1998 Annual Survey of the Mathematical Sciences

(First Report)

Report on the 1998 Survey of New Doctoral Recipients Faculty Salary Survey

Paul W. Davis, James W. Maxwell, and Kinda M. Remick

This first report on the 1998 Survey includes information about the employment of 1997–98 new doctoral recipients and salary data on faculty members in four-year colleges and universities. The report is based on information collected from questionnaires distributed in May to departments in the mathematical sciences in colleges and universities in the United States. A further questionnaire concerned with data on fall enrollments, majors, and departmental size was distributed in September. These data will appear in the Second Report of the 1998 Annual Survey in a summer 1999 issue of the *Notices*.

The 1998 Annual Survey represents the forty-second in an annual series begun in 1957 by the Society. The 1998 Survey is under the direction of the Annual Survey Data Committee, whose members are Paul W. Davis (chair), Lorraine Denby, Malay Ghosh, Mary W. Gray, Alfred W. Hales, Don O. Loftsgaarden, James W. Maxwell (ex officio), M. Beth Ruskai, Ann K. Stehney, and Ann E. Watkins. The committee is assisted by AMS Survey Specialist Kinda Remick. Comments or suggestions regarding this Survey Report may be directed to the Committee.

Report on the 1998 Survey of New Doctoral Recipients

This report presents a statistical profile of recipients of doctoral degrees awarded by departments in the mathematical sciences at universities in the United States during the period July 1, 1997, through June 30, 1998. It includes a preliminary analysis of the employment market for 1997–98 doctoral recipients and a demographic profile summarizing characteristics of citizenship status, gender, and racial/ethnic group. Table 1 provides the response rates for the 1998 Survey of New Doctoral Recipients. Please see page 231 for a description of the groups, newly defined for the 1996 Survey.

Table 1: Response Rates

Group I	48 of 48
Group II	54 of 56 including 2 with 0 degrees
Group III	67 of 73 including 19 with 0 degrees
Group IV	59 of 82 including 5 with 0 degrees
Group Va	13 of 18
Group Vb	12 of 31

Revised Procedure for Survey of Employment Status

In the years prior to 1997, the Data Committee determined the employment status of doctoral recipients in two stages: departments were asked in May about the employment status of that year's doctoral recipients (using the Doctorates Granted form), and the individual recipients themselves were polled during the summer (using the Salaries and Professional Experience or SAPE form). Obviously, the employment information obtained from individuals is more accurate than the preliminary data obtained from departments, and it is the department data updated by the SAPE form that has been presented in previous First Reports from the Committee.

Beginning with last year, the summer sampling of individual degree recipients using the SAPE form was replaced by a fall mailing using an instrument known as Employment Experiences of New Doctoral Recipients. This new procedure gathers additional information and permit comparisons with employment patterns in other disciplines, but its timing prevents having the more accurate employment data from individuals available for the Committee's First Report.

The employment data contained in this report is comparable to last year's data but not to data presented in reports prior to 1997. The Committee's Second Report, which will appear in a future issue of *Notices*, will present employment data comparable with those prior reports by virtue of its incorporation of responses from individual degree recipients.

Since sex, race/ethnicity, and citizenship reported by departments are not changed significantly by the individual SAPE forms, those data in this report can reasonably be compared with past reports from the Committee.

Doctoral Degrees Granted

The number of new doctoral recipients reported in 1997–98 by U.S. mathematical sciences departments is 1,216. Table 2A gives the fall and final counts for the past four Annual Surveys together with the current fall count. This year's fall count will be updated in the Second Report of the 1998 Annual Survey, to appear in a summer 1999 issue of *Notices*.

The 1998 fall count of the total number of new doctoral recipients of 1,216 represents an increase from the 1997 fall count of 1,158, and it is the highest number in three years.

Table 2A: U.S. New Doctoral Recipients, Fall and Final Counts

Year	Fall	Final
1993–1994	1059	1076
1994–1995	1226	1237
1995–1996	1153	1154
1996–1997	1158	1174
1997–1998	1216	*

*To appear in a summer 1999 issue of *Notices*.

Table 2B records the annual number of new doctoral recipients in the mathematical sciences in the U.S. from the year 1993–94, exclusive of Group Vb. The response rate for Group Vb, which includes some departments in engineering and management science, is the lowest of all groups.

Table 2B: New Doctoral Degrees Awarded by Groups I–Va, Fall Count

Year	93–94	94–95	95–96	96–97	97–98
I–Va	1025	1148	1098	1123	1163

The columns in Table 3B indicate how the count of 1,216 new doctoral recipients was spread over the mathematical sciences departments in Groups I–V. For mathematics departments (Groups I, II, and III combined), there was an increase of 2.2% in the fall count of new doctoral recipients over the previous year.

Employment Status of U.S. New Doctoral Recipients, 1997–98

The Annual Survey of New Doctoral Recipients provides a view of the employment market for new Ph.D.s in the mathematical sciences from the perspective of job applicants. Additional information about recruitment by four-year colleges and universities is reported in the Second Report of the Annual Survey; see the 1997 Second Report, *Notices*, October 1998, pages 1158–1171, for data on the numbers of positions departments attempted to fill and characteristics of the people hired for fall 1997.

As described in "Revised Procedure of Survey of Employment Status" at the beginning of this report, the employment information provided by departments on their doctoral recipients is updated and expanded by questionnaires sent to each doctoral recipient. In years prior to 1997 these forms were mailed out at the beginning of June, and early returns of these questionnaires were incorporated into the data that was ana-

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Highlights

Based on responses from departments alone (see Revised Employment Status Survey Procedure), the preliminary unemployment rate among the 1,216 new doctoral recipients from the 1997–98 academic year has dropped to 7.2%, slightly higher than last year's 6.8% but still significantly better than the 1995–1996 figure of 10.1%. Of the 1997–1998 doctoral recipients, 1.7% hold part-time positions and 5.7% are employed at the same institution that awarded their degree, though not necessarily in the same department.

Of those doctoral recipients employed in the U.S., 30.0% hold jobs in business and industry, only slightly down from last year's fraction of 31.7% but larger in total number than last year by 3.4%. The number of recipients employed in U.S. academic positions increased in doctoral-degree granting departments by 5.7% and in master's and bachelor's departments by 11.3%.

Unemployment rates varied considerably by type of degree-granting department, ranging from 1.7% in Group V to 15.1% in Group III.

Women account for 24.4% of 1,216 new doctoral recipients, down slightly from 24.8% in 1996–97. The proportion varies with the type of department; for example, 22.3% of the recipeints from Groups I-III are women while 34.3% from statistics departments are women.

The proportion of women hired by doctoral-degree granting departments is merely 18.5%, well below their representation in the overall population of new doctoral recipients. The 163 women recipients who are U.S. citizens is the highest number ever reported by the Annual Survey. They represent 27.8% of the U.S. citizen pool, a slight reduction from last year's 28.7% share of the smaller number of graduates.

Among U.S. citizen doctoral recipients, Black or African Americans increased from 9 last year to 11 this year, while Hispanic or Latino remained constant at 14.

Of the 1,216 new doctoral recipients, 586 were awarded to U.S. citizens, an increase of 13.6% from last year's fall count of 516; 630 non-U.S. citizens received doctorates, down slightly from 642 in 1996–1997.

