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1994 Annual AMS-IMS-MAA Survey

(First Report)

Report of the 1994 Survey of New Doctoral Recipients
John D. Fulton
Salary Survey for New Doctoral Recipients
Faculty Salary Survey

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Faculty Salary Survey
Doctoral Degrees Conferred, 1993–1994

This first report on the 1994 Survey includes a report on the 1994 survey of new doctoral recipients, a report on salaries of new doctoral recipients, salary data on faculty members in four-year colleges and universities, and a list of names and thesis titles for members of the 1993–1994 Ph.D. class. 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 and later to the recipients of doctoral degrees granted by these departments between July 1993 and June 1994, inclusive. 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 on the 1994 Survey in a spring 1995 issue of the *Notices*.

The 1994 Annual AMS-IMS-MAA Survey represents the thirty-eighth in an annual series begun in 1957 by the Society. The 1994 Survey is under the direction of the AMS-IMS-MAA Data Committee, whose members are Paul W. Davis, Lorraine Denby, John D. Fulton (chair), James F. Hurley, Don O. Loftsgaarden, James W. Maxwell (*ex officio*), Donald B. Rubin, Donald C. Rung, Ann K. Stehney, and Ann E. Watkins. Comments or suggestions regarding this Survey may be directed to the committee.

For these reports, departments are divided into groups according to the highest degree offered in the mathematical sciences:

Groups I and II include the leading departments of mathematics in the U.S. according to the 1982 Assessment of Research-Doctorate Programs conducted by the Conference Board of Associated Research Councils, in which departments were rated according to the quality of their graduate faculty.[1]
Group I is composed of 39 departments with scores in the 3.0–5.0 range.
Group II is composed of 43 departments with scores in the 2.0–2.9 range.
Group III contains the remaining U.S. departments reporting a doctoral program.
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.

[1]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, D.C., 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of the *Notices*, pages 257–267, and an analysis of the above classifications was given in the June 1983 *Notices*, pages 392–393. For a listing of departments in Groups I and II see the April 1988 *Notices*, pages 532–533.

Highlights

- The unemployment rate for new doctoral recipients reached the highest level ever reported. Among those whose employment status is known, 14.2 percent were unemployed as of late September 1994, surpassing the recent high figure of 12.7 percent in fall 1992 and the record high 13.7 percent in 1975. An additional 4.1 percent of the 1992–1993 new doctoral recipients reported that they were employed part-time. Total employment of new doctoral recipients in the U.S. decreased by 16 percent from the level reported in fall 1993.

- U.S. institutions awarded 1,059 doctoral degrees in the mathematical sciences from July 1, 1993, to June 30, 1994, a decline of almost 12 percent from last year's fall count.

- The number of U.S. citizens reported to have received doctoral degrees in the mathematical sciences is 469, which is 11 percent less than the number earning doctoral degrees last year. Still, the count is 30 percent above the record lows reported in 1986–1987 and 1987–1988.

- The number of non-U.S. citizens receiving doctoral degrees is 590, down 12 percent from the 1992–1993 record high of 671.

- Of the 469 U.S. citizen doctoral recipients, 3 are black; 7 are Mexican American, Puerto Rican, or other Hispanic; and 31 are members of other minority groups. In 1992–1993 the U.S. citizen doctoral recipients included 7 blacks and 37 other minority members.

- The number of women among U.S. citizen doctoral recipients decreased by 14.5 percent from last year's record high fall count to 124. The percentage of women among U.S. citizen doctoral recipients is 26 percent, second only to last year's record high of 28 percent.

- The median starting salary of new doctoral recipients reporting teaching (or teaching and research) for men and women increased by $1,000 over last year to $35,000 and $34,800, respectively.

- In all but one instance the mean salary for assistant, associate, and full professors reported for 1994–1995 increased over the mean for 1993–1994.

Report on the 1994 Survey of New Doctoral Recipients

John D. Fulton

This report presents a statistical profile of recipients of doctoral degrees in the mathematical sciences awarded by universities in the United States during the period July 1, 1993, through June 30, 1994. It includes an analysis of the employment market for 1993–1994 doctoral recipients and a demographic profile summarizing characteristics of citizenship status, gender, and racial/ethnic group. Table 1 provides the response rates for the 1994 Survey of New Doctoral Recipients (see box on preceding page for description of Groups).

TABLE 1: Response Rates

Group I	38 of 39 including 1 with 0 degrees
Group II	40 of 43 including 1 with 0 degrees
Group III	78 of 90 including 19 with 0 degrees
Group IV	46 of 76 including 1 with 0 degrees
Group Va	12 of 18
Group Vb	11 of 33 including 3 with 0 degrees

Doctoral Degrees Granted

The number of new doctoral recipients reported in 1993–1994 by U.S. mathematical sciences departments is 1,059. Table 2A gives the fall and spring 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 1994 Survey, to appear in a spring 1995 issue of the *Notices*.

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

Fall/Spring 89–90	Fall/Spring 90–91	Fall/Spring 91–92	Fall/Spring 92–93	Fall/Spring 93–94
933 950	1074 1125	1050 1062	1202 1214	1059 *

* To appear in a spring 1995 issue of the *Notices*.

The fall count of the total number of new doctoral recipients represents a decrease of 11.9 percent from the fall count of 1,202 in the 1993 Survey. Still, this year's fall count represents an increase of 44.7 percent over the 1984–1985 fall count of 732 new doctorates from U.S. institutions, one of the lowest counts within the last twenty years.

Table 2B records the annual number of new doctoral recipients in the mathematical sciences in the U.S. from the year 1989–1990, 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

	89–90	90–91	91–92	92–93	93–94
I-Va	881	1034	1008	1116	1025**

** This is a fall count. The other entries in Table 2B are spring counts. Table 2B will be updated to include a spring count for 1993–1994 in a spring 1995 issue of the *Notices*.

The columns in Table 3B indicate how the count of 1,059 new doctoral recipients was spread over the mathematical sciences departments in Groups I-V. Comparisons in these counts by Groups with the 1992–1993 counts reveal a 4.3 percent decline in Group I, a 32.6 percent decline in Group IV, and a 41.7 percent decline in Group V. The count of new doctoral recipients in Group III remained virtually unchanged from the 1992–1993 fall count to the 1993–1994 fall count, while the Group II count showed an increase of 8.6 percent. For mathematics departments (Groups I, II, and III combined), there was only a slight decrease (approximately 0.2 percent) in the fall count of new doctoral recipients. Thus, essentially all of the 11.9 percent decrease in new doctoral recipients is shown in Group IV and V departments, which include statistics, applied mathematics, operations research, and management science departments.

Employment Status of U.S. New Doctoral Recipients, 1993–1994

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 1993 Second Report, *Notices*, July/August 1994, pages 598-606, for data on the numbers of positions departments attempted to fill and characteristics of the people hired.

Table 3A shows the employment status, by type of employer and field of degree, of the 1,059 recipients of doctoral degrees conferred by the mathematical sciences departments in the U.S. between July 1, 1993, and June 30, 1994. The names of the individuals are listed with their thesis titles in a later section of this First Report of the 1994 Annual Survey. The employment information was obtained initially from the departments granting the degrees and subsequently from data provided by the degree recipients themselves.

Most new doctoral recipients seek and accept academic positions. Of the 606 new doctoral recipients employed in the U.S., a total of 468 (77 percent) hold jobs in academia. For comparison, last year's First Report showed 721 new doctoral recipients employed in the U.S., including 554 (also 77 percent) in academic positions. Thus total U.S. employment of new doctoral recipients has decreased by 16 percent, and the percentage of positions in academia has remained constant. Concomitantly, the number of nonacademic positions in the U.S. for new doctoral recipients has decreased by 17 percent to 138.

The 468 U.S. academic positions this year include a total of 197 in U.S. doctoral degree-granting departments (Groups I–V). This number is 22 percent lower than last year (252 positions in Groups I–V). While the number hired by Group I has remained essentially constant at 100 since 1988, only 78 of

Table 3A: Employment Status of 1993–1994 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 or Nonlinear Optim./ Control	Differential, Integral and Difference Equations	Harmonic Analysis and Topological Groups	Other	
Group I	19	3	13	8	4	3	5	5	1	9	2	6	78
Group II	5	1	4	2	2	1		5	2	2		2	26
Group III	11	2	4	3	13	5	5	5	2	5	2	3	60
Group IV					23	1							24
Group V					1	2	1		2	2		1	9
Masters	14	2	4	7	4	2	4	7		7	2	3	56
Bachelors	22	8	14	18	12	10	7	9	2	8	4	5	119
Two-year Colleges	3	1	2	1		1				1			9
Other Academic Depts.	2		1	2	19	13	3	1	1	4	1	7	54
Research Institutes	8	2	3	1	8	3	2			3	1	2	33
Government	1			1	11	8	3	1			1	2	28
Business and Industry	3		5	8	45	13	12	2	5	8	3	6	110
Foreign, Academic	24	7	16	14	37	5	10	6	6	10	8	6	149
Foreign, Nonacademic	1	1	3		4	5	1			1	1		17
Not seeking employment	2		2	3	1	1	2			2		1	14
Still seeking employment	27	4	17	7	17	17	6	11	6	13	3	2	130
Unknown (U.S.)	9	6	7	18	17	12	5	1	3	3	1	5	87
Unknown (non-U.S.)*	5	3	8	4	10	4	8	3		5	2	4	56
Column Total	156	40	103	97	228	106	74	56	30	83	31	55	1059
Column Subtotals Male	120	38	80	76	157	82	64	42	28	72	25	44	828
Column Subtotals Female	36	2	23	21	71	24	10	14	2	11	6	11	231

