NSF ADVANCE ACES Program
Summary of Offer Letter Data Analysis: 2003-2007

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Introduction

Initial resources have a long-term impact on the success of new faculty in launching productive research and teaching careers. This report summarizes findings from a 5-year study of initial resources provided to new faculty at Case Western Reserve University.

Data Collection

The purpose of this study is to examine the representation and status of women and minority faculty who are new hires. Offer letters were obtained from the Provost's office.

Faculty offer letters from 31 science and engineering (S&E) departments in four schools were included in this study. The four schools are College of Arts and Sciences (CAS), Case School of Engineering (CSE), Weatherhead School of Management (WSOM), and School of Medicine Basic Science Departments (SOMBS).

Only offer letters approved by board of trustees of the university were included. A part-time, visiting, short-term, or summer faculty appointment was excluded.

The collection of offer letters started from 2003 and is still ongoing. As the end of 2007, 109 offer letters have been collected, including 32 offers letters (29.4%) from CAS, 22 (20.2%) from CSE, 46 (42.2%) from SOMBS, and 9 (8.3%) from WSOM (Table 1).

As shown in Table 2, the percentage of offer letters collected from 2003 to 2007 accounts for 13.8%, 28.4%, 21.1%, 12.8%, and 23.9% of total number of new offers, respectively.

Variables

For each offer letter, the variables we identified based on offer letter content description include: college, department, gender of offer recipient (female, male), rank offered (lecture/instructor, assistant professor, associate professor, professor), tenure at hire (hire with tenure, hire without tenure), tenure status (tenure-track, not-tenure-track, not applicable if hire with tenure), year of appointment (ranging from 2003 to 2007), base salary offered, contract type (9-month, 12-month, unable to determine), summer salary (applicable only to 9-month contract), start-up package amount.

Statistical analysis

Descriptive statistics (e.g., frequency, percentage, mean and standard deviation, cross tab, and t-test) are conducted in the current data analysis.

FINDINGS

Trends by Gender

Of the 109 offers, 32% (n = 35) were given to females and 68% (n = 74) were given to males (Table 3).

Within each school, the number and percentage of new appointments stratified by gender vary dramatically. As shown in Table 4, the percentage of females offered positions ranges from 18.2% in CSE to 44.4% in WSOM.

Table 5 shows the number and percentage of new offers stratified by year of appointment and gender. Except during 2006, when 57% (n = 8) of the offers were made to females, the percentage of females obtained offers during 2003-2007 has ranged from 21.7% to 32.3%.

Trends by Rank

As shown in Table 6, in order of frequency, 59.6% of new appointments (n = 65) are assistant professor positions, followed by instructors 24.8% (n = 27), professor 8.3% (n = 9), and associate professor 7.3% (n = 8).

Table 7 shows total offers stratified by rank and gender. Across all ranks, 62.5% (n = 5) represents the highest percentage of female hires, at the associate professor level, and 22.2% (n = 2) represents the lowest percentage of female hires, at the professor level.

Table 8 shows the total number of offers stratified by rank and school. Within SOMBS, 52.2% (n = 24) of new offers are at the assistant professor level, and 37% of new offers are at the instructor level. This is also true at other schools, with over 70% of new appointments to junior levels (instructor and assistant professor positions) in each school.

Trends by Tenure Status

Of the 109 new appointments, 13.8% (n = 15) appointments offered tenure at hire; 86.2% (n = 94) appointments did not offer tenure at hire.

Of the 15 appointments with tenure at hire, 33.3% (n = 5) went to females, and 66.7% (n = 10) went to males.

Of the 94 appointments without tenure at hire, 68% appointments (n = 64) are tenure-track positions, 31% appointments (n = 29) are non-tenure-track positions, and 1 appointment (1%) is tenure-not-applicable.

Of the 64 tenure-track appointments, 28% of the offer recipients are female, and 72% are male.

Of the 29 non-tenure-track positions, females account for 38%, and males account for 62%.

Trends of Start-up Funds

As seen in Table 9, the availability of start-up funds is stratified by school. WSOM provides no start-up funds to its 9 new hires; CSE provides start-up funds to all 22 offer recipients. In CAS, 84.4% of offers (n = 27) include start-up funds, and in SOMBS, only 54.3% of the offers (n = 25) include start-up funds.

The amount of startup funds varies by school. As shown in Tables 10 & 11, the mean difference of $232,980 in startup funds between CAS and SOM is statistically significant, p=.012. So is the mean difference of $385,978 in startup funds between SOM and WSOM, p=.009. Similarly, an independent samples t-test of startup funds by gender was also conducted. However, no significant difference between males and females were found for a particular school or for the overall sample.