Table 3A: Employment Status of 1997–1998 U.S. New Doctoral Recipients in the Mathematical Sciences

TYPE OF EMPLOYER		FIELD OF THESIS												TOTAL
		Algebra Number Theory	Real or Complex Analysis	Geometry/ Topology	Discr. Math./ Combin./ Logic/ Comp. Sci.	Probability/ Statistics	Applied Math.	Numerical Analysis Approxi-mations	Functional Analysis	Linear Nonlinear Optim./ Control	Differential Integral and Difference Equations	Harmonic Analysis and Topological Groups	Other/ Unknown	
Group I (Public)		19	2	13	5	4	4	3	3	0	5	4	1	63
Group I (Private)		12	1	8	2	2	6	3	0	0	7	1	0	42
Group II		15	2	7	1	6	2	3	4	0	7	1	1	49
Group III		3	1	6	1	2	3	4	2	0	0	1	1	24
Group IV		1	2	0	0	32	0	0	0	0	0	0	0	35
Group V		0	0	1	2	2	3	2	0	0	0	0	0	10
Master's		9	2	6	8	15	4	7	4	2	6	1	1	65
Bachelor's		23	9	20	14	8	4	7	7	0	13	4	4	113
Two-Year College		0	0	2	0	0	1	1	0	0	0	0	0	4
Other Academic Dept.		3	0	6	7	29	16	7	1	5	3	2	3	82
Research Institute/ Other Nonprofit		6	1	2	0	9	5	0	0	0	2	3	2	30
Government		4	2	1	3	11	4	9	3	4	2	1	0	44
Business and Industry		17	8	7	15	93	33	20	4	12	21	7	3	240
Foreign, Academic		25	3	22	6	16	13	6	8	1	10	5	4	119
Foreign, Nonacademic		1	1	1	1	5	4	2	0	1	1	3	0	20
Not seeking employment		2	1	2	1	3	0	0	0	0	2	0	0	11
Still seeking employment		13	4	9	12	9	4	5	6	3	4	4	1	74
Unknown (U.S.)		15	5	15	10	32	12	4	0	4	7	3	5	112
Unknown (non-U.S.)*		13	4	12	5	16	4	3	1	3	7	5	6	79
Column Total		**181**	**48**	**140**	**93**	**294**	**122**	**86**	**43**	**35**	**97**	**45**	**32**	**1216**
Column Subtotals	Male	146	40	111	72	200	95	73	35	27	70	32	18	**919**
	Female	35	8	29	21	94	27	13	8	8	27	13	14	**297**

*Non-U.S. citizens who return to their country of citizenship and whose status is reported as "unknown" or "still seeking employment".

Table 3B: Employment Status of 1997–1998 U.S. New Doctoral Recipients by Type of Granting Department

TYPE OF EMPLOYER		TYPE OF DOCTORAL DEGREE-GRANTING DEPARTMENT						ROW TOTAL	ROW SUBTOTAL	
		Group I (Public) Math	Group I (Private) Math	Group II Math	Group III Math	Group IV Statistics	Group V Applied Math/OR		Male	Female
Group I (Public)		26	24	9	1	0	3	63	49	14
Group I (Private)		10	23	5	1	0	3	42	39	3
Group II		17	10	17	1	2	2	49	39	10
Group III		7	3	5	6	2	1	24	18	6
Group IV		0	0	2	2	30	1	35	25	10
Group V		1	1	0	2	2	4	10	7	3
Master's		11	6	24	11	11	2	65	48	17
Bachelor's		32	11	45	18	6	1	113	76	37
Two-Year College		0	0	3	1	0	0	4	2	2
Other Academic Dept.		7	10	11	5	23	26	82	53	29
Research Institute/ Other Nonprofit		6	9	1	1	8	5	30	23	7
Government		14	1	11	5	8	5	44	31	13
Business and Industry		29	27	41	27	70	46	240	180	60
Foreign, Academic		49	19	19	7	14	11	119	99	20
Foreign, Nonacademic		6	5	0	1	2	6	20	17	3
Not seeking employment		4	3	1	1	2	0	11	8	3
Still seeking employment		18	8	24	16	6	2	74	56	18
Unknown (U.S.)		40	4	28	12	18	10	112	85	27
Unknown (non-U.S.)*		29	10	18	11	9	2	79	64	15
Column Total		**306**	**174**	**264**	**129**	**213**	**130**	**1216**	**919**	**297**
Column Subtotals	Male	239	139	210	90	140	101	**919**		
	Female	67	35	54	39	73	29	**297**		

*Non-U.S. citizens who return to their country of citizenship and whose status is reported as "unknown" or "still seeking employment".

lyzed and reported in the First Report. Starting with the 1997 Annual Survey, the mailing to individual doctoral recipients took place in October. Hence, the 1998 figures on employment reported here do not reflect updated information from individuals, and they may not be strictly comparable with those of Annual Surveys prior to 1997.

Table 3A shows the employment status, by type of employer and field of degree, of the 1,216 recipients of doctoral degrees conferred by mathematical sciences departments in the U.S. between July 1, 1997, and June 30, 1998. The names of the individuals are listed with their thesis titles in this issue of *Notices* (pages 246–265).

Table 3A shows that among those whose employment status is known, 7.2% are unemployed. The corresponding rate of unemployment from 1996–97 is approximately 6.8%. After adjustment for comparability with current statistics, the unemployment rate for 1995–96, the last year of the old survey scheme, is approximately 10.1%. An update of Table 3A, incorporating the results of the follow-up questionnaire to individual recipients, will appear in the 1998 Second Report in a summer 1999 issue of *Notices*.

Beyond the unemployment statistics that are explicitly reported in Tables 3A, 3B, and 3C, the 1998 Survey provides other indicators about the job market. For example, 17 (1.7%) new doctoral recipients are reported to hold part-time positions, and 58 (5.7%) new doctoral recipients hold employment at the same institution that awarded their degree, although not necessarily in the same department in which the degree was earned. To compare with the corresponding statistics in 1997, 31 positions (3.3%) were part-time and 71 (7.5%) were held by doctoral recipients in the same institutions where they earned their doctoral degrees.

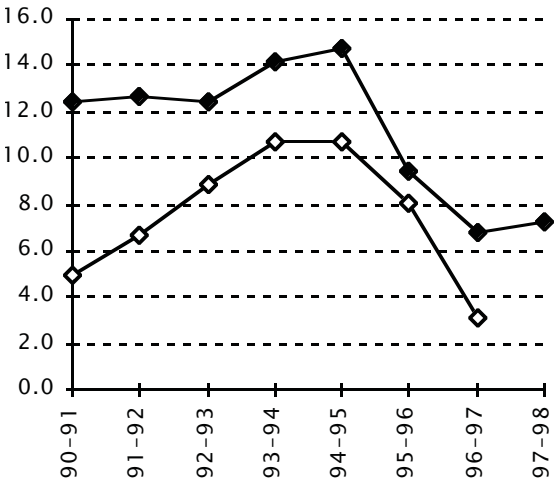
Most new doctoral recipients seek and accept academic positions. Of the 801 new doctoral recipients employed in the U.S., a total of 517 (64.5%) hold jobs in academia (including research institutes). For comparison, last year's data showed 731 new doctoral recipients employed in the U.S., including 467 (63.9%) in academic positions. Thus, total U.S. employment of new doctoral recipients has increased by 9.6%, and the percentage of positions in academia increased by 10.7%. Concomitantly, the fraction of nonacademic positions in the U.S. taken by new doctoral recipients decreased only slightly from 36.1% to 35.5% of those employed in the U.S, and the total number rose from 264 in 1996–97 to 284 this year.

The 517 U.S. academic positions this year include a total of 223 in U.S. doctoral degree-granting departments (Groups I–V). This number is 5.7% higher than last year's count (211 positions in Groups I–V). The number of new doctoral recipients employed by master's and bachelor's degree-granting colleges and universities (Groups M and B) increased by 18 (11.3%) from the number reported last year. The number of new doctoral recipients hired by research institutes increased by 50.0%, government increased by 37.5%, and business and industry increased by 3.4% from last year. Employment of the new doctoral recipients by business and industry constitutes 30.0% of all U.S. employment of these new doctoral recipients. Last year 31.7% were hired by business and industry.

Table 3C: Percentage of New Doctoral Recipients Unemployed (as reported in the respective Annual Survey Reports 1991–1998)

Year	Fall	Final
1990–1991	12.4	5.0
1991–1992	12.7	6.7
1992–1993	12.4	8.9
1993–1994	14.2	10.7
1994–1995	14.7	10.7
1995–1996	9.4	8.1
1996–1997	6.8	3.1
1997–1998	7.2	*

*To appear in a summer 1999 issue of *Notices*.



