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1992 Annual AMS-MAA Survey

(First Report)

Report on the 1992 Survey of New Doctorates
Donald E. McClure
Salary Survey for New Doctorates
Faculty Salary Survey

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Faculty Salary Survey
Doctoral Degrees Conferred, 1991–1992

This first report on the 1992 Survey includes a report on the 1992 survey of new doctorates, a report on salaries of new doctorates, salary data on faculty members in four-year colleges and universities, and a list of names and thesis titles for members of the 1991–1992 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 1991 and June 1992, inclusive. A further questionnaire was distributed in September, concerned with data on fall enrollments, majors, and departmental size. These data will appear in the second report on the 1992 Survey, in a spring 1993 issue of the *Notices*.

The 1992 Annual AMS-MAA Survey represents the thirty-sixth in an annual series begun in 1957 by the Society. The 1992 Survey is under the direction of the AMS-MAA Data Committee whose members are Edward A. Connors, Lincoln K. Durst (consultant), John D. Fulton, James F. Hurley, Charlotte Lin, Don O. Loftsgaarden, David J. Lutzer, James W. Maxwell (ex officio), Donald E. McClure (chair), and Donald C. Rung. 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 *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 April 1988 *Notices*, pages 532-533.

Highlights

- U.S. institutions awarded 1050 doctorates in the mathematical sciences from July 1, 1991 to June 30, 1992, a decrease of 2 percent from last year's fall count, but still 17 percent more than the average of the fall counts for the last five years.
- The number of U.S. citizens reported to have received doctorates in the mathematical sciences is 430, which is 7 percent fewer than the number earning doctorates last year. The count remains 19 percent above the record lows reported in 1986–87 and 1987–88.
- The number of non-U.S. citizens receiving doctorates in the mathematical sciences showed a slight decrease (2 percent) for the first time since 1978–79. The 586 non-U.S. citizen recipients is more than twice the number reported ten years earlier.
- Of the 430 U.S. citizen doctoral recipients, 6 are black and 27 are members of other minority groups. In 1990–91, the U.S. citizen doctorates included 10 blacks and 39 other minority members.
- The unemployment rate for new doctorates reached its highest reported level since fall 1975. Among those whose employment status is known, 12.7 percent were unemployed as of late September 1992, up from the corresponding figure of 11.4 percent from last year's fall report. Total employment of new doctorates in the U.S. declined by 8 percent from the level reported in fall 1991.
- While the number of women among U.S. citizen doctorates declined from last year's count, the total number (103) is still the second highest number ever reported, and the percentage of women among U.S. citizen doctorates remains at its all-time high of 24 percent.
- The median starting salary of new doctorates reporting teaching (or teaching and research) was $34,000 for men and $34,900 for women.
- In all but two instances, the mean salary by faculty rank reported for 1992–93 increased less than four percent over the mean for 1991–92.

Report on the 1992 Survey of New Doctorates

Donald E. McClure

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, 1991 through June 30, 1992. It includes an analysis of the employment market for 1991–92 doctoral recipients and a demographic profile summarizing characteristics of citizenship status, sex, and racial/ethnic group. Table 1 provides the response rates for the 1992 Survey of New Doctorates (see box on preceding page for description of groups).

TABLE 1: Response Rates

Group I	39 of 39 including 1 with 0 degrees
Group II	40 of 43 including 2 with 0 degrees
Group III	77 of 88 including 26 with 0 degrees
Group IV	52 of 75 including 6 with 0 degrees
Group Va	14 of 17
Group Vb	13 of 33 including 3 with 0 degrees

Commencing with this thirty-sixth Annual Survey, the survey reports will no longer include data on recipients of doctorates from Canadian mathematics programs. There are two reasons for now changing the populations of departments and doctorates surveyed. First, in order to broaden the information reported about the Canadian mathematical community, the Canadian Mathematical Society (CMS) initiated a separate survey in 1991 including many nondoctorate granting departments . (The first report of the CMS survey appears in *CMS/SMC Notes*, December 1991, pages 14–19.) Second, the employment markets in the U.S. and Canada for new doctorates function quite independently (see 1991 First Report, *Notices,* November 1991, page 1089, Table 3C) and the amalgamation of these analyses results in a distorted interpretation of both markets. For example, the unemployment rate reported in November 1991 for 1990–91 new doctorates was 12.4 percent overall, but this blurred the separate rates of 11.4 percent for U.S. new doctorates and 28.6 percent for Canadian new doctorates.

In the interest of supporting the CMS survey effort, the AMS–MAA Survey continued to collect data from Canadian doctorate granting departments of mathematics in 1992, and the data will be provided to the authors of the CMS report to supplement their own data collection efforts. The names and thesis titles of doctoral recipients from Canadian institutions are listed with the recipients from U.S. institutions.

Doctorates Granted

The number of new doctorates reported in 1991–92 by U.S. mathematical sciences departments is 1050. 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 1992 Survey, to appear in a spring 1993 issue of the *Notices.*

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

Fall/Spring		Fall/Spring		Fall/Spring		Fall/Spring		Fall/Spring	
87–88		88–89		89–90		90–91		91–92	
804	828	905	919	933	950	1074	1125	1050	*

* To appear in a spring 1993 issue of the *Notices.*

The fall count of the total number of new doctorates decreased marginally from the fall count of the 1991 Survey. The 2.3 percent decrease in the total follows six years of successive increases. Cumulatively, the total number of new doctorates has increased 43 percent since 1984–85.

Table 2B records the number of new doctorates in the mathematical sciences in the U.S. from the years 1987–88, exclusive of Group Vb. The response rate for Group Vb, which includes departments in engineering and management science, is the lowest of all groups.

Table 2B: New Doctorates Awarded by Groups I–Va

	87–88	88–89	89–90	90–91	91–92
I-Va	760	854	881	1034	998**

** 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 1991–92 in a spring 1993 issue of the *Notices.*

The Academic Hiring Survey conducted during the winter of 1991–92 (see *Notices*, April 1992, pages 311–316) projected that the number of new doctorates in mathematics in 1991–92 would be about the same as the 1990–91 count. In fact, the Group I, II, and III departments produced 748 new doctorates in 1991–92 compared to 747 in the 1991 fall count. The fall count of 173 for Group IV (statistics) is also essentially unchanged from last year's count of 170.

Employment Status of U.S. New Doctorates, 1991–1992

The Annual Survey of New Doctorates provides a view of the employment market for new Ph.D.s in the mathematical sciences from the perspective of job applicants. For an analysis of the market from the perspective of academic departments recruiting to fill positions, see the Academic Hiring Survey mentioned above..

Table 3A shows the employment status, by type of employer and field of degree, of the 1050 recipients of doctoral degrees conferred by U.S. mathematical sciences departments between July 1, 1991, and June 30, 1992. The names of these individuals are listed with their thesis titles in a later section of this First Report of the 1992 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 doctorates seek and accept academic positions. Of the 648 new doctorates employed in the U.S., a total of 538

Table 3A: Employment Status of 1991–1992 U.S. New Doctorates in the Mathematical Sciences

TYPE OF EMPLOYER	FIELD OF THESIS										TOTAL
	Algebra/ Number Theory	Real or Complex Analysis	Geometry/ Topology	Logic	Probability/ Statistics	Applied Math	Discr. Math/ Combina-torics	Numerical Analysis	Linear or Nonlinear Optim.	Other	
Group I	14	10	22	2	12	27	5	8			100
Group II	6	1	7	1	7	2	1	2	1	1	29
Group III	5	2	5	2	5	10	6	6	1	4	46
Group IV	1				22						23
Group V						4			1	1	6
Masters	16	15	5	3	12	11	9	5		2	78
Bachelors	17	26	25	8	12	15	8	6	2	6	125
Two-year Colleges	3	1	3		2	1	3				13
Other Academic Departments	1	1		2	23	12	3	4	5	8	59
Research Institutes	9	4	6		26	9		3		2	59
Government			1		5	3		3			12
Business and Industry	4	5	3	1	43	14	7	6	7	8	98
Foreign, Academic	19	24	26	5	39	26	4	12	3	3	161
Foreign, Nonacademic	1			1	6	2		2	2		14
Not seeking employment	1	2			1	2			1		7
Still seeking employment	18	21	20	2	21	21	9	2	5	2	121
Unknown (U.S.)	7	14	8	2	11	14	5	1	2	4	68
Unknown (non-U.S.)*	4	3	3	2	9	4	1	3		2	31
Column Total	126	129	134	31	256	177	61	63	30	43	1050
Column Subtotals Male	105	108	105	28	189	142	48	51	25	26	827
Column Subtotals Female	21	21	29	3	67	35	13	12	5	17	223