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

Table 3B: Employment Status of 1993–1994 U.S. New Doctoral Recipients by Type of Granting Department

TYPE OF EMPLOYER	TYPE OF DOCTORAL DEGREE-GRANTING DEPARTMENT					ROW TOTAL	ROW SUBTOTALS	
	Group I Math	Group II Math	Group III Math	Group IV Statistics	Group V Applied Math/OR		Male	Female
Group I	61	9	4	1	3	78	67	11
Group II	12	12	2			26	21	5
Group III	25	8	16	8	3	60	41	19
Group IV	1			22	1	24	14	10
Group V	0				9	9	9	
Masters	15	18	18	4	1	56	35	21
Bachelors	34	43	37	4	1	119	78	41
Two-year Colleges	4	1	4			9	7	2
Other Academic Depts.	10	7	7	15	15	54	42	12
Research Institutes	24	2	1	5	1	33	25	8
Government	4	2	7	7	8	28	23	5
Business and Industry	24	8	18	35	25	110	90	20
Foreign, Academic	76	19	17	28	9	149	117	32
Foreign, Nonacademic	9	3		1	4	17	13	4
Not seeking employment	8	3	3			14	13	1
Still seeking employment	44	39	26	13	8	130	109	21
Unknown (U.S.)	44	17	13	10	3	87	77	10
Unknown (non-U.S.)*	25	12	15	4		56	47	9
Column Total	420	203	188	157	91	1059	828	231
Column Subtotals Male	345	153	146	105	79	828		
Column Subtotals Female	75	50	42	52	12	231		

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

departments. The numbers hired in Group III increased for the second consecutive year after two successive years in decline. The numbers of new doctoral recipients employed by master's and bachelor's degree-granting colleges and universities decreased by 5 (2.8 percent) from the numbers reported last year.

The job market for 1993–1994 new doctoral recipients has been more difficult than the markets for 1990–1991, 1991–1992 and 1992–1993 degree recipients. Table 3A shows that among those whose employment status is known, 14.2 percent are unemployed. (The corresponding rate of unemployment for 1992–1993 doctoral recipients from U.S. institutions, reported in fall 1993, was 12.4 percent.) The 1994 unemployment level ranks as the highest ever observed since employment information about new doctorates was first reported in the current format in 1971. The 1975 level of 13.7 percent was the previous high. The 1992 level was 12.7 percent. In contrast to the current high unemployment rate, throughout the 1980s the rate reported in the November issue of the *Notices* ranged between a low of 3.7 percent in 1981 and a high of 6.8 percent in 1989, averaging 5.0 percent over the decade.

The data in Table 3A were obtained in many instances early in the summer of 1994 and do not reflect subsequent hiring. Nonetheless, the year-to-year comparisons are all based on data acquired over the same time period of each year, and they reliably reflect the relative difficulty of this year's market. An update of Table 3A will appear in the Second Report in a spring 1995 issue of the *Notices*. At the time of the Second Report last year, the percentage of 1992–1993 new doctoral recipients from U.S. institutions who had reported not finding employment was 8.9 percent (see *Notices*, November 1993, page 1166, and July/August 1994, page 600), up from 6.7 percent at the time of the Second Report for the 1991–1992 new doctoral recipients.

Beyond the unemployment statistics that are explicitly reported in Table 3A, the 1994 Survey reveals other indicators of a difficult job market. For example, 38 (4.1 percent) new doctoral recipients are reported to hold part-time positions, and 58 (6.3 percent) new doctoral recipients hold employment at the same institution that awarded their degree. All of these positions are not necessarily in the same department in which the degree was earned. However, out of the 197 jobs reported in the doctoral degree-granting departments, 39 positions (20 percent) are held by new doctoral recipients from that same department. Both of these are indicators of a weak employment market for the 1993–1994 new doctoral recipients. By comparison, with the corresponding statistics in 1993, out of 252 jobs held by 1992–1993 doctoral recipients in doctoral degree-granting departments, 50 were part-time and 55 were held by doctoral recipients in the same institutions where they earned their doctoral degree.

The Survey of New Doctoral Recipients per se does not reveal underlying causes of the high rates of unemployment and underemployment. However, data reported in the 1993 Second Report show that many faculty positions being vacated by death, incentive retirements, and other retirements are simply not being filled. Rates of faculty attrition due to deaths and retirements are currently relatively high, and levels of recruitment have declined substantially (31 percent) over the last three years (*Notices*, July/August 1994, page 603).

Some information is available from the survey concerning the nature of the academic positions filled. To date, 260 individual responses have been received from new doctorates employed by academic institutions. Fifty-six percent of these respondents report that their position is not tenure-eligible, and the remaining 44 percent report that their position is a tenure-track position. Out of the 145 nontenure-eligible respondents, 30 percent can hold their current position for a maximum of one year, and 56 percent can hold their position for up to two years. Thus the incumbents of many of the nontenure-eligible positions will again be seeking jobs during the current year.

The proportion of the jobs filled which are tenure-eligible varies significantly between the survey Groups. Among the 260 individual respondents holding jobs in academic institutions, 131 have positions in a doctoral degree-granting department, and 102 have positions in a bachelor's or master's degree-granting department. In the doctoral degree-granting departments, 73 percent of the positions held by new doctoral recipients are not tenure-eligible, while only 27 percent of the positions in bachelor's and master's degree-granting departments are not tenure-eligible.

Table 3B reveals the dependence of employment patterns on the type of department from which the doctoral degree is received. The patterns of compartmentalization and stratification of the job market for new doctoral recipients are similar to the patterns seen in the 1993 Survey. For example, Table 3B shows that persons hired for positions in doctoral degree-granting mathematics departments are drawn predominantly from mathematics doctoral recipients: 91 percent of the positions filled in Groups I, II, and III are held by new doctoral recipients who received their degree from a Group I, II, or III department. Similarly, 92 percent of the Group IV jobs went to Group IV degree recipients. Also, 78 percent of the Group I jobs went to Group I degree recipients. These percentages compare with 91 percent, 95 percent, and 83 percent, respectively, from the 1993 Survey.

Associated with the dependence of employment patterns on the type of department from which the doctoral degree is received are differing patterns of employment for men and women. Women represent 21.8 percent of the population of new doctoral recipients, down from 23.9 percent in 1992–1993, but the proportion is not uniform across different types of departments. For example, 20.6 percent of the new doctoral recipients in mathematics are women (down from 22.4 percent last year), and 33.1 percent of the new doctoral recipients from statistics departments are women (up from 27.9 percent last year). The proportion of women among new doctoral recipients hired by doctoral degree-granting mathematics departments (21.3 percent) is slightly less than their proportion among mathematics doctoral recipients. The rate of unemployment for the female new doctoral recipients (9.9 percent) is lower than the rate for the male new doctoral recipients (15.5 percent).

Table 3B shows different rates of unemployment for doc-

toral recipients from the five Groups. The percentages unemployed, among those whose employment status is known, are Group I–12.5 percent, Group II–22.4 percent, Group III–16.3 percent, Group IV–9.1 percent, and Group V–9.1 percent.

Table 3C shows the pattern of employment within broad job categories broken down by the citizenship status of the new doctoral recipients from U.S. institutions. The citizenship status is known for 1,035 of the 1,059 new doctoral recipients. For those whose job status is known, the rate of unemployment for non-U.S. citizens and for U.S. citizens is approximately the same (14.3 percent noncitizens and 14.5 percent citizens). The unemployment rate for U.S. citizens is 4.5 percentage points above the level reported in November 1993 for 1992–1993 new doctoral recipients. The percentage of U.S. citizens in U.S. nonacademic jobs is considerably higher than the percentage of noncitizens in the same category (18 percent of citizens versus 12.2 percent of noncitizens whose job status is known). The percentage of U.S. citizens holding positions in U.S. doctoral degree-granting departments (22.3 percent) is higher than the percentage for non-U.S. citizens (20.8 percent). U.S. citizens hold positions in nondoctoral degree granting U.S. departments in substantially higher proportion than do noncitizens (36.7 percent of citizens compared to 16.1 percent of noncitizens); here all percentages exclude new doctorates whose job status is unknown.

If complete information about the visa status of the non-U.S. citizens were known, then it would be more natural and common to group those holding permanent-resident status with the U.S. citizens for the comparison of employment patterns. However, the visa status is unknown for many of the non-U.S. citizens simply because this is a detail of their immigration status which is not always known to departmental staff; visa status is not known for 30 percent of the non-U.S. citizens.

Nonetheless, the distribution of job categories was reported for 124 noncitizen new doctoral recipients who are known to be permanent U.S. residents. Of those whose employment status is known, 25 percent are employed by a doctoral degree-granting department in the U.S., 21 percent are employed by a non-doctoral degree granting department in the U.S., 26 percent hold a nonacademic position in the U.S., and 17.5 percent are unemployed.

TABLE 3C: Employment Status of 1993–1994 U. S. New Doctoral Recipients by Citizenship Status*

TYPE OF EMPLOYER	TYPE OF CITIZENSHIP				TOTAL DOCTORAL RECIPIENTS WHOSE CITIZENSHIP IS KNOWN*	
	U.S. Citizens		Non-U.S. Citizens			
	Number	Percent	Number	Percent	Number	Percent
U.S. Academic, Ph.D. Department	94	20	99	17	193	19
U.S. Academic, non-Ph.D. Department	155	33	77	14	232	22
U.S. Research Institute	12	3	20	4	32	3
U.S. Nonacademic	76	16	58	10	134	13
Foreign Academic	17	4	131	23	148	14
Foreign Nonacademic	0		17	3	17	2
Not seeking employment	7	2	7	1	14	1
Still seeking employment	61	13	68	12	129	12
Unknown status (U.S. address)	42	9	42	7	84	8
Unknown status (foreign address)	2		50	9	52	5
TOTALS	466	100%**	569	100%**	1035	100%**

* The adjusted total varies from that in Table 5 because the data are gathered on different surveys.
** Column percents are rounded to the nearest whole percent.