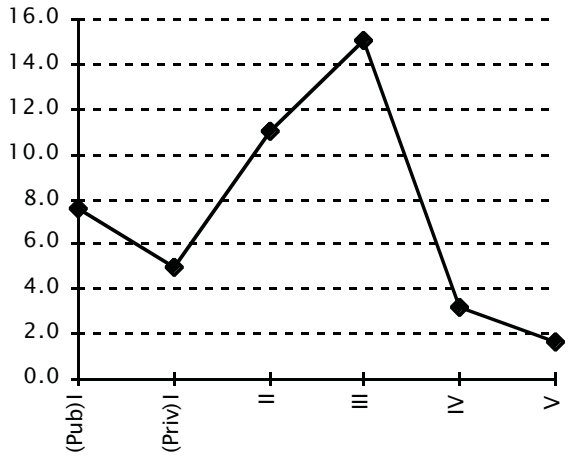
Caution: See Revised Procedure for Survey of Employment Status.

Table 3B reveals the dependence of employment patterns on the type of department from which the doctoral degree is received. New doctoral recipients hired for positions in doctoral degree-granting mathematics departments (Groups I, II, III) are drawn predominantly from these same departments: 92.7% of the positions filled in Groups I, II, and III are held by those who received their degrees from Group I, II, or III departments. Similarly, 85.7% of the Group IV jobs held by new doctoral recipients went to Group IV degree recipients. These percentages compare with 95.3% and 93.9% respectively from the 1997 figures.

Women represent 24.4% of the population of new doctoral recipients, down slightly from 24.8% in 1996–97, but the proportion is not uniform across different types of departments. For example, 22.3% of the new doctoral recipients in mathematics (Groups I+II+III) are women (up from 21.9% last year), and 34.3% of the new doctoral recipients from statistics departments are women (down from 37.6% last year). The proportion of women among new doctoral recipients hired by doctoral degree-granting mathematics departments (18.5%) is considerably less than

Table 3D: Percentage of Unemployed New Doctoral Recipients by Granting Department

Group	I (Public)	I (Private)	II	III	IV	V
%	7.6	5.0	11.0	15.1	3.2	1.7



their proportion among mathematics doctoral recipients. The rate of unemployment for the female new doctoral recipients (7.1%) is slightly lower than the rate for the male new doctoral recipients (7.3%).

Table 3D shows different rates of unemployment for doctoral recipients based on the group of their granting department. The percentages unemployed is based on those whose employment status is known. The rates for groups I, II, and IV are roughly comparable with last year. Groups III and V are significantly different, being 4.2% and 12.3%, respectively, in fall 1997.

Table 3E shows the pattern of employment within broad job categories broken down by the citizenship status of the new doctoral recipients. The citizenship status is known for all of the 1,216 new doctoral recipients. For those whose job status is known, the rate of unemployment for non-U.S. citizens is 1.4 percentage points lower than that for U.S. citizens (6.5% for noncitizens and 7.9% for citizens). Nevertheless, the unemployment rate for U.S. citizens is 0.5 percentage points below the level of last year's data. The percentage of U.S. citizens in U.S. nonacademic jobs is higher than the percentage of noncitizens in the same category (29.6% of citizens versus 25.8% of noncitizens). While the former figure went up by 6.6 percentage points, the latter figure dropped by 6.8 percentage points. The percentage of U.S. citizen degree recipients holding positions in U.S. doctoral degree-granting departments (19.5%) is lower than the percentage for non-U.S. citizens (24.0%). U.S. citizen graduates hold positions in nondoctoral-degree granting U.S. departments in substantially higher proportion than do noncitizens (35.4% of citizens compared to 15.9% of noncitizens). All percentages exclude new doctoral recipients whose job status is unknown.

Of the temporary residents who received doctorates this year, 50.6% obtained U.S. employment, while 77.6% of the permanent residents found U.S. employment, compared with 49.9% and 64.0% respectively last year.

Sex, Ethnicity, and Citizenship of U.S. New Doctoral Recipients, 1997–1998

Table 4 presents a breakdown according to gender, ethnic group, and citizenship of the new doctoral recipients. The information reported in this table was obtained in summary form from the departments granting the degrees.

The citizenship status is known for all of the 1,216 new doctoral recipients, including 586 U.S. citizens. The number of U.S. citizen new doctoral recipients is 13.6% more than the 1996–97 figure of 516. Table 5 shows the changes from year to year in the numbers and proportions of U.S. citizens.

The percentage of U.S. citizens among the new doctoral recipients is 48.2%, an increase from last year's percentage of 44.5%. A total of 630 noncitizens were awarded doctoral degrees by U.S. institutions in 1997–98. This represents a decrease of 12 individuals (1.9%) from last year's count of 642. The 1997–98 count is 73.6% greater than the number awarded by U.S. institutions ten years ago (363 in 1987–88).

Among the U.S. citizens receiving doctoral degrees in the mathematical sciences, 11 are Black or African American (6 men and 5 women) and 14 are Hispanic or Latino (8 men and 6

Table 3E: Employment Status of 1997–1998 U.S. New Doctoral Recipients by Citizenship Status

	CITIZENSHIP								TOTAL DOCTORAL RECIPIENTS WHOSE CITIZENSHIP IS KNOWN*	
	U.S. CITIZENS		NON-U.S. CITIZENS Permanent Visa		Temporary Visa		Unknown Visa			
TYPE OF EMPLOYER	Number	%	Number	%	Number	%	Number	%	Number	%
U.S. Academic, Ph.D. Department	101	17.2	27	23.3	81	18.2	14	20.3	223	18.3
U.S. Academic, Non-Ph.D. Department	183	31.3	26	22.4	49	11.0	6	8.7	264	21.7
U.S. Research Institute/Other Nonprofit	11	1.9	2	1.7	14	3.2	3	4.4	30	2.5
U.S. Nonacademic	153	26.1	35	30.2	81	18.2	15	21.7	284	23.3
Foreign Academic	20	3.4	5	4.3	83	18.7	11	15.9	119	9.8
Foreign Nonacademic	3	0.5	0	0.0	16	3.6	1	1.5	20	1.6
Not Seeking Employment	5	0.9	1	0.9	5	1.1	0	0.0	11	0.9
Still Seeking Employment	41	7.0	5	4.3	28	6.3	0	0.0	74	6.1
Unknown (U.S. address given)	65	11.1	14	12.1	24	5.4	9	13.0	112	9.2
Unknown (foreign address given)	4	0.7	1	0.9	64	14.4	10	14.5	79	6.5
TOTAL	586	100.0*	116	100.0*	445	100.0*	69	100.0*	1216	100.0*

* Column totals are rounded to the nearest whole percent.

women). The former increased by 2 individuals from last year, while the latter remained the same.

Women account for 27.8% of the U.S. citizens receiving doctoral degrees in the mathematical sciences from U.S. universities. This is only slightly lower than last year's figure of 28.7, the highest percentage ever reported. In addition, the total number of U.S. citizen women who were 1997–98 doctoral recipients (163) increased by 10.1% from last year's reported 148 and is now the highest number ever reported by the Annual Survey (see Table 6).

Note that in Tables 5 and 6 all years prior to 1982–83 include doctoral recipients from computer science departments.

Acknowledgments

The Annual Survey attempts to provide an accurate appraisal and analysis of various aspects of the academic mathematical sciences scene for the use and benefit of the community and for filling the information needs of the professional organizations. Every year, college and university departments in the United States are invited to respond. The Annual Survey relies heavily on the conscientious efforts of the dedicated staff members of these departments for the quality of its information. On behalf of the Annual Survey Data Committee and the Annual Survey staff, we thank the many secretarial and administrative staff members in the mathematical sciences departments for their cooperation and assistance in responding to the survey questionnaires.