*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 1991–1992 U.S. New Doctorates by type of granting department

TYPE OF EMPLOYER	TYPE OF DOCTORATE-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	79	3	4	8	6	100	80	20
Group II	12	7	2	4	4	29	23	6
Group III	18	7	13	3	5	46	41	5
Group IV	1	2	1	19		23	21	2
Group V	2				4	6	2	4
Masters	25	22	23	6	2	78	63	15
Bachelors	43	43	25	7	7	125	84	41
Two-year Colleges	1	5	6		1	13	7	6
Other Academic Departments	5	8	1	18	27	59	48	11
Research Institutes	30	4		20	5	59	49	10
Government	3	3	1	3	2	12	8	4
Business and Industry	26	12	10	30	20	98	72	26
Foreign, Academic	78	25	16	27	15	161	130	31
Foreign, Nonacademic	3	2	2	2	5	14	13	1
Not seeking employment	1	2	2		2	7	5	2
Still seeking employment	43	30	20	15	13	121	98	23
Unknown (U.S.)	39	13	5	2	9	68	58	10
Unknown (non-U.S.)*	12	3	5	9	2	31	25	6
Column Total	421	191	136	173	129	1050	827	223
Column Subtotals Male	348	153	97	127	102	827		
Column Subtotals Female	73	38	39	46	27	223		

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

(83 percent) hold jobs in academia. For comparison, last year's First Report showed 704 new doctorates employed in the U.S., including 564 (80 percent) in academic positions. Thus total U.S. employment of new doctorates has declined and the concentration of positions in academia has increased. Concomitantly, the number of nonacademic positions in the U.S. for new doctorates has declined by 21 percent to 110, a level that is still comparable to the level of nonacademic employment reported in 1989 and 1990.

The 538 U.S. academic positions this year include a total of 204 in U.S. doctorate-granting departments (Groups I–V). This number is appreciably lower than last year (247 positions in Groups I–V). The number hired by Group I has remained essentially constant at 100 since 1988. For the second consecutive year, the numbers hired by Groups II and III declined; the numbers reported in Table 3A are 37 percent and 27 percent, respectively, below the numbers reported in the 1990 Survey. The number of new doctorates employed by master's and bachelor's degree-granting colleges and universities decreased by only one collectively from the numbers reported last year.

The job market for 1991–92 new doctorates has been equally as difficult as the market for 1990–91 degree recipients. Table 3A shows that among those whose employment status is known, 12.7 percent are unemployed. (The corresponding rate of unemployment for 1990–91 doctoral recipients from U.S. institutions, reported in fall 1991, was 11.4 percent.) The 1992 unemployment level is the second highest ever observed since employment information about new doctorates was first reported in the current format in 1971; it is exceeded only by the 1975 level of 13.7 percent. In contrast to the current high unemployment rate, throughout the 1980s the rate reported in the November issue of the *Notices* ranged from a low of 3.7 percent in 1981 to 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 1992 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 1993 issue of the *Notices*. At the time of the Second Report last year, the percentage of 1990–91 new doctorates from U.S. institutions who had reported not finding employment was 4.4 percent (see *Notices*, November 1991, page 1088, and July/August 1992, page 575).

Beyond the unemployment statistics that are explicitly reported in Table 3A, the 1992 Survey reveals other indicators of a difficult job market. For example, 33 new doctorates are reported to hold part-time positions and at least 19 of these individuals are still seeking full-time employment. Forty new doctorates 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 204 jobs reported in the doctorate-granting departments, 33 positions are held by new doctorates from that same department.

Some information is available from the survey concerning the nature of the academic positions filled. To date, 324 individual responses have been received from new doctorates employed by academic institutions. Fifty percent of these respondents report that their position is not tenure-eligible and the remaining 50 percent report that their position is a tenure-track position. Out of the 163 nontenure-eligible respondents, 37 percent can hold their current position for a maximum of one year and 60 percent can hold their position for up to two years. Thus the incumbents of many nontenure-eligible positions will again be seeking jobs during the current year.

The proportion of the jobs filled that are tenure-eligible varies significantly among survey groups. Among the 324 individual respondents holding jobs in academic institutions, 108 have positions in a doctorate-granting department and 121 have positions in a bachelor's or master's degree-granting department. In the doctorate-granting departments, 73 percent of the positions held by new doctorates are not tenure-eligible, while only 18 percent of the positions in bachelor's and master's granting departments are not tenure-eligible. Similar patterns were reported in the recent Academic Hiring Survey.

Table 3B reveals the dependence of employment patterns on the type of department from which the doctorate is received. There are patterns of compartmentalization and stratification of the job market for new doctorates. For example, Table 3B shows that persons hired for positions in doctorate-granting mathematics departments are drawn predominantly from mathematics doctorates: 83 percent of the positions filled in Groups I, II, and III are held by new doctorates who received their degree from a Group I, II, or III department. Similarly, 83 percent of the Group IV jobs went to Group IV degree recipients. Also, 79 percent of the Group I jobs went to Group I degree recipients.

Associated with the dependence of employment patterns on the type of department from which the doctorate is received are differing patterns of employment for men and women. Women represent 21.2 percent of the population of new doctorates, but the proportion is not uniform across different types of departments. For example, 15.5 percent of the new doctorates in mathematics are women (110 out of 708) and 26.6 percent of the new doctorates from statistics departments are women (46 out of 173). The proportion of women among new doctorates hired by doctorate-granting mathematics departments (17.7 percent) is slightly higher than their proportion among mathematics doctorates. The proportion of women among hires of new doctorates in bachelor's degree granting departments (33 percent) far exceeds their proportion in the population of new doctorates overall. The proportion of women (27.3 percent) among new doctorates holding nonacademic positions in the U.S. is also greater than the proportion of women among new doctorates overall.

Table 3B shows the different rates of unemployment for doctorate recipients from the five groups. The percentage unemployed, among those whose employment status is known, are: Group I—11.6 percent; Group II—17.1 percent; Group III—15.9 percent; Group IV—9.3 percent; and Group V—11.0 percent.

Table 3C shows the pattern of employment within broad job categories broken down by the citizenship status of the new doctorates from U.S. institutions. The citizenship status is known for 1012 of the 1050 new doctorates. The rate of unemployment is higher for non-U.S. citizens(14.2 percent of those whose job status is known) than it is for U.S. citizens (11.4 percent). Both of these rates are higher than the ones reported in November 1991 for the 1990–91 new doctorates (see *Notices,* November 1991, page 1090). The percentage of U.S. citizens in U.S. nonacademic jobs is considerably higher than the percentage of noncitizens in the same category (14.4 percent of citizens versus 9.5 percent of noncitizens whose job status is known). The percentages of U.S. and of non-U.S. citizens holding positions in U.S. doctorate-granting departments are identical (21.8 percent), while citizens hold positions in nondoctorate granting U.S. departments in substantially higher proportion than do noncitizens (37.9 percent of citizens compared to 22.4 percent of noncitizens); here all percentages exclude new doctorates whose job status is unknown.

If complete information about 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 32 percent of the non-U.S. citizens.