Acknowledgments

The Annual AMS-IMS-MAA 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 AMS-IMS-MAA Data Committee and the Annual Survey staff, I thank the many secretarial and administrative staff members in the mathematical sciences departments for their cooperation and assistance in responding to the survey questionnaires.

Several people have made essential contributions to the preparation of the reports on the 1994 Annual AMS-IMS-MAA Survey. Elizabeth Foulkes has provided indispensable support and taken many initiatives to facilitate the Data Committee's work. Elizabeth Foulkes and Sam Rankin share credit for the companion articles on starting salaries of new doctorates and on faculty salaries.

Gender, Ethnicity, and Citizenship of U.S. New Doctoral Recipients, 1993–1994

Table 4A 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 and in a few cases from the recipients themselves.

The citizenship status is known for all of the 1,059 new doctoral recipients, including 469 U.S. citizens. (Because different survey forms are used to compile the summary of gender, ethnicity, and citizenship than are used to learn the country of citizenship of each individual, and the unknown or missing items from the two survey forms may not coincide, this count of known citizenship status and of U.S. citizens differs from the count shown in Table 3C.) The number of U.S. citizen new doctoral recipients is 10.8 percent less than in 1992–1993. The 1993 count of U.S. citizens (526) among the 1992–1993 doctoral recipients was the highest reported since 1980–1981. 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 doctorates is 44.3 percent, an increase over last year's percentage, and up from the all-time low of 42.3 percent in 1991–1992. A total of 590 noncitizens were awarded doctoral degrees by U.S. institutions in 1993–1994. This represents a decrease of 81 individuals (12.1 percent) from last year's count. The 1993–1994 count is 93 percent greater than the number awarded by U.S. institutions ten years ago (305 in 1983–1984).

Among the U.S. citizens receiving doctoral degrees in the mathematical sciences, 3 are black (2 men and 1 woman) and 7 are Mexican American, Puerto Rican, or other Hispanic (5 men and 2 women). The former is down 4 from last year, while the latter increased by 3.

Women account for 26 percent of the U.S. citizens receiving doctoral degrees in the mathematical sciences from U.S. universities. This is the second highest percentage ever reported but down from the record high percentage (28 percent) reported last year. The total number of U.S. citizen women (124) who were 1993–1994 doctoral recipients declined by 14.5 percent from last year's reported 145, the highest number ever reported. See Table 6. A comparison of Table 3B for the 1993–1994 doctoral recipients with Table 3B for those of last year indicates that in all department Groups except Group II, the number of women doctoral recipients declined over last year.

Note that in Table 5 and Table 6 all years prior to 1982–1983 include doctorates granted by computer science departments.

TABLE 4A: Gender, Ethnicity, and Citizenship of U.S. New Doctoral Recipients

July 1, 1993 — June 30, 1994

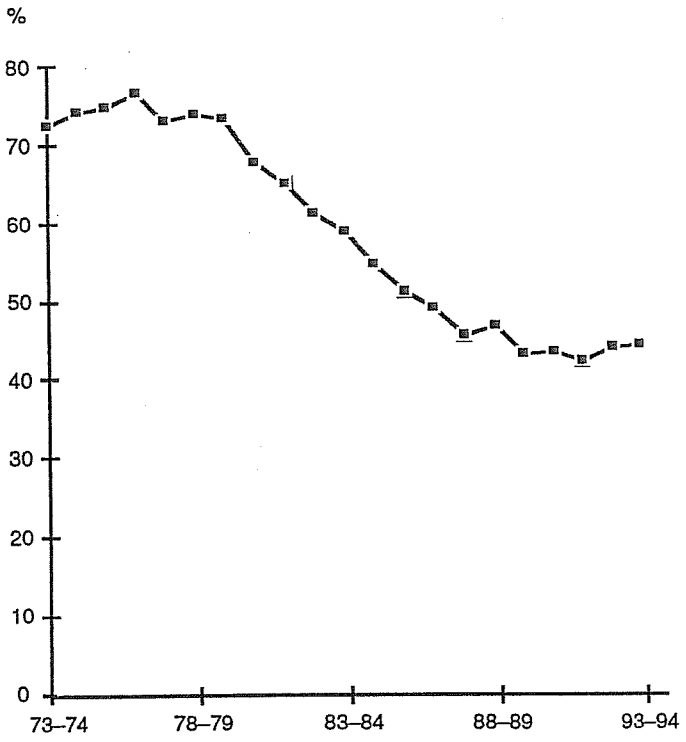
RACIAL/ETHNIC GROUP	MEN				WOMEN				TOTAL
	CITIZENSHIP			Total Men	CITIZENSHIP			Total Women	
	U.S.	Other	Not Known		U.S.	Other	Not Known		
Asian, Pacific Islander	19	267		286	11	62		73	359
Black	2	14		16	1	1		2	18
American Indian, Eskimo, Aleut	1			1					1
Mexican American, Puerto Rican, or other Hispanic	5	26		31	2			2	33
White (non-Hispanic)	317	178		495	110	41		151	546
Unknown	1	1		2					2
Total	345	486	0	831	124	104	0	228	1059

TABLE 5: U.S. Citizen Doctoral Recipients

	Adjusted Total* of Doctoral Degrees Given by U.S. Universities	Total of Doctoral Recipients Who Are U.S. Citizens	%
1973–1974	938	677	72
1974–1975	999	741	74
1975–1976	965	722	75
1976–1977	901	689	76
1977–1978	868	634	73
1978–1979	806	596	74
1979–1980	791	578	73
1980–1981	839	567	68
1981–1982	798	519	65
1982–1983	744	455	61
1983–1984	738	433	59
1984–1985	726	396	55
1985–1986	755	386	51
1986–1987	739	362	49
1987–1988	798	363	45
1988–1989	884	411	46
1989–1990	929	401	43
1990–1991	1061	461	43
1991–1992	1016	430	42
1992–1993	1197	526	44
1993–1994	1059	469	44

*Number of doctorates whose citizenship is known. Total will vary from that on Table 3C because the data are gathered on different surveys.

Graph for Table 5: U.S. Citizen Doctoral Recipients
Total of Doctoral Recipients by Percent



Graph for Table 5: U.S. Citizen Doctoral Recipients

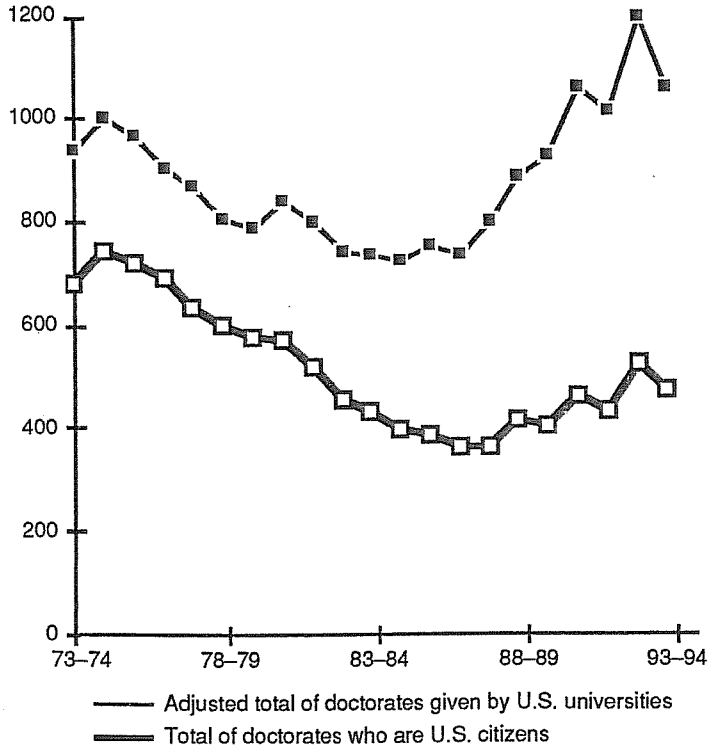


TABLE 6: U.S. Citizen Doctoral Recipients, Male and Female

	Doctoral Recipients Who Are U.S. Citizens	Male	Female	% Female
1973–1974	677	618	59	9
1974–1975	741	658	83	11
1975–1976	722	636	86	12
1976–1977	689	602	87	13
1977–1978	634	545	89	14
1978–1979	596	503	93	16
1979–1980	578	491	87	15
1980–1981	567	465	102	18
1981–1982	519	431	88	17
1982–1983	455	366	89	20
1983–1984	433	346	87	20
1984–1985	396	315	81	20
1985–1986	386	304	82	21
1986–1987	362	289	73	20
1987–1988	363	287	76	21
1988–1989	411	313	98	24
1989–1990	401	312	89	22
1990–1991	461	349	112	24
1991–1992	430	327	103	24
1992–1993	526	381	145	28
1993–1994	469	345	124	26

Bibliography

Albers, D. J., Loftsgaarden, D. O., Rung, D. C., and Watkins, A. E., *Statistical abstract of undergraduate programs in the mathematical sciences and computer science in the U.S.*, 1990–1991 CBMS Survey, MAA Notes No. 23, Mathematical Association of America, 1992.