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Table 4: Sex, Race/Ethnicity, and Citizenship of 1997–1998 U.S. New Doctoral Recipients

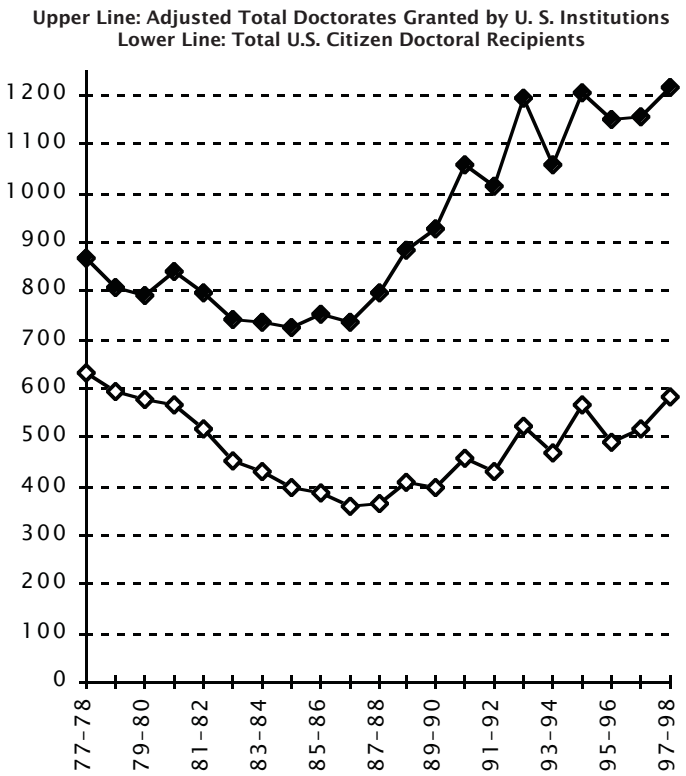
	MEN					WOMEN					
		NON-U.S. CITIZEN					NON-U.S. CITIZEN				
RACIAL/ETHNIC GROUP	U.S. CITIZEN	Permanent Visa	Temporary Visa	Unknown Visa	Total Men	U.S. CITIZEN	Permanent Visa	Temporary Visa	Unknown Visa	Total Women	TOTAL
American Indian or Alaska Native	2	0	3	0	5	2	0	0	0	2	7
Asian	15	36	191	32	274	12	22	42	6	82	356
Black or African American	6	4	4	0	14	5	0	1	0	6	20
Hispanic or Latino	8	2	32	5	47	6	1	10	0	17	64
Native Hawaiian or Other Pacific Islander	0	1	1	0	2	0	0	0	2	2	4
White	392	38	126	19	575	138	12	33	5	188	763
Unknown	0	0	2	0	2	0	0	0	0	0	2
TOTAL	423	81	359	56	919	163	35	86	13	297	1216

Table 5: U.S. Citizen Doctoral Recipients

	Adjusted Total* Doctorates Granted by U.S. Institutions	Total U.S. Citizen Doctoral Recipients	%
77–78	868	634	73
78–79	806	596	74
79–80	791	578	73
80–81	839	567	68
81–82	798	519	65
82–83	744	455	61
83–84	738	433	59
84–85	726	396	55
85–86	755	386	51
86–87	739	362	49
87–88	798	363	45
88–89	884	411	46
89–90	929	401	43
90–91	1061	461	43
91–92	1016	430	42
92–93	1197	526	44
93–94	1059	469	44
94–95	1207	567	47
95–96	1150	493	43
96–97	1158	516	45
97–98	1216	586	48

*Number of doctoral recipients whose citizenship is known. Total may vary from Table 3E of the respective First Reports, as the data is gathered on different surveys.

Graph 5A: U.S. Citizen Doctoral Recipients



Graph 5B: U.S. Citizen Doctoral Recipients by Percent

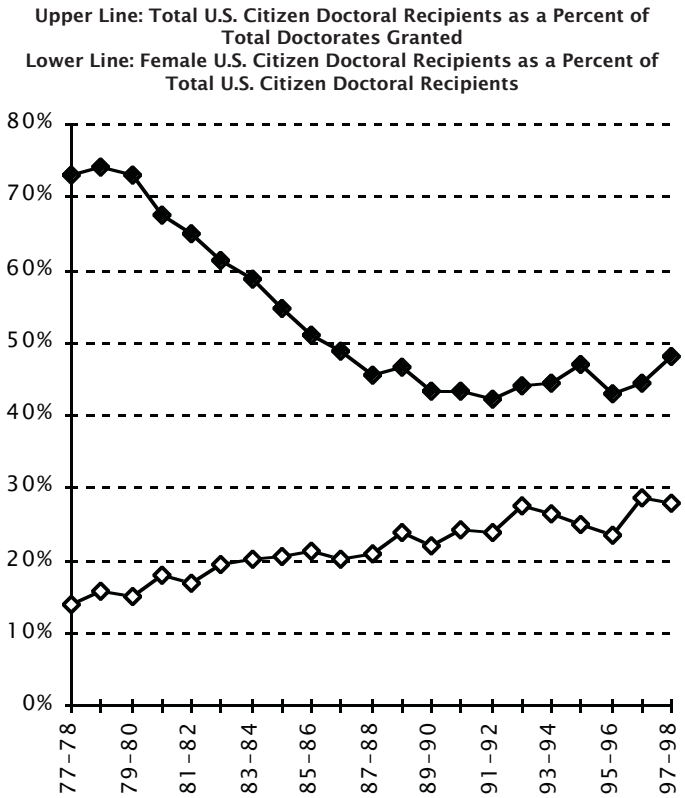


Table 6: U.S. Citizen Doctoral Recipients by Sex

	Total U.S. Citizen Doctoral Recipients	Male	Female	% Female
77–78	634	545	89	14
78–79	596	503	93	16
79–80	578	491	87	15
80–81	567	465	102	18
81–82	519	431	88	17
82–83	455	366	89	20
83–84	433	346	87	20
84–85	396	315	81	20
85–86	386	304	82	21
86–87	362	289	73	20
87–88	363	287	76	21
88–89	411	313	98	24
89–90	401	312	89	22
90–91	461	349	112	24
91–92	430	327	103	24
92–93	526	381	145	28
93–94	469	345	124	26
94–95	567	426	141	25
95–96	493	377	116	24
96–97	516	368	148	29
97–98	586	423	163	28

National Research Council, *Summary Report 1996, Doctorate Recipients from U. S. Universities*, National Academy Press, Washington, DC, 1998.
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____, *Everybody Counts: A Report to the Nation on the Future of Mathematics Education*, National Academy Press, Washington, DC, 1989.
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National Science Board, Science and engineering indicators–1998, National Science Foundation, Arlington, VA, 1998 (NSB 98-1).
National Science Foundation, Science and technology pocket data book, NSF 96-324, Arlington, VA, 1996.
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____, Science and engineering doctorate awards: 1996, NSF 97-329, Detailed Statistical Tables, Arlington, VA, 1997.
____, Academic science and engineering: Graduate enrollment and support, 1991, NSF 93-309, Detailed Statistical Tables, Washington, DC, 1993.
____, Selected data on graduate students and postdoctorates in science and engineering, Fall 1993, NSF 95-316; Selected Pamphlet No. 11: Institutional listings, NSF 90–324–11; Selected Pamphlet No. 12: Postdoctorates and other nonfaculty research staff, NSF 90–324–12; Washington, DC, 1990.
____, Survey of mathematics and statistics departments at higher education institutions, Higher Education Surveys Report, Survey Number 5, Washington, DC, December 1990.
____, Foreign participation in U.S. academic science and engineering: 1991, NSF 93-302, Washington, DC, 1993.

Salary Survey for Faculty

The charts on the following pages display faculty salary data for Groups I Public, I Private, II, III, IV, Va, M, and B: faculty salary distribution by rank, mean salaries by rank, information on quartiles by rank, and the number of usable returns for the group. Since groupings used for the mathematics departments in this year's report differ from years prior to 1995–96, comparisons are possible only to the last two years' data. In addition, Group Va is reported separately this year. Group Vb departments have been dropped from the salary survey due to extremely low response rates. Departments were asked to report the number of tenured and tenure-track faculty whose 1998–99 academic-year salaries fell within given salary intervals. Reporting salary data in this fashion eliminates some of the concerns about confidentiality but does not permit determination of actual quartiles. What can be determined is the salary interval in which the quartiles occur; the salary intervals containing the quartiles are denoted by <n, n+5>.