Nonetheless, the distribution of job categories is reported for 58 noncitizen new doctorates who are known to be permanent U.S. residents. Of those whose employment status is known, 11.5 percent are employed by a doctorate-granting department in the U.S., 42.3 percent are employed by a nondoctorate granting department in the U.S., 25 percent hold a nonacademic position in the U.S., and 11.5 percent are unemployed.

TABLE 3C: Employment Status of 1991–1992 U. S. New Doctorates by citizenship status*

TYPE OF EMPLOYER	TYPE OF CITIZENSHIP				TOTAL DOCTORATES WHOSE CITIZENSHIP IS KNOWN*	
	U.S. Citizens		Non-U.S. Citizens			
	Number	Percent	Number	Percent	Number	Percent
U.S. Academic, Ph.D. Department	88	21	115	20	203	20
U.S. Academic, non-Ph.D. Department	153	36	118	20	271	27
U.S. Research Institute	33	8	23	4	56	6
U.S. Nonacademic	58	14	50	9	108	11
Foreign Academic	22	5	131	22	153	15
Foreign Nonacademic	3	1	10	2	13	1
Not seeking employment	1		6	1	7	1
Still seeking employment	46	11	75	13	121	12
Unknown status (U.S. address)	24	6	30	5	54	5
Unknown status (foreign address)			26	4	26	3
TOTALS	428	100%**	584	100%**	1012	100%**

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

Acknowledgments

The Annual AMS-MAA Survey attempts to provide an accurate appraisal and analysis of various aspects of the academic mathematical scene for the use and benefit of the mathematics 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 for the quality of its information on the conscientious efforts of the dedicated staff members of these departments. On behalf of the AMS-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 1992 Annual AMS-MAA Survey. Monica Foulkes and Elizabeth Foulkes have provided indespensible support and taken many initiatives to facilitate the Data Committee's work. Elizabeth and Jim Maxwell share credit for the companion articles on starting salaries of new doctorates and on faculty salaries.

TABLE 4A: Sex, Racial/Ethnic Group, and Citizenship of U.S. New Doctorates

July 1, 1991 — June 30, 1992

RACIAL/ETHNIC GROUP	MEN					WOMEN					TOTAL
	CITIZENSHIP				Total Men	CITIZENSHIP				Total Women	
	U.S.	Canada	Other	Not Known		U.S.	Canada	Other	Not Known		
Asian, Pacific Islander	16	2	297	3	318	5		77	3	85	403
Black	6		11		17			1		1	18
American Indian, Eskimo, Aleut						1				1	1
Mexican American, Puerto Rican, or other Hispanic	4		25		29	1		7	1	9	38
None of the above	295	8	128	1	432	96	5	23	1	125	557
Unknown	6	1	1	23	31				2	2	33
Total	327	11	462	27	827	103	5	108	7	223	1050

Sex, Racial/Ethnic Group, and Citizenship of U.S. New Doctorates, 1991–1992

Table 4A presents a breakdown according to sex, racial/ethnic group, and citizenship of the new doctorates. The information reported in this table was obtained from departments granting the degrees and in some cases from the recipients themselves.

The citizenship status is known for 1016 of the 1050 new doctorates, including 430 U.S. citizens. (Because different surveys are used to compile the summary of sex, race, 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 doctorates is 6.7 percent smaller than in 1990–91. However, the number of U.S. citizens is still the second highest value since 1983–84, exceeded only by last year's count. Table 5 shows the changes from year to year in the numbers and proportions of U.S. citizens.

This year's *percentage* of U.S. citizens achieves a new all-time low of 42.3 percent. In part, the decline in percentage results from the high number of non-U.S. citizens receiving doctoral degrees. A total of 586 noncitizens were awarded doctorates by U.S. institutions in 1991–92. This represents a decline of 14 individuals (2.3 percent) from last year's count and is the first drop in the number of noncitizens since 1978–79. The 1991–92 count is still 110 percent greater than the number awarded by U.S. institutions ten years ago (279 in 1981–82).

The areas of the world from which noncitizen new doctorates come are reported in Table 4B. (Table 4B is based on the survey of individual data, not on the summary survey used for Table 4A.) To show how the distribution of region of citizenship has changed, Table 4B also reports the percentage change in numbers for each region from the baseline period of 1983–86. This four-year period in the mid-1980s was a time when the total number of new doctorates was relatively stable and near its recent low, the number of U.S. citizen new doctorates was declining moderately, and the sharp rise in the number of non-U.S. citizens had barely begun.

Among the U.S. citizens receiving doctoral degrees in the mathematical sciences, 6 are black (all male) and 5 are Mexican American, Puerto Rican, or other Hispanic (4 men and 1 woman). Both of these counts are lower than last year's (see *Notices*, November 1991, page 1092).

Women account for 24 percent of the U.S. citizens receiving doctoral degrees in the mathematical sciences from U.S. universities. This remains equal to the highest percentage ever reported. The total number of U.S. citizen women (103) is the second highest number ever reported, exceeded only by the 1990–91 count. See Table 6.

Note that in Table 5 and Table 6 all years prior to 1982–83 include doctorates granted by computer science departments.

TABLE 4B: Region of Citizenship of 1991–1992 U.S. New Doctorates

GEOGRAPHICAL REGION	Number	% Change from 1983–86 Annual Average
U.S.A.	428	+3
Canada	15	+36
Central and South America	31	–14
Western Europe	79	+95
Eastern Europe*	27	+151
Middle East	32	–21
Southern Asia**	47	+21
Far East***	314	+172
Africa	24	+13
Australia and Oceania****	15	+25
Unknown country of citizenship	38	——
Total	1050	+41

* Including European Republics of the former Soviet Union. The distinction between "east" and "west" for European countries is determined by the political geography of 1945–91.

** Bounded by Iran to the west, by the former Soviet Union and China to the north, and by Indochina to the east.

*** Including Indochina.

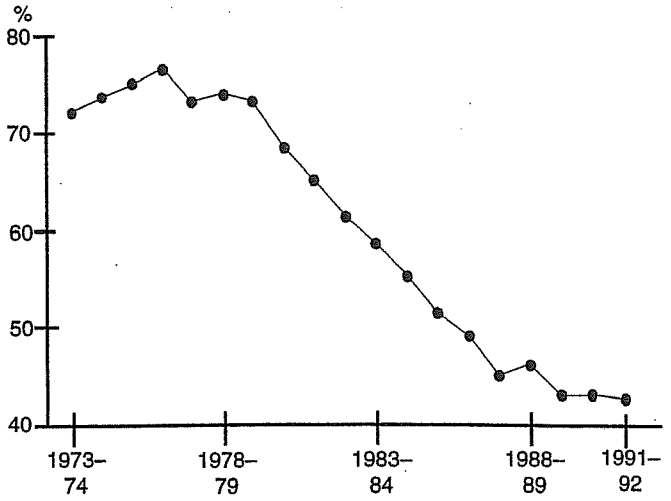
**** Including Central and South Pacific islands, Australia, New Zealand, and the Malay Archipeligo.

