

**SCIENTISTS AND ENGINEERS IN
INDUSTRIALIZED SOCIETIES:
DATA AVAILABLE AS OF 1992**

by

**Ellen Jamison
Center for International Research
U.S. Bureau of the Census
Washington, D.C. 20233**

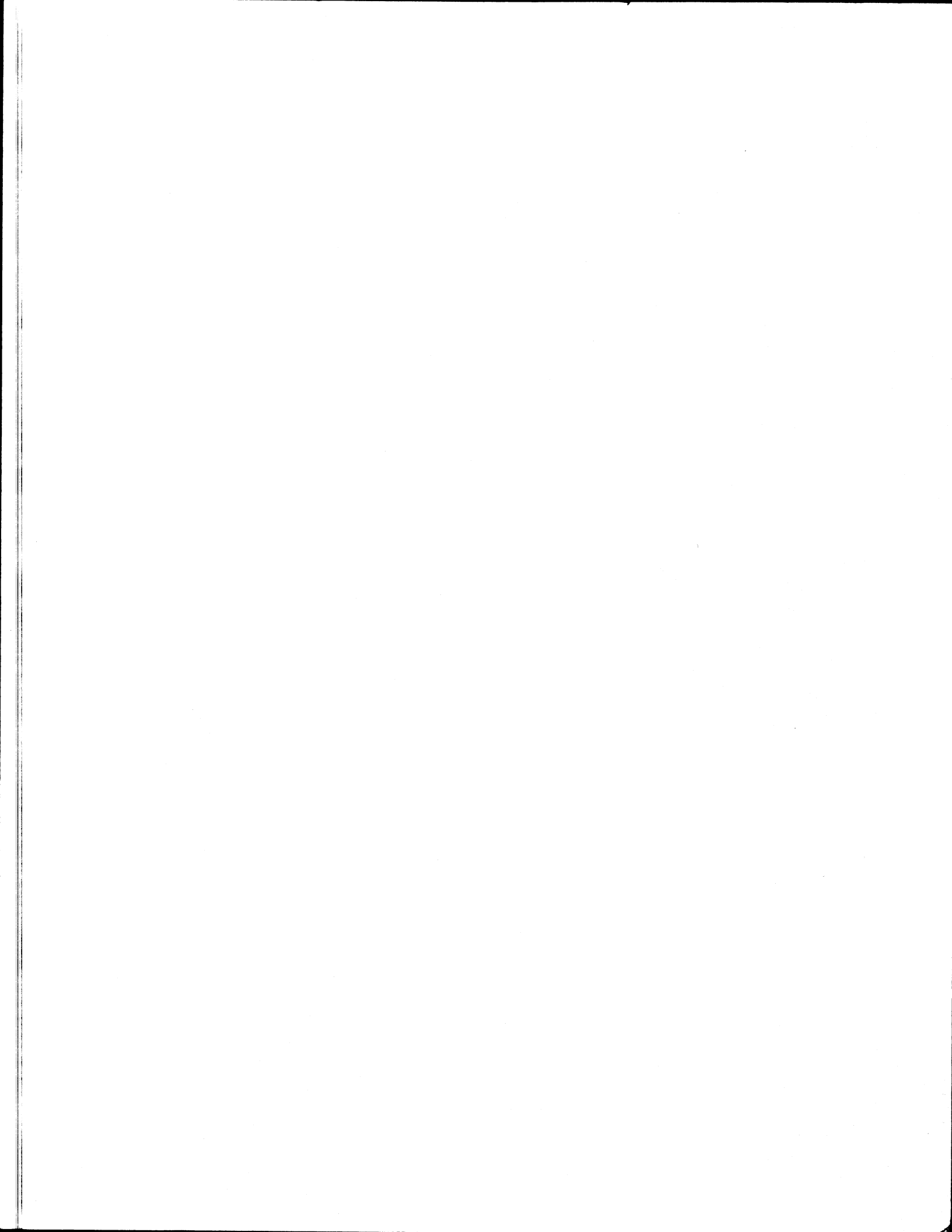


prepared for

**Division of Science Resources Studies
Directorate for Scientific, Technological,
and International Affairs
National Science Foundation
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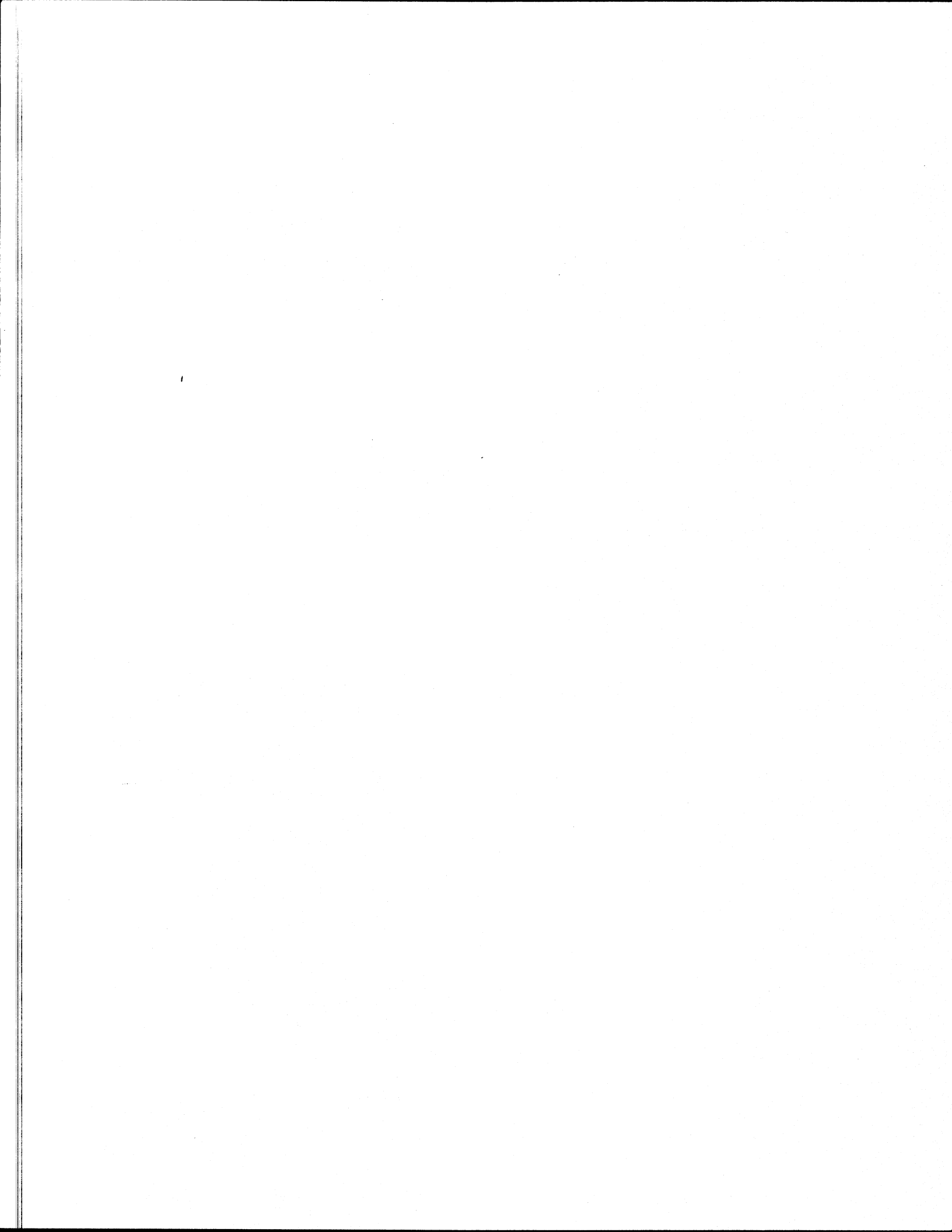
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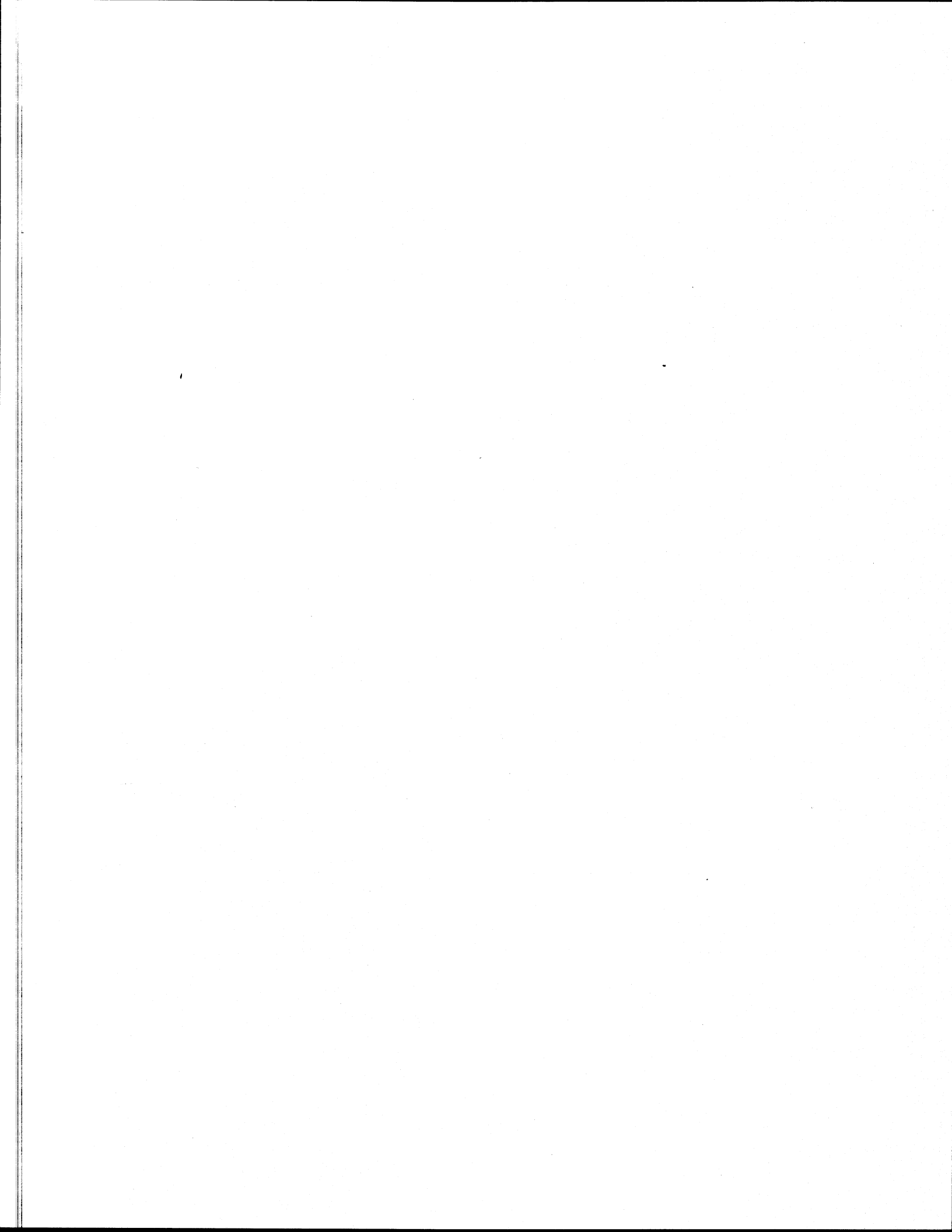
December 1992



SUMMARY

Recent information on scientists and engineers in the labor force in several industrialized societies (United States, France, West Germany, United Kingdom, and Japan) suggests the following:

- There were about 3.5 million scientists and engineers in the United States in 1990
- The United States ranks third (behind Japan and United Kingdom) in the number of total scientists and engineers per 1,000 labor force
- Japan has more engineers per 1,000 labor force than the other societies (twice as many as France)
- The United Kingdom has more scientists per 1,000 labor force than the other societies (three times as many as West Germany)
- Among the populations studied, the United States has by far the largest percentage of women scientists
- All populations studied have experienced an increase in the number of scientists and engineers per 1,000 labor force over the last decade
- In 1980, Japan had the lowest ratio of engineers per 1,000 labor force but finished the decade with the highest
- Most scientists and engineers are employed in manufacturing or service industries



PREFACE

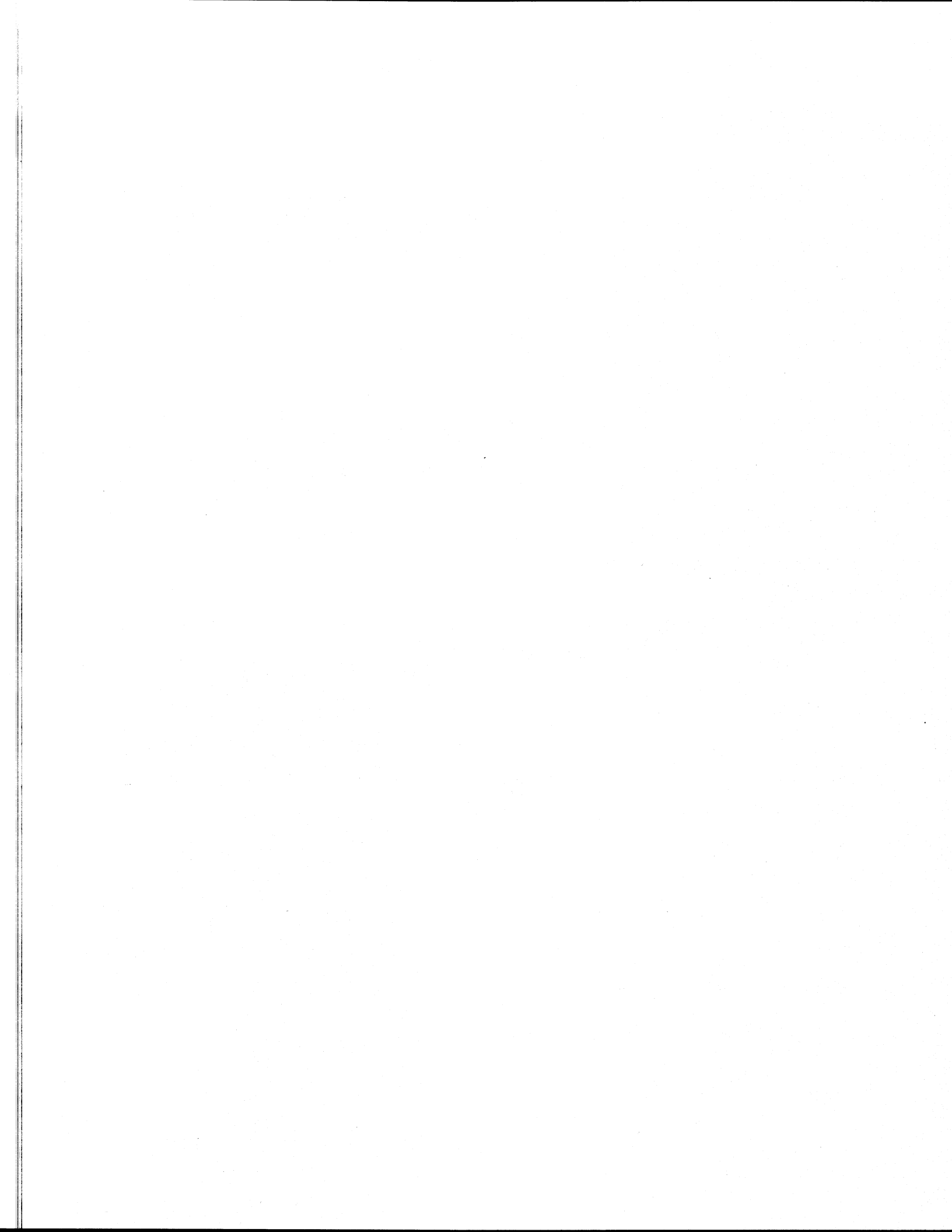
The Center for International Research conducts economic and demographic studies, some of which are issued as Staff Papers. A complete list of these papers is included at the end of this report. The use of data not generated by the U.S. Bureau of the Census precludes performing the same statistical reviews the Bureau does on its own data.

We are grateful to the Institut National de la Statistique et des Etudes Economiques of France and Statistisches Bundesamt of West Germany¹ for their assistance in providing the special survey or census tabulations upon which some of the tables and charts in this report are based. Our thanks are due to the Office of Population Censuses and Surveys of the United Kingdom and the ESRC Data Archive of the University of Essex for arranging the purchase of labor force survey data on tape for that country. And finally, we wish to express our gratitude to the Japan Statistics Bureau for its ongoing cooperation in exchanging published reports with the U.S. Bureau of the Census.

Within the Center for International Research, thanks are due to LaTonya D. Hayes for her assistance in preparing tables and charts for Japan.

Comments and questions regarding this study should be addressed to Ellen Jamison, Center for International Research, U.S. Bureau of the Census, Washington, D.C. 20233; telephone (301) 763-4086.

¹Although we recognize that East and West Germany have been reunited into a single Germany, we refer to "West Germany" in this report because the statistical data presented pertain specifically to the former Federal Republic of Germany.



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INTRODUCTION

This report presents updated statistics on scientists and engineers (S/E) for France, West Germany, the United Kingdom, and Japan. It begins with a brief section presenting some comparisons among countries or areas, including the United States. Data points on charts showing trend data are plotted according to the available information for each country or area. Next are individual country/area sections describing the new data and illustrating selected recent and trend data. In appendix A, detailed tables present the statistics for each society, beginning with a summary table that includes total labor force figures and the number of scientists and engineers in each broad occupational category for all years with available data for the particular society based on information from previous reports.² Such a summary table is included for the United States as well. The United States table begins with 1986, the first year for which a consistent set of data can be provided.

For users who wish to combine detailed information from this report with that from the earlier reports, it is best to begin with the most recent report and work backwards to fill in gaps. This is because each subsequent report attempts to provide more detailed information (for example, pertaining to a larger sample of census tabulations) and corrects any errors discovered in earlier reports.

Data are available for the following years:

United States:	1986 to 1991
France:	1982, 1985 to 1992
West Germany:	1982, 1985, and 1987
United Kingdom:	1981, 1986 to 1990
Japan:	1980, 1985, and 1990

All data refer to *employed* scientists and engineers. Any peculiarities of the data are described in the introductory section for each country or area. Appendix B presents a cautionary note about sample census tabulations for Japan.

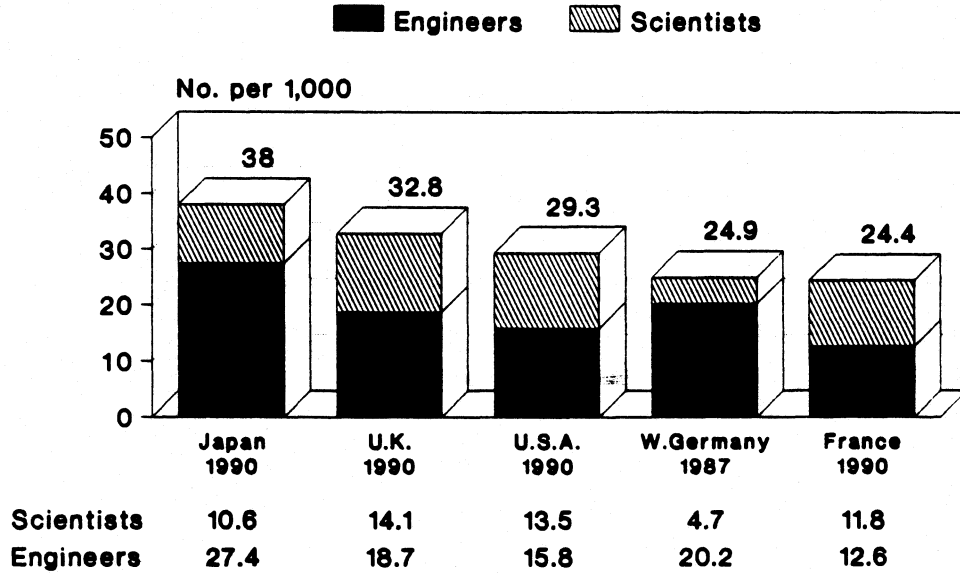
²Previous reports include CIR Staff Paper Nos. 26, 51, and 63 as listed at the end of this report, as well as an intermediate update report, U.S. Bureau of the Census, 1988, *Recent Data on Scientists and Engineers in Industrialized Countries*. Specific occupational categories of S/E and their corresponding codes for each society were presented in CIR Staff Paper No. 26, appendix C.

INTERNATIONAL COMPARISONS

Japan Has the Most S/E per 1,000 Labor Force Among Populations Studied

With 38 scientists and engineers per 1,000 labor force, Japan has the highest ratio, followed by the United Kingdom. The United States is third. Japan has far more engineers than scientists, so that its ratio of engineers per 1,000 labor force is more than twice that of France. In contrast, Japan's ratio of scientists per 1,000 labor force is smaller than that in all of the others except West Germany. The United Kingdom, with 14 scientists per 1,000 members of the labor force, leads for that ratio.

Figure A. Scientists and Engineers per 1,000 Labor Force, for Selected Countries or Areas: Circa 1990

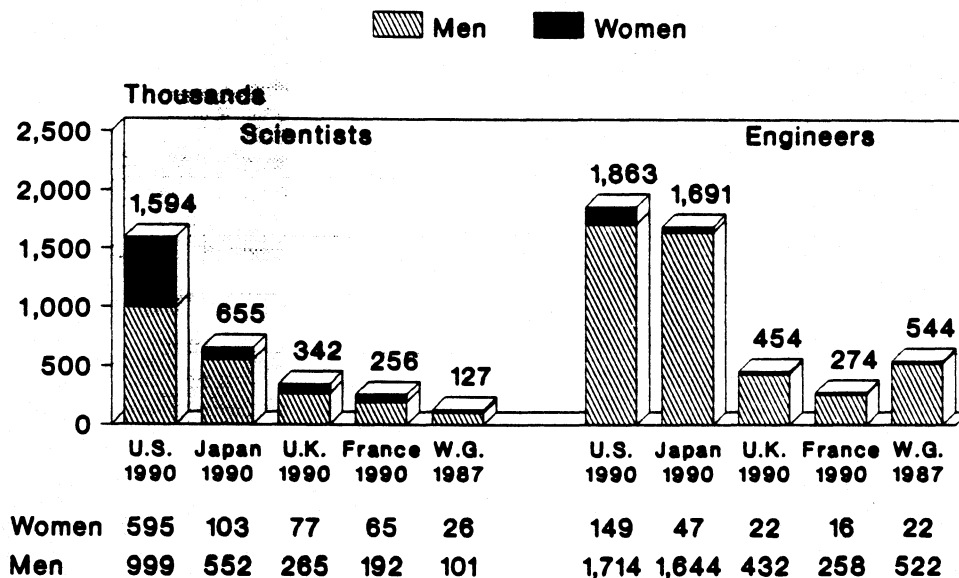


Source: Table "SUM" for the respective countries/areas.

In Absolute Numbers, the United States Has More Scientists and Engineers Than the Other Societies

In 1990, there were nearly 3.5 million scientists and engineers in the United States, far more than in Japan, its nearest competitor, which had about 2.3 million. Given the larger overall population of the United States, that is not surprising. However, compared with the United States, Japan poses some interesting contrasts: In 1990, Japan's total population was about half (49 percent) as large as that of the United States, and its total employed labor force was just over half (52 percent) as large. Japan had only 41 percent as many scientists, but 91 percent as many engineers as the United States. Of the total number of S/E, in Japan 72 percent were engineers; in the United States, 54 percent.

Figure B. Number of Scientists and Engineers, for Selected Countries or Areas: Circa 1990

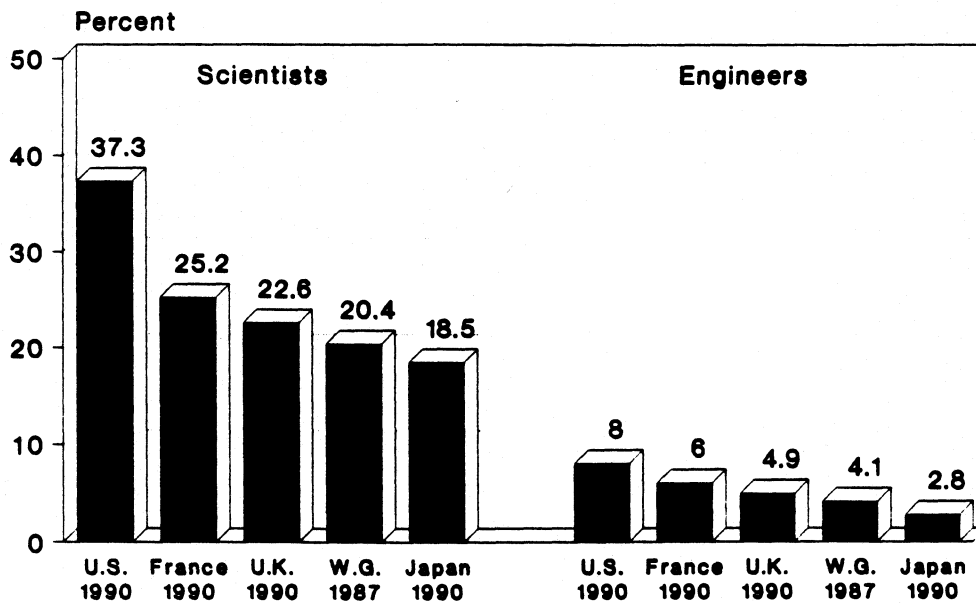


Source: Table "SUM" for the respective countries/areas.

The United States Leads by Far in the Proportion of All Scientists Who Are Women

In the United States, more than one out of three scientists (37 percent) are women. In France, the ratio is one out of four and, in Japan, it is less than one out of five. Among engineers, the proportion who are women is much smaller in all societies. The United States leads with 8 percent.

Figure C. Percent Female Among Scientists and Engineers, for Selected Countries or Areas: Circa 1990

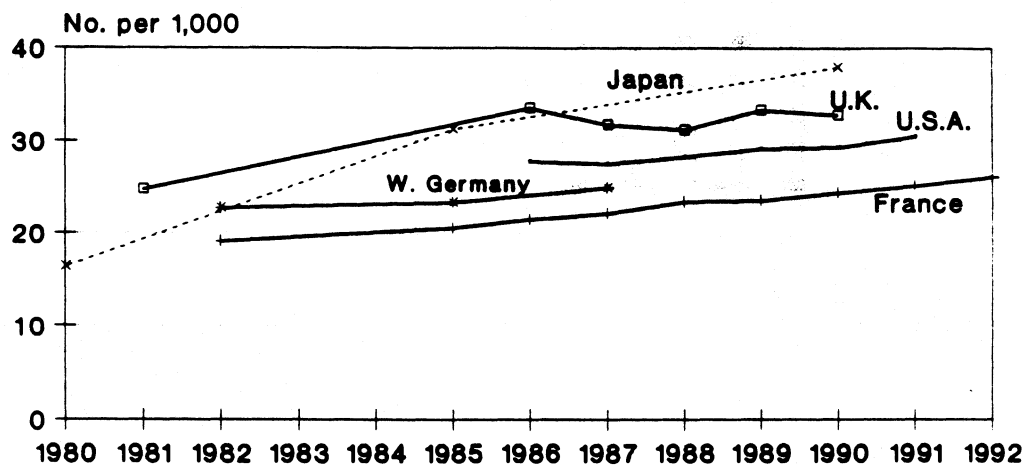


Source: Table "SUM" for the respective countries/areas.

Japan Rose From Lowest to Highest in Ratio of S/E per 1,000 Labor Force During the 1980's

Over the past decade, each of the five societies studied maintained its relative position in the number of scientists and engineers per 1,000 labor force, except for Japan, which rose from lowest to highest in this ratio. With only 16.4 scientists and engineers per 1,000 labor force in 1980, Japan's ratio had more than doubled, to 38.0 per 1,000 by 1990. All societies experienced an increase over the decade. In West Germany, the change appears to be the smallest, but the West German data represent a more limited time period than the others.

Figure D. Total Scientists and Engineers per 1,000 Labor Force, for Selected Countries or Areas: 1980 to 1992



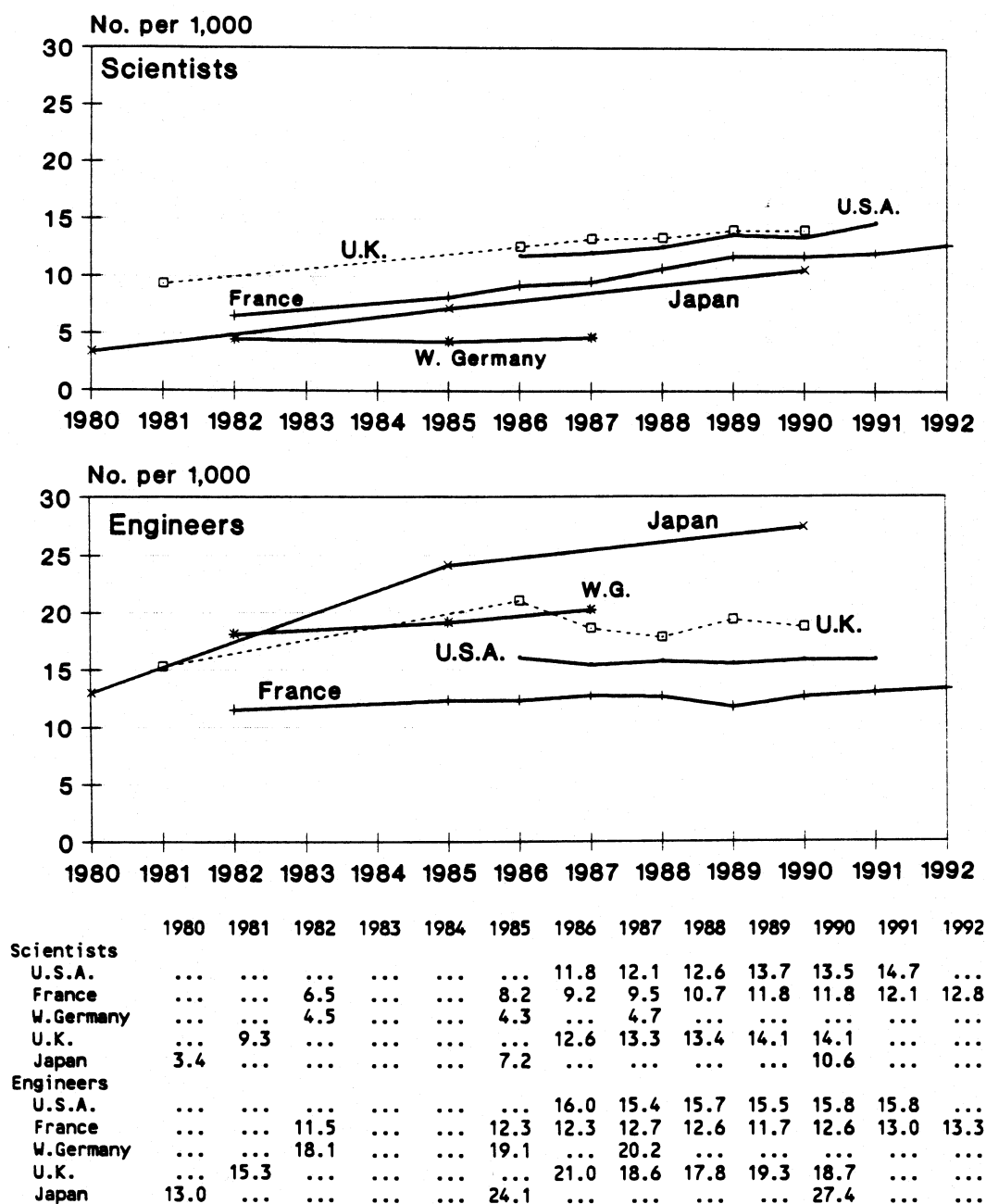
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
U.S.A.	27.8	27.5	28.3	29.2	29.3	30.5	...
France	18.1	...	...	20.6	21.5	22.1	23.4	23.5	24.4	25.1	26.1
W. Germany	22.7	...	...	23.3	...	24.9	...	...	...	...	...
U.K.	...	24.7	...	...	...	...	33.6	31.8	31.2	33.4	32.8	...	...
Japan	16.4	...	...	...	...	31.3	...	...	...	...	38.0	...	...

Source: Table "SUM" for the respective countries/areas.

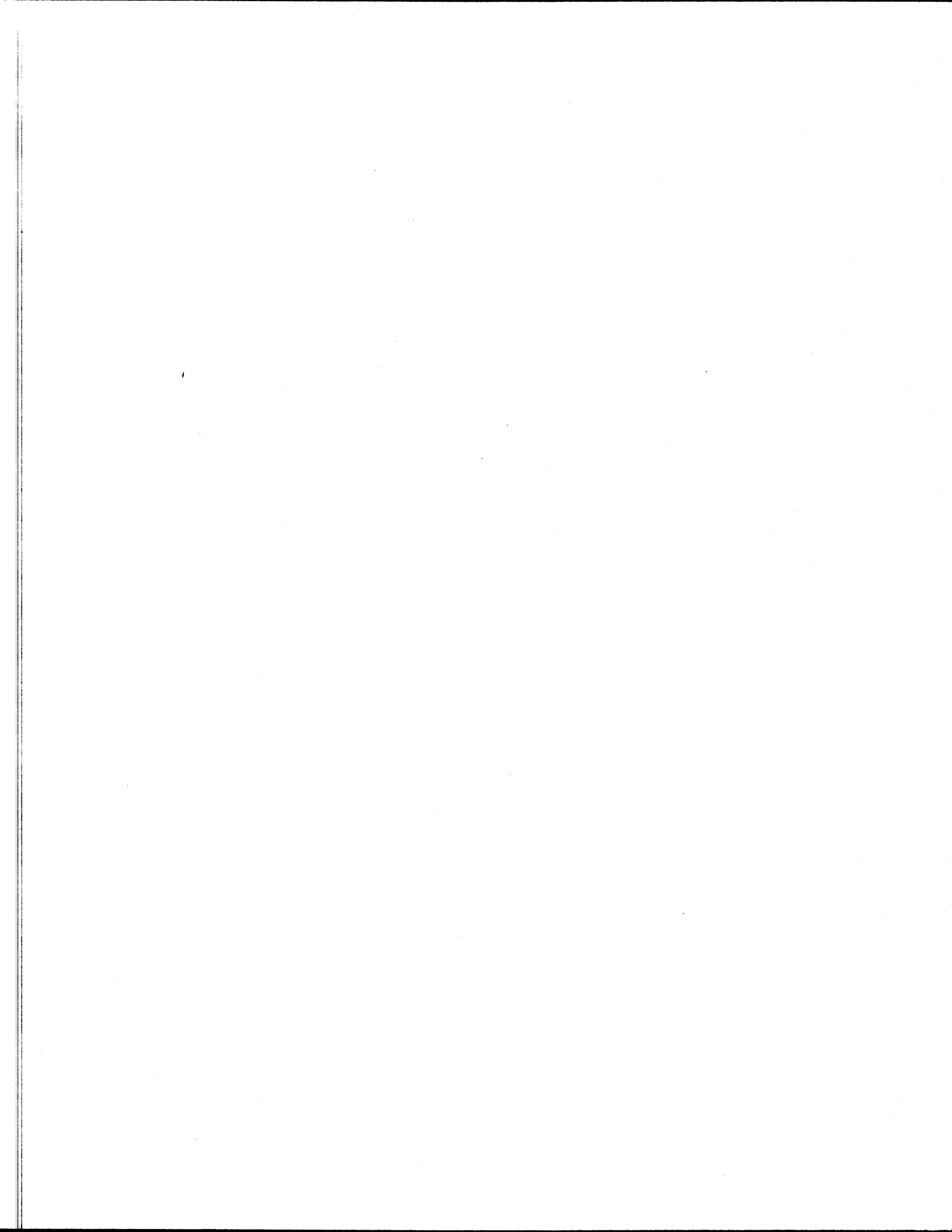
United Kingdom Consistently Surpasses Other Societies in Scientists per 1,000 Labor Force; Japan Has Far More Engineers per 1,000 Than the Others

Time series data show the United Kingdom maintaining a narrow lead over the United States in the number of scientists per 1,000 labor force. France and Japan consistently follow closely behind, while West Germany's supply of scientists remains considerably lower. In the ratio of engineers per 1,000 labor force, Japan started low at the beginning of the last decade but pulled far ahead of the others by 1990, while the United States was a distant fourth.

Figure E. Science and Engineering Occupations per 1,000 Labor Force, for Selected Countries/Areas: 1980 to 1992

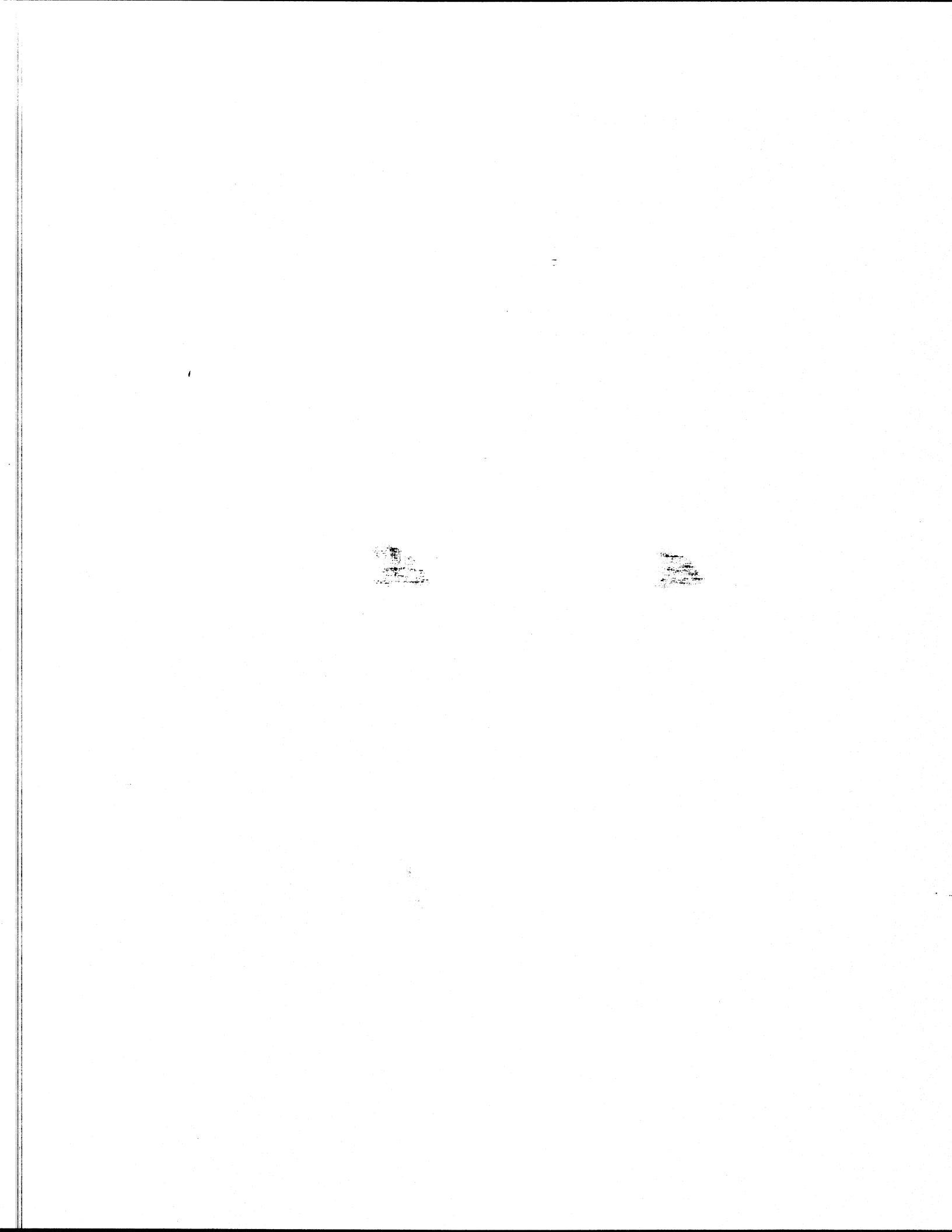


Source: Table "SUM" for the respective countries/areas.



Country/Area Presentations

FRANCE



INTRODUCTION

New information has become available to update the statistics in the international data base on Scientists and Engineers (S/E) for France. Previously, data were included from the 1982 population census and from annual employment surveys for 1985 through 1989.³ The Institut National de la Statistique et des Etudes Economiques (INSEE) has now provided data from the employment surveys of 1990, 1991, and 1992.

Total numbers are provided in appendix table FR-0 for detailed categories of S/E, including as many as 10 subcategories of industrial/mechanical engineers, but subsequent tables provide characteristics for only three broad categories for both scientists and engineers.

Even for these broader categories, users of this report should bear in mind the caveat appearing on all the detailed tables, that conclusions based on fewer than 10,000 cases should be interpreted with caution. Even when the numbers are somewhat larger, the survey data should be used to interpret only general trends and not minor fluctuations in annual figures. In particular, although all data are shown by gender, there are too few women S/E to support any detailed gender analysis based on the survey data.

Summary data for all years are presented in table FR-SUM, and selected data from the earlier reports are included in the charts to analyze trends. On some of the charts, time series are represented by fitting a curve to the points to smooth out fluctuations inherent in the survey data. On the tables, totals may vary slightly from one table to the next due to sampling and to independent rounding. All ratios of employed S/E per 1,000 labor force have been recalculated for this report using total employed labor force as a base for consistency with the numerator; in the previous reports, total labor force (employed plus unemployed) had been used as the denominator.

Table numbers in this report correspond by subject matter to those in earlier reports, with the number in parentheses indicating the year to which the data refer. For this reason, source notes on some of the figures show only table numbers for earlier years without mentioning the source title in which they were presented (the initial report in the series, presenting data for France for 1982, did not include the year in parentheses).

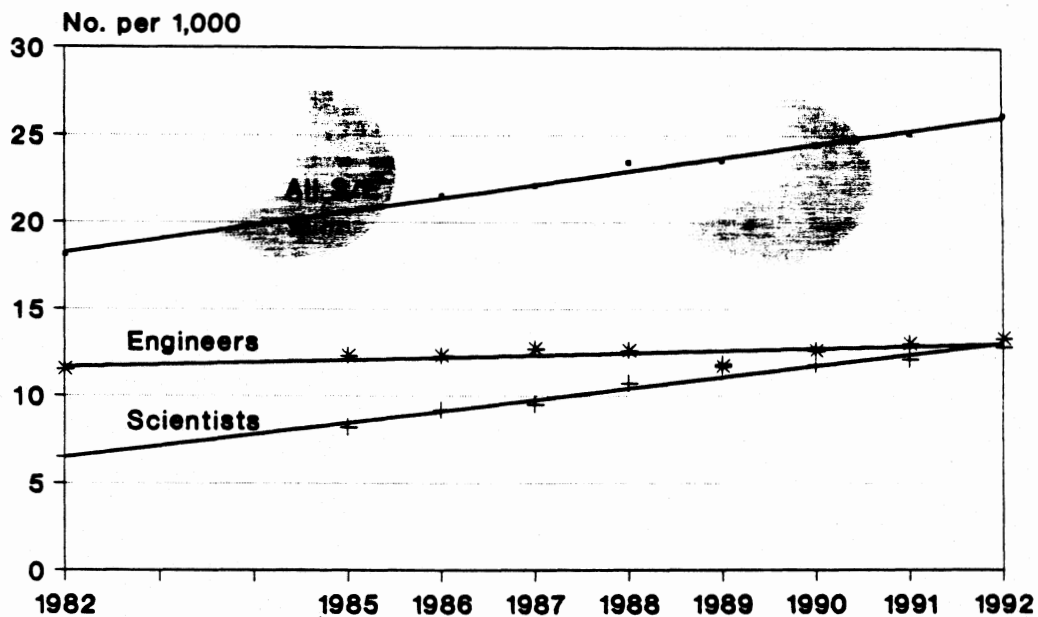
³CIR Staff Papers, No. 26, No. 51, and No. 63. See list at end of this report.

GRAPHIC PRESENTATION

Scientists Now Equal Engineers per 1,000 Employed Labor Force

Between 1982 and 1992, the ratio of all scientists and engineers to the total employed labor force increased from 18 per 1,000 to 26 per 1,000. The increase was due primarily to the increase in scientists, whose ratio nearly doubled, from 6.5 per 1,000 in 1982 to just under 13 per 1,000 in 1992. During the decade, the ratio of engineers increased only from 11.5 per 1,000 to just over 13 per 1,000 employed labor force.

Figure 1. Trend in Number of Scientists and Engineers per 1,000 Labor Force, for France: 1982 to 1992



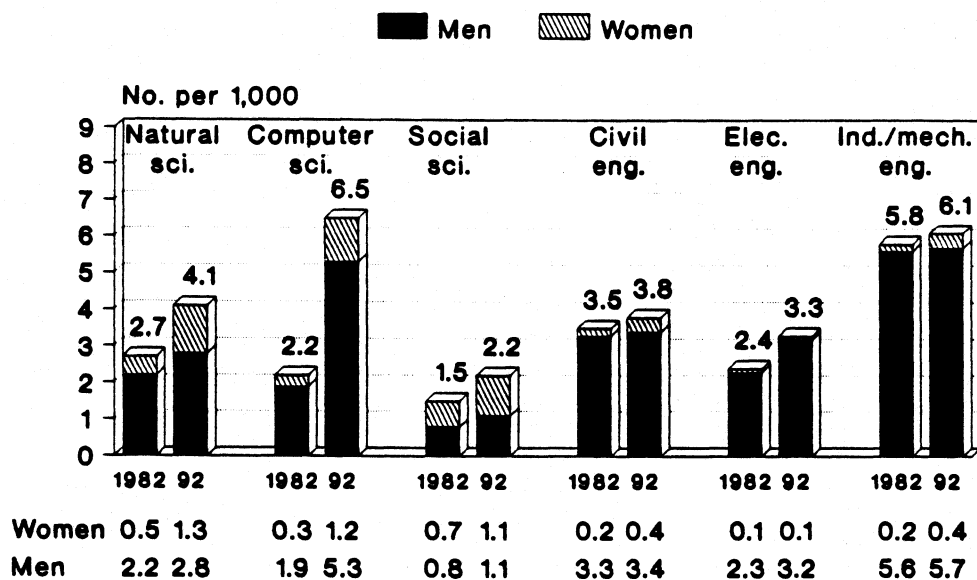
	1982	1985	1986	1987	1988	1989	1990	1991	1992
All S/E	18.1	20.6	21.5	22.1	23.4	23.5	24.4	25.1	26.1
Scientists	6.5	8.2	9.2	9.5	10.7	11.8	11.8	12.1	12.8
Engineers	11.5	12.3	12.3	12.7	12.6	11.7	12.6	13.0	13.3

Source: Table FR-SUM.

Computer Scientists Surpass All Other S/E Specialties per 1,000 Employed Labor Force

With 6.5 members per 1,000 employed labor force in 1992, the computer science profession makes up a larger proportion of the total labor force than any other S/E specialty. The increase in women computer scientists was especially large during the decade, having risen from 0.3 to 1.2 per 1,000 labor force. In 1982, the combined specialties of industrial/mechanical engineers had the most members per 1,000 labor force, but that group's ratio increased the least among all the S/E professions.

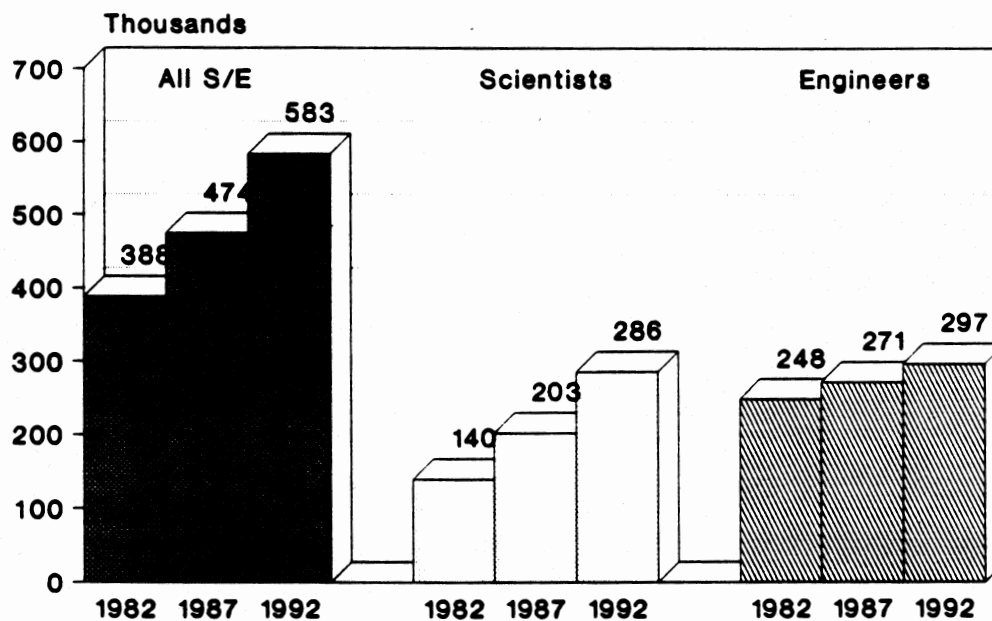
Figure 2. Scientists and Engineers per 1,000 Labor Force, by Specialty and Sex, for France: 1982 and 1992



Scientists and Engineers Number 583,000 in France in 1992

The number of S/E in France was half again as large in 1992 as it was a decade earlier, having increased from 388 thousand to 583 thousand during the period. Three-fourths of the growth was due to a doubling of the number of scientists, compared with a rise of only 20 percent in the number of engineers, since 1982. The disparity in growth between scientists and engineers has resulted in a near-convergence of their totals: both groups numbered slightly under 300,000 in 1992.

