

SUMMARY

This chapter contains 12 tables and accompanying figures which summarize two-year and four-year college and university fall 1990 enrollment, numbers of full-time and part-time faculty and graduate teaching assistants, age distribution of full-time faculty, percent of women among full-time faculty, and the number of bachelor's degrees awarded in 1989-90.

Since 1985, four-year college and university enrollment has remained steady in mathematics but declined in statistics and computer science; two-year college enrollment has increased substantially. The number of four-year college and university full-time faculty in mathematics showed a modest increase over 1985, in statistics remained constant, in computer science showed a large increase, while the number of two-year faculty also showed a modest increase. Part-time faculty numbers were down slightly in four-year institutions, but up dramatically in two-year colleges. The percent of full-time faculty members who are women increased in all categories. The number of bachelor's degrees in mathematics remained level, in statistics increased, and in computer science declined significantly.

Data on two-year colleges can be found in this chapter and also in chapters 8 and 9 which are devoted solely to two-year colleges. Chapters 2 through 7 are devoted exclusively to four-year colleges and universities.

For those wishing information on certain disciplines only, below are listed those tables in this chapter containing information on the various fields covered by the report. At the beginning of each chapter similar paths are given for that chapter.

For information on four-year college and university mathematics see

Tables S.1, S.2, S.3, S.4, S.5, S.9, S.10, S.11, S.12.

For information on two-year college mathematics programs see

Tables S.1, S.2, S.4, S.6, S.9, S.10, S.11, S.12.

For information on four-year college and university statistics see

Tables S.1, S.2, S.3, S.4, S.7, S.9, S.10, S.11, S.12.

For information on four-year college and university computer science see

Tables S.1, S.2, S.3, S.4, S.5, S.8, S.9, S.10, S.11, S.12.

TABLE S.1 Enrollment (thousands) in Mathematics, Statistics and Computer Science courses at four-year colleges and universities and two-year colleges: Fall 1970, 1980, 1985, 1990; Fall 1990 broken down by department.

Fall enrollment (thousands)

Courses	Four-year Colleges and Universities				1990 Totals by Dept			Two-year Colleges			
	1970	1980	1985	1990	Math Dept	Stat Dept	CS Dept	1970	1980	1985	1990
Math	1188	1525	1620	1624	1621	2	1	555	925	900	1241
Stat	92	147	208	173	125	43	5	16	28	36	54
CS	106	321	558	491	180	0	311	13	95	98	98
TOTAL	1386	1993	2386	2288	1926	45	317	584	1048	1034	1393

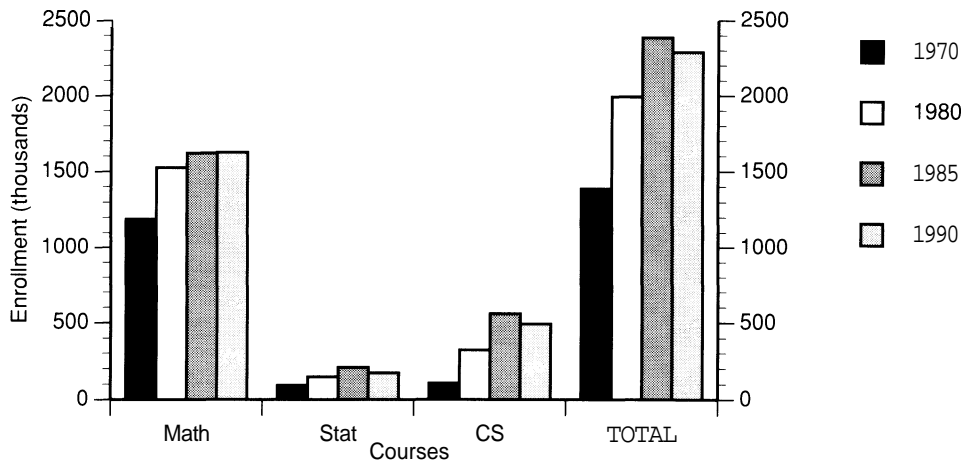


FIGURE S.1.1 Enrollment (thousands) in Mathematics, Statistics and Computer Science courses at four-year colleges and universities: Fall 1970, 1980, 1985, 1990.

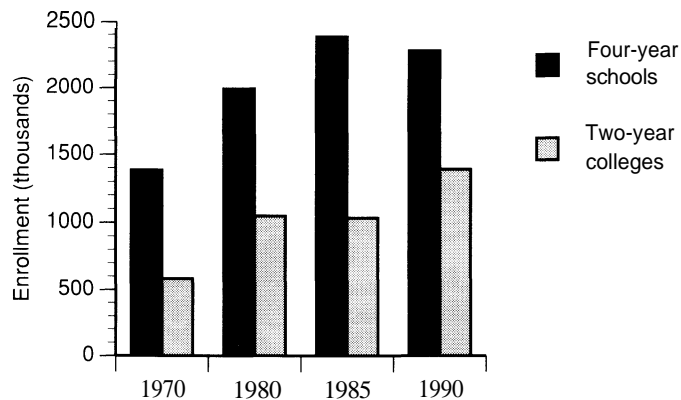


FIGURE S.1.2 Combined enrollment (thousands) in Mathematics, Statistics and Computer Science courses at four-year colleges and universities and in two-year colleges: Fall 1970, 1980, 1985, 1990.