TABLE 5: U.S. Citizen Doctorates

	Adjusted Total* of Doctorates given by U.S. universities	Total of Doctorates 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

*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 Doctorates
Total of Doctorates by Percent



Graph for Table 5: U.S. Citizen Doctorates

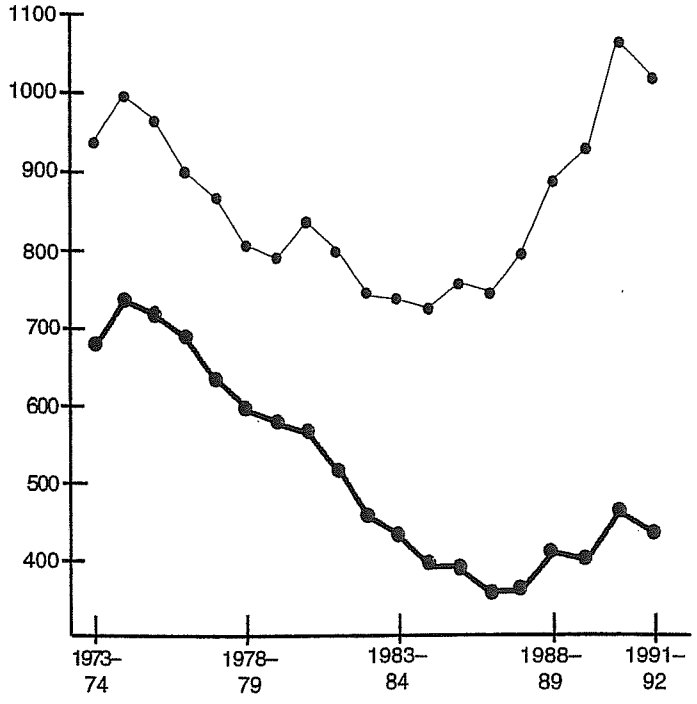


TABLE 6: U.S. Citizen Doctorates, Male and Female

	Doctorates 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

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Salary Survey for New Recipients of Doctorates, 1991–1992

The figures for 1992 were compiled from questionnaires sent to individuals who received a doctorate in the mathematical sciences during the 1991–92 academic year from universities in the United States.

Questionnaires requesting information on salaries and professional experience were distributed to 986 recipients of degrees using addresses provided by the departments granting the degrees. 422 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 doctorate 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 1991 median salary in hundreds of dollars. Values plotted for other years are converted to 1991 dollars using the implicit price deflator prepared annually by the Bureau of Economic Analysis, U.S. Department of Commerce. The 1992 salary data are not shown on the graphs because the deflator is not yet available for this year.

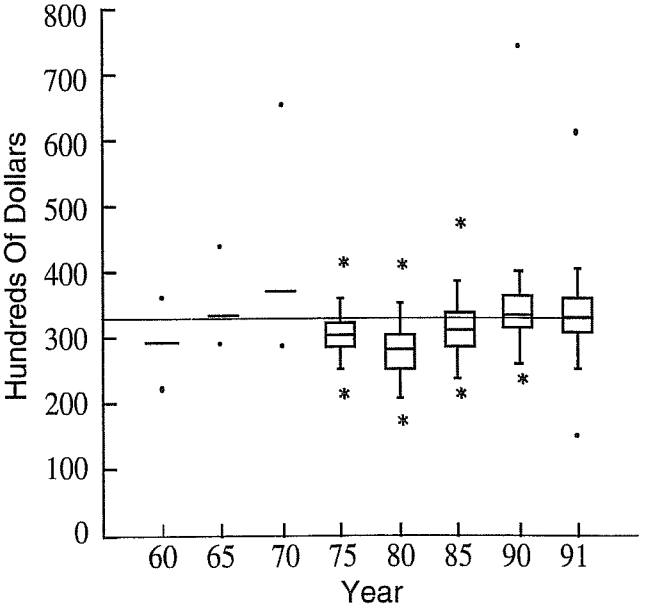
For a given year, the box shows the first and third quartiles and the median salary. (Prior to 1975, the quartiles are not available, and only the median is depicted by the horizontal stroke.) The "whiskers" give additional information about the spread of the data, extending to points that are 1.5 interquartile 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 1991 $
TEACHING OR TEACHING AND RESEARCH (149 men + 50 women)						
1960	49		65		80	293
1965	70		80		105	332
1970	85		110		195	368
1975	90	120	128	135	173	307
1980	105	155	171	185	250	281
1985	170	230	250	270	380	312
1989	200	290	310	330	478	337
1990	230	305	320	350	710	333
1991	150	310	330	360	610	330
1992	190	320	340	360	520	—
1989M	200	290	305	330	478	
1989F	220	295	310	330	470	
1990M	230	306	320	350	710	
1990F	250	300	325	360	493	
1991M	150	310	330	360	610	
1991F	260	310	332	360	550	
1992M	190	310	340	360	520	
1992F	250	330	349	371	500	
One year or less experience (112 men + 31 women)						
1992M	230	320	340	375	520	
1992F	250	340	354	388	500	

Nine-Month Teaching or Teaching and Research



Nine-Month Salaries

Ph.D. Year	Min	Median	Max	Reported Median in 1991 $
RESEARCH (4 men + 0 women)				
1960	52	65	80	293
1965	71	81	90	336
1970	78	105	160	351
1975	100	—	110	—
1980	125	137	180	225
1985	205	235	250	293
1989	235	270	330	293
1990	230	300	404	312
1991	260	295	470	295
1992	160	290	330	—
1989M	235	270	330	
1989F	—	—	—	
1990M	230	300	404	
1990F	—	—	—	
1991M	260	290	360	
1991F	—	—	—	
1992M	160	290	330	
1992F	—	—	—	
One year or less experience (4 men + 0 women)				
1992M	160	290	330	
1992F	—	—	—	

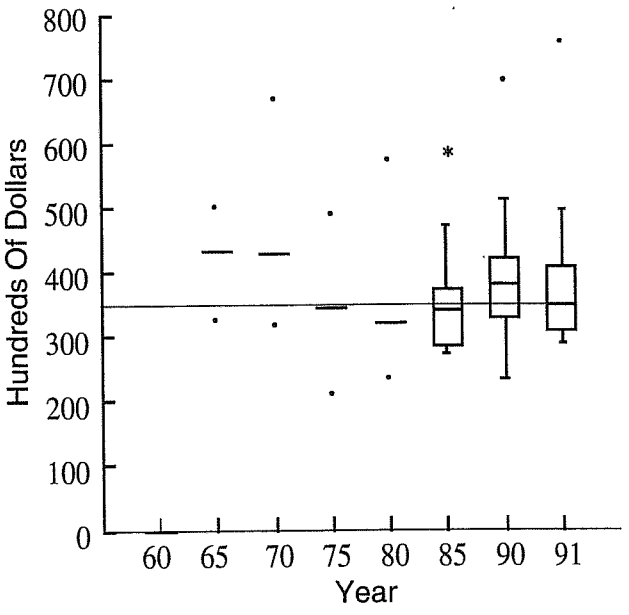
Nine-Month Research

Graph omitted because sample size too small.

Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1991 $
TEACHING OR TEACHING AND RESEARCH (14 men + 2 women)						
1960	.....		No data		.....	
1965	78		104		121	431
1970	95		128		200	428
1975	87		145		204	347
1980	143		195		350	320
1985	220	230	273	300	470	341
1989	238	290	315	370	620	342
1990	225	318	365	404	670	380
1991	290	310	350	408	758	350
1992	265	325	355	402	1300	—
1989M	238	295	315	370	620	
1989F	275	290	314	380	434	
1990M	225	316	360	400	670	
1990F	250	320	383	420	425	
1991M	290	310	350	400	530	
1991F	300	310	472	530	758	
1992M	300	330	355	420	1300	
1992F	—	—	—	—	—	
One year or less experience (9 men + 2 women)						
1992M	320	330	350	384	1300	
1992F	—	—	—	—	—	

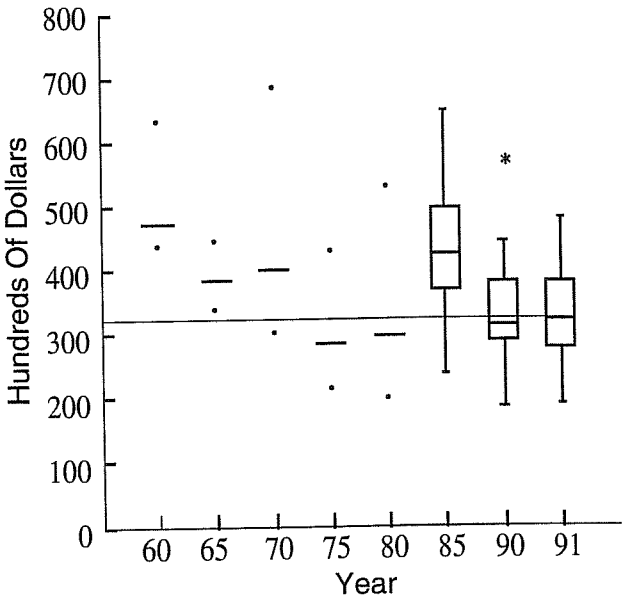
Twelve-Month Teaching or Teaching and Research



