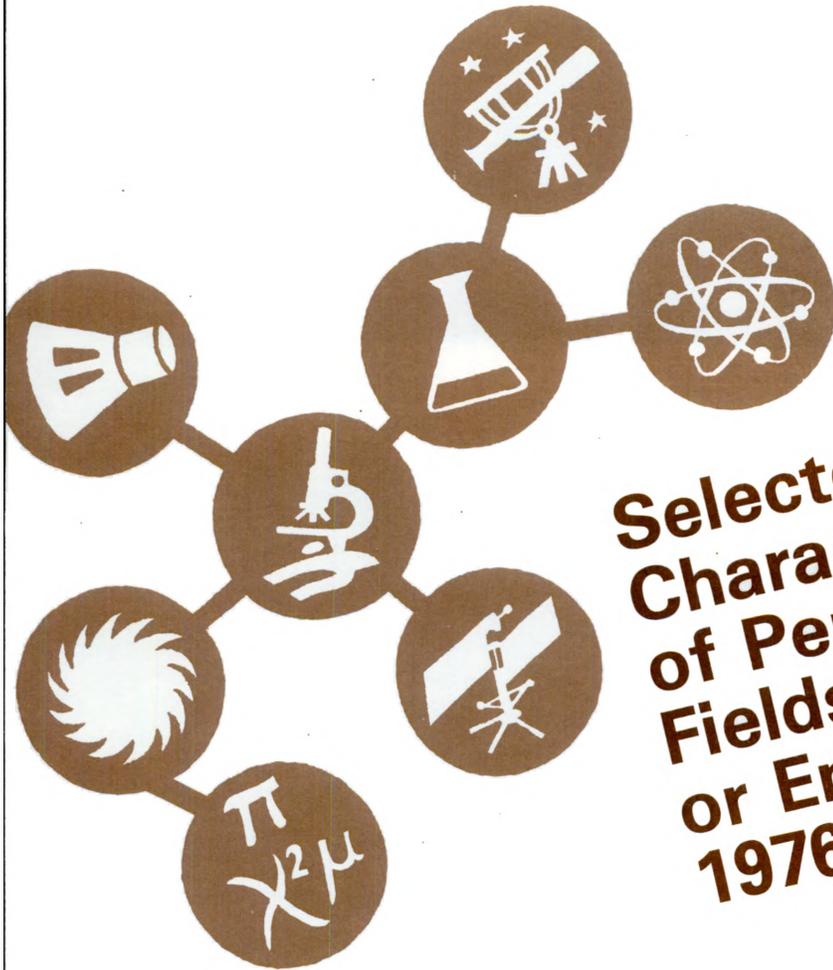


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Series P-23, No. 76
Issued October 1978



Selected Characteristics of Persons in Fields of Science or Engineering: 1976

U.S. Department of Commerce
BUREAU OF THE CENSUS

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The principal participants for the National Science Foundation in developing and coordinating the survey were J. James Brown, Study Director, Demographic Studies Group, and Robert R. Trumble, Head, Scientific and Technical Personnel Studies Section, both members of the Division of Science Resources Studies. Assistance was provided by Nancy M. Conlon, Analyst, Manpower Characteristics Studies Group.

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Preface

This report presents the social, educational, and job-related characteristics in 1976 of a select group of the Nation's experienced scientists, engineers, and other highly-trained persons. The statistics are based on the 1976 National Survey of Natural and Social Scientists and Engineers, the third survey in a longitudinal series of biennial surveys that began in 1972. The first survey in the series, the 1972 Professional, Technical, and Scientific Manpower Survey, focused on persons who were identified in the 1970 Census of Population as being in the 1970 experienced civilian labor force and as meeting the Census Bureau criteria for classification in one of 40 groups of scientific, engineering, or related occupations. The scope of the 1974 and 1976 surveys was narrowed to include only those persons from the 1972 survey who met the much stricter criteria of the National Science Foundation for classification to particular fields of science or engineering, based on their 1972 responses. For these reasons, the group profiled in this report is termed "select" or "experienced."

More detailed statistics, based on results from the 1972, 1974, and 1976 surveys, will be issued in future reports of the National Science Foundation or the Bureau of the Census. These reports will present information on such subjects as salary distributions, geographic and occupational mobility, and educational attainment.

After the data from the 1976 survey presented in this report were tabulated, an error was discovered in one of the computer programs that produced the tabulations. The effects of the error were negligible and did not justify the re-tabulation of the data. For more information, see appendix G.

Related Materials

Statistics from a related survey, the 1972 Professional, Technical, and Scientific Manpower Survey, are found in: U.S. Bureau of the Census, **Characteristics of Persons in Engineering and Scientific Occupations: 1972**, Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C. 1974; and U.S. Bureau of the Census, **Current Population Reports**, P-23, No. 45, "Persons in Engineering, Scientific, and Technical Occupations: 1970 and 1972," U.S. Government Printing Office, Washington, D.C. 1973.

The Census Bureau report based on the results of the 1974 National Survey of Scientists and Engineers is: U.S. Bureau of the Census, **Current Population Reports**, Special Studies P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974," U.S. Government Printing Office, Washington, D.C. 1975.

For a list of the National Science Foundations reports based on the above-mentioned 1972 and 1974 surveys, see National Science Foundation, **Characteristics of the National Sample of Scientists and Engineers 1974, Part III** (NSF 76-330) Washington, D.C. 20402; and National Science Foundation, **U.S. Scientists and Engineers: 1974** (NSF 76-329) Washington, D.C. 20402. A National Science Foundation report based on the results of the 1976 National Survey of Natural and Social Scientists and Engineers is: **Science Resource Studies Highlights**, "National Sample of Scientists and Engineers: Changes in Employment, 1972-1974 and 1974-1976" (NSF 77-322), Washington, D.C. 20550.