Figure 3. Trend in Number of Employed Scientists and Engineers, for France: 1982 to 1992

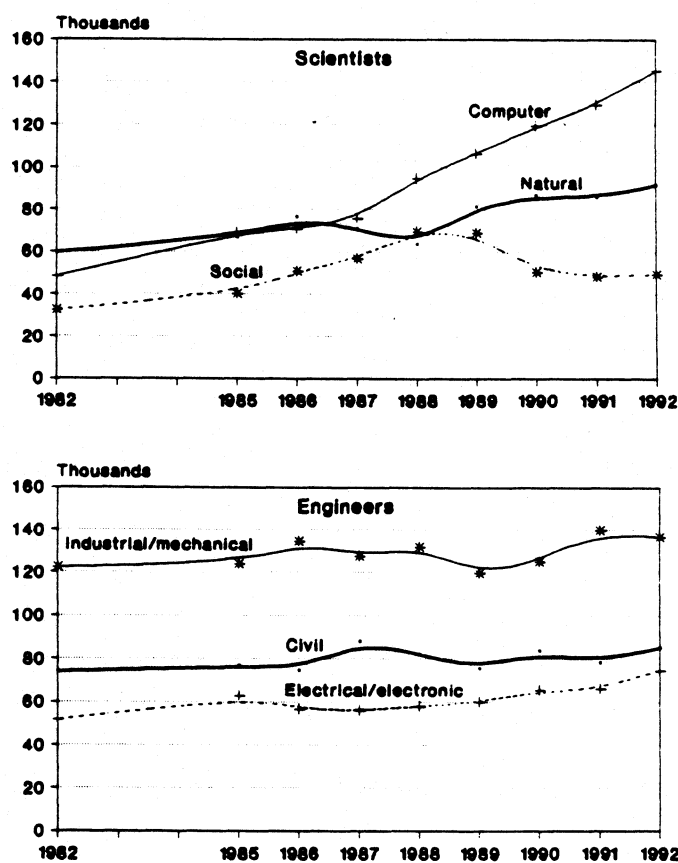


Source: Table FR-SUM.

Computer Scientists Now Comprise the Largest S/E Specialty

Although they had the second lowest number among the broad S/E occupational groups in 1982, computer scientists are now more numerous even than the combined categories of industrial/mechanical engineers, whose specialty dominated the S/E occupations throughout the decade. The number of computer scientists increased steadily throughout the period, from about 48 thousand in 1982 to 145 thousand in 1992, while the membership of other S/E occupations fluctuated, with much smaller net gains in each group.

Figure 4. Trend in Number of Employed Scientists and Engineers, by Specialty, for France: 1982 to 1992



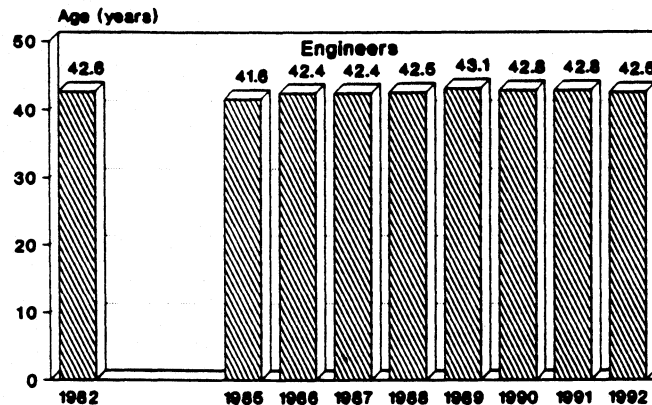
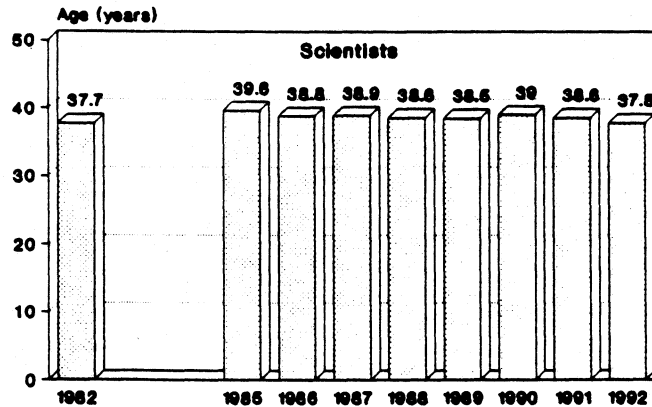
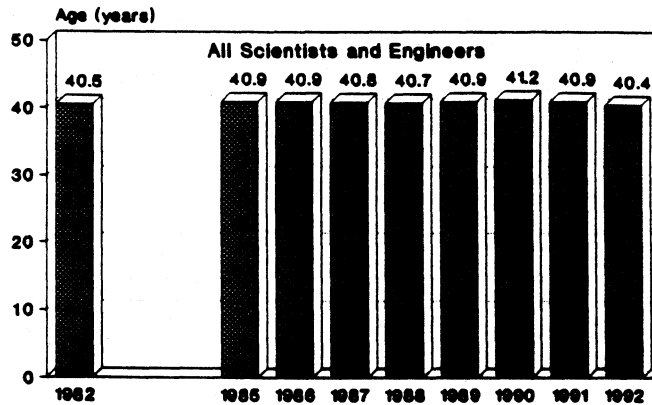
	1982	1985	1986	1987	1988	1989	1990	1991	1992
Scientists									
Natural	59,440	66,729	76,447	70,457	65,835	81,283	86,689	85,751	91,581
Computer	48,120	68,842	70,645	75,444	94,852	106,324	119,398	129,246	145,208
Social	32,420	39,980	50,657	56,640	69,493	68,671	50,336	48,237	49,587
Engineers									
Civil	73,840	76,654	74,426	87,966	81,928	75,565	83,871	78,332	85,313
Elec./elec.	51,600	62,488	56,531	56,002	57,886	60,011	65,282	65,945	74,658
Ind./mech.	122,440	123,752	134,668	127,388	131,887	119,384	125,092	139,594	136,601

Source: Table FR-SUM.

Median Age of S/E Changed Little Over the Past Decade

Half of all scientists and engineers are under 40 years of age, and half are older. The median age in 1992 is about the same as it was in 1982. And, as before, scientists are about 5 years younger than engineers, with median ages of 38 years and 43 years, respectively, for the two groups.

Figure 5. Trend in Median Age of Employed Scientists and Engineers, for France: 1982 to 1992

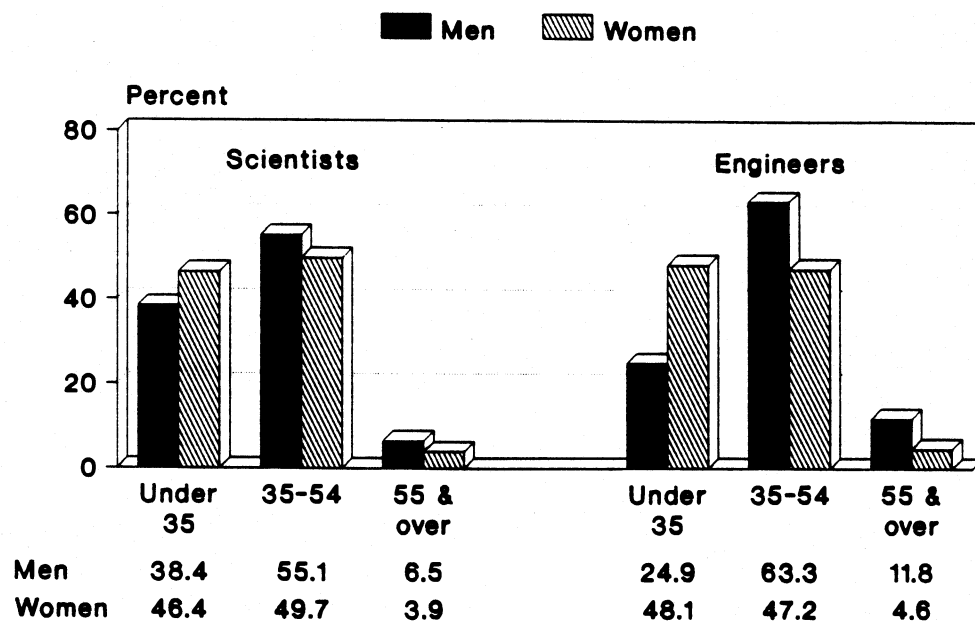


Source: Table FR-1 for the respective years.

Women Scientists and Engineers Tend to Be Younger Than Their Male Colleagues

Among engineers, women are almost twice as likely as men to be under 35 years of age, 48 percent compared with 25 percent, respectively. Among scientists, women are also younger than men, but the discrepancy is smaller.

Figure 6. Scientists and Engineers, by Age Group and Sex, for France: 1992

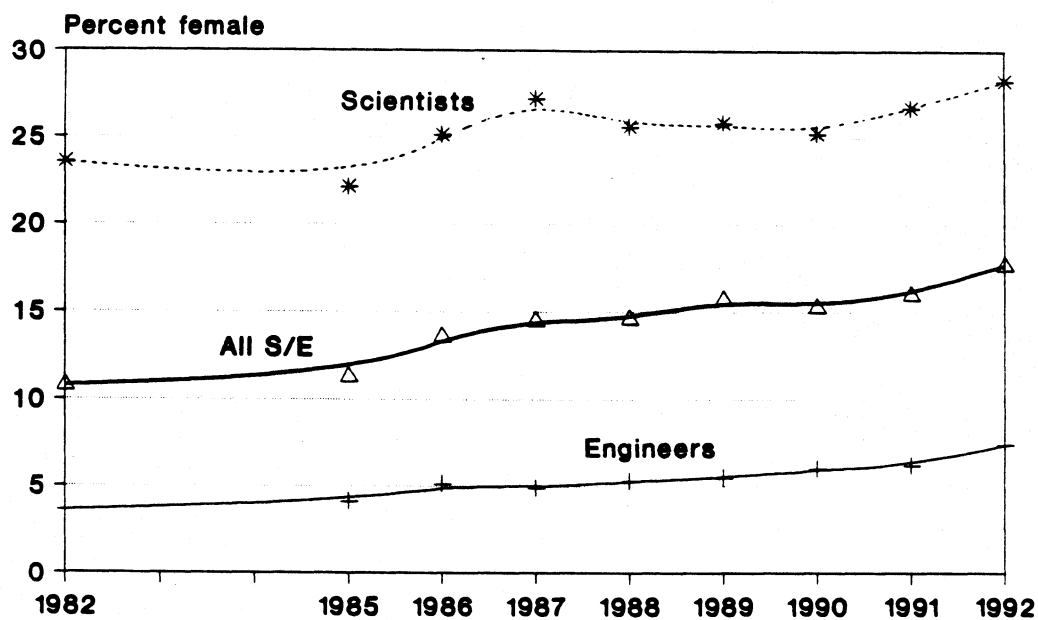


Source: Table FR-1(92).

Women Comprise Larger Proportion of Scientists Than of Engineers, but Women's Share Is Increasing Faster Among Engineers

In 1992, women comprised about 28 percent of all scientists in France, and about 7 percent of engineers. Among engineers, women's share had more than doubled, from just 3.6 percent in 1982, while among scientists it had increased by only 5 points, from 23.5 percent in 1982.

Figure 7. Trend in Percent Female Among Employed Scientists and Engineers, for France: 1982 to 1992



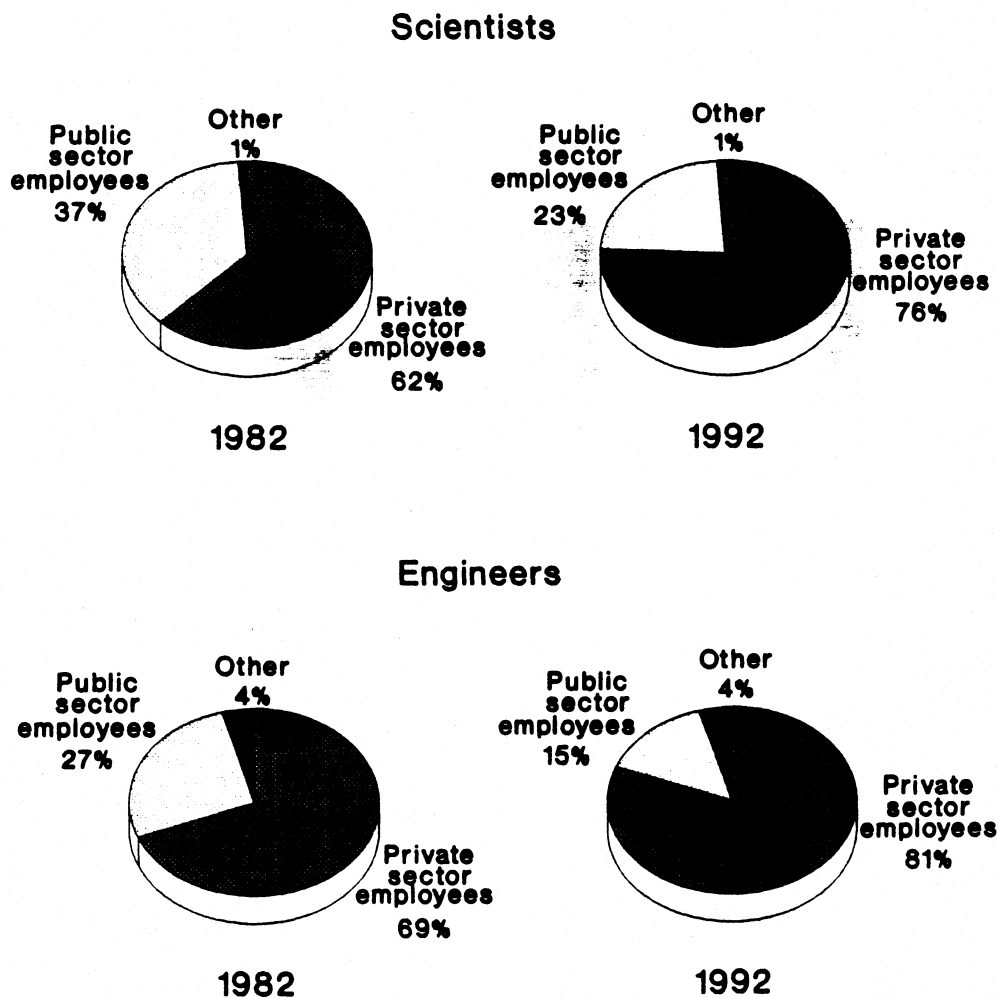
	1982	1985	1986	1987	1988	1989	1990	1991	1992
All S/E	10.8	11.3	13.6	14.5	14.6	15.7	15.3	16.0	17.7
Scientists	23.5	22.1	25.1	27.2	25.6	25.8	25.2	26.7	28.3
Engineers	3.6	4.1	5.1	4.9	5.3	5.5	6.0	6.2	7.4

Source: Table FR-SUM.

Scientists and Engineers Are Increasingly Choosing Private Sector Employment

In 1992, 76 percent of scientists and 81 percent of employed engineers were private sector employees, up from 62 percent and 69 percent, respectively, in 1982. The proportion of S/E employed in the public sector decreased proportionately, while employers and self-employed S/E remained at just 1 percent and 4 percent among scientists and engineers, respectively.

Figure 8. Distribution of Scientists and Engineers, by Status in Employment, for France: 1982 and 1992



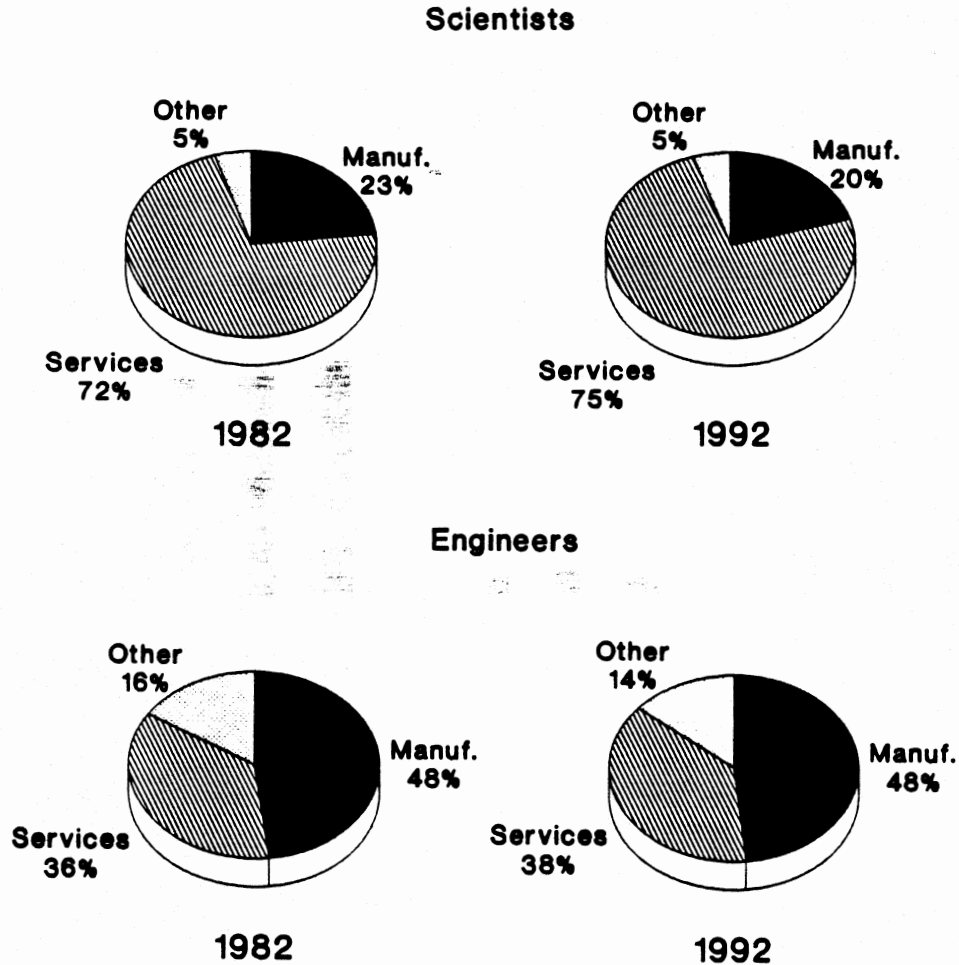
Note: "Other" refers to employers and self-employed.

Source: Table FR-2 for the respective years.

Three-Fourths of Scientists Work in Service Industries, While Engineers Tend to Work in Manufacturing

The distribution of S/E by industry has changed little since 1982, with most scientists working in services and nearly half of engineers in manufacturing. Engineers (14 percent) are more likely than scientists (5 percent) to work outside of either of these two industries. Among those who stated their industry in 1992, most "other" engineers were in construction and mining.

Figure 9. Percent Distribution of Employed Scientists and Engineers, by Industry, for France: 1982 and 1992



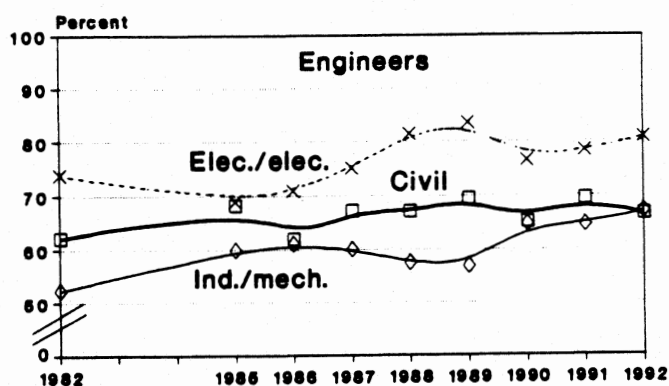
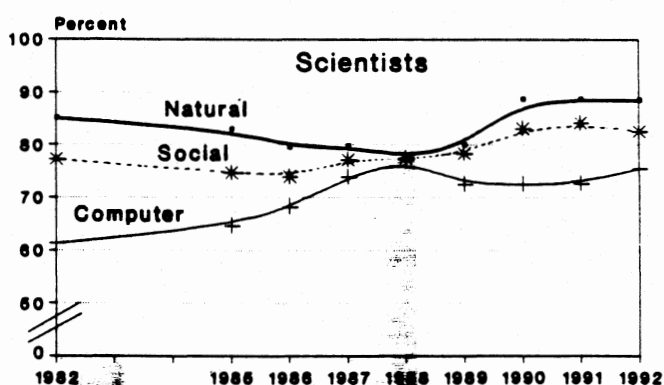
Manufacturing: Manufacturing; electricity, gas and water.
Services: Wholesale and retail trade; transportation and communication; and services.
Other: Agriculture, forestry and fishing; mining; construction; and industry not stated.

Source: Table FR-3 for the respective years.

Scientists and Engineers Are Increasingly Well Educated

Although the figures tend to fluctuate in the survey data, all S/E occupation groups show a net gain over the last decade in the percent with a university degree. Gains were largest among computer scientists and the combined group of industrial/mechanical engineers. Nevertheless, natural and social scientists tend to have the largest proportion with university degrees. Among engineers, the electrical and electronic engineers have the highest proportion.

Figure 10. Percent of Employed Scientists and Engineers with University Degree, for France: 1982 to 1992



	1982	1985	1986	1987	1988	1989	1990	1991	1992
Scientists									
Natural	85.0	82.9	79.4	79.7	77.5	79.9	88.6	88.6	88.5
Computer	61.3	64.5	68.1	73.9	77.2	72.5	72.5	72.6	75.5
Social	77.2	74.6	73.8	77.1	77.4	78.3	83.0	84.1	82.6
Engineers									
Civil	62.1	68.1	61.8	67.2	67.0	69.4	65.1	69.4	66.5
Elec./elec.	73.8	68.9	70.9	75.1	81.4	83.5	76.4	78.3	80.8
Ind./mech.	52.3	59.9	60.9	60.0	57.5	56.9	64.7	64.6	67.0

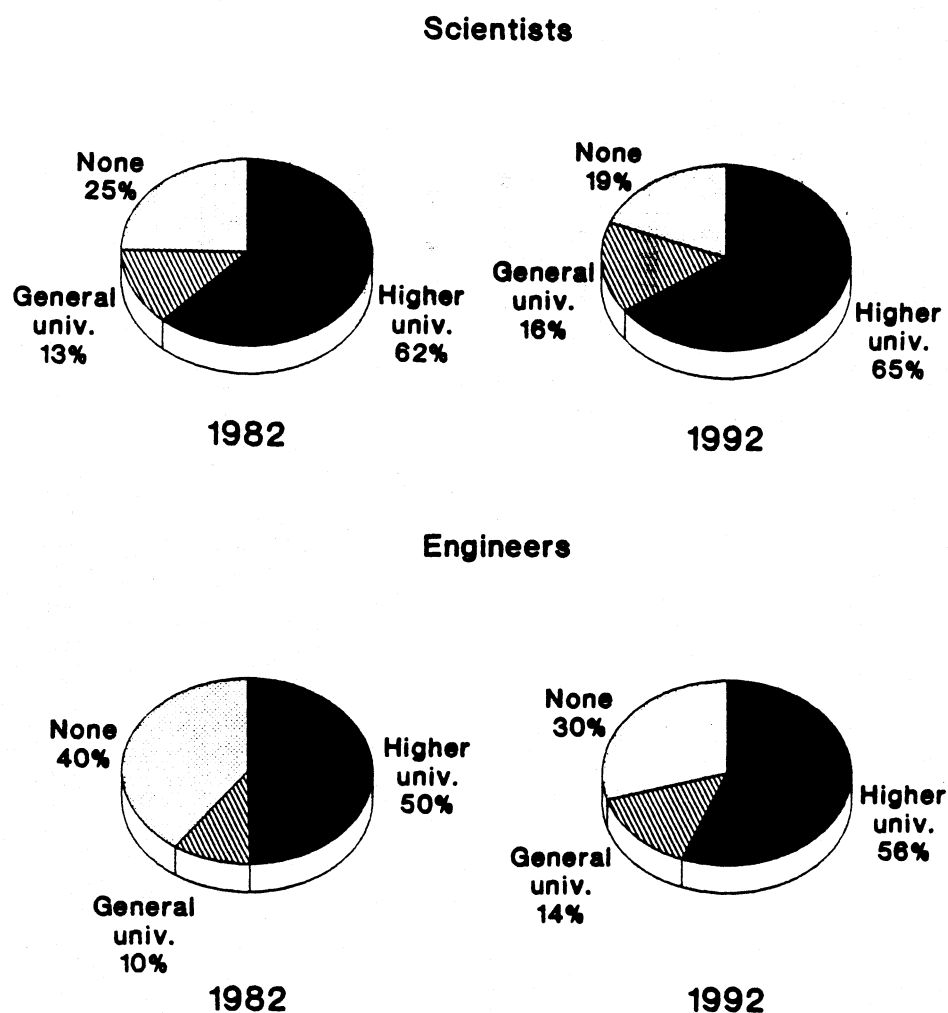
Note: University degree includes general university degree and higher university degree.

Source: Table FR-6 for the respective years.

Nearly Two-Thirds of Scientists Have Higher University Degree

The increasing tendency among scientists and engineers to have a university degree is evident at both levels of degree--the general university degree and the higher university degree, the latter referring principally to graduates of the prestigious *grandes écoles*. Well over half of engineers and almost two-thirds of scientists have the higher degree.

Figure 11. Percent Distribution of Employed S/E, by Level of University Degree, for France: 1982 and 1992



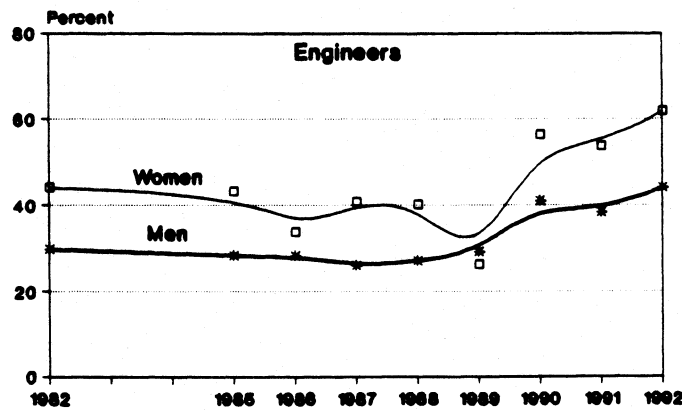
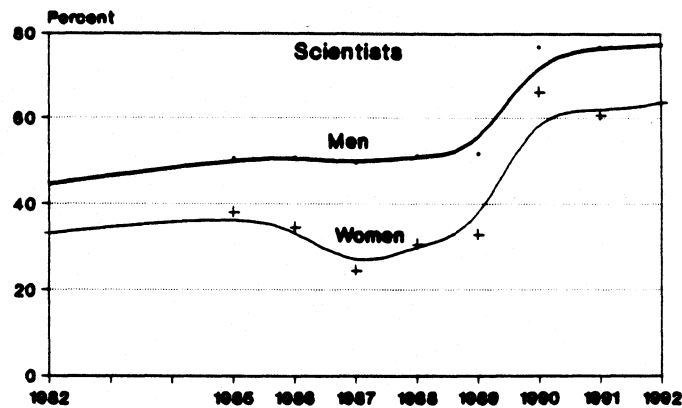
Note: "None" refers to persons with general education diploma or below; technical diploma; and educational attainment not stated.

Source: Table FR-6 for the respective years.

Gender Differences Apparent Among Scientists and Engineers in Research and Development

When scientists and engineers were queried about their "principal function," over six-tenths of women in both broad occupation groups cited research and development as their major activity in 1992. In science, the proportion in R & D was higher among men than women, but in engineering it was lower. For both sexes, the proportion has fluctuated somewhat in the survey data throughout the past decade, but shows a considerable net gain for both scientists and engineers when comparing 1992 with 1982.

Figure 12. Percent of S/E Whose Principal Function Is Research and Development, for France: 1982 to 1992



	1982	1985	1986	1987	1988	1989	1990	1991	1992
Scientists									
Men	44.7	50.6	50.8	49.5	51.1	51.6	76.7	76.7	77.3
Women	33.2	38.0	34.5	24.4	30.5	32.9	66.0	60.7	63.8
Engineers									
Men	29.8	28.2	28.3	25.9	27.0	29.2	41.0	38.3	44.0
Women	44.0	43.1	33.8	40.7	40.1	26.1	56.2	53.6	61.7

Source: Table FR-7 for the respective years.



WEST GERMANY

INTRODUCTION

This report presents data on Scientists and Engineers (S/E) in West Germany⁴ based on the 1987 census, including comparisons with earlier years. It supersedes the West German data in a report prepared in 1991,⁵ when information was not yet available for most characteristics of S/E, and not at all by gender.

Earlier reports⁶ in this series presented information for West Germany from the 1982 population census and the 1985 microcensus, or sample survey. Table WG-SUM summarizes the information for all years. As before, from the 1987 population census we select the occupations pertaining to science and engineering and present cross-classifications by various characteristics. This update repeats the information in the previous one, adds data by gender, and adds charts and tables on S/E by status in employment, industry, and training.

As before, the German data differ from those of other societies in the S/E data base in that chemical engineers are included with chemists and thus are classified as natural scientists rather than as engineers. Computer scientists are not shown as a separate category in German data, and geographers are included among natural scientists instead of among social scientists. Although a 6-digit classification is available that would allow the assignment of these occupations to their "proper" categories, the cross-classifications would require special tabulations that have not been made. In any event, the 1987 data on occupation are generally consistent with the earlier data for West Germany if not with those from other countries. However, some peculiarities should be noted for the characteristics.

Age. For 1987, data by gender were provided only by 10-year age groups. While table WG-1(87) shows S/E occupations by 5-year age groups for both sexes, table WG-1A(87) presents the broader age groups by gender.

Status. For 1987, data on status in employment (self-employed, officials, and employees) were tabulated only for broad occupational categories, and so most individual S/E occupations were not reported separately. Thus, on table WG-2(87), scientists are divided into only two subgroups, and even then the arts are included because they could not be separated out. Because the arts

⁴Although we recognize that East and West Germany have been reunited into a single Germany, we use the term "West Germany" in this report because the statistical data for 1987 and earlier years pertain specifically to the former Federal Republic of Germany.

⁵CIR Staff Paper, No. 63. See list at end of this report.

⁶CIR Staff Paper, No. 26 and No. 51; and U.S. Bureau of the Census, 1988, *Recent Data on Scientists and Engineers in Industrialized Countries*, unpublished report prepared for the National Science Foundation.

are included, the total S/E on that table is larger than on the others. For engineers, no subgroups of occupation were available by status.

Industry. For 1987, data on industry were tabulated for even broader occupational groups. Thus, table WG-3(87) presents a distribution by industry for a single group of occupations which includes only engineers, chemists, physicists, and mathematicians. In the original source's cross-tabulation by industry, other S/E categories were combined with too many unrelated occupations to be meaningful for our purposes.

Training. For 1987, for all individual S/E occupations, information was reported on whether or not respondents had training, regardless of the subject matter or duration of training. These data are presented here in table WG-4A(87). They do not correspond to tables WG-4 (for 1982) and WG-4(85) on educational attainment, nor to table WG-6 (for 1982) on field of training, as presented in earlier reports.

Occupation for which trained. For 1987, for all individual S/E occupations, information was reported for respondents with training of 2 years duration or more in the occupation for which the respondent was trained. These data are presented here in table WG-4B(87). The concept reflected in this table differs from the "field of training" reported in table WG-6 (for 1982) in an earlier report, where fields of training were designated independently of occupational categories. It is not clear why no one was reported in the 1987 census data as having been trained in the occupations of engineer, chemist, physicist, or mathematician. Totals "with training" differ between tables WG-4A(87) and WG-4B(87) because of the "2 years duration" restriction in the latter.

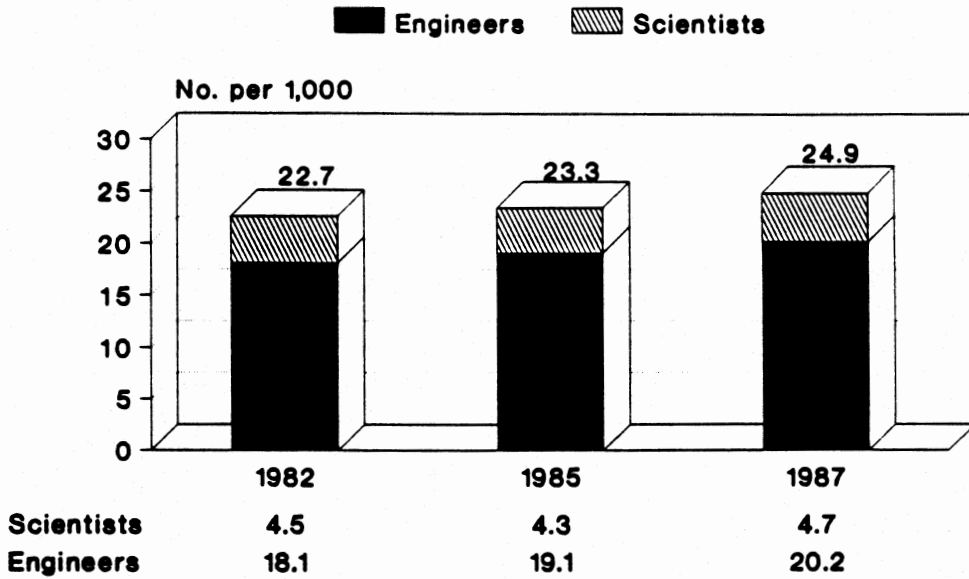
Insofar as possible, table numbers in this report correspond to those in earlier reports, with the number in parentheses indicating the year to which the data refer. Thus, Table WG-1(87) in this report presents S/E by 5-year age groups, just as WG-1(85) in the 1988 update presented such data for 1985. For this reason, source notes on the figures show only table numbers for earlier years without mentioning the source title in which they were presented. In this report, tables with a letter following the table number present information on the same topic as a table without the letter added, but in a different format or with different definitions. For example, table WG-1(87) presents S/E by 5-year age groups, while table WG-1A(87) presents broad age groups; and tables WG-4A(87) and WG-4B(87) present S/E by training but not by conventional categories of educational attainment as presented in table WG-4(85) in an earlier report.

GRAPHIC PRESENTATION

Trend of S/E per 1,000 Labor Force Shows Gradual Increase for West Germany

During the 5-year period represented by the data, the number of S/E increased from 23 to 25 per 1,000 labor force in West Germany. The increase was proportionately larger among engineers than among scientists.

Figure 13. Trend in Number of Scientists and Engineers per 1,000 Labor Force, for West Germany: 1982 to 1987

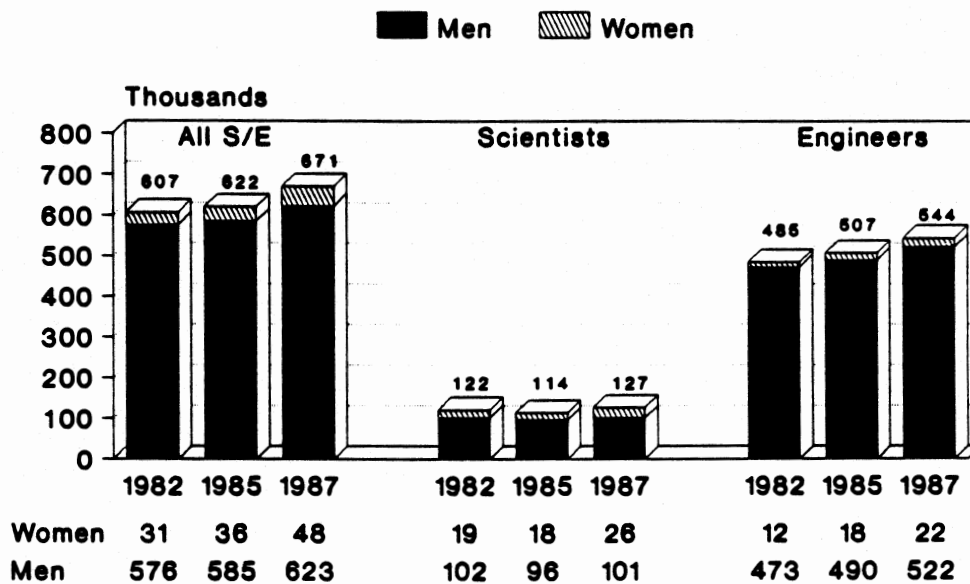


Source: Table WG-SUM.

Number of Engineers Is Increasing Faster Than Number of Scientists

The absolute number of S/E increased from 606,800 in 1982 to over 671,300 in 1987, or by about 11 percent. While the number of engineers increased by 12 percent during the period, the number of scientists increased by only 4 percent. Although there are still few women S/E compared to their male counterparts, the number of women is increasing at a much faster pace. The number of women engineers nearly doubled between 1982 and 1987, from 11,600 to over 22,100, while the number of men engineers increased by only 10 percent, from 473,300 to 522,300. Among scientists, the whole increase was due to the addition of women, whose number increased by 34 percent, while the number of men scientists actually decreased.

Figure 14. Trend in Number of Scientists and Engineers, for West Germany: 1982 to 1987

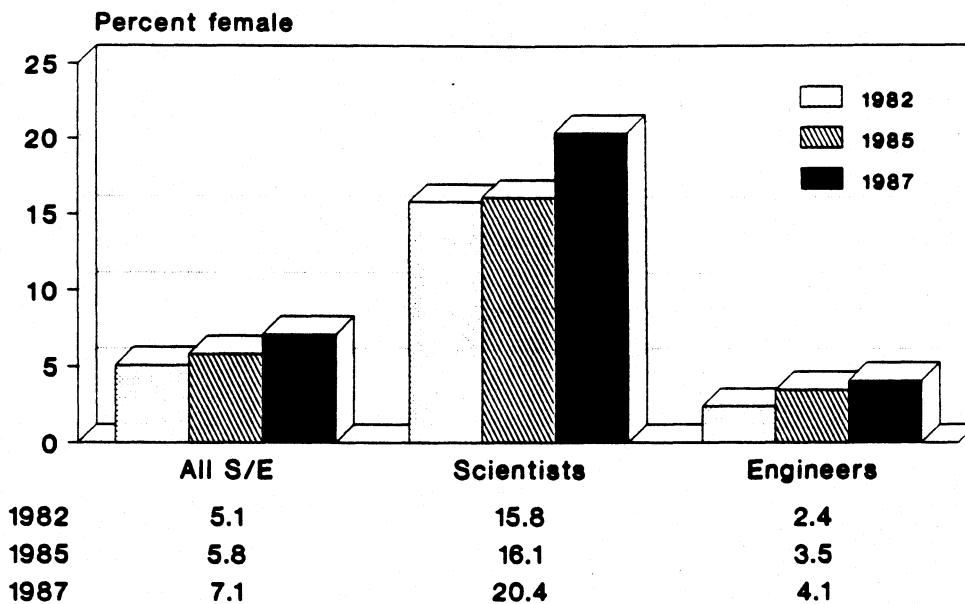


Source: Table WG-SUM.

Women Are Gaining Ground as a Percent of All S/E

Consistent with their faster growth, the proportion of all S/E who are women is increasing. In 1982, women comprised about 16 percent of all scientists and 2.4 percent of all engineers. By 1987, these proportions had increased to 20 percent and 4 percent, respectively.

Figure 15. Trend in Percent Female Among Scientists and Engineers in West Germany: 1982 to 1987

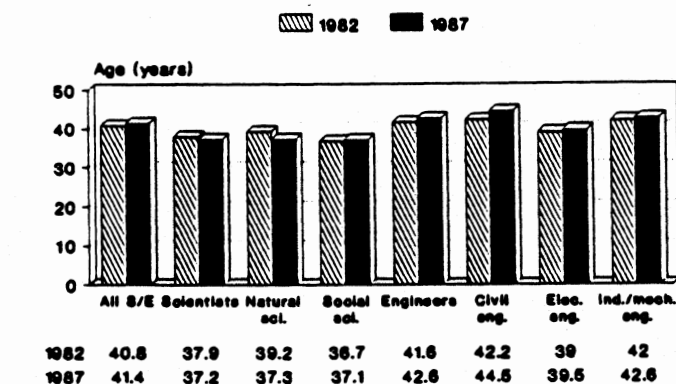


Source: Table WG-SUM.

Among All S/E, Only Natural Scientists Are Becoming Younger as a Group

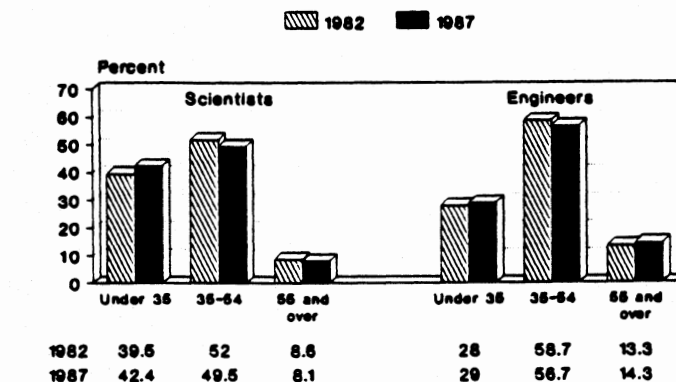
The median age of natural scientists decreased by nearly 2 years between 1982 and 1987, while that of social scientists increased. As natural scientists are more numerous than their counterparts in social science, the overall proportion of scientists in the youngest age group (under 35 years) increased slightly, while the proportion over age 35 years decreased. Among engineers, the overall median age increased by 1 year; among civil engineers the increase was over 2 years, while among other engineers it was just a fraction of a year.

Figure 16. Median Age of Scientists and Engineers, for West Germany: 1982 and 1987



Source: Tables WG-1 and WG-1(87).

Figure 17. Scientists and Engineers, by Age Group, for West Germany: 1982 and 1987

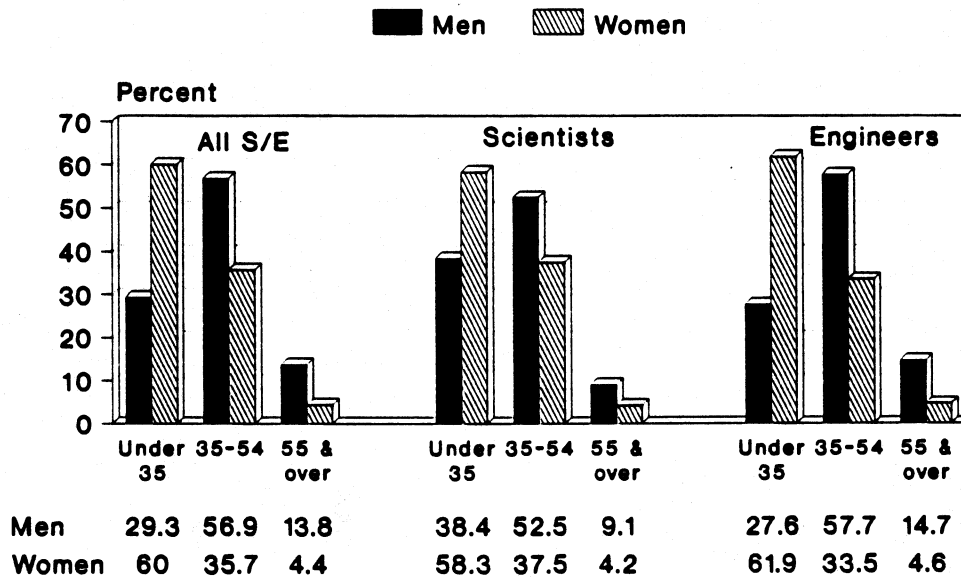


Source: Tables WG-1 and WG-1(87).

Six Out of Ten Women S/E Are Under 35 Years of Age

Women S/E are considerably younger than men S/E, reflecting the recent influx of women into these professions. Less than 30 percent of men S/E are under age 35 years, but 60 percent of women S/E are in this youngest age group. The gender discrepancy is smaller among scientists than engineers, due mainly to the relative youth of male scientists compared to male engineers, as there is not much age difference between the two subgroups among women.

Figure 18. Scientists and Engineers, by Age Group and Sex, for West Germany: 1987

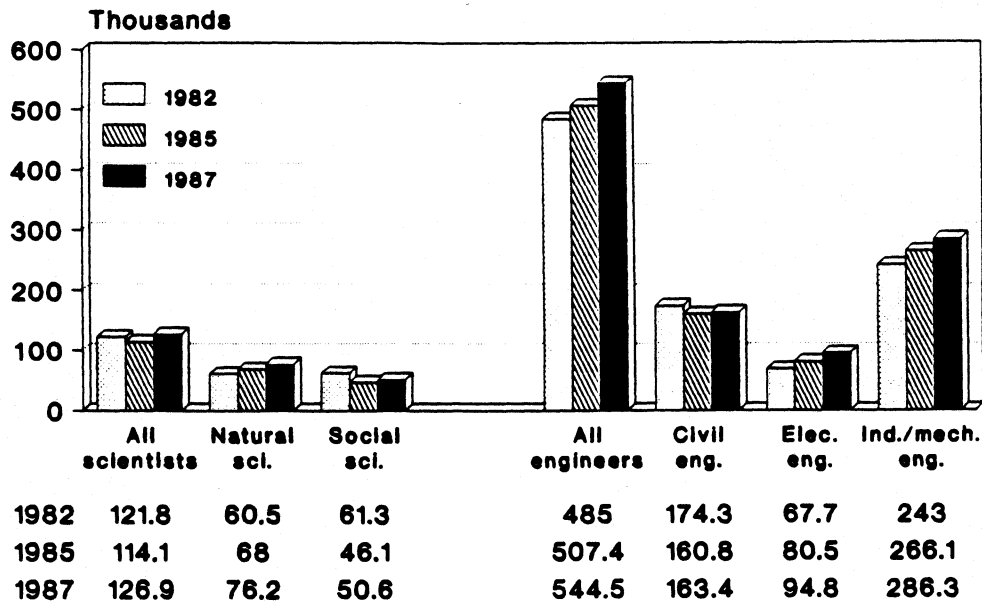


Source: Table WG-1A(87).

Natural Scientists and Electrical/Electronic Engineers Show Largest Increase Between 1982 and 1987

The number of electrical and electronic engineers increased by 40 percent during the 5-year period represented, and the number of natural scientists increased by 26 percent. In contrast, the numbers of persons reporting themselves as civil engineers and social scientists were smaller in 1987 than in 1982. However, industrial/mechanical engineers are still the most numerous of the individual S/E occupational categories.

Figure 19. Trend in Number of Scientists and Engineers, by Specialty, for West Germany: 1982 to 1987

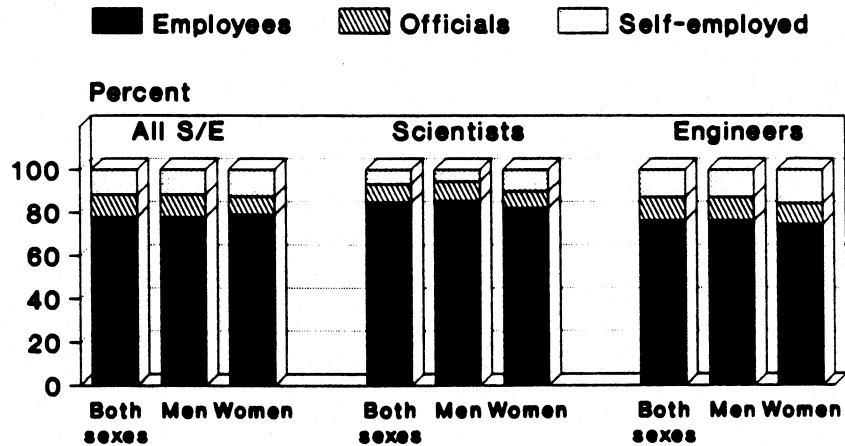


Source: Table WG-SUM.

Most S/E Have "Employee" Status

Close to 80 percent of all S/E are classified as employees, while about 1 in 10 are government officials and a slightly larger proportion are self-employed. Among both scientists and engineers, proportionately more women than men are self-employed and fewer are government officials.

Figure 20. Distribution of S/E, by Status in Employment, for West Germany: 1987



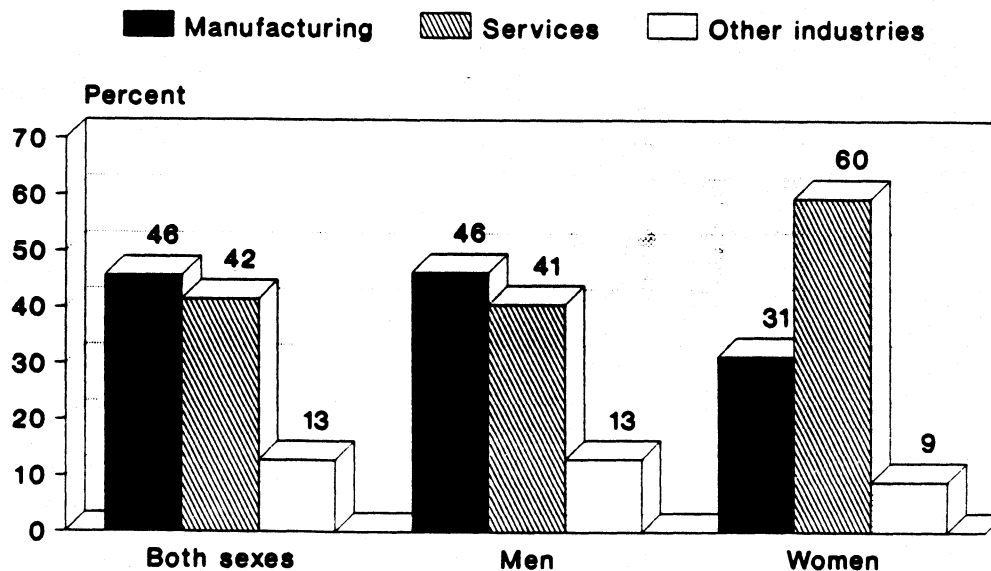
	All S/E			Scientists			Engineers		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
Self-employed	11.5	11.4	12.4	6.6	5.6	10	12.8	12.6	15.9
Officials	10.5	10.7	8.4	8.6	8.9	7.7	11	11.1	9.5
Employees	78	77.9	79.1	84.8	85.5	82.2	76.2	76.3	74.6

Source: Table WG-2(87).