American Association of University Professors, *The annual report on the economic status of the profession* 1992–1993, Academe: Bulletin of the AAUP (March/April 1993), Washington, DC.

Bowen, W. G. and Rudenstine, N. L., *In pursuit of the Ph.D.*, Princeton University Press, Princeton, NJ, 1992.

Commission on Professionals in Science and Technology, Occasional Papers, prepared by Betty M. Vetter, *Supply and demand for engineers in the 1990s* (90–1), April 1990; *Who is in the pipeline? Science, math, and engineering education* (90–2), July 1990; *Recruiting doctoral scientists and engineers for the twenty-first century* (90–3), October 1990; *Women in science and engineering, an illustrated progress report* (90-4), December 1990; *Recruiting and retaining a diverse, quality technical workforce* (91-1), April 1991; *By the year 2000: Myths and facts* (91-2), July 1991; *Cultural diversity in higher education* (91-3), October 1991; *Supply and demand in science and engineering* (91-4), January 1992; *American minorities in science and engineering* (92-1), April 1992; *Foreign citizens among U.S. scientists and engineers* (92-2), July 1992; *What's holding up the glass ceiling? Barriers in the workforce* (92-3), October 1992; *Setting the record straight: Shortages in perspective* (92-4), January 1993; CPST, Washington, DC.

———, *Salaries of scientists, engineers, and technicians: A summary of salary surveys*, 12th ed., CPST, Washington, DC, 1992.

———, *Professional women and minorities*—1994, CPST, Washington, DC, 1994.

———, *Preparing for the 21st century: Human resources in science and technology*, Proceedings of a Symposium, March 26–27, 1992, CPST, Washington, DC, 1992.

Jackson, A., *Top producers of women mathematics doctorates*, Notices, Amer. Math. Soc. (September 1991).

Madison, B. and Hart, T. A., *A challenge of numbers: People in the mathematical sciences*, National Academy Press, Washington, DC, 1990.

McClure, D. E., *Academic hiring survey*, 1991–1992, Notices, Amer. Math. Soc. (April 1992).

National Research Council, *Summary report* 1992, *Doctorate recipients from U. S. universities*, National Academy Press, Washington, DC, 1993.

———, *Moving beyond myths: Revitalizing undergraduate mathematics*, National Academy Press, Washington, DC, 1991.

———, *Everybody counts: A report to the nation on the future of mathematics education*, National Academy Press, Washington, DC, 1989.

———, *Renewing U.S. mathematics: A plan for the 1990s*, National Academy Press, Washington, DC, 1990.

National Science Board, *Science and engineering indicators*—1991, NSB 91-1, U.S. Government Printing Office, Washington, DC, 1991.

National Science Foundation, *Science and technology data book*, NSF 92-331, National Science Foundation, Washington, DC, 1992 .

———, *Science and engineering degrees*: 1966–89, NSF 91–314, National Science Foundation, Washington, DC, 1991.

———, *Science and engineering doctorate awards*: 1991, NSF 92–309, Selected Data Tables, National Science Foundation, Washington, DC, 1992.

———, *Science and engineering doctorates:* 1960–1991, NSF 93–301, Detailed Statistical Tables, National Science Foundation, Washington, DC, 1993.

———, *Academic science and engineering: Graduate enrollment and support*, 1989, NSF 90–324, Detailed Statistical Tables, National Science Foundation, Washington, DC, 1991.

———, *Selected data on graduate students and postdoctorates in science and engineering*, Fall 1991, NSF 92-335; Selected Pamphlet No.11: Institutional Listings, NSF 90–324–11; Selected Pamphlet No. 12: Postdoctorates and Other Nonfaculty Research Staff, NSF 90–324–12; National Science Foundation, Washington, DC, 1990.

———, *Survey of mathematics and statistics departments at higher education institutions*, Higher Education Surveys Report, Survey Number 5, National Science Foundation, Washington, DC, December 1990.

———, *Foreign participation in U.S. academic science and engineering*: 1991, NSF 93-302, National Science Foundation, Washington, DC, 1993.

Salary Survey for New Recipients of Doctoral Degrees, 1993–1994

The figures for 1994 were compiled from questionnaires sent to individuals who received doctoral degrees in the mathematical sciences during the 1993–1994 academic year from universities in the United States.

Questionnaires requesting information on salaries and professional experience were distributed to 936 recipients of degrees using addresses provided by the departments granting the degrees; 328 individuals returned forms between late June and mid-September. Responses with insufficient data or from individuals who indicated they had part-time employment, were not yet employed, or were not seeking employment, were considered unusable. Numbers of usable responses for each salary category are reported in the following tables.

Readers should be warned that the data in this report are obtained from a self-selected sample, and inferences from them may not be representative of the population.

Key to Tables. *Salaries* are listed in hundreds of dollars. Nine-month salaries are based on 9–10 months teaching and/or research, not adding extra stipends for summer grants or summer teaching or the equivalent. *Years* listed refer to the academic year in which the doctorate was received. *M* and *F* are Male and Female, respectively. *One year or less experience* means that the persons had experience limited to one year or less in the same position or a position similar to the one reported; some persons receiving a doctoral degree had been employed in their present position for several years. Quartile figures are given only in cases where the number of responses is large enough to make them meaningful.

Graphs. The graphs show variants of standard box plots summarizing salary distribution information. The horizontal line shows the 1993 median salary in hundreds of dollars. Values plotted for other years are converted to 1993 dollars using the implicit price deflator prepared annually by the Bureau of Economic Analysis, U.S. Department of Commerce. The 1994 salary data are not shown on the graphs because the deflator is not yet available for this year.

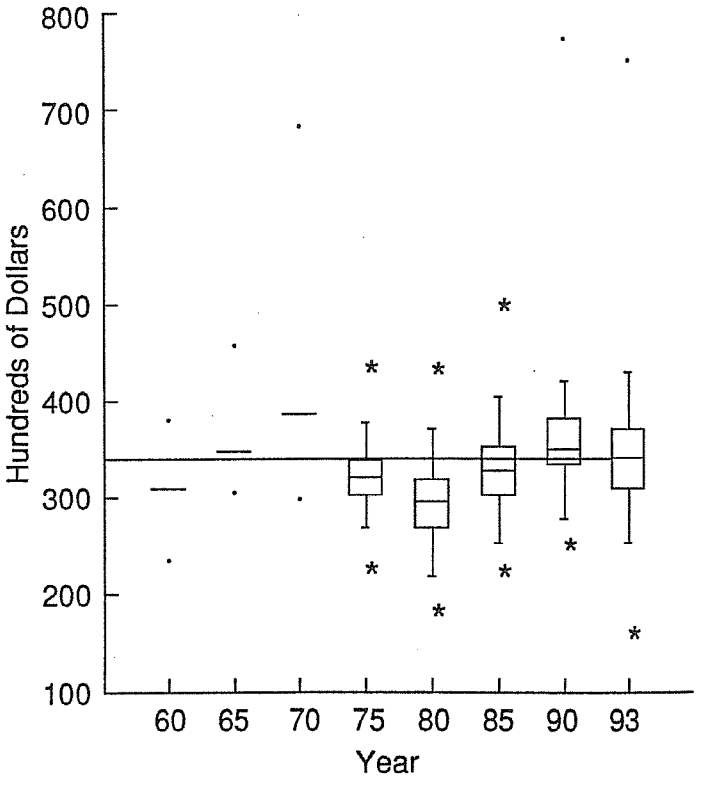
For a given year, the box shows the first and third quartiles and the median salary. (Prior to 1975, the quartiles are not available, and only the median is depicted by the horizontal stroke.) The "whiskers" give additional information about the spread of the data, extending to points that are 1.5 interquartile distances from the median. Minimum and maximum salaries are depicted by asterisks or dots outside the whiskers; dots are used to distinguish extreme outliers, i.e., values that are more than 3 interquartile distances from the median.

Note that salaries for teaching or teaching and research have yet to return to their high point of 1970, although considerable progress has been made since 1980.

Nine-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1993 $
TEACHING OR TEACHING AND RESEARCH (104 men + 59 women)						
1960	49		65		80	309
1965	70		80		105	348
1970	85		110		195	386
1975	90	120	128	135	173	321
1980	105	155	171	185	250	295
1985	170	230	250	270	380	327
1990	230	305	320	350	710	349
1992	190	320	340	360	520	347
1993	160	310	340	370	750	340
1994	150	330	350	375	730	—
1991M	150	310	330	360	610	
1991F	260	310	332	360	550	
1992M	190	310	340	360	520	
1992F	250	330	349	371	500	
1993M	160	310	340	370	750	
1993F	230	310	338	380	520	
1994M	150	329	350	378	730	
1994F	270	330	348	370	520	
One year or less experience (78 men + 50 women)						
1994M	150	330	350	375	730	
1994F	270	330	349	378	520	