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Symbols

- Represents zero.
- (NA) Not applicable.
- (B) Based on fewer than 20 sample cases.
- (Z) Less than 0.05 percent.
- D

Selected Characteristics of Persons in Fields of Science or Engineering: 1976

INTRODUCTION

The National Sample of Scientists and Engineers sponsored by the National Science Foundation as part of its Manpower Characteristics System,¹ is intended to include a series of biennial surveys designed to provide current data on the educational, employment, and career characteristics of experienced persons in scientific and engineering fields. The series began with the 1972 Professional, Technical, and Scientific Manpower Survey.² The second survey in the series was the 1974 National Survey of Natural and Social Scientists and Engineers. This report is based on the third survey in the series, the 1976 National Survey of Natural and Social Scientists and Engineers. Unless otherwise noted, data in this report for the year 1974 are based on the 1974 survey; these 1974 data are published in *Current Population Reports, Special Studies, Series P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974."*

The panel for the 1974 and 1976 surveys is a subpopulation of participants in the 1972 survey. From characteristics determined in this 1972 survey, persons were classified into 1 of 17 detailed fields of science or engineering or as not being in a field of science or engineering in 1972. The 17 detailed fields are grouped into 8 major fields, as shown in example 1. Only these persons who were classified into 1 of the 17 fields in 1972 were included in the 1974 and 1976 surveys. Respondents in the 1974 survey were then classified into one of the scientific or engineering fields in 1974 or as not being in a field of science and engineering in 1974. Respondents in the 1976 National Survey of Natural and Social Scientists and Engineers were classified in the same manner for the year 1976.

Fields of science or engineering are categories developed by the National Science Foundation to identify persons who could be classified as scientists or engineers under most definitions. The concept of "field," therefore, is more restrictive than that of "occupation." In general, to be classified into a field, a person needed at least two of the following three characteristics: (1) employment in a specified occupation, (2) attainment of a particular level of education in a specified academic discipline, and (3) self-identification with a specified profession. The occupational classifications in this survey, on the other hand, are based solely on responses to the ques-

¹ For a description of the Manpower Characteristics System, see Robert W. Cain, "Manpower Characteristics System," *Proceedings of the Social Statistics Section, American Statistical Association*, 1972.

² For a description of the 1972 survey, see U.S. Bureau of the Census, *Characteristics of Persons in Engineering and Scientific Occupations: 1972*, Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C. 1974.

Example 1

Computer specialists
Engineers
Mathematical specialists
Mathematicians
Statisticians

Life scientists
Agricultural scientists
Biologists
Medical scientists

Physical scientists
Chemists
Physicists and astronomers
Other physical scientists

Environmental scientists
Earth scientists
Atmospheric scientists
Oceanographers

Psychologists
Social scientists
Economists
Sociologists and anthropologists
Other social scientists

tion "what was your occupation;"³ in answer to this question, the respondent was directed to enter a code and a description from a list accompanying the questionnaire.

Table 1 of this report describes the sex and age composition of all categories of respondents and nonrespondents in the 1976 survey, and provides a distribution of their 1974 classification by their 1976 classification. The remaining tables in this report are based exclusively on persons who responded in 1976. Tables 1 to 5 present data for the major and detailed science or engineering fields, whereas the text tables and discussion are restricted to the major fields; in this text, therefore, the word "field" will refer to major field of science or engineering. Persons in the category "not in a field of science or engineering" are referred to as "out-of-scope."

³ In the 1972 survey, the question asked "What kind of work were you doing."

HIGHLIGHTS

Some highlights of this report are summarized under the following subjects:

1974 and 1976 comparisons. 1974-76 comparisons reveal very few significant differences between the characteristics of the science and engineering fields in those 2 years. Residential patterns, labor force participation rates, and employment and unemployment levels, for example, were nearly the same. There was some movement, however, into higher salary brackets for most groups and a rather substantial increase of about \$5,200 in the median salary of environmental scientists. As expected, there were greater proportions of retired persons in 1976. Also, the movement of persons between groups (i.e., inter-field mobility) over the 2-year period may have had less influence on the composition of the 1976 groups than had been true during the 1972-74 period.

Field of science or engineering in 1974 and 1976. About one-fourth or less of the persons in each major 1974 S/E field who responded in the 1976 survey were in a different major field in 1976. The proportions who left science or engineering altogether ranged from 4 to 17 percent.

Place of residence. Except for the life scientists, at least three-fourths of the persons in the fields and the out-of-scope resided in metropolitan areas.

Highest degree held. Computer specialists and engineers were less likely to hold doctoral degrees than were persons in the other fields.

Major field of study for highest degree held. About three-fourths or more of the persons in most fields had majored for their highest degree in a corresponding academic discipline. Computer specialists had more varied academic backgrounds.

Supplemental training in 1975. About one-fourth to nearly 60 percent of the persons supplemented their academic backgrounds with some type of non-formal training (for example, on-the-job training) in 1975. Most of the training was provided by employers.

Employment status in February 1976 and February 1975. During each of the reference periods—the second week of February 1976 and February 1975—at least 90 percent of the persons in each field participated in the labor force. The unemployment rate for each field was between 1 and 3 percent. At least 90 percent of the employed persons worked full time; the majority of those working part time indicated that this was their preference.

Industry of employment in February 1976. Employed computer specialists, engineers, and physical scientists were concentrated in manufacturing industries, whereas large proportions of nearly every other field were employed by educational institutions.

Primary work activity in February 1976. About one-fifth or more of the employed scientists and engineers were primarily active in management or administrative duties. From one-fourth to about two-fifths of the employed engineers, and life, physical, and environmental scientists were primarily active in research and development.

Basic annual salary in February 1976. All fields except life scientists (\$20,893) had median salaries above \$21,000; environmental scientists had the highest median salary of \$25,289.

Federal support in February 1976. The U.S. Government funded at least some of the work of at least 35 percent of the employed persons in nearly every field.

Job Mobility. In the 1-year period from February 1975 to February 1976, at least 8 of 10 persons employed at both times were working at the same job; in the 2-year 1974-76 period, this was true for 6 or 7 out of every 10; and in the 4-year 1972-76 period, this was true for 4 to 6 persons out of every 10. Among persons who changed jobs between February 1975 and February 1976, 3 to 7 out of 10 remained in the same occupation.

Professional experience. As expected, professional experience was strongly related to age. On the average, persons in the youngest group (computer specialists) had the least experience (a median of 11.3 years), whereas the older environmental scientists and engineers had the most experience (19.4 and 19.1 years, respectively).