Among Selected S/E Occupations, Manufacturing and Service Work Predominate

Although information is available only for selected occupations, it is apparent that most scientists and engineers are engaged in the manufacturing and service industries. Among men, the tendency is slightly greater toward manufacturing but, among women, twice as many work in service industries as in manufacturing.

Figure 21. Distribution of Selected S/E Occupations, by Industry, for West Germany: 1987



Note: Data refer only to engineers, chemists, and mathematicians.

Manufacturing: Manufacturing only (excludes energy and water).

Services: Trade; transportation and communication; banking and insurance; local government and social security; and other services.

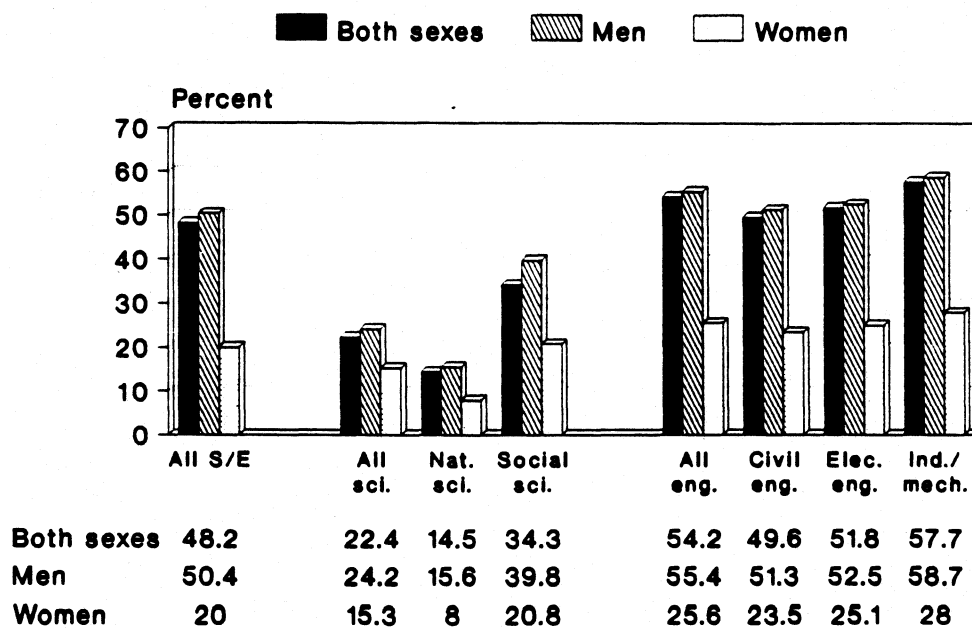
Other: Agriculture, forestry, and fishing; energy, water, and mining; construction; and organizations without private household workers.

Source: Table WG-3(87).

Fewer Than Half of S/E Have Practical Training

Among all S/E, only 48 percent report having had some practical training and, among women, the proportion is only 20 percent. Engineers are far more likely than scientists, and social scientists more likely than natural scientists, to have had practical training.

**Figure 22. Percent of S/E with Training,
for West Germany: 1987**

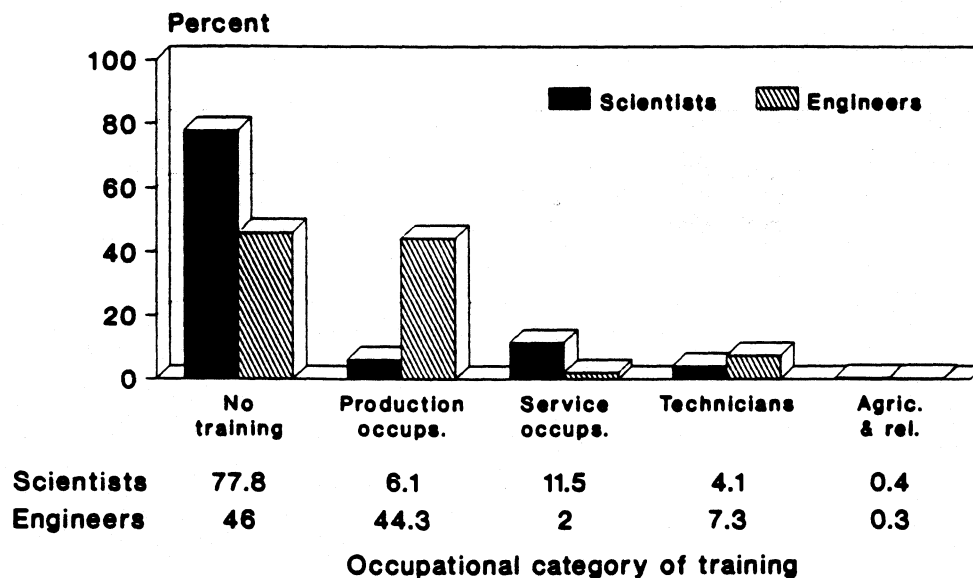


Source: WG-4A(87).

Among S/E With Training, Most Engineers Are Trained in Production Occupations, Scientists in Services

Although nearly half of engineers report they have had no practical training, most of those with at least 2 years training are trained in production occupations. Of the 22 percent of scientists with practical training, half are trained in service occupations and over a fourth in production occupations. Although a small proportion of S/E report their training to be in technician occupations, it is not clear why none are reported to be trained as engineers, chemists, physicists, or mathematicians.

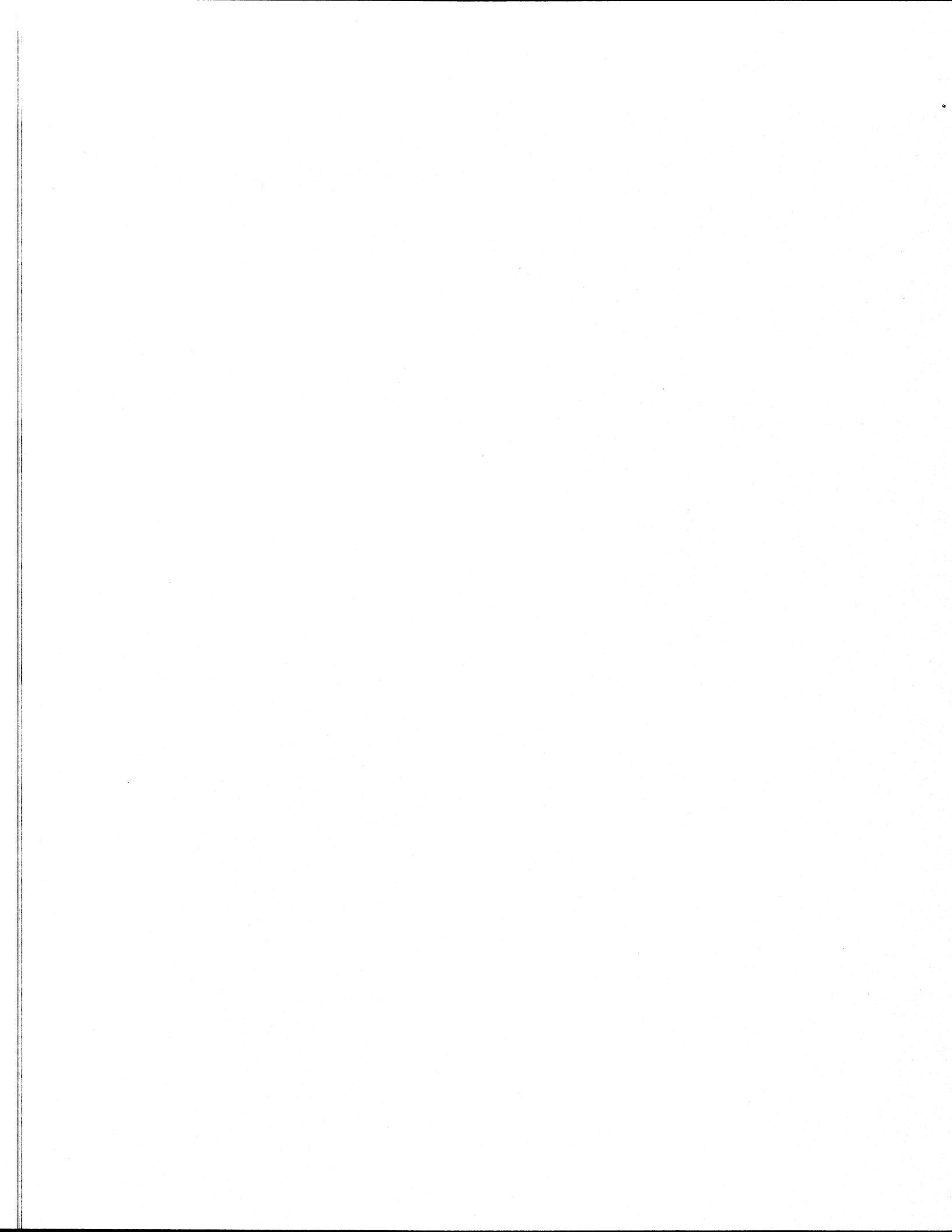
Figure 23. Actual Occupation by Occupation for Which Trained, for West Germany: 1987



Note: Service occupations include 127 persons (91 scientists and 36 engineers) trained in social science, education, arts, and natural science occupations.

Source: Table WG-4B(87).

UNITED KINGDOM



INTRODUCTION

This report presents new data on employed Scientists and Engineers (S/E) in the United Kingdom based on the labor force surveys of 1987 through 1990 and some comparisons with similar data based on the 1981 census and the labor force survey of 1986 as presented in earlier reports.⁷ Table UK-SUM summarizes the information for all years. Insofar as possible, table numbering for other tables in this report corresponds by subject matter to tables in the earlier reports, with the number in parentheses indicating the year to which the data refer. For this reason, source notes on some of the figures show only table numbers without mentioning the title of the source in which they were presented. Some measures from the earlier reports have been recalculated here.

Data from the surveys are subject to sampling variation, and comparisons based on small numbers should be interpreted with caution. On some of the charts, time series are represented by fitting a curve to the points to smooth out fluctuations inherent in the survey data. On the tables, totals may vary slightly from one table to the next due to sampling and to independent rounding.

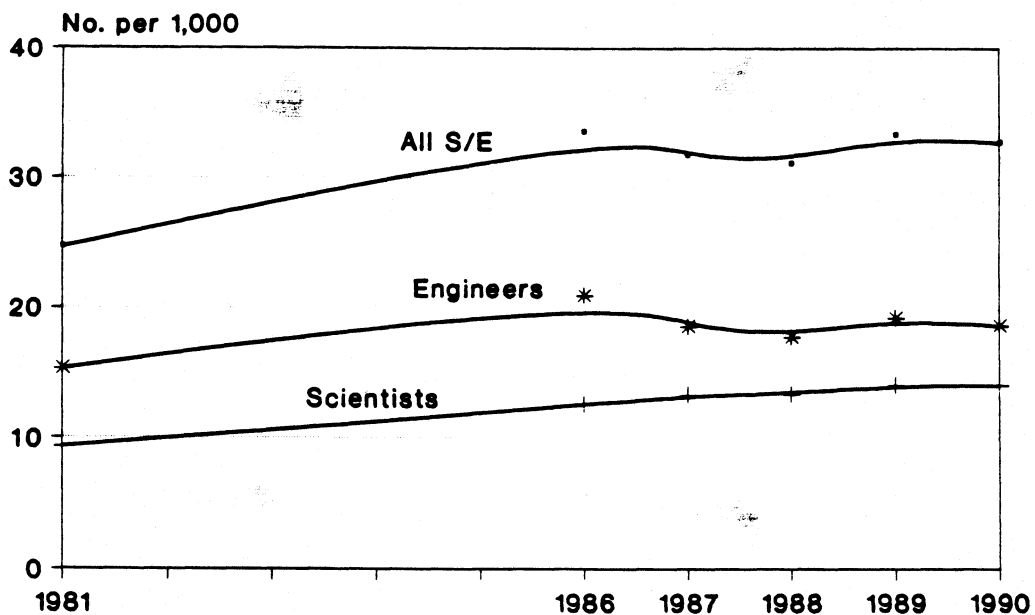
⁷U.S. Bureau of the Census, 1988, *Recent Data on Scientists and Engineers in Industrialized Countries*, unpublished report prepared for the National Science Foundation; and CIR Staff Paper, No. 63. See list of CIR Staff Papers at end of this report.

GRAPHIC PRESENTATION

Trend in S/E per 1,000 Labor Force Up Since 1981, Steady in Recent Years

Labor force surveys for 1986 through 1990 show the number of scientists and engineers per 1,000 labor force to be somewhat higher than the census showed for 1981. The data for scientists suggest a gradual but consistent upward trend, from about 9 scientists per 1,000 labor force in 1981 to about 14 per 1,000 in 1990. For engineers, the trend is less defined. In 1981, there were about 15 engineers per 1,000 labor force; during the second half of the decade, the figure fluctuated around 19 per 1,000.

Figure 24. Trend in Number of Scientists and Engineers per 1,000 Labor Force, for the United Kingdom: 1981 to 1990



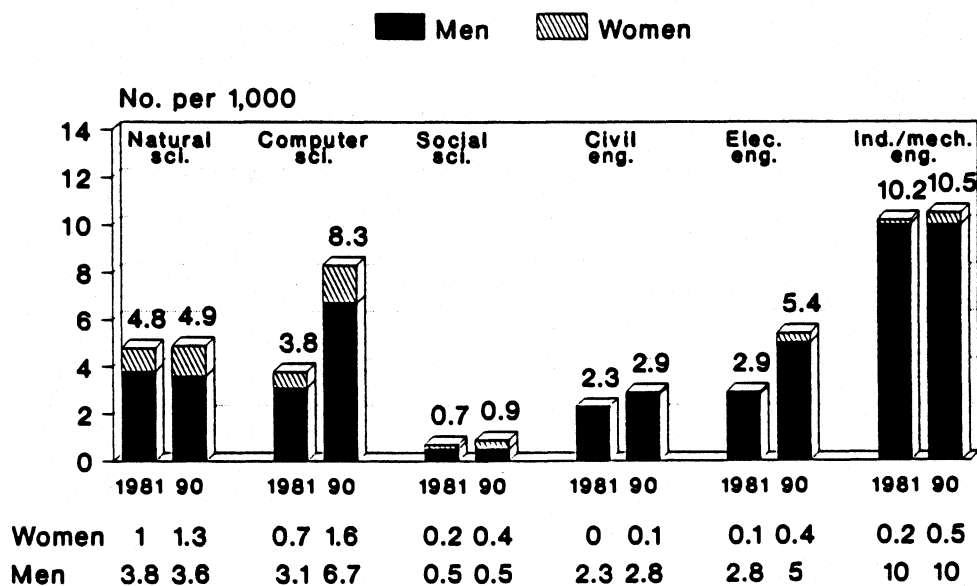
	1981	1986	1987	1988	1989	1990
All S/E	24.7	33.6	31.8	31.2	33.4	32.8
Scientists	9.3	12.6	13.3	13.4	14.4	14.4
Engineers	15.3	21.0	18.6	17.8	19.3	18.7

Source: Table UK-SUM.

Computer Scientists and Electrical/electronic Engineers Exhibit Largest Increase per 1,000 Labor Force

Members of some S/E specialties increased in number between 1981 and 1990 at about the same pace as the overall labor force, while other specialties increased faster. The ratio per 1,000 labor force increased the most among computer scientists, from just 3.8 per 1,000 labor force in 1981 to 8.3 per 1,000 in 1990. Their counterparts among engineers, the electrical and electronic engineers, also showed a substantial increase, from 2.9 per 1,000 labor force in 1981 to 5.4 per 1,000 in 1990. Among the various S/E specialties, however, industrial/mechanical engineers still form the largest group, with about 10 per 1,000 labor force.

Figure 25. Scientists and Engineers per 1,000 Labor Force, by Specialty and Sex, for the United Kingdom: 1981 and 1990

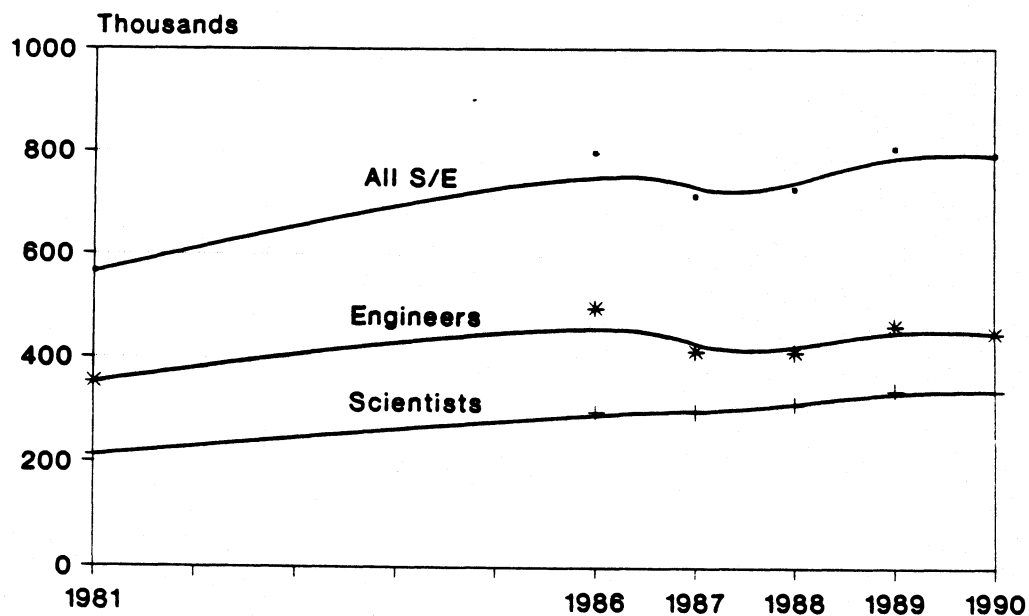


Source: Table UK-SUM.

United Kingdom Now Has About 800,000 S/E; Six Out of Ten Are Engineers

While the number of S/E is up considerably since 1981, the distribution between engineering and science has remained fairly steady at about 60/40. Over the decade of the 1980's, nearly 130 thousand scientists and 100 thousand engineers were added.

Figure 26. Trend in Number of Employed Scientists and Engineers, for the United Kingdom: 1981 to 1990



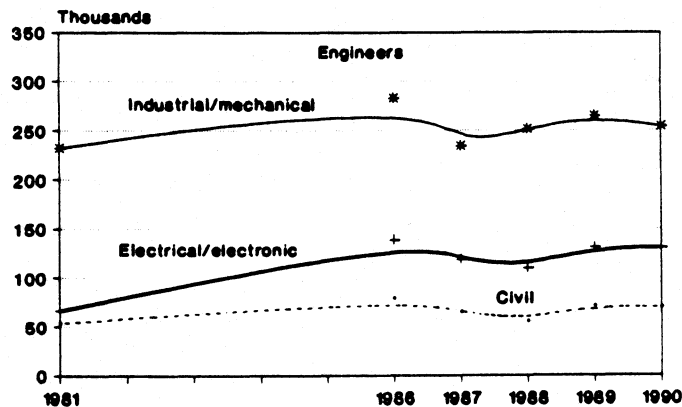
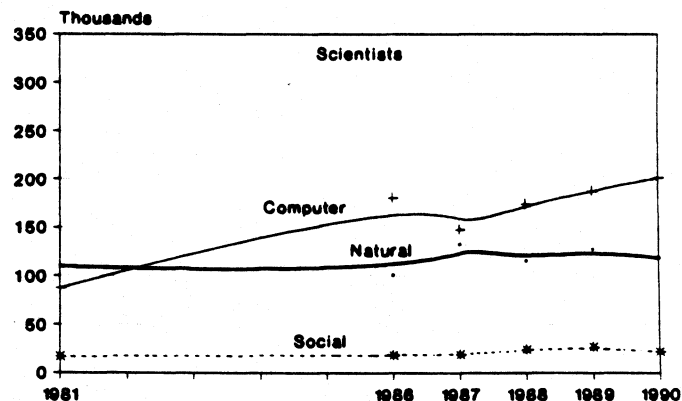
	1981	1986	1987	1988	1989	1990
All S/E	565,370	800,305	716,153	730,207	809,265	796,283
Scientists	213,620	299,956	298,864	313,993	342,260	342,334
Engineers	351,750	500,349	417,289	416,214	467,005	453,949

Source: Table UK-SUM.

Computer Scientists Surpass Natural Scientists as Dominant Science Specialty

Natural scientists comprised the largest group among scientists in the United Kingdom at the time of the 1981 census, but their number increased only slightly during the rest of the decade. By 1990, the number of computer scientists, at about 200 thousand, far exceeded the other science groups, while social scientists remained a distant third. Among engineers, the relative positions did not change, but the gap between civil engineers and electrical/electronic engineers widened as the latter group grew much faster. Industrial/mechanical engineers increased at the slowest pace, but their number remained far larger than the other two engineering specialties.

Figure 27. Trend in Number of Employed Scientists and Engineers, by Specialty, for the United Kingdom: 1981 to 1990



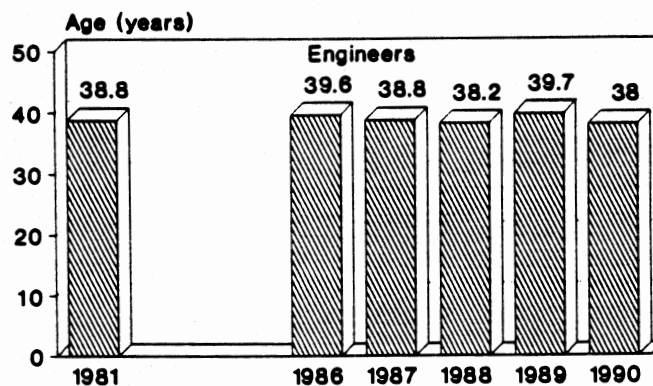
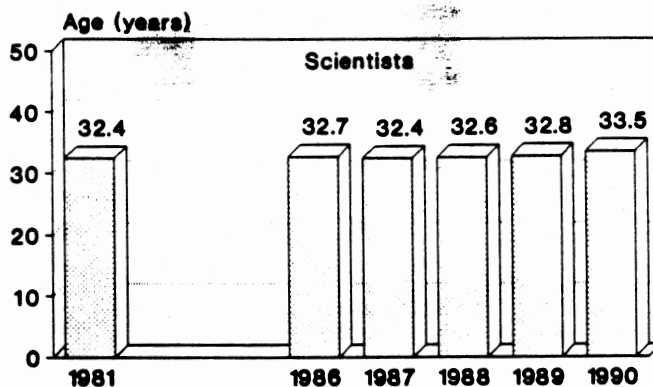
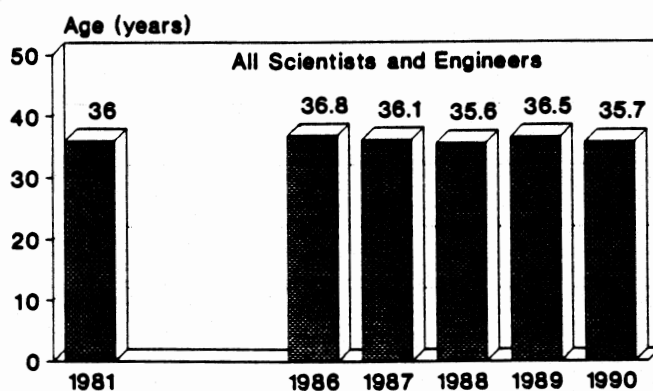
	1981	1986	1987	1988	1989	1990
Scientists						
Natural	109,690	101,146	132,613	115,593	127,682	118,703
Computer	87,370	180,849	147,667	174,562	187,964	201,841
Social	16,560	17,961	18,584	23,838	26,614	21,790
Engineers						
Civil	53,360	78,705	64,467	55,638	70,645	69,332
Elec./elec.	66,020	138,629	118,607	109,402	131,188	130,280
Ind./mech.	232,370	283,015	234,215	251,174	265,172	254,337

Source: Table UK-SUM.

Median Age of All S/E Groups Remains Virtually Unchanged

Although the precise figures fluctuate somewhat in the sample data from year to year, overall there has been practically no change in the median age of either scientists or engineers since 1981. The median age for all S/E combined is about 36 years, with scientists about 6 years younger than engineers (33 years and 39 years, respectively).

Figure 28. Trend in Median Age of Employed Scientists and Engineers, for the United Kingdom: 1981 to 1990

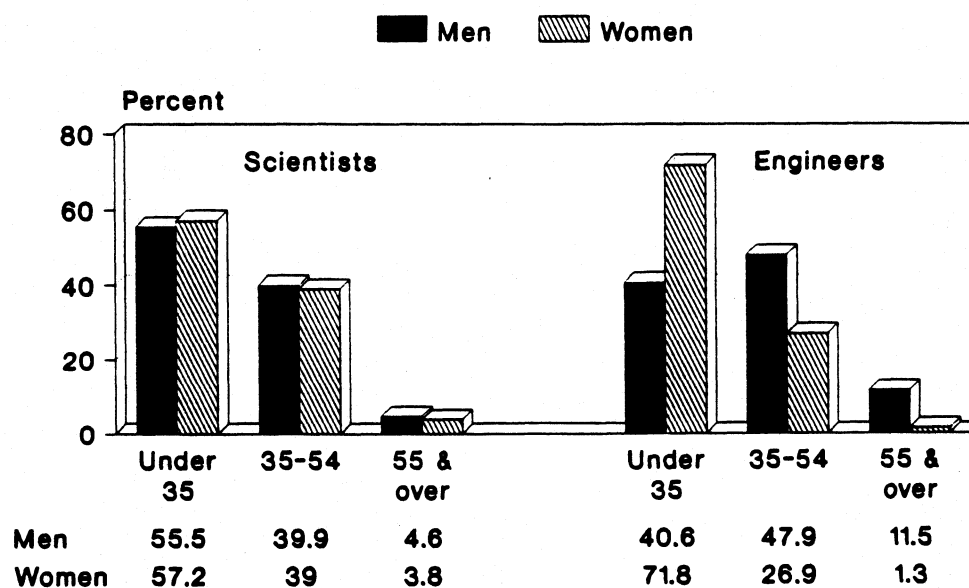


Note: Data for 1981 refer to all (not just employed) S/E.
Source: Table UK-1 for the respective years.

Women Engineers Are Proportionately Much Younger Than Men; Little Age Difference Apparent Among Scientists

According to survey data for 1990, more than 70 percent of women engineers are under 35 years of age, reflecting the recency of women's entry into the engineering professions. Only about 40 percent of men engineers fall into the youngest age group, while nearly half are between 35 and 54 years of age. Among scientists of both genders, over half are under age 35 years, and just under 40 percent in the middle age group.

**Figure 29. Scientists and Engineers,
by Age Group and Sex, for the
United Kingdom: 1990**

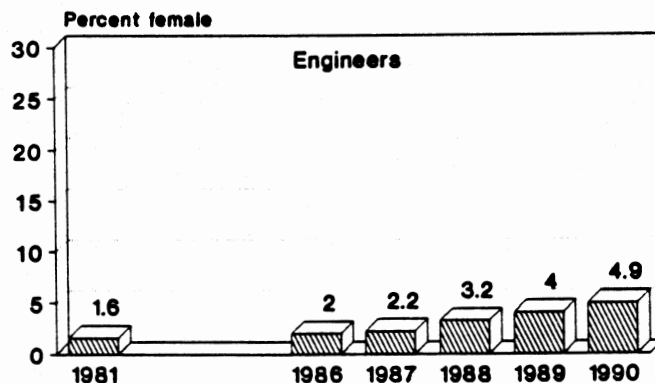
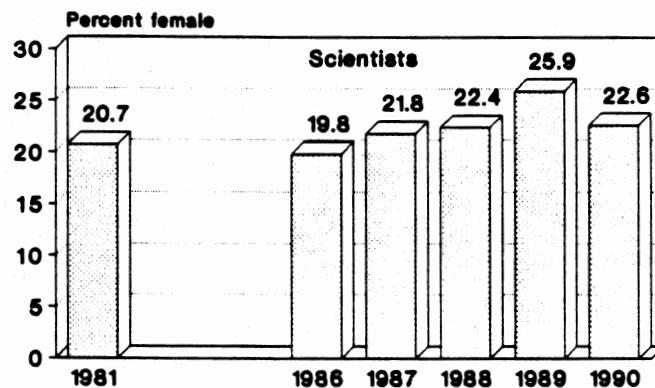
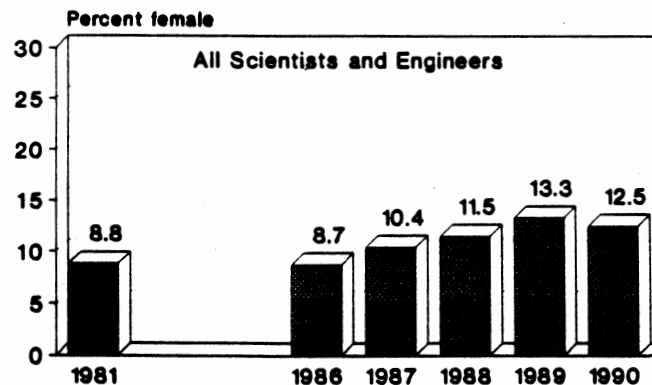


Source: Table UK-1(90).

Percent Female Increasing Faster Among Engineers, but Remains Much Higher Among Scientists

The proportion of all S/E who are women has increased slowly but steadily over the last decade, from just under 9 percent in 1981 to about 13 percent in 1989 and 1990. The percent female is increasing much faster among engineers than among scientists, having tripled between 1981 and 1990. Nevertheless, even in 1990, only 5 percent of engineers but somewhat over 20 percent of scientists are women.

Figure 30. Trend in Percent Female Among Employed Scientists and Engineers, for the United Kingdom: 1981 to 1990

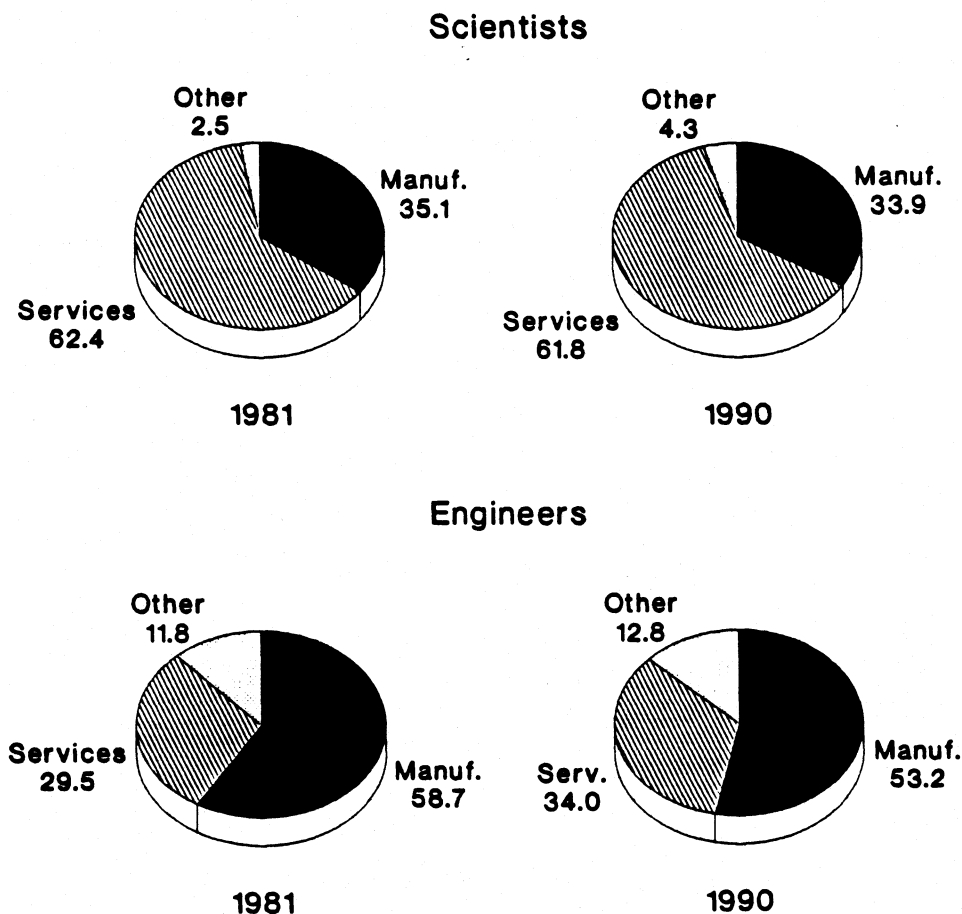


Source: Table UK-SUM.

Percent of S/E in Manufacturing Appears to Be Gradually Declining

The proportion of engineers working in manufacturing industries is slightly lower as recorded in each of the surveys since 1986 than it was according to the 1981 census. About 53 percent of engineers worked in manufacturing in 1990, down from 59 percent in 1981. The percent of scientists in manufacturing also appears to have declined slightly. While service industries have gained a proportion of the engineers, "other" industries, such as mining and agriculture, have gained a small proportion of the scientists.

Figure 31. Percent Distribution of Employed S/E, by Industry, for the United Kingdom: 1981 and 1990



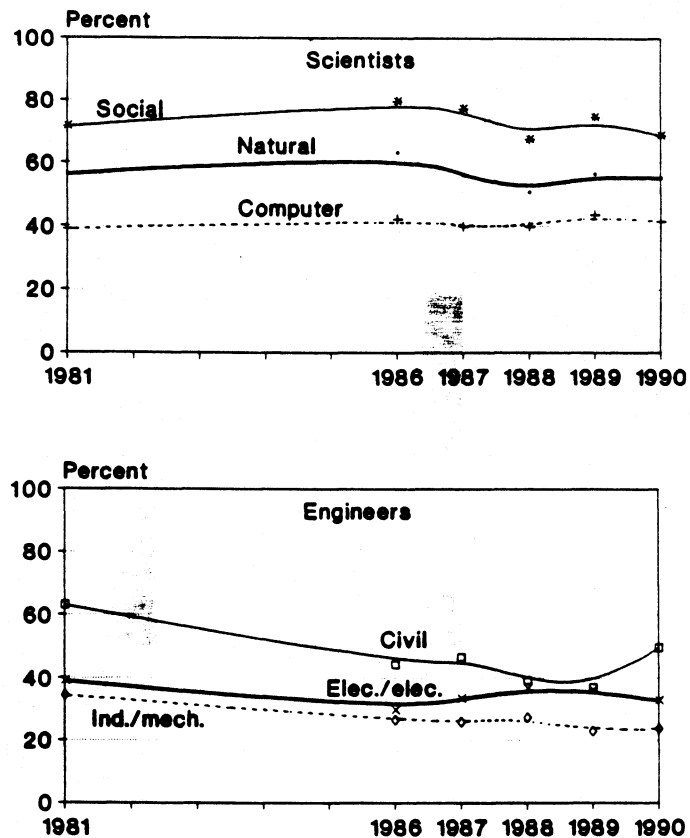
Manufacturing: Manufacturing, electricity, gas, and water.
Services: Wholesale and retail trade; transportation and communication; and services.
Other: Agriculture, forestry, and fishing; mining and quarrying; construction; and activities not adequately defined.

Source: Table UK-3 for the respective years.

Fewer S/E Have University Degrees Than Previously

The proportion of scientists and engineers with a university education appears to be decreasing or, at best, holding steady among most of the S/E specialties. Overall, the proportion with a college degree was about 44 percent in 1981 but only 38 percent in 1990. A slight increase in the proportion with degrees can be noted among computer scientists, but little change among other science groups. Among engineers, a notable decline in the proportion with degrees can be observed for civil engineers, and a smaller decline among industrial/mechanical engineers.

Figure 32. Percent of Employed Scientists and Engineers with University Degree, for the U.K.: 1981 to 1990



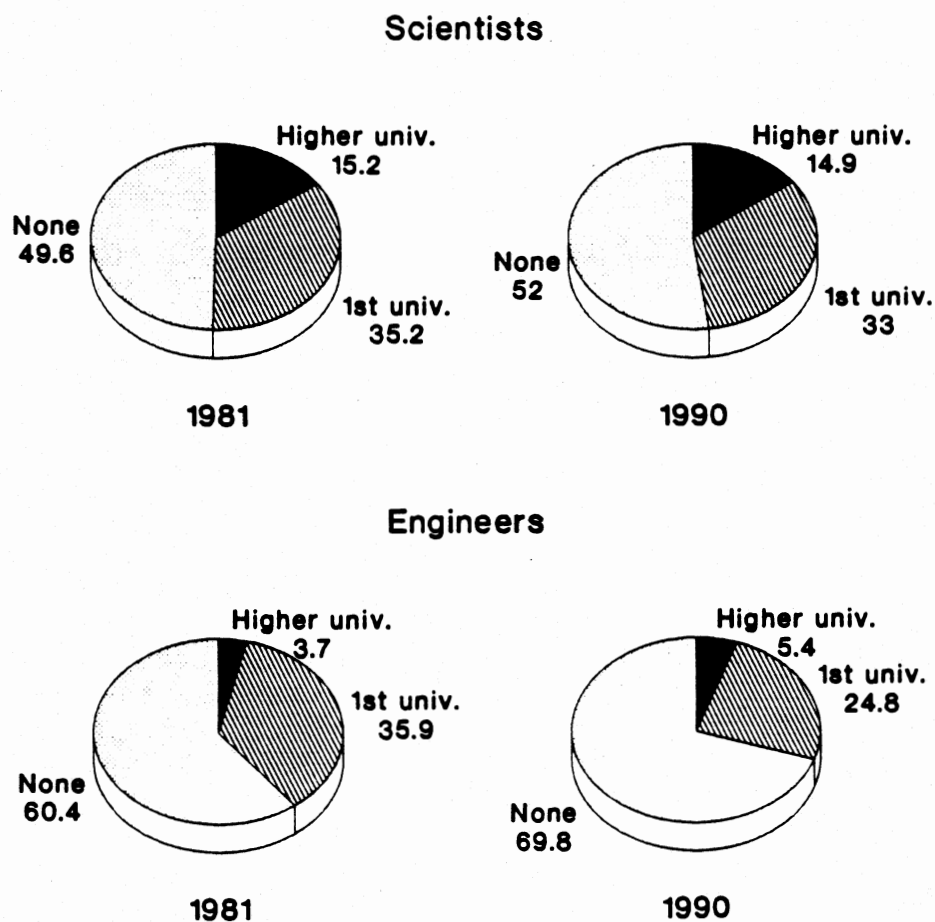
	1981	1986	1987	1988	1989	1990
Scientists						
Natural	56.4	63.2	56.1	50.7	56.5	55.3
Computer	38.9	42.1	39.9	39.9	43.5	41.4
Social	71.6	79.5	77.3	67.6	74.7	68.9
Engineers						
Civil	63.0	44.3	46.6	39.2	36.8	49.6
Elec./elec.	39.0	29.6	33.4	36.4	36.0	32.7
Ind./mech.	34.4	26.4	25.9	27.2	22.9	23.7

Source: Table UK-6 for the respective years.

Although Proportion With First Degree Declined, Advanced Degrees Increased Slightly Among Engineers

When the level of university degree is considered, the proportion of engineers with "higher" university degrees actually increased slightly since 1981, in spite of an overall decline in those with any degree. Thus, 5.4 percent of engineers had advanced degrees in 1990, compared with 3.7 percent in 1981, while those with a "first level" university degree fell from 36 percent to 25 percent. Among scientists, there was little change in the distribution by type of degree. Far more scientists than engineers have advanced degrees, about 15 percent compared to just over 5 percent, respectively, in 1990.

Figure 33. Percent Distribution of Employed S/E, by Level of University Degree, for the U.K.: 1981 and 1990

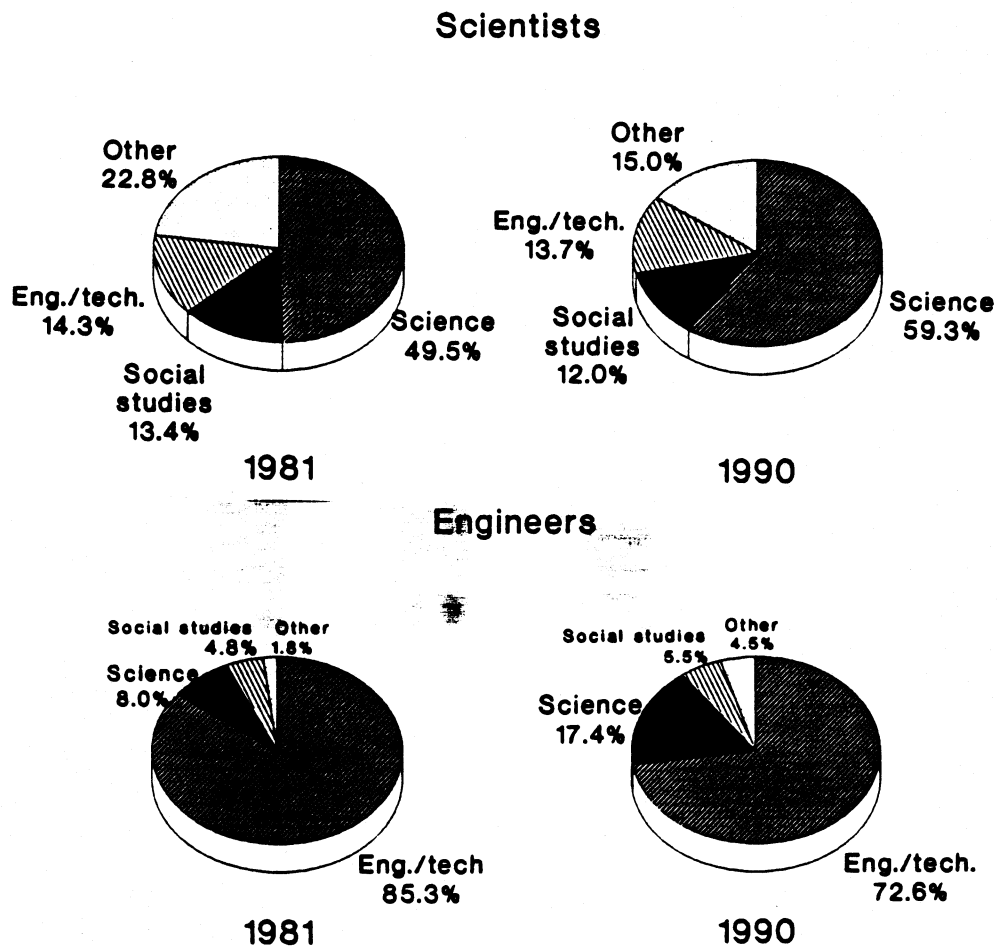


Source: Table UK-6 for the respective years.

Scientists Increasingly Trained in Field of Specialty, Engineers Less So

The proportion of "qualified" scientists trained in their field of occupation increased from 49 percent to 59 percent over the last decade, while the proportion of "qualified" engineers trained in engineering or technology decreased from 85 percent to 73 percent. The proportion of engineers trained in science increased by a proportionate amount during the period.

Figure 34. Percent Distribution of Qualified Employed S/E, by Field of Training, for the U.K.: 1981 and 1990

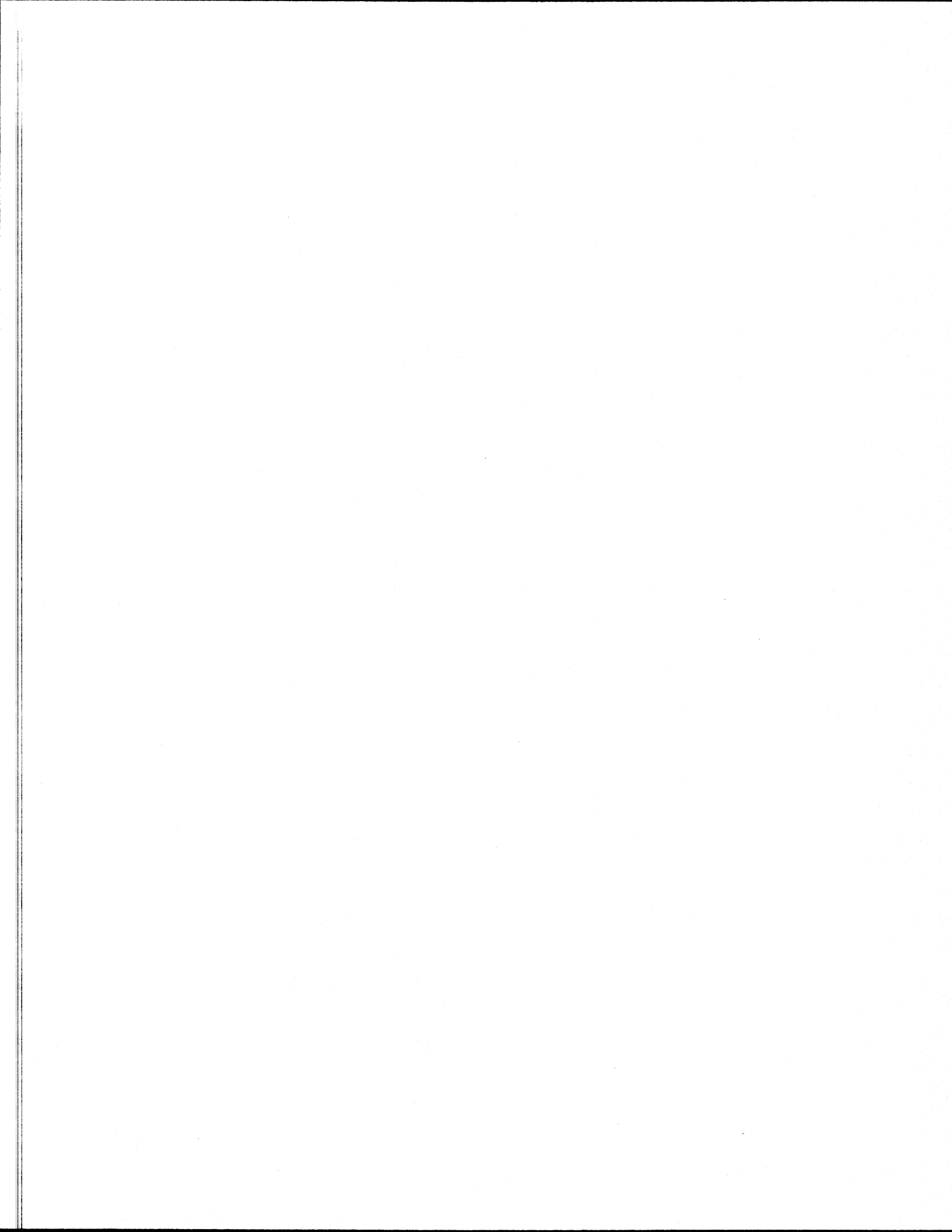


Science: Biological and physical sciences, mathematics, computer science and related.
 Social studies: Social, administrative, and business studies.
 Engineering and technology: All engineering fields, plus chemical and fuel technology, building, mining, naval architecture, and computer design and technology.
 Other: Health, education, agriculture, vocational (including architecture and other professional studies), and other fields.

Note: Data for 1981 refer to all qualified (not just employed qualified) S/E. In 1990, a large proportion of qualified employed S/E (59 percent of scientists and 66 percent of engineers) did not state their field of training. The chart is based only on those who reported. See table UK-8 in this report for definition of "qualified."

Source: Table UK-8 for the respective years.

JAPAN



INTRODUCTION

This report presents data on Scientists and Engineers (S/E) in Japan based on 1-percent sample tabulations from the 1990 census of population and 20-percent sample tabulations from the 1985 census. The 1990 data are new. For 1985, data in tables JP-3(85), JP-4(85) and JP-5(85) supersede the corresponding tables for Japan in earlier reports prepared in 1989⁸ and 1988,⁹ when data pertaining to 1985 were available only from the 1-percent sample tabulation of census returns. Data for 1980 included in the charts are from the 1980 census of population as presented in the first report in this series.¹⁰

The user should exercise caution in accepting comparisons between the revised data for 1985 and the 1-percent sample data presented for 1990. As illustrated in appendix B, data may change considerably between the 1-percent and 20-percent samples; for 1985, the total number of S/E increased by 20.7 percent between the two samples. Later, when 20-percent sample data become available for 1990, such comparisons will be better legitimized.

In the tables presented here, data for women are obtained by subtraction (both sexes minus men) so the data by gender will be consistent with the totals. As will be noted, numbers of women are quite small, particularly when characteristics are considered.

Insofar as possible, table numbers in this report correspond by subject matter to those in earlier reports, with the number in parentheses indicating the year to which the data refer. For this reason, source notes on some of the figures show only table numbers for earlier years without mentioning the source title in which they were presented (the initial report in the series, presenting data for Japan for 1980, did not include the year in parentheses).

⁸CIR Staff Paper, No. 51. See list at end of this report.

⁹U.S. Bureau of the Census, 1988, *Recent Data on Scientists and Engineers in Industrialized Countries*, unpublished report prepared for the National Science Foundation.

