

Analysis of Gender Differences in 2005 Faculty Startup Packages at UCI

By

**Judith Stepan-Norris
Department of Sociology**

With the assistance of

**Catherine Corrigan-Brown
Department of Sociology**

May 17, 2006

To address the issue of gender equity in start-up packages for new hires, we have collected all offer letters for tenured and tenure tracked jobs beginning fall 2005. We code these for the various perks that are offered upon hiring. We analyze these offer letters to determine if they reveal any gender inequalities, and compare them to last year's findings in order to reveal change over time. Following is a list of means by gender for various factors in startup packages, 2004 and 2005.

Table 1. Means for Female and Male hires for various factors in 2004 and 2005 Startup Packages (All Schools).

	2004				2005			
	Female (N)	Male (N)	Female (N)	Male (N)	Female (N)	Male (N)	Female (N)	Male (N)
Step-level*	5.24	(27)	6.53	(37)	5.66	(24)	7.35	(20)
Salary	\$82,322	(27)	\$106,019	(36)	\$80,721	(24)	\$101,189	(19)
Summer compensation	\$11,786	(27)	\$13,998	(37)	\$2,489	(13)	\$16,833	(18)
Months Summer comp.	1.56	(27)	1.68	(37)	0.307	(13)	1.11	(18)
Admin assistance+	0.15	(27)	0.24	(37)	0.04	(24)	0.0	(20)
% Spouses helped by career partners programs	0.04	(27)	0.05	(37)	0.04	(24)	0.1	(20)
Total Course Load	3.86	(18)	3.94	(18)	4.40	(15)	4.15	(13)
Course Relief first 3 yrs	3.07	(21)	2.67	(18)	1.277	(18)	2.00	(12)
Housing loans (mean)	0.74	(27)	0.68	(37)	0.708	(24)	0.65	(20)
Offered home in U Hills	0.22	(27)	0.38	(37)	0.292	(24)	0.20	(20)
Housing Allowance	\$23,750	(4)	\$44,000	(2)	\$28,537	(8)	\$33,143	(7)
Startup package**	\$179,448	(25)	\$684,449	(36)	\$145,067	(23)	\$228,107	(19)
Total Initial Bonus***	\$214,984	(25)	\$742,447	(36)	\$176,093	(23)	\$278,083	(19)

Results in bold are statistically significant differences.

* Step/level refers to a composite measure of rank that combines the UC Assistant/Associate/Professor ranks with the steps within each rank

** Startup package is the additional money guaranteed by the school in addition to the summer compensation and housing allowance which is intended to help establish the faculty members research program.

*** Total initial bonus is calculated by adding the summer compensation, housing allowance, and startup package for each individual.

+ (average (shared secretary)/additional help)

Like in 2004, there are several substantive gender differences in characteristics of startup packages, but only a few that meet the .05 level of significance.¹ In 2005, male means were significantly higher than female means for the dollar amount of summer compensation (gender gap=\$14,344; F=11.630; significance=.002), and the number of months of summer compensation (gender gap=.803;F=6.845; significance=.014). Males continue to be hired at approximately one and a half steps higher than females. Because the dollar amount of startup packages increases with step/level, these gender difference may be partially or wholly explained by differences of rank.

¹ Since we have the population of startup letters for 2005, we use tests of statistical significance only as a rough guide for determining substantive differences in the population. Yet with small N's, sometimes fairly large differences can fail to meet the test of significance.

Allocations of space were rarely mentioned in the offer letters, although space is a salient issue in many departments. The following table lists the individuals who were specifically offered space by gender and school.

Gender	School	Received
Female	Education	“Research space in three rooms totaling approx. 500 square feet.”
Male	Medicine	We will “set aside approx. 587 square feet of fully functional laboratory space with new casework and hood and approximately 100 square feet of office space.”
Male	Biology	“We will assign approx. 1111 square feet of laboratory space and 150 square feet of office space... for your office and laboratory.”
Male	Biology	“We will set aside office space for you in ----- (512 square feet).”

Sometimes outliers unduly influence means, and therefore it is prudent to also consider medians. Below are medians for the same variables for 2005. The differences are somewhat more moderated for most variables when considering the medians.

Table 2. Medians for Female and Male hires for various factors in 2005 Startup Packages (All Schools).