National Interest Topics. Nearly three-fourths of the environmental scientists and approximately two-thirds of life scientists and psychologists reported that they devoted a significant portion of their professional time to 1 of 11 specified topics of critical national interest. In contrast, only about one-third of the computer specialists reported such involvement.

SUMMARY OF RESULTS

Sex, Age, and Field in 1976

Sex. There were relatively few women in most of the science and engineering (S/E) fields. Except for psychologists and social scientists, about 85 percent or more of the persons in each of the fields were men (table 1). Engineers and environmental scientists were the most predominately male groups, with men making up approximately 99 percent and 97 percent, respectively, of these fields. The field with the largest proportion of women was psychologists (28 percent), followed by social scientists (19 percent).

The relative paucity of women in most of these fields may be a result of the perception, widespread until recently, of science and engineering as male pursuits. The persons in these fields, it should be noted, were all in the labor force in 1970; thus, the fields do not reflect the characteristics of persons who have entered science or engineering since 1970.

Although not strictly comparable with the figures in this report, the 1976 annual averages of employed persons in selected occupations based on the Current Population Survey⁴ (CPS), show that in 1976 women constituted 19.1 percent of the employed computer specialists, 1.8 percent of the employed engineers, 12.1 percent of the employed life and physical scientists, and 24.4 percent of the employed social scientists.

Age. The universe for this study includes persons who were at least 16 years old and in the experienced civilian labor force in 1970. At the time of the 1976 survey, therefore, they were all part of the mature or experienced work-force. Thus, the age distribution of each field is skewed upward, with relatively few persons under 30 years old (table 1).

Differences in the age structures for the various groups are reflected in the median ages. The median age for all persons, including those out-of-scope and nonrespondents, was 43.7 years as of April 1976. The group with the lowest median age was computer specialists, 36.9 years; the highest median ages were for engineers, 45.8 years, and environmental scientists, 46.0 years. The median ages for the remaining groups ranged from 41.0 to 44.0 years.

Field of science or engineering in 1974. The majority of persons in the 1974 fields of science or engineering were in the same field in 1976 (table A). The highest levels of agreement between field in 1974 and field in 1976 were for persons who were engineers and psychologists in 1974 (both about 93 percent). Among persons who were designated as computer specialists in 1974, only about 74 percent were in the same field in 1976; about 6 percent were designated as engineers and 17 percent were out-of-scope. About 8 percent of the 1974 mathematical specialists had moved into the computer specialist field or the engineer field in 1976, and about 5 percent of the 1974 physical scientists were either engineers or life scientists in 1976. Moreover, some propor-

tion of each 1974 field was not in any of the fields of science or engineering in 1976, ranging from about 4 percent for environmental scientists to 17 percent for computer specialists.

The dispersion of the 1974 fields among the 1976 fields is shown in table A. The opposite picture—the composition of the 1976 fields in terms of the 1974 fields—is presented in table 1. About 78 percent or more of each 1976 group was composed of 1974 carryovers, except for computer specialists with 73 percent. Relatively large proportions of persons who were not in a field in 1974 or did not respond to the 1974 survey made their influence felt among the 1976 S/E fields; these made up from about 8 percent to 18 percent of each field except environmental scientists (6 percent). Conversely, about 46 percent of the 1976 out-of-scope came from 1974 S/E fields, with 24 percent entering from the 1974 engineer field.

The differences among the fields in the proportion changing fields between 1974 and 1976 may reflect, among other factors, variations in the degree of specialized training required for each field, differences in the areas of common ground among fields, and differences in the average age and experience levels of the members of the field. For instance, persons from a number of fields—computer specialists, mathematical specialists, physical scientists, and environmental scientists—show some propensity to enter the engineering field, indicative perhaps of the involvement of engineering in the practical applications of scientific principles. Common ground among the life, physical, and environmental sciences may help explain the movement of life and physical scientists into each other's fields and the movement of environmental scientists into life and physical science. Common ground may also explain the reciprocal movements of mathematical specialists and computer specialists. Relatively few engineers changed fields, and only small proportions of persons in other science or engineering fields switched into mathematics, environmental science, psychology, or social science.

For most fields, the greatest proportions of persons who left their 1974 fields moved out of the fields of science or

⁴U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, Volume 24, No. 1, January 1977.

Table A. Scientists or Engineers in 1974 Who Responded in the 1976 Survey, by Field of Science or Engineering in 1976

Field of science or engineering in 1974	Total respondents		Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Number	Percent	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
Computer specialists.....	50,471	100.0	73.5	6.3	1.9	(Z)	0.4	0.1	0.2	0.4	17.1
Engineers.....	636,268	100.0	0.6	92.5	0.1	0.1	0.6	0.1	(Z)	0.1	5.8
Mathematical specialists.....	25,572	100.0	3.8	3.6	79.6	0.2	0.3	(Z)	0.1	0.5	11.9
Life scientists.....	69,826	100.0	(Z)	0.6	(Z)	85.6	2.9	0.2	0.2	0.3	10.1
Physical scientists.....	114,136	100.0	0.4	3.7	0.1	1.5	88.4	0.7	-	0.1	5.0
Environmental scientists.....	27,157	100.0	0.2	3.3	-	1.2	2.7	88.0	-	0.8	3.7
Psychologists.....	32,070	100.0	0.1	0.2	-	0.8	-	-	92.6	0.7	5.5
Social scientists.....	44,204	100.0	0.3	0.8	0.5	0.2	0.1	0.1	1.0	80.6	16.4

- Represents zero.

Z Less than 0.05 percent.

Source: Table 1.

engineering altogether. This outward movement was especially pronounced for the computer specialists and the social scientists, and less so for the mathematical specialists and life scientists. The movement may reflect the versatility of the training and experience of these fields, or, especially in the case of the generally young computer specialists, the mid-career movement of persons into managerial occupations.

Interfield mobility seems to have slowed somewhat between 1974 and 1976 compared with that between 1972 groups and 1974 groups as shown by the 1974 survey results. The 1974-76 diagonal (underlined cells of table A) contains generally higher proportions than its 1972-74 counterpart, and the 1976 out-of-scope proportions are generally lower than the 1974 ones. The trend toward greater stability may be illusory, however, since it could result from differential response rates for the 1976 and 1974 surveys or from the method of classifying persons into fields that substituted the most recent data from a person's 1974 or 1972 responses if 1976 data were not reported.