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1991 $
			RESEARCH			
			(19 men + 6 women)			
1960	97		105		140	474
1965	81		93		107	386
1970	90		120		205	402
1975	90		119		180	285
1980	120		180		321	296
1985	190	295	342	400	520	427
1989	180	250	317	385	623	344
1990	180	280	300	365	546	312
1991	190	277	320	380	480	320
1992	186	300	302	360	480	—
1989M	180	250	300	393	623	
1989F	200	295	350	373	400	
1990M	180	280	300	360	546	
1990F	330	330	365	400	400	
1991M	190	290	310	360	480	
1991F	240	272	340	405	450	
1992M	210	300	300	358	480	
1992F	186	250	370	380	400	
One year or less experience (19 men + 6 women)						
1992M	210	300	300	358	480	
1992F	186	250	370	380	400	

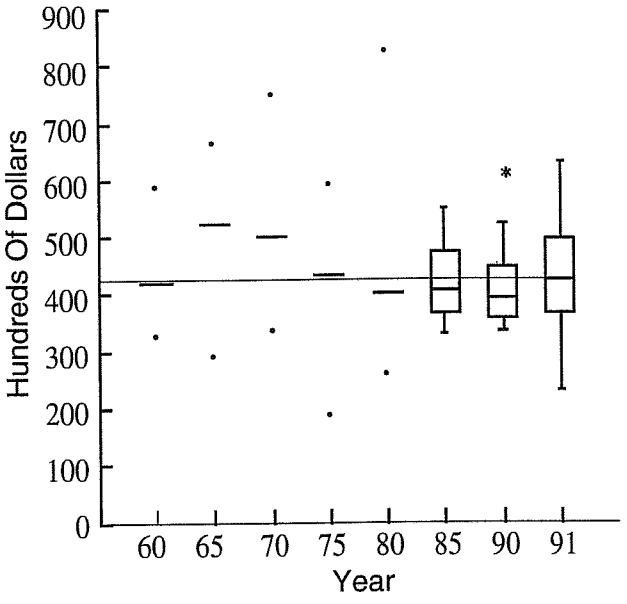
Twelve-Month Research



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1991 $
			GOVERNMENT			
			(8 men + 3 women)			
1960	72		93		130	420
1965	70		126		160	523
1970	100		150		223	502
1975	78		182		247	436
1980	156		244		501	401
1985	263	294	325	381	440	406
1989	330	363	378	438	540	410
1990	320	345	378	430	587	393
1991	230	365	423	497	630	423
1992	315	438	530	587	692	—
1989M	330	363	378	438	540	
1989F	—	—	—	—	—	
1990M	320	345	375	430	587	
1990F	330	354	378	429	480	
1991M	230	345	424	497	630	
1991F	—	—	—	—	—	
1992M	315	419	460	615	692	
1992F	—	—	—	—	—	
One year or less experience (5 men + 1 woman)						
1992M	315	402	435	440	675	
1992F	—	—	—	—	—	

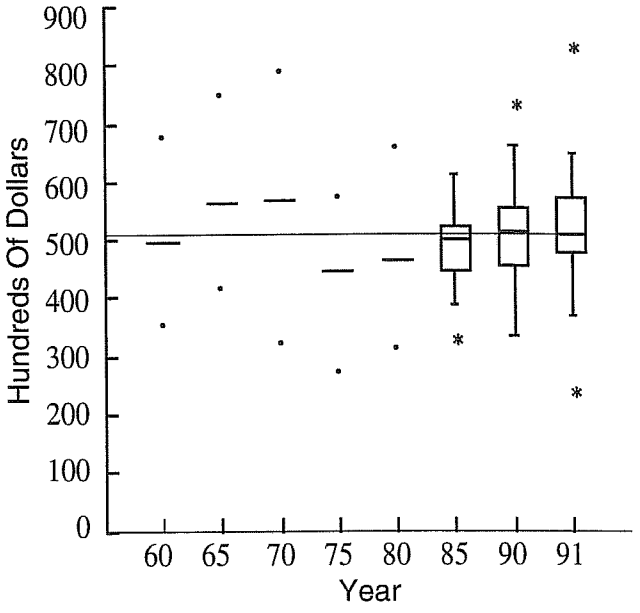
Twelve-Month Government



Twelve-Month Salaries

Ph.D. Year	Min	Q_1	Median	Q_3	Max	Reported Median in 1991 $
	BUSINESS AND INDUSTRY (31 men + 8 women)					
1960	78		110		150	497
1965	100		136		180	564
1970	96		170		235	569
1975	114		187		240	448
1980	190		284		400	467
1985	260	360	400	420	493	499
1989	250	420	464	505	5250	504
1990	320	438	495	533	700	515
1991	235	480	510	573	830	510
1992	208	450	530	620	1000	—
1989M	250	420	464	513	5250	
1989F	375	430	470	500	516	
1990M	320	443	490	533	630	
1990F	390	440	500	525	700	
1991M	330	500	520	587	830	
1991F	235	420	481	554	720	
1992M	300	440	520	625	1000	
1992F	208	528	549	591	850	
One year or less experience (12 men + 5 women)						
1992M	300	401	430	565	615	
1992F	208	540	558	561	620	

Twelve-Month Business and Industry



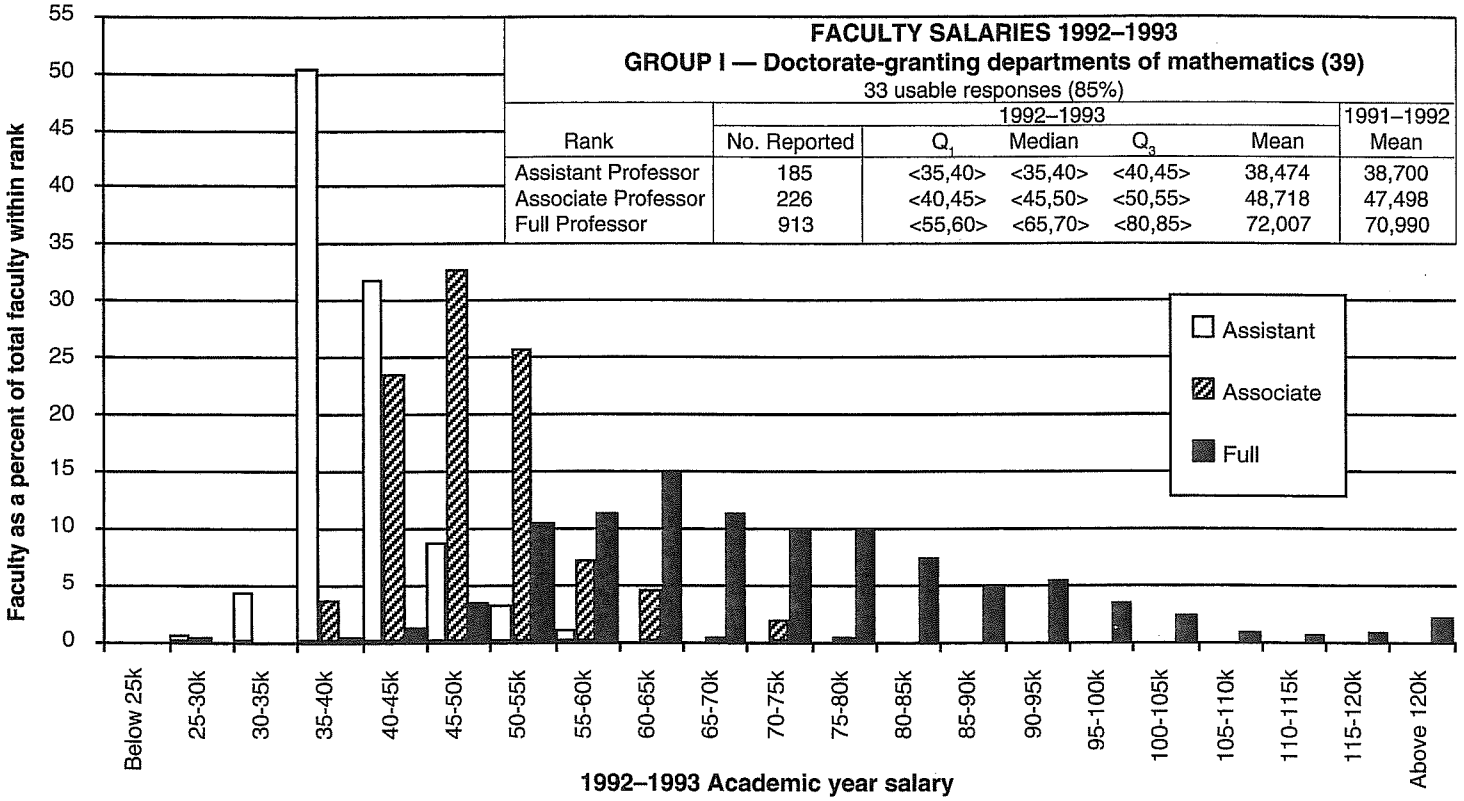
Faculty Salary Survey 1992–1993 Salaries