TABLE S.1 A highlight of fall 1990 enrollment is the almost 35% increase in two-year college enrollment over the last five years. This is the first survey in this series to separate enrollments in mathematics, statistics and computer science by type of department. Table S.1 shows that mathematics departments are major contributors in both statistics and computer science, teaching 72% of all statistics enrollment and 37% of all computer science enrollment. For the first time, enrollment in statistics and computer science courses decreased, declining 17% and 12% respectively from 1985 levels. Finally the two-year college enrollment is now 38% of the total enrollment, an historic high.

The survey revealed that the total fall **1989** enrollment in four-year and university departments of mathematics, statistics and computer science was one half the total **1989-90** academic year enrollment. This ratio prevailed across all types of departments. While it is true that departments with a semester calendar generally have a lower spring semester enrollment, this is balanced by those departments on term-type calendars where the fall enrollment is less than the total enrollment in the remaining terms. Thus an estimate for 1990-91 academic year enrollment is obtained by doubling the fall 1990 totals.

National Higher Education Statistics: Fall 1991 (National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education) reported the fall 1990 institutional undergraduate full-time and part-time enrollment in four-year colleges and universities as 6,684,000; the comparable figure for two-year institutions was 5,184,000.

TABLE S.2 Enrollment (thousands) by level in Mathematics, Statistics and Computer Science courses in four-year college and university Departments of Mathematics, Statistics and Computer Science and in two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990. (Unavailable historical data is indicated by a "-").

Fall enrollment (thousands)

Course level	Four-year Colleges and Universities								Two-year Colleges Math Programs			
	Math Depts				Stat Depts		CS Depts		1970	1980	1985	1990
	1970	1980	1985	1990	1970	1990	1970	1990	1970	1980	1985	1990
Math courses												
Remedial	101	242	251	261	0	0	0	0	191	441	482	724
Precalculus	538	602	593	593	0	0	0	0	134	180	188	245
Calculus	414	590	637	647	0	1	0	0	59	86	97	128
Advanced	135	91	138	120	0	1	0	1	0	0	0	0
Other (2-year)									171	218	133	144
TOTAL MATH	1188	1525	1619	1621	0	2	0	1	555	925	900	1241
Stat courses												
Elementary	-	-	-	87	-	29	0	3	16	28	36	54
Advanced	-	-	-	38	-	14	0	2	0	0	0	0
TOTAL STAT	60	-	-	125	32	43	0	5	16	28	36	54
CS courses												
Lower	-	-	-	134	0	0	-	204	13	95	98	98
Middle	-	-	-	12	0	0	-	25	0	0	0	0
Upper	-	-	-	34	0	0	-	82	0	0	0	0
TOTAL CS	60	-	-	180	0	0	46	311	13	95	98	98
GRAND TOTAL	1308	-	-	1926	32	45	46	317	584	1048	1034	1393

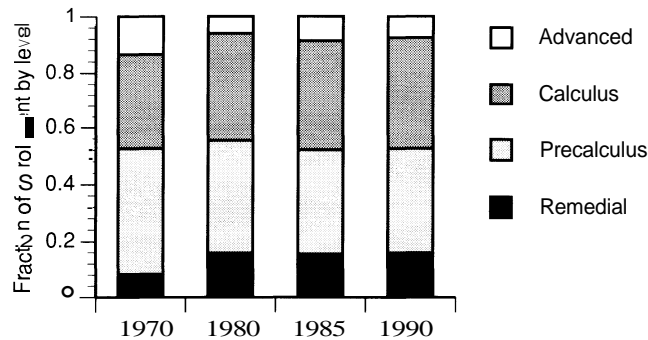


FIGURE S.2.1 Fraction of enrollment in Mathematics courses by level in four-year college and university Departments of Mathematics: Fall 1970, 1980, 1985, 1990.

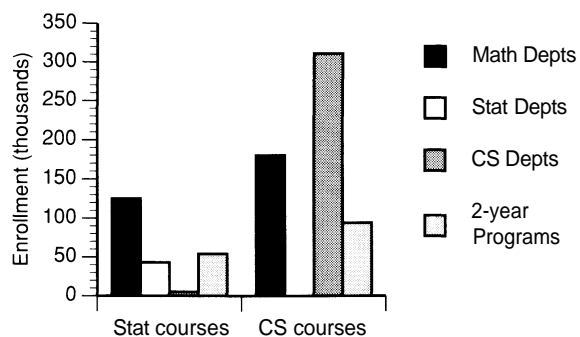


FIGURE S.2.2 Enrollment in Statistics and Computer Science courses in four-year college and university Departments of Mathematics, Statistics and Computer Science and in Mathematics Programs at two-year colleges: Fall 1990.