	Female	(N)	Male	(N)
Step-level*	3.00	(24)	4.00	(20)
Salary	\$64,000	(24)	\$83,000	(19)
Summer compensation	\$0.00	(13)	\$10,532	(18)
Months Summer comp.	0.00	(13)	1.00	(18)
Admin assistance+	0.00	(24)	0.00	(20)
% Spouses helped by career partners programs	0.00	(24)	0.00	(24)
Total Course Load	5.00	(15)	4.00	(13)
Course Relief first 3 yrs	1.00	(24)	1.00	(12)
Housing loans (mean)	1.00	(24)	1.00	(20)
Offered home in U Hills	0.00	(24)	0.00	(20)
Housing Allowance	\$25,000	(8)	\$30,000	(7)
Startup package	\$30,000	(23)	\$75,000	(19)
Total initial bonus	\$55,000	(23)	\$105,000	(19)

Table 3 shows the gender gaps for the variables that substantively and/or significantly differ.

Table 3. Gap in Components of Startup Package (All Schools) (Mean_f – Mean_m)

	2004	2005
	<u>Gender Gap</u>	<u>Gender Gap</u>
Step-level	-1.29	-1.69
Salary	-\$23,697	-\$20,468
Summer Compensation	-\$2,212	-\$14,344
Months of Summer Compensation	-.12	-.80
Admin. Assist.	-.09	+.04
Startup Package	-\$505,000	-\$227,961
Total initial bonus	-\$527,463	-\$101,990

The gender gap in salary has dropped slightly since 2004, and the gender gap in the dollar amount of the startup package and total initial bonus have fallen drastically. The gap in the dollar amount of summer compensation and the number of months of summer compensation have both increased. The gap in administrative assistance has reversed, with female hires in 2005 receiving more aid than males. The gender gap in step-level at hire is slightly larger than it was in 2004. It is important to note that the difference in step-level, rather than gender, is likely to account for the differences in the other characteristics of the startup packages. Nevertheless, we must continue to ask: why do we continue to see females being hired at lower step-levels than males? We expect that the difference is primarily due to pipeline issues. Because women have been increasingly earning Ph.D.'s and have been increasingly incorporated into academia over the last several decades, we should expect there to be more females in the applicant pools for lower-level positions.

Next we consider if and how the components of female startup packages have changed between 2004 and 2005. Table 4 compares aspects of female hires' startup packages in 2004 and 2005.

Table 4. Test of Equality of Means Comparing 2004 and 2005 (All Schools – Women Only)

	2004	2005	F	P-Value
Step-level	5.204	5.666	1.782	0.188
Salary	\$82,322	\$80,720	0.011	0.919
Summer compensation	\$11,785	\$2,488	23.633	0.000
Months of Summer compensation	1.555	0.308	52.597	0.000
Administrative assistance	0.148	0.042	7.436	0.009
% Spouse helped by career partners	0.037	0.042	0.028	0.868
Total Course Load	3.861	4.400	0.009	0.927
Course Relief in first 3 years	3.071	1.277	5.630	0.023
Housing loans	0.740	0.708	5.358	0.025
Offered home in U Hills	0.222	0.212	1.233	0.272
Housing Allowance	\$23,750	\$28,537	0.023	0.883
Startup package	\$179,448	\$145,066	0.233	0.632

*Significant results are in bold.

Female hires lost significant ground with regard to the following factors: dollar amount of summer salary, number of summer months, administrative assistance, course release in the first 3 years, and the receipt of housing loans. Was this lost ground shared by male hires? Table 5 shows the change for male hires.

Table 5. Test of Equality of Means Comparing 2004 and 2005 (All Schools – Men Only)

	2004	2005	F	P-Value
Step-level	6.527	7.350	0.441	0.509
Salary	\$106,019	\$101,189	0.988	0.325
Summer compensation	\$13,997	\$16,833	3.015	0.008
Months of Summer compensation	1.676	1.111	6.157	0.016
Administrative assistance	0.2432	0.000	30.254	0.000
Spouse helped by career partners	0.054	0.100	1.624	0.208
Total Course Load	3.944	4.153	2.805	0.105
Course Relief in first 3 years	2.666	2.000	0.909	0.349
Housing loans	0.676	0.6500	0.134	0.716
Offered home in U Hills	0.3784	0.200	9.692	0.003
Housing Allowance	\$44,000	\$33,142	0.058	0.817
Startup package	\$684,448	\$228,107	1.618	0.209

*Significant results are in bold.