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 1992–93 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>.

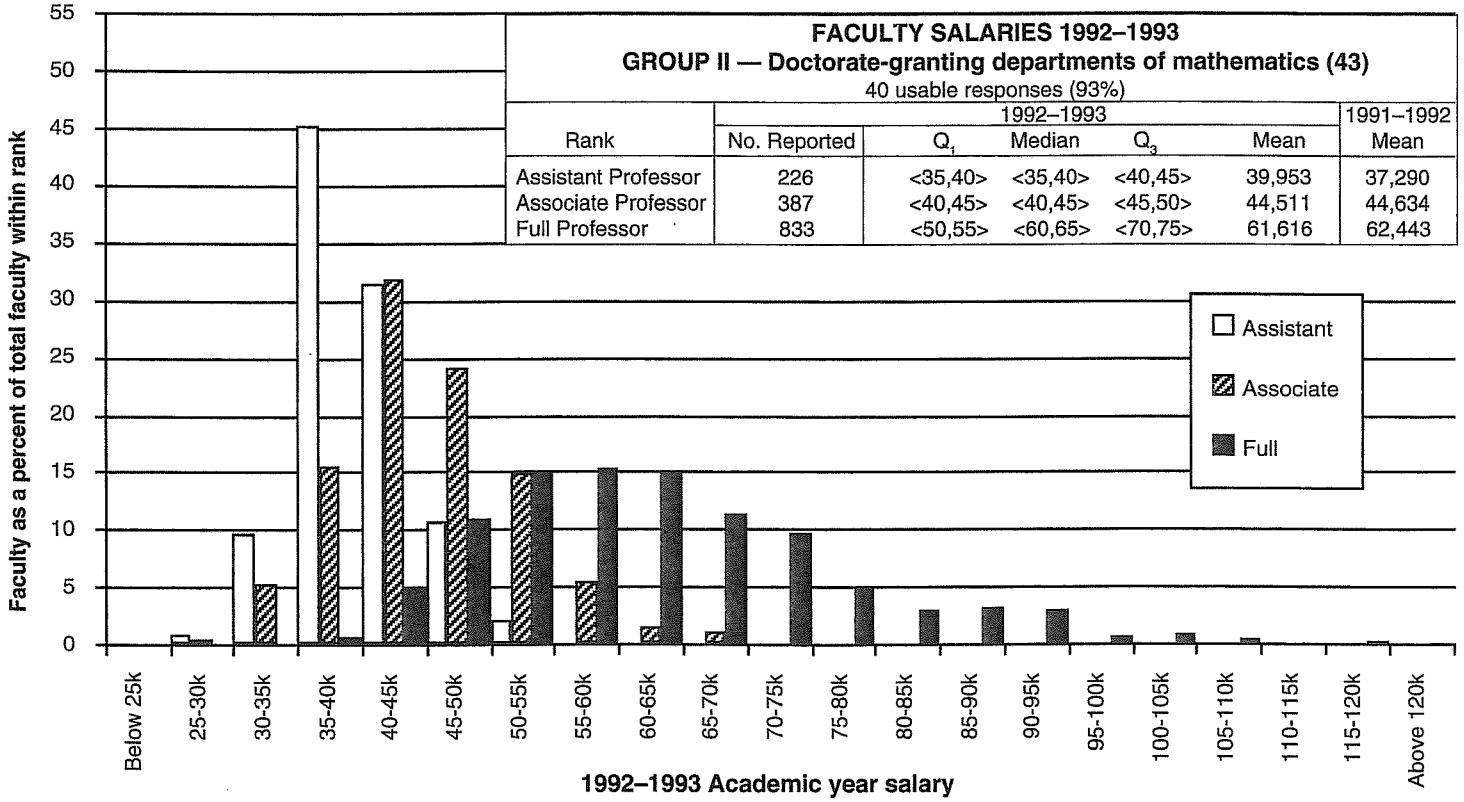
FACULTY SALARIES 1992–1993
GROUP I — Doctorate-granting departments of mathematics (39)
33 usable responses (85%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	185	<35,40>	<35,40>	<40,45>	38,474	38,700
Associate Professor	226	<40,45>	<45,50>	<50,55>	48,718	47,498
Full Professor	913	<55,60>	<65,70>	<80,85>	72,007	70,990