Reclassification of Departments

As has been the case for a number of years, much of the data in these reports is presented for departments divided into groups according to several characteristics, the principal one being the highest degree offered in the mathematical sciences. Doctorate-granting departments of mathematics are further subdivided according to their ranking of "scholarly quality of program faculty" as reported in the 1995 publication *Research-Doctorate Programs in the United States: Continuity and Change.*[1] These rankings update those reported in a previous study published in 1982.[2] Consequently, the departments which now comprise Groups I, II, and III differ significantly from those used prior to the 1996 Survey.

The subdivision of the Group I institutions into Group I Public and Group I Private was new for the 1996 survey. With the increase in number of the Group I departments from 39 to 48, the Annual Survey Data Committee judged that a further subdivision of public and private would provide more meaningful reporting of the data for these departments.

Brief descriptions of the groupings used for reporting purposes are as follows:

Group I is composed of 48 departments with scores in the 3.00–5.00 range.

Group I Public and Group I Private are Group I departments at public institutions and private institutions respectively.

Group II is composed of 56 departments with scores in the 2.00–2.99 range.

Group III contains the remaining U.S. departments reporting a doctoral program, including a number of departments not included in the 1995 ranking of program faculty.

Group IV contains U.S. departments (or programs) of statistics, biostatistics, and biometrics reporting a doctoral program.

Group V contains U.S. departments (or programs) in applied mathematics/applied science, operations research, and management science which report a doctoral program.

Group Va is applied mathematics/applied science; Group Vb is operations research and management science.

Group M contains U.S. departments granting a master's degree as the highest graduate degree.

Group B contains U.S. departments granting a baccalaureate degree only.

Listings of the actual departments which comprise these groups are available on the AMS Web site at `www.ams.org/employment/`.

[1]Research-Doctorate Programs in the United States: Continuity and Change, *edited by Marvin L. Goldberger, Brendan A. Maher, and Pamela Ebert Flattau; National Academy Press; Washington, D; 1995.*

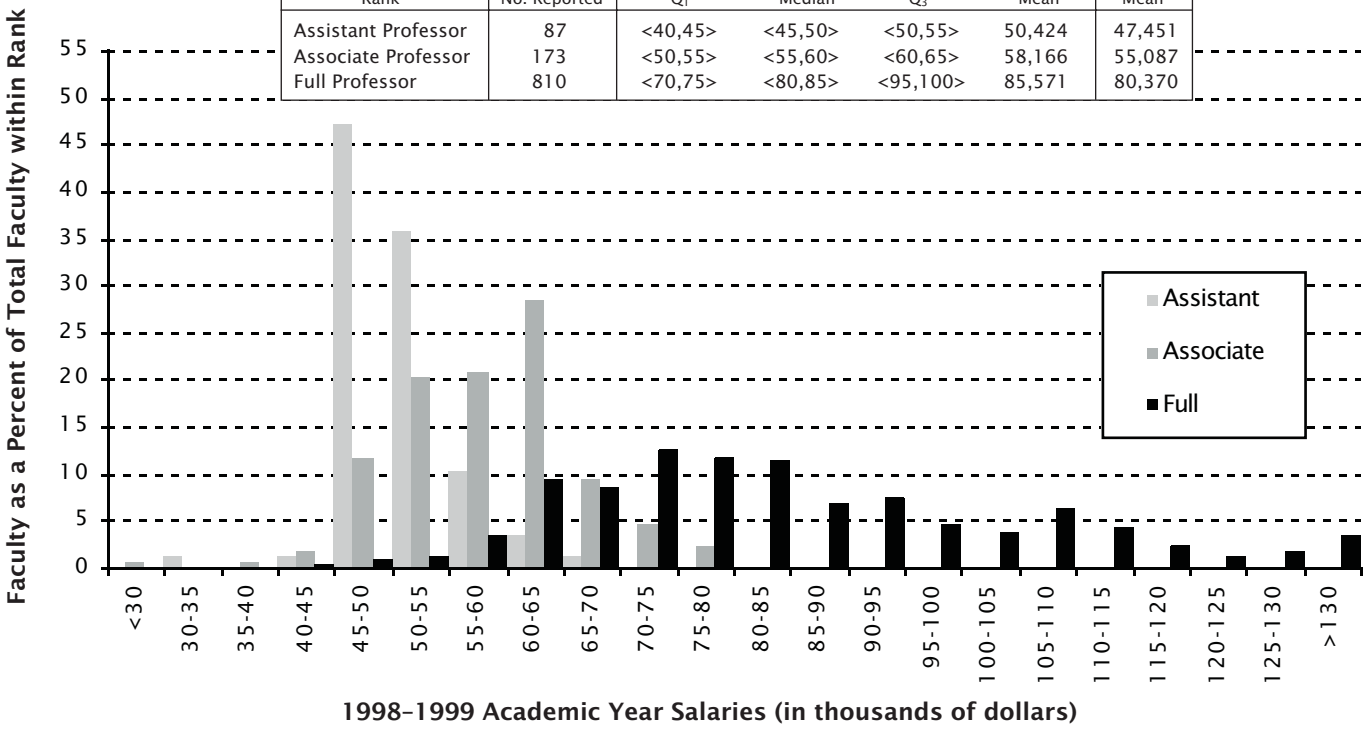
[2]*These findings were published in* An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences, *edited by Lyle V. Jones, Gardner Lindzey, and Porter E. Coggeshall; National Academy Press; Washington, DC; 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of the* Notices, *pages 257–67, and an analysis of the classifications was given in the June 1983* Notices, *pages 392–3.*

Group I Public Faculty Salaries

Doctoral degree-granting departments of mathematics (25)

21 usable responses (84%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	87	<40,45>	<45,50>	<50,55>	50,424	47,451
Associate Professor	173	<50,55>	<55,60>	<60,65>	58,166	55,087
Full Professor	810	<70,75>	<80,85>	<95,100>	85,571	80,370

