3.32	4.59
	Marketing	2.52	2.89	4.06
	Ops & Manuf. Mgmt	2.43	-	3.71
	Organizational Behavior	2.57	2.89	4.01
	Strategy	2.43	2.90	3.87
Design & Visual Arts	Architecture	1.14	1.39	2.04
	Art	1.01	1.21	1.69
McKelvey School of Engineering	Biomedical Engineering	1.40	1.65	2.51
	Computer Science & Engineering	1.54	1.80	2.52
	Electrical & Systems Engineering	1.44	1.68	2.42
	Energy, Environmental & Chemical Eng.	1.41	1.65	2.51
	Mechanical Eng. & Materials Science	1.38	1.64	2.33
Law	Law	2.02	2.12	3.44
Brown School of Social Work	Public Health	1.28	1.58	2.47
	Social Work	1.42	1.59	2.73

Table A11: Paid Administrative Role Counts by Gender

		2014-15				2019-20		
		Men	Women	Total		Men	Women	Total
A&S	Count Holding Additional Salaried Administrative Roles	39	12	51		50	21	71
	Percentage Holding Additional Salaried Administrative Roles	**15%**	**9%**	**13%**		**19%**	**15%**	**18%**
	Total	260	129	389		265	139	404
Olin	Count Holding Additional Salaried Administrative Roles	14	0	14		23	5	28
	Percentage Holding Additional Salaried Administrative Roles	**27%**	**0%**	**21%**		**45%**	**21%**	**37%**
	Total	51	17	68		51	24	75
Sam Fox	Count Holding Additional Salaried Administrative Roles	4	5	9		5	3	8
	Percentage Holding Additional Salaried Administrative Roles	**15%**	**36%**	**22%**		**19%**	**15%**	**17%**
	Total	27	14	41		27	20	47
McKelvey	Count Holding Additional Salaried Administrative Roles	12	2	14		17	2	19
	Percentage Holding Additional Salaried Administrative Roles	**16%**	**20%**	**16%**		**21%**	**13%**	**20%**
	Total	76	10	86		81	16	97
Law	Count Holding Additional Salaried Administrative Roles	2	6	8		6	5	11
	Percentage Holding Additional Salaried Administrative Roles	**10%**	**27%**	**19%**		**30%**	**38%**	**33%**
	Total	21	22	43		20	13	33
Brown School	Count Holding Additional Salaried Administrative Roles	1	0	1		2	0	2
	Percentage Holding Additional Salaried Administrative Roles	**6%**	**0%**	**2%**		**8%**	**0%**	**4%**
	Total	18	26	44		24	22	46
Danforth Overall	Count Holding Additional Salaried Administrative Roles	72	25	97		103	36	139
	Percentage Holding Additional Salaried Administrative Roles	**16%**	**11%**	**14%**		**22%**	**15%**	**20%**
	Total	453	218	671		468	234	702

Table A12: Paid Administrative Role Counts by Race

		2014-15				2019-20		
		Asian	URM	White		Asian	URM	White
A&S	Count Holding Additional Salaried Administrative Roles	2	3	46		5	6	60
	Percentage Holding Additional Salaried Administrative Roles	**7%**	**10%**	**14%**		**13%**	**12%**	**19%**
	Total	27	31	331		38	51	316
Olin	Count Holding Additional Salaried Administrative Roles	4	0	10		9	0	19
	Percentage Holding Additional Salaried Administrative Roles	**25%**	**0%**	**22%**		**45%**	**0%**	**37%**
	Total	16	6	46		20	4	51
Sam Fox	Count Holding Additional Salaried Administrative Roles	0	0	9		0	1	7
	Percentage Holding Additional Salaried Administrative Roles	**0%**	**0%**	**25%**		**0%**	**17%**	**18%**
	Total	2	3	36		2	6	39
McKelvey	Count Holding Additional Salaried Administrative Roles	3	0	11		6	0	13
	Percentage Holding Additional Salaried Administrative Roles	**9%**	**0%**	**22%**		**13%**	**0%**	**29%**
	Total	33	3	50		47	5	45
Law	Count Holding Additional Salaried Administrative Roles	0	2	6		1	2	8
	Percentage Holding Additional Salaried Administrative Roles	**0%**	**67%**	**17%**		**33%**	**50%**	**31%**
	Total	4	3	36		3	4	26
Brown School	Count Holding Additional Salaried Administrative Roles	0	0	1		0	1	1
	Percentage Holding Additional Salaried Administrative Roles	**0%**	**0%**	**3%**		**0%**	**7%**	**4%**
	Total	4	10	30		3	15	28
Danforth Overall	Count Holding Additional Salaried Administrative Roles	9	5	83		21	10	108
	Percentage Holding Additional Salaried Administrative Roles	**10%**	**9%**	**16%**		**19%**	**12%**	**21%**
	Total	86	56	529		112	85	505