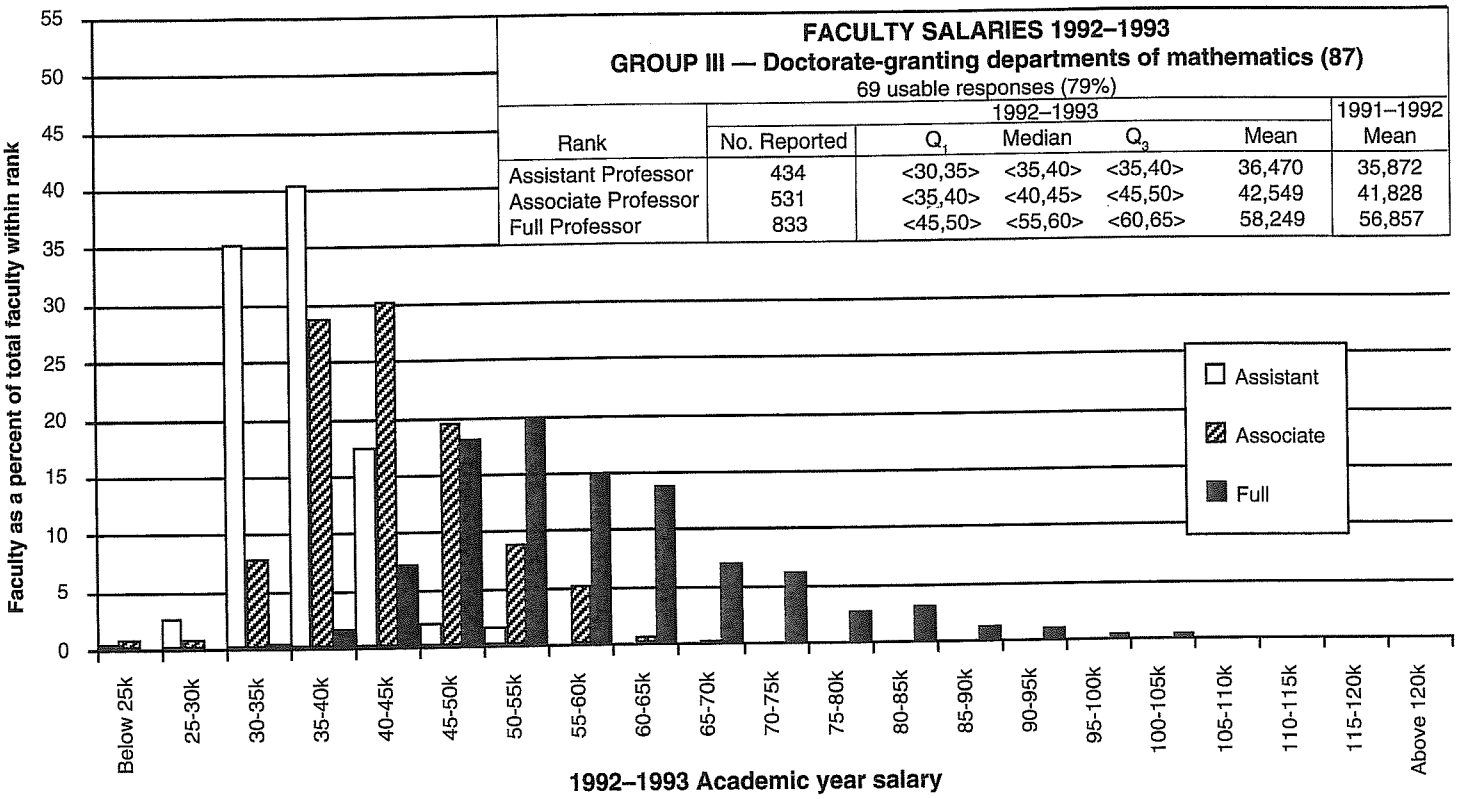
FACULTY SALARIES 1992–1993
GROUP II — Doctorate-granting departments of mathematics (43)
40 usable responses (93%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	226	<35,40>	<35,40>	<40,45>	39,953	37,290
Associate Professor	387	<40,45>	<40,45>	<45,50>	44,511	44,634
Full Professor	833	<50,55>	<60,65>	<70,75>	61,616	62,443



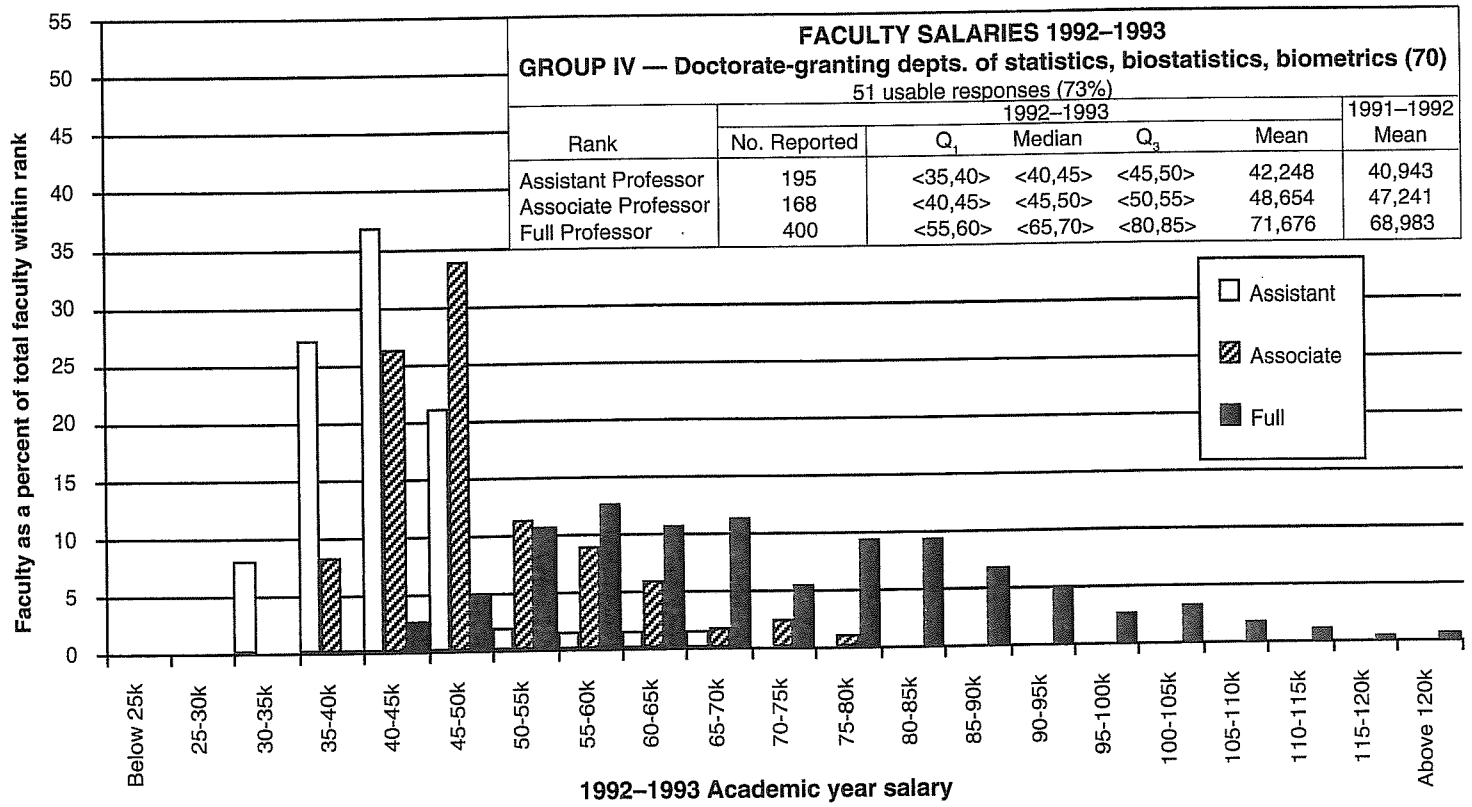
FACULTY SALARIES 1992–1993
GROUP III — Doctorate-granting departments of mathematics (87)
69 usable responses (79%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	434	<30,35>	<35,40>	<35,40>	36,470	35,872
Associate Professor	531	<35,40>	<40,45>	<45,50>	42,549	41,828
Full Professor	833	<45,50>	<55,60>	<60,65>	58,249	56,857



FACULTY SALARIES 1992–1993
GROUP IV — Doctorate-granting depts. of statistics, biostatistics, biometrics (70)
51 usable responses (73%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	195	<35,40>	<40,45>	<45,50>	42,248	40,943
Associate Professor	168	<40,45>	<45,50>	<50,55>	48,654	47,241
Full Professor	400	<55,60>	<65,70>	<80,85>	71,676	68,983