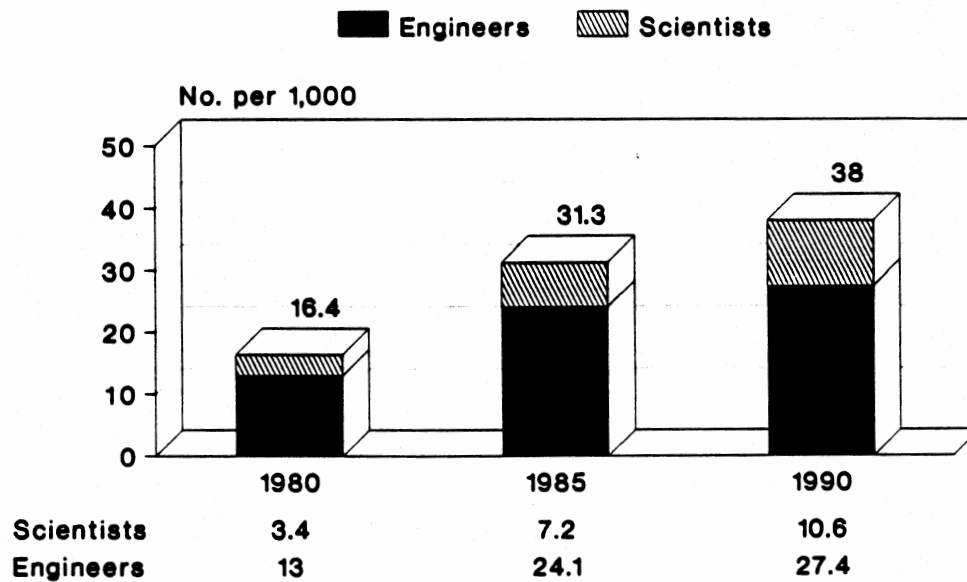
¹⁰CIR Staff Paper, No. 26.

GRAPHIC PRESENTATION

Scientists and Engineers Continue to Grow as Proportion of Total Labor Force

The total number of S/E per 1,000 labor force increased from 16.4 in 1980 to 31.3 in 1985, and to 38.0 in 1990. Among engineers, the ratio doubled in the last decade, while among scientists it tripled.

Figure 35. Trend in Number of Scientists and Engineers per 1,000 Labor Force, for Japan: 1980 to 1990

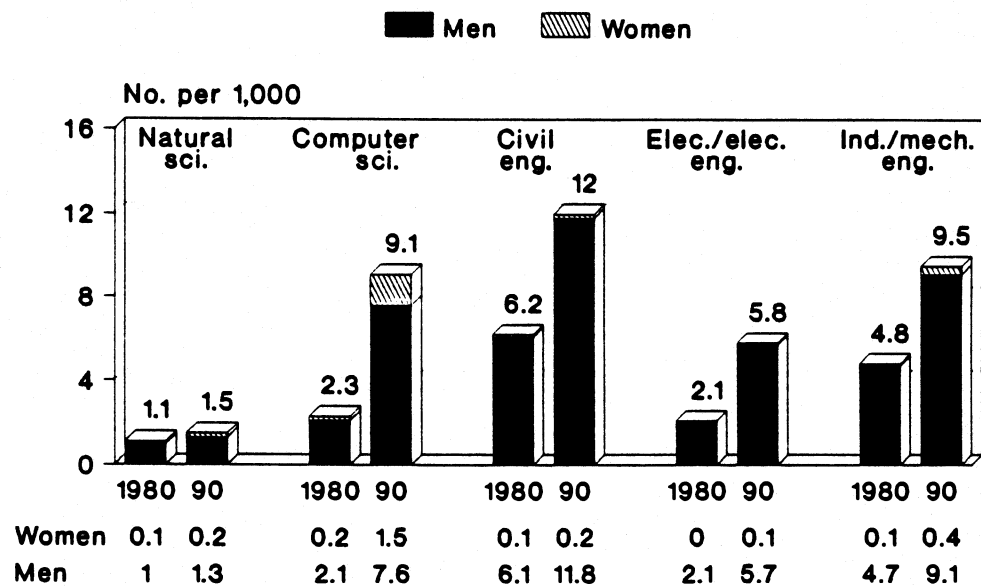


Source: Table JP-SUM.

Civil and Industrial/Mechanical Engineers Have Highest Ratio per 1,000 Labor Force, But Ratio for Computer Scientists Is Increasing Faster

In both 1980 and 1990, civil engineers and industrial/mechanical engineers had more members per 1,000 labor force than the other S/E specialties. Both groups nearly doubled their ratio during the decade. The ratio of computer scientists per 1,000 labor force, however, nearly quadrupled during the period, increasing from 2.3 to 9.1 per 1,000. The proportionate increase was especially large among women, although the number of women computer scientists remains small in comparison to men. Social scientists comprise so small a ratio per 1,000 labor force, among both men and women, that they would not show up on the chart.

Figure 36. S/E per 1,000 Labor Force,
by Specialty and Sex, for Japan:
1980 and 1990

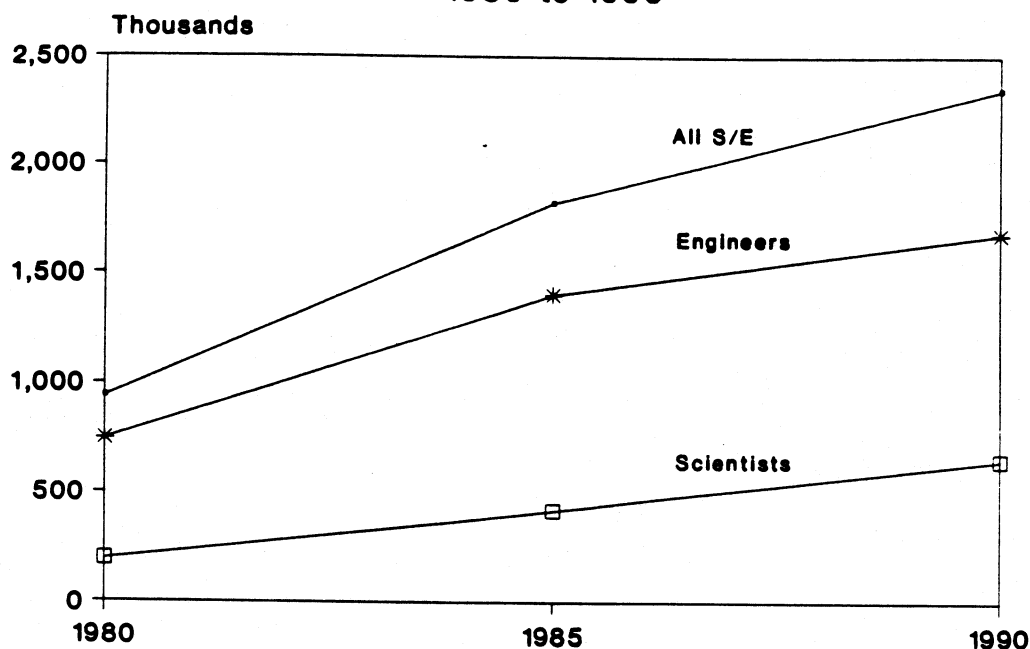


Source: Table JP-SUM.

Japan Had Over 2 Million Scientists and Engineers in 1990

The number of S/E in Japan was two and one-half times as large in 1990 as it was in 1980, having increased from 940 thousand to 2.3 million during the period. Among both scientists and engineers, the increase was faster during the first half of the decade.

Figure 37. Trend in Number of Scientists and Engineers, for Japan: 1980 to 1990



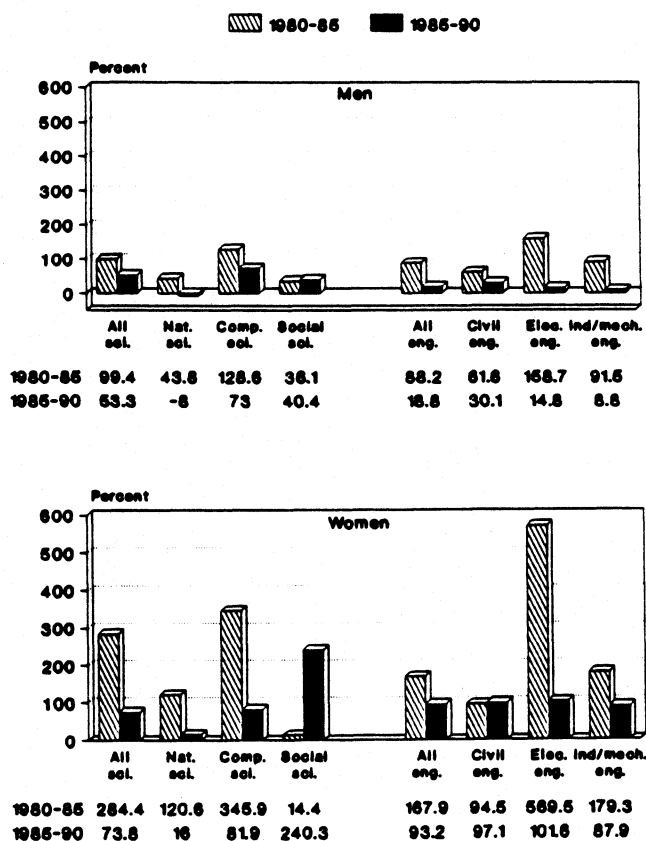
	Number of S/E		
	1980	1985	1990
All S/E	940,301	1,827,256	2,345,000
Scientists	195,921	419,080	654,500
Engineers	744,380	1,408,176	1,690,500

Source: Table JP-SUM.

Far More Men Than Women Are S/E, But Women's Number Is Increasing Faster

Among men, the number of scientists increased by nearly 100 percent, and the number of engineers by 88 percent, between 1980 and 1985; during the second half of the decade, the corresponding increases were 53 percent and 19 percent, respectively. While these rates are impressive, the corresponding increases among women are much higher. The number of women scientists increased by 284 percent, and the number of women engineers by 168 percent between 1980 and 1985; during the second half of the decade, the corresponding increases were 74 percent and 93 percent, respectively. In spite of the large gender discrepancies in the rates of increase, however, it is likely to take many years for their numbers to equalize.

Figure 38. Percent Change in Employed S/E, by Sex, for Japan: 1980 to 1990

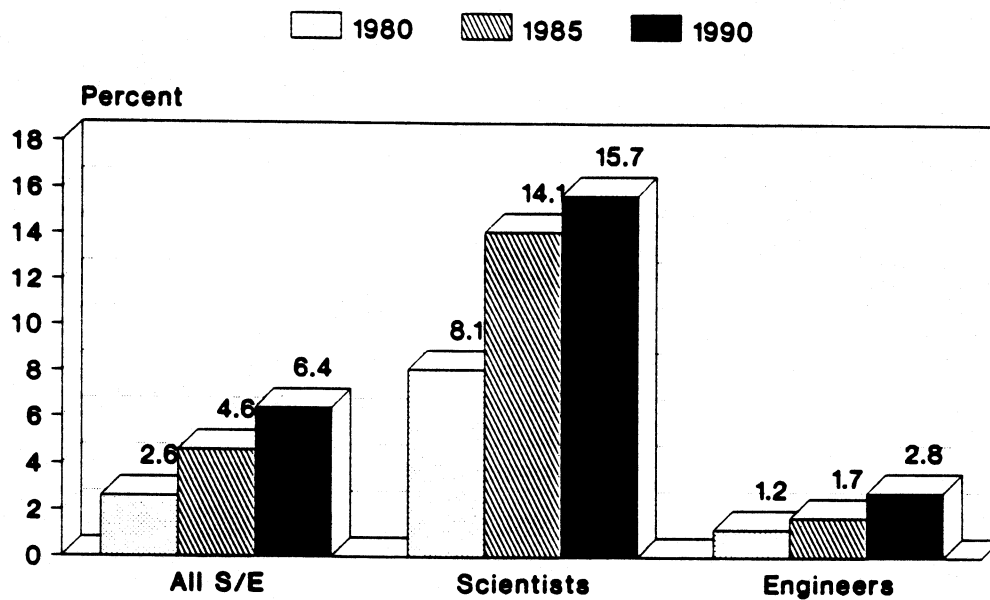


Source: JP-SUM.

Women's Share of Japan's S/E More Than Doubled Between 1980 and 1990

Women's share of Japan's scientists and engineers increased from 2.6 percent in 1980 to 6.4 percent in 1990. There are far more women scientists than engineers, and the increase in percent female among scientists was larger during the first half of the decade. A new trend may be in the making, however. Between 1985 and 1990, the proportionate increase in percent female was larger among engineers than among scientists. As already noted, the number of women in these professions remains much smaller than the number of men.

Figure 39. Trend in Percent Female Among Scientists and Engineers, for Japan: 1980 to 1990

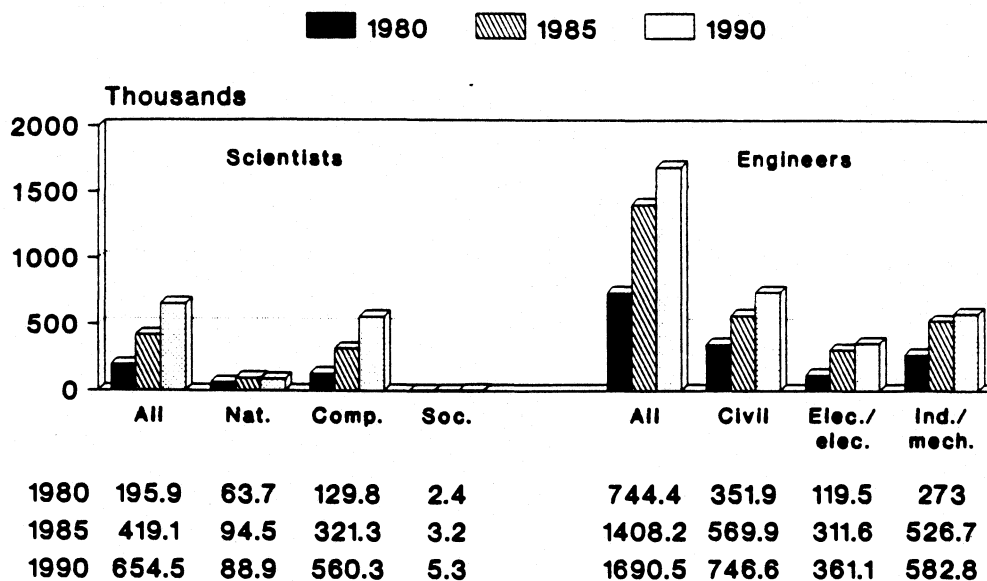


Source: Table JP-SUM.

Among S/E Professions, Computer Scientists and Civil Engineers Predominate

Among the categories of scientist occupations, computer scientists are the most numerous, having increased from 130 thousand to 560 thousand between 1980 and 1990. The number of civil engineers is even greater. They predominated already in 1980, when they numbered 352 thousand, and in 1990 there were 747 thousand civil engineers.

Figure 40. Trend in Number of Scientists and Engineers, by Specialty, for Japan: 1980 to 1990

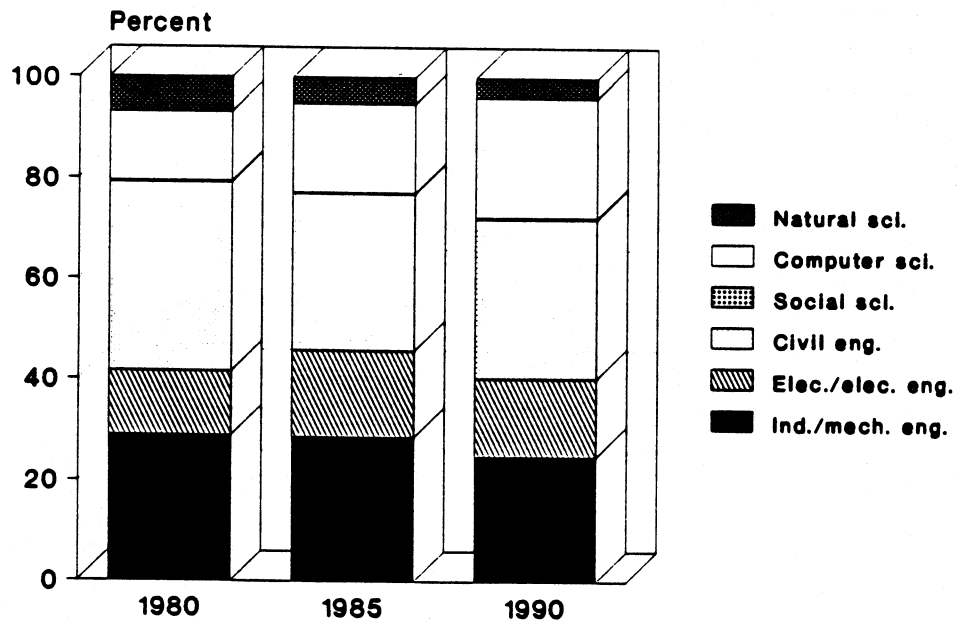


Source: Table JP-SUM.

Computer Scientists Are Increasing Their Share of All S/E

Computer scientists are the only group that has consistently increased its share among the various S/E occupations since 1980. While there are still fewer computer scientists than civil engineers and industrial/mechanical engineers, the engineering groups are diminishing as a proportion of all S/E. The share of electrical and electronic engineers increased during the first half of the decade of the 1980's, but decreased somewhat between 1985 and 1990.

Figure 41. Percent Distribution of S/E,
by Specialty, for Japan:
1980 to 1990



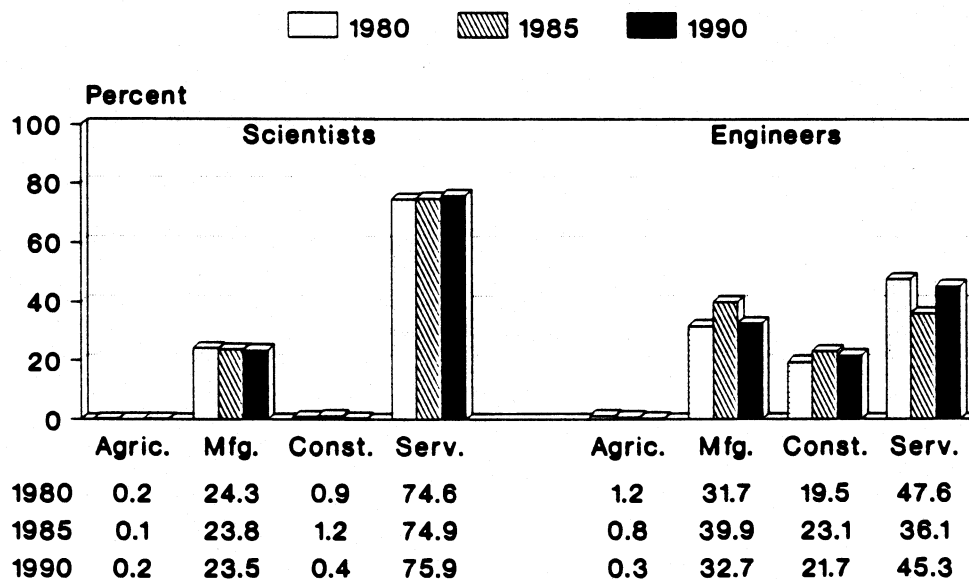
	1980	1985	1990
All S/E	100.0	100.0	100.0
Natural sci.	6.8	5.2	3.8
Computer sci.	13.8	17.6	23.9
Social sci.	.3	.2	.2
Civil eng.	37.4	31.2	31.8
Elec./elec. eng.	12.7	17.1	15.4
Ind./mech. eng.	29.0	28.8	24.9

Source: Table JP-SUM.

Most Scientists Work in Service Industries, While Engineers Are More Diversified

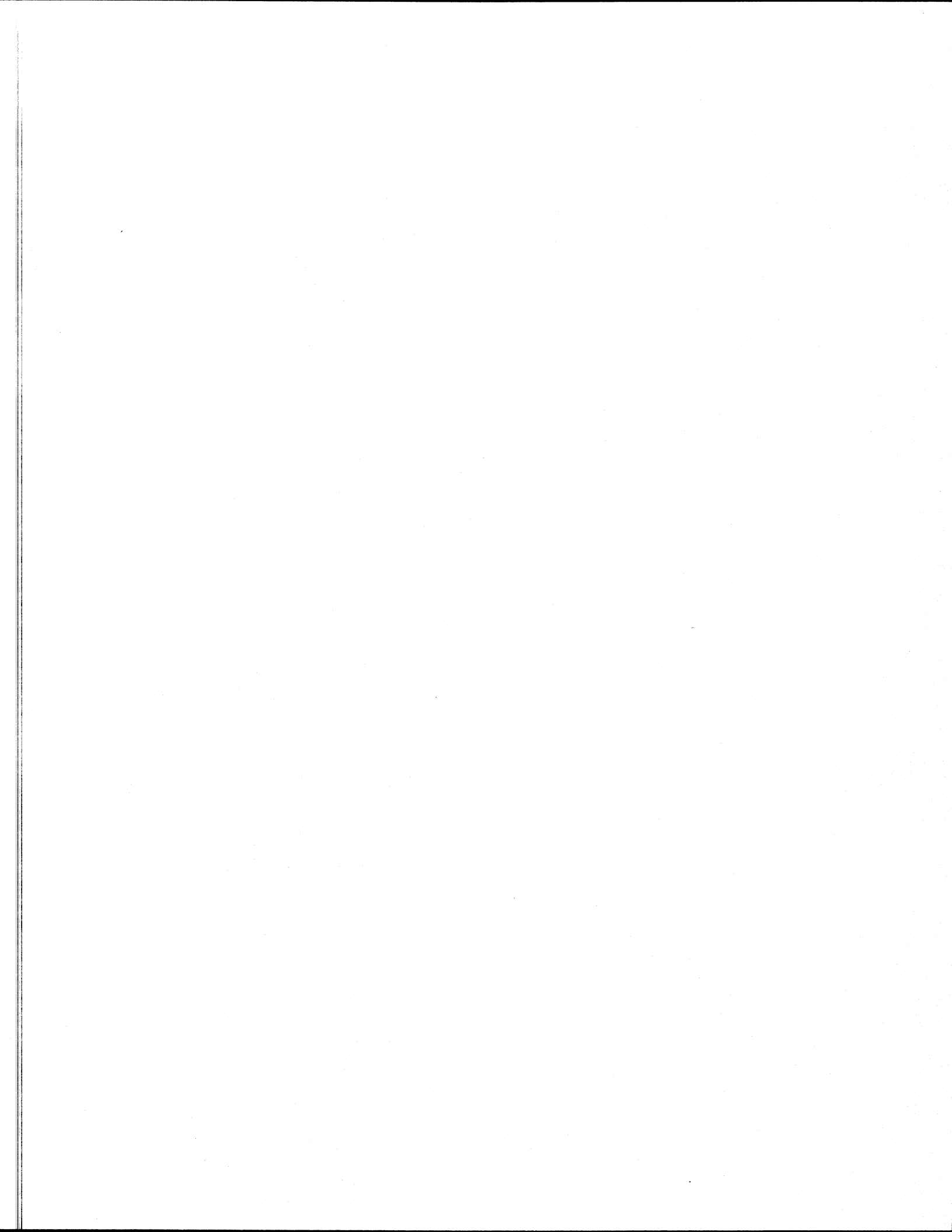
For all three dates with information, about three-fourths of employed scientists worked in service industries, with most of the remainder in manufacturing. Among employed engineers, the exact proportions fluctuate somewhat according to the data, with services usually having a slight edge over manufacturing and a fair proportion also in construction. The share of all S/E in agriculture and related industries is minimal.

Figure 42. Percent Distribution of Employed Scientists and Engineers, by Industry, for Japan: 1980 to 1990

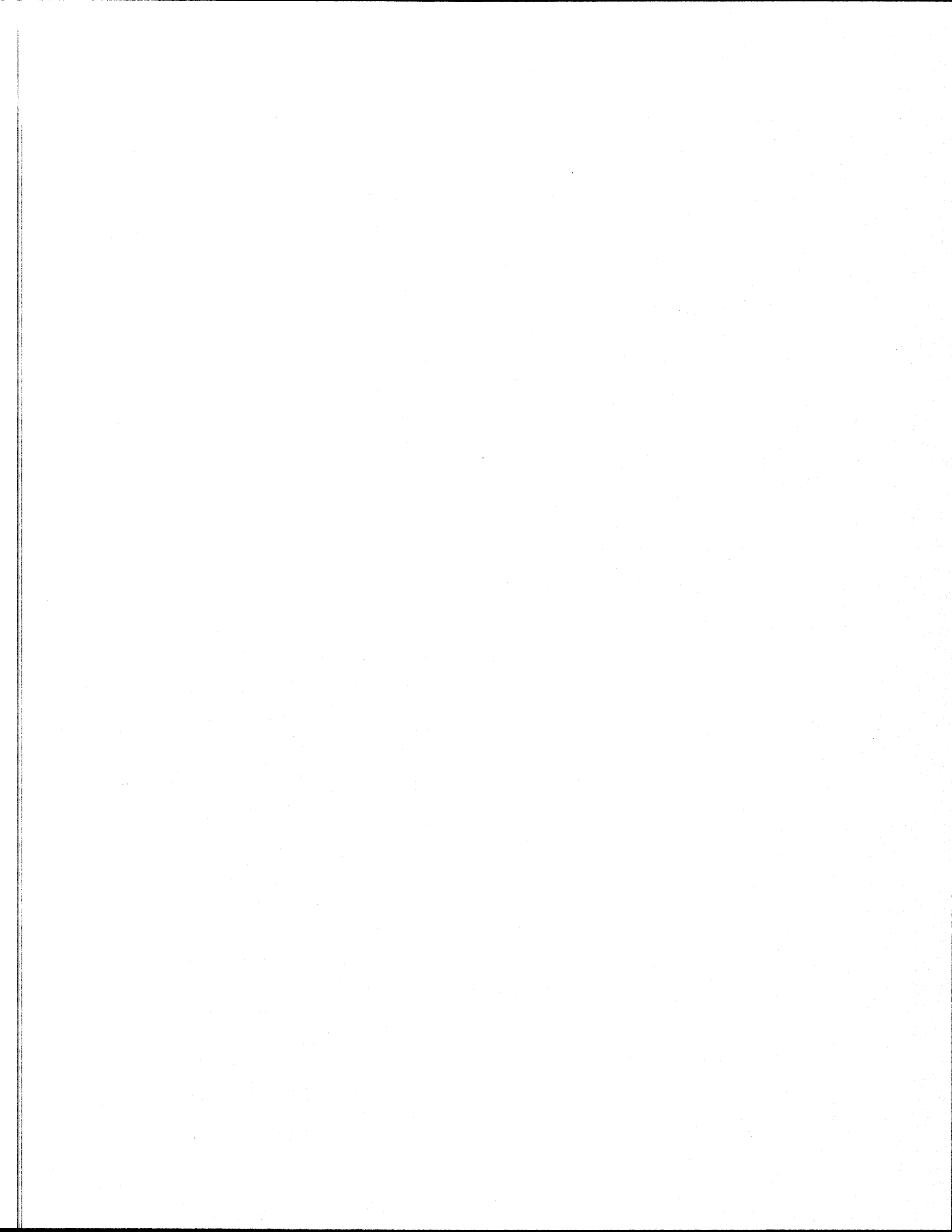


Agriculture: Agriculture, forestry, fishing, and mining.
Manufacturing: Manufacturing, electricity, gas and water.
Construction: Construction.
Services: Wholesale and retail trade; transportation and communication; services; and government.

Source: Tables JP3, JP-3(85-revised), and JP-3(90).



Appendix A
DETAILED TABLES



UNITED STATES



Table US-SUM

Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed Labor Force, for the United States: 1986 to 1991

Sex and occupation	Number (thousands)						Per 1,000 labor force					
	1986	1987	1988	1989	1990	1991	1986	1987	1988	1989	1990	1991
Employed labor force	109,597	112,440	114,968	117,342	117,914	116,877	(X)	(X)	(X)	(X)	(X)	(X)
Both sexes												
Total S/E	3,047	3,096	3,249	3,426	3,457	3,560	27.8	27.5	28.3	29.2	29.3	30.5
SCIENTISTS	1,298	1,365	1,444	1,603	1,595	1,714	11.8	12.1	12.6	13.7	13.5	14.7
Natural sci.	420	417	428	445	431	466	3.8	3.7	3.7	3.8	3.7	4.0
Computer sci.	580	644	689	805	817	876	5.3	5.7	6.0	6.9	6.9	7.5
Social sci.	298	304	327	353	347	372	2.7	2.7	2.8	3.0	2.9	3.2
ENGINEERS	1,749	1,731	1,805	1,823	1,862	1,846	16.0	15.4	15.7	15.5	15.8	15.8
Civil eng.	233	210	218	249	234	223	2.1	1.9	1.9	2.1	2.0	1.9
Elec./elec. eng.	550	545	573	571	581	562	5.0	4.8	5.0	4.9	4.9	4.8
Ind./mech. eng.	966	976	1,014	1,003	1,047	1,061	8.8	8.7	8.8	8.5	8.9	9.1
Men												
Total S/E	2,493	2,505	2,624	2,706	2,713	2,760	22.7	22.3	22.8	23.1	23.0	23.6
SCIENTISTS	849	894	951	1,020	999	1,066	7.7	8.0	8.3	8.7	8.5	9.1
Natural sci.	319	312	317	318	314	336	2.9	2.8	2.8	2.7	2.7	2.9
Computer sci.	371	426	465	524	520	563	3.4	3.8	4.0	4.5	4.4	4.8
Social sci.	159	156	169	178	165	167	1.5	1.4	1.5	1.5	1.4	1.4
ENGINEERS	1,644	1,611	1,673	1,686	1,714	1,694	15.0	14.3	14.6	14.4	14.5	14.5
Civil eng.	227	202	205	236	222	211	2.1	1.8	1.8	2.0	1.9	1.8
Elec./elec. eng.	512	506	528	522	530	514	4.7	4.5	4.6	4.4	4.5	4.4
Ind./mech. eng.	905	903	940	928	962	969	8.3	8.0	8.2	7.9	8.2	8.3
Women												
Total S/E	555	591	627	720	744	800	5.1	5.3	5.5	6.1	6.3	6.8
SCIENTISTS	450	471	495	582	595	648	4.1	4.2	4.3	5.0	5.0	5.5
Natural sci.	101	105	112	126	117	131	.9	.9	1.0	1.1	1.0	1.1
Computer sci.	210	218	224	282	296	313	1.9	1.9	1.9	2.4	2.5	2.7
Social sci.	139	148	159	174	182	204	1.3	1.3	1.4	1.5	1.5	1.7
ENGINEERS	105	120	132	138	149	152	1.0	1.1	1.1	1.2	1.3	1.3
Civil eng.	6	9	13	14	12	13	.1	.1	.1	.1	.1	.1
Elec./elec. eng.	38	39	45	48	51	48	.3	.3	.4	.4	.4	.4
Ind./mech. eng.	61	72	74	76	86	91	.6	.6	.6	.6	.7	.8

X - Not applicable.

Source: U.S. Bureau of Labor Statistics, Current Population Survey for the respective years (annual averages).



FRANCE

Table FR-SUM
Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed Labor Force, for France:
1982 to 1992

Sex and occupation	Number								
	1982	1985	1986	1987	1988	1989	1990	1991	1992
Employed labor force	21,465,960	21,318,915	21,533,672	21,405,003	21,508,296	21,754,082	21,791,452	21,829,701	22,329,942
Both sexes									
Total S/E	387,860	438,445	463,374	473,897	502,581	511,237	530,668	547,105	582,947
SCIENTISTS	139,980	175,551	197,749	202,541	230,880	256,278	256,423	263,234	286,376
Natural sci.	59,440	66,729	76,447	70,457	66,535	81,283	86,689	85,751	91,581
Computer sci.	48,120	68,842	70,645	75,444	94,852	106,324	119,398	129,246	145,208
Social sci.	32,420	39,980	50,657	56,640	69,493	68,671	50,336	48,237	49,587
ENGINEERS	247,880	262,894	265,625	271,356	271,701	254,959	274,245	283,871	296,572
Civil eng.	73,840	76,654	74,426	87,966	81,928	75,565	83,871	78,332	85,313
Elec./elec. eng.	51,600	62,488	56,531	56,002	57,886	60,011	65,282	65,945	74,658
Ind./mech. eng.	122,440	123,752	134,668	127,388	131,887	119,384	125,092	139,594	136,601
Men									
Total S/E	346,020	388,884	400,405	405,389	429,119	431,182	449,662	459,303	480,043
SCIENTISTS	107,100	136,750	148,202	147,413	171,881	190,265	191,749	192,978	205,336
Natural sci.	48,060	53,150	60,487	52,239	51,142	63,194	64,806	63,331	63,293
Computer sci.	40,820	61,289	57,315	64,294	79,462	89,847	98,209	105,429	117,833
Social sci.	18,220	22,311	30,400	30,880	41,277	37,224	28,734	24,218	24,210
ENGINEERS	238,920	252,134	252,203	257,976	257,238	240,917	257,913	266,325	274,708
Civil eng.	70,620	73,655	69,518	80,927	76,079	71,816	78,784	71,044	75,978
Elec./elec. eng.	49,080	60,023	53,980	54,020	55,660	55,804	61,282	62,555	71,541
Ind./mech. eng.	119,220	118,456	128,705	123,029	125,499	113,298	117,847	132,726	127,189
Women									
Total S/E	41,840	49,561	62,969	68,508	73,462	80,055	81,006	87,802	102,904
SCIENTISTS	32,880	38,801	49,547	55,128	58,999	66,013	64,674	70,256	81,040
Natural sci.	11,380	13,579	15,960	18,218	15,393	18,089	21,883	22,420	28,288
Computer sci.	7,300	7,553	13,330	11,150	15,390	16,477	21,189	23,817	27,375
Social sci.	14,200	17,669	20,257	25,760	28,216	31,447	21,602	24,019	25,377
ENGINEERS	8,960	10,760	13,422	13,380	14,463	14,042	16,332	17,546	21,864
Civil eng.	3,220	2,999	4,908	7,039	5,849	3,749	5,087	7,288	9,335
Elec./elec. eng.	2,520	2,465	2,551	1,982	2,226	4,207	4,000	3,390	3,117
Ind./mech. eng.	3,220	5,296	5,963	4,359	6,388	6,086	7,245	6,868	9,412

Table FR-SUM
Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed Labor Force, for France:
1982 to 1992--Continued

	Per 1,000 labor force								
	1982	1985	1986	1987	1988	1989	1990	1991	1992
Both sexes									
Total S/E	18.1	20.6	21.5	22.1	23.4	23.5	24.4	25.1	26.1
SCIENTISTS	6.5	8.2	9.2	9.5	10.7	11.8	11.8	12.1	12.8
Natural sci.	2.8	3.1	3.6	3.3	3.1	3.7	4.0	3.9	4.1
Computer sci.	2.2	3.2	3.3	3.5	4.4	4.9	5.5	5.9	6.5
Social sci.	1.5	1.9	2.4	2.6	3.2	3.2	2.3	2.2	2.2
ENGINEERS	11.5	12.3	12.3	12.7	12.6	11.7	12.6	13.0	13.3
Civil eng.	3.4	3.6	3.5	4.1	3.8	3.5	3.8	3.6	3.8
Elec./elec. eng.	2.4	2.9	2.6	2.6	2.7	2.8	3.0	3.0	3.3
Ind./mech. eng.	5.7	5.8	6.3	6.0	6.1	5.5	5.7	6.4	6.1
Men									
Total S/E	16.1	18.2	18.6	18.9	20.0	19.8	20.6	21.0	21.5
SCIENTISTS	5.0	6.4	6.9	6.9	8.0	8.7	8.8	8.8	9.2
Natural sci.	2.2	2.5	2.8	2.4	2.4	2.9	3.0	2.9	2.8
Computer sci.	1.9	2.9	2.7	3.0	3.7	4.1	4.5	4.8	5.3
Social sci.	.8	1.0	1.4	1.4	1.9	1.7	1.3	1.1	1.1
ENGINEERS	11.1	11.8	11.7	12.1	12.0	11.1	11.8	12.2	12.3
Civil eng.	3.3	3.5	3.2	3.8	3.5	3.3	3.6	3.3	3.4
Elec./elec. eng.	2.3	2.8	2.5	2.5	2.6	2.6	2.8	2.9	3.2
Ind./mech. eng.	5.6	5.6	6.0	5.7	5.8	5.2	5.4	6.1	5.7
Women									
Total S/E	1.9	2.3	2.9	3.2	3.4	3.7	3.7	4.0	4.6
SCIENTISTS	1.5	1.8	2.3	2.6	2.7	3.0	3.0	3.2	3.6
Natural sci.	.5	.6	.7	.9	.7	.8	1.0	1.0	1.3
Computer sci.	.3	.4	.6	.5	.7	.8	1.0	1.1	1.2
Social sci.	.7	.8	.9	1.2	1.3	1.4	1.0	1.1	1.1
ENGINEERS	.4	.5	.6	.6	.7	.6	.7	.8	1.0
Civil eng.	.2	.1	.2	.3	.3	.2	.2	.3	.4
Elec./elec. eng.	.1	.1	.1	.1	.1	.2	.2	.2	.1
Ind./mech. eng.	.2	.2	.3	.2	.3	.3	.3	.3	.4

Source: Number of employed S/E from table FR-1 for the respective years. Total employed labor force from France INSEE, 1983, Recensement Général de la Population de 1982, Population Active, table 03; and Les Collections de l'INSEE, Enquête sur Emploi de (each year, 1985 to 1992), Résultats détaillés, table PA 03.

FR-0(90)

Scientist and Engineer Occupations, by Sex, for France: 1990

Occupation	Both sexes	Men	Women
TOTAL SCIENT. & ENGIN.	530,668	449,662	81,006
SCIENTISTS	256,423	191,749	64,674
Natural scientists	86,689	64,806	21,883
Researchers in publ. res.	47,498	32,820	14,678
Agric., forest., R&D eng.	6,122	5,166	956
Chem., bio. R&D eng.	25,075	19,723	5,352
Phys., geol., meteor. R&D eng.	7,994	7,097	897
Computer scientists	119,398	98,209	21,189
Social scientists	50,336	28,734	21,602
Psychologists	14,990	5,083	9,907
Psychologists in educ.	14,734	7,740	6,994
Econ., stat., soc.	20,612	15,911	4,701
ENGINEERS	274,245	257,913	16,332
Civil engineers	83,871	78,784	5,087
In state, loc. collectives	42,143	38,422	3,721
Build., civil, R&D eng.	17,279	16,268	1,011
Pub. wks., civ., mining eng.	24,449	24,094	355
Elect./electronic eng.	65,282	61,282	4,000
Elect./electronic R&D eng.	48,399	45,660	2,739
Elect./electronic prod. eng.	16,883	15,622	1,261
Industrial/mechanical eng.	125,092	117,847	7,245
Mechanical R&D eng.	20,809	19,804	1,005
Metallurg. R&D eng.	5,939	5,939	0
Light indust. R&D eng.	2,178	2,178	0
Mechan. prod. eng.	28,235	28,235	0
Chem., food prod. eng.	16,152	15,211	941
Metallurg., materials prod.	9,144	9,144	0
Light indust. prod. eng.	7,750	5,163	2,587
Energy production eng.	10,152	9,749	403
Maint., new install. eng.	11,980	11,655	325
Consult. eng.: tech. studies	12,753	10,769	1,984

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

FR-0(91)

Scientist and Engineer Occupations, by Sex, for France: 1991

Occupation	Both sexes	Men	Women
TOTAL SCIENT. & ENGIN.	547,105	459,303	87,802
SCIENTISTS	263,234	192,978	70,256
Natural scientists	85,751	63,331	22,420
Researchers in publ. res.	42,247	26,420	15,827
Agric., forest., R&D eng.	5,790	5,457	333
Chem., bio. R&D eng.	26,256	20,316	5,940
Phys., geol., meteor. R&D eng.	11,458	11,138	320
Computer scientists	129,246	105,429	23,817
Social scientists	48,237	24,218	24,019
Psychologists	13,275	3,295	9,980
Psychologists in educ.	13,001	5,808	7,193
Econ., stat., soc.	21,961	15,115	6,846
ENGINEERS	283,871	266,325	17,546
Civil engineers	78,332	71,044	7,288
In state, loc. collectives	40,245	34,307	5,938
Build., civil, R&D eng.	13,189	11,839	1,350
Pub. wks., civ., mining eng.	24,898	24,898	0
Elect./electronic eng.	65,945	62,555	3,390
Elect./electronic R&D eng.	48,421	45,976	2,445
Elect./electronic prod. eng.	17,524	16,579	945
Industrial/mechanical eng.	139,594	132,726	6,868
Mechanical R&D eng.	18,558	18,228	330
Metallurg. R&D eng.	5,033	5,033	0
Light indust. R&D eng.	2,160	2,160	0
Mechan. prod. eng.	38,340	36,984	1,356
Chem., food prod. eng.	13,498	13,498	0
Metallurg., materials prod.	8,451	8,451	0
Light indust. prod. eng.	9,217	6,536	2,681
Energy production eng.	15,704	14,861	843
Maint., new install. eng.	15,707	15,060	647
Consult. eng.: tech. studies	12,926	11,915	1,011

Note: Data are based on results of the 1991 Employment Survey (Enquete sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquete sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-0(92)

Scientist and Engineer Occupations, by Sex, for France: 1992

Occupation	Both sexes	Men	Women
TOTAL SCIENT. & ENGIN.	582,949	480,046	102,902
SCIENTISTS	286,376	205,337	81,038
Natural scientists	91,581	63,294	28,287
Researchers in publ. res.	47,569	29,000	18,569
Agric., forest., R&D eng.	5,613	5,110	503
Chem., bio. R&D eng.	24,653	16,921	7,731
Phys., geol., meteor. R&D eng.	13,746	12,263	1,484
Computer scientists	145,208	117,833	27,375
Social scientists	49,587	24,210	25,376
Psychologists	15,793	3,796	11,997
Psychologists in educ.	14,895	7,512	7,382
Econ., stat., soc.	18,899	12,902	5,997
ENGINEERS	296,573	274,709	21,864
Civil engineers	85,313	75,978	9,335
In state, loc. collectives	45,052	37,306	7,746
Build., civil, R&D eng.	17,285	15,696	1,589
Pub. wks., civ., mining eng.	22,976	22,976	0
Elect./electronic eng.	74,658	71,541	3,117
Elect./electronic R&D eng.	60,603	57,486	3,117
Elect./electronic prod. eng.	14,055	14,055	0
Industrial/mechanical eng.	136,602	127,190	9,412
Mechanical R&D eng.	25,215	23,751	1,464
Metallurg. R&D eng.	4,651	4,651	0
Light indust. R&D eng.	3,913	3,913	0
Mechan. prod. eng.	38,994	36,106	2,888
Chem., food prod. eng.	14,169	13,477	692
Metallurg., materials prod.	6,796	6,104	692
Light indust. prod. eng.	7,925	6,059	1,866
Energy production eng.	11,084	10,816	268
Maint., new install. eng.	11,361	11,361	0
Consult. eng.: tech. studies	12,494	10,952	1,542

Note: Data are based on results of the 1992 Employment Survey (Enquete sur l'emploi).

Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE), Enquete sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau of the Census.

FR-1(90)

Scientist and Engineer Occupations, by Age and Sex, for France: 1990

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENGIN.	530,668	5,915	78,338	81,991	72,543	110,203	72,025	54,071	35,834	14,052	5,696	41.2
SCIENTISTS	256,423	2,773	48,671	49,024	34,624	50,581	30,354	22,265	11,001	4,498	2,632	39.0
Natural scientists	86,689	1,030	13,157	13,854	10,142	14,129	14,523	11,543	4,627	2,363	1,321	41.8
Computer scientists	119,398	1,743	29,016	27,465	18,402	21,323	11,374	6,816	2,622	637	0	35.4
Social scientists	50,336	0	6,498	7,705	6,080	15,129	4,457	3,906	3,752	1,498	1,311	41.6
ENGINEERS	274,245	3,142	29,667	32,967	37,919	59,622	41,671	31,806	24,833	9,554	3,064	42.8
Civil engineers	83,871	1,417	7,946	8,521	11,373	17,273	12,154	12,425	7,199	4,835	728	43.7
Elect./electronic eng.	65,282	299	10,737	10,498	8,395	16,479	7,577	7,235	2,732	1,031	299	40.8
Indust./mechan. eng.	125,092	1,426	10,984	13,948	18,151	25,870	21,940	12,146	14,902	3,688	2,037	43.5
Men												
TOTAL SCIENT. & ENGIN.	449,662	3,889	59,861	62,141	63,741	93,796	65,536	48,762	33,811	14,052	4,073	41.9
SCIENTISTS	191,749	1,412	34,595	32,205	27,152	37,089	25,553	18,309	9,285	4,498	1,651	40.1
Natural scientists	64,806	370	9,308	8,744	8,340	11,304	10,783	9,325	3,598	2,363	671	42.5
Computer scientists	98,209	1,042	22,295	19,887	14,705	18,831	11,374	6,816	2,622	637	0	37.0
Social scientists	28,734	0	2,992	3,574	4,107	6,954	3,396	2,168	3,065	1,498	980	42.7
ENGINEERS	257,913	2,477	25,266	29,936	36,589	56,707	39,983	30,453	24,526	9,554	2,422	43.1
Civil engineers	78,784	752	6,208	7,859	11,046	16,577	11,791	11,789	7,199	4,835	728	44.1
Elect./electronic eng.	61,282	299	9,467	8,485	8,395	15,762	7,577	7,235	2,732	1,031	299	41.3
Indust./mechan. eng.	117,847	1,426	9,591	13,592	17,148	24,368	20,615	11,429	14,595	3,688	1,395	43.5

FR-1(90)

Scientist and Engineer Occupations, by Age and Sex, for France: 1990--Continued

78

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Women												
TOTAL SCIENT. & ENGIN.	81,006	2,026	18,477	19,850	8,802	16,407	6,489	5,309	2,023	0	1,623	35.1
SCIENTISTS	64,674	1,361	14,076	16,819	7,472	13,492	4,801	3,956	1,716	0	981	35.1
Natural scientists	21,883	660	3,849	5,110	1,802	2,825	3,740	2,218	1,029	0	650	38.7
Computer scientists	21,189	701	6,721	7,578	3,697	2,492	0	0	0	0	0	32.1
Social scientists	21,602	0	3,506	4,131	1,973	8,175	1,061	1,738	687	0	331	40.7
ENGINEERS	16,332	665	4,401	3,031	1,330	2,915	1,688	1,353	307	0	642	35.3
Civil engineers	5,087	665	1,738	662	327	696	363	636	0	0	0	31.1
Elect./electronic eng.	4,000	0	1,270	2,013	0	717	0	0	0	0	0	31.8
Indust./mechan. eng.	7,245	0	1,393	356	1,003	1,502	1,325	717	307	0	642	42.9

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

FR-1(91)

Scientist and Engineer Occupations, by Age and Sex, for France: 1991

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENGIN.	547,105	6,462	77,380	87,254	84,366	99,935	80,518	57,111	39,871	10,754	3,454	40.9
SCIENTISTS	263,234	5,027	50,072	45,702	43,313	45,075	31,596	24,621	14,056	1,954	1,818	38.6
Natural scientists	85,751	1,371	11,080	13,502	10,822	14,428	12,947	9,901	9,701	1,079	920	42.1
Computer scientists	129,246	2,569	32,694	24,902	24,037	19,811	14,707	7,922	2,312	292	0	35.9
Social scientists	48,237	1,087	6,298	7,298	8,454	10,836	3,942	6,798	2,043	583	898	40.5
ENGINEERS	283,871	1,435	27,308	41,552	41,053	54,860	48,922	32,490	25,815	8,800	1,636	42.8
Civil engineers	78,332	347	5,197	9,404	11,103	17,852	12,711	10,845	7,855	2,716	302	43.7
Elect./electronic eng.	65,945	0	9,842	12,914	11,775	9,800	9,281	6,444	4,780	1,109	0	39.3
Indust./mechan. eng.	139,594	1,088	12,269	19,234	18,175	27,208	26,930	15,201	13,180	4,975	1,334	43.5
Men												
TOTAL SCIENT. & ENGIN.	459,303	2,554	59,415	69,863	72,202	84,991	71,039	49,942	37,183	9,235	2,879	41.5
SCIENTISTS	192,978	1,466	35,252	31,855	33,385	32,523	24,735	19,088	12,039	1,392	1,243	39.2
Natural scientists	63,331	741	6,112	9,431	8,964	11,587	9,016	7,037	8,693	1,079	671	42.8
Computer scientists	105,429	725	25,977	18,852	19,770	16,765	13,106	7,922	2,312	0	0	36.8
Social scientists	24,218	0	3,163	3,572	4,651	4,171	2,613	4,129	1,034	313	572	40.9
ENGINEERS	266,325	1,088	24,163	38,008	38,817	52,468	46,304	30,854	25,144	7,843	1,636	44.0
Civil engineers	71,044	0	4,212	7,764	10,050	17,200	12,076	9,884	7,511	2,045	302	46.7
Elect./electronic eng.	62,555	0	8,762	11,625	11,440	9,114	9,281	6,444	4,780	1,109	0	39.8
Indust./mechan. eng.	132,726	1,088	11,189	18,619	17,327	26,154	24,947	14,526	12,853	4,689	1,334	43.5

FR-1(91)

Scientist and Engineer Occupations, by Age and Sex, for France: 1991--Continued

08

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Women												
TOTAL SCIENT. & ENGIN.	87,802	3,908	17,965	17,391	12,164	14,944	9,479	7,169	2,688	1,519	575	36.9
SCIENTISTS	70,256	3,561	14,820	13,847	9,928	12,552	6,861	5,533	2,017	562	575	36.5
Natural scientists	22,420	630	4,968	4,071	1,858	2,841	3,931	2,864	1,008	0	249	39.1
Computer scientists	23,817	1,844	6,717	6,050	4,267	3,046	1,601	0	0	292	0	32.8
Social scientists	24,019	1,087	3,135	3,726	3,803	6,665	1,329	2,669	1,009	270	326	40.2
ENGINEERS	17,546	347	3,145	3,544	2,236	2,392	2,618	1,636	671	957	0	38.9
Civil engineers	7,288	347	985	1,640	1,053	652	635	961	344	671	0	38.2
Elect./electronic eng.	3,390	0	1,080	1,289	335	686	0	0	0	0	0	32.4
Indust./mechan. eng.	6,868	0	1,080	615	848	1,054	1,983	675	327	286	0	44.2

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-1(92)