TABLE S.2 This table amplifies Table S.1, reporting enrollment by level of course. (Table E.1 in chapter 2 gives an even more detailed breakdown on enrollment, while Appendix I gives the specific enrollment in each course offered by four-year and university departments, and Table TYR.3 in chapter 8 gives the enrollment in each course offered by two-year programs.) While remedial course enrollment has increased substantially over the last 20 years, so has enrollment in non-remedial mathematics courses. For example, in four-year institutions calculus and advanced-level enrollment has remained at about 47% of the total mathematics enrollment during this period. In fall 1990 the total two and four-year calculus-level enrollment was 777,000. In four-year college and university mathematics departments, enrollment in courses above the precalculus level (including advanced statistics and middle and upper level computer science courses) was 44% of the total mathematics department enrollment; for statistics departments the comparable percent was 36%; for computer science departments it was 35%.

TABLE S.3 Number of Bachelors Degrees awarded by four-year college and university Departments of Mathematics, Statistics and Computer Science (combined) between July 1 and June 30 in 1974-75, 1979-80, 1984-85 and 1989-90, by selected majors and by sex for totals in 1989-90.

Major	1974-75	1979-80	1984-85	1989-90
Math including Applied Math	18833	11687	13317	13303
Math Ed	4778	1752	2567	3116
Statistics	570	467	538	618
Actuarial Math	-	-	-	245
Operations Research	-	-	312	236
Joint CS & Math	-	-	3084	1485
Joint Math & Stat	-	-	121	135
Joint CS & Stat	-	-	157	53
SUBTOTAL Math & Stat	24181	13906	20096	19191
(number of women)	-	-	-	8695
SUBTOTAL CS	3636	8917	29107	21126
(number of women)	-	-	-	6278
Other	0	0	0	962
(number of women)	0	0	0	351
GRAND TOTAL	27817	22823	49203	41279
(number of women)	-	-	-	15324

The other degrees are those that did not fall in any of the categories above.

TABLE S.3 During the last five years the number of computer science degrees, including joint degrees with mathematics and statistics, declined by 30%. The number of mathematics and statistics degrees, excluding mathematics education degrees, remained nearly level while the number of mathematics education degrees increased by 21%. Female graduates comprised 45% of the total mathematics and statistics bachelor's degrees and 30% of the computer science bachelor's degrees. These data were not available in previous surveys.

National Education Statistics: Fall 1991 (referenced in Table S.1) reported 1,050,000 total bachelor's degrees awarded in 1989-90. Thus the mathematical sciences and computer science each awarded about 2% of the total bachelor's degrees awarded.

Tables E.5 and E.6 in chapter 2 give a further breakdown of the bachelor's degrees awarded in 1989-90. In those tables, the joint degree totals are reported according to the department awarding the degree. In Table S.3, the joint degree totals are included under mathematics and statistics even though 562 were awarded by computer science departments.

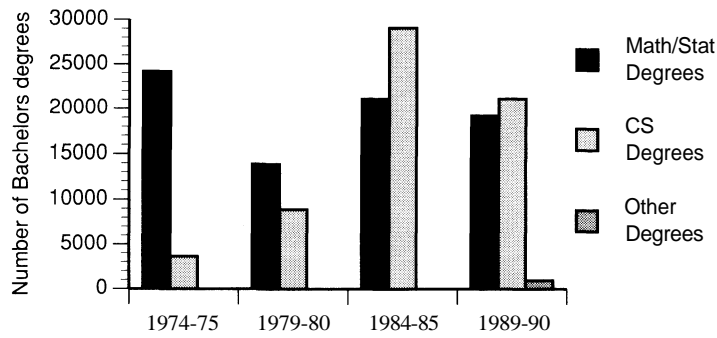


FIGURE S.3.1 Number of Bachelors degrees awarded with Mathematics and Statistics majors or joint majors (including joint Computer Science majors), those with Computer Science majors and those with other majors by four-year college and university Departments of Mathematics, Statistics and Computer Science (combined) for 1974-75, 1979-80, 1984-85, 1989-90.

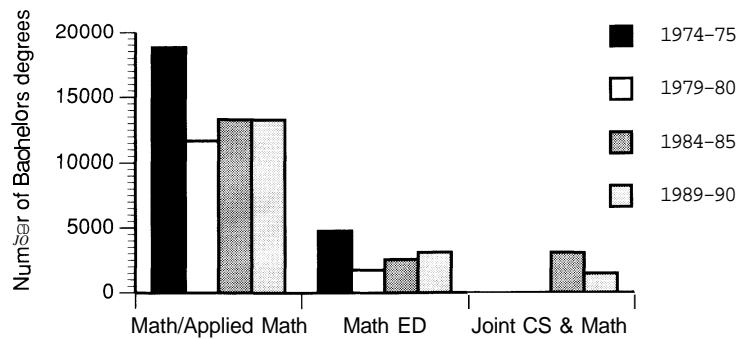


FIGURE S.3.2 Number of Bachelors degrees, for three selected majors, awarded by four-year college and university Departments of Mathematics and Computer Science between July 1 and June 30 in 1974-75, 1979-80, 1984-85 and 1989-90.