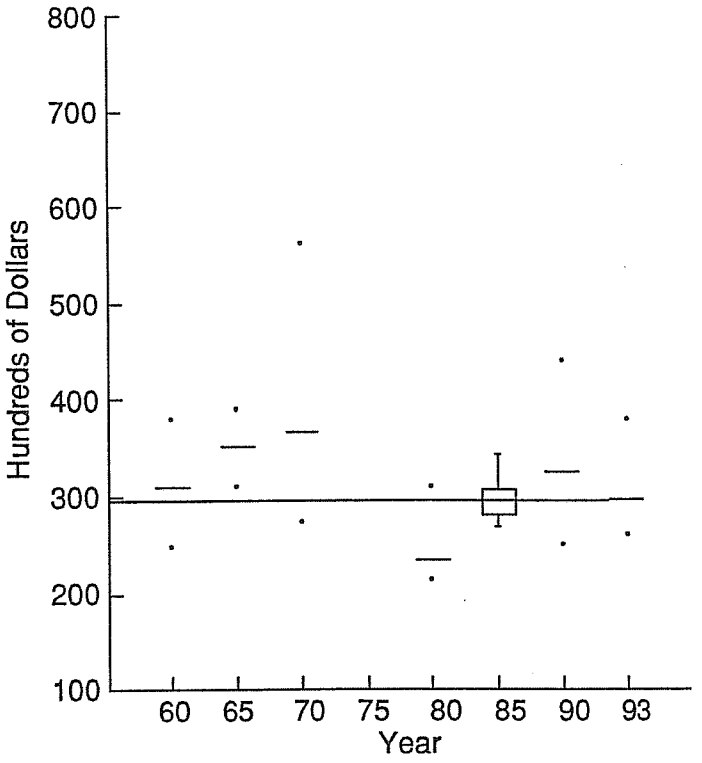
Nine-Month Teaching or Teaching and Research



Nine-Month Salaries

Ph.D. Year	Min	Median	Max	Reported Median in 1993 $
		RESEARCH (4 men + 0 women)		
1960	52	65	80	309
1965	71	81	90	352
1970	78	105	160	368
1975	100	—	110	—
1980	125	137	180	236
1985	205	235	250	307
1990	230	300	404	327
1992	160	290	330	296
1993	260	298	380	298
1994	254	280	300	—
1991M	260	290	360	
1991F	—	—	—	
1992M	160	290	330	
1992F	—	—	—	
1993M	260	275	320	
1993F	—	—	—	
1994M	254	280	300	
1994F	—	—	—	
One year or less experience (4 men + 0 women)				
1994M	254	280	300	
1994F	—	—	—	

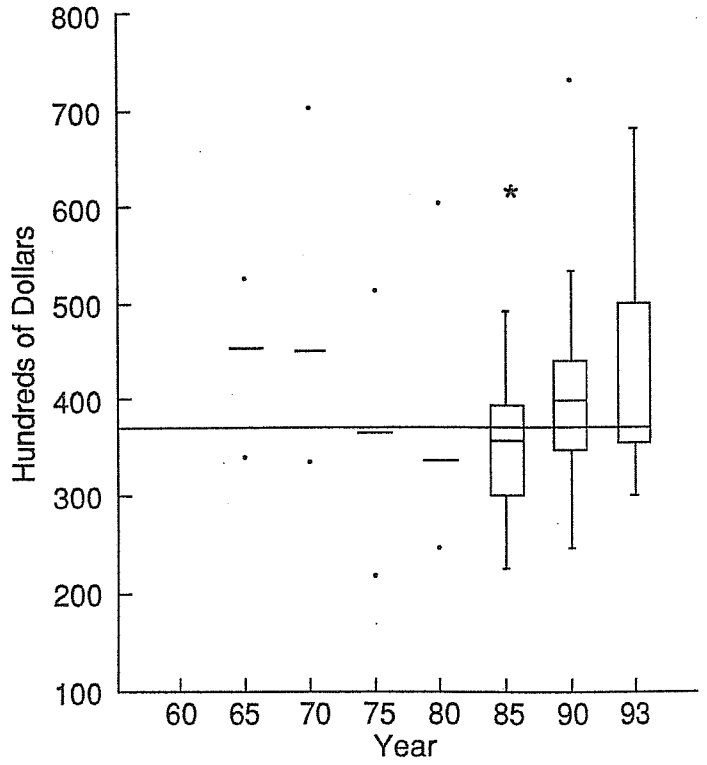
Nine-Month Research



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1993 $
			TEACHING OR TEACHING AND RESEARCH (6 men + 5 women)			
1960	.....		No data		.....	
1965	78		104		121	452
1970	95		128		200	449
1975	87		145		204	364
1980	143		195		350	336
1985	220	230	273	300	470	357
1990	225	318	365	404	670	399
1992	265	325	355	402	1300	363
1993	300	355	370	500	680	370
1994	365	391	480	503	510	—
1991M	290	310	350	400	530	
1991F	300	310	472	530	758	
1992M	300	330	355	420	1300	
1992F	—	—	—	—	—	
1993M	360	427	500	505	680	
1993F	300	334	353	370	370	
1994M	365	401	455	510	510	
1994F	370	380	480	500	505	
One year or less experience (4 men + 3 women)						
1994M	365		455		510	
1994F	—		—		—	

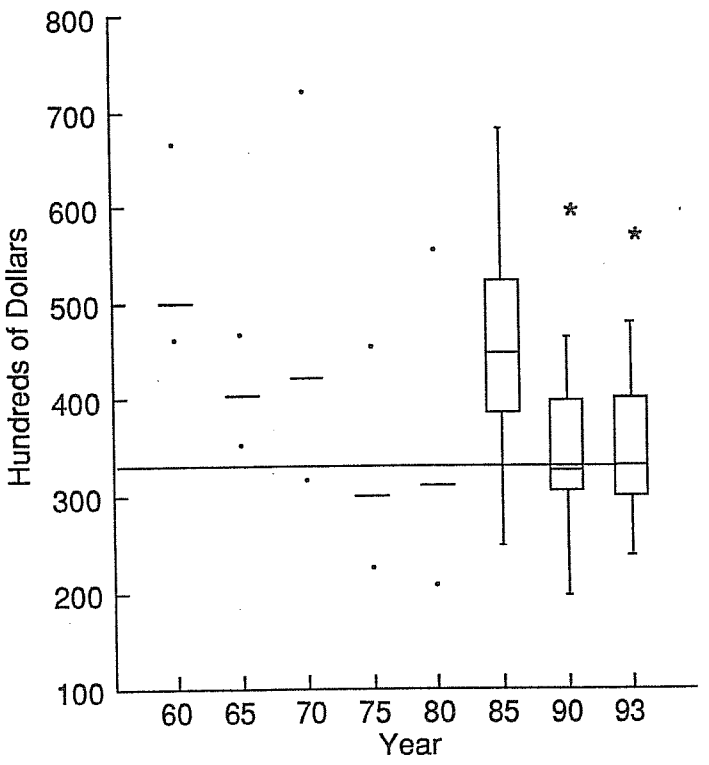
Twelve-Month Teaching or Teaching and Research



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1993 $
			RESEARCH			
			(14 men + 5 women)			
1960	97		105		140	499
1965	81		93		107	404
1970	90		120		205	421
1975	90		119		180	299
1980	120		180		321	310
1985	190	295	342	400	520	447
1990	180	280	300	365	546	327
1992	186	300	302	360	480	309
1993	237	300	330	400	570	330
1994	210	330	350	400	490	—
1991M	190	290	310	360	480	
1991F	240	272	340	405	450	
1992M	210	300	300	358	480	
1992F	186	250	370	380	400	
1993M	237	272	310	365	480	
1993F	300	330	365	400	570	
1994M	210	300	340	433	490	
1994F	330	340	365	400	400	
One year or less experience (11 men + 5 women)						
1994M	300	315	330	442	490	
1994F	330	340	365	400	400	

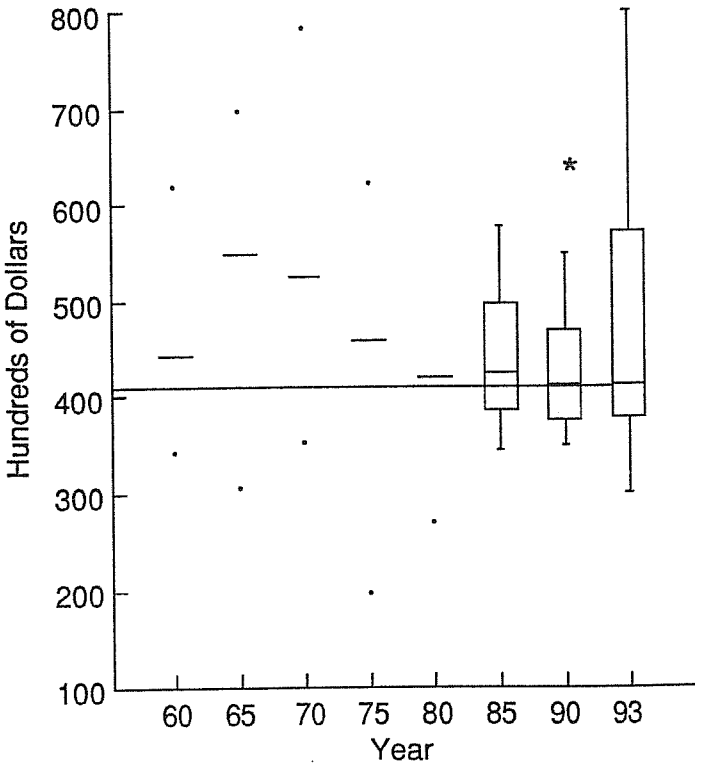
Twelve-Month Research



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1993 $
			GOVERNMENT			
			(10 men + 1 woman)			
1960	72		93		130	442
1965	70		126		160	548
1970	100		150		223	526
1975	78		182		247	457
1980	156		244		501	420
1985	263	294	325	381	440	425
1990	320	345	378	430	587	412
1992	315	438	530	587	692	541
1993	300	378	412	571	800	
1994	250	355	455	530	576	—
1991M	230	345	424	497	630	
1991F	—	—	—	—	—	
1992M	315	419	460	615	692	
1992F	—	—	—	—	—	
1993M	300	402	480	611	800	
1993F	340	350	378	462	528	
1994M	250	350	423	550	576	
1994F	—	—	—	—	—	
One year or less experience (7 men + 0 women)						
1994M	250	345	390	508	576	
1994F	—	—	—	—	—	