Trends of Base Salary

As shown in Table 12, 34.3% of (n = 36) appointments are 12-month-contract, 54.3% of (n = 57) appointments are 9-month-contract, and the remaining 11.4% of (n = 12) appointments do not mention contract type.

In the current analysis, base salary is compared on a 9-month scale. We transform the 12-month salary by the proportion 9/11, and keep the 9-month salary unchanged.

As shown in Table 13 and Table 14, the average base salary difference between females and males is stratified by school. The mean difference of standardized base salary between WSOM and all of the other three schools is statistically significant, ranging from $22,541 to $46,892 (Table 14). The mean difference of base salary between CAS and CSE is statistically significant (Mean Difference = $24,351, p = .001). Similarly, an independent samples t-test of base salary by gender was also conducted. However, no statistically significant difference in base salary was found between men and women for a particular school or for the overall sample.

Table 15 describes base salary scaled to 9 months, stratified by School and Rank. Overall, as the rank increases, the amount of base salary also increases, up from an average of $61,183 at the instructor level to an average of $127,130 at the professor level.

Appendices:

Table 1

College/School	Frequency	Percent	Valid Percent	Cumulative Percent
Arts & Sciences	32	29.4	29.4	29.4
Engineering	22	20.2	20.2	49.5
Medicine	46	42.2	42.2	91.7
Management	9	8.3	8.3	100.0
Total	109	100.0	100.0	

Table 2

Year of Appointment	Frequency	Percent	Valid Percent	Cumulative Percent
2003	15	13.8	13.8	13.8
2004	31	28.4	28.4	42.2
2005	23	21.1	21.1	63.3
2006	14	12.8	12.8	76.1
2007	26	23.9	23.9	100.0
Total	109	100.0	100.0	

Trends by Gender

Table 3

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	35	32.1	32.1	32.1
Male	74	67.9	67.9	100.0
Total	109	100.0	100.0	

Table 4

College/School		Gender		Total
		Female	Male	
Arts & Sciences	N	12	20	32
	% by Gender	37.5%	62.5%	100%
Engineering	N	4	18	22
	% by Gender	18.2%	81.8%	100%
Medicine	N	15	31	46
	% by Gender	32.6%	67.4%	100%
Management	N	4	5	9
	% by Gender	44.4%	55.6%	100%
Total	N	35	74	109
	% by Gender	32.1%	67.9%	100%

Table 5

Year of Appointment		Gender		Total
		Female	Male	
2003	N	4	11	15
	% by Gender	26.7%	73.3%	100%
2004	N	10	21	31
	% by Gender	32.3%	67.7%	100%
2005	N	5	18	23
	% by Gender	21.7%	78.3%	100%
2006	N	8	6	14
	% by Gender	57.1%	42.9%	100%
2007	N	8	18	26
	% by Gender	30.8%	69.2%	100%
Total	N	35	74	109
	% by Gender	32.1%	67.9%	100%

Trends by Rank

Table 6

Rank	Frequency	Percent	Valid Percent	Cumulative Percent
Assistant Professor	65	59.6	59.6	59.6
Associate Professor	8	7.3	7.3	67.0
Professor	9	8.3	8.3	75.2
Instructor	27	24.8	24.8	100.0
Total	109	100.0	100.0	

Table 7

Rank		Female	Male	Total
Assistant Professor	N	17	48	65
	% within Rank	26.2%	73.8%	100%
Associate Professor	N	5	3	8
	% within Rank	62.5%	37.5%	100%
Professor	N	2	7	9
	% within Rank	22.2%	77.8%	100%
Instructor	N	11	16	27
	% within Rank	40.7%	59.3%	100%
Total	N	35	74	109
	% within Rank	32.1%	67.9%	100%

Table 8

Rank		Arts & Sciences	Engineering	Medicine	Management	Total
Assistant Professor	N	22	16	24	3	65
	% within college	68.8%	72.7%	52.2%	33.3%	59.6%
Associate Professor	N	3	3	2	0	8
	% within college	9.4%	13.6%	4.3%	0%	7.3%
Professor	N	2	3	3	1	9
	% within college	6.3%	13.6%	6.5%	11.1%	8.3%
Instructor	N	5	0	17	5	27
	% within college	15.6%	0%	37%	55.6%	24.8%
Total	N	32	22	46	9	109
	% within college	100%	100%	100%	100%	100%

Trends of Start-Up Funds

Table 9

Startup Funds		Arts & Sciences	Engineering	Medicine	Management	Total
No startup funds	N	5	0	21	9	35
	% within college	15.6%	0%	45.7%	100%	32.1%
Provided startup funds	N	27	22	25	0	74
	% within college	84.4%	100%	54.3%	0%	67.9%
Total	N	32	22	46	9	109
	% within college	100%	100%	100%	100%	100%