TABLE S.4 Number of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and in two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990.

	Number of full-time faculty			
	1970	1980	1985	1990
Four-year colleges and universities				
Math Depts	15655	16022	17849	19411
Stat Depts	700	610	740	735
CS Depts	688	1672	3605	5318
TOTAL	17043	18304	22194	25464
Two-year colleges				
Math Programs	4879	5623	6277	7222
GRAND TOTAL	21922	23927	28471	32686

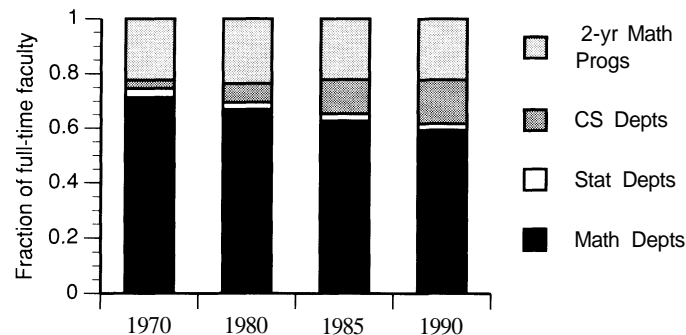


FIGURE S.4.1 Fraction of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990.

TABLE S.4 In four-year institutions, as compared to 1985, the number of full-time mathematics faculty increased by almost 9%; the number of statistics faculty remained level; and the number of computer science faculty increased by 48%. (In all tables in this survey full-time faculty means actual faculty count, not full-time equivalent. The number of part-time faculty is reported separately.) Using Table S.1, the enrollment per full-time mathematics faculty member in four-year institutions was just under 100; in statistics department the ratio was 61; while computer science's ratio was 60. The corresponding 1970 ratios were 84, 46, and 67, respectively. The 1990 two-year college enrollment per full-time faculty member was 193, compared to the 1970 ratio of 119. Using Table S.2, in four-year colleges and universities, the ratio of calculus and above

enrollments (including statistics and computer science) per full-time faculty member was 44 in mathematics departments, and 21 in both statistics and computer science departments.

Over the last five years the two-year college mathematics program faculty increased by 15%, while Table S.1 shows that during this period enrollment increased by 35%.

The 1990 edition of the *Digest of Educational Statistics* reported that the 1987 total of full-time and part-time higher education faculty with the rank of instructor or above was 793,000. The comparable total from this survey for the mathematical sciences and computer science was 54,679 including 21,993 part-time faculty (reported in Table S.12).

The tables in chapter 3 give more detailed data on four-year and university faculty. For more detailed two-year faculty information see chapter 9.

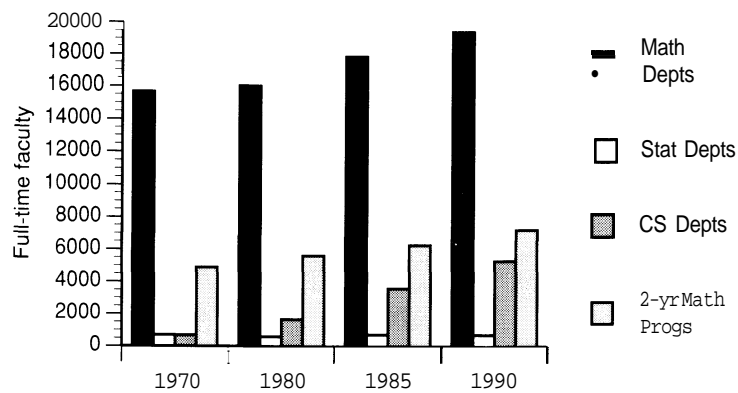


FIGURE S.4.2 Number of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990.

TABLE S.5 Number of full-time faculty in four-year college and university Departments of Mathematics by highest degree and in 1990 by teaching responsibility: Fall 1970, 1980, 1985, 1990.

	1970	1980	1985	1990	1990 totals broken down by teaching responsibility		
					Math/Stat	CS	Math/Stat and CS
Doctoral degree	9744 (62%)	12497 (78%)	13208 (74%)	14963 (77%)	12824	816	1323
Other degree	5911 (38%)	3525 (22%)	4641 (26%)	4448 (23%)	3266	676	506
TOTAL	15655	16022	17849	19411	16090	1492	1829

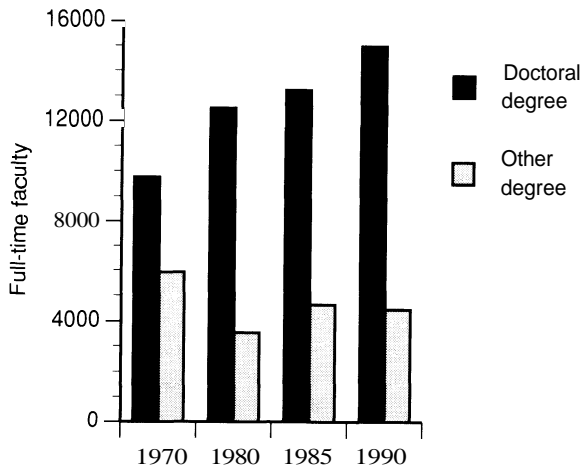


FIGURE S.5.1 Number of full-time faculty in four-year college and university Departments of Mathematics by highest degree: Fall 1970, 1980, 1985, 1990.