Note that faculty were able to indicate more than one race/ethnicity category. Faculty members whose selections include an underrepresented category and include Asian are shown in both groups. White should be understood here to mean "white, not multiracial".

Table A13: Faculty retention by five-year starting cohort, by group

This examination of faculty retention looks at five-year starting cohorts; it is based on data pulled from WashU's HR system annually, looking at faculty present on November 1st of each year. This analysis will consider each faculty member to be "here" for the academic year in which they were employed on November 1st, thus **years of retention is an integer value for each individual.** This table shows average number of years members of the cohort stayed at WashU.

	Hired during:	Group	# Hired as T/TT	Average Years @ WashU	Difference
by Gender	1997 to 2001	Women	57	10.9	2.0
		Men	131	12.9	
	2002 to 2006	Women	73	9.9	2.2
		Men	131	12.0	
	2007 to 2011	Women	90	9.2	0.6
		Men	133	9.8	
	2012 to 2016	Women	76	6.8	0.3
		Men	137	7.1	
	2017 to 2021	Women	89	3.0	-0.1
		Men	121	2.9	
by Asian / non-Asian	1997 to 2001	Asian	23	11.9	0.4
		Non-Asian	165	12.3	
	2002 to 2006	Asian	29	10.3	1.1
		Non-Asian	175	11.4	
	2007 to 2011	Asian	45	9.3	0.3
		Non-Asian	178	9.6	
	2012 to 2016	Asian	33	6.7	0.3
		Non-Asian	180	7.0	
	2017 to 2021	Asian	48	2.9	0.1
		Non-Asian	162	3.0	
by URM / non-URM	1997 to 2001	URM	9	9.4	3.0
		Non-URM	179	12.4	
	2002 to 2006	URM	24	9.8	1.7
		Non-URM	180	11.5	
	2007 to 2011	URM	17	9.5	0.1
		Non-URM	206	9.6	
	2012 to 2016	URM	38	6.7	0.4
		Non-URM	175	7.1	
	2017 to 2021	URM	34	3.1	-0.1
		Non-URM	176	2.9	

Table A14: Faculty retention from 2009 to 2019

This analysis considers all tenured and tenure track faculty present on November 1st 2009, and examines whether they left Washington University or were retained through the November 1st 2019, ten years later. Analysis is by school, gender, and race/ethnicity.

	Women	Men	Asian	Non-Asian	URM	Non-URM	Total
Arts & Sciences	114	273	30	357	25	362	387
Left WashU	41%	41%	40%	41%	24%	43%	41%
Stayed at WashU	59%	59%	60%	59%	76%	57%	59%
Business	12	43	14	41	2	53	55
Left WashU	50%	47%	36%	51%	50%	47%	47%
Stayed at WashU	50%	53%	64%	49%	50%	53%	53%
Design & Visual Arts	15	25	2	38	2	38	40
Left WashU	60%	32%	50%	42%	50%	42%	43%
Stayed at WashU	40%	68%	50%	58%	50%	58%	58%
Engineering	8	69	28	49	0	77	77
Left WashU	50%	48%	39%	53%	-	48%	48%
Stayed at WashU	50%	52%	61%	47%	-	52%	52%
Law	21	25	2	44	4	42	46
Left WashU	48%	48%	50%	48%	50%	48%	48%
Stayed at WashU	52%	52%	50%	52%	50%	52%	52%
Social Work	16	18	6	28	6	28	34
Left WashU	44%	56%	100%	39%	50%	50%	50%
Stayed at WashU	56%	44%	0%	61%	50%	50%	50%

	Women	Men	Asian	Non-Asian	URM	Non-URM	Total
Danforth Overall	186	453	82	557	39	600	639
Left WashU	45%	43%	44%	44%	33%	44%	44%
Stayed at WashU	55%	57%	56%	56%	67%	56%	56%

Cells in grey show comparisons where sample sizes are smaller than five; interpret with caution.