Male hires had significantly higher dollar amounts for summer compensation in 2005 than in 2004, which was spread over an average of fewer summer months. Males hired in 2005 received less administrative support and fewer homes in University Hills than those hired in 2004. It seems that collectively, female hires lost more ground over the last year than did male hires.

Patterns in Science and Engineering Schools

Next we consider the same analyses for Science and Engineering schools only. Table 6 provides means for characteristics of 2004 and 2005 start-up packages by gender.

Table 6. Means for Female and Male hires for various factors in 2005 Startup Packages (Science and Engineering Only).

	2004				2005			
	Female (N)	Male (N)			Female (N)	Male (N)		
Step-level*	4.73 (11)	6.25 (18)			3.66 (3)	5.125 (8)		
Salary	\$71,418 (11)	\$88,714 (17)			\$68,333 (3)	\$84,950 (8)		
Summer compensation	\$22,881 (11)	\$23,881 (18)			\$0 (1)	\$15,438 (8)		
Months Summer comp.	3.0 (11)	2.56 (18)			0.0 (1)	1.125 (8)		
Startup package	\$316,909(11)	\$467,470 (18)			\$360,100 (3)	\$426,379 (8)		
Admin assistance+	0.0 (11)	0.0 (18)			0.0 (3)	0.0 (8)		
% Spouses helped by career partners programs	0.0 (11)	0.06 (18)			0.0 (3)	0.0 (8)		
Total Course Load	3.831 (8)	3.0 (8)			4.00 (1)	3.667 (3)		
Course Relief first 3 yrs	3.83 (9)	4.0 (6)			4.00 (1)	4.00 (3)		
Housing loans (mean)	0.82 (11)	0.72 (18)			1.0 (3)	1.250 (8)		
Offered home in U Hills	0.36 (11)	0.44 (18)			0.33 (3)	0.50 (8)		
Housing Allowance	\$23,750 (4)	\$44,000 (2)			\$25,000 (2)	\$32,800 (5)		

* Step/level refers to a composite measure of rank that combines the UC Assistant, Associate, Professor ranks with the steps within each rank

+ (average (shared secretary)/additional help)

In both 2004 and in 2005, none of the female and male means in Science and Engineering schools significantly differ. This is most likely due to the small numbers in our population. Still, we have some substantive differences.

Again, we provide medians for 2005 for comparison (Table 7).

Table 7. Medians for Female and Male hires for various factors in 2005 Startup Packages (Science and engineering Only).

	Female	(N)	Male	(N)
Step-level*	3.00	(3)	4.00	(8)
Salary	\$63,000	(3)	\$71,750	(8)
Summer compensation	\$0.00	(1)	\$10,532	(8)
Months Summer comp.	0.00	(1)	1.00	(8)
Startup package	\$200,000	(3)	\$450,431	(8)
Admin assistance+	0.00	(3)	0.00	(8)
% Spouses helped by career partners programs	0.00	(3)	0.00	(8)
Total Course Load	4.00	(1)	3.00	(3)
Course Relief first 3 yrs	4.00	(1)	2.00	(2)
Housing loans (mean)	1.00	(3)	1.00	(8)
Offered home in U Hills	0.00	(3)	0.50	(8)
Housing Allowance	\$25,000	(2)	\$25,000	(5)

With small N's (especially for female hires), we have to be careful in interpreting changes since last year. Medians tend to reveal smaller gaps for most variables, with the exception of startup package. The mean gaps for these variables are shown in Table 8.

Table 8. Gap in Components of Startup Packages (Science and Engineering Only)

	2004	2005
	<u>Gender Gap</u>	<u>Gender Gap</u>
Step-level	-1.52	-1.459
Salary	-\$17,323	-\$16,617
Summer Compensation	-\$1,000	-\$15,437
Months of Summer Compensation	+.44	-1.125
Startup Package	-\$150,561	-\$66,258

The gender gap in salary has closed slightly since 2004, and the gender gap in the dollar amount of the startup package was considerably lower in 2005 than in 2004. But both the dollar amount of the gender gap in summer salary and the number of months of summer salary have become considerably less favorable to female hires. The gender gap in step-level at hire in Science and Engineering schools continues to average around one and a half steps higher for males.