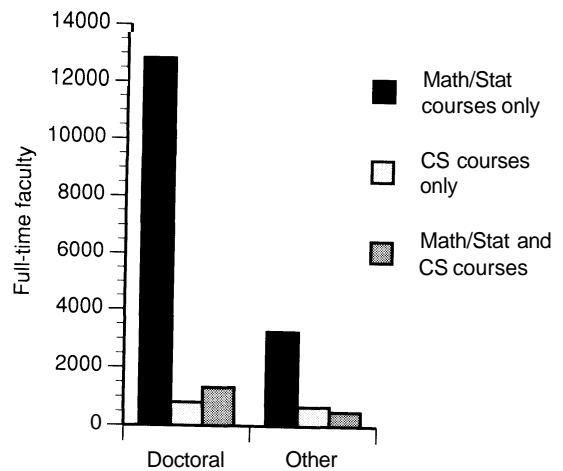


FIGURE S.5.2 Number of full-time faculty in four-year college and university Departments of Mathematics by highest degree and teaching responsibility: Fall 1990.

TABLE S.5 For the first time, mathematics department faculty is reported according to teaching responsibilities. The number of faculty teaching only mathematics in Fall 1990 courses was not significantly higher than the 1970 total, when presumably almost all of the teaching was in mathematics and statistics only.

TABLE S.6 Number of full-time faculty in two-year college Mathematics Programs by highest degree: Fall 1970, 1980, 1985, 1990.

Number of faculty	1 970	1980	1985	1990
Doctorate	195 (4%)	843 (15%)	816 (13%)	1193 (17%)
Masters + 1 yr	2293 (47%)	2137 (38%)	2448 (39%)	2442 (34%)
Masters	2049 (42%)	2361 (42%)	2699 (43%)	3296 (45%)
Bachelors	342 (7%)	282 (5%)	314 (5%)	291 (4%)
TOTAL	4879	5623	6277	7222

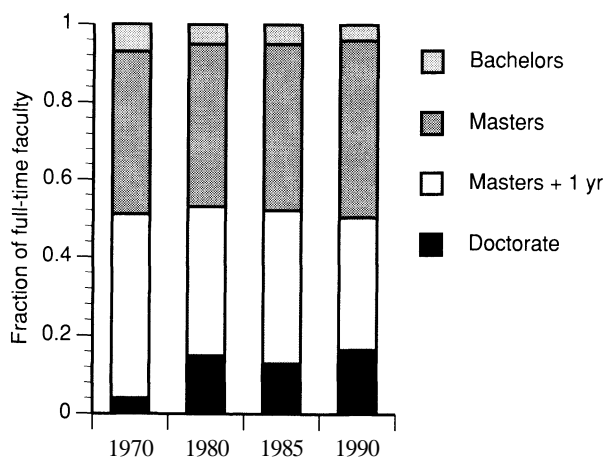


FIGURE S.6.1 Fraction of full-time faculty in two-year college Mathematics Programs by highest degree: Fall 1970, 1980, 1985, 1990.

TABLE S.6 The educational level of full-time two-year college mathematics program faculty has remained much the same except for an increase in the percentage of doctoral-holding faculty.

TABLE S.7 Full-time faculty in four-year college and university Departments of Statistics by highest degree: Fall 1970, 1980, 1985, 1990.

	1970	1980	1985	1990
Doctoral degree	-	587 (96%)	718 (97%)	706 (96%)
Other degree	-	23 (4%)	22 (3%)	29 (4%)
TOTAL	700	610	740	735

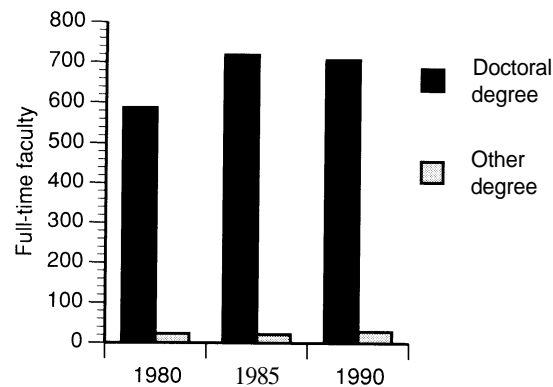


FIGURE S.7.1 Number of full-time faculty in four-year college and university Departments of Statistics by highest degree: Fall 1980, 1985, 1990.

TABLE S.7 Since 1970, there has been little increase in the number of statistics departments faculty. As was noted in the 1985 CBMS report, the 1980 number probably represents an undercount.