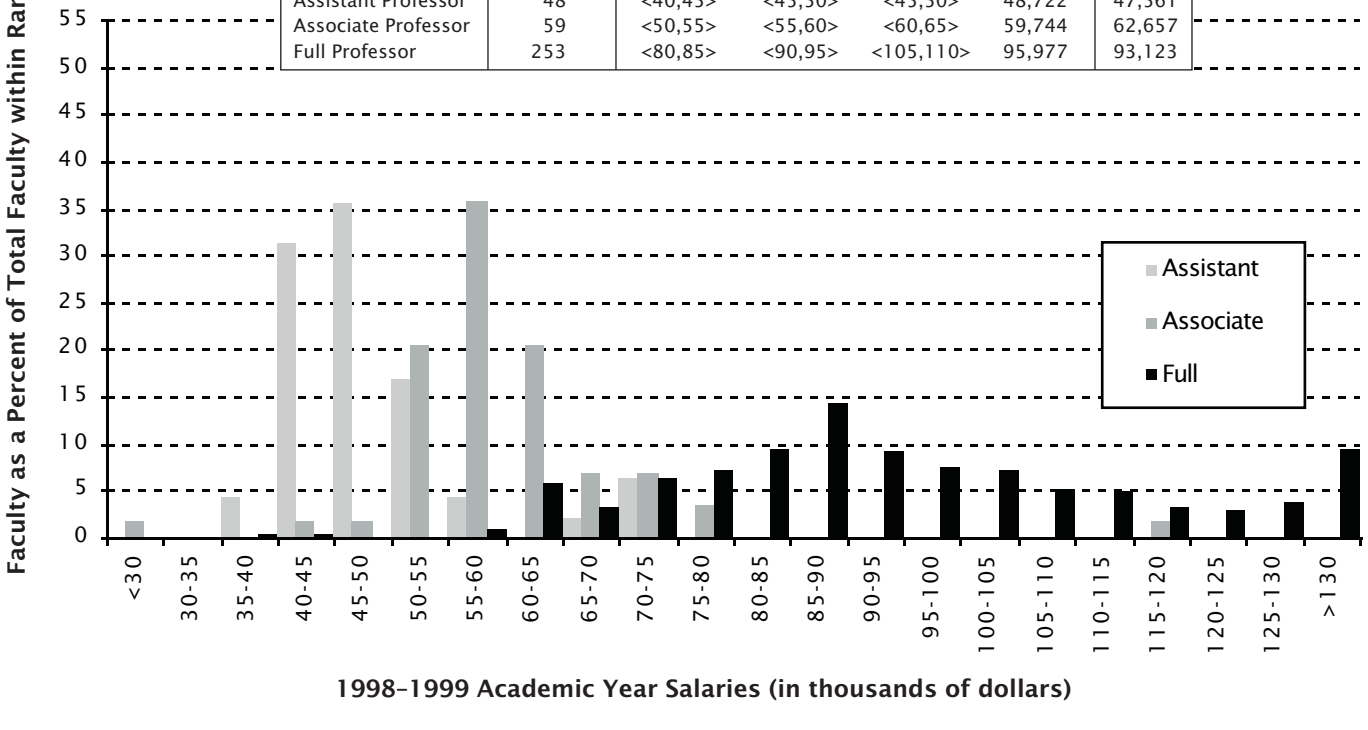


Group I Private Faculty Salaries

Doctoral degree-granting departments of mathematics (23)

14 usable responses (61%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	48	<40,45>	<45,50>	<45,50>	48,722	47,561
Associate Professor	59	<50,55>	<55,60>	<60,65>	59,744	62,657
Full Professor	253	<80,85>	<90,95>	<105,110>	95,977	93,123

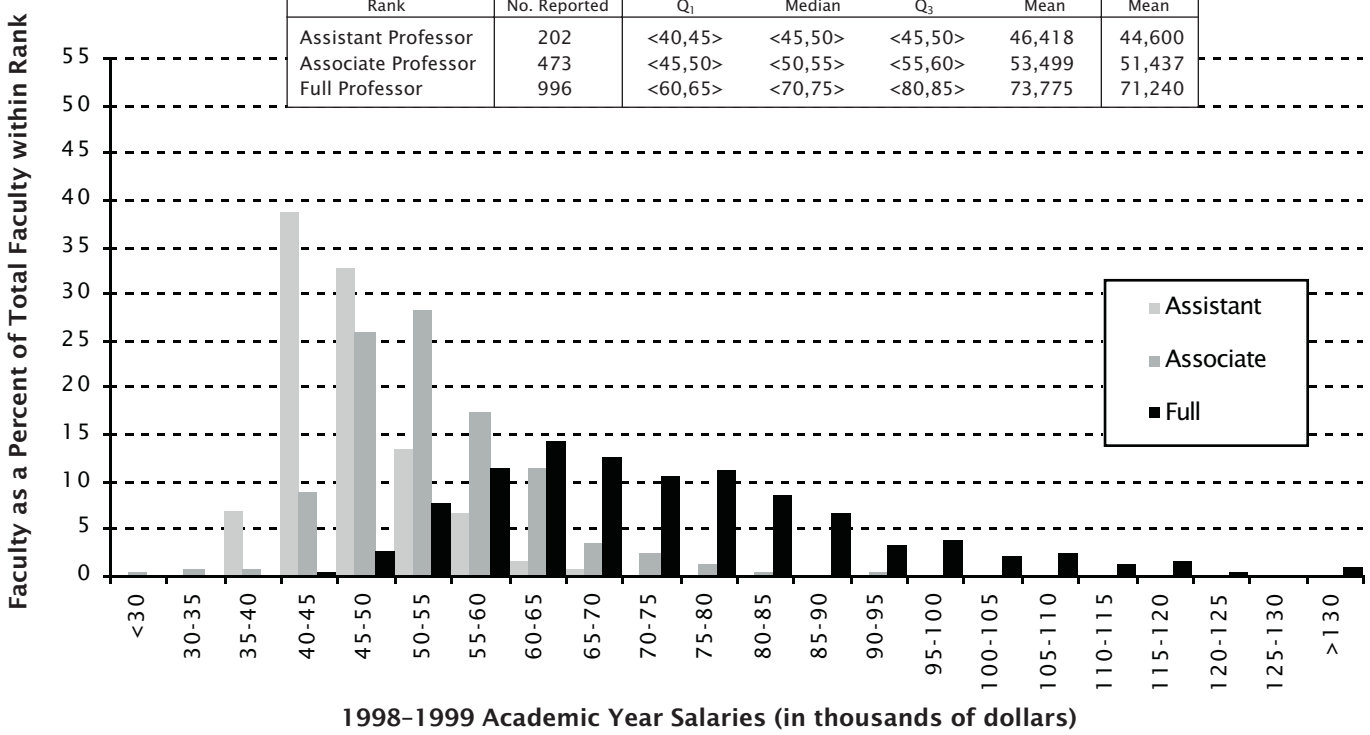


Group II Faculty Salaries

Doctoral degree-granting departments of mathematics (56)

50 usable responses (89%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	202	<40,45>	<45,50>	<45,50>	46,418	44,600
Associate Professor	473	<45,50>	<50,55>	<55,60>	53,499	51,437
Full Professor	996	<60,65>	<70,75>	<80,85>	73,775	71,240

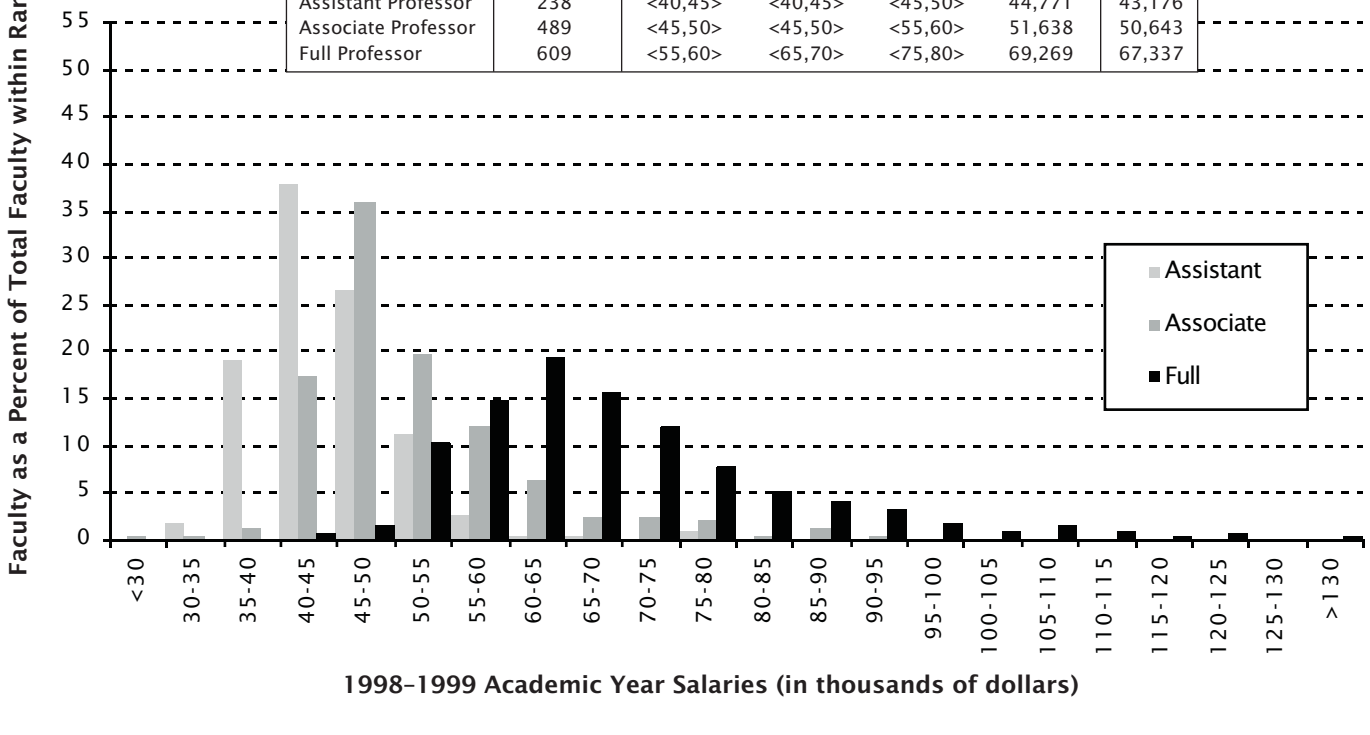


Group III Faculty Salaries

Doctoral degree-granting departments of mathematics (73)