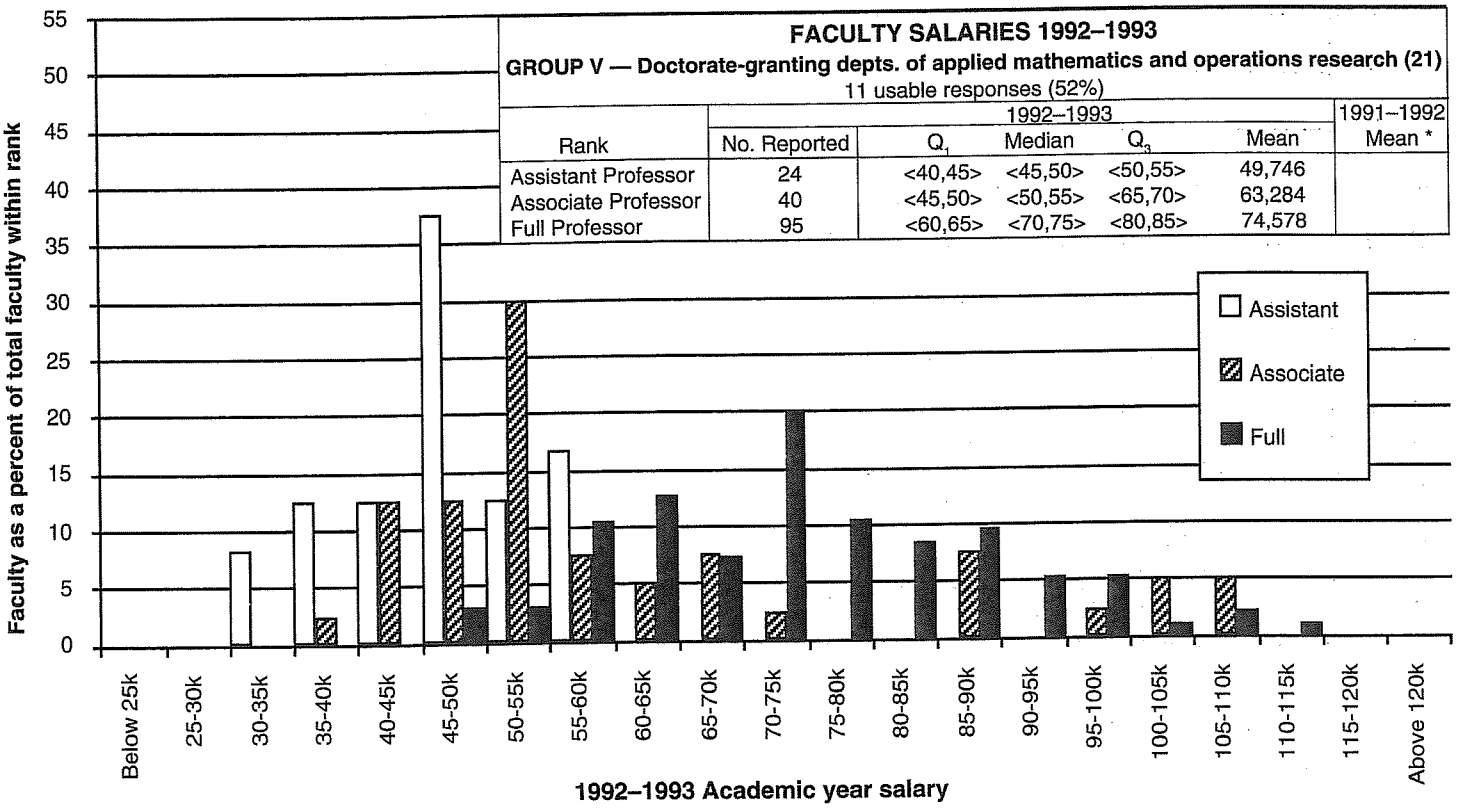


FACULTY SALARIES 1992–1993

GROUP V — Doctorate-granting depts. of applied mathematics and operations research (21)

11 usable responses (52%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean *
Assistant Professor	24	<40,45>	<45,50>	<50,55>	49,746	
Associate Professor	40	<45,50>	<50,55>	<65,70>	63,284	
Full Professor	95	<60,65>	<70,75>	<80,85>	74,578	



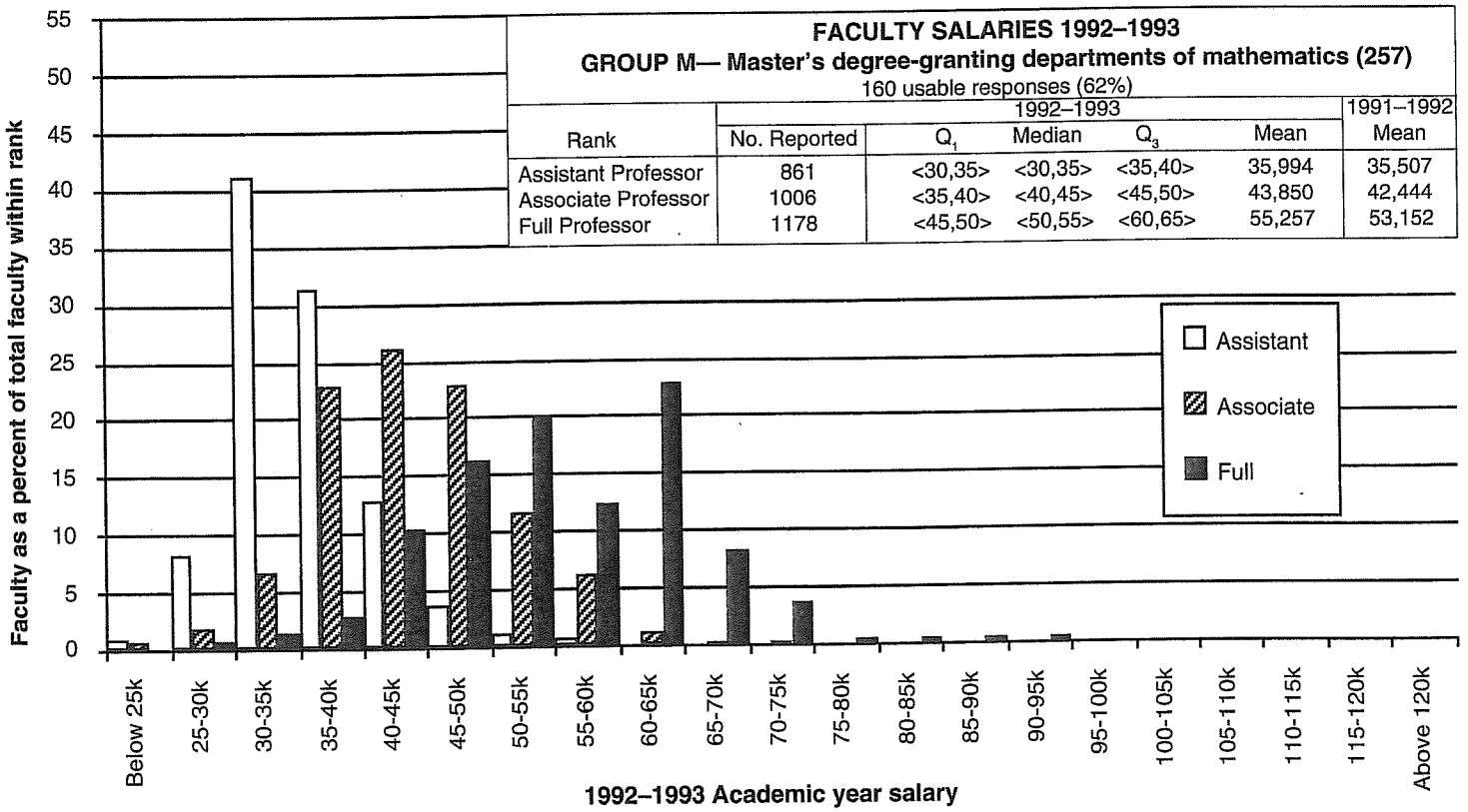
* This year's Group V survey population is significantly smaller than last year's, and comparison of means between the two is not valid.

FACULTY SALARIES 1992–1993

GROUP M— Master's degree-granting departments of mathematics (257)

160 usable responses (62%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	861	<30,35>	<30,35>	<35,40>	35,994	35,507
Associate Professor	1006	<35,40>	<40,45>	<45,50>	43,850	42,444
Full Professor	1178	<45,50>	<50,55>	<60,65>	55,257	53,152



FACULTY SALARIES 1992–1993

GROUP B — Bachelor's degree-granting departments of mathematics (978)

435 usable responses (44%)

Rank	1992–1993 No. Reported	Q_1	Median	Q_3	Mean	1991–1992 Mean
Assistant Professor	1101	<30,35>	<30,35>	<35,40>	33,882	32,889
Associate Professor	1020	<35,40>	<40,45>	<45,50>	41,420	39,967
Full Professor	1080	<40,45>	<45,50>	<55,60>	51,538	49,057