TABLE S.8 Full-time faculty in four-year college and university Departments of Computer Science by highest degree: Fall 1970, 1980, 1985, 1990.

	1970	1980	1985	1990
Doctoral degree	527 (77%)	1117 (67%)	2537 (70%)	4189 (79%)
Other degree	161 (23%)	550 (33%)	1068 (30%)	1129 (21%)
TOTAL	688	1667	3605	5318

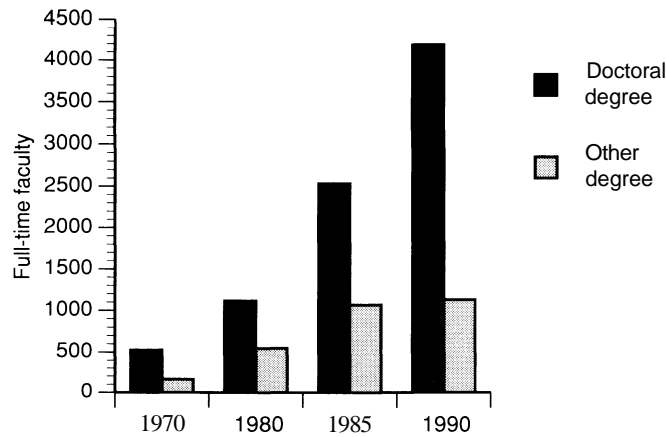


FIGURE S.8.1 Number of full-time faculty in four-year college and university Departments of Computer Science by highest degree: Fall 1970, 1980, 1985, 1990.

TABLE S.8 The number of full-time faculty in computer science departments increased by 48% during the last five years. The percent of doctoral faculty in fall 1990 was nearly the same as the 1970 figure, when, presumably, much of the computer science faculty was chosen from mathematical science departments.

TABLE S.9 Age distribution of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs for Fall 1990 and average age: Fall 1975, 1985, 1990.

Depts	<30	30-34	35-39	40-44	45-49	50-54	55-59	60-66	>66	Faculty	Average Age		
										TOTAL 1990	1975	1985	1990
4-year schools													
Math	7%	12%	14%	15%	16%	16%	10%	9%	1%	19411	40.5	44.5	45.6
Stat	6%	15%	16%	16%	14%	10%	12%	9%	2%	735	40.6	-	44.8
CS	9%	14%	22%	15%	16%	16%	5%	3%	0%	5318	38	40.5	41.9
2-year schools													
Math	5%	8%	10%	21%	22%	21%	8%	5%	0%	7222	41.8	43.3	45.4

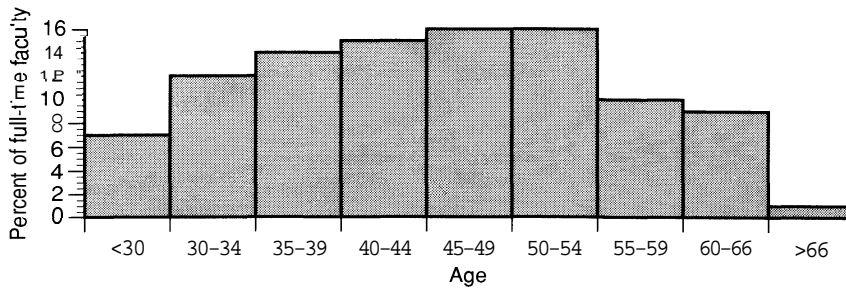


FIGURE S.9.1 Age distribution of full-time faculty in four-year college and university Departments of Mathematics. Total full-time faculty is 19,411: Fall 1990.

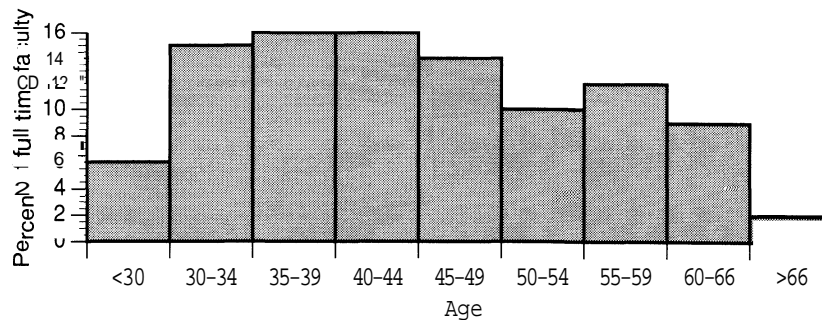


FIGURE S.9.2 Age distribution of full-time faculty in four-year college and university Departments of Statistics. Total full-time faculty is 735: Fall 1990.