Social Characteristics

Race. Whites accounted for 93 percent or more of the persons in each field; Whites also made up 97 percent of the out-of-scope cases (table 2). The proportion of Blacks ranged from under 1 percent for engineers and environmental scientists to nearly 4 percent for mathematical specialists. The proportions of Japanese, Chinese, and Koreans ranged among the fields from under 1 percent to about 3 percent. The 1976 survey and 1974 survey racial distributions are nearly identical. This may indicate that there are no substantial differentials among the races in the propensity of experienced scientists and engineers to change field or to move out of S/E.

Place of residence. The sample for the National Sample of Scientists and Engineers was originally selected from the 1970 Census of Population records of persons in the 50 States and the District of Columbia; accordingly, all persons in each of the S/E fields and the out-of-scope resided in the United States at the time of the census. In the spring and summer of 1976 when the 1976 National Survey of Natural and Social Scientists and Engineers was conducted, from 97 percent to 99 percent of persons in each group were living in the United States (table 2). This range is identical to the 1974 results, possibly indicating no additional net emigration of these scientists and engineers to foreign residences.

Estimates from the March 1976 Current Population Survey⁵ indicate that in March 1976, 24 percent of the total United States population 25 years old and over lived in the Northeast, 26 percent in the North Central, 32 percent in the South, and 18 percent in the West. The 1976 National Survey of Natural and Social Scientists and Engineers showed that, for mature scientists and engineers, the South and

the Northeast were the major residential regions, having, in general, either the largest or second largest proportion of persons. Especially noteworthy is that at least three-fourths of the environmental scientists lived in the South and West—almost 46 percent in the South and about 32 percent in the West. Engineers were the most evenly distributed among the four regions, with approximately one-fourth residing in each. For three fields—computer specialists, physical scientists, and psychologists—the Middle Atlantic division led all other divisions as a place of residence in 1976; the leading division for environmental scientists was the West South Central, and for mathematical specialists and social scientists, the South Atlantic (see table 2). Regional distributions of residence in 1974 are similar to those based on the 1976 results, indicating limited net shifts in residential patterns.

Selected Standard Metropolitan Statistical Areas (SMSA's):

1976. Science and engineering require the combined talents of many persons. Thus, most scientists and engineers—as many as 75 to 85 percent of the persons in nearly every field—lived in metropolitan areas where such pools of talent are generally more accessible (table 2). Of the U.S. population as a whole, about 68 percent of all persons 25 years old and over lived in metropolitan areas in March 1976.⁶ The one exception to the relatively pronounced metropolitan character of the scientific or engineering fields are the life scientists, a group including agricultural scientists; about 40 percent of the life scientists lived in nonmetropolitan areas.

Relatively large proportions of persons in some of the S/E fields lived in particular SMSA's. The Washington, D.C. SMSA, for example, with its concentration of government employment, had approximately 11 percent of the mathematical specialists and 13 percent of the social scientists. It contained only about 1.4 percent of the total U.S. population as of July 1, 1975.⁷ The Denver, Colorado SMSA and the Houston, Texas SMSA had between 7 and 9 percent, respectively, of the environmental scientists; and the New York City SMSA had 7 percent of the computer specialists, 7 percent of the social scientists, and 8 percent of the psychologists.

The residential pattern in 1976 of the scientists and engineers is basically the same as the pattern in 1974, indicating no dramatic shifts in migration patterns during this period. However, national estimates of residential patterns of the total metropolitan population indicate that, for the most part, there was a continuation between 1974 and 1975 of large regional shifts in U.S. population.⁸ Specifically, migrants have been leaving the larger and older urban centers in the Northeast and the North Central regions and have been moving to metropolitan areas in the South and West. The figures from this survey indicate that such movement has not been as pronounced for experienced scientists and engineers.

⁶ Ibid.

⁷ Current Population Reports, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975, Series P-25, No. 709.

⁸ Ibid.

⁵ Current Population Reports, Population Characteristics, Geographical Mobility: March 1975 to March 1976, Series P-20, No. 305.

Educational Characteristics

Highest degree held. The distribution by degree level for particular fields is probably a function of the kinds of work performed by persons in these fields, the industries for which they work, and their age distribution. The computer specialist and engineering fields had a high proportion of bachelor's degrees (62 and 68 percent, respectively) and a low proportion of doctorates (7 and 5 percent, respectively). Employment among persons in these fields was concentrated in manufacturing industries in 1976, whereas the largest proportion in all other S/E fields were employed in educational institutions, in which advanced degrees are nearly always required for employment. Computer specialists are members of a relatively new field and are generally younger than persons in other fields. Engineers, on the other hand, are generally older and entered their field when a degree—even at the bachelor's level—was not as strong a prerequisite as it is today. In addition, the training acquired at the bachelor's level in engineering and computer science may be sufficient for most of the jobs held by persons in these fields, thus decreasing their incentive to pursue advanced degrees. Training beyond that acquired at the bachelor's or even the master's level, however, may be necessary for performance of many of the jobs of fields with high proportions of doctorate holders, such as psychologists.

Specifically, 62 percent of psychologists had a doctorate degree, and only 8 percent had bachelor's degrees. Among life, physical, and social scientists and mathematical specialists, at least 40 percent had doctorate degrees, and moderate proportions (from 20 to 34 percent) had bachelor's degrees (table 3).

The definitions of the various fields of science or engineering permitted only engineers and the out-of-scope group to

include persons with no degree. That fewer than 4 percent of both the engineers and the out-of-scope actually fell into this category is partly a reflection of the strictness of the criteria used in delineating the core of the nation's scientific and technical manpower.

There appears to have been a slight movement of persons in some groups to higher educational levels between 1974 and 1976. The 1976 computer specialists and engineers for example, had larger proportions at the master's and doctorate levels than was true of the 1974 groups. This upward mobility in educational patterns, however, may be related to variations in the memberships of the groups between 1974 and 1976, or to the fact that persons with advanced degrees may be more likely than other persons to respond to the National Sample Surveys, this tendency, if valid, would introduce some false changes into the educational patterns of the groups over time. Thus, the 1974-76 educational changes do not necessarily reflect an increase in the general educational level of the groups.