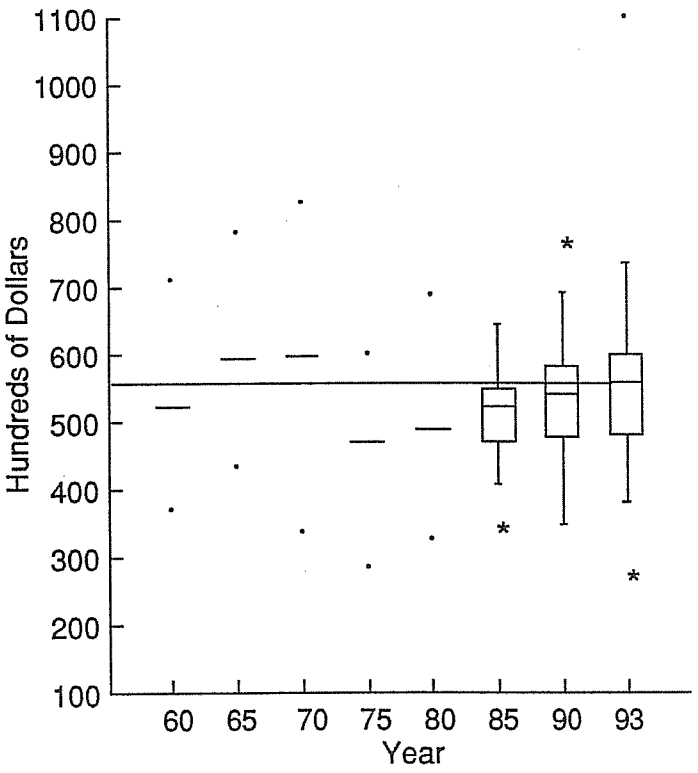
Twelve-Month Government



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1993 $
BUSINESS AND INDUSTRY (25 men + 3 women)						
1960	78		110		150	523
1965	100		136		180	591
1970	96		170		235	596
1975	114		187		240	469
1980	190		284		400	489
1985	260	360	400	420	493	523
1990	320	438	495	533	700	540
1992	208	450	530	620	1000	541
1993	270	480	560	600	1100	560
1994	200	418	525	600	750	—
1991M	330	500	520	587	830	
1991F	235	420	481	554	720	
1992M	300	440	520	625	1000	
1992F	208	528	549	591	850	
1993M	270	500	560	600	1100	
1993F	424	475	568	600	670	
1994M	200	405	490	600	750	
1994F	—	—	—	—	—	
One year or less experience (15 men + 1 woman)						
1994M	200	370	480	575	700	
1994F	—	—	—	—	—	

Twelve-Month Business and Industry



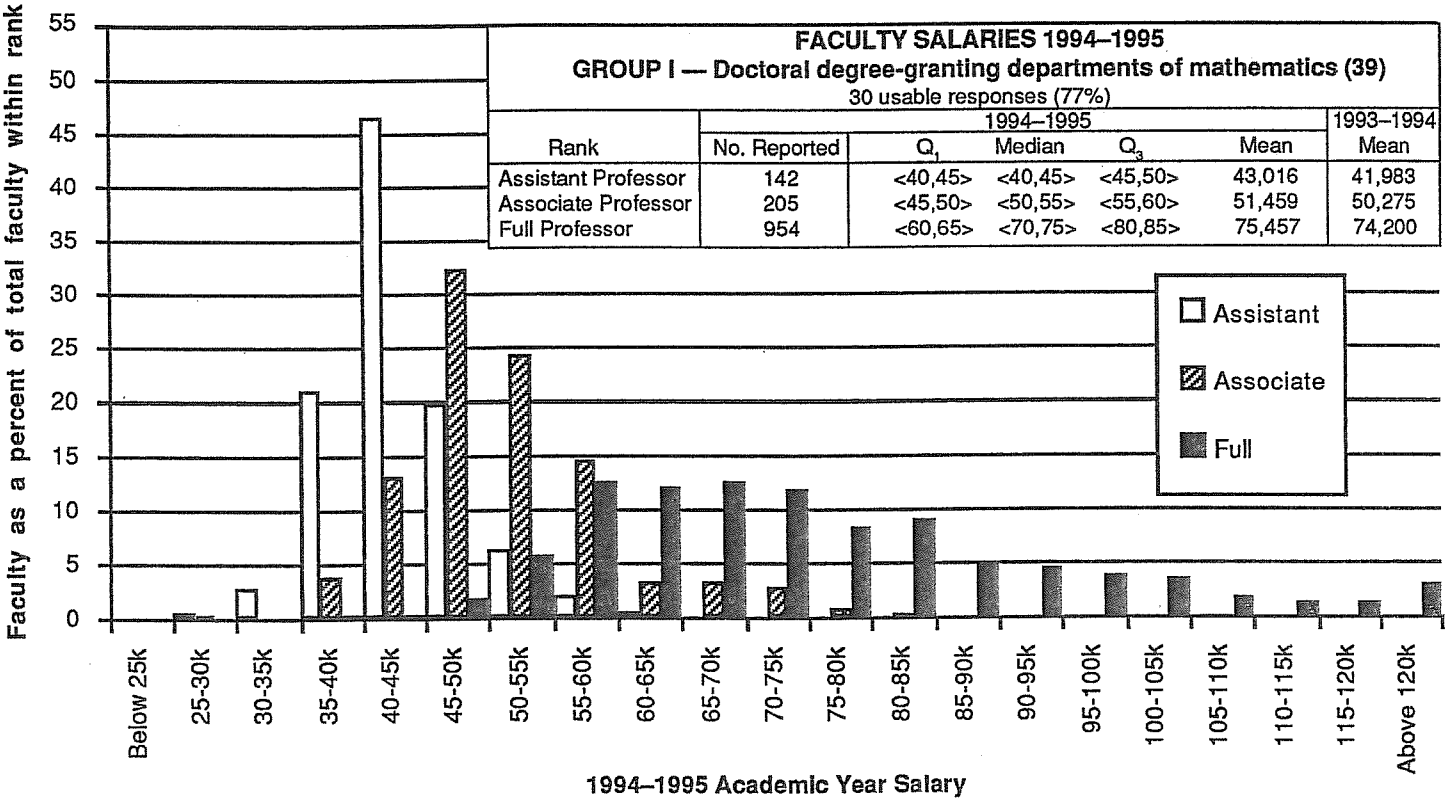
Faculty Salary Survey 1994–1995 Salaries

The charts on the following pages display faculty salary data for Groups I–V, 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.

Departments were asked to report the number of faculty whose 1994–1995 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>.

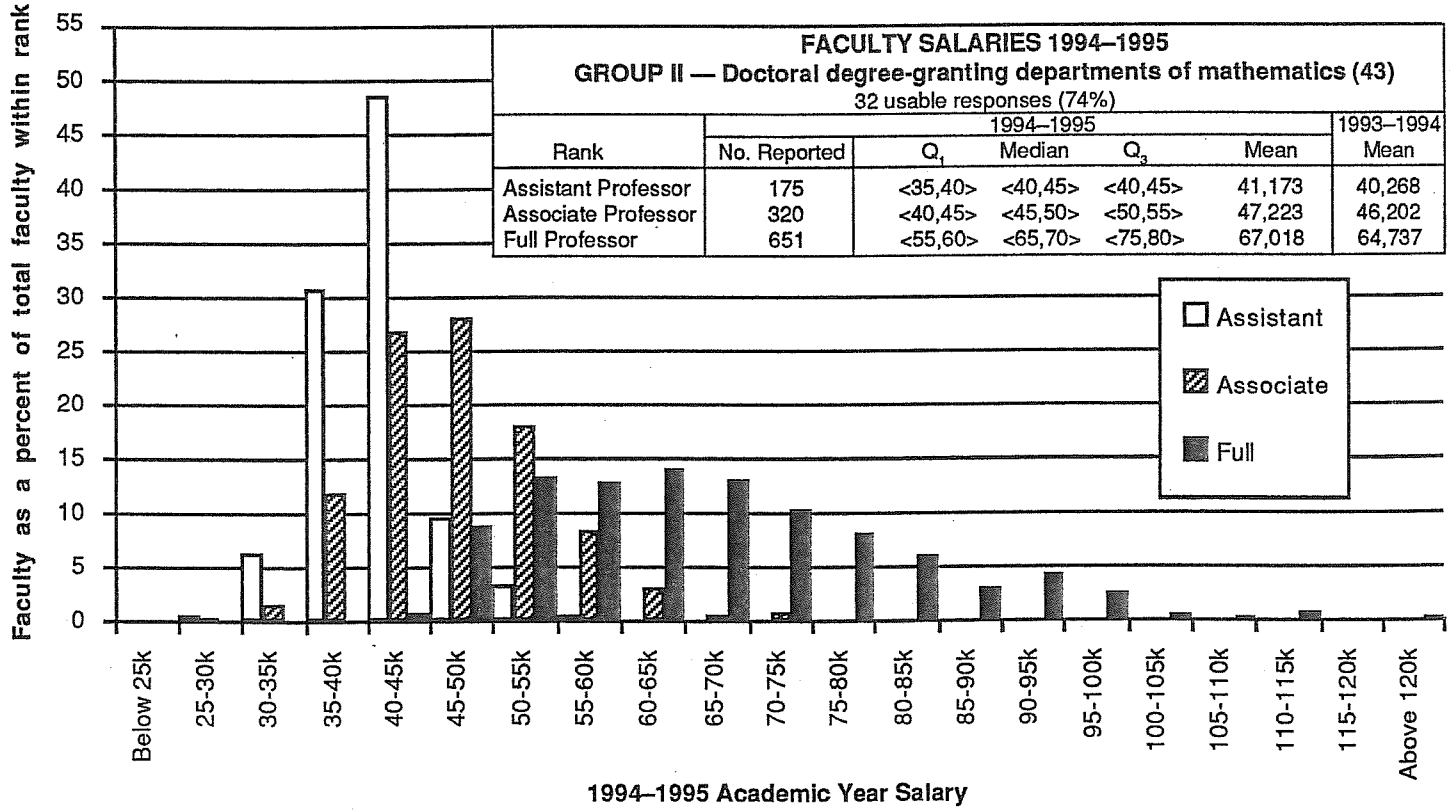
FACULTY SALARIES 1994–1995
GROUP I — Doctoral degree-granting departments of mathematics (39)
30 usable responses (77%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	142	<40,45>	<40,45>	<45,50>	43,016	41,983
Associate Professor	205	<45,50>	<50,55>	<55,60>	51,459	50,275
Full Professor	954	<60,65>	<70,75>	<80,85>	75,457	74,200