Table 10 Total amount of startup funds by School

College/School	Mean	Median	N	Std. Deviation	Range
Arts & Sciences	$152,999	$60,561	32	$231,645	$1,072,280
Engineering	$275,864	$300,000	22	$167,161	$450,000
Medicine	$385,978	$105,000	46	$563,760	$2,300,000
Management	$0	$0	9	$0	$0
Overall	$263,486	$83,738	109	$411,202	$2,300,000

Table 11 Multiple Comparisons LSD: Total amount of startup funds

(I) college	(J) college	Mean Difference (I-J)	Std. Error	p-value
Arts & Sciences	Engineering	-122865	109963	.266
	Medicine	-232980*	91396	.012
	Management	152999	149807	.309
Engineering	Arts & Sciences	122865	109963	.266
	Medicine	-110115	102920	.287
	Management	275864	157103	.082
Medicine	Arts & Sciences	232980*	91396	.012
	Engineering	110115	102920	.287
	Management	385978*	144716	.009
Management	Arts & Sciences	-152999	149807	.309
	Engineering	-275864	157103	.082
	Medicine	-385978*	144716	.009

Note. * The mean difference is significant at the .05 level

Trends of Base Salary

Table 12

Contract Type	Frequency	Percent	Valid Percent	Cumulative Percent
9-month contract	57	52.3	54.3	54.3
12-month contract	36	33.0	34.3	88.6
Missing	12	11.0	11.4	100.0
Total	105	96.3	100.0	

Table 13 Standardized 9-month Base Salary by School and Gender

College/School	Gender	Mean	Median	N	Std. Deviation	Range
Arts & Sciences	Female	$57,929	$55,000	11	18347	60850
	Male	$58,429	$58,000	17	10279	40000
	Total	$58,233	$55,500	28	13688	60850
Engineering	Female	$73,150	$73,550	4	1546	3500
	Male	$84,681	$78,125	18	18170	60000
	Total	$82,584	$75,750	22	16980	60000
Medicine	Female	$61,908	$57,273	11	24625	81818
	Male	$72,500	$61,364	23	41801	192976
	Total	$69,073	$61,364	34	37067	192976
Management	Female	$102,000	$101,500	4	6782	15000
	Male	$108,250	$106,500	4	14221	30000
	Total	$105,125	$101,500	8	10842	30000
Overall	Female	$67,293	$61,364	30	23352	93577
	Male	$74,485	$69,545	62	30637	192976
	Total	$72,140	$63,000	92	28539	204032

Table 14 Multiple Comparisons (LSD) of Standardized 9-month Base Salary by School

(I) College	(J) College	Mean Difference (I-J)	Std. Error	p-value
Arts & Sciences	Engineering	-24351*	7268	.001
	Medicine	-10841	6511	.099
	Management	-46892*	10228	.000
Engineering	Arts & Sciences	24351*	7268	.001
	Medicine	13511	6981	.056
	Management	-22541*	10533	.035
Medicine	Arts & Sciences	10841	6511	.099
	Engineering	-13511	6981	.056
	Management	-36052*	10025	.001
Management	Arts & Sciences	46892*	10228	.000
	Engineering	22541*	10533	.035
	Medicine	36052*	10025	.001

Note. * The mean difference is significant at the .05 level

Table 15 Standardized 9-month Salary by School and Rank

College/School	Rank	Mean	Median	N	Std. Deviation	Range
Arts & Sciences	Instructor	$40,303	$43,532	4	7471	15850
	Assistant Professor	$56,640	$55,500	20	6098	28000
	Associate Professor	*	*	2	*	*
	Professor	*	*	2	*	*
Engineering	Assistant Professor	$75,709	$74,250	16	4333	13000
	Associate Professor	$81,167	$74,500	3	11983	21000
	Professor	$120,667	$127,000	3	13650	25000
Medicine	Instructor	$49,677	$42,545	11	15194	49795
	Assistant Professor	$65,148	$61,364	20	13144	49091
	Associate Professor	*	*	1	*	*
	Professor	*	*	2	*	*
Management	Instructor	$103,200	$98,000	5	8758	20000
	Assistant Professor	$108,333	$105,000	3	15275	30000
Overall	Instructor	$61,183	$44,407	20	27919	85850
	Assistant Professor	$67,324	$62,000	59	15135	83000
	Associate Professor	$91,864	$82,250	6	26717	69182
	Professor	$127,130	$122,727	7	50299	151182
	Total	$72,140	$63,000	92	28539	204032

Note. * Not reported if less than 3 faculty members in the category.