Major field of study of highest degree held. Most of the scientists and engineers received their academic training in a discipline corresponding to their S/E field.⁹ Though this strong positive relationship between field and academic training is partially a reflection of the criteria for classification in a field, it is also a likely result of the requirements of the kinds of work performed by persons in the fields. Except for computer specialists, at least three-fourths of the scientists and engineers had majored in a corresponding discipline (table B). Psychologists, the field with the largest proportion of doctorate holders, also had one of the highest levels of agreement between S/E field and education (92

⁹ See the table in appendix B for the list of corresponding major fields of study for each field of science or engineering.

Table B. Scientists or Engineers in 1976 With a Degree, by Major Field of Study for Highest Degree Held

Field of science or engineering in 1976	Total with a degree		Major field of study for highest degree held		
	Number	Percent	Corresponding field of study ¹	Other field of study	Field of study not reported
Computer specialists.....	50,691	100.0	13.0	85.9	1.0
Engineers.....	641,226	100.0	86.5	12.7	0.9
Mathematical specialists.....	24,831	100.0	80.4	19.0	0.6
Life scientists.....	70,027	100.0	89.6	9.5	0.8
Physical scientists.....	117,043	100.0	82.9	16.6	0.4
Environmental scientists.....	26,997	100.0	76.0	23.1	0.9
Psychologists.....	34,186	100.0	91.8	7.6	0.5
Social scientists.....	45,582	100.0	79.4	20.1	0.5

¹See table in appendix B for a listing of corresponding fields of study.

Source: Table 3.

percent). Computer specialists, in contrast, had varied academic backgrounds; only 13 percent had majored in computer science and systems analysis, whereas 24 percent had majored in the mathematical sciences, 16 percent in engineering, and 26 percent in the category "all other fields." This variety is related, perhaps, to the recent emergence of computer-related subjects in the degree programs of most colleges and universities. It is also related, no doubt, to the surge in demand for computer specialists during the late 1950's and throughout the 1960's, a demand apparently met by an influx of persons from varied academic backgrounds.

Some fields had relatively large proportions of persons who had majored in academic subjects only peripherally related to their 1976 S/E field. This interdisciplinary pattern, in fact, is somewhat similar to the interfield pattern discussed previously and may be related to it. Note, in this regard, that about 12 percent of the environmental scientists had majored either in engineering or physics/astronomy; computer specialists, as mentioned above, came from varied educational backgrounds; about 8 percent of the physical scientists had studied biological science; and 16 percent of the social scientists had majored in "all other fields" (see table 3).

Supplemental training in 1975. The amount of scientific and engineering knowledge continues to grow at a rapid pace. To keep abreast of the latest developments in their fields and to ward off the threat of obsolescence, scientists and engineers must continually update and renew their education and training. Thus, the proportions in the groups who received some kind of supplemental training in 1975 ranged rather uniformly from about 25 percent for social scientists to 40 percent for psychologists and for the out-of-scope (table 3). Computer specialists, however, were the notable exception to this range, with 57 percent having received supplemental training in 1975. This exceptional proportion for computer specialists may be related to the small number who had majored in computer science and systems analysis for their highest degree. Also, it may reflect the especially rapid changes in data processing. For almost all groups, such supplemental training was received primarily from employers (table C).

The pattern among the groups in the receipt of supplemental training was about the same for both the 1976 and 1974 groups. A greater proportion of the 1976 psychologists, however, may have received supplemental training in 1975 (40 percent) than was true for the 1974 psychologists in 1973 (35 percent).

Employment Characteristics

Employment status in February 1976 and February 1975. In February 1976, the labor force participation rate of each field (i.e., the number in the labor force divided by the total number in the field) was 90 percent or more (table 4). The comparable figure for the total noninstitutional population 20 years and older for February 1976 was 63 percent,¹⁰

¹⁰ U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, Vol. 22, No. 9, March 1976.

and that for males 20 and over was 80 percent. The relatively high participation rates of the National Sample may reflect, in large part, the selection of National Sample from among persons who were in the experienced civilian labor force in 1970.

The unemployment rate (the number unemployed divided by the total number in the labor force) was between 1 and 2 percent for most of the fields (table D). The national unemployment rate (not seasonally adjusted) for February 1976 was 8.7 percent for the total noninstitutional population, 7.5 percent for the noninstitutional population 20 years and older, 7.2 percent for men 20 years and older, and 3.2 percent for professional and technical workers.¹¹ This last group is the most comparable to the universe represented by the National Sample.

The fields covered by the National Sample appear to have escaped the worst effects of the recession that began in late 1973 and ran through 1975. Unemployment rates for the 1974, 1975, and 1976 periods, though perhaps somewhat higher than those for 1973, were between 1 and 2 percent for most of the fields. This relative insulation of the fields from recessionary woes may have resulted from a number of factors. The fields, of course, contain skilled and experienced workers and consist mostly of older males. Such persons have traditionally had low unemployment rates.

Among persons who were employed in February 1976, approximately 90 percent or more in each field were working full time (table E). In the civilian labor force as a whole in February 1976, about 85 percent of employed persons 25 years old and over were on full-time schedules; and about 86 percent of the professional and technical workers who were at work were on full-time schedules, as were about 95 percent of the employed managers and administrators except farm.¹² Among the National Sample fields, psychologists had the highest proportion of part-time workers (7 percent). Computer specialists and engineers each had only about 1 percent employed part time. This contrast between the psychologists and the computer specialists and engineers may be related to their respective industry employment patterns. Psychologists are concentrated in educational institutions and health services where the opportunities for part-time employment may be greater than in manufacturing, in which large proportions of computer specialists and engineers are employed.

Among those persons who reported that they were working part time in 1976, the majority in each field indicated that they preferred part-time work (table F). The range of those preferring part-time work went from about 72 percent for engineers to almost 84 percent for computer specialists.

The National Sample of Scientists and Engineers includes only persons who were in selected occupational categories in 1970 and does not include any new entrants into these fields since 1970. Thus, retirement is expected to play an increasingly larger role as a reason for being outside the labor force (table G). Accordingly, larger proportions in each field

¹¹ Ibid.

¹² Ibid.