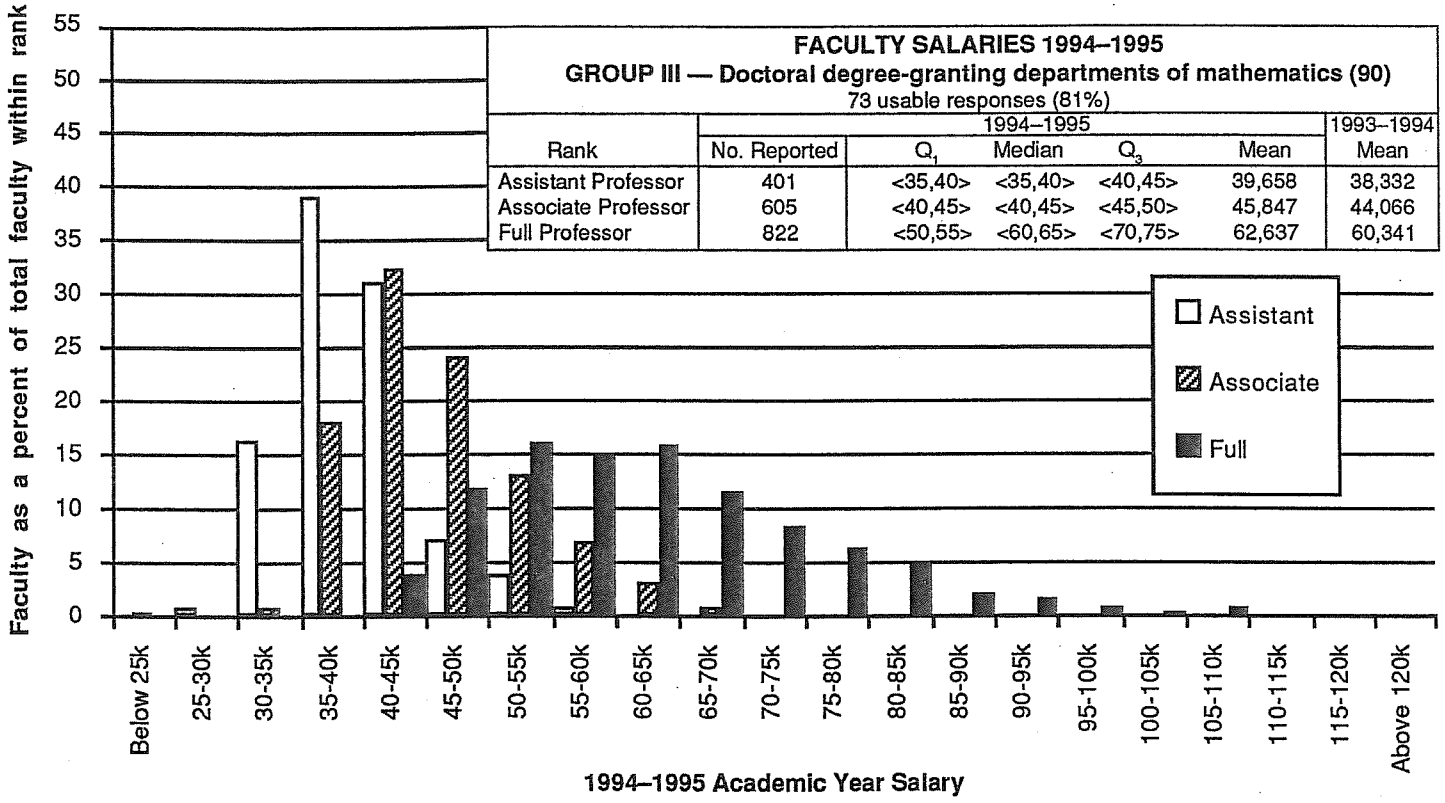
FACULTY SALARIES 1994–1995
GROUP II — Doctoral degree-granting departments of mathematics (43)
32 usable responses (74%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	175	<35,40>	<40,45>	<40,45>	41,173	40,268
Associate Professor	320	<40,45>	<45,50>	<50,55>	47,223	46,202
Full Professor	651	<55,60>	<65,70>	<75,80>	67,018	64,737



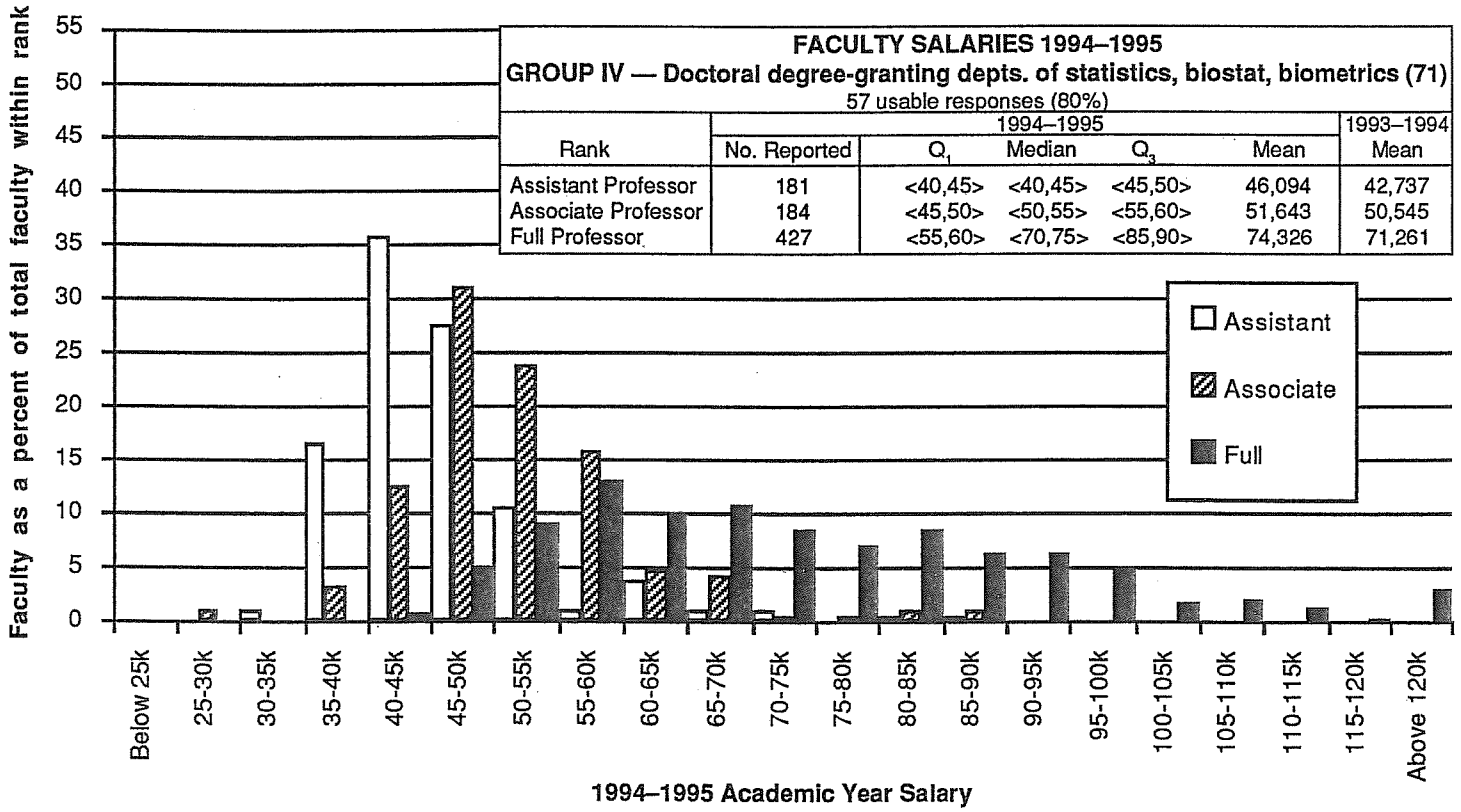
FACULTY SALARIES 1994–1995
GROUP III — Doctoral degree-granting departments of mathematics (90)
73 usable responses (81%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	401	<35,40>	<35,40>	<40,45>	39,658	38,332
Associate Professor	605	<40,45>	<40,45>	<45,50>	45,847	44,066
Full Professor	822	<50,55>	<60,65>	<70,75>	62,637	60,341