Scientist and Engineer Occupations, by Age and Sex, for France: 1992

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENGIN.	582,947	3,843	88,968	102,566	87,425	103,616	88,139	58,513	38,381	8,274	3,222	40.4
SCIENTISTS	286,375	1,834	52,895	61,686	47,085	45,702	37,190	23,452	11,144	4,029	1,358	37.8
Natural scientists	91,581	681	14,248	16,543	10,506	12,594	16,493	9,679	6,415	4,029	393	41.5
Computer scientists	145,208	351	35,464	36,585	26,536	20,553	15,207	8,431	2,081	0	0	35.0
Social scientists	49,586	802	3,183	8,558	10,043	12,555	5,490	5,342	2,648	0	965	40.9
ENGINEERS	296,572	2,009	36,073	40,880	40,339	57,914	50,949	35,061	27,237	4,246	1,864	42.5
Civil engineers	85,313	1,271	8,159	7,192	11,965	19,872	17,962	8,134	8,990	1,129	639	43.5
Elect./electronic eng.	74,658	340	13,088	15,527	10,245	13,484	8,024	7,991	5,097	862	0	39.1
Indust./mechan. eng.	136,601	398	14,826	18,162	18,129	24,558	24,963	18,936	13,150	2,255	1,225	43.4
Men												
TOTAL SCIENT. & ENGIN.	480,043	2,647	64,237	80,396	71,473	89,411	74,070	52,143	36,258	6,550	2,859	41.2
SCIENTISTS	205,336	792	34,149	43,900	36,059	33,300	25,553	18,249	9,327	3,012	995	38.3
Natural scientists	63,293	340	7,250	9,520	9,483	9,493	10,722	7,393	5,690	3,012	393	42.7
Computer scientists	117,833	0	26,222	29,054	22,451	18,111	12,149	7,764	2,081	0	0	35.8
Social scientists	24,210	452	677	5,326	4,125	5,697	2,682	3,092	1,556	0	602	41.3
ENGINEERS	274,708	1,855	30,088	36,496	35,414	56,111	48,517	33,894	26,930	3,538	1,864	43.0
Civil engineers	75,978	1,117	5,911	5,352	9,632	19,143	16,548	7,824	8,683	1,129	639	44.2
Elect./electronic eng.	71,541	340	12,284	14,320	9,497	13,127	8,024	7,991	5,097	862	0	39.6
Indust./mechan. eng.	127,189	398	11,893	16,824	16,286	23,841	23,946	18,080	13,150	1,547	1,225	43.8

FR-1(92)

Scientist and Engineer Occupations, by Age and Sex, for France: 1992--Continued

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Women												
TOTAL SCIENT. & ENGIN.	102,904	1,196	24,731	22,171	15,951	14,205	14,069	6,370	2,124	1,725	363	36.1
SCIENTISTS	81,040	1,042	18,745	17,787	11,027	12,402	11,637	5,203	1,817	1,017	363	36.3
Natural scientists	28,288	342	6,998	7,024	1,024	3,101	5,771	2,285	725	1,017	0	34.8
Computer scientists	27,375	351	9,241	7,531	4,084	2,442	3,058	668	0	0	0	32.7
Social scientists	25,377	350	2,506	3,232	5,919	6,858	2,808	2,250	1,092	0	363	40.5
ENGINEERS	21,864	154	5,985	4,384	4,925	1,803	2,432	1,167	307	708	0	35.4
Civil engineers	9,335	154	2,249	1,839	2,333	728	1,414	310	307	0	0	35.9
Elect./electronic eng.	3,117	0	805	1,207	748	357	0	0	0	0	0	33.1
Indust./mechan. eng.	9,412	0	2,932	1,338	1,843	717	1,017	857	0	708	0	36.2

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

FR-2(90)

Scientist and Engineer Occupations, by Employment Status and Sex, for France: 1990

Sex and occupation	Total	Self-employed	Employers	Employees	
				Private sector	Public sector
Both sexes					
TOTAL SCIENT. & ENGIN.	530,668	11,032	5,949	402,104	111,583
SCIENTISTS	256,423	4,228	0	183,978	68,217
Natural scientists	86,689	0	0	41,642	45,047
Computer scientists	119,398	0	0	116,279	3,119
Social scientists	50,336	4,228	0	26,057	20,051
ENGINEERS	274,245	6,804	5,949	218,126	43,366
Civil engineers	83,871	0	0	45,487	38,384
Elect./electronic eng.	65,282	0	0	62,869	2,413
Indust./mechan. eng.	125,092	6,804	5,949	109,770	2,569
Men					
TOTAL SCIENT. & ENGIN.	449,662	8,157	4,965	355,155	81,385
SCIENTISTS	191,749	2,353	0	147,427	41,969
Natural scientists	64,806	0	0	34,688	30,118
Computer scientists	98,209	0	0	95,090	3,119
Social scientists	28,734	2,353	0	17,649	8,732
ENGINEERS	257,913	5,804	4,965	207,728	39,416
Civil engineers	78,784	0	0	43,406	35,378
Elect./electronic eng.	61,282	0	0	59,210	2,072
Indust./mechan. eng.	117,847	5,804	4,965	105,112	1,966
Women					
TOTAL SCIENT. & ENGIN.	81,006	2,875	984	46,949	30,198
SCIENTISTS	64,674	1,875	0	36,551	26,248
Natural scientists	21,883	0	0	6,954	14,929
Computer scientists	21,189	0	0	21,189	0
Social scientists	21,602	1,875	0	8,408	11,319
ENGINEERS	16,332	1,000	984	10,398	3,950
Civil engineers	5,087	0	0	2,081	3,006
Elect./electronic eng.	4,000	0	0	3,659	341
Indust./mechan. eng.	7,245	1,000	984	4,658	603

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

FR-2(91)

Scientist and Engineer Occupations, by Employment Status and Sex, for France: 1991

Sex and occupation	Total	Self-employed	Employers	Employees	
				Private sector	Public sector
Both sexes					
TOTAL SCIENT. & ENGIN.	547,105	13,832	2,244	434,005	97,024
SCIENTISTS	263,234	2,852	298	202,196	57,888
Natural scientists	85,751	0	0	47,705	38,046
Computer scientists	129,246	0	0	127,259	1,987
Social scientists	48,237	2,852	298	27,232	17,855
ENGINEERS	283,871	10,980	1,946	231,809	39,136
Civil engineers	78,332	0	0	42,207	36,125
Elect./electronic eng.	65,945	0	0	63,958	1,987
Indust./mechan. eng.	139,594	10,980	1,946	125,644	1,024
Men					
TOTAL SCIENT. & ENGIN.	459,303	11,176	1,631	381,030	65,466
SCIENTISTS	192,978	892	0	159,782	32,304
Natural scientists	63,331	0	0	39,653	23,678
Computer scientists	105,429	0	0	103,748	1,681
Social scientists	24,218	892	0	16,381	6,945
ENGINEERS	266,325	10,284	1,631	221,248	33,162
Civil engineers	71,044	0	0	40,550	30,494
Elect./electronic eng.	62,555	0	0	60,911	1,644
Indust./mechan. eng.	132,726	10,284	1,631	119,787	1,024
Women					
TOTAL SCIENT. & ENGIN.	87,802	2,656	613	52,975	31,558
SCIENTISTS	70,256	1,960	298	42,414	25,584
Natural scientists	22,420	0	0	8,052	14,368
Computer scientists	23,817	0	0	23,511	306
Social scientists	24,019	1,960	298	10,851	10,910
ENGINEERS	17,546	696	315	10,561	5,974
Civil engineers	7,288	0	0	1,657	5,631
Elect./electronic eng.	3,390	0	0	3,047	343
Indust./mechan. eng.	6,868	696	315	5,857	0

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-2(92)

Scientist and Engineer Occupations, by Employment Status and Sex, for France: 1992

Sex and occupation	Total	Self-employed	Employers	Employees	
				Private sector	Public sector
Both sexes					
TOTAL SCIENT. & ENGIN.	582,947	10,136	5,143	457,289	110,379
SCIENTISTS	286,375	2,398	388	216,955	66,634
Natural scientists	91,581	0	0	48,445	43,136
Computer scientists	145,207	0	0	142,613	2,594
Social scientists	49,586	2,398	388	25,897	20,904
ENGINEERS	296,572	7,738	4,755	240,333	43,745
Civil engineers	85,313	0	0	44,119	41,194
Elect./electronic eng.	74,658	0	0	73,850	808
Indust./mechan. eng.	136,601	7,738	4,755	122,364	1,743
Men					
TOTAL SCIENT. & ENGIN.	480,043	7,655	3,899	395,235	73,254
SCIENTISTS	205,335	602	0	167,847	36,886
Natural scientists	63,293	0	0	36,199	27,095
Computer scientists	117,833	0	0	115,544	2,288
Social scientists	24,210	602	0	16,104	7,503
ENGINEERS	274,707	7,053	3,899	227,388	36,368
Civil engineers	75,978	0	0	42,162	33,816
Elect./electronic eng.	71,541	0	0	70,732	808
Indust./mechan. eng.	127,189	7,053	3,899	114,494	1,743
Women					
TOTAL SCIENT. & ENGIN.	102,904	2,481	1,244	62,054	37,125
SCIENTISTS	81,040	1,796	388	49,109	29,748
Natural scientists	28,288	0	0	12,246	16,041
Computer scientists	27,375	0	0	27,069	306
Social scientists	25,377	1,796	388	9,793	13,400
ENGINEERS	21,864	685	857	12,945	7,378
Civil engineers	9,335	0	0	1,958	7,378
Elect./electronic eng.	3,117	0	0	3,117	0
Indust./mechan. eng.	9,412	685	857	7,870	0

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1990

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Both sexes											
TOTAL SCIENT. & ENGIN.	530,668	3,194	16,201	175,135	18,102	26,568	23,478	11,000	146,144	107,915	2,931
SCIENTISTS	256,423	2,568	4,411	53,057	2,605	1,697	14,544	4,549	102,741	68,601	1,650
Natural scientists	86,689	2,568	2,260	16,066	750	0	3,004	0	16,114	45,590	337
Computer scientists	119,398	0	1,797	33,736	1,855	1,697	9,355	3,864	61,033	5,047	1,014
Social scientists	50,336	0	354	3,255	0	0	2,185	685	25,594	17,964	299
ENGINEERS	274,245	626	11,790	122,078	15,497	24,871	8,934	6,451	43,403	39,314	1,281
Civil engineers	83,871	626	1,957	6,145	1,317	21,497	1,309	2,314	13,342	35,047	317
Elect./electronic eng.	65,282	0	1,605	45,443	2,395	1,362	616	1,453	10,385	1,389	634
Indust./mechan. eng.	125,092	0	8,228	70,490	11,785	2,012	7,009	2,684	19,676	2,878	330
Men											
TOTAL SCIENT. & ENGIN.	449,662	2,539	15,813	161,380	16,265	26,205	21,520	10,681	111,802	81,158	2,299
SCIENTISTS	191,749	1,913	4,411	45,529	1,512	1,697	13,229	4,549	72,740	45,151	1,018
Natural scientists	64,806	1,913	2,260	13,998	368	0	2,660	0	12,004	31,603	0
Computer scientists	98,209	0	1,797	29,791	1,144	1,697	8,384	3,864	46,495	4,318	719
Social scientists	28,734	0	354	1,740	0	0	2,185	685	14,241	9,230	299
ENGINEERS	257,913	626	11,402	115,851	14,753	24,508	8,291	6,132	39,062	36,007	1,281
Civil engineers	78,784	626	1,957	5,447	1,317	21,134	1,309	1,995	12,339	32,343	317
Elect./electronic eng.	61,282	0	1,217	43,526	2,054	1,362	616	1,453	9,031	1,389	634
Indust./mechan. eng.	117,847	0	8,228	66,878	11,382	2,012	6,366	2,684	17,692	2,275	330

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Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1990--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Women											
TOTAL SCIENT. & ENGIN.	81,006	655	388	13,755	1,837	363	1,958	319	34,342	26,757	632
SCIENTISTS	64,674	655	0	7,528	1,093	0	1,315	0	30,001	23,450	632
Natural scientists	21,883	655	0	2,068	382	0	344	0	4,110	13,987	337
Computer scientists	21,189	0	0	3,945	711	0	971	0	14,538	729	295
Social scientists	21,602	0	0	1,515	0	0	0	0	11,353	8,734	0
ENGINEERS	16,332	0	388	6,227	744	363	643	319	4,341	3,307	0
Civil engineers	5,087	0	0	698	0	363	0	319	1,003	2,704	0
Elect./electronic eng.	4,000	0	388	1,917	341	0	0	0	1,354	0	0
Indust./mechan. eng.	7,245	0	0	3,612	403	0	643	0	1,984	603	0

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

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Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1991

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Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Both sexes											
TOTAL SCIENT. & ENGIN.	547,105	1,519	19,930	171,443	22,547	28,399	29,032	13,510	160,386	100,053	286
SCIENTISTS	263,234	1,519	7,421	57,848	2,030	1,139	13,281	5,565	110,908	63,523	0
Natural scientists	85,751	1,519	3,554	16,581	360	370	2,341	0	19,198	41,828	0
Computer scientists	129,246	0	3,114	39,280	1,377	373	10,604	2,147	66,563	5,788	0
Social scientists	48,237	0	753	1,987	293	396	336	3,418	25,147	15,907	0
ENGINEERS	283,871	0	12,509	113,595	20,517	27,260	15,751	7,945	49,478	36,530	286
Civil engineers	78,332	0	2,197	4,341	1,374	22,705	1,356	2,943	11,589	31,827	0
Elect./electronic eng.	65,945	0	938	39,410	3,462	2,798	4,206	1,025	12,462	1,644	0
Indust./mechan. eng.	139,594	0	9,374	69,844	15,681	1,757	10,189	3,977	25,427	3,059	286
Men											
TOTAL SCIENT. & ENGIN.	459,303	1,186	18,831	155,783	20,569	27,715	26,071	12,845	126,489	69,814	0
SCIENTISTS	192,978	1,186	6,322	46,888	1,652	1,139	10,602	4,900	81,027	39,262	0
Natural scientists	63,331	1,186	3,213	12,820	360	370	2,007	0	15,835	27,540	0
Computer scientists	105,429	0	2,756	33,109	999	373	8,259	2,147	52,945	4,841	0
Social scientists	24,218	0	353	959	293	396	336	2,753	12,247	6,881	0
ENGINEERS	266,325	0	12,509	108,895	18,917	26,576	15,469	7,945	45,462	30,552	0
Civil engineers	71,044	0	2,197	4,341	1,374	22,021	1,356	2,943	10,308	26,504	0
Elect./electronic eng.	62,555	0	938	37,750	2,705	2,798	3,924	1,025	11,771	1,644	0
Indust./mechan. eng.	132,726	0	9,374	66,804	14,838	1,757	10,189	3,977	23,383	2,404	0

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Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1991--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Women											
TOTAL SCIENT. & ENGIN.	87,802	333	1,099	15,660	1,978	684	2,961	665	33,897	30,239	286
SCIENTISTS	70,256	333	1,099	10,960	378	0	2,679	665	29,881	24,261	0
Natural scientists	22,420	333	341	3,761	0	0	334	0	3,363	14,288	0
Computer scientists	23,817	0	358	6,171	378	0	2,345	0	13,618	947	0
Social scientists	24,019	0	400	1,028	0	0	0	665	12,900	9,026	0
ENGINEERS	17,546	0	0	4,700	1,600	684	282	0	4,016	5,978	286
Civil engineers	7,288	0	0	0	0	684	0	0	1,281	5,323	0
Elect./electronic eng.	3,390	0	0	1,660	757	0	282	0	691	0	0
Indust./mechan. eng.	6,868	0	0	3,040	843	0	0	0	2,044	655	286

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-3(92)
Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1992

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Both sexes											
TOTAL SCIENT. & ENGIN.	582,947	884	17,870	183,270	18,316	25,377	33,606	12,996	171,868	108,097	10,663
SCIENTISTS	286,375	884	5,264	55,269	3,032	1,444	17,161	4,173	124,965	68,020	6,161
Natural scientists	91,581	884	2,534	16,069	770	0	3,666	333	22,493	44,832	0
Computer scientists	145,208	0	2,316	36,684	2,262	1,097	12,951	3,212	77,760	3,504	5,422
Social scientists	49,586	0	414	2,517	0	347	545	629	24,712	19,684	739
ENGINEERS	296,572	0	12,606	128,001	15,284	23,933	16,445	8,822	46,902	40,077	4,502
Civil engineers	85,313	0	2,572	3,966	990	19,858	1,865	3,136	14,045	37,562	1,320
Elect./electronic eng.	74,658	0	983	49,317	3,931	2,142	4,666	1,841	9,958	1,087	733
Indust./mechan. eng.	136,601	0	9,051	74,718	10,363	1,933	9,915	3,845	22,899	1,428	2,449
Men											
TOTAL SCIENT. & ENGIN.	480,043	884	17,552	165,240	16,881	25,019	29,890	12,285	130,256	72,167	9,868
SCIENTISTS	205,335	884	5,264	44,188	2,658	1,444	14,669	3,462	87,080	39,887	5,799
Natural scientists	63,293	884	2,534	11,690	395	0	3,350	333	16,053	28,053	0
Computer scientists	117,833	0	2,316	29,980	2,262	1,097	10,890	2,501	60,633	3,092	5,060
Social scientists	24,210	0	414	2,517	0	347	428	629	10,394	8,742	739
ENGINEERS	274,708	0	12,288	121,052	14,224	23,575	15,221	8,822	43,175	32,280	4,069
Civil engineers	75,978	0	2,572	3,966	990	19,500	1,409	3,136	13,395	30,123	887
Elect./electronic eng.	71,541	0	983	47,726	3,139	2,142	4,666	1,841	9,224	1,087	733
Indust./mechan. eng.	127,189	0	8,733	69,361	10,095	1,933	9,147	3,845	20,557	1,071	2,449

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Scientist and Engineer Occupations, by Industry Group and Sex, for France: 1992--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not stated
Women											
TOTAL SCIENT. & ENGIN.	102,904	0	318	18,030	1,435	358	3,716	711	41,612	35,930	795
SCIENTISTS	81,040	0	0	11,082	375	0	2,492	711	37,885	28,133	362
Natural scientists	28,288	0	0	4,378	375	0	316	0	6,440	16,779	0
Computer scientists	27,375	0	0	6,703	0	0	2,060	711	17,127	412	362
Social scientists	25,377	0	0	0	0	0	116	0	14,318	10,942	0
ENGINEERS	21,864	0	318	6,948	1,060	358	1,224	0	3,727	7,797	432
Civil engineers	9,335	0	0	0	0	358	456	0	650	7,439	432
Elect./electronic eng.	3,117	0	0	1,591	792	0	0	0	734	0	0
Indust./mechan. eng.	9,412	0	318	5,357	268	0	768	0	2,342	358	0

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

FR-4(90)

Scientist and Engineer Occupations, by Manufacturing Industry and Sex, for France: 1990

Sex and occupation	Total	Chemical	Elec./metal products	Other
Both sexes				
TOTAL SCIENT. & ENGIN.	175,135	24,248	115,512	35,375
SCIENTISTS	53,057	14,004	32,791	6,262
Natural scientists	16,066	10,221	3,777	2,068
Computer scientists	33,736	3,414	27,274	3,048
Social scientists	3,255	369	1,740	1,146
ENGINEERS	122,078	10,244	82,721	29,113
Civil engineers	6,145	712	4,482	951
Elect./electronic eng.	45,443	1,066	43,329	1,048
Indust./mechan. eng.	70,490	8,466	34,910	27,114
Men				
TOTAL SCIENT. & ENGIN.	161,380	20,831	109,652	30,897
SCIENTISTS	45,529	10,926	29,876	4,727
Natural scientists	13,998	8,449	3,481	2,068
Computer scientists	29,791	2,477	24,655	2,659
Social scientists	1,740	0	1,740	0
ENGINEERS	115,851	9,905	79,776	26,170
Civil engineers	5,447	373	4,123	951
Elect./electronic eng.	43,526	1,066	41,412	1,048
Indust./mechan. eng.	66,878	8,466	34,241	24,171
Women				
TOTAL SCIENT. & ENGIN.	13,755	3,417	5,860	4,478
SCIENTISTS	7,528	3,078	2,915	1,535
Natural scientists	2,068	1,772	296	0
Computer scientists	3,945	937	2,619	389
Social scientists	1,515	369	0	1,146
ENGINEERS	6,227	339	2,945	2,943
Civil engineers	698	339	359	0
Elect./electronic eng.	1,917	0	1,917	0
Indust./mechan. eng.	3,612	0	669	2,943

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

FR-4(91)

Scientist and Engineer Occupations, by Manufacturing Industry and Sex, for France: 1991

Sex and occupation	Total	Chemical	Elec./metal products	Other
Both sexes				
TOTAL SCIENT. & ENGIN.	171,443	28,371	109,284	33,788
SCIENTISTS	57,848	15,701	35,620	6,527
Natural scientists	16,581	11,095	2,749	2,737
Computer scientists	39,280	3,555	31,935	3,790
Social scientists	1,987	1,051	936	0
ENGINEERS	113,595	12,670	73,664	27,261
Civil engineers	4,341	621	3,037	683
Elect./electronic eng.	39,410	644	36,847	1,919
Indust./mechan. eng.	69,844	11,405	33,780	24,659
Men				
TOTAL SCIENT. & ENGIN.	155,783	23,630	102,527	29,626
SCIENTISTS	46,888	10,960	30,830	5,098
Natural scientists	12,820	8,034	2,749	2,037
Computer scientists	33,109	2,594	27,454	3,061
Social scientists	959	332	627	0
ENGINEERS	108,895	12,670	71,697	24,528
Civil engineers	4,341	621	3,037	683
Elect./electronic eng.	37,750	644	35,525	1,581
Indust./mechan. eng.	66,804	11,405	33,135	22,264
Women				
TOTAL SCIENT. & ENGIN.	15,660	4,741	6,757	4,162
SCIENTISTS	10,960	4,741	4,790	1,429
Natural scientists	3,761	3,061	0	700
Computer scientists	6,171	961	4,481	729
Social scientists	1,028	719	309	0
ENGINEERS	4,700	0	1,967	2,733
Civil engineers	0	0	0	0
Elect./electronic eng.	1,660	0	1,322	338
Indust./mechan. eng.	3,040	0	645	2,395

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-4(92)

Scientist and Engineer Occupations, by Manufacturing Industry and Sex, for France: 1992

Sex and occupation	Total	Chemical	Elec./metal products	Other
Both sexes				
TOTAL SCIENT. & ENGIN.	183,270	27,651	123,297	32,322
SCIENTISTS	55,269	16,048	34,697	4,525
Natural scientists	16,069	11,470	3,764	834
Computer scientists	36,684	4,144	29,540	2,999
Social scientists	2,517	434	1,392	692
ENGINEERS	128,001	11,603	88,600	27,798
Civil engineers	3,966	462	3,160	344
Elect./electronic eng.	49,317	391	47,849	1,077
Indust./mechan. eng.	74,718	10,749	37,592	26,377
Men				
TOTAL SCIENT. & ENGIN.	165,240	22,397	113,978	28,865
SCIENTISTS	44,188	11,499	29,008	3,681
Natural scientists	11,690	7,563	3,764	362
Computer scientists	29,980	3,501	23,852	2,627
Social scientists	2,517	434	1,392	692
ENGINEERS	121,052	10,898	84,970	25,184
Civil engineers	3,966	462	3,160	344
Elect./electronic eng.	47,726	391	46,258	1,077
Indust./mechan. eng.	69,361	10,044	35,553	23,763
Women				
TOTAL SCIENT. & ENGIN.	18,030	5,254	9,318	3,457
SCIENTISTS	11,082	4,549	5,688	844
Natural scientists	4,378	3,907	0	472
Computer scientists	6,703	643	5,688	372
Social scientists	0	0	0	0
ENGINEERS	6,948	705	3,630	2,614
Civil engineers	0	0	0	0
Elect./electronic eng.	1,591	0	1,591	
Indust./mechan. eng.	5,357	705	2,039	2,614

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

FR-5(90)

Scientist and Engineer Occupations, by Service Industry Group and Sex, for France: 1990

Sex and occupation	Total	Finance	Insurance	Real estate	Other business services	Community social & pers. serv.
Both sexes						
TOTAL SCIENT. & ENGIN.	254,059	11,572	3,789	1,011	129,772	107,915
SCIENTISTS	171,342	10,925	3,405	320	88,091	68,601
Natural scientists	61,704	413	0	0	15,701	45,590
Computer scientists	66,080	6,957	3,097	0	50,979	5,047
Social scientists	43,558	3,555	308	320	21,411	17,964
ENGINEERS	82,717	647	384	691	41,681	39,314
Civil engineers	48,389	312	0	362	12,668	35,047
Elect./electronic eng.	11,774	335	384	0	9,666	1,389
Indust./mechan. eng.	22,554	0	0	329	19,347	2,878
Men						
TOTAL SCIENT. & ENGIN.	192,960	7,687	2,684	1,011	100,420	81,158
SCIENTISTS	117,891	7,375	2,300	320	62,745	45,151
Natural scientists	43,607	413	0	0	11,591	31,603
Computer scientists	50,813	5,141	1,992	0	39,362	4,318
Social scientists	23,471	1,821	308	320	11,792	9,230
ENGINEERS	75,069	312	384	691	37,675	36,007
Civil engineers	44,682	312	0	362	11,665	32,343
Elect./electronic eng.	10,420	0	384	0	8,647	1,389
Indust./mechan. eng.	19,967	0	0	329	17,363	2,275
Women						
TOTAL SCIENT. & ENGIN.	61,099	3,885	1,105	0	29,352	26,757
SCIENTISTS	53,451	3,550	1,105	0	25,346	23,450
Natural scientists	18,097	0	0	0	4,110	13,987
Computer scientists	15,267	1,816	1,105	0	11,617	729
Social scientists	20,087	1,734	0	0	9,619	8,734
ENGINEERS	7,648	335	0	0	4,006	3,307
Civil engineers	3,707	0	0	0	1,003	2,704
Elect./electronic eng.	1,354	335	0	0	1,019	0
Indust./mechan. eng.	2,587	0	0	0	1,984	603

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

Scientist and Engineer Occupations, by Service Industry Group and Sex, for France: 1991

Sex and occupation	Total	Finance	Insurance	Real estate	Other business services	Community social & pers. serv.
Both sexes						
TOTAL SCIENT. & ENGIN.	260,439	12,497	4,041	668	143,180	100,053
SCIENTISTS	174,431	11,876	3,293	353	95,386	63,523
Natural scientists	61,026	0	0	0	19,198	41,828
Computer scientists	72,351	8,296	2,290	0	55,977	5,788
Social scientists	41,054	3,580	1,003	353	20,211	15,907
ENGINEERS	86,008	621	748	315	47,794	36,530
Civil engineers	43,416	318	0	315	10,956	31,827
Elect./electronic eng.	14,106	0	411	0	12,051	1,644
Indust./mechan. eng.	28,486	303	337	0	24,787	3,059
Men						
TOTAL SCIENT. & ENGIN.	196,303	9,006	4,041	315	113,127	69,814
SCIENTISTS	120,289	8,688	3,293	0	69,046	39,262
Natural scientists	43,375	0	0	0	15,835	27,540
Computer scientists	57,786	5,799	2,290	0	44,856	4,841
Social scientists	19,128	2,889	1,003	0	8,355	6,881
ENGINEERS	76,014	318	748	315	44,081	30,552
Civil engineers	36,812	318	0	315	9,675	26,504
Elect./electronic eng.	13,415	0	411	0	11,360	1,644
Indust./mechan. eng.	25,787	0	337	0	23,046	2,404
Women						
TOTAL SCIENT. & ENGIN.	64,136	3,491	0	353	30,053	30,239
SCIENTISTS	54,142	3,188	0	353	26,340	24,261
Natural scientists	17,651	0	0	0	3,363	14,288
Computer scientists	14,565	2,497	0	0	11,121	947
Social scientists	21,926	691	0	353	11,856	9,026
ENGINEERS	9,994	303	0	0	3,713	5,978
Civil engineers	6,604	0	0	0	1,281	5,323
Elect./electronic eng.	691	0	0	0	691	0
Indust./mechan. eng.	2,699	303	0	0	1,741	655

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-5(92)

Scientist and Engineer Occupations, by Service Industry Group and Sex, for France: 1992

Sex and occupation	Total	Finance	Insurance	Real estate	Other business services	Community social & pers. serv.
Both sexes						
TOTAL SCIENT. & ENGIN.	279,965	12,117	3,910	1,422	154,419	108,097
SCIENTISTS	192,985	11,069	3,566	773	109,558	68,020
Natural scientists	67,325	0	0	395	22,098	44,832
Computer scientists	81,264	8,275	2,964	0	66,522	3,504
Social scientists	44,396	2,794	602	378	20,938	19,684
ENGINEERS	86,979	1,048	344	648	44,861	40,077
Civil engineers	51,607	1,048	0	318	12,679	37,562
Elect./electronic eng.	11,045	0	0	0	9,958	1,087
Indust./mechan. eng.	24,327	0	344	330	22,224	1,428
Men						
TOTAL SCIENT. & ENGIN.	202,423	8,352	2,472	1,043	118,389	72,167
SCIENTISTS	126,968	7,303	2,127	395	77,255	39,887
Natural scientists	44,106	0	0	395	15,658	28,053
Computer scientists	63,726	5,585	1,525	0	53,523	3,092
Social scientists	19,136	1,718	602	0	8,074	8,742
ENGINEERS	75,456	1,048	344	648	41,134	32,280
Civil engineers	43,518	1,048	0	318	12,028	30,123
Elect./electronic eng.	10,311	0	0	0	9,224	1,087
Indust./mechan. eng.	21,627	0	344	330	19,882	1,071
Women						
TOTAL SCIENT. & ENGIN.	77,542	3,766	1,438	378	36,030	35,930
SCIENTISTS	66,018	3,766	1,438	378	32,303	28,133
Natural scientists	23,219	0	0	0	6,440	16,779
Computer scientists	17,538	2,689	1,438	0	12,999	412
Social scientists	25,260	1,076	0	378	12,864	10,942
ENGINEERS	11,524	0	0	0	3,727	7,797
Civil engineers	8,089	0	0	0	650	7,439
Elect./electronic eng.	734	0	0	0	734	0
Indust./mechan. eng.	2,700	0	0	0	2,342	358

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

Scientist and Engineer Occupations, by Educational Attainment and Sex, for France: 1990

Sex and occupation	Total	Gen. educ. diploma or below	Technical diploma	General university degree	Higher university degree	Not stated
Both sexes						
TOTAL SCIENT. & ENGIN.	530,668	65,017	66,005	67,164	323,330	9,152
SCIENTISTS	256,423	23,912	21,696	30,691	174,434	5,690
Natural scientists	86,689	2,962	4,004	5,491	71,318	2,914
Computer scientists	119,398	19,629	11,822	21,899	64,649	1,399
Social scientists	50,336	1,321	5,870	3,301	38,467	1,377
ENGINEERS	274,245	41,105	44,309	36,473	148,896	3,462
Civil engineers	83,871	14,591	13,575	9,028	45,586	1,091
Elect./electronic eng.	65,282	5,922	8,452	10,793	39,086	1,029
Indust./mechan. eng.	125,092	20,592	22,282	16,652	64,224	1,342
Men						
TOTAL SCIENT. & ENGIN.	449,662	59,145	60,409	57,886	264,377	7,845
SCIENTISTS	191,749	20,715	18,344	23,402	124,905	4,383
Natural scientists	64,806	2,274	3,337	4,487	52,099	2,609
Computer scientists	98,209	17,809	10,079	16,619	52,303	1,399
Social scientists	28,734	632	4,928	2,296	20,503	375
ENGINEERS	257,913	38,430	42,065	34,484	139,472	3,462
Civil engineers	78,784	14,264	13,212	8,367	41,850	1,091
Elect./electronic eng.	61,282	5,922	8,452	10,468	35,411	1,029
Indust./mechan. eng.	117,847	18,244	20,401	15,649	62,211	1,342
Women						
TOTAL SCIENT. & ENGIN.	81,006	5,872	5,596	9,278	58,953	1,307
SCIENTISTS	64,674	3,197	3,352	7,289	49,529	1,307
Natural scientists	21,883	688	667	1,004	19,219	305
Computer scientists	21,189	1,820	1,743	5,280	12,346	0
Social scientists	21,602	689	942	1,005	17,964	1,002
ENGINEERS	16,332	2,675	2,244	1,989	9,424	0
Civil engineers	5,087	327	363	661	3,736	0
Elect./electronic eng.	4,000	0	0	325	3,675	0
Indust./mechan. eng.	7,245	2,348	1,881	1,003	2,013	0

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
of the Census.

FR-6(91)

Scientist and Engineer Occupations, by Educational Attainment and Sex, for France: 1991

Sex and occupation	Total	Gen. educ. diploma or below	Technical diploma	General university degree	Higher university degree	Not stated
Both sexes						
TOTAL SCIENT. & ENGIN.	547,105	60,482	76,057	81,393	325,020	4,153
SCIENTISTS	263,234	26,492	23,579	41,953	168,408	2,802
Natural scientists	85,751	3,425	4,985	8,368	67,601	1,372
Computer scientists	129,246	20,464	14,635	27,536	66,267	344
Social scientists	48,237	2,603	3,959	6,049	34,540	1,086
ENGINEERS	283,871	33,990	52,478	39,440	156,612	1,351
Civil engineers	78,332	10,680	13,323	9,983	44,346	0
Elect./electronic eng.	65,945	4,430	9,559	10,655	40,947	354
Indust./mechan. eng.	139,594	18,880	29,596	18,802	71,319	997
Men						
TOTAL SCIENT. & ENGIN.	459,303	53,640	69,085	68,439	265,414	2,725
SCIENTISTS	192,978	21,934	19,232	31,485	118,611	1,716
Natural scientists	63,331	2,460	4,001	6,024	49,474	1,372
Computer scientists	105,429	18,177	12,598	21,540	52,770	344
Social scientists	24,218	1,297	2,633	3,921	16,367	0
ENGINEERS	266,325	31,706	49,853	36,954	146,803	1,009
Civil engineers	71,044	10,049	12,979	8,895	39,121	0
Elect./electronic eng.	62,555	4,430	9,559	9,982	38,230	354
Indust./mechan. eng.	132,726	17,227	27,315	18,077	69,452	655
Women						
TOTAL SCIENT. & ENGIN.	87,802	6,842	6,972	12,954	59,606	1,428
SCIENTISTS	70,256	4,558	4,347	10,468	49,797	1,086
Natural scientists	22,420	965	984	2,344	18,127	0
Computer scientists	23,817	2,287	2,037	5,996	13,497	0
Social scientists	24,019	1,306	1,326	2,128	18,173	1,086
ENGINEERS	17,546	2,284	2,625	2,486	9,809	342
Civil engineers	7,288	631	344	1,088	5,225	0
Elect./electronic eng.	3,390	0	0	673	2,717	0
Indust./mechan. eng.	6,868	1,653	2,281	725	1,867	342

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

Scientist and Engineer Occupations, by Educational Attainment and Sex, for France: 1992

Sex and occupation	Total	Gen. educ. diploma or below	Technical diploma	General university degree	Higher university degree	Not stated
Both sexes						
TOTAL SCIENT. & ENGIN.	582,947	64,900	76,416	88,389	351,778	1,464
SCIENTISTS	286,375	31,784	22,631	45,499	186,130	331
Natural scientists	91,581	5,686	4,803	6,311	74,782	0
Computer scientists	145,208	20,531	15,117	32,887	76,673	0
Social scientists	49,586	5,568	2,711	6,301	34,676	331
ENGINEERS	296,572	33,116	53,785	42,890	165,648	1,134
Civil engineers	85,313	13,430	15,156	9,135	47,593	0
Elect./electronic eng.	74,658	3,058	10,902	11,488	48,818	393
Indust./mechan. eng.	136,601	16,628	27,726	22,268	69,238	741
Men						
TOTAL SCIENT. & ENGIN.	480,043	55,291	70,951	75,253	278,217	1,464
SCIENTISTS	205,335	24,831	18,986	34,408	126,780	331
Natural scientists	63,293	3,253	3,683	3,916	52,441	0
Computer scientists	117,833	17,992	13,705	26,411	59,724	0
Social scientists	24,210	3,585	1,599	4,080	14,615	331
ENGINEERS	274,708	30,461	51,965	40,845	151,437	1,134
Civil engineers	75,978	12,278	14,772	8,152	40,776	0
Elect./electronic eng.	71,541	3,058	10,902	11,154	46,034	393
Indust./mechan. eng.	127,189	15,125	26,290	21,539	63,493	741
Women						
TOTAL SCIENT. & ENGIN.	102,904	9,609	5,465	13,136	74,694	0
SCIENTISTS	81,040	6,953	3,645	11,092	59,350	0
Natural scientists	28,288	2,432	1,120	2,395	22,340	0
Computer scientists	27,375	2,538	1,412	6,476	16,949	0
Social scientists	25,377	1,983	1,113	2,221	20,061	0
ENGINEERS	21,864	2,655	1,820	2,045	15,344	0
Civil engineers	9,335	1,152	384	983	6,817	0
Elect./electronic eng.	3,117	0	0	334	2,784	0
Indust./mechan. eng.	9,412	1,503	1,436	728	5,744	0

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

FR-7(90)

Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1990

Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Both sexes									
TOTAL SCIENT. & ENGIN.	530,668	29,123	20,214	15,640	76,073	18,598	304,676	39,130	27,214
SCIENTISTS	256,423	7,619	9,669	7,379	3,763	1,032	189,706	29,377	7,878
Natural scientists	86,689	3,819	1,240	1,385	2,352	0	70,295	6,221	1,377
Computer scientists	119,398	1,322	2,473	1,001	1,411	709	110,308	1,082	1,092
Social scientists	50,336	2,478	5,956	4,993	0	323	9,103	22,074	5,409
ENGINEERS	274,245	21,504	10,545	8,261	72,310	17,566	114,970	9,753	19,336
Civil engineers	83,871	6,142	6,906	651	25,000	3,106	35,112	4,204	2,750
Elect./electronic eng.	65,282	3,810	661	651	10,047	1,419	46,518	1,552	624
Indust./mechan. eng.	125,092	11,552	2,978	6,959	37,263	13,041	33,340	3,997	15,962
Men									
TOTAL SCIENT. & ENGIN.	449,662	28,416	18,188	12,732	72,857	18,598	252,847	23,033	22,991
SCIENTISTS	191,749	6,912	8,615	4,812	3,440	1,032	147,052	13,922	5,964
Natural scientists	64,806	3,468	1,240	1,385	2,029	0	50,670	4,637	1,377
Computer scientists	98,209	1,322	2,473	670	1,411	709	89,794	1,082	748
Social scientists	28,734	2,122	4,902	2,757	0	323	6,588	8,203	3,839
ENGINEERS	257,913	21,504	9,573	7,920	69,417	17,566	105,795	9,111	17,027
Civil engineers	78,784	6,142	6,259	651	24,645	3,106	31,669	3,562	2,750
Elect./electronic eng.	61,282	3,810	661	310	9,735	1,419	43,496	1,552	299
Indust./mechan. eng.	117,847	11,552	2,653	6,959	35,037	13,041	30,630	3,997	13,978

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Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1990--Continued

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Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Women									
TOTAL SCIENT. & ENGIN.	81,006	707	2,026	2,908	3,216	0	51,829	16,097	4,223
SCIENTISTS	64,674	707	1,054	2,567	323	0	42,654	15,455	1,914
Natural scientists	21,883	351	0	0	323	0	19,625	1,584	0
Computer scientists	21,189	0	0	331	0	0	20,514	0	344
Social scientists	21,602	356	1,054	2,236	0	0	2,515	13,871	1,570
ENGINEERS	16,332	0	972	341	2,893	0	9,175	642	2,309
Civil engineers	5,087	0	647	0	355	0	3,443	642	0
Elect./electronic eng.	4,000	0	0	341	312	0	3,022	0	325
Indust./mechan. eng.	7,245	0	325	0	2,226	0	2,710	0	1,984

Note: Data are based on results of the 1990 Employment Survey (Enquête sur l'emploi).
 Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
 Enquête sur l'emploi, 1990, special tabulations prepared for the U.S. Bureau
 of the Census.

FR-7(91)

Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1991

Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Both sexes									
TOTAL SCIENT. & ENGIN.	547,105	33,296	20,287	16,517	81,861	21,572	302,115	46,460	24,997
SCIENTISTS	263,234	8,978	10,815	7,023	4,214	1,547	190,668	31,439	8,550
Natural scientists	85,751	4,510	322	2,647	2,770	1,274	61,839	10,040	2,349
Computer scientists	129,246	2,440	3,409	698	1,444	273	119,375	600	1,007
Social scientists	48,237	2,028	7,084	3,678	0	0	9,454	20,799	5,194
ENGINEERS	283,871	24,318	9,472	9,494	77,647	20,025	111,447	15,021	16,447
Civil engineers	78,332	7,133	3,924	2,310	21,311	3,561	32,139	5,649	2,305
Elect./electronic eng.	65,945	4,124	307	1,502	10,029	1,139	46,467	1,750	627
Indust./mechan. eng.	139,594	13,061	5,241	5,682	46,307	15,325	32,841	7,622	13,515
Men									
TOTAL SCIENT. & ENGIN.	459,303	32,231	15,645	13,498	77,250	21,572	250,059	29,370	19,678
SCIENTISTS	192,978	8,301	7,346	4,304	3,556	1,547	148,013	15,331	4,580
Natural scientists	63,331	4,208	322	1,907	2,437	1,274	43,990	7,854	1,339
Computer scientists	105,429	2,440	2,747	0	1,119	273	97,243	600	1,007
Social scientists	24,218	1,653	4,277	2,397	0	0	6,780	6,877	2,234
ENGINEERS	266,325	23,930	8,299	9,194	73,694	20,025	102,046	14,039	15,098
Civil engineers	71,044	7,133	3,329	2,310	21,311	3,561	26,086	5,009	2,305
Elect./electronic eng.	62,555	4,124	307	1,502	9,422	1,139	44,022	1,750	289
Indust./mechan. eng.	132,726	12,673	4,663	5,382	42,961	15,325	31,938	7,280	12,504

FR-7(91)

Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1991--Continued

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Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Women									
TOTAL SCIENT. & ENGIN.	87,802	1,065	4,642	3,019	4,611	0	52,056	17,090	5,319
SCIENTISTS	70,256	677	3,469	2,719	658	0	42,655	16,108	3,970
Natural scientists	22,420	302	0	740	333	0	17,849	2,186	1,010
Computer scientists	23,817	0	662	698	325	0	22,132	0	0
Social scientists	24,019	375	2,807	1,281	0	0	2,674	13,922	2,960
ENGINEERS	17,546	388	1,173	300	3,953	0	9,401	982	1,349
Civil engineers	7,288	0	595	0	0	0	6,053	640	0
Elect./electronic eng.	3,390	0	0	0	607	0	2,445	0	338
Indust./mechan. eng.	6,868	388	578	300	3,346	0	903	342	1,011

Note: Data are based on results of the 1991 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1991, special tabulations prepared for the U.S. Bureau
of the Census.

FR-7(92)

Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1992

Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Both sexes									
TOTAL SCIENT. & ENGIN.	582,947	32,089	18,218	17,336	81,157	15,882	344,863	51,814	21,587
SCIENTISTS	286,375	10,091	8,223	7,087	6,014	0	210,432	37,588	6,940
Natural scientists	91,581	4,244	1,165	2,455	3,966	0	69,172	8,999	1,581
Computer scientists	145,207	2,648	1,765	2,445	2,048	0	132,398	2,418	1,485
Social scientists	49,586	3,200	5,294	2,187	0	0	8,862	26,170	3,873
ENGINEERS	296,572	21,998	9,995	10,248	75,143	15,882	134,431	14,227	14,647
Civil engineers	85,313	5,185	4,378	2,141	23,941	2,289	41,839	3,456	2,084
Elect./electronic eng.	74,658	2,934	842	1,775	8,638	1,878	54,855	3,736	0
Indust./mechan. eng.	136,601	13,879	4,775	6,332	42,564	11,715	37,738	7,035	12,563
Men									
TOTAL SCIENT. & ENGIN.	480,043	29,107	15,301	15,365	76,928	15,882	279,707	31,501	16,253
SCIENTISTS	205,335	8,578	5,752	5,520	5,317	0	158,762	18,457	2,947
Natural scientists	63,293	3,071	466	2,100	3,666	0	47,523	5,607	860
Computer scientists	117,832	2,648	1,415	1,717	1,652	0	106,497	2,418	1,485
Social scientists	24,210	2,859	3,871	1,703	0	0	4,742	10,432	602
ENGINEERS	274,708	20,529	9,548	9,845	71,611	15,882	120,945	13,043	13,306
Civil engineers	75,978	4,824	4,067	2,141	23,941	2,289	33,687	3,301	1,726
Elect./electronic eng.	71,541	2,934	842	1,775	8,638	1,878	51,738	3,736	0
Indust./mechan. eng.	127,189	12,770	4,639	5,928	39,032	11,715	35,520	6,006	11,580

FR-7(92)

Scientist and Engineer Occupations, by Principal Function and Sex, for France: 1992--Continued

Sex and occupation	Total	Upper management	Admin., financial	Sales	Production, manufacture	Installation, maintenance	Research and development	Teaching, health, & rel.	Other & not stated
Women									
TOTAL SCIENT. & ENGIN.	102,904	2,982	2,917	1,971	4,229	0	65,157	20,314	5,334
SCIENTISTS	81,040	1,513	2,471	1,567	696	0	51,670	19,130	3,992
Natural scientists	28,288	1,172	698	355	300	0	21,648	3,392	721
Computer scientists	27,375	0	350	728	396	0	25,901	0	0
Social scientists	25,377	341	1,423	484	0	0	4,120	15,738	3,271
ENGINEERS	21,864	1,469	447	404	3,533	0	13,487	1,184	1,342
Civil engineers	9,335	361	310	0	0	0	8,152	154	358
Elect./electronic eng.	3,117	0	0	0	0	0	3,117	0	0
Indust./mechan. eng.	9,412	1,109	137	404	3,533	0	2,217	1,029	984

Note: Data are based on results of the 1992 Employment Survey (Enquête sur l'emploi).
Conclusions based on fewer than 10,000 cases should be interpreted with caution.

Source: France Institut National de la Statistique et des Etudes Economiques (INSEE),
Enquête sur l'emploi, 1992, special tabulations prepared for the U.S. Bureau
of the Census.

WEST GERMANY

Table WG-SUM
Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed
Labor Force, for West Germany: 1982 to 1987

Sex and occupation	Number			Per 1,000 labor force		
	1982	1985	1987	1982	1985	1987
Employed labor force	26,774,000	26,626,000	26,907,517	(X)	(X)	(X)
Both sexes						
Total S/E	606,800	621,500	671,338	22.7	23.3	24.9
SCIENTISTS	121,800	114,100	126,858	4.5	4.3	4.7
Natural sci.	60,500	68,000	76,221	2.3	2.6	2.8
Computer sci.	N/A	N/A	N/A	N/A	N/A	N/A
Social sci.	61,300	46,100	50,637	2.3	1.7	1.9
ENGINEERS	485,000	507,400	544,480	18.1	19.1	20.2
Civil eng.	174,300	160,800	163,385	6.5	6.0	6.1
Elec./elec. eng.	67,700	80,500	94,816	2.5	3.0	3.5
Ind./mech. eng.	243,000	266,100	286,279	9.1	10.0	10.6
Men						
Total S/E	575,800	585,400	623,347	21.5	22.0	23.2
SCIENTISTS	102,500	95,700	101,000	3.8	3.6	3.8
Natural sci.	55,500	60,500	65,081	2.1	2.3	2.4
Computer sci.	N/A	N/A	N/A	N/A	N/A	N/A
Social sci.	47,000	35,200	35,919	1.8	1.3	1.3
ENGINEERS	473,300	489,700	522,347	17.7	18.4	19.4
Civil eng.	167,700	151,900	153,132	6.3	5.7	5.7
Elec./elec. eng.	67,300	79,300	92,410	2.5	3.0	3.4
Ind./mech. eng.	238,300	258,500	276,805	8.9	9.7	10.3
Women						
Total S/E	30,900	36,100	47,991	1.2	1.4	1.8
SCIENTISTS	19,300	18,400	25,858	.7	.7	1.0
Natural sci.	5,000	7,500	11,140	.2	.3	.4
Computer sci.	N/A	N/A	N/A	N/A	N/A	N/A
Social sci.	14,300	10,900	14,718	.5	.4	.5
ENGINEERS	11,600	17,700	22,133	.4	.7	.8
Civil eng.	6,600	8,900	10,253	.2	.3	.4
Elec./elec. eng.	400	1,200	2,406	.0	.0	.1
Ind./mech. eng.	4,600	7,600	9,474	.2	.3	.4

X Not applicable.

N/A Not available.

Source: U.S. Bureau of the Census, 1989, "Updated Statistics on Scientists and Engineers in Industrialized Countries," CIR Staff Paper, No. 51, Washington, D.C., table 2; and this report, tables WG-1(87) and WG-1A(87).