Table C. Scientists or Engineers in 1976 With Supplemental Training in 1975, by Type of Supplemental Training

Type of supplemental training ¹	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL WITH SUPPLEMENTAL TRAINING									
Number.....	28,868	246,915	6,862	23,857	36,412	9,278	13,648	11,530	62,989
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
On-the-job training.....	59.4	44.8	50.1	55.4	45.9	48.5	46.8	45.5	51.0
Military training applicable to civilian occupations.....	1.5	2.1	2.7	1.6	1.5	1.3	2.1	2.3	2.4
Extension or correspondence courses.....	7.0	9.7	11.8	10.5	9.4	9.5	7.1	13.1	9.6
Employer training programs...	56.8	46.0	38.6	33.8	36.7	42.1	18.8	39.7	40.6
Adult education center.....	11.4	10.9	7.4	12.1	11.1	12.3	11.6	12.8	11.2
Other training.....	23.8	20.3	25.6	27.9	23.6	22.8	51.8	30.5	27.0

¹Sum of individual categories may exceed 100.0 percent because persons may have received more than one type of training.

Source: Table 3.

Table D. Scientists or Engineers in the Labor Force by Employment Status, for February 1976 and February 1975

Employment status	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL IN LABOR FORCE IN FEBRUARY 1976									
Number.....	48,864	613,766	23,180	65,076	108,723	25,511	32,233	41,564	148,378
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employed.....	98.6	97.9	98.1	98.4	98.5	99.1	97.3	98.4	97.9
Unemployed.....	1.4	2.1	1.9	1.6	1.5	0.9	2.7	1.6	2.1
TOTAL IN LABOR FORCE IN FEBRUARY 1975									
Number.....	48,261	608,386	23,116	64,876	108,431	25,505	31,614	41,478	145,676
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employed.....	98.8	98.4	99.1	99.0	98.6	99.5	98.4	99.3	97.8
Unemployed.....	1.2	1.6	0.9	1.0	1.4	0.5	1.6	0.7	2.2

Source: Table 4.

Table E. Employed Scientists or Engineers by Full-Time and Part-Time Work Status, for February 1976 and February 1975

Work status	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED IN FEBRUARY 1976									
Number.....	48,159	600,994	22,737	64,057	107,112	25,277	31,373	40,882	145,243
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full time.....	98.5	98.5	96.2	95.4	96.1	97.5	91.6	95.0	95.6
Part time.....	1.4	1.3	3.3	3.4	2.6	1.4	7.4	4.0	3.8
Full or part time not reported	0.1	0.2	0.5	1.3	1.3	1.2	1.0	1.0	0.6
TOTAL EMPLOYED IN FEBRUARY 1975									
Number.....	47,689	598,632	22,912	64,219	106,955	25,382	31,096	41,176	142,483
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full time.....	96.5	97.1	94.0	93.8	94.3	95.4	89.6	93.3	95.0
Part time.....	1.4	1.2	4.5	3.4	2.5	2.0	7.5	4.4	3.6
Full or part time not reported	2.1	1.7	1.5	2.8	3.1	2.7	2.9	2.3	1.4

Source: Table 4.

Table F. Scientists or Engineers in 1976 Employed Part Time in February 1976, by Desire for Full-Time Work

Desire for full-time work	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED PART TIME IN FEBRUARY 1976									
Number.....	660	7,918	757	2,149	2,804	349	2,318	1,637	5,477
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Seeking full-time work.....	14.7	21.7	19.3	20.1	15.9	10.0	22.0	21.5	22.0
Not seeking full-time work...	83.5	71.8	74.8	79.4	79.9	79.1	75.1	76.9	76.4
Not reported.....	2.0	6.5	5.8	0.6	4.2	11.2	2.8	1.6	1.6

Source: Table 4.

gave retirement as a reason for nonparticipation in February 1976 than in February 1975 or than in the 1974 results.

Unemployment during 1975. About 2 to 5 percent of the persons in each field of science and engineering in 1976 were unemployed at some time during the 1975 calendar year; for the out-of-scope cases, the proportion was about 7 percent (table 4). For those who did experience unemployment, the duration was likely to be a month or more (table H). Within most groups, approximately three-fourths of those who were unemployed during 1975 had looked for work for 4 weeks or more, at least 60 percent had looked for more than 10 weeks, at least 40 percent beyond 14 weeks, and at least 15 percent beyond 26 weeks. The average (mean) duration of unemployment of all persons in 1975, according to the CPS, was 14.1 weeks.¹³ The median weeks of unemployment for the unemployed in the National Sample groups in 1975 ranged from 7.9 weeks for computer specialists to 15.8 weeks for life scientists.

Duration of unemployment is a function, among other things, of the state of the economy, the reasons for unemployment, and the resources available for job searching. Differences in durations among the groups, or between the groups and the CPS estimates for the Nation could result from differences in any or all of these factors.

Occupation of employment in February 1976 and February 1975. As explained in the Definitions and Explanations

¹³Employment and Earnings, op. cit., Vol. 22, No. 7, January 1976.

Section, occupation was not a prerequisite for classification into a field of science or engineering. It was possible, therefore, for persons in these fields to work in positions not related to science or engineering. Likewise, out-of-scope persons could have worked in positions related to science or engineering.

Social scientists tended to work outside of science or engineering more so than persons in other fields (table 4). For all the groups except social scientists and the out-of-scope, 90 percent or more of the full-time employed reported that they were working in a position related to science and engineering in February 1976 and in February 1975. This was true for only about 83 percent of the social scientists and 62 percent of the out-of-scope. For most of the groups, relatively few of the persons working in non-S/E positions in February 1976 did so because S/E positions were not available (table I). Though it is not clear that S/E positions were available for the remaining persons, many of them apparently worked outside S/E for more or less voluntary reasons. Of the small number of engineers and physical scientists reporting work in non-S/E areas, a notable 40 percent were promoted out of S/E positions, a finding that may be a reflection of a tendency of persons in these fields to become managers and administrators.