In Science and Engineering schools, we find only one significant difference for female hires between 2004 and 2005: in 2005, the dollar amount of the startup package was significantly higher in 2005 than it was in 2004. And we found only one significant difference for males between 2004 and 2005: in 2005, a higher percentage of male hires received housing loans.

Regression Models

In order to untangle the determinants of the differences we have observed, we now turn to regression models. Table 9 provides regression models of aspects of startup packages for all schools.

Table 9a. Regression on salary offered (all schools).

Variables	Beta	t
Gender	0.002	0.037
Step/Level	0.888	15.582**
Social Ecology	0.132	2.403*
Arts	0.124	2.326*
GSM	0.255	2.453*
Constant	48580.04***	

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 9b. Regression on startup package (all schools).

Variables	Beta	t
Gender	0.102	0.910
Step/Level	0.096	0.920
Biology	0.411	3.891***
Physics	0.742	7.268***
Engineering	0.302	2.890***
Constant	55292.48	

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Importantly, like in the 2004 regression models, gender is not a significant determinant of startup salary. Step-level is the single most important predictor of starting salary, and individual schools also contribute to the differences. In 2005, Social Ecology, the Arts, and the Graduate School of Management (GSM) offered significantly higher starting salaries, whereas in 2004, GSM and Medicine offered significantly higher salaries.

Regression models of startup package dollar amount, moving expenses, housing allowance and logit models for administrative assistance and on campus housing are not significant.

Next we turn to the models for Science and Engineering only.

Table 10a. Regression on salary offered (Science and Engineering only).

Variables	Beta	t
Gender	0.006	0.900
Step/Level	0.983	151.073*
ICS	0.037	5.906*
Biology	0.030	4.245*
Constant	2501.34***	

*Significant at the 0.001 level.

Table 10b. Regression on startup package (Science and Engineering only).

Variables	Beta	t
Gender	0.005	0.011
Step/Level	0.314	0.766*
ICS	0.527	0.274
Biology	0.048	0.933
Engineering	0.088	0.860
Constant	452100.20	

*Significant at the .001 level

Similarly, in Science and Engineering schools in 2005, gender was not a predictor of starting salaries. Step-level was again the primary determinant of beginning salary, and two schools (ICS and Biology) also accounted for significantly higher salaries. In 2004, it was ICS and Engineering that offered significantly higher salaries.

The regression model for startup package amount for Science and engineering is significant, and the only significant variable is step-level. The regression models of moving expenses, housing allowance, and logit models for administrative assistance and on campus housing for Science and Engineering schools are not significant.

Conclusion

Our analysis of 2005 startup packages reveals that although gender differences exist in startup packages, gender did not account for those differences. Rather, like for the 2004 analysis, step-level is the most important determinant of startup package characteristics, and institutional unit (school) also continues to matter. As noted earlier, female hires continue to be hired at lower step-levels, and this accounts for the differences we observe.

When considering the characteristics of female startup packages in 2005 as compared to those negotiated in 2004, we found that females seemed to have lost more ground vis-à-vis their earlier cohort than did male hires (over their earlier cohort) during this same period. However, these observed differences may be due to the disciplinary composition of the cohort rather than gender per se.

Appendix: Population of Hires Reported in Equity Advisor Reports, 2001-2004.

HIRES												
	2001			2002			2003			2004		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Sci & Eng												
Engineering	*	2	*	2	0.5	2.5	*	*	*	4	1	5
Biology	1	1	2	2	6	8	0	2	2	2	0	2
ICS	3	1	4	5	2	7	6	1	7	2	1	3
Physics	*	*	*	*	*	*	7	2	9	3	2	5
Other												
Medicine	3	1	4	5	3	8	*	*	*	3	0	3
Social Ecology	*	*	*	3	4	7	1	4	5	0	2	2
Arts	*	*	*	1	2	3	*	*	*	1	3	4
GSM	*	*	*	2	2	4	4	2	6	2	2	4
Social Sciences	*	*	*	4	2	6	3	2	5	7	5	12
Humanities	5	6	11	5	6	11	*	*	*	5	7	12
Total	12	11	23	29	27.5	56.5	21	13	34	29	23	52

Data derived exclusively from EA reports.

* EAs did not provide this data.