WG-1(87)

Employed Scientists and Engineers, by Age, for West Germany: 1987

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENG.	671,338	11,165	86,081	114,255	99,140	89,957	107,420	75,143	57,898	25,140	5,139	41.4
SCIENTISTS	126,858	3,250	22,845	27,705	22,233	16,963	14,985	8,558	6,860	2,908	551	37.2
Natural scientists	76,221	1,308	13,931	17,452	11,985	9,030	9,191	5,963	5,007	2,082	272	37.3
Chemists, chem. eng.	32,409	501	4,174	6,258	5,103	4,096	4,370	3,357	3,143	1,252	155	40.2
Phys.,math.,syst.anal.	20,491	261	3,517	4,718	3,522	2,757	2,766	1,453	1,010	437	50	37.5
Natural sci. NEC	23,321	546	6,240	6,476	3,360	2,177	2,055	1,153	854	393	67	33.8
Computer scientists	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Social scientists	50,637	1,942	8,914	10,253	10,248	7,933	5,794	2,595	1,853	826	279	37.1
ENGINEERS	544,480	7,915	63,236	86,550	76,907	72,994	92,435	66,585	51,038	22,232	4,588	42.6
Civil engineers	163,385	1,752	14,657	24,192	22,266	20,784	27,347	20,893	19,035	9,775	2,684	44.5
Arch., civil eng.	149,119	1,546	12,917	21,404	19,829	18,719	25,520	19,763	17,764	9,026	2,631	45.0
Surveyors	14,266	206	1,740	2,788	2,437	2,065	1,827	1,130	1,271	749	53	39.9
Elect./electronic eng.	94,816	1,862	13,841	18,114	15,134	12,750	13,608	9,233	7,374	2,626	274	39.5
Indust./mechan. eng.	286,279	4,301	34,738	44,244	39,507	39,460	51,480	36,459	24,629	9,831	1,630	42.6
Industrial eng.	8,048	166	1,364	1,394	954	900	1,187	1,003	760	268	52	40.8
Mechanical eng.	87,792	1,290	11,628	14,111	11,854	12,097	16,268	10,956	6,450	2,685	453	42.1
Metallurg., mining eng.	5,800	75	570	690	479	516	1,157	1,348	734	214	17	47.5
Engineers NEC	184,639	2,770	21,176	28,049	26,220	25,947	32,868	23,152	16,685	6,664	1,108	42.7
TEACHERS IN HIGHER ED.	59,293	1,118	6,182	6,689	6,449	8,188	10,919	8,257	6,713	3,790	988	45.5

N/A Not available

NEC Not elsewhere classified

Note: Total labor force (all occupations) numbers 26,907,517.

Source: Statistisches Bundesamt, 1990, unpublished tabulations from the 1987 census, table 4.

WG-1A(87)

Employed Scientists and Engineers, by Sex and Broad Age Groups,
for West Germany: 1987

Sex and occupation	Total	Under 25	25-34	35-54	55+
Men					
TOTAL SCIENT. & ENG.	623,347	7,457	175,271	354,547	86,072
SCIENTISTS	101,000	1,592	37,142	53,038	9,228
Natural scientists	65,081	730	24,487	32,964	6,900
Chemists, chem. eng.	28,764	289	8,375	15,788	4,312
Phys.,math.,syst.anal.	18,864	159	7,258	9,999	1,448
Natural sci. NEC	17,453	282	8,854	7,177	1,140
Computer scientists	N/A	N/A	N/A	N/A	N/A
Social scientists	35,919	862	12,655	20,074	2,328
ENGINEERS	522,347	5,865	138,129	301,509	76,844
Civil engineers	153,132	1,099	33,186	87,759	31,088
Arch., civil eng.	139,408	949	29,011	80,417	29,031
Surveyors	13,724	150	4,175	7,342	2,057
Elect./electronic eng.	92,410	1,512	30,881	49,868	10,149
Indust./mechan. eng.	276,805	3,254	74,062	163,882	35,607
Industrial eng.	7,184	88	2,227	3,823	1,046
Mechanical eng.	86,213	1,053	24,978	50,672	9,510
Metallurg., mining eng.	5,714	66	1,220	3,468	960
Engineers NEC	177,694	2,047	45,637	105,919	24,091
TEACHERS IN HIGHER ED.	47,758	676	8,709	28,043	10,330

WG-1A(87)
 Employed Scientists and Engineers, by Sex and Broad Age Groups,
 for West Germany: 1987--Continued

Sex and occupation	Total	Under 25	25-34	35-54	55+
Women					
TOTAL SCIENT. & ENG.	47,991	3,708	25,065	17,113	2,105
SCIENTISTS	25,858	1,658	13,408	9,701	1,091
Natural scientists	11,140	578	6,896	3,205	461
Chemists, chem. eng.	3,645	212	2,057	1,138	238
Phys.,math.,syst.anal.	1,627	102	977	499	49
Natural sci. NEC	5,868	264	3,862	1,568	174
Computer scientists	N/A	N/A	N/A	N/A	N/A
Social scientists	14,718	1,080	6,512	6,496	630
ENGINEERS	22,133	2,050	11,657	7,412	1,014
Civil engineers	10,253	653	5,663	3,531	406
Arch., civil eng.	9,711	597	5,310	3,414	390
Surveyors	542	56	353	117	16
Elect./electronic eng.	2,406	350	1,074	857	125
Indust./mechan. eng.	9,474	1,047	4,920	3,024	483
Industrial eng.	864	78	531	221	34
Mechanical eng.	1,579	237	761	503	78
Metallurg., mining eng.	86	9	40	32	5
Engineers NEC	6,945	723	3,588	2,268	366
TEACHERS IN HIGHER ED.	11,535	442	4,162	5,770	1,161

N/A Not available

NEC Not elsewhere classified

Source: Statistisches Bundesamt, 1991, unpublished tabulations from the 1987 census, table 8.

WG-2(87)

Employed Scientists and Engineers, by Employment Status and Sex,
for West Germany: 1987

Sex and occupation	Total	Self- employed	Officials	Employees
Both sexes				
TOTAL SCIENT. & ENG.	685,951	78,783	72,086	535,082
SCIENTISTS	141,471	9,310	12,236	119,925
Chemists, physicists, and mathematicians	52,900	1,513	3,301	48,086
Other scientists	88,571	7,797	8,935	71,839
ENGINEERS	544,480	69,473	59,850	415,157
Men				
TOTAL SCIENT. & ENG.	631,407	72,011	67,480	491,916
SCIENTISTS	109,060	6,061	9,730	93,269
Chemists, physicists, and mathematicians	47,628	1,344	2,998	43,286
Other scientists	61,432	4,717	6,732	49,983
ENGINEERS	522,347	65,950	57,750	398,647
Women				
TOTAL SCIENT. & ENG.	54,544	6,772	4,606	43,166
SCIENTISTS	32,411	3,249	2,506	26,656
Chemists, physicists, and mathematicians	5,272	169	303	4,800
Other scientists	27,139	3,080	2,203	21,856
ENGINEERS	22,133	3,523	2,100	16,510

Note: "Other scientists" are economists, social scientists, and natural scientists, plus 14,613 persons (8,060 men and 6,553 women) in the Arts. Information on the Arts is not available separately by status in order to exclude the category. Individual occupational categories are not available for engineers. "Self-employed" status includes 236 family workers (108 men and 128 women). Unlike in 1982, no S/E were reported in a "Workers" status category in 1987.

Source: Statistisches Bundesamt, 1991, unpublished tabulations from the 1987 census, table 9.

WG-3(87)

Employed Scientists and Engineers, by Industry Group
and Sex, for West Germany: 1987

(Data refer only to the combined occupations of
engineers, chemists, physicists, and mathematicians)

Industry group	Both sexes	Men	Women
Total	597,380	569,975	27,405
Agriculture, forestry, and fishing	333	306	27
Energy, water, and mining	22,647	22,310	337
Manufacturing	273,227	264,633	8,594
Construction	50,488	48,629	1,859
Trade	10,067	9,145	922
Transportation and communication	31,626	30,758	868
Banking and insurance	6,358	5,837	521
Services not elsewhere where specified	130,149	119,962	10,187
Organizations without private household workers	2,873	2,630	243
Local government and social security	69,612	65,765	3,847

Note: Data are not reported in sufficient detail to
present industry groups for all Scientist and Engineer
occupations (see headnote).

Source: Statistisches Bundesamt, 1991, unpublished
tabulations from the 1987 census, table 5.

WG-4A(87)

Employed Scientists and Engineers, by Training Status and Sex, for West Germany: 1987

Sex and occupation	Both sexes				Men			Women				
	Total	With training		Without training	Total	With training		Without training	Total	With training		Without training
		training	Without training			training	Without training			training	Without training	
TOTAL SCIENT. & ENGIN.	671,338	323,674	347,664	623,347	314,060	309,287	47,991	9,614	38,377			
SCIENTISTS	126,858	28,396	98,462	101,000	24,443	76,557	25,858	3,953	21,905			
Natural scientists	76,221	11,029	65,192	65,081	10,140	54,941	11,140	889	10,251			
Chemists, chem. eng.	32,409	7,031	25,378	28,764	6,632	22,132	3,645	399	3,246			
Phys.,math.,syst.anal.	20,491	2,135	18,356	18,864	2,032	16,832	1,627	103	1,524			
Natural sci. NEC	23,321	1,863	21,458	17,453	1,476	15,977	5,868	387	5,481			
Computer scientists	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Social scientists	50,637	17,367	33,270	35,919	14,303	21,616	14,718	3,064	11,654			
ENGINEERS	544,480	295,278	249,202	522,347	289,617	232,730	22,133	5,661	16,472			
Civil engineers	163,385	81,035	82,350	153,132	78,629	74,503	10,253	2,406	7,847			
Arch., civil eng.	149,119	74,469	74,650	139,408	72,176	67,232	9,711	2,293	7,418			
Surveyors	14,266	6,566	7,700	13,724	6,453	7,271	542	113	429			
Elect./electronic eng.	94,816	49,087	45,729	92,410	48,483	43,927	2,406	604	1,802			
Indust./mech. eng.	286,279	165,156	121,123	276,805	162,505	114,300	9,474	2,651	6,823			
Industrial eng.	8,048	3,956	4,092	7,184	3,753	3,431	864	203	661			
Mechanical eng.	87,792	51,875	35,917	86,213	51,380	34,833	1,579	495	1,084			
Metallurg., mining eng.	5,800	2,702	3,098	5,714	2,689	3,025	86	13	73			
Engineers NEC	184,639	106,623	78,016	177,694	104,683	73,011	6,945	1,940	5,005			

Note: "With training" refers to any training, regardless of field or duration.

Source: Statistisches Bundesamt, 1991, unpublished tabulations from the 1987 census, table 8.

WG-4B(87)

Employed Scientists and Engineers, by Actual Occupation and Occupation for Which Trained, for West Germany: 1987

Actual occupation	Total	Without training	Occupation for which trained						
			Total with training	Agric., animal husband., & fishing	Prodn. and related occupa.	Engineer, chemist, physicist, mathematic.	Technical occupa.	Service occupa.	Soc.sci., education, arts, and nat. sci.
TOTAL SCIENT. & ENGIN.	671,338	349,345	321,993	2,414	248,924	-	44,951	25,577	127
SCIENTISTS	126,858	98,721	28,137	530	7,698	-	5,262	14,556	91
Natural scientists	76,221	65,287	10,934	357	4,436	-	4,875	1,259	7
Chemists, chem. eng.	32,409	25,413	6,996	88	2,436	-	4,033	439	-
Phys.,math.,syst.anal.	20,491	18,375	2,116	20	1,317	-	508	269	2
Natural sci. NEC	23,321	21,499	1,822	249	683	-	334	551	5
Computer scientists	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A
Social scientists	50,637	33,434	17,203	173	3,262	-	387	13,297	84
ENGINEERS	544,480	250,624	293,856	1,884	241,226	-	39,689	11,021	36
Civil engineers	163,385	83,022	80,363	465	58,383	-	19,928	1,574	13
Arch., civil eng.	149,119	75,303	73,816	435	58,002	-	13,904	1,462	13
Surveyors	14,266	7,719	6,547	30	381	-	6,024	112	-
Elect./electronic eng.	94,816	45,872	48,944	83	46,352	-	1,336	1,165	8
Indust./mech. eng.	286,279	121,730	164,549	1,336	136,491	-	18,425	8,282	15
Industrial eng.	8,048	4,115	3,933	30	3,290	-	314	299	-
Mechanical eng.	87,792	36,039	51,753	113	44,194	-	6,534	909	3
Metallurg., mining eng.	5,800	3,113	2,687	30	2,364	-	213	80	-
Engineers NEC	184,639	78,463	106,176	1,163	86,643	-	11,364	6,994	12

Note: Data are not available by sex. The number "without training" is slightly larger and the number "with training" slightly smaller than that shown in table WG-4A(87) because this table refers only to training of 2 years duration or more. Thus, the category "without training" in this case refers to persons without any training or with training of under 2 years duration. It is not clear why no one is reported to be trained as an engineer, chemist, physicist, or mathematician.

Source: Statistisches Bundesamt, 1991, unpublished tabulations from the 1987 census, table 7B.



UNITED KINGDOM

Table UK-SUM
Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed Labor Force, for the United Kingdom:
1981 to 1990

Sex and occupation	Number						Per 1,000 labor force					
	1981	1986	1987	1988	1989	1990	1981	1986	1987	1988	1989	1990
Employed labor force	22,916,190	23,829,000	22,491,594	23,438,440	24,247,315	24,266,828	(X)	(X)	(X)	(X)	(X)	(X)
Both sexes												
Total S/E	565,370	800,305	716,153	730,207	809,265	796,283	24.7	33.6	31.8	31.2	33.4	32.8
SCIENTISTS	213,620	299,956	298,864	313,993	342,260	342,334	9.3	12.6	13.3	13.4	14.1	14.1
Natural sci.	109,690	101,146	132,613	115,593	127,682	118,703	4.8	4.2	5.9	4.9	5.3	4.9
Computer sci.	87,370	180,849	147,667	174,562	187,964	201,841	3.8	7.6	6.6	7.4	7.8	8.3
Social sci.	16,560	17,961	18,584	23,838	26,614	21,790	.7	.8	.8	1.0	1.1	.9
ENGINEERS	351,750	500,349	417,289	416,214	467,005	453,949	15.3	21.0	18.6	17.8	19.3	18.7
Civil eng.	53,360	78,705	64,467	55,638	70,645	69,332	2.3	3.3	2.9	2.4	2.9	2.9
Elec./elec. eng.	66,020	138,629	118,607	109,402	131,188	130,280	2.9	5.8	5.3	4.7	5.4	5.4
Ind./mech. eng.	232,370	283,015	234,215	251,174	265,172	254,337	10.1	11.9	10.4	10.7	10.9	10.5
Men												
Total S/E	515,420	730,926	641,514	646,526	701,884	696,494	22.5	30.7	28.5	27.6	28.9	28.7
SCIENTISTS	169,380	240,516	233,580	243,723	253,669	264,877	7.4	10.1	10.4	10.4	10.5	10.9
Natural sci.	87,530	82,110	102,258	86,494	88,030	88,305	3.8	3.4	4.5	3.7	3.6	3.6
Computer sci.	70,940	145,818	117,145	142,108	152,414	163,571	3.1	6.1	5.2	6.1	6.3	6.7
Social sci.	10,910	12,588	14,177	15,121	13,225	13,001	.5	.5	.6	.6	.5	.5
ENGINEERS	346,040	490,410	407,934	402,803	448,215	431,617	15.1	20.6	18.1	17.2	18.5	17.8
Civil eng.	53,050	77,926	64,467	55,638	69,915	68,043	2.3	3.3	2.9	2.4	2.9	2.8
Elec./elec. eng.	64,810	135,381	114,854	105,351	126,486	120,738	2.8	5.7	5.1	4.5	5.2	5.0
Ind./mech. eng.	228,180	277,103	228,613	241,814	251,814	242,836	10.0	11.6	10.2	10.3	10.4	10.0
Women												
Total S/E	49,950	69,379	74,638	83,688	107,378	99,781	2.2	2.9	3.3	3.6	4.4	4.1
SCIENTISTS	44,240	59,440	65,283	70,272	88,590	77,454	1.9	2.5	2.9	3.0	3.7	3.2
Natural sci.	22,160	19,036	30,356	29,101	39,652	30,401	1.0	.8	1.3	1.2	1.6	1.3
Computer sci.	16,430	35,031	30,520	32,454	35,548	38,265	.7	1.5	1.4	1.4	1.5	1.6
Social sci.	5,650	5,373	4,407	8,717	13,390	8,788	.2	.2	.2	.4	.6	.4
ENGINEERS	5,710	9,939	9,355	13,416	18,788	22,327	.2	.4	.4	.6	.8	.9
Civil eng.	310	779	0	0	730	1,288	.0	.0	.0	.0	.0	.1
Elec./elec. eng.	1,210	3,248	3,753	4,053	4,700	9,540	.1	.1	.2	.2	.2	.4
Ind./mech. eng.	4,190	5,912	5,602	9,363	13,358	11,499	.2	.2	.2	.4	.6	.5

X - Not applicable.

Source: Data for 1981 from U.S. Bureau of the Census, 1988, "Recent Data on Scientists and Engineers in Industrialized Countries," table UK-2(81); for 1986 from U.S. Bureau of the Census, 1991, "Scientists and Engineers in Industrialized Societies: An Update for France, West Germany, and the United Kingdom," CIR Staff Paper, No. 63, table UK-1(86); and for other years from this report, table UK-1 for the respective years. Figures for total employed labor force are from the 1981 census and the respective labor force surveys for other years.

UK-1(87)

Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1987

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENG.	716,153	96,316	128,367	110,191	110,414	90,721	65,915	50,187	41,239	18,292	4,511	36.1
SCIENTISTS	298,864	54,693	70,871	49,450	46,594	29,404	21,068	12,213	10,890	2,952	729	32.4
Natural sci.	132,613	19,993	22,153	20,019	20,853	17,832	12,785	8,870	7,286	2,473	349	36.0
Computer sci.	147,667	31,314	45,853	27,410	21,456	9,617	6,452	2,325	2,860	0	380	29.6
Social sci.	18,584	3,386	2,865	2,021	4,285	1,955	1,831	1,018	744	479	0	36.2
ENGINEERS	417,289	41,623	57,496	60,741	63,820	61,317	44,847	37,974	30,349	15,340	3,782	38.8
Civil eng.	64,467	6,195	8,804	13,394	9,865	9,950	6,817	4,850	2,783	1,091	718	36.9
Elec./elec. eng.	118,607	16,706	18,470	18,936	19,995	14,481	13,278	6,748	6,264	2,916	813	36.3
Indust./mech. eng.	234,215	18,722	30,222	28,411	33,960	36,886	24,752	26,376	21,302	11,333	2,251	40.8
TEACHERS IN HIGHER ED.	117,570	1,886	7,741	9,267	18,928	24,087	21,136	15,690	8,747	9,047	1,041	44.4
Teachers	86,188	1,073	5,411	6,971	14,236	18,984	14,631	12,182	6,587	5,389	724	44.1
Univ. acad. staff	31,382	813	2,330	2,296	4,692	5,103	6,505	3,508	2,160	3,658	317	45.4
Men												
TOTAL SCIENT. & ENG.	641,514	80,071	105,599	100,096	103,737	83,391	59,010	48,258	38,893	17,948	4,511	36.7
SCIENTISTS	233,580	40,048	51,386	40,859	40,879	23,058	14,865	10,284	8,864	2,608	729	33.1
Natural sci.	102,258	12,936	14,393	17,449	18,408	15,206	8,160	7,236	5,992	2,129	349	36.7
Computer sci.	117,145	24,488	35,321	21,671	18,186	7,077	5,518	2,030	2,474	0	380	29.8
Social sci.	14,177	2,624	1,672	1,739	4,285	775	1,187	1,018	398	479	0	36.2
ENGINEERS	407,934	40,023	54,213	59,237	62,858	60,333	44,145	37,974	30,029	15,340	3,782	39.0
Civil eng.	64,467	6,195	8,804	13,394	9,865	9,950	6,817	4,850	2,783	1,091	718	36.9
Elec./elec. eng.	114,854	16,011	17,662	18,448	19,308	13,847	12,837	6,748	6,264	2,916	813	36.4
Indust./mech. eng.	228,613	17,817	27,747	27,395	33,685	36,536	24,491	26,376	20,982	11,333	2,251	41.0
TEACHERS IN HIGHER ED.	76,369	1,217	5,220	4,818	11,615	14,661	13,737	11,399	6,383	6,595	724	45.2
Teachers	52,206	787	3,235	3,578	8,076	10,962	8,471	8,123	4,613	3,637	724	44.8
Univ. acad. staff	24,163	430	1,985	1,240	3,539	3,699	5,266	3,276	1,770	2,958	0	46.1

UK-1(87)

Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1987--Continued

Sex and occupation	Total	Under										Median age		
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+			
Women														
TOTAL SCIENT. & ENG.	74,638	16,245	22,767	10,095	6,677	7,331	6,904	1,928	2,347	344	0	29.6		
SCIENTISTS	65,283	14,645	19,484	8,591	5,715	6,346	6,203	1,928	2,027	344	0	29.6		
Natural sci.	30,356	7,057	7,760	2,570	2,445	2,626	4,625	1,634	1,295	344	0	30.7		
Computer sci.	30,520	6,826	10,531	5,739	3,270	2,540	934	294	386	0	0	29.0		
Social sci.	4,407	762	1,193	282	0	1,180	644	0	346	0	0	34.4		
ENGINEERS	9,355	1,600	3,283	1,504	962	985	701	0	320	0	0	29.7		
Civil eng.	0	0	0	0	0	0	0	0	0	0	0	N/A		
Elec./elec. eng.	3,753	695	807	488	687	635	441	0	0	0	0	33.8		
Indust./mech. eng.	5,602	905	2,476	1,016	275	350	260	0	320	0	0	28.8		
TEACHERS IN HIGHER ED.	41,198	667	2,521	4,448	7,314	9,426	7,398	4,290	2,365	2,452	317	43.0		
Teachers	33,980	285	2,176	3,392	6,160	8,022	6,159	4,059	1,975	1,752	0	43.1		
Univ. acad. staff	7,218	382	345	1,056	1,154	1,404	1,239	231	390	700	317	42.4		

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

UK-1(88)

Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1988

Sex and occupation	Total	Under										Median age
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	
Both sexes												
TOTAL SCIENT. & ENG.	730,207	96,086	134,191	120,692	114,340	94,463	63,821	47,016	36,163	20,856	2,579	35.6
SCIENTISTS	313,993	48,172	77,690	58,759	48,801	34,539	19,049	14,781	8,250	2,551	1,401	32.6
Natural sci.	115,593	10,667	24,841	20,376	19,434	13,476	10,144	8,203	6,489	1,287	676	35.5
Computer sci.	174,562	36,554	48,063	35,605	26,192	15,787	5,867	4,386	1,761	347	0	30.4
Social sci.	23,838	951	4,786	2,778	3,175	5,276	3,038	2,192	0	917	725	40.2
ENGINEERS	416,214	47,914	56,501	61,933	65,539	59,924	44,772	32,235	27,913	18,305	1,178	38.2
Civil eng.	55,638	4,890	4,186	8,062	8,310	11,667	8,935	4,361	2,755	2,472	0	41.0
Elec./elec. eng.	109,402	15,606	18,321	19,606	19,617	11,287	8,162	5,638	7,390	3,407	368	35.3
Indust./mech. eng.	251,174	27,418	33,994	34,265	37,612	36,970	27,675	22,236	17,768	12,426	810	39.0
TEACHERS IN HIGHER ED.	124,797	3,131	7,076	14,788	19,007	24,285	24,342	13,945	11,127	6,432	664	43.8
Teachers	82,265	1,400	4,100	9,289	13,204	13,951	16,594	9,667	7,874	5,833	353	44.7
Univ. acad. staff	42,532	1,731	2,976	5,499	5,803	10,334	7,748	4,278	3,253	599	311	42.5
Men												
TOTAL SCIENT. & ENG.	646,526	80,729	109,138	104,939	102,301	87,976	58,483	45,291	35,260	20,247	2,162	36.4
SCIENTISTS	243,723	35,350	56,630	45,866	38,914	28,410	14,877	13,056	7,347	2,289	984	33.3
Natural sci.	86,494	7,203	16,416	15,267	14,230	11,043	7,908	6,812	5,914	1,025	676	36.5
Computer sci.	142,108	28,147	37,840	29,070	22,029	13,685	5,171	4,386	1,433	347	0	30.9
Social sci.	15,121	0	2,374	1,529	2,655	3,682	1,798	1,858	0	917	308	41.4
ENGINEERS	402,803	45,379	52,508	59,073	63,387	59,566	43,606	32,235	27,913	17,958	1,178	38.5
Civil eng.	55,638	4,890	4,186	8,062	8,310	11,667	8,935	4,361	2,755	2,472	0	41.0
Elec./elec. eng.	105,351	15,510	16,451	19,046	18,477	11,287	7,777	5,638	7,390	3,407	368	35.5
Indust./mech. eng.	241,814	24,979	31,871	31,965	36,600	36,612	26,894	22,236	17,768	12,079	810	39.4
TEACHERS IN HIGHER ED.	84,958	2,018	4,239	9,264	12,548	17,560	13,786	11,875	8,387	4,617	664	44.1
Teachers	51,941	841	2,343	5,048	8,525	9,040	8,264	8,375	5,134	4,018	353	45.1
Univ. acad. staff	33,017	1,177	1,896	4,216	4,023	8,520	5,522	3,500	3,253	599	311	43.0

UK-1(88)
Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1988--Continued

Sex and occupation	Under										Median age	
	Total	25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64		65+
Women												
TOTAL SCIENT. & ENG.	83,688	15,357	25,055	15,754	12,039	6,488	5,339	1,725	904	610	417	30.5
SCIENTISTS	70,272	12,821	21,062	12,894	9,886	6,129	4,172	1,725	904	262	417	30.5
Natural sci.	29,101	3,464	8,426	5,110	5,203	2,433	2,236	1,391	576	262	0	32.6
Computer sci.	32,454	8,406	10,224	6,535	4,163	2,102	696	0	328	0	0	28.8
Social sci.	8,717	951	2,412	1,249	520	1,594	1,240	334	0	0	417	34.0
ENGINEERS	13,416	2,536	3,993	2,860	2,153	359	1,167	0	0	348	0	30.3
Civil eng.	0	0	0	0	0	0	0	0	0	0	0	N/A
Elec./elec. eng.	4,053	97	1,870	560	1,140	0	386	0	0	0	0	30.5
Indust./mech. eng.	9,363	2,439	2,123	2,300	1,013	359	781	0	0	348	0	30.3
TEACHERS IN HIGHER ED.	39,840	1,114	2,837	5,524	6,459	6,725	10,556	2,070	2,740	1,815	0	43.0
Teachers	30,324	559	1,757	4,241	4,679	4,911	8,330	1,292	2,740	1,815	0	44.0
Univ. acad. staff	9,516	555	1,080	1,283	1,780	1,814	2,226	778	0	0	0	40.2

Source: Special tabulations from the 1988 labour force survey of the United Kingdom.

UK-1(89)

Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1989

Sex and occupation	Total	Under									Median age	
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64		65+
Both sexes												
TOTAL SCIENT. & ENG.	809,265	105,464	150,255	115,160	111,643	115,068	80,855	61,194	42,682	22,495	4,449	36.5
SCIENTISTS	342,260	55,591	84,144	56,741	48,255	42,991	24,899	15,524	8,643	4,372	1,100	32.8
Natural sci.	127,682	20,517	17,925	21,363	20,567	16,882	13,451	9,443	4,367	2,235	932	36.0
Computer sci.	187,964	32,424	62,589	30,724	23,239	21,266	9,254	4,871	2,553	1,044	0	29.9
Social sci.	26,614	2,650	3,630	4,654	4,449	4,843	2,194	1,210	1,723	1,093	168	37.7
ENGINEERS	467,005	49,873	66,111	58,419	63,388	72,077	55,956	45,670	34,039	18,123	3,349	39.7
Civil eng.	70,645	4,972	6,474	11,911	11,837	9,983	10,685	5,540	5,329	3,460	454	40.1
Elec./elec. eng.	131,188	20,024	24,605	18,562	16,213	18,670	14,543	9,295	6,825	1,867	584	35.7
Indust./mech. eng.	265,172	24,877	35,032	27,946	35,338	43,424	30,728	30,835	21,885	12,796	2,311	41.1
TEACHERS IN HIGHER ED.	119,370	1,530	6,196	14,244	14,500	31,502	20,862	9,743	14,985	3,562	2,246	43.7
Teachers	86,479	743	4,829	8,814	12,440	23,643	15,250	6,188	10,469	2,627	1,476	43.5
Univ. acad. staff	32,891	787	1,367	5,430	2,060	7,859	5,612	3,555	4,516	935	770	44.3
Men												
TOTAL SCIENT. & ENG.	701,884	82,757	119,774	99,407	99,395	101,177	74,835	57,336	42,003	21,719	4,281	37.5
SCIENTISTS	253,669	37,360	59,913	43,361	38,442	31,710	18,079	12,312	7,964	3,596	932	33.4
Natural sci.	88,030	9,405	10,947	15,573	15,094	12,366	10,129	7,413	4,367	1,804	932	37.7
Computer sci.	152,414	26,793	48,032	24,174	20,670	17,614	7,062	4,472	2,553	1,044	0	30.3
Social sci.	13,225	1,162	934	3,614	2,678	1,730	888	427	1,044	748	0	36.7
ENGINEERS	448,215	45,397	59,861	56,046	60,953	69,467	55,956	45,024	34,039	18,123	3,349	40.1
Civil eng.	69,915	4,972	5,744	11,911	11,837	9,983	10,685	5,540	5,329	3,460	454	40.2
Elec./elec. eng.	126,486	18,600	23,862	17,863	15,171	17,876	14,543	9,295	6,825	1,867	584	36.0
Indust./mech. eng.	251,814	21,825	30,255	26,272	33,945	41,608	30,728	30,189	21,885	12,796	2,311	41.6
TEACHERS IN HIGHER ED.	75,915	566	3,048	7,005	9,675	19,630	14,180	6,943	10,146	3,562	1,160	44.5
Teachers	48,792	0	1,681	2,666	7,615	13,058	10,142	4,053	6,560	2,627	390	44.8
Univ. acad. staff	27,123	566	1,367	4,339	2,060	6,572	4,038	2,890	3,586	935	770	44.0

UK-1(89)
Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1989--Continued

Sex and occupation	Under										Median age	
	Total	25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64		65+
Women												
TOTAL SCIENT. & ENG.	107,378	22,706	30,481	15,751	12,248	13,892	6,821	3,857	678	776	168	30.2
SCIENTISTS	88,590	18,231	24,231	13,378	9,814	11,282	6,821	3,211	678	776	168	30.7
Natural sci.	39,652	11,112	6,978	5,790	5,473	4,516	3,322	2,030	0	431	0	31.5
Computer sci.	35,548	5,631	14,557	6,549	2,569	3,652	2,192	398	0	0	0	29.2
Social sci.	13,390	1,488	2,696	1,039	1,772	3,114	1,307	783	678	345	168	39.2
ENGINEERS	18,788	4,475	6,250	2,373	2,434	2,610	0	646	0	0	0	28.9
Civil eng.	730	0	730	0	0	0	0	0	0	0	0	27.5
Elec./elec. eng.	4,700	1,423	743	699	1,041	794	0	0	0	0	0	31.3
Indust./mech. eng.	13,358	3,052	4,777	1,674	1,393	1,816	0	646	0	0	0	28.8
TEACHERS IN HIGHER ED.	43,453	964	3,148	7,237	4,825	11,872	6,682	2,800	4,839	0	1,086	42.3
Teachers	37,686	743	3,148	6,147	4,825	10,585	5,108	2,135	3,909	0	1,086	41.9
Univ. acad. staff	5,767	221	0	1,090	0	1,287	1,574	665	930	0	0	45.9

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-1(90)

Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1990

Sex and occupation	Total	Under									Median age	
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64		65+
Both sexes												
TOTAL SCIENT. & ENG.	796,283	103,272	148,589	130,599	107,659	108,706	79,705	52,769	38,289	18,480	8,215	35.7
SCIENTISTS	342,334	50,795	73,410	67,066	47,560	46,174	26,671	15,483	10,374	2,503	2,298	33.5
Natural sci.	118,703	13,502	19,649	22,462	16,573	17,733	11,265	8,902	5,234	1,756	1,627	36.1
Computer sci.	201,841	35,714	51,029	41,344	28,880	23,404	12,307	5,459	2,608	747	349	31.7
Social sci.	21,790	1,579	2,732	3,260	2,107	5,037	3,099	1,122	2,532	0	322	41.2
ENGINEERS	453,949	52,477	75,179	63,533	60,099	62,532	53,034	37,286	27,915	15,977	5,917	38.0
Civil eng.	69,332	6,224	9,915	10,453	6,166	15,639	7,499	6,161	4,774	1,851	650	40.6
Elec./elec. eng.	130,280	21,760	25,948	21,357	20,044	15,923	10,171	4,832	6,086	3,853	306	34.1
Indust./mech. eng.	254,337	24,493	39,316	31,723	33,889	30,970	35,364	26,293	17,055	10,273	4,961	39.7
TEACHERS IN HIGHER ED.	144,654	2,357	8,718	14,531	22,009	28,023	29,109	21,729	10,744	5,179	2,255	44.4
Teachers	101,162	1,097	4,009	8,214	16,090	21,555	21,312	15,992	7,618	3,693	1,582	44.9
Univ. acad. staff	43,492	1,260	4,709	6,317	5,919	6,468	7,797	5,737	3,126	1,486	673	42.7
Men												
TOTAL SCIENT. & ENG.	696,494	85,632	124,931	111,525	95,811	96,193	70,988	49,637	35,371	18,191	8,215	36.4
SCIENTISTS	264,877	39,855	54,199	52,884	37,702	35,797	19,135	13,048	7,456	2,503	2,298	33.6
Natural sci.	88,305	8,079	13,004	17,225	11,789	13,648	8,900	8,307	3,970	1,756	1,627	37.5
Computer sci.	163,571	30,197	39,272	32,609	25,335	19,841	8,630	4,361	2,230	747	349	31.9
Social sci.	13,001	1,579	1,923	3,050	578	2,308	1,605	380	1,256	0	322	34.9
ENGINEERS	431,617	45,777	70,732	58,641	58,109	60,396	51,853	36,589	27,915	15,688	5,917	38.5
Civil eng.	68,043	5,844	9,514	10,453	6,166	15,639	6,991	6,161	4,774	1,851	650	40.7
Elec./elec. eng.	120,738	19,548	24,535	18,337	19,215	14,525	9,858	4,475	6,086	3,853	306	34.4
Indust./mech. eng.	242,836	20,385	36,683	29,851	32,728	30,232	35,004	25,953	17,055	9,984	4,961	40.3
TEACHERS IN HIGHER ED.	89,810	925	4,686	7,643	10,330	19,577	17,366	16,010	7,296	4,845	1,132	45.5
Teachers	54,221	0	1,641	2,244	6,211	13,838	10,793	10,841	4,511	3,359	783	46.5
Univ. acad. staff	35,589	925	3,045	5,399	4,119	5,739	6,573	5,169	2,785	1,486	349	43.8

UK-1(90)
Employed Scientists and Engineers, by Age and Sex, for the United Kingdom: 1990--Continued

Sex and occupation	Total	Under										Median age			
		25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+				
Women															
TOTAL SCIENT. & ENG.	99,781	17,640	23,657	19,073	11,846	12,513	8,717	3,130	2,917	288	0	32.3			
SCIENTISTS															
Natural sci.	77,454	10,941	19,210	14,181	9,858	10,377	7,536	2,434	2,917	0	0	33.0			
Computer sci.	30,401	5,424	6,645	5,237	4,785	4,086	2,365	595	1,264	0	0	33.0			
Social sci.	38,265	5,517	11,757	8,735	3,544	3,562	3,676	1,097	377	0	0	31.1			
	8,788	0	808	209	1,529	2,729	1,495	742	1,276	0	0	43.4			
ENGINEERS															
Civil eng.	22,327	6,699	4,447	4,892	1,988	2,136	1,181	696	0	288	0	30.0			
Elec./elec. eng.	1,288	379	401	0	0	0	508	0	0	0	0	28.3			
Indust./mech. eng.	9,540	2,212	1,413	3,020	828	1,398	313	356	0	0	0	31.9			
	11,499	4,108	2,633	1,872	1,160	738	360	340	0	288	0	28.1			
TEACHERS IN HIGHER ED.															
Teachers	54,841	1,431	4,031	6,887	11,680	8,445	11,743	5,720	3,448	334	1,122	42.0			
Univ. acad. staff	46,939	1,097	2,368	5,969	9,880	7,716	10,519	5,151	3,107	334	798	42.7			
	7,902	334	1,663	918	1,800	729	1,224	569	341	0	324	37.9			

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-2(87)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1987

Sex and occupation	Self-employed				Employees			
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	Other
Both sexes								
TOTAL SCIENT. & ENG.	716,155	52,322	34,485	17,837	663,007	653,427	9,580	824
SCIENTISTS	298,867	14,246	9,580	4,666	284,620	277,231	7,389	0
Natural sci.	132,614	5,512	3,635	1,877	127,101	122,158	4,943	0
Computer sci.	147,668	5,585	3,523	2,062	142,083	140,349	1,734	0
Social sci.	18,585	3,149	2,422	727	15,436	14,724	712	0
ENGINEERS	417,288	38,076	24,905	13,171	378,387	376,196	2,191	824
Civil eng.	64,466	7,883	5,057	2,826	56,582	55,869	713	0
Elec./elec. eng.	118,605	9,925	5,557	4,368	108,256	106,778	1,478	424
Indust./mech.eng.	234,217	20,268	14,291	5,977	213,549	213,549	0	400
TEACHERS IN HIGHER ED.	117,568	2,452	2,452	0	115,116	94,077	21,039	0
Teachers	86,187	2,452	2,452	0	83,735	67,038	16,697	0
Univ. acad. staff	31,381	0	0	0	31,381	27,039	4,342	0
Men								
TOTAL SCIENT. & ENG.	641,516	47,824	31,059	16,765	592,866	589,694	3,172	824
SCIENTISTS	233,583	10,883	7,289	3,594	222,699	221,368	1,331	0
Natural sci.	102,258	3,814	2,321	1,493	98,444	97,532	912	0
Computer sci.	117,147	4,272	2,898	1,374	112,875	112,875	0	0
Social sci.	14,178	2,797	2,070	727	11,380	10,961	419	0
ENGINEERS	407,933	36,941	23,770	13,171	370,167	368,326	1,841	824
Civil eng.	64,466	7,883	5,057	2,826	56,582	55,869	713	0
Elec./elec. eng.	114,853	9,140	4,772	4,368	105,288	104,160	1,128	424
Indust./mech.eng.	228,614	19,918	13,941	5,977	208,297	208,297	0	400
TEACHERS IN HIGHER ED.	76,370	1,556	1,556	0	74,814	70,816	3,998	0
Teachers	52,206	1,556	1,556	0	50,650	48,200	2,450	0
Univ. acad. staff	24,164	0	0	0	24,164	22,616	1,548	0

UK-2(87)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1987--Continued

Sex and occupation	Self-employed				Employees			
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	Other
Women								
TOTAL SCIENT. & ENG.	74,640	4,497	3,424	1,073	70,142	63,734	6,408	0
SCIENTISTS	65,285	3,363	2,290	1,073	61,921	55,863	6,058	0
Natural sci.	30,356	1,699	1,314	385	28,657	24,626	4,031	0
Computer sci.	30,521	1,313	625	688	29,208	27,474	1,734	0
Social sci.	4,408	351	351	0	4,056	3,763	293	0
ENGINEERS	9,355	1,134	1,134	0	8,221	7,871	350	0
Civil eng.	0	0	0	0	0	0	0	0
Elec./elec. eng.	3,752	784	784	0	2,968	2,618	350	0
Indust./mech.eng.	5,603	350	350	0	5,253	5,253	0	0
TEACHERS IN HIGHER ED.	41,199	897	897	0	40,303	23,261	17,042	0
Teachers	33,981	897	897	0	33,085	18,838	14,247	0
Univ. acad. staff	7,218	0	0	0	7,218	4,423	2,795	0

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

UK-2(88)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1988

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	With empl.	Total	Full time	Part time	
Both sexes								
TOTAL SCIENT. & ENG.	730,211	57,243	43,817	13,426	672,628	662,010	10,618	340
SCIENTISTS	313,994	22,894	18,190	4,704	291,100	281,577	9,523	0
Natural sci.	115,593	6,242	5,070	1,172	109,351	101,233	8,118	0
Computer sci.	174,562	12,456	9,880	2,576	162,106	160,959	1,147	0
Social sci.	23,839	4,196	3,240	956	19,643	19,385	258	0
ENGINEERS	416,217	34,349	25,627	8,722	381,528	380,433	1,095	340
Civil eng.	55,639	7,134	4,437	2,697	48,505	48,505	0	0
Elec./elec. eng.	109,403	9,914	8,148	1,766	99,489	99,126	363	0
Indust./mech. eng.	251,175	17,301	13,042	4,259	233,534	232,802	732	340
TEACHERS IN HIGHER ED.	124,796	1,312	1,312	0	123,484	103,680	19,804	0
Teachers	82,265	1,312	1,312	0	80,953	65,746	15,207	0
Univ. acad. staff	42,531	0	0	0	42,531	37,934	4,597	0
Men								
TOTAL SCIENT. & ENG.	646,527	51,895	38,838	13,057	594,292	591,084	3,208	340
SCIENTISTS	243,723	18,882	14,178	4,704	224,841	222,728	2,113	0
Natural sci.	86,493	5,172	4,000	1,172	81,321	79,208	2,113	0
Computer sci.	142,108	11,711	9,135	2,576	130,397	130,397	0	0
Social sci.	15,122	1,999	1,043	956	13,123	13,123	0	0
ENGINEERS	402,804	33,013	24,660	8,353	369,451	368,356	1,095	340
Civil eng.	55,639	7,134	4,437	2,697	48,505	48,505	0	0
Elec./elec. eng.	105,351	8,949	7,552	1,397	96,402	96,039	363	0
Indust./mech. eng.	241,814	16,930	12,671	4,259	224,544	223,812	732	340
TEACHERS IN HIGHER ED.	84,957	890	890	0	84,067	78,250	5,817	0
Teachers	51,941	890	890	0	51,051	47,443	3,608	0
Univ. acad. staff	33,016	0	0	0	33,016	30,807	2,209	0

UK-2(88)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1988--Continued

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	With empl.	Total	Full time	Part time	
Women								
TOTAL SCIENT. & ENG.	83,685	5,350	4,981	369	78,335	70,925	7,410	0
SCIENTISTS	70,271	4,013	4,013	0	66,258	58,848	7,410	0
Natural sci.	29,101	1,071	1,071	0	28,030	22,025	6,005	0
Computer sci.	32,453	745	745	0	31,708	30,561	1,147	0
Social sci.	8,717	2,197	2,197	0	6,520	6,262	258	0
ENGINEERS	13,414	1,337	968	369	12,077	12,077	0	0
Civil eng.	0	0	0	0	0	0	0	0
Elec./elec. eng.	4,052	965	596	369	3,087	3,087	0	0
Indust./mech. eng.	9,362	372	372	0	8,990	8,990	0	0
TEACHERS IN HIGHER ED.	39,839	422	422	0	39,417	25,430	13,987	0
Teachers	30,324	422	422	0	29,902	18,303	11,599	0
Univ. acad. staff	9,515	0	0	0	9,515	7,127	2,388	0

Source: Special tabulations from the 1988 labour force survey of the United Kingdom.

UK-2(89)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1989

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	
Both sexes								
TOTAL SCIENT. & ENG.	809,260	64,619	48,938	15,681	744,279	725,846	18,433	362
SCIENTISTS	342,258	21,475	17,962	3,513	320,783	307,077	13,706	0
Natural sci.	127,681	6,804	4,855	1,949	120,877	114,953	5,924	0
Computer sci.	187,964	10,269	9,704	565	177,695	173,490	4,205	0
Social sci.	26,613	4,402	3,403	999	22,211	18,634	3,577	0
ENGINEERS	467,002	43,144	30,976	12,168	423,496	418,769	4,727	362
Civil eng.	70,645	11,453	7,668	3,785	59,192	58,172	1,020	0
Elec./elec. eng.	131,187	13,297	10,038	3,259	117,528	116,733	795	362
Indust./mech. eng.	265,170	18,394	13,270	5,124	246,776	243,864	2,912	0
TEACHERS IN HIGHER ED.	119,369	1,741	1,061	680	117,628	94,896	22,732	0
Teachers	86,479	1,741	1,061	680	84,738	66,180	18,558	0
Univ. acad. staff	32,890	0	0	0	32,890	28,716	4,174	0
Men								
TOTAL SCIENT. & ENG.	701,883	58,230	42,937	15,293	643,291	638,626	4,665	362
SCIENTISTS	253,667	16,558	13,045	3,513	237,109	235,391	1,718	0
Natural sci.	88,028	6,035	4,086	1,949	81,993	81,781	212	0
Computer sci.	152,415	8,666	8,101	565	143,749	143,237	512	0
Social sci.	13,224	1,857	858	999	11,367	10,373	994	0
ENGINEERS	448,216	41,672	29,892	11,780	406,182	403,235	2,947	362
Civil eng.	69,915	11,453	7,668	3,785	58,462	57,789	673	0
Elec./elec. eng.	126,487	12,385	9,126	3,259	113,740	113,156	584	362
Indust./mech. eng.	251,814	17,834	13,098	4,736	233,980	232,290	1,690	0
TEACHERS IN HIGHER ED.	75,915	421	421	0	75,494	71,160	4,334	0
Teachers	48,791	421	421	0	48,370	46,153	2,217	0
Univ. acad. staff	27,124	0	0	0	27,124	25,007	2,117	0

UK-2(89)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1989--Continued

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	
Women								
TOTAL SCIENT. & ENG.	107,377	6,390	6,002	388	100,987	87,220	13,767	0
SCIENTISTS	88,591	4,918	4,918	0	83,673	71,686	11,987	0
Natural sci.	39,652	768	768	0	38,884	33,172	5,712	0
Computer sci.	35,549	1,604	1,604	0	33,945	30,253	3,692	0
Social sci.	13,390	2,546	2,546	0	10,844	8,261	2,583	0
ENGINEERS	18,786	1,472	1,084	388	17,314	15,534	1,780	0
Civil eng.	730	0	0	0	730	383	347	0
Elec./elec. eng.	4,700	912	912	0	3,788	3,577	211	0
Indust./mech. eng.	13,356	560	172	388	12,796	11,574	1,222	0
TEACHERS IN HIGHER ED.	43,455	1,320	640	680	42,135	23,737	18,398	0
Teachers	37,688	1,320	640	680	36,368	20,027	16,341	0
Univ. acad. staff	5,767	0	0	0	5,767	3,710	2,057	0

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-2(90)

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1990

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	
Both sexes								
TOTAL SCIENT. & ENG.	796,284	68,737	52,024	16,713	727,284	709,819	17,465	263
SCIENTISTS	342,334	23,351	19,388	3,963	318,983	305,822	13,161	0
Natural sci.	118,704	6,342	4,982	1,360	112,362	106,589	5,773	0
Computer sci.	201,840	12,829	11,636	1,193	189,011	184,198	4,813	0
Social sci.	21,790	4,180	2,770	1,410	17,610	15,035	2,575	0
ENGINEERS	453,950	45,386	32,636	12,750	408,301	403,997	4,304	263
Civil eng.	69,332	11,705	7,424	4,281	57,364	57,364	0	263
Elec./elec. eng.	130,280	15,016	11,687	3,329	115,264	114,595	669	0
Indust./mech. eng.	254,338	18,665	13,525	5,140	235,673	232,038	3,635	0
TEACHERS IN HIGHER EDUC	144,651	2,253	2,253	0	142,398	113,936	28,462	0
Teachers	101,161	2,253	2,253	0	98,908	73,020	25,888	0
Univ. acad. staff	43,490	0	0	0	43,490	40,916	2,574	0
Men								
TOTAL SCIENT. & ENG.	696,498	62,984	46,631	16,353	633,251	629,519	3,732	263
SCIENTISTS	264,878	18,349	14,746	3,603	246,529	245,303	1,226	0
Natural sci.	88,305	5,062	4,062	1,000	83,243	83,243	0	0
Computer sci.	163,573	10,863	9,670	1,193	152,710	152,360	350	0
Social sci.	13,000	2,424	1,014	1,410	10,576	9,700	876	0
ENGINEERS	431,620	44,635	31,885	12,750	386,722	384,216	2,506	263
Civil eng.	68,044	11,705	7,424	4,281	56,076	56,076	0	263
Elec./elec. eng.	120,739	14,624	11,295	3,329	106,115	106,115	0	0
Indust./mech. eng.	242,837	18,306	13,166	5,140	224,531	222,025	2,506	0
TEACHERS IN HIGHER EDUC	89,809	1,082	1,082	0	88,727	82,601	6,126	0
Teachers	54,220	1,082	1,082	0	53,138	48,105	5,033	0
Univ. acad. staff	35,589	0	0	0	35,589	34,496	1,093	0

Employed Scientists and Engineers, by Employment Status and Sex, for the United Kingdom: 1990--Continued

Sex and occupation	Self-employed				Employees			Other
	Total	Total	w/o empl.	with empl.	Total	Full time	Part time	
Women								
TOTAL SCIENT. & ENG.	99,784	5,752	5,392	360	94,032	80,298	13,734	0
SCIENTISTS	77,454	5,000	4,640	360	72,454	60,518	11,936	0
Natural sci.	30,399	1,280	920	360	29,119	23,346	5,773	0
Computer sci.	38,267	1,965	1,965	0	36,302	31,838	4,464	0
Social sci.	8,788	1,755	1,755	0	7,033	5,334	1,699	0
ENGINEERS	22,330	752	752	0	21,578	19,780	1,798	0
Civil eng.	1,288	0	0	0	1,288	1,288	0	0
Elec./elec. eng.	9,541	392	392	0	9,149	8,480	669	0
Indust./mech. eng.	11,501	360	360	0	11,141	10,012	1,129	0
TEACHERS IN HIGHER EDUC	54,842	1,171	1,171	0	53,671	31,335	22,336	0
Teachers	46,941	1,171	1,171	0	45,770	24,915	20,855	0
Univ. acad. staff	7,901	0	0	0	7,901	6,420	1,481	0

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-3(87)

Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1987

Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Both sexes											
TOTAL SCIENT. & ENG.	716,155	1,509	18,342	304,693	28,794	54,666	24,158	21,406	127,646	130,593	4,347
SCIENTISTS	298,867	1,125	8,860	86,313	7,097	2,186	13,762	6,833	71,322	100,484	883
Natural sci.	132,614	1,125	7,340	35,420	2,883	330	5,222	349	11,206	67,978	761
Computer sci.	147,668	0	1,520	49,654	3,864	1,856	8,540	6,484	54,011	21,615	122
Social sci.	18,585	0	0	1,239	350	0	0	0	6,105	10,891	0
ENGINEERS	417,288	384	9,482	218,380	21,697	52,480	10,396	14,573	56,324	30,109	3,464
Civil eng.	64,466	0	2,716	4,742	3,565	36,204	324	1,072	13,623	2,220	0
Elec./elec. eng.	118,605	0	696	64,702	6,566	3,250	4,691	5,988	17,420	14,602	691
Indust./mech. eng.	234,217	384	6,070	148,936	11,566	13,026	5,381	7,513	25,281	13,287	2,773
Men											
TOTAL SCIENT. & ENG.	641,516	744	17,584	286,683	27,831	54,372	19,299	20,649	110,934	99,380	4,039
SCIENTISTS	233,583	360	8,102	73,415	6,134	1,892	8,903	6,076	57,710	70,106	883
Natural sci.	102,258	360	6,953	30,619	2,883	330	2,828	349	8,970	48,204	761
Computer sci.	117,147	0	1,149	41,705	2,901	1,562	6,075	5,727	43,284	14,622	122
Social sci.	14,178	0	0	1,091	350	0	0	0	5,456	7,280	0
ENGINEERS	407,933	384	9,482	213,268	21,697	52,480	10,396	14,573	53,224	29,274	3,156
Civil eng.	64,466	0	2,716	4,742	3,565	36,204	324	1,072	13,623	2,220	0
Elec./elec. eng.	114,853	0	696	63,592	6,566	3,250	4,691	5,988	15,353	14,028	691
Indust./mech. eng.	228,614	384	6,070	144,934	11,566	13,026	5,381	7,513	24,248	13,026	2,465

UK-3(87)
Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1987--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Women											
TOTAL SCIENT. & ENG.	74,640	765	758	18,010	963	294	4,860	757	16,710	31,213	308
SCIENTISTS	65,285	765	758	12,898	963	294	4,860	757	13,611	30,378	0
Natural sci.	30,356	765	387	4,801	0	0	2,394	0	2,236	19,774	0
Computer sci.	30,521	0	371	7,949	963	294	2,466	757	10,727	6,993	0
Social sci.	4,408	0	0	148	0	0	0	0	648	3,611	0
ENGINEERS	9,355	0	0	5,112	0	0	0	0	3,099	835	308
Civil eng.	0	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	3,752	0	0	1,110	0	0	0	0	2,067	575	0
Indust./mech. eng.	5,603	0	0	4,002	0	0	0	0	1,032	260	308

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1988

Sex and occupation	Agriculture, forestry, fishing & Total		Manufacturing		Electric, gas and water		Construction		Wholesale & retail trade		Transport and commun.		Business & prof. services		Community, social, pers. serv.		Not adequately defined		
Both sexes																			
TOTAL SCIENT. & ENG.	730,210	2,787	10,925	318,184	33,353	46,157	26,903	23,289	135,453	131,393	1,766								
SCIENTISTS	313,994	2,444	4,575	99,556	8,127	1,493	14,404	9,269	78,612	94,648	866								
Natural sci.	115,594	2,444	2,746	35,897	2,779	369	3,904	439	7,999	59,017	0								
Computer sci.	174,562	0	1,829	62,238	4,649	1,124	9,823	7,654	66,141	20,238	866								
Social sci.	23,838	0	0	1,421	699	0	677	1,176	4,472	15,393	0								
ENGINEERS	416,216	343	6,350	218,628	25,226	44,664	12,499	14,020	56,841	36,745	900								
Civil eng.	55,638	0	783	1,379	4,921	28,246	313	1,917	11,785	6,294	0								
Elec./elec. eng.	109,403	0	1,295	51,555	7,986	3,341	3,611	6,700	20,577	14,338	0								
Indust./mech. eng.	251,175	343	4,272	165,694	12,319	13,077	8,575	5,403	24,479	16,113	900								
Men																			
TOTAL SCIENT. & ENG.	646,526	2,553	10,561	295,587	31,989	45,779	21,545	22,358	117,687	96,701	1,766								
SCIENTISTS	243,723	2,210	4,211	84,102	6,763	1,115	9,379	8,338	65,682	61,057	866								
Natural sci.	86,493	2,210	2,746	30,621	2,485	369	2,301	121	6,983	38,657	0								
Computer sci.	142,109	0	1,465	52,294	3,579	746	6,401	7,041	54,940	14,777	866								
Social sci.	15,121	0	0	1,187	699	0	677	1,176	3,759	7,623	0								
ENGINEERS	402,803	343	6,350	211,485	25,226	44,664	12,166	14,020	52,005	35,644	900								
Civil eng.	55,638	0	783	1,379	4,921	28,246	313	1,917	11,785	6,294	0								
Elec./elec. eng.	105,351	0	1,295	50,885	7,986	3,341	3,611	6,700	17,613	13,920	0								
Indust./mech. eng.	241,814	343	4,272	159,221	12,319	13,077	8,242	5,403	22,607	15,430	900								

UK-3(88)

Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1988--Continued

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Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Women											
TOTAL SCIENT. & ENG.	83,684	234	364	22,597	1,364	378	5,358	931	17,766	34,692	0
SCIENTISTS	70,271	234	364	15,454	1,364	378	5,025	931	12,930	33,591	0
Natural sci.	29,101	234	0	5,276	294	0	1,603	318	1,016	20,360	0
Computer sci.	32,453	0	364	9,944	1,070	378	3,422	613	11,201	5,461	0
Social sci.	8,717	0	0	234	0	0	0	0	713	7,770	0
ENGINEERS	13,413	0	0	7,143	0	0	333	0	4,836	1,101	0
Civil eng.	0	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	4,052	0	0	670	0	0	0	0	2,964	418	0
Indust./mech. eng.	9,361	0	0	6,473	0	0	333	0	1,872	683	0

Source: Special tabulations from the 1988 labour force survey of the United Kingdom.