Most of the persons working in occupations which did not correspond to their S/E fields were working as managers and administrators, although 8 percent of the physical scientists were in the interdisciplinary occupations of biochemists and biophysicists (table 5). All fields except two—computer

Table G. Scientists or Engineers in 1976 Not in the Labor Force in February 1976, by Reasons for Nonparticipation

Reasons for nonparticipation in the labor force	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL NOT IN LABOR FORCE IN FEBRUARY 1976									
Number.....	1,827	44,783	1,651	4,951	8,320	1,486	1,953	4,017	9,181
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Retired.....	32.7	92.2	66.3	66.8	78.9	83.3	61.3	66.1	68.7
Other.....	66.4	6.1	32.9	33.0	20.1	6.7	38.0	30.2	30.3
Not reported.....	0.9	1.7	0.7	0.2	1.0	10.0	0.7	3.7	1.0
TOTAL NOT IN LABOR FORCE IN FEBRUARY 1975									
Number.....	1,665	33,199	1,358	3,703	6,734	1,061	1,518	3,080	9,063
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Retired.....	24.3	91.8	60.2	63.8	76.8	88.2	50.9	63.7	58.3
Other.....	71.5	5.5	27.6	33.7	22.3	9.2	45.9	32.8	40.7
Not reported.....	4.2	2.7	12.3	2.4	0.9	2.5	3.2	3.6	1.0

Note: Detail may not add to total because of rounding.

Source: Table 4.

**Table H. Scientists or Engineers in 1976 Reporting Unemployment
During Calendar Year 1975, by Duration of Unemployment**

Duration of unemployment	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL UNEMPLOYED IN CALENDAR YEAR 1975									
Number.....	2,299	28,918	868	2,107	3,864	654	1,719	1,675	11,036
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 4 weeks.....	25.0	15.9	15.1	26.0	14.4	16.5	12.3	15.2	20.7
5 to 10 weeks.....	33.1	18.7	23.2	9.6	16.6	17.7	16.1	22.4	17.3
11 to 14 weeks.....	10.8	9.1	16.9	8.6	13.8	3.7	18.6	18.6	20.3
15 to 26 weeks.....	9.3	15.9	16.0	24.8	12.8	11.0	15.2	21.6	12.0
27 weeks or more.....	14.7	29.4	20.0	27.0	35.2	13.0	30.1	16.5	24.1
Duration not reported.....	7.2	10.9	8.6	4.1	7.2	37.9	7.8	5.8	5.7

Note: Detail may not add to total because of rounding.

Source: Table 4.

**Table I. Full-Time Employed Scientists or Engineers Working in Positions
Not Related to Science or Engineering, by Reasons: February 1976**

Reasons for being in a position not related to science or engineering	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL NOT IN SCIENCE OR ENGINEERING									
Number.....	1,283	19,434	1,360	2,915	1,365	371	2,113	6,102	50,161
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Preferred nonscience or nonengineering.....	38.1	14.7	15.0	37.9	26.7	38.3	36.5	33.1	29.6
Promoted out of science or engineering.....	24.2	39.6	21.1	17.2	47.9	13.5	9.9	9.2	18.0
Pay better in nonscience or nonengineering.....	5.5	8.5	6.0	14.6	2.1	6.7	6.4	3.8	11.0
Locational preference.....	6.5	4.1	20.3	4.7	1.8	-	3.8	10.0	5.3
Science or engineering position not available.....	4.0	13.9	3.9	4.9	10.0	3.0	3.0	5.5	6.8
Other reason.....	14.3	14.9	31.8	9.6	7.5	32.1	28.9	25.8	23.0
Reason not reported.....	7.4	4.3	2.0	11.1	3.7	6.7	11.5	12.6	6.3

- Represents zero.

Note: Detail may not add to total because of rounding.

Source: Table 4.

specialists and environmental scientists—had between 12 and 23 percent reporting employment in managerial or administrative positions. The small proportion of computer specialists (about 2 percent) who were managers and administrators may reflect the relatively youthful age structure of this field.

The occupational structure in 1976 of the out-of-scope persons reveals, as expected, a more varied pattern of occupational participation than is found among the fields (table 5). The out-of-scope had the highest proportion of managers and administrators and of persons in "other occupations."

Somewhat greater proportions of most groups were working as managers and administrators in 1976 than in 1974. This trend was expected, because of the gain in work experience over time. Two groups with large 1974-76 gains were social scientists and the out-of-scope, each of which had increases of about 6 percentage points in the proportion of managers and administrators.

Table 5 also provides more detailed information on the subcategories of occupations held by persons in the various fields. The largest specific occupational categories for engineers in 1976 were electrical and electronic (20 percent), mechanical (17 percent), and civil and architectural (12 percent). Among employed mathematical specialists, nearly half were working as mathematicians and about one-fourth as statisticians. Agricultural scientists (30 percent) and biological scientists (26 percent) were the primary occupations for employed life scientists; chemists made up 48 percent of the employed physical scientists. Approximately three-fourths of the employed environmental scientists were earth scientists. Together, economists and other social scientists (e.g., political scientists, urban and regional planners, etc.) comprised at least 50 percent of the employed social scientists.

Industry of employment in 1976. The patterns of employment among industries were generally the same for the groups in 1976 as in 1974. In both periods, these patterns were marked by high concentrations, in general, among manufacturing and among the service industries, particularly educational institutions (table 5). The 1976 annual averages from the CPS indicate that among the employed professional and technical workers in 1976, 15 percent worked in manufacturing and about 68 percent in service industries.¹⁴ The 1974 and 1976 patterns for the National Sample groups show that most of the groups had 50 percent or more in these two industries, and, depending upon the group, 40 percent or more were employed in either manufacturing or in educational institutions.

Within specific manufacturing industries, electronic machinery and computing equipment manufacturers employed the largest proportions of computer specialists (24 percent) and engineers (12 percent). The production of chemicals and allied products was most important for physical scientists (25 percent). For all other fields, except environmental scientists, the largest proportions of persons

were employed in educational institutions, primarily colleges or universities. Environmental scientists were uniformly distributed by industry, with about 28 percent in mining or petroleum extraction and 17 percent in educational institutions. There were other significant industries of employment for most fields, such as agriculture, forestry, and fisheries for life scientists; health services for psychologists; public administration for social scientists; and services (other than education and health) for the other fields.