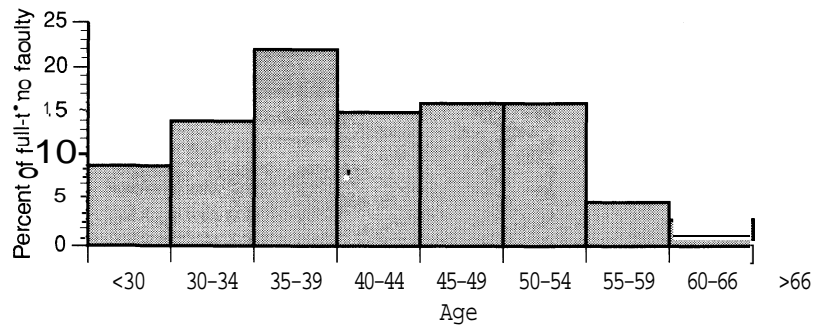


FIGURE S.9.3 Age distribution of full-time faculty in four-year college and university Departments of Computer Science. Total full-time faculty is 5318: Fall 1990.

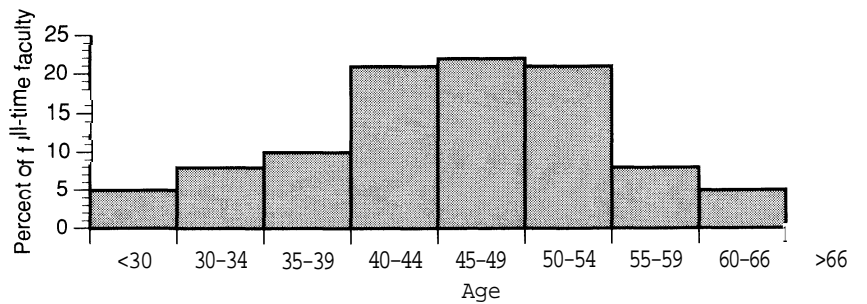


FIGURE S.9.4 Age distribution of full-time faculty in two-year college Mathematics Programs. Total full-time faculty is 7222: Fall 1990.

TABLE S.9 While the average age of faculty in the three disciplines increased over 1985 levels, the average annual increase during 1985-1990 in mathematics was not as pronounced as the average annual increase in the 1975-1985 period.

TABLE S.10 Percent women among full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1975, 1980, 1985, 1990; percent women among faculty aged less than 35: Fall 1990.

	Math Depts	Stat Depts	CS Depts	2-Yr Math Programs
Women among full-time faculty 1975	10%	-	-	21%
Women among full-time faculty 1980	14%	-	-	25%
Women among full-time faculty 1985	15%	10%	13%	31%
Women among full-time faculty 1990	20%	14%	16%	34%
Women among faculty aged less than 35 1990	25%	24%	12%	51%
TOTAL FACULTY 1990	19411	735	5318	7222

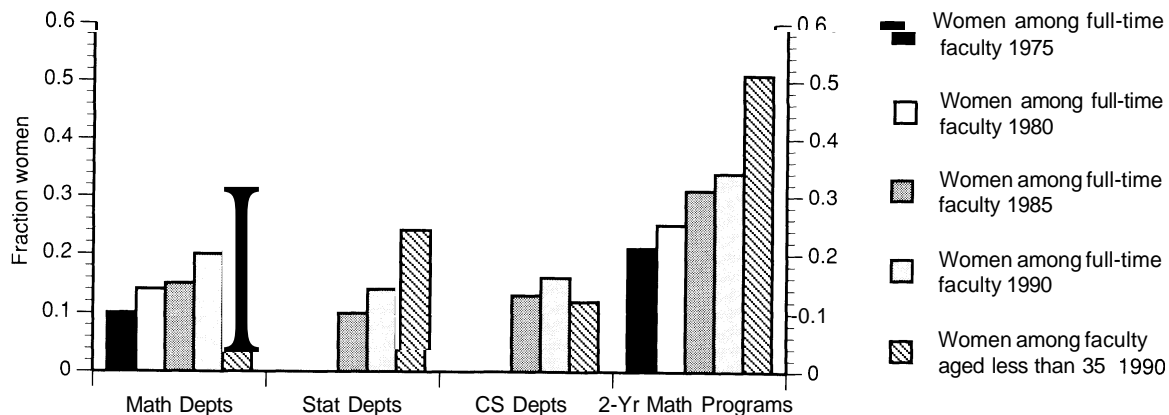


FIGURE S.10.1 Fraction women among full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1975, 1980, 1985, 1990. Also fraction women among full-time faculty aged less than 35: Fall 1990.

TABLE S.10 Over the last ten years the percent increase of faculty members in mathematics departments who are women averaged 1% a year. This is the first CBMS survey to report the percent of women among those faculty age 34 or less. Only in computer science departments was this percent less than the overall percent. A “-” indicates data were not available.

TABLE S.11 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1990.