UK-3(89)

Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1989

Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Both sexes											
TOTAL SCIENT. & ENG.	809,261	5,076	17,313	328,111	29,516	48,073	28,975	30,351	172,267	147,374	2,205
SCIENTISTS	342,258	4,382	6,104	102,676	8,765	1,635	15,715	10,167	86,828	104,970	1,016
Natural sci.	127,681	3,748	3,297	33,769	4,308	455	3,568	1,210	8,881	68,156	289
Computer sci.	187,963	0	2,807	66,227	4,088	1,180	11,252	8,571	71,000	22,111	727
Social sci.	26,614	634	0	2,680	369	0	895	386	6,947	14,703	0
ENGINEERS	467,003	694	11,209	225,435	20,751	46,438	13,260	20,184	85,439	42,404	1,189
Civil eng.	70,645	0	4,201	2,634	4,883	27,779	1,128	1,769	18,711	9,148	392
Elec./elec. eng.	131,187	0	1,760	61,104	6,107	4,103	3,510	8,235	32,676	13,257	435
Indust./mech. eng.	265,171	694	5,248	161,697	9,761	14,556	8,622	10,180	34,052	19,999	362
Men											
TOTAL SCIENT. & ENG.	701,881	3,571	16,541	301,984	28,485	47,624	23,634	28,034	149,675	100,128	2,205
SCIENTISTS	253,668	2,877	5,332	83,877	7,734	1,186	12,045	8,402	69,826	61,373	1,016
Natural sci.	88,028	2,243	3,126	26,343	4,308	455	1,439	1,210	6,549	42,066	289
Computer sci.	152,416	0	2,206	56,170	3,426	731	9,711	6,806	57,933	14,706	727
Social sci.	13,224	634	0	1,364	0	0	895	386	5,344	4,601	0
ENGINEERS	448,213	694	11,209	218,107	20,751	46,438	11,589	19,632	79,849	38,755	1,189
Civil eng.	69,914	0	4,201	2,634	4,883	27,779	1,128	1,769	18,417	8,711	392
Elec./elec. eng.	126,485	0	1,760	58,960	6,107	4,103	3,510	8,235	30,762	12,613	435
Indust./mech. eng.	251,814	694	5,248	156,513	9,761	14,556	6,951	9,628	30,670	17,431	362

UK-3(89)
Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1989--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Women											
TOTAL SCIENT. & ENG.	107,378	1,504	774	26,126	1,031	449	5,341	2,317	22,591	47,245	0
SCIENTISTS	88,591	1,504	774	18,799	1,031	449	3,670	1,765	17,002	43,597	0
Natural sci.	39,652	1,504	172	7,426	0	0	2,129	0	2,331	26,090	0
Computer sci.	35,549	0	602	10,057	662	449	1,541	1,765	13,068	7,405	0
Social sci.	13,390	0	0	1,316	369	0	0	0	1,603	10,102	0
ENGINEERS	18,787	0	0	7,327	0	0	1,671	552	5,589	3,648	0
Civil eng.	750	0	0	0	0	0	0	0	293	437	0
Elec./elec. eng.	4,700	0	0	2,143	0	0	0	0	1,913	644	0
Indust./mech. eng.	13,357	0	0	5,184	0	0	1,671	552	3,383	2,567	0

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-3(90)

Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1990

Sex and occupation	Total	Agric., forestry, & fishing	Mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Both sexes											
TOTAL SCIENT. & ENG.	796,283	5,955	16,588	326,445	30,965	47,931	31,090	34,696	178,689	121,604	2,321
SCIENTISTS	342,333	5,955	5,582	105,735	10,228	2,265	15,161	13,092	93,260	90,180	877
Natural sci.	118,705	4,967	4,136	32,521	2,532	0	2,361	872	10,238	60,715	364
Computer sci.	201,839	434	1,446	73,214	7,339	2,265	12,800	11,537	73,468	18,823	513
Social sci.	21,789	554	0	0	357	0	0	683	9,554	10,642	0
ENGINEERS	453,950	0	11,006	220,710	20,737	45,666	15,929	21,604	85,429	31,424	1,444
Civil eng.	69,332	0	4,263	2,664	3,984	28,904	350	2,719	20,985	5,463	0
Elec./elec. eng.	130,280	0	1,827	54,819	6,249	2,272	4,510	9,410	39,846	10,699	649
Indust./mech. eng.	254,338	0	4,916	163,227	10,504	14,490	11,068	9,475	24,598	15,262	795
Men											
TOTAL SCIENT. & ENG.	696,498	4,727	15,501	303,919	28,045	47,151	26,289	30,411	154,532	83,603	2,321
SCIENTISTS	264,878	4,727	4,890	93,687	7,699	2,265	11,350	9,620	76,188	53,575	877
Natural sci.	88,305	3,739	3,790	28,308	2,532	0	1,381	872	8,618	38,702	364
Computer sci.	163,572	434	1,100	65,379	5,167	2,265	9,969	8,065	59,717	10,962	513
Social sci.	13,001	554	0	0	0	0	0	683	7,853	3,911	0
ENGINEERS	431,620	0	10,611	210,232	20,346	44,886	14,939	20,791	78,344	30,028	1,444
Civil eng.	68,044	0	4,263	2,664	3,984	28,124	350	2,212	20,985	5,463	0
Elec./elec. eng.	120,739	0	1,432	52,645	6,249	2,272	4,510	9,104	33,536	10,342	649
Indust./mech. eng.	242,837	0	4,916	154,923	10,113	14,490	10,079	9,475	23,823	14,223	795

UK-3(90)
Employed Scientists and Engineers, by Industry Group and Sex, for the United Kingdom: 1990--Continued

Sex and occupation	Total	Agric., forestry, & mining & quarrying	Manuf.	Electric, gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Business & prof. services	Commun., social, pers.serv.	Not adequately defined
Women										
TOTAL SCIENT. & ENG.	99,785	1,228	1,087	22,528	2,921	780	4,286	24,157	37,999	0
SCIENTISTS	77,455	1,228	692	12,049	2,529	0	3,472	17,072	36,604	0
Natural sci.	30,400	1,228	346	4,214	0	0	0	1,620	22,013	0
Computer sci.	38,267	0	346	7,835	2,172	0	3,472	13,751	7,861	0
Social sci.	8,788	0	0	0	357	0	0	1,701	6,730	0
ENGINEERS	22,330	0	395	10,479	392	780	814	7,085	1,395	0
Civil eng.	1,288	0	0	0	0	780	508	0	0	0
Elec./elec. eng.	9,541	0	395	2,174	0	0	306	6,310	356	0
Indust./mech. eng.	11,501	0	0	8,305	392	0	0	775	1,039	0

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-4(87)
Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1987

Sex and occupation	Total										
	beverages	Food,	Textiles,	Wood,	Paper,	Chemicals,	Non-met.	Electrical,	Other		
			leather	furniture	printing	plastics	mineral	electronic	metal		
							products	products	metal	Other	
										manuf.	
Both sexes											
TOTAL SCIENT. & ENG.	304,695	12,740	5,079	1,242	6,631	41,533	6,143	69,467	153,127	1,813	
SCIENTISTS	86,315	5,295	1,208	740	1,992	23,937	2,524	9,836	38,372	732	
Natural sci.	35,420	1,995	335	0	1,045	18,950	1,574	2,876	6,973	331	
Computer sci.	49,655	2,970	873	740	947	4,077	950	6,960	31,399	401	
Social sci.	1,240	330	0	0	0	910	0	0	0	0	
ENGINEERS	218,380	7,445	3,871	502	4,639	17,596	3,619	59,631	114,755	1,081	
Civil eng.	4,742	0	0	0	0	808	721	375	2,838	0	
Elec./elec. eng.	64,701	413	0	502	735	2,226	0	36,040	24,785	0	
Indust./mech. eng.	148,937	7,032	3,871	0	3,904	14,562	2,898	23,216	87,132	1,081	
Men											
TOTAL SCIENT. & ENG.	286,682	11,701	4,138	887	5,734	37,945	5,343	65,969	146,950	1,412	
SCIENTISTS	73,416	4,712	1,208	385	1,095	21,156	1,724	7,446	33,997	331	
Natural sci.	30,619	1,855	335	0	451	16,843	774	2,434	6,572	331	
Computer sci.	41,705	2,527	873	385	644	3,551	950	5,012	27,425	0	
Social sci.	1,092	330	0	0	0	762	0	0	0	0	
ENGINEERS	213,266	6,989	2,930	502	4,639	16,789	3,619	58,523	112,953	1,081	
Civil eng.	4,742	0	0	0	0	808	721	375	2,838	0	
Elec./elec. eng.	63,591	413	0	502	735	2,226	0	35,515	24,200	0	
Indust./mech. eng.	144,933	6,576	2,930	0	3,904	13,755	2,898	22,633	85,915	1,081	

UK-4(87)
 Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1987--Continued

Sex and occupation	Manufacturing Industry										
	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products	Other manuf.
Women											
TOTAL SCIENT. & ENG.	18,010	1,038	940	355	897	3,587	800	317	3,498	6,177	401
SCIENTISTS	12,899	583	0	355	897	2,781	800	317	2,390	4,375	401
Natural sci.	4,802	141	0	0	594	2,107	800	317	442	401	0
Computer sci.	7,949	442	0	355	303	526	0	0	1,948	3,974	401
Social sci.	148	0	0	0	0	148	0	0	0	0	0
ENGINEERS	5,111	455	940	0	0	806	0	0	1,108	1,802	0
Civil eng.	0	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	1,110	0	0	0	0	0	0	0	525	585	0
Indust./mech. eng.	4,001	455	940	0	0	806	0	0	583	1,217	0

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

UK-4(88)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1988

Sex and occupation	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products	Other manuf.
Both sexes											
TOTAL SCIENT. & ENG.	318,180	14,845	4,528	1,126	8,315	46,544	5,701	6,717	67,085	161,641	1,678
SCIENTISTS	99,556	6,249	857	0	4,143	23,242	2,050	739	10,096	51,286	894
Natural sci.	35,898	3,742	0	0	994	17,895	809	0	2,327	9,237	894
Computer sci.	62,237	2,273	857	0	2,728	4,978	1,241	739	7,372	42,049	0
Social sci.	1,421	234	0	0	421	369	0	0	397	0	0
ENGINEERS	218,624	8,596	3,671	1,126	4,172	23,302	3,651	5,978	56,989	110,355	784
Civil eng.	1,378	0	0	0	0	745	0	0	0	278	355
Elec./elec. eng.	51,554	722	0	0	0	1,446	0	339	29,486	19,561	0
Indust./mech. eng.	165,692	7,874	3,671	1,126	4,172	21,111	3,651	5,639	27,503	90,516	429
Men											
TOTAL SCIENT. & ENG.	295,586	12,565	3,960	666	7,515	40,414	5,701	6,405	65,415	151,267	1,678
SCIENTISTS	84,102	4,499	857	0	3,849	19,159	2,050	427	8,522	43,845	894
Natural sci.	30,621	2,691	0	0	700	15,334	809	0	1,965	8,228	894
Computer sci.	52,294	1,808	857	0	2,728	3,456	1,241	427	6,160	35,617	0
Social sci.	1,187	0	0	0	421	369	0	0	397	0	0
ENGINEERS	211,484	8,066	3,103	666	3,666	21,255	3,651	5,978	56,893	107,422	784
Civil eng.	1,378	0	0	0	0	745	0	0	0	278	355
Elec./elec. eng.	50,884	722	0	0	0	1,446	0	339	29,486	18,891	0
Indust./mech. eng.	159,222	7,344	3,103	666	3,666	19,064	3,651	5,639	27,407	88,253	429

UK-4(88)
Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1988--Continued

Sex and occupation	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products
Women										
TOTAL SCIENT. & ENG.	22,597	2,282	568	460	801	6,129	0	312	1,671	10,374
SCIENTISTS	15,454	1,751	0	0	294	4,082	0	312	1,574	7,441
Natural sci.	5,276	1,051	0	0	294	2,560	0	0	362	1,009
Computer sci.	9,944	466	0	0	0	1,522	0	312	1,212	6,432
Social sci.	234	234	0	0	0	0	0	0	0	0
ENGINEERS	7,143	531	568	460	507	2,047	0	0	97	2,933
Civil eng.	670	0	0	0	0	0	0	0	0	670
Elec./elec. eng.	6,473	531	568	460	507	2,047	0	0	97	2,263
Indust./mech. eng.										

Source: Special tabulations from the 1988 labour force survey of the United Kingdom.

UK-4(89)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1989

Sex and occupation	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products	Other manuf.
Both sexes											
TOTAL SCIENT. & ENG.	328,114	13,780	6,317	1,617	7,605	48,696	9,320	6,350	73,631	158,267	2,531
SCIENTISTS	102,678	5,371	1,340	308	3,428	24,521	2,786	1,472	16,481	46,101	870
Natural sci.	33,770	3,558	236	0	1,182	15,772	1,994	539	3,294	6,325	870
Computer sci.	66,228	1,813	1,104	308	2,246	7,433	792	506	12,661	39,365	0
Social sci.	2,680	0	0	0	0	1,316	0	427	526	411	0
ENGINEERS	225,436	8,409	4,977	1,309	4,177	24,175	6,534	4,878	57,150	112,166	1,661
Civil eng.	2,635	0	138	0	0	681	375	524	0	917	0
Elec./elec. eng.	61,104	918	0	362	890	1,344	1,403	702	26,739	27,911	835
Indust./mech. eng.	161,697	7,491	4,839	947	3,287	22,150	4,756	3,652	30,411	83,338	826
Men											
TOTAL SCIENT. & ENG.	301,984	12,181	4,838	1,617	6,636	42,163	8,448	6,350	70,437	146,783	2,531
SCIENTISTS	83,876	4,093	1,340	308	2,974	17,988	1,914	1,472	14,621	38,296	870
Natural sci.	26,343	2,280	236	0	818	12,626	1,554	539	2,589	4,831	870
Computer sci.	56,169	1,813	1,104	308	2,156	5,362	360	506	11,506	33,054	0
Social sci.	1,364	0	0	0	0	0	0	427	526	411	0
ENGINEERS	218,108	8,088	3,498	1,309	3,662	24,175	6,534	4,878	55,816	108,487	1,661
Civil eng.	2,635	0	138	0	0	681	375	524	0	917	0
Elec./elec. eng.	58,960	918	0	362	890	1,344	1,403	702	26,413	26,093	835
Indust./mech. eng.	156,513	7,170	3,360	947	2,772	22,150	4,756	3,652	29,403	81,477	826

UK-4(89)
Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1989--Continued

Sex and occupation	Food, Textiles, leather		Wood, furniture		Paper, Chemicals, printing		Non-met. mineral products		Electrical, Basic electronic products		Other metal products	
	Total beverages	leather	furniture	printing	plastics	metals	metals	products	products	metals	manuf.	
Women												
TOTAL SCIENT. & ENG.	26,126	1,599	1,479	0	969	6,531	872	0	3,193	11,483	0	0
SCIENTISTS	18,799	1,278	0	0	454	6,531	872	0	1,860	7,804	0	0
Natural sci.	7,426	1,278	0	0	364	3,145	440	0	705	1,494	0	0
Computer sci.	10,057	0	0	0	90	2,070	432	0	1,155	6,310	0	0
Social sci.	1,316	0	0	0	0	1,316	0	0	0	0	0	0
ENGINEERS	7,327	321	1,479	0	515	0	0	0	1,333	3,679	0	0
Civil eng.	0	0	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	2,143	0	0	0	0	0	0	0	325	1,818	0	0
Indust./mech. eng.	5,184	321	1,479	0	515	0	0	0	1,008	1,861	0	0

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-4(90)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1990

Sex and occupation	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products	Other manuf.
Both sexes											
TOTAL SCIENT. & ENG.	326,447	10,009	6,950	956	7,109	49,516	3,257	7,207	74,840	165,514	1,089
SCIENTISTS	105,735	4,987	1,448	0	2,357	26,819	363	2,404	14,963	52,030	364
Natural sci.	32,521	3,124	819	0	1,193	18,433	0	783	1,065	7,104	0
Computer sci.	73,214	1,863	629	0	1,164	8,386	363	1,621	13,898	44,926	364
Social sci.	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	220,712	5,022	5,502	956	4,752	22,697	2,894	4,803	59,877	113,484	725
Civil eng.	2,664	0	384	0	0	378	0	408	0	1,494	0
Elec./elec. eng.	54,820	350	185	0	0	2,192	324	0	32,005	19,401	363
Indust./mech. eng.	163,228	4,672	4,933	956	4,752	20,127	2,570	4,395	27,872	92,589	362
Men											
TOTAL SCIENT. & ENG.	303,920	8,901	4,124	695	5,070	45,074	2,894	6,814	70,503	159,118	727
SCIENTISTS	93,687	3,879	992	0	1,997	22,377	0	2,011	13,319	48,748	364
Natural sci.	28,308	2,704	363	0	1,193	15,489	0	390	1,065	7,104	0
Computer sci.	65,379	1,175	629	0	804	6,888	0	1,621	12,254	41,644	364
Social sci.	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	210,233	5,022	3,132	695	3,073	22,697	2,894	4,803	57,184	110,370	363
Civil eng.	2,664	0	384	0	0	378	0	408	0	1,494	0
Elec./elec. eng.	52,646	350	185	0	0	2,192	324	0	31,257	17,975	363
Indust./mech. eng.	154,923	4,672	2,563	695	3,073	20,127	2,570	4,395	25,927	90,901	0

UK-4(90)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for the United Kingdom: 1990--Continued

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Sex and occupation	Total	Food, beverages	Textiles, leather	Wood, furniture	Paper, printing	Chemicals, plastics	Non-met. mineral products	Basic metals	Electrical, electronic products	Other metal products	Other manuf.
Women											
TOTAL SCIENT. & ENG.	22,527	1,108	2,826	260	2,039	4,442	363	394	4,336	6,397	362
SCIENTISTS	12,049	1,108	456	0	360	4,442	363	394	1,643	3,283	0
Natural sci.	4,214	420	456	0	0	2,944	0	394	0	0	0
Computer sci.	7,835	688	0	0	360	1,498	363	0	1,643	3,283	0
Social sci.	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	10,478	0	2,370	260	1,679	0	0	0	2,693	3,114	362
Civil eng.	0	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	2,174	0	0	0	0	0	0	0	748	1,426	0
Indust./mech. eng.	8,304	0	2,370	260	1,679	0	0	0	1,945	1,688	362

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-5(87)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1987

Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Both sexes									
TOTAL SCIENT. & ENG.	258,239	17,339	13,553	96,754	39,889	467	80,416	7,528	2,293
SCIENTISTS	171,806	15,785	11,848	43,690	31,743	0	65,584	2,332	824
Natural sci.	79,183	966	986	9,254	13,647	0	53,152	853	325
Computer sci.	75,627	14,055	9,048	30,908	14,834	0	6,068	714	0
Social sci.	16,996	764	1,814	3,528	3,262	0	6,364	765	499
ENGINEERS	86,433	1,554	1,705	53,064	8,146	467	14,832	5,196	1,469
Civil eng.	15,843	457	440	12,726	1,164	136	920	0	0
Elec./elec. eng.	32,023	737	407	16,276	3,059	0	6,159	3,916	1,469
Indust./mech. eng.	38,567	360	858	24,062	3,923	331	7,753	1,280	0
Men									
TOTAL SCIENT. & ENG.	210,314	13,504	11,558	85,872	31,440	467	59,052	6,952	1,469
SCIENTISTS	127,817	11,950	9,853	35,908	23,555	0	44,570	1,981	0
Natural sci.	57,174	713	0	8,257	10,948	0	36,754	502	0
Computer sci.	57,906	10,818	8,343	24,123	9,345	0	4,563	714	0
Social sci.	12,737	419	1,510	3,528	3,262	0	3,253	765	0
ENGINEERS	82,497	1,554	1,705	49,964	7,885	467	14,482	4,971	1,469
Civil eng.	15,843	457	440	12,726	1,164	136	920	0	0
Elec./elec. eng.	29,380	737	407	14,208	3,059	0	5,809	3,691	1,469
Indust./mech. eng.	37,274	360	858	23,030	3,662	331	7,753	1,280	0

UK-5(87)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1987--Continued

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Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Women									
TOTAL SCIENT. & ENG.	47,924	3,835	1,995	10,881	8,448	21,365	576	824	0
SCIENTISTS	43,990	3,835	1,995	7,782	8,188	21,015	351	824	0
Natural sci.	22,010	253	986	997	2,700	16,398	351	325	0
Computer sci.	17,720	3,237	705	6,785	5,488	1,505	0	0	0
Social sci.	4,260	345	304	0	0	3,112	0	499	0
ENGINEERS	3,934	0	0	3,099	260	350	225	0	0
Civil eng.	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	2,642	0	0	2,067	0	350	225	0	0
Indust./mech. eng.	1,292	0	0	1,032	260	0	0	0	0

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

UK-5(88)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1988

Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Both sexes									
TOTAL SCIENT. & ENG.	266,848	22,527	14,756	98,172	44,180	1,625	73,060	10,426	2,102
SCIENTISTS	173,261	21,372	13,782	43,459	29,308	0	59,475	5,557	308
Natural sci.	67,016	1,034	0	6,965	11,653	0	45,541	1,823	0
Computer sci.	86,379	20,007	12,248	33,886	12,778	0	5,751	1,709	0
Social sci.	19,866	331	1,534	2,608	4,877	0	8,183	2,025	308
ENGINEERS	93,587	1,155	974	54,713	14,872	1,625	13,585	4,869	1,794
Civil eng.	18,079	0	0	11,785	3,856	1,293	1,145	0	0
Elec./elec. eng.	34,915	447	265	19,865	4,878	0	5,608	3,334	518
Indust./mech. eng.	40,593	708	709	23,063	6,138	332	6,832	1,535	1,276
Men									
TOTAL SCIENT. & ENG.	214,390	17,969	10,990	88,730	35,531	1,625	48,409	9,034	2,102
SCIENTISTS	126,740	16,814	10,332	38,537	21,077	0	35,507	4,165	308
Natural sci.	45,640	717	0	6,266	9,458	0	27,842	1,357	0
Computer sci.	69,718	15,766	8,798	30,377	9,061	0	4,388	1,328	0
Social sci.	11,382	331	1,534	1,894	2,558	0	3,277	1,480	308
ENGINEERS	87,650	1,155	658	50,193	14,454	1,625	12,902	4,869	1,794
Civil eng.	18,079	0	0	11,785	3,856	1,293	1,145	0	0
Elec./elec. eng.	31,533	447	265	16,901	4,460	0	5,608	3,334	518
Indust./mech. eng.	38,038	708	393	21,507	6,138	332	6,149	1,535	1,276

UK-5(88)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1988--Continued

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Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Women									
TOTAL SCIENT. & ENG.	52,458	4,558	3,766	9,442	8,649	0	24,652	1,391	0
SCIENTISTS	46,521	4,558	3,450	4,922	8,231	0	23,969	1,391	0
Natural sci.	21,376	317	0	699	2,195	0	17,699	466	0
Computer sci.	16,662	4,241	3,450	3,510	3,717	0	1,364	380	0
Social sci.	8,483	0	0	713	2,319	0	4,906	545	0
ENGINEERS	5,937	0	316	4,520	418	0	683	0	0
Civil eng.	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	3,382	0	0	2,964	418	0	0	0	0
Indust./mech. eng.	2,555	0	316	1,556	0	0	683	0	0

Source: Special tabulations from the 1988 labour force survey of the United Kingdom.

UK-5(89)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1989

Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Both sexes									
TOTAL SCIENT. & ENG.	319,641	18,890	11,184	142,194	53,900	4,257	79,371	7,111	2,734
SCIENTISTS	191,798	17,273	9,974	59,581	31,485	1,622	66,045	4,287	1,531
Natural sci.	77,036	0	1,078	7,802	12,959	1,622	50,996	2,579	0
Computer sci.	93,112	16,095	6,935	47,971	15,081	0	5,402	1,026	602
Social sci.	21,650	1,178	1,961	3,808	3,445	0	9,647	682	929
ENGINEERS	127,843	1,617	1,210	82,613	22,415	2,635	13,326	2,824	1,203
Civil eng.	27,860	382	0	18,329	6,967	997	685	500	0
Elec./elec. eng.	45,933	431	0	32,245	6,534	0	4,424	1,096	1,203
Indust./mech. eng.	54,050	804	1,210	32,039	8,914	1,638	8,217	1,228	0
Men									
TOTAL SCIENT. & ENG.	249,803	13,445	8,159	128,072	42,818	3,585	46,692	5,460	1,572
SCIENTISTS	131,196	11,828	6,949	51,048	21,280	1,622	35,249	2,851	369
Natural sci.	48,614	0	255	6,294	9,689	1,622	28,647	2,107	0
Computer sci.	72,638	11,368	5,169	41,395	9,661	0	4,268	408	369
Social sci.	9,944	460	1,525	3,359	1,930	0	2,334	336	0
ENGINEERS	118,607	1,617	1,210	77,024	21,538	1,963	11,443	2,609	1,203
Civil eng.	27,130	382	0	18,036	6,877	997	338	500	0
Elec./elec. eng.	43,376	431	0	30,332	6,163	0	4,151	1,096	1,203
Indust./mech. eng.	48,101	804	1,210	28,656	8,498	966	6,954	1,013	0

UK-5(89)
Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1989--Continued

Sex and occupation	Banking, finance		Insurance	Business services	Public admin.	Sanitary services	Social & Recrea., cultural services		Personal services
	Total						community services	services	
Women									
TOTAL SCIENT. & ENG.	69,835	5,444	3,025	14,122	11,081	672	32,680	1,649	1,162
SCIENTISTS	60,598	5,444	3,025	8,533	10,204	0	30,796	1,434	1,162
Natural sci.	28,420	0	823	1,508	3,269	0	22,349	471	0
Computer sci.	20,473	4,726	1,766	6,576	5,420	0	1,134	618	233
Social sci.	11,705	718	436	449	1,515	0	7,313	345	929
ENGINEERS	9,237	0	0	5,589	877	672	1,884	215	0
Civil eng.	730	0	0	293	90	0	347	0	0
Elec./elec. eng.	2,558	0	0	1,913	371	0	274	0	0
Indust./mech. eng.	5,949	0	0	3,383	416	672	1,263	215	0

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-5(90)

Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1990

Sex and occupation	Total	Banking, finance	Insurance	Business services	Public admin.	Sanitary services	Social & community services	Recrea., cultural services	Personal services
Both sexes									
TOTAL SCIENT. & ENG.	300,295	13,820	17,578	147,293	34,940	2,355	74,648	8,026	1,635
SCIENTISTS	183,442	12,818	15,594	64,850	22,473	448	63,749	2,629	881
Natural sci.	70,953	310	476	9,452	11,545	448	46,677	1,284	761
Computer sci.	92,292	12,147	10,673	50,649	9,221	0	8,520	962	120
Social sci.	20,197	361	4,445	4,749	1,707	0	8,552	383	0
ENGINEERS	116,853	1,002	1,984	82,443	12,467	1,907	10,899	5,397	754
Civil eng.	26,448	0	0	20,985	2,869	1,158	1,436	0	0
Elec./elec. eng.	50,545	1,002	350	38,494	2,591	0	3,526	4,220	362
Indust./mech. eng.	39,860	0	1,634	22,964	7,007	749	5,937	1,177	392
Men									
TOTAL SCIENT. & ENG.	238,140	10,486	15,170	128,878	26,339	2,355	46,015	7,382	1,515
SCIENTISTS	129,766	9,484	13,186	53,520	14,228	448	36,154	1,985	761
Natural sci.	47,320	0	476	8,142	9,182	448	27,671	640	761
Computer sci.	70,680	9,123	9,081	41,514	4,292	0	5,708	962	0
Social sci.	11,766	361	3,629	3,864	754	0	2,775	383	0
ENGINEERS	108,374	1,002	1,984	75,358	12,111	1,907	9,861	5,397	754
Civil eng.	26,448	0	0	20,985	2,869	1,158	1,436	0	0
Elec./elec. eng.	43,879	1,002	350	32,184	2,235	0	3,526	4,220	362
Indust./mech. eng.	38,047	0	1,634	22,189	7,007	749	4,899	1,177	392

UK-5(90)
Employed Scientists and Engineers, by Service Industry and Sex, for the United Kingdom: 1990--Continued

Sex and occupation	Total	Banking, finance			Insurance	Business services	Public admin.	Sanitary services	Social & Recrea.,		Personal services
		3,334	2,408	18,417					8,601	0		28,633	644	120
Women											
TOTAL SCIENT. & ENG.	62,157	3,334	2,408	18,417	8,601	0	28,633	644	120		
SCIENTISTS	53,677	3,334	2,408	11,332	8,245	0	27,594	644	120		
Natural sci.	23,634	310	0	1,311	2,363	0	19,006	644	0		
Computer sci.	21,611	3,024	1,592	9,135	4,929	0	2,811	0	120		
Social sci.	8,432	0	816	886	953	0	5,777	0	0		
ENGINEERS	8,480	0	0	7,085	356	0	1,039	0	0		
Civil eng.	0	0	0	0	0	0	0	0	0		
Elec./elec. eng.	6,666	0	0	6,310	356	0	0	0	0		
Indust./mech. eng.	1,814	0	0	775	0	0	1,039	0	0		

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Both sexes						
TOTAL SCIENT. & ENG.	716,153	36,465	679,688	401,587	203,686	74,415
SCIENTISTS	298,867	7,784	291,083	143,383	97,953	49,747
Natural sci.	132,614	3,809	128,805	54,448	39,182	35,175
Computer sci.	147,668	3,231	144,437	85,459	49,968	9,010
Social sci.	18,585	744	17,841	3,476	8,803	5,562
ENGINEERS	417,286	28,681	388,605	258,204	105,733	24,668
Civil eng.	64,465	4,425	60,040	29,970	23,747	6,323
Elec./elec. eng.	118,605	4,617	113,988	74,407	33,365	6,216
Indust./mech. eng.	234,216	19,639	214,577	153,827	48,621	12,129
TEACHERS IN HIGHER ED.	117,569	4,329	113,240	35,514	39,104	38,622
Teachers	86,187	3,312	82,875	32,123	29,995	20,757
Univ. acad. staff	31,382	1,017	30,365	3,391	9,109	17,865
Men						
TOTAL SCIENT. & ENG.	641,512	34,092	607,420	365,414	175,518	66,488
SCIENTISTS	233,582	5,411	228,171	112,652	73,409	42,110
Natural sci.	102,258	2,544	99,714	42,053	28,096	29,565
Computer sci.	117,146	2,469	114,677	68,271	38,781	7,625
Social sci.	14,178	398	13,780	2,328	6,532	4,920
ENGINEERS	407,930	28,681	379,249	252,762	102,109	24,378
Civil eng.	64,465	4,425	60,040	29,970	23,747	6,323
Elec./elec. eng.	114,852	4,617	110,235	71,999	32,310	5,926
Indust./mech. eng.	228,613	19,639	208,974	150,793	46,052	12,129
TEACHERS IN HIGHER ED.	76,370	1,560	74,810	21,337	23,963	29,510
Teachers	52,206	1,560	50,646	17,946	17,343	15,357
Univ. acad. staff	24,164	0	24,164	3,391	6,620	14,153

UK-6(87)

Employed Scientist and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1987--Continued

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Women						
TOTAL SCIENT. & ENG.	74,641	2,373	72,268	36,172	28,168	7,928
SCIENTISTS	65,285	2,373	62,912	30,730	24,544	7,638
Natural sci.	30,355	1,265	29,090	12,394	11,085	5,611
Computer sci.	30,522	762	29,760	17,188	11,187	1,385
Social sci.	4,408	346	4,062	1,148	2,272	642
ENGINEERS	9,356	0	9,356	5,442	3,624	290
Civil eng.		0	0	0	0	0
Elec./elec. eng.	3,753	0	3,753	2,408	1,055	290
Indust./mech. eng.	5,603	0	5,603	3,034	2,569	0
TEACHERS IN HIGHER ED.	41,199	2,769	38,430	14,177	15,141	9,112
Teachers	33,981	1,752	32,229	14,177	12,652	5,400
Univ. acad. staff	7,218	1,017	6,201	0	2,489	3,712

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1988

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Both sexes						
TOTAL SCIENT. & ENG.	730,211	37,990	692,221	417,964	198,490	75,767
SCIENTISTS	313,994	11,737	302,257	157,807	94,137	50,313
Natural sci.	115,594	3,808	111,786	53,152	29,875	28,759
Computer sci.	174,561	6,509	168,052	98,347	57,617	12,088
Social sci.	23,839	1,420	22,419	6,308	6,645	9,466
ENGINEERS	416,217	26,253	389,964	260,157	104,353	25,454
Civil eng.	55,638	3,825	51,813	30,027	17,161	4,625
Elec./elec. eng.	109,403	4,720	104,683	64,871	34,018	5,794
Indust./mech. eng.	251,176	17,708	233,468 *	165,259	53,174	15,035
TEACHERS IN HIGHER ED.	124,798	3,433	121,365	30,818	43,293	47,254
Teachers	82,266	2,863	79,403	28,931	34,397	16,075
Univ. acad. staff	42,532	570	41,962	1,887	8,896	31,179
Men						
TOTAL SCIENT. & ENG.	646,526	33,867	612,659	371,175	173,439	68,045
SCIENTISTS	243,724	8,236	235,488	117,485	75,077	42,926
Natural sci.	86,493	2,170	84,323	36,440	23,364	24,519
Computer sci.	142,109	5,063	137,046	78,835	46,975	11,236
Social sci.	15,122	1,003	14,119	2,210	4,738	7,171
ENGINEERS	402,802	25,631	377,171	253,690	98,362	25,119
Civil eng.	55,638	3,825	51,813	30,027	17,161	4,625
Elec./elec. eng.	105,350	4,720	100,630	63,379	31,457	5,794
Indust./mech. eng.	241,814	17,086	224,728	160,284	49,744	14,700
TEACHERS IN HIGHER ED.	84,958	792	84,166	18,124	27,765	38,277
Teachers	51,941	353	51,588	16,969	22,529	12,090
Univ. acad. staff	33,017	439	32,578	1,155	5,236	26,187

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1988--Continued

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Women						
TOTAL SCIENT. & ENG.	83,684	4,124	79,560	46,788	25,049	7,723
SCIENTISTS	70,270	3,502	66,768	40,321	19,059	7,388
Natural sci.	29,100	1,638	27,462	16,711	6,510	4,241
Computer sci.	32,453	1,447	31,006	19,512	10,642	852
Social sci.	8,717	417	8,300	4,098	1,907	2,295
ENGINEERS	13,414	622	12,792	6,467	5,990	335
Civil eng.	0	0	0	0	0	0
Elec./elec. eng.	4,053	0	4,053	1,492	2,561	0
Indust./mech. eng.	9,361	622	8,739	4,975	3,429	335
TEACHERS IN HIGHER ED.	39,839	2,640	37,199	12,694	15,528	8,977
Teachers	30,324	2,509	27,815	11,962	11,868	3,985
Univ. acad. staff	9,515	131	9,384	732	3,660	4,992

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1987 labour force survey of the United Kingdom.

UK-6(89)

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1989

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Both sexes						
TOTAL SCIENT. & ENG.	809,261	40,206	769,055	461,605	228,802	78,648
SCIENTISTS	342,258	11,283	330,975	157,323	119,225	54,427
Natural sci.	127,681	2,801	124,880	52,790	37,759	34,331
Computer sci.	187,965	7,448	180,517	98,839	69,648	12,030
Social sci.	26,612	1,034	25,578	5,694	11,818	8,066
ENGINEERS	467,003	28,923	438,080 ^e	304,282	109,577	24,221
Civil eng.	70,645	4,649	65,996	40,008	23,190	2,798
Elec./elec. eng.	131,186	4,813	126,373	79,158	37,923	9,292
Indust./mech. eng.	265,172	19,461	245,711	185,116	48,464	12,131
TEACHERS IN HIGHER ED.	119,369	2,783	116,586	30,495	37,418	48,673
Teachers	86,478	2,013	84,465	27,873	31,445	25,147
Univ. acad. staff	32,891	770	32,121	2,622	5,973	23,526
Men						
TOTAL SCIENT. & ENG.	701,884	33,938	667,946	408,836	191,683	67,427
SCIENTISTS	253,667	7,010	246,657	114,483	87,591	44,583
Natural sci.	88,028	1,756	86,272	31,389	26,701	28,182
Computer sci.	152,415	4,733	147,682	81,202	56,697	9,783
Social sci.	13,224	521	12,703	1,892	4,193	6,618
ENGINEERS	448,217	26,928	421,289	294,353	104,092	22,844
Civil eng.	69,915	4,649	65,266	39,368	23,100	2,798
Elec./elec. eng.	126,486	4,208	122,278	77,016	35,970	9,292
Indust./mech. eng.	251,816	18,071	233,745	177,969	45,022	10,754
TEACHERS IN HIGHER ED.	75,916	1,286	74,630	15,859	17,478	41,293
Teachers	48,792	516	48,276	13,683	14,087	20,506
Univ. acad. staff	27,124	770	26,354	2,176	3,391	20,787

UK-6(89)

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1989--Continued

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Women						
TOTAL SCIENT. & ENG.	107,379	6,268	101,111	52,770	37,120	11,221
SCIENTISTS	88,592	4,273	84,319	42,841	31,634	9,844
Natural sci.	39,653	1,045	38,608	21,401	11,058	6,149
Computer sci.	35,549	2,715	32,834	17,637	12,951	2,246
Social sci.	13,390	513	12,877	3,803	7,625	1,449
ENGINEERS	18,787	1,995	16,792	9,929	5,486	1,377
Civil eng.	730	0	730	640	90	0
Elec./elec. eng.	4,700	605	4,095	2,142	1,953	0
Indust./mech. eng.	13,357	1,390	11,967	7,147	3,443	1,377
TEACHERS IN HIGHER ED.	43,454	1,497	41,957	14,637	19,940	7,380
Teachers	37,687	1,497	36,190	14,191	17,358	4,641
Univ. acad. staff	5,767	0	5,767	446	2,582	2,739

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1989 labour force survey of the United Kingdom.