FACULTY SALARIES 1994–1995
GROUP IV — Doctoral degree-granting depts. of statistics, biostat, biometrics (71)
57 usable responses (80%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	181	<40,45>	<40,45>	<45,50>	46,094	42,737
Associate Professor	184	<45,50>	<50,55>	<55,60>	51,643	50,545
Full Professor	427	<55,60>	<70,75>	<85,90>	74,326	71,261

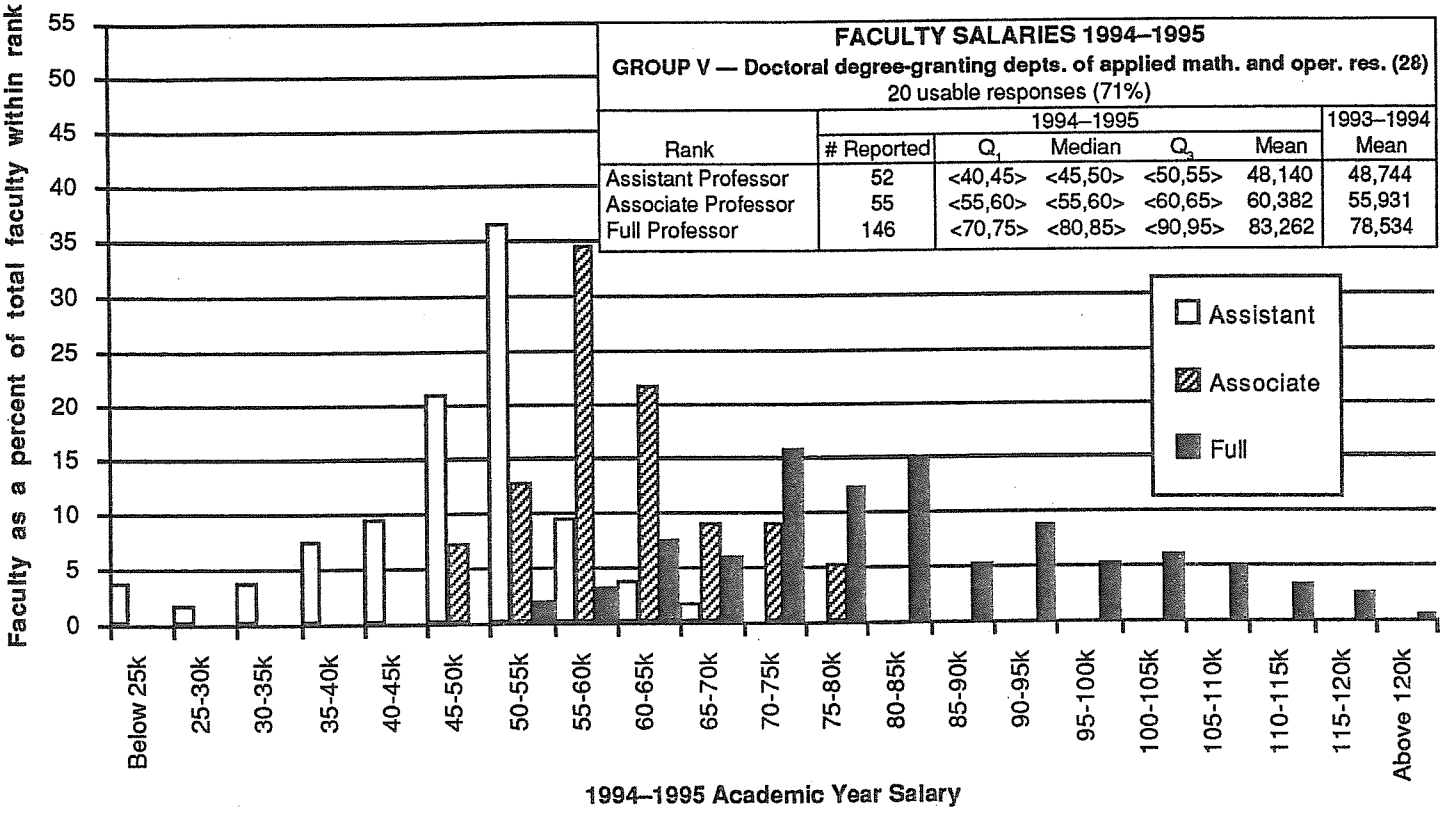


FACULTY SALARIES 1994–1995

GROUP V — Doctoral degree-granting depts. of applied math. and oper. res. (28)

20 usable responses (71%)

Rank	1994–1995 # Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	52	<40,45>	<45,50>	<50,55>	48,140	48,744
Associate Professor	55	<55,60>	<55,60>	<60,65>	60,382	55,931
Full Professor	146	<70,75>	<80,85>	<90,95>	83,262	78,534

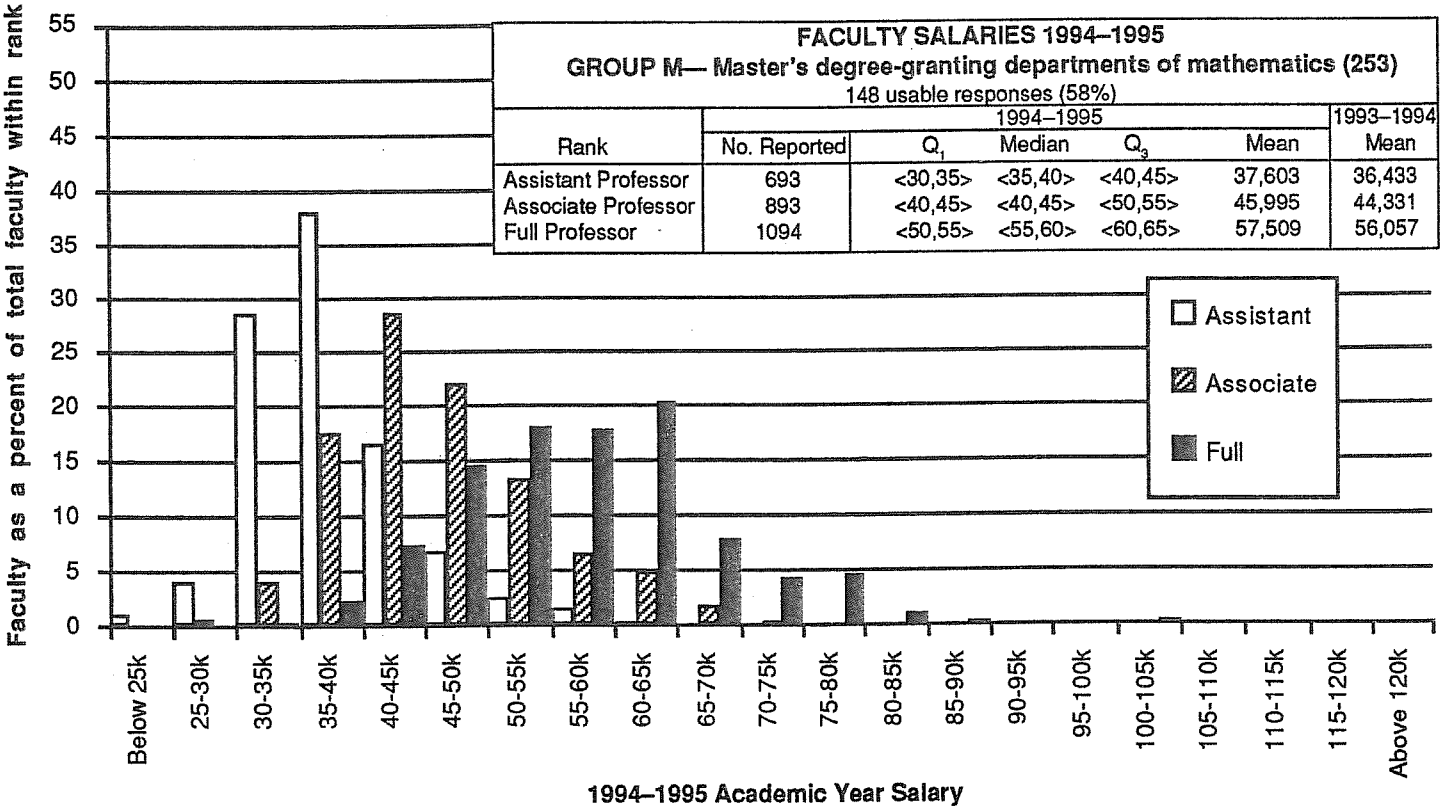


FACULTY SALARIES 1994–1995

GROUP M— Master's degree-granting departments of mathematics (253)

148 usable responses (58%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	693	<30,35>	<35,40>	<40,45>	37,603	36,433
Associate Professor	893	<40,45>	<40,45>	<50,55>	45,995	44,331
Full Professor	1094	<50,55>	<55,60>	<60,65>	57,509	56,057



FACULTY SALARIES 1994–1995

GROUP B — Bachelor's degree-granting departments of mathematics (1040)

394 usable responses (38%)

Rank	1994–1995 No. Reported	Q_1	Median	Q_3	Mean	1993–1994 Mean
Assistant Professor	937	<30,35>	<35,40>	<35,40>	35,735	35,340
Associate Professor	929	<35,40>	<40,45>	<45,50>	43,689	42,324
Full Professor	972	<45,50>	<50,55>	<60,65>	53,308	52,761