60 usable responses (82%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	238	<40,45>	<40,45>	<45,50>	44,771	43,176
Associate Professor	489	<45,50>	<45,50>	<55,60>	51,638	50,643
Full Professor	609	<55,60>	<65,70>	<75,80>	69,269	67,337

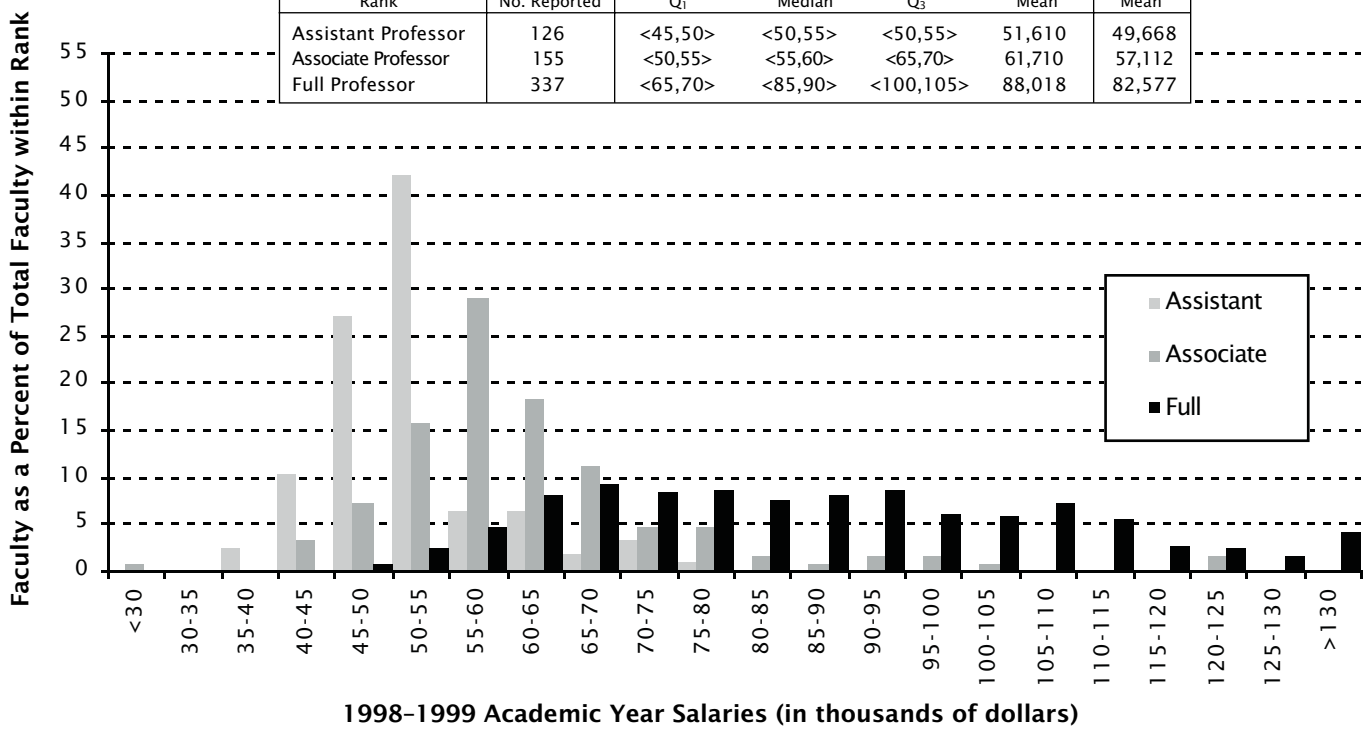


Group IV Faculty Salaries

Doctoral degree-granting departments of statistics, biostatistics, biometrics (82)

50 usable responses (61%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	126	<45,50>	<50,55>	<50,55>	51,610	49,668
Associate Professor	155	<50,55>	<55,60>	<65,70>	61,710	57,112
Full Professor	337	<65,70>	<85,90>	<100,105>	88,018	82,577

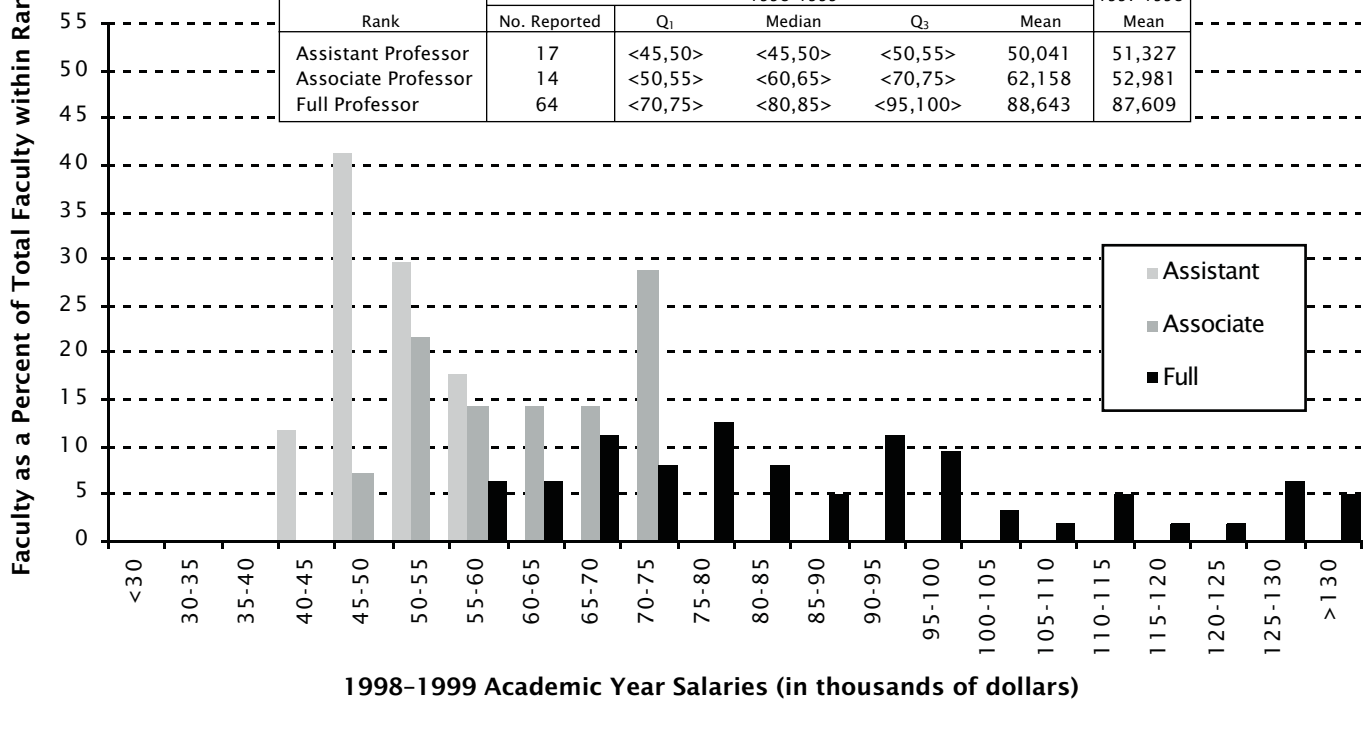


Group Va Faculty Salaries

Doctoral degree-granting departments of applied mathematics(18)