UK-6(90)

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1990

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Both sexes						
TOTAL SCIENT. & ENG.	796,283	37,930	758,353	457,046	225,848	75,459
SCIENTISTS	342,334	11,118	331,216	167,058	113,049	51,109
Natural sci.	118,705	4,075	114,630	49,026	33,267	32,337
Computer sci.	201,840	5,633	196,207	112,655	70,845	12,707
Social sci.	21,789	1,410	20,379	5,377	8,937	6,065
ENGINEERS	453,949	26,812	427,137 ^a	289,988	112,799	24,350
Civil eng.	69,332	4,968	64,364	29,960	28,749	5,655
Elec./elec. eng.	130,280	4,250	126,030	83,490	34,648	7,892
Indust./mech. eng.	254,337	17,594	236,743	176,538	49,402	10,803
TEACHERS IN HIGHER ED.	144,652	2,960	141,692	43,092	42,973	55,627
Teachers	101,162	2,287	98,875	40,636	32,033	26,206
Univ. acad. staff	43,490	673	42,817	2,456	10,940	29,421
Men						
TOTAL SCIENT. & ENG.	696,500	35,047	661,453	403,260	197,395	60,798
SCIENTISTS	264,879	8,863	256,016	126,322	91,237	38,457
Natural sci.	88,304	3,366	84,938	36,903	23,440	24,595
Computer sci.	163,574	4,492	159,082	86,567	62,043	10,472
Social sci.	13,001	1,005	11,996	2,852	5,754	3,390
ENGINEERS	431,621	26,184	405,437	276,938	106,158	22,341
Civil eng.	68,045	4,968	63,077	28,673	28,749	5,655
Elec./elec. eng.	120,739	4,250	116,489	77,858	31,738	6,893
Indust./mech. eng.	242,837	16,966	225,871	170,407	45,671	9,793
TEACHERS IN HIGHER ED.	89,811	1,132	88,679	24,289	20,623	43,767
Teachers	54,222	783	53,439	22,610	12,555	18,274
Univ. acad. staff	35,589	349	35,240	1,679	8,068	25,493

Employed Scientists and Engineers, by Educational Attainment and Sex,
for the United Kingdom: 1990--Continued

Sex and occupation	Total	Not qualified or unknown	Qualified			
			Total	Below 1st univ. degree	First univ. degree	Higher univ.
Women						
TOTAL SCIENT. & ENG.	99,788	2,885	96,903	53,786	28,455	14,662
SCIENTISTS	77,457	2,256	75,201	40,736	21,813	12,652
Natural sci.	30,400	709	29,691	12,123	9,826	7,742
Computer sci.	38,268	1,142	37,126	26,088	8,803	2,235
Social sci.	8,789	405	8,384	2,525	3,184	2,675
ENGINEERS	22,331	629	21,702	13,050	6,642	2,010
Civil eng.	1,288	0	1,288	1,288	0	0
Elec./elec. eng.	9,541	0	9,541	5,631	2,911	999
Indust./mech. eng.	11,502	629	10,873	6,131	3,731	1,011
TEACHERS IN HIGHER ED.	54,842	1,827	53,015	18,803	22,351	11,861
Teachers	46,940	1,503	45,437	18,026	19,479	7,932
Univ. acad. staff	7,902	324	7,578	777	2,872	3,929

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom: 1987

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Both sexes										
TOTAL SCIENT. & ENG.	679,689	718	11,121	128,632	2,535	100,528	20,130	2,674	9,588	403,764
SCIENTISTS	291,083	718	10,286	16,560	1,436	79,519	13,970	1,433	8,016	159,146
Natural sci.	128,805	0	9,559	3,497	1,436	49,522	1,832	577	1,654	60,729
Computer sci.	144,437	0	727	13,063	0	28,347	6,269	432	4,444	91,155
Social sci.	17,841	718	0	0	0	1,650	5,869	424	1,918	7,262
ENGINEERS	388,606	0	835	112,072	1,099	21,009	6,160	1,241	1,572	244,618
Civil eng.	60,040	0	379	28,783	0	395	440	487	0	29,557
Elec./elec. eng.	113,988	0	0	28,485	424	8,707	1,570	0	617	74,185
Indust./mech. eng.	214,578	0	456	54,804	675	11,907	4,150	754	955	140,876
TEACHERS IN HIGHER ED.	113,240	7,171	2,660	7,860	737	13,688	16,429	1,617	15,556	47,523
Teachers	82,875	6,443	1,045	4,613	737	7,805	12,866	1,617	10,753	36,997
Univ. acad. staff	30,365	728	1,615	3,247	0	5,883	3,563	0	4,803	10,526
Men										
TOTAL SCIENT. & ENG.	607,423	718	5,357	126,281	1,998	84,029	15,419	2,097	5,617	365,906
SCIENTISTS	228,172	718	4,978	15,409	899	63,646	9,805	856	4,676	127,185
Natural sci.	99,715	0	4,648	3,055	899	39,112	1,146	0	1,654	49,202
Computer sci.	114,677	0	330	12,354	0	22,884	4,327	432	1,603	72,746
Social sci.	13,780	718	0	0	0	1,650	4,332	424	1,419	5,237
ENGINEERS	379,251	0	379	110,872	1,099	20,383	5,614	1,241	941	238,721
Civil eng.	60,040	0	379	28,783	0	395	440	487	0	29,557
Elec./elec. eng.	110,236	0	0	27,686	424	8,707	1,024	0	617	71,777
Indust./mech. eng.	208,975	0	0	54,403	675	11,281	4,150	754	324	137,387
TEACHERS IN HIGHER ED.	74,811	2,870	1,637	7,860	737	11,799	11,850	721	8,150	29,187
Teachers	50,647	2,521	395	4,613	737	7,034	8,965	721	4,738	20,923
Univ. acad. staff	24,164	349	1,242	3,247	0	4,765	2,885	0	3,412	8,264

UK-8(87)

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom:
1987--Continued

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Women										
TOTAL SCIENT. & ENG.	72,266	0	5,764	2,351	537	16,498	4,710	577	3,971	37,858
SCIENTISTS	62,911	0	5,308	1,151	537	15,873	4,164	577	3,340	31,961
Natural sci.	29,090	0	4,911	442	537	10,410	686	577	0	11,527
Computer sci.	29,760	0	397	709	0	5,463	1,941	0	2,841	18,409
Social sci.	4,061	0	0	0	0	0	1,537	0	499	2,025
ENGINEERS	9,355	0	456	1,200	0	625	546	0	631	5,897
Civil eng.	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	3,752	0	0	799	0	0	546	0	0	2,408
Indust./mech. eng.	5,603	0	456	401	0	625	0	0	631	3,489
TEACHERS IN HIGHER ED.	38,430	4,301	1,024	0	0	1,889	4,580	897	7,406	18,335
Teachers	32,229	3,922	651	0	0	771	3,901	897	6,015	16,073
Univ. acad. staff	6,201	379	373	0	0	1,118	679	0	1,391	2,262

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-8(88)

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom: 1988

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Both sexes										
TOTAL SCIENT. & ENG.	692,220	0	8,085	120,430	4,635	103,085	28,853	1,996	9,703	415,435
SCIENTISTS	302,256	0	7,326	12,046	4,635	78,125	22,420	1,124	7,005	169,576
Natural sci.	111,786	0	5,752	3,983	4,635	38,342	4,497	0	1,197	53,380
Computer sci.	168,052	0	0	7,733	0	37,714	9,313	816	4,318	108,158
Social sci.	22,418	0	1,574	330	0	2,069	8,610	308	1,490	8,038
ENGINEERS	389,964	0	759	108,384	0	24,960	6,433	872	2,698	245,859
Civil eng.	51,813	0	0	25,353	0	1,176	1,039	0	409	23,837
Elec./elec. eng.	104,683	0	0	28,260	0	9,265	802	0	1,052	65,304
Indust./mech. eng.	233,468	0	759	54,771	0	14,519	4,592	872	1,237	156,718
TEACHERS IN HIGHER ED.	121,365	4,897	4,173	8,850	421	16,681	18,230	1,383	21,033	45,696
Teachers	79,403	4,596	2,156	5,435	0	8,747	10,618	1,383	13,915	32,553
Univ. acad. staff	41,962	301	2,017	3,415	421	7,934	7,612	0	7,118	13,143
Men										
TOTAL SCIENT. & ENG.	612,658	0	4,857	117,724	3,651	88,054	22,835	1,219	8,119	366,201
SCIENTISTS	235,487	0	4,098	11,217	3,651	66,200	16,402	347	5,754	127,819
Natural sci.	84,323	0	3,424	3,690	3,651	32,405	2,897	0	710	37,547
Computer sci.	137,046	0	0	7,197	0	32,288	7,520	347	3,554	86,140
Social sci.	14,118	0	674	330	0	1,507	5,985	0	1,490	4,132
ENGINEERS	377,171	0	759	106,507	0	21,854	6,433	872	2,365	238,382
Civil eng.	51,813	0	0	25,353	0	1,176	1,039	0	409	23,837
Elec./elec. eng.	100,630	0	0	28,163	0	7,266	802	0	1,052	63,347
Indust./mech. eng.	224,728	0	759	52,991	0	13,412	4,592	872	904	151,198
TEACHERS IN HIGHER ED.	84,166	3,185	3,466	7,899	421	11,457	13,983	749	11,866	31,140
Teachers	51,588	3,185	1,783	5,074	0	4,733	8,074	749	6,487	21,504
Univ. acad. staff	32,578	0	1,683	2,825	421	6,724	5,909	0	5,379	9,636

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom:
1988--Continued

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Women										
TOTAL SCIENT. & ENG.	79,559	0	3,228	2,706	984	15,030	6,017	776	1,585	49,233
SCIENTISTS	66,768	0	3,228	829	984	11,924	6,017	776	1,252	41,758
Natural sci.	27,462	0	2,328	294	984	5,936	1,599	0	488	15,833
Computer sci.	31,006	0	0	535	0	5,426	1,793	468	764	22,019
Social sci.	8,300	0	900	0	0	562	2,625	308	0	3,906
ENGINEERS	12,791	0	0	1,877	0	3,106	0	0	333	7,475
Civil eng.	0	0	0	0	0	0	0	0	0	0
Elec./elec. eng.	4,052	0	0	97	0	1,999	0	0	0	1,956
Indust./mech. eng.	8,739	0	0	1,780	0	1,107	0	0	333	5,519
TEACHERS IN HIGHER ED.	37,199	1,712	706	951	0	5,224	4,246	635	9,168	14,557
Teachers	27,815	1,411	373	361	0	4,014	2,543	635	7,429	11,049
Univ. acad. staff	9,384	301	333	590	0	1,210	1,703	0	1,739	3,508

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom: 1989

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Both sexes										
TOTAL SCIENT. & ENG.	769,056	2,785	6,092	113,371	3,565	112,631	25,303	2,713	11,233	491,364
SCIENTISTS	330,976	2,785	5,119	17,372	2,787	82,019	20,180	2,092	9,208	189,415
Natural sci.	124,880	839	4,504	3,264	2,787	39,095	3,122	521	3,621	67,127
Computer sci.	180,517	1,525	615	13,714	0	37,625	10,779	1,285	4,341	110,633
Social sci.	25,579	421	0	394	0	5,299	6,279	286	1,246	11,655
ENGINEERS	438,080	0	973	95,999	778	30,612	5,123	621	2,025	301,949
Civil eng.	65,996	0	300	28,658	0	938	173	0	0	35,926
Elec./elec. eng.	126,374	0	0	23,821	340	16,492	988	0	511	84,222
Indust./mech. eng.	245,710	0	673	43,520	438	13,182	3,962	621	1,514	181,801
TEACHERS IN HIGHER ED.	116,586	5,964	4,315	9,465	431	18,993	17,126	2,218	11,486	46,587
Teachers	84,465	5,638	3,339	8,143	431	8,670	14,227	2,218	7,515	34,284
Univ. acad. staff	32,121	326	976	1,322	0	10,323	2,899	0	3,971	12,303
Men										
TOTAL SCIENT. & ENG.	667,944	1,230	3,251	108,413	2,323	91,690	16,568	2,367	9,257	432,846
SCIENTISTS	246,656	1,230	2,278	15,549	1,545	64,568	11,870	1,746	7,374	140,496
Natural sci.	86,272	423	1,663	3,264	1,545	29,254	1,639	175	3,285	45,024
Computer sci.	147,682	386	615	12,285	0	31,969	7,623	1,285	3,527	89,993
Social sci.	12,702	421	0	0	0	3,345	2,608	286	562	5,479
ENGINEERS	421,288	0	973	92,864	778	27,122	4,698	621	1,883	292,350
Civil eng.	65,266	0	300	28,568	0	938	173	0	0	35,286
Elec./elec. eng.	122,278	0	0	23,328	340	14,681	988	0	369	82,573
Indust./mech. eng.	233,744	0	673	40,968	438	11,503	3,537	621	1,514	174,491
TEACHERS IN HIGHER ED.	74,629	1,790	2,384	9,465	431	13,647	12,086	1,824	8,082	24,920
Teachers	48,275	1,790	1,408	8,143	431	4,829	10,058	1,824	4,528	15,264
Univ. acad. staff	26,354	0	976	1,322	0	8,818	2,028	0	3,554	9,656

UK-8(89)

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom:
1989--Continued

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Women										
TOTAL SCIENT. & ENG.	101,110	1,555	2,841	4,958	1,242	20,940	8,735	346	1,975	58,517
SCIENTISTS	84,319	1,555	2,841	1,823	1,242	17,450	8,310	346	1,833	48,918
Natural sci.	38,608	416	2,841	0	1,242	9,841	1,484	346	336	22,103
Computer sci.	32,834	1,139	0	1,429	0	5,656	3,156	0	814	20,640
Social sci.	12,877	0	0	394	0	1,953	3,670	0	683	6,175
ENGINEERS	16,791	0	0	3,135	0	3,490	425	0	142	9,599
Civil eng.	730	0	0	90	0	0	0	0	0	640
Elec./elec. eng.	4,095	0	0	493	0	1,811	0	0	142	1,649
Indust./mech. eng.	11,966	0	0	2,552	0	1,679	425	0	0	7,310
TEACHERS IN HIGHER ED.	41,957	4,174	1,931	0	0	5,345	5,040	394	3,405	21,667
Teachers	36,190	3,848	1,931	0	0	3,840	4,169	394	2,987	19,020
Univ. acad. staff	5,767	326	0	0	0	1,505	871	0	418	2,647

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

UK-8(90)

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom: 1990

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Both sexes										
TOTAL SCIENT. & ENG.	758,352	1,817	6,314	123,005	4,854	106,137	24,310	3,912	10,119	477,886
SCIENTISTS	331,215	1,366	5,949	18,811	4,854	81,165	16,444	2,038	6,299	194,291
Natural sci.	114,629	380	5,563	3,191	4,163	36,785	2,059	0	1,198	61,291
Computer sci.	196,207	728	386	15,620	691	40,316	8,162	1,484	2,670	126,150
Social sci.	20,379	258	0	0	0	4,064	6,223	554	2,431	6,850
ENGINEERS	427,137	451	365	104,194	0	24,972	7,866	1,874	3,820	283,595
Civil eng.	64,364	0	0	33,423	0	1,789	437	412	334	27,969
Elec./elec. eng.	126,030	451	365	24,421	0	11,757	3,309	0	1,367	84,360
Indust./mech. eng.	236,743	0	0	46,350	0	11,426	4,120	1,462	2,119	171,266
TEACHERS IN HIGHER ED.	141,692	7,473	2,573	9,228	1,606	21,800	19,645	1,599	17,775	59,992
Teachers	98,875	6,750	1,092	5,081	1,219	12,294	13,014	1,097	11,038	47,289
Univ. acad. staff	42,817	723	1,481	4,147	387	9,506	6,631	502	6,737	12,703
Men										
TOTAL SCIENT. & ENG.	661,451	819	4,642	118,057	3,774	91,088	17,793	2,884	7,017	415,377
SCIENTISTS	256,015	368	4,277	17,943	3,774	68,579	11,093	1,675	4,092	144,215
Natural sci.	84,938	0	4,277	3,191	3,419	28,136	1,123	0	138	44,654
Computer sci.	159,081	368	0	14,752	355	37,181	6,777	1,121	2,189	96,338
Social sci.	11,996	0	0	0	0	3,262	3,193	554	1,765	3,223
ENGINEERS	405,436	451	365	100,114	0	22,509	6,700	1,209	2,925	271,162
Civil eng.	63,076	0	0	33,423	0	1,789	437	412	334	26,681
Elec./elec. eng.	116,489	451	365	22,640	0	10,305	2,143	0	1,075	79,510
Indust./mech. eng.	225,871	0	0	44,051	0	10,415	4,120	797	1,516	164,971
TEACHERS IN HIGHER ED.	88,678	2,675	1,241	8,734	1,255	16,495	12,130	494	7,842	37,812
Teachers	53,438	2,352	457	4,587	868	7,566	6,251	368	3,354	27,635
Univ. acad. staff	35,240	323	784	4,147	387	8,929	5,879	126	4,488	10,177

UK-8(90)

Qualified Employed Scientists and Engineers, by Field of Training and Sex, for the United Kingdom:
1990--Continued

Sex and occupation	Total	Educ.	Health	Engin. & tech.	Agric. etc.	Science	Social studies	Vocational	Other	Not stated
Women										
	96,901	998	1,672	4,948	1,079	15,049	6,517	1,027	3,102	62,509
SCIENTISTS	75,200	998	1,672	868	1,079	12,586	5,351	363	2,207	50,076
Natural sci.	29,691	380	1,286	0	743	8,649	936	0	1,060	16,637
Computer sci.	37,125	360	386	868	336	3,135	1,385	363	480	29,812
Social sci.	8,384	258	0	0	0	802	3,030	0	667	3,627
ENGINEERS	21,701	0	0	4,080	0	2,463	1,166	664	895	12,433
Civil eng.	1,288	0	0	0	0	0	0	0	0	1,288
Elec./elec. eng.	9,541	0	0	1,781	0	1,452	1,166	0	292	4,850
Indust./mech. eng.	10,872	0	0	2,299	0	1,011	0	664	603	6,295
TEACHERS IN HIGHER ED.	53,015	4,798	1,333	494	350	5,305	7,515	1,105	9,935	22,178
Teachers	45,437	4,398	636	494	350	4,728	6,763	729	7,685	19,653
Univ. acad. staff	7,578	400	697	0	0	577	752	376	2,250	2,525

Note: "Qualified" refers to holders of higher university degree; first university degree; or other post-secondary qualifications such as teaching or nursing.

Source: Special tabulations from the 1990 labour force survey of the United Kingdom.

JAPAN

Table JP-SUM
Trend in Number of Employed Scientists and Engineers and S/E per 1,000 Employed Labor Force, for Japan: 1980 to 1990

Sex and occupation	Number			Per 1,000 labor force		
	1980	1985	1990	1980	1985	1990
Employed labor force	57,231,120	58,336,129	61,733,800	(X)	(X)	(X)
Both sexes						
Total S/E	940,301	1,827,256	2,345,000	16.4	31.3	38.0
SCIENTISTS	195,921	419,080	654,500	3.4	7.2	10.6
Natural sci.	63,729	94,509	88,900	1.1	1.6	1.4
Computer sci.	129,764	321,339	560,300	2.3	5.5	9.1
Social sci.	2,428	3,232	5,300	.0	.1	.1
ENGINEERS	744,380	1,408,176	1,690,500	13.0	24.1	27.4
Civil eng.	351,929	569,883	746,600	6.1	9.8	12.1
Elec./elec. eng.	119,499	311,566	361,100	2.1	5.3	5.8
Ind./mech. eng.	272,952	526,727	582,800	4.8	9.0	9.4
Men						
Total S/E	915,912	1,743,992	2,195,600	16.0	29.9	35.6
SCIENTISTS	180,536	359,942	551,700	3.2	6.2	8.9
Natural sci.	60,018	86,322	79,400	1.0	1.5	1.3
Computer sci.	118,424	270,770	468,300	2.1	4.6	7.6
Social sci.	2,094	2,850	4,000	.0	.0	.1
ENGINEERS	735,376	1,384,050	1,643,900	12.8	23.7	26.6
Civil eng.	347,963	562,171	731,400	6.1	9.6	11.8
Elec./elec. eng.	118,899	307,549	353,000	2.1	5.3	5.7
Ind./mech. eng.	268,514	514,330	559,500	4.7	8.8	9.1
Women						
Total S/E	24,389	83,264	149,400	.4	1.4	2.4
SCIENTISTS	15,385	59,138	102,800	.3	1.0	1.7
Natural sci.	3,711	8,187	9,500	.1	.1	.2
Computer sci.	11,340	50,569	92,000	.2	.9	1.5
Social sci.	334	382	1,300	.0	.0	.0
ENGINEERS	9,004	24,126	46,600	.2	.4	.8
Civil eng.	3,966	7,712	15,200	.1	.1	.2
Elec./elec. eng.	600	4,017	8,100	.0	.1	.1
Ind./mech. eng.	4,438	12,397	23,300	.1	.2	.4

X - Not applicable.

Note: Data for 1980 and 1985 are from 20-percent sample results of the respective censuses, while those for 1990 are from 1-percent census results.

Source: Data for 1980 from U.S. Bureau of the Census, 1986, "Scientists and Engineers in Industrialized Countries: A comparison of characteristics for France, West Germany, Japan, the United Kingdom, and the United States," CIR Staff Paper, No. 26, Washington, D.C., table JP-1; those for 1985 from this report, table JP-3(85-revised); and those for 1990 from this report, table JP-2(90). Total labor force figures are from the Japan census for the respective years.

JP-2(90)

Employed Scientists and Engineers, by Employment Status and Sex,
for Japan: 1990

Sex and occupation	Total	Employees	Directors	Self-employed		Family workers
				w/empl.	w/o empl.	
Both sexes						
TOTAL SCIENT. & ENGIN.	2,345,000	2,084,300	131,100	54,300	69,900	5,400
SCIENTISTS	654,500	631,800	15,700	1,600	5,400	0
Nat. sci. researchers	88,900	88,300	600	0	0	0
Comp. processing tech.	560,300	538,400	14,900	1,600	5,400	0
Cult. & soc. sci. res.	5,300	5,100	200	0	0	0
ENGINEERS	1,690,500	1,452,500	115,400	52,700	64,500	5,400
Civil Engineers	746,600	562,400	85,800	46,500	46,700	5,200
Architects	401,000	270,400	54,900	33,500	38,700	3,500
Civil and surveying eng.	345,600	292,000	30,900	13,000	8,000	1,700
Elect./electronic eng.	361,100	341,600	10,300	2,100	7,000	100
Ind./mech. eng.	582,800	548,500	19,300	4,100	10,800	100
Agric. and forest. tech.	69,500	68,500	400	0	600	0
Chemical eng.	96,700	94,500	2,200	0	0	0
Metallurgical eng.	25,800	25,300	500	0	0	0
Mechanical eng.	309,500	284,100	13,600	2,500	9,200	100
Other eng. & tech.	81,300	76,100	2,600	1,600	1,000	0
Men						
TOTAL SCIENT. & ENGIN.	2,195,600	1,939,100	129,600	54,300	68,100	4,500
SCIENTISTS	551,700	531,000	14,600	1,600	4,500	0
Nat. sci. researchers	79,400	78,900	500	0	0	0
Comp. processing tech.	468,300	448,300	13,900	1,600	4,500	0
Cult. & soc. sci. res.	4,000	3,800	200	0	0	0
ENGINEERS	1,643,900	1,408,100	115,000	52,700	63,600	4,500
Civil Engineers	731,400	549,400	85,400	46,500	45,800	4,300
Architects	388,000	259,600	54,500	33,500	37,800	2,600
Civil and surveying eng.	343,400	289,800	30,900	13,000	8,000	1,700
Elect./electronic eng.	353,000	333,500	10,300	2,100	7,000	100
Ind./mech. eng.	559,500	525,200	19,300	4,100	10,800	100
Agric. and forest. tech.	64,200	63,200	400	0	600	0
Chemical eng.	87,400	85,200	2,200	0	0	0
Metallurgical eng.	25,700	25,200	500	0	0	0
Mechanical eng.	304,600	279,200	13,600	2,500	9,200	100
Other eng. & tech.	77,600	72,400	2,600	1,600	1,000	0

Employed Scientists and Engineers, by Employment Status and Sex,
for Japan: 1990--Continued

Sex and occupation	Total	Employees	Directors	Self-employed		Family workers
				w/empl.	w/o empl.	
Women						
TOTAL SCIENT. & ENGIN.	149,400	145,200	1,500	0	1,800	900
SCIENTISTS	102,800	100,800	1,100	0	900	0
Nat. sci. researchers	9,500	9,400	100	0	0	0
Comp. processing tech.	92,000	90,100	1,000	0	900	0
Cult. & soc. sci. res.	1,300	1,300	0	0	0	0
ENGINEERS	46,600	44,400	400	0	900	900
Civil Engineers	15,200	13,000	400	0	900	900
Architects	13,000	10,800	400	0	900	900
Civil and surveying eng.	2,200	2,200	0	0	0	0
Elect./electronic eng.	8,100	8,100	0	0	0	0
Ind./mech. eng.	23,300	23,300	0	0	0	0
Agric. and forest. tech.	5,300	5,300	0	0	0	0
Chemical eng.	9,300	9,300	0	0	0	0
Metallurgical eng.	100	100	0	0	0	0
Mechanical eng.	4,900	4,900	0	0	0	0
Other eng. & tech.	3,700	3,700	0	0	0	0

Note: Total Scientists and Engineers differs slightly between tables JP-2(90) and JP-3(90) as reported in the 1-percent sample data.

Source: Japan Statistics Bureau, 1992, 1990 Population Census of Japan, Prompt Report (Results of One-Percent Sample Tabulation), Tokyo, table 8.

JP-3(90)

Employed Scientists and Engineers, by Industry Group and Sex, for Japan: 1990

Sex and occupation	Total	Agriculture, forestry, & fishing	Mining	Manuf.	Elect., gas and water	Constr.	Wholesale & ret. trade (excl. hotels)	Transp. and commun.	Services (incl. hotels)	Govt.	Other
Both sexes											
TOTAL SCIENT. & ENG.	2,344,900	4,700	2,400	710,100	48,200	488,000	72,300	47,500	901,200	70,400	100
Scientists (excl. comp. sci.)	94,200	200	0	21,700	400	400	500	100	69,400	1,500	0
Engineers (incl. comp. sci.)	2,250,700	4,500	2,400	688,400	47,800	487,600	71,800	47,400	831,800	68,900	100
Men											
TOTAL SCIENT. & ENG.	2,195,600	4,700	2,400	673,500	48,100	481,000	64,900	46,500	804,700	69,800	0
Scientists (excl. comp. sci.)	83,400	200	0	18,200	400	400	500	100	62,100	1,500	0
Engineers (incl. comp. sci.)	2,112,200	4,500	2,400	655,300	47,700	480,600	64,400	46,400	742,600	68,300	0
Women											
TOTAL SCIENT. & ENG.	149,300	0	0	36,600	100	7,000	7,400	1,000	96,500	600	100
Scientists (excl. comp. sci.)	10,800	0	0	3,500	0	0	0	0	7,300	0	0
Engineers (incl. comp. sci.)	138,500	0	0	33,100	100	7,000	7,400	1,000	89,200	600	100

Note: Total Scientists and Engineers differs slightly between tables JP-2(90) and JP-3(90) as reported in the 1-percent sample data. Data by industry for 1990 are not yet available for detailed occupations.

Source: Japan Statistics Bureau, 1992, 1990 Population Census of Japan, Prompt Report (Results of One-Percent Sample Tabulation), Tokyo, table 11.

JP-3(85-revised)

Employed Scientists and Engineers, by Industry Group and Sex, for Japan: 1985

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Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Elect., gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Services	Govt.
Both sexes										
TOTAL SCIENT. & ENGIN.	1,827,256	7,376	4,839	617,195	44,958	330,839	60,028	43,487	656,310	62,224
SCIENTISTS	419,080	264	131	98,506	1,259	5,179	32,761	10,497	266,577	3,906
Nat. sci. researchers	94,509	201	38	23,216	159	420	434	104	68,730	1,207
Comp. processing tech.	321,339	63	93	75,290	1,100	4,759	32,327	10,393	194,682	2,632
Cult. & soc. sci. res.	3,232	0	0	0	0	0	0	0	3,165	67
ENGINEERS	1,408,176	7,112	4,708	518,689	43,699	325,660	27,267	32,990	389,733	58,318
Civil engineers	569,883	2,716	293	8,981	19,730	265,075	3,937	12,341	212,316	44,494
Architects	262,590	56	22	5,541	1,095	131,372	2,755	4,002	106,770	10,977
Civil eng.	307,293	2,660	271	3,440	18,635	133,703	1,182	8,339	105,546	33,517
Elect./electronic eng.	311,566	70	297	178,793	17,449	39,790	6,776	16,571	50,356	1,464
Ind./mech. eng.	526,727	4,326	4,118	330,915	6,520	20,795	16,554	4,078	127,061	12,360
Agric. and forest. tech.	53,097	3,742	0	816	11	106	1,371	165	36,951	9,935
Chemical eng.	70,695	6	139	54,967	1,535	248	2,370	34	11,226	170
Mechanical eng.	287,315	71	204	202,989	1,510	17,222	8,548	3,270	52,803	698
Metallurgical eng.	26,134	8	47	23,247	5	278	488	23	2,028	10
Mining engineers	3,933	0	3,425	171	0	51	0	0	189	97
Other eng. & tech.	85,553	499	303	48,725	3,459	2,890	3,777	586	23,864	1,450

JP-3(85-revised)

Employed Scientists and Engineers, by Industry Group and Sex, for Japan: 1985--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Elect., gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Services	Govt.
Men										
TOTAL SCIENT. & ENGIN.	1,743,992	7,226	4,812	596,535	44,764	323,862	54,321	43,051	607,674	61,747
SCIENTISTS	359,942	254	118	86,984	1,172	492	27,962	10,118	229,106	3,736
Mat. sci. researchers	86,322	194	38	20,903	159	412	363	104	62,975	1,174
Comp. processing tech.	270,770	60	80	66,081	1,013	80	27,599	10,014	163,348	2,495
Cult. & soc. sci. res.	2,850	0	0	0	0	0	0	0	2,783	67
ENGINEERS	1,384,050	6,972	4,694	509,551	43,592	323,370	26,359	32,933	378,568	58,011
Civil engineers	562,171	2,687	291	8,886	19,725	262,956	3,739	12,323	207,190	44,374
Architects	256,721	56	22	5,462	1,095	129,745	2,677	3,993	102,752	10,919
Civil eng.	305,450	2,631	269	3,424	18,630	133,211	1,062	8,330	104,438	33,455
Elect./electronic eng.	307,549	70	297	175,842	17,392	39,692	6,700	16,556	49,538	1,462
Ind./mech. eng.	514,330	4,215	4,106	324,823	6,475	20,722	15,920	4,054	121,840	12,175
Agric. and forest. tech.	51,207	3,641	0	810	11	106	1,240	151	35,443	9,805
Chemical eng.	66,993	6	139	52,538	1,522	248	2,182	34	10,184	140
Mechanical eng.	284,510	71	204	201,467	1,494	17,174	8,446	3,260	51,704	690
Metallurgical eng.	25,909	0	47	23,103	5	278	485	23	1,958	10
Mining engineers	3,926	0	3,418	171	0	51	0	0	189	97
Other eng. & tech.	81,785	497	298	46,734	3,443	2,865	3,567	586	22,362	1,433

JP-3(85-revised)
Employed Scientists and Engineers, by Industry Group and Sex, for Japan: 1985--Continued

Sex and occupation	Total	Agric., forestry, & fishing	Mining	Manuf.	Elect., gas and water	Constr.	Wholesale & retail trade	Transp. and commun.	Services	Govt.
Women										
TOTAL SCIENT. & ENGIN.	83,264	150	27	20,660	194	6,977	5,707	436	48,636	477
SCIENTISTS	59,138	10	13	11,522	87	4,687	4,799	379	37,471	170
Nat. sci. researchers	8,187	7	0	2,313	0	8	71	0	5,755	33
Comp. processing tech.	50,569	3	13	9,209	87	4,679	4,728	379	31,334	137
Cult. & soc. sci. res	382	0	0	0	0	0	0	0	382	0
ENGINEERS	24,126	140	14	9,138	107	2,290	908	57	11,165	307
Civil engineers	7,712	29	2	95	5	2,119	198	18	5,126	120
Architects	5,869	0	0	79	0	1,627	78	9	4,018	58
Civil eng.	1,843	29	2	16	5	492	120	9	1,108	62
Elect./electronic eng.	4,017	0	0	2,951	57	98	76	15	818	2
Ind./mech. eng.	12,397	111	12	6,092	45	73	634	24	5,221	185
Agric. and forest. tech.	1,890	101	0	6	0	0	131	14	1,508	130
Chemical eng.	3,702	0	0	2,429	13	0	188	0	1,042	30
Mechanical eng.	2,805	0	0	1,522	16	48	102	10	1,099	8
Metallurgical eng.	225	8	0	144	0	0	3	0	70	0
Mining engineers	7	0	7	0	0	0	0	0	0	0
Other eng. & tech.	3,768	2	5	1,991	16	25	210	0	1,502	17

Note: This table replaces the corresponding table in CIR Staff Paper No. 51, which presented data from the 1-percent sample tabulation for 1985.

Source: Japan Statistics Bureau, 1990, 1985 Population Census of Japan, Vol. 7, Results of Special Tabulation, Part 2, Industry and Occupation (Results of Twenty-Percent Sample Tabulation), table 1.

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Employed Scientists and Engineers, by Manufacturing Industry and Sex, for Japan: 1985

Sex and occupation	Total	Food, beverages, & tobacco	Textiles, apparel & leather	Wood & wood products	Paper, printing, publish.	Chemical & allied products	Non-metal mineral products	Basic metal indust.	Metal products	Electric equip.	Transport equip.	Other manuf. indus.
Both sexes												
TOTAL SCIENT. & ENGIN.	617,195	15,770	8,290	5,716	12,660	83,686	14,594	39,337	158,061	203,654	68,650	6,777
SCIENTISTS	98,506	3,574	1,524	544	3,623	18,202	1,464	7,653	16,764	37,382	6,748	1,028
Nat. sci. researchers	23,216	1,759	221	48	517	12,642	600	1,975	2,256	1,703	1,296	199
Comp. processing tech.	75,290	1,815	1,303	496	3,106	5,560	864	5,678	14,508	35,679	5,452	829
Cult. & soc. sci. res.	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	518,689	12,196	6,766	5,172	9,037	65,484	13,130	31,684	141,297	166,272	61,902	5,749
Civil engineers	8,981	162	79	553	248	1,071	776	1,701	3,184	427	685	95
Architects	5,541	157	79	497	187	877	303	953	1,667	341	397	83
Civil eng.	3,440	5	0	56	61	194	473	748	1,517	86	288	12
Elect./electronic eng.	178,793	1,214	403	255	1,360	3,672	1,029	5,752	12,995	147,619	3,735	759
Ind./mech. eng.	330,915	10,820	6,284	4,364	7,429	60,741	11,325	24,231	125,118	18,226	57,482	4,895
Agric. and forest. tech.	816	556	148	24	4	37	8	0	15	0	3	21
Chemical eng.	54,967	486	375	19	264	51,153	374	697	737	335	279	248
Mechanical eng.	202,989	1,293	647	443	1,347	6,834	1,324	5,573	113,125	15,853	55,357	1,193
Metallurgical eng.	23,247	0	0	30	12	83	52	16,005	5,996	317	690	62
Mining eng.	171	0	0	0	0	3	124	44	0	0	0	0
Other eng. & tech.	48,725	8,485	5,114	3,848	5,802	2,631	9,443	1,912	5,245	1,721	1,153	3,371

JP-4(85-revised)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for Japan: 1985--Continued

Sex and occupation	Total	Food, beverages, & tobacco	Textiles, apparel & leather	Wood & wood products	Paper, printing, publish.	Chemical & allied products	Non-metal mineral products	Basic metal indust.	Metal products	Electric equip.	Transport equip.	Other manuf. indus.
Men												
TOTAL SCIENT. & ENGIN.	596,535	14,082	7,847	5,600	12,106	78,982	14,376	38,518	154,969	195,930	67,680	6,445
SCIENTISTS	86,984	3,011	1,289	527	3,300	15,974	1,360	7,013	14,940	32,600	6,074	896
Nat. sci. researchers	20,903	1,328	179	48	508	11,071	587	1,950	2,152	1,610	1,293	177
Comp. processing tech.	66,081	1,683	1,110	479	2,792	4,903	773	5,063	12,788	30,990	4,781	719
Cult. & soc. sci. res.	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	509,551	11,071	6,558	5,073	8,806	63,008	13,016	31,505	140,029	163,330	61,606	5,549
Civil engineers	8,886	162	79	531	243	1,071	766	1,689	3,148	427	685	85
Architects	5,462	157	79	475	187	877	293	941	1,642	341	397	73
Civil eng.	3,424	5	0	56	56	194	473	748	1,506	86	288	12
Elect./electronic eng.	175,842	1,208	403	255	1,350	3,643	1,025	5,685	12,898	144,922	3,719	734
Ind./mech. eng.	324,823	9,701	6,076	4,287	7,213	58,294	11,225	24,131	123,983	17,981	57,202	4,730
Agric. and forest. tech.	810	550	148	24	4	37	8	0	15	0	3	21
Chemical eng.	52,538	458	370	19	244	48,839	372	687	720	320	273	236
Mechanical eng.	201,467	1,293	647	443	1,331	6,779	1,312	5,565	112,169	15,666	55,083	1,179
Metallurgical eng.	23,103	0	0	30	12	83	52	15,923	5,934	317	690	62
Mining engineers	171	0	0	0	0	3	124	44	0	0	0	0
Other eng. & tech.	46,734	7,400	4,911	3,771	5,622	2,553	9,357	1,912	5,145	1,678	1,153	3,232

JP-4(85-revised)

Employed Scientists and Engineers, by Manufacturing Industry and Sex, for Japan: 1985--Continued

Sex and occupation	Total	Food, beverages, & tobacco	Textiles, apparel & leather	Wood & wood products	Paper, printing, publish.	Chemical & allied products	Non-metal mineral products	Basic metal indust.	Metal products	Electric equip.	Transport equip.	Other manuf. indus.
Women												
TOTAL SCIENT. & ENGIN.	20,660	1,688	443	116	554	4,704	218	819	3,092	7,724	970	332
SCIENTISTS	11,522	563	235	17	323	2,228	104	640	1,824	4,782	674	132
Nat. sci. researchers	2,313	431	42	0	9	1,571	13	25	104	93	3	22
Comp. processing tech.	9,209	132	193	17	314	657	91	615	1,720	4,689	671	110
Cult. & soc. sci. res.	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERS	9,138	1,125	208	99	231	2,476	114	179	1,268	2,942	296	200
Civil engineers	95	0	0	22	5	0	10	12	36	0	0	10
Architects	79	0	0	22	0	0	10	12	25	0	0	10
Civil eng.	16	0	0	0	5	0	0	0	11	0	0	0
Elect./electronic eng.	2,951	6	0	0	10	29	4	67	97	2,697	16	25
Ind./mech. eng.	6,092	1,119	208	77	216	2,447	100	100	1,135	245	280	165
Agric. and forest. tech.	6	6	0	0	0	0	0	0	0	0	0	0
Chemical eng.	2,429	28	5	0	20	2,314	2	10	17	15	6	12
Mechanical eng.	1,522	0	0	0	16	55	12	8	956	187	274	14
Metallurgical eng.	144	0	0	0	0	0	0	82	62	0	0	0
Mining engineers	0	0	0	0	0	0	0	0	0	0	0	0
Other eng. & tech.	1,991	1,085	203	77	180	78	86	0	100	43	0	139

Note: This table replaces the corresponding table in CIR Staff Paper No. 51, which presented data from the 1-percent sample tabulation for 1985.

Source: Japan Statistics Bureau, 1990, 1985 Population Census of Japan, Vol. 7, Results of Special Tabulation, Industry and Occupation (Results of Twenty-Percent Sample Tabulation), table 1.

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Employed Scientists and Engineers, by Service Industry and Sex, for Japan: 1985

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Sex and occupation	Total	Finance and insurance	Real. est. & business services	Public admin. & defense	Medical, health, & welfare	Education and research	Recreation & cultural services	Personal household services	Other
Both sexes									
TOTAL SCIENT. & ENGIN.	718,534	16,195	496,555	62,224	6,991	118,904	9,001	6,750	1,914
SCIENTISTS	270,483	15,120	173,106	3,906	1,530	73,164	2,016	1,444	197
Nat. sci. researchers	69,937	29	1,173	1,207	629	66,103	725	27	44
Comp. processing tech.	197,314	15,091	171,933	2,632	901	4,118	1,069	1,417	153
Cult. & soc. sci. res.	3,232	0	0	67	0	2,943	222	0	0
ENGINEERS	448,051	1,075	323,449	58,318	5,461	45,740	6,985	5,306	1,717
Civil engineers	256,810	328	206,027	44,494	619	2,103	2,833	146	260
Architects	117,747	290	104,222	10,977	253	1,277	508	55	165
Civil eng.	139,063	38	101,805	33,517	366	826	2,325	91	95
Elect./electronic eng.	51,820	267	31,352	1,464	1,740	12,114	1,775	2,571	537
Ind./mech. eng.	139,421	480	86,070	12,360	3,102	31,523	2,377	2,589	920
Agric. and forest. tech.	46,886	362	31,470	9,935	71	3,654	681	4	709
Chemical eng.	11,396	11	897	170	233	9,911	124	50	0
Mechanical eng.	53,501	20	40,163	698	522	9,315	378	2,289	116
Metallurgical eng.	2,038	0	289	10	6	1,690	12	31	0
Mining engineers	286	0	109	97	0	80	0	0	0
Other eng. & tech.	25,314	87	13,142	1,450	2,270	6,873	1,182	215	95

JP-5(85-revised)

Employed Scientists and Engineers, by Service Industry and Sex, for Japan: 1985--Continued

Sex and occupation	Total	Finance and insurance	Real. est. & business services	Public admin. & defense	Medical, health, & welfare	Education and research	Recreation & cultural services	Personal household services	Other
Men									
TOTAL SCIENT. & ENGIN.	669,421	13,725	460,167	61,747	6,256	110,385	8,686	6,592	1,863
SCIENTISTS	232,842	12,653	145,143	3,736	1,198	66,831	1,792	1,322	167
Nat. sci. researchers	64,149	29	1,074	1,174	392	60,711	698	27	44
Comp. processing tech.	165,843	12,624	144,069	2,495	806	3,531	900	1,295	123
Cult. & soc. sci. res.	2,850	0	0	67	0	2,589	194	0	0
ENGINEERS	436,579	1,072	315,024	58,011	5,058	43,554	6,894	5,270	1,696
Civil engineers	251,564	328	201,055	44,374	518	2,069	2,814	146	260
Architects	113,671	290	100,242	10,919	243	1,255	502	55	165
Civil eng.	137,893	38	100,813	33,455	275	814	2,312	91	95
Elect./electronic eng.	51,000	267	30,856	1,462	1,720	11,822	1,775	2,571	527
Ind./mech. eng.	134,015	477	83,113	12,175	2,820	29,663	2,305	2,553	909
Agric. and forest. tech.	45,248	359	30,187	9,805	56	3,474	659	4	704
Chemical eng.	10,324	11	793	140	135	9,082	119	44	0
Mechanical eng.	52,394	20	39,193	690	511	9,214	378	2,272	116
Metallurgical eng.	1,968	0	289	10	6	1,630	12	21	0
Mining engineers	286	0	109	97	0	80	0	0	0
Other eng. & tech.	23,795	87	12,542	1,433	2,112	6,183	1,137	212	89

JP-5(85-revised)
Employed Scientists and Engineers, by Service Industry and Sex, for Japan: 1985--Continued

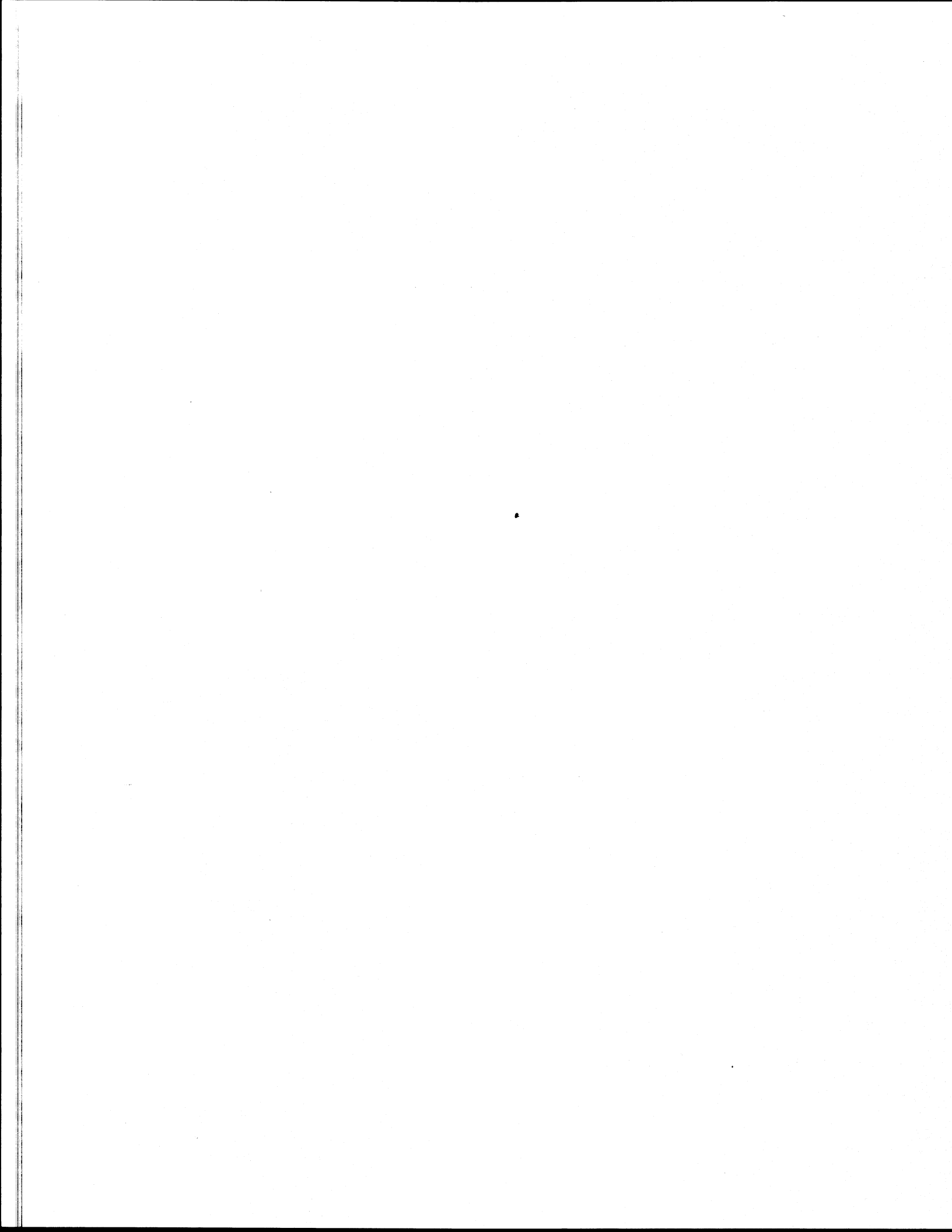
Sex and occupation	Total	Finance and insurance	Real. est. and business services	Public admin. & defense	Medical, health, & welfare	Education and research	Recreation and cultural services	Personal household services	Other
Women									
TOTAL SCIENT. & ENGIN.	49,113	2,470	36,388	477	735	8,519	315	158	51
SCIENTISTS	37,641	2,467	27,963	170	332	6,333	224	122	30
Mat. sci. researchers	5,788	0	99	33	237	5,392	27	0	0
Comp. processing tech.	31,471	2,467	27,864	137	95	587	169	122	30
Cult. & soc. sci. res.	382	0	0	0	0	354	28	0	0
ENGINEERS	11,472	3	8,425	307	403	2,186	91	36	21
Civil engineers	5,246	0	4,972	120	101	34	19	0	0
Architects	4,076	0	3,980	58	10	22	6	0	0
Civil eng.	1,170	0	992	62	91	12	13	0	0
Elect./electronic eng.	820	0	496	2	20	292	0	0	10
Ind./mech. eng.	5,406	3	2,957	185	282	1,860	72	36	11
Agric. and forest. tech.	1,638	3	1,283	130	15	180	22	0	5
Chemical eng.	1,072	0	104	30	98	829	5	6	0
Mechanical eng.	1,107	0	970	8	11	101	0	17	0
Metallurgical eng.	70	0	0	0	0	60	0	10	0
Mining engineers	0	0	0	0	0	0	0	0	0
Other eng. & tech.	1,519	0	600	17	158	690	45	3	6

Note: This table replaces the corresponding table in CIR Staff Paper No. 51, which presented data from the 1-percent tabulation for 1985.

Source: Japan Statistics Bureau, 1990, 1985 Population Census of Japan, Vol. 7, Results of Special Tabulation, Part 2, Industry and Occupation (Results of Twenty-Percent Sample Tabulation), table 1.

Appendix B

SAMPLE CENSUS TABULATIONS FOR JAPAN



APPENDIX B

Sample Census Tabulations for Japan

Data for Japan in this report are from three basic sources: 20-percent sample tabulations from the population censuses of 1980 and 1985, and 1-percent sample tabulations from the census of 1990. Typically, Japan census results appear first in a "Prompt Report" based on a 1-percent sample tabulation of census returns and later based on a 20-percent sample tabulation.

While the 20-percent sample is clearly preferable, it is not so much better that one should choose to wait until it is available before considering the census results at all. Thus, we tentatively present here the 1-percent results for 1990.

The user should keep in mind, however, that presentation of detailed information can differ considerably when based on different sample sizes. To illustrate this, table B-1 presents the 1985 results derived from both sample sizes. Percent differences shown in the table represent the proportionate increase (or occasionally, the decrease) in the number of persons in a particular occupation when the larger sample was used. The base for calculation of percent differences is the number in a particular occupation according to the 1-percent sample tabulation.

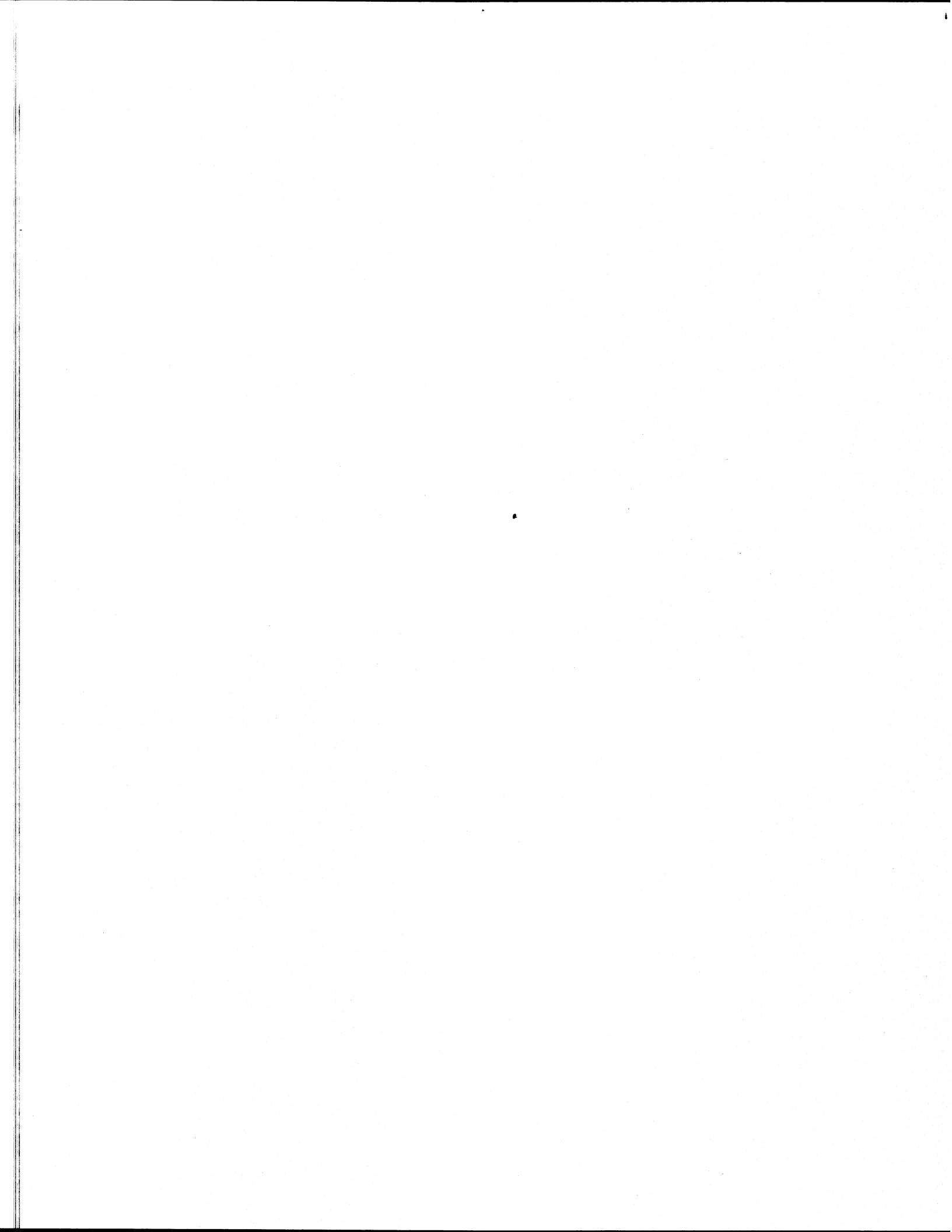
In our earlier reports, data for 1985 were shown based on the 1-percent sample; 1985 "revised" tables in this report are based on the 20-percent sample. Eventually, such revised tables will become possible for the 1990 data. At that time, trends in S/E for the 1985 to 1990 period will be reevaluated.

Table B-1.

Comparison of 1985 Census Data for Japan Based on 1-Percent and 20-Percent Sample Tabulations

Sex and occupation	20-percent sample tabulation	1-percent sample tabulation	Percent difference
Both sexes			
Total labor force	58,336,129	60,270,700	-3.2
Total S/E	1,827,256	1,514,200	20.7
SCIENTISTS			
Natural sci.	94,509	67,100	40.8
Computer sci.	321,339	320,500	.3
Social sci.	3,232	2,300	40.5
ENGINEERS			
Civil eng.	569,883	485,400	17.4
Elec./elec. eng.	311,566	233,100	33.7
Ind./mech. eng.	526,727	405,800	29.8
Men			
Total S/E	1,743,992	1,444,400	20.7
SCIENTISTS			
Natural sci.	86,322	62,200	38.8
Computer sci.	270,770	274,200	-1.3
Social sci.	2,850	2,000	42.5
ENGINEERS			
Civil eng.	562,171	479,800	17.2
Elec./elec. eng.	307,549	231,100	33.1
Ind./mech. eng.	514,330	395,100	30.2
Women			
Total S/E	83,264	69,800	19.3
SCIENTISTS			
Natural sci.	8,187	4,900	67.1
Computer sci.	50,569	46,300	9.2
Social sci.	382	300	27.3
ENGINEERS			
Civil eng.	7,712	5,600	37.7
Elec./elec. eng.	4,017	2,000	100.9
Ind./mech. eng.	12,397	10,700	15.9

Source: U.S. Bureau of the Census, 1988, "Recent Data on Scientists and Engineers in Industrialized Countries," unpublished report prepared for the National Science Foundation, table 2; and this report, table JP-SUM.



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