	Four-year schools			Two-year schools
	Math Depts	Stat Depts	CS Depts	Math Programs
Total number of sections	67098	978	9533	51835
Percent taught by full-time faculty	75%	78%	80%	58%
Percent taught by part-time faculty	16%	15%	11%	42%
Percent taught by graduate TAs	9%	7%	9%	0%

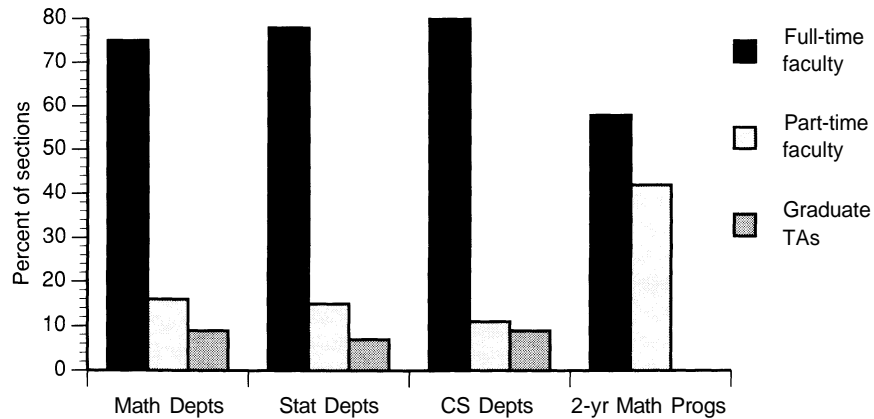


FIGURE S.11.1 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1990.

TABLE S.11 In four-year institutions a substantial number of sections continued to be taught by a combination of part-time faculty and graduate teaching assistants. But it pales when compared to the overwhelming number (and percent) of sections taught by part-time two-year college faculty.

TABLE S.12 Number of part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990. Part-time faculty as a percent of full-time faculty is given in parentheses. Graduate TAs are available only for Fall 1990.

	Part-time faculty				Graduate TAs
	1970	1980	1985	1990	1990
Four-year colleges and universities					
Math Depts	2436 (15%)	5456 (34%)	7087 (40%)	6786 (35%)	7297
Stat Depts	93 (13%)	132 (22%)	118 (18%)	90 (12%)	449
CS Depts	300 (18%)	726 (43%)	1984 (55%)	1437 (27%)	3626
Two -year colleges					
Math Programs	2213 (45%)	6661 (118%)	7433 (118%)	13680 (189%)	

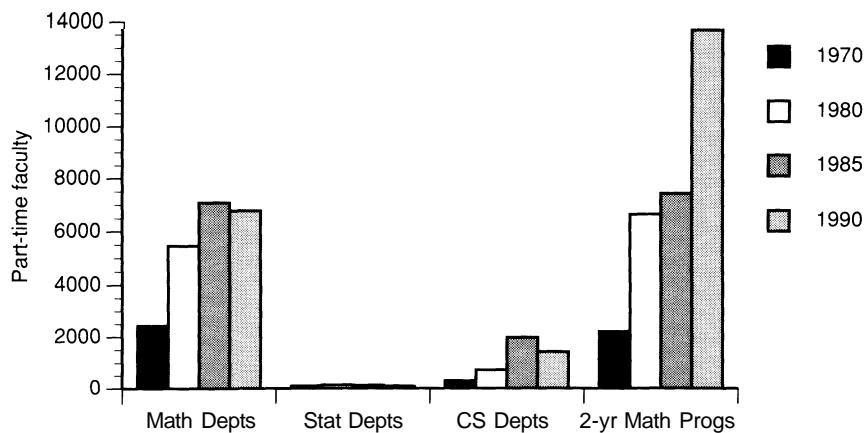


FIGURE S.12.1 Number of part-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs: Fall 1970, 1980, 1985, 1990.

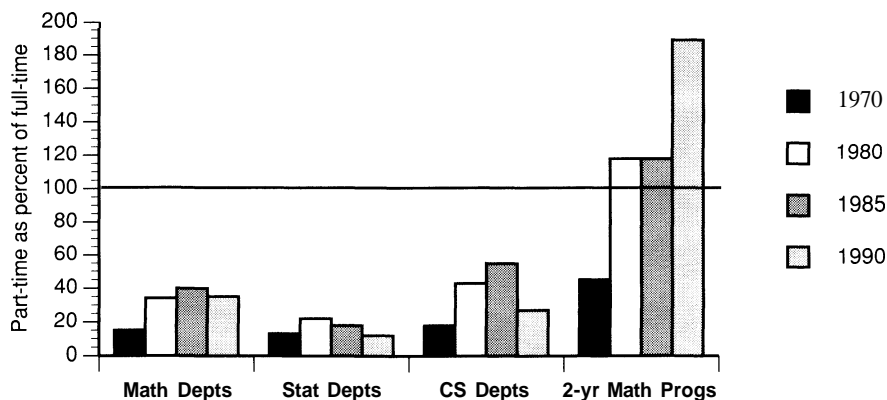


FIGURE S.12.2 Number of part-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science and two-year college Mathematics Programs as a percent of full-time faculty: Fall 1970, 1980, 1985, 1990.

TABLE S.12 There was a modest decline in the number of part-time faculty in mathematics and statistics departments; a sharp decline in this number for computer science departments, reflecting, no doubt, both the decline in computer science enrollment and the increase in the number of full-time faculty. There was a staggering increase in the number of part-time faculty in two-year college mathematics programs, almost doubling since 1985. Most of the graduate assistants were at universities; these are reported in more detail in the enrollment section.