8 usable responses (44%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	17	<45,50>	<45,50>	<50,55>	50,041	51,327
Associate Professor	14	<50,55>	<60,65>	<70,75>	62,158	52,981
Full Professor	64	<70,75>	<80,85>	<95,100>	88,643	87,609

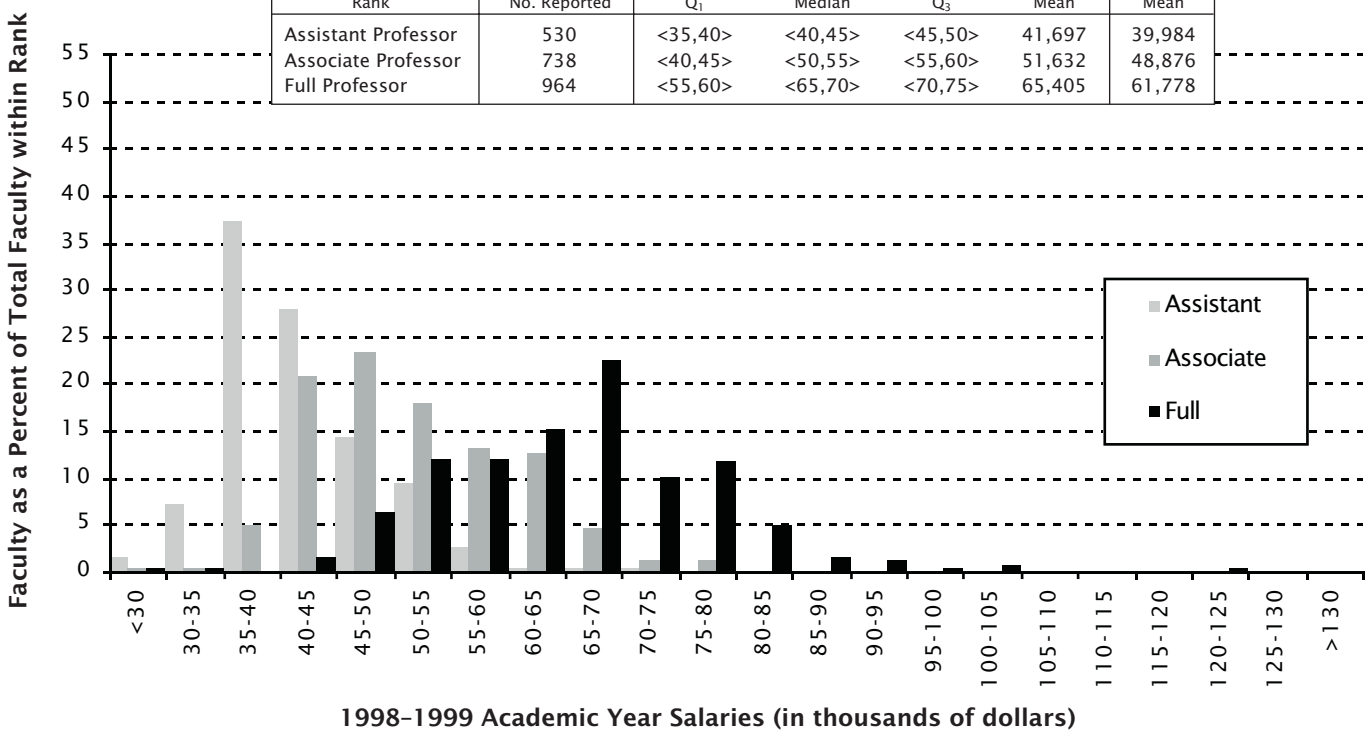


Group M Faculty Salaries

Master's degree-granting departments of mathematics (231)

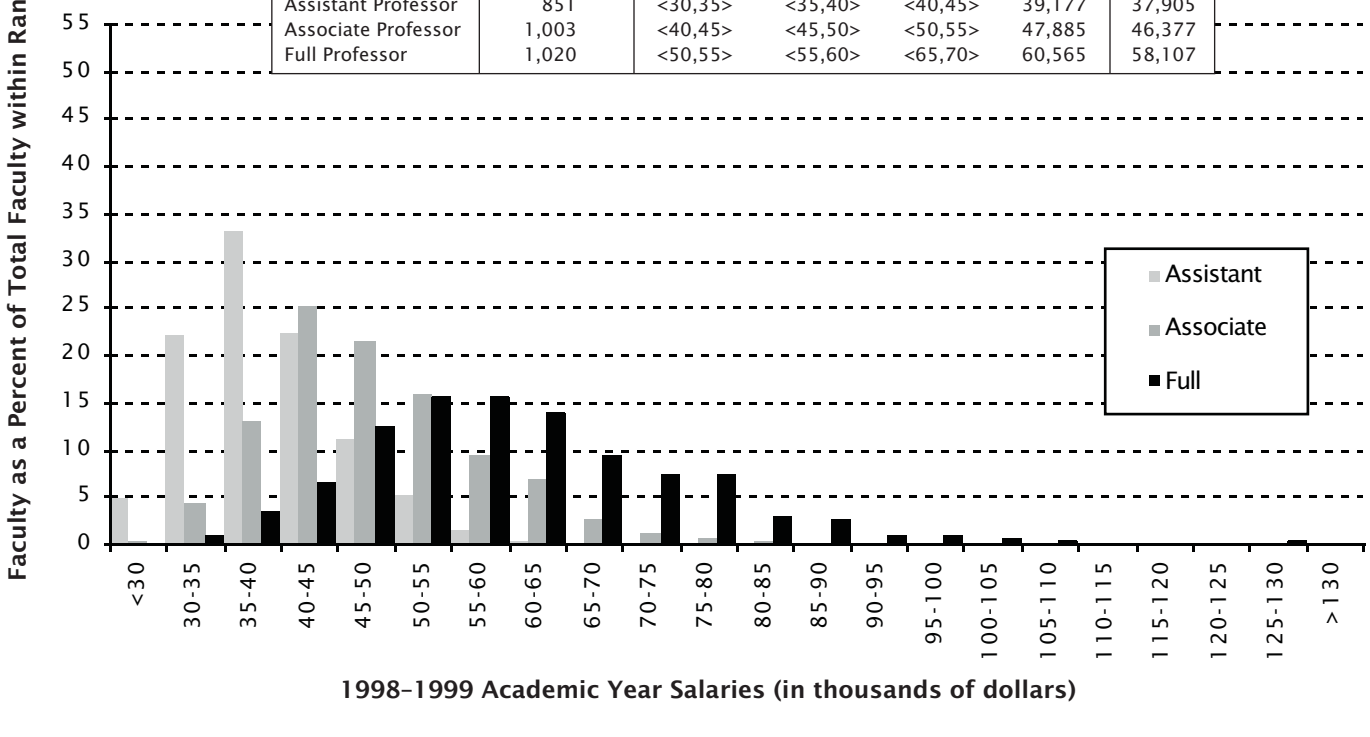
124 usable responses (54%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	530	<35,40>	<40,45>	<45,50>	41,697	39,984
Associate Professor	738	<40,45>	<50,55>	<55,60>	51,632	48,876
Full Professor	964	<55,60>	<65,70>	<70,75>	65,405	61,778



Group B Faculty Salaries

Bachelor's degree-granting departments of mathematics (1,012)

383 usable responses (38%)

Rank	1998–1999 No. Reported	Q_1	Median	Q_3	Mean	1997-1998 Mean
Assistant Professor	851	<30,35>	<35,40>	<40,45>	39,177	37,905
Associate Professor	1,003	<40,45>	<45,50>	<50,55>	47,885	46,377
Full Professor	1,020	<50,55>	<55,60>	<65,70>	60,565	58,107