Primary work activity in 1976. In general, research and development, management and administration, and teaching were the major work activities of the National Sample groups in 1976, a pattern that mirrors that of the 1974 groups (table 5). Between 30 and 42 percent of the engineers and of the life, physical, and environmental scientists were primarily active in research and development (R/D). For engineers the development and design sides of R/D were uppermost, whereas basic or applied research was more important for the latter three groups. All of the groups had nearly 20 percent or more of their employed members primarily involved in management or administration (a fact that agrees well with the relatively large proportions in these groups who reported their occupation in 1976 as administrators or managers). Engineers (34 percent) and the out-of-scope (44 percent) had particularly large proportions who were primarily involved in management or administration. Teaching was the primary activity of nearly one-third of the employed mathematical specialists and social scientists and of one-fourth of the employed psychologists.

Within particular groups, certain other activities were also important. This is true of computer applications for the computer specialists, production and inspection for the engineers, statistical work for the mathematical specialists, and clinical diagnosis for the psychologists.

The primary work activities of one group, computer specialists, have changed significantly since 1974. Nearly 65 percent of employed computer specialists were primarily active in computer applications in 1974; the proportion in 1976 is 40 percent. Management and administration was less prevalent in 1974 (13 percent) than in 1976 (19 percent). In 1974, 6 percent of the employed computer specialists were involved in research and development as a primary activity; the 1976 proportion is 17 percent, with about half involved in development. These changes, though they may be partly the result of the 1976-74 response differentials or of the movements of persons among National Sample groups, may reflect an expansion of the scope of the computer field and of the increasing age of this group.

Basic annual salary. Basic annual salary refers to salary before deductions for income tax, social security, retirement, etc., but does not include bonuses, overtime, summer teaching, or other payment for secondary jobs. The data on basic annual salary in this report relate to the job held by full-time employed persons in February 1976. The salaries of most of the full-time persons in the National Sample groups who reported salary were between \$15,000 and \$40,000.

¹⁴ U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Unemployment in 1976*, Special Labor Force Report 199.

Computer specialists had the smallest proportion of persons (11 percent) in the extreme categories of the distribution, 1 percent in the categories under \$10,000 and 10 percent in those over \$30,000. The proportion earning less than \$10,000 was within a range of 1 percent to 3 percent for the other groups. At the high end of the salary distribution, fewer than 20 percent of the engineers and life scientists had salaries of \$30,000 or more, whereas almost 30 percent of the environmental scientists had salaries in this range. Three groups—environmental scientists, social scientists, and the out-of-scope—had about 7 percent of their full-time employed members with salaries of \$40,000 or more; conversely, under 1 percent of the computer specialists had salaries in this range.

Except for life scientists (whose median salary was \$20,893) the median 1976 basic annual salaries for the full-time employed members of all the groups were at least \$21,000 (table J). In fact, 5 of the 8 fields—engineers, mathematical specialists, physical scientists, environmental scientists, and social scientists—had median incomes at or above \$23,000, with the highest median salary being \$25,289 for environmental scientists. As noted above, environmental scientists and engineers were older, on the average, than persons in other fields, and, thus, would most likely have had more labor force experience and higher salaries. The figures are at too high a level of aggregation, however, to indicate any consistent relationship, if one exists, between the median salary and the median age or the degree level for the fields. Also, it should be noted that between 6 and 12 percent of the full-time employed persons in each field did not report basic annual salary.

The median earnings in 1975, as estimated by the CPS, for male professional, technical, and kindred workers, 14 years old and over, who worked year-round full time, was \$16,133.¹⁵ The comparable figure for females was \$10,639. Male year-round full-time workers 25 years old and over with 4 years of college (regardless of occupation) had a median income in 1975 of \$17,477, and for those with 5 or more years of college the median was \$19,658.¹⁶ These figures are not strictly comparable with the data presented in this report for the National Sample groups, however. The categories "earnings" and "income" include more sources of financial support than are included in the concept "basic annual salary," and there are other differences between the concepts, as well as in the reference periods for the two sets of data. CPS figures for 1975 are cited because 1975 is thought to be the full year most nearly comparable with the reference year for the question on basic annual salaries which was asked early in 1976.

The median salaries of the full-time employed in 1974, based on the 1974 survey, ranged from \$18,419 for computer specialists to \$20,206 for social scientists (table K). Environmental scientists, who had the highest median in 1976, also had one of the highest median salaries in 1974. The 1976 medians were about \$3,700 greater, on the average, than the 1974 medians.

When the 1974 medians for the National Sample groups are expressed in terms of constant or 1975 dollars (i.e., when the effects of price changes are removed from the

¹⁵ Current Population Reports, Money Income in 1975 of Families and Persons in the United States, Series P-60, No. 105.

¹⁶ Ibid.

Table J. Full-Time Employed Scientists or Engineers Reporting Basic Annual Salary, by Basic Annual Salary: 1976

Basic annual salary ¹	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL REPORTING BASIC ANNUAL SALARY									
Number.....	44,232	523,921	20,477	56,060	93,519	21,747	26,320	35,935	116,878
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$8,000.....	0.3	0.4	0.8	1.2	0.7	0.5	0.8	1.4	1.2
\$8,000 to \$9,999.....	0.8	0.5	0.3	1.0	0.7	0.6	0.4	0.8	1.8
\$10,000 to \$14,999.....	5.4	4.1	7.0	12.0	8.0	4.3	7.3	6.3	12.2
\$15,000 to \$19,999.....	26.6	21.9	21.3	28.7	20.8	17.0	24.2	18.7	22.8
\$20,000 to \$24,999.....	38.5	33.4	28.4	25.5	28.4	25.4	30.2	27.0	24.9
\$25,000 to \$29,999.....	18.1	21.4	22.6	16.9	18.7	23.0	17.5	19.8	15.6
\$30,000 to \$39,999.....	9.4	13.9	15.9	11.1	18.2	22.0	14.9	18.5	14.3
\$40,000 to \$49,999.....	0.7	2.5	3.3	2.2	3.2	4.1	2.7	4.2	3.4
\$50,000 and over.....	0.2	1.7	0.4	1.3	1.4	3.1	1.9	3.2	3.7
Median salary (dollars).....	21,583	23,176	23,551	20,893	23,132	25,289	22,551	24,217	22,040

¹Refers to job held in February 1976.

Note: Detail may not add to total because of rounding.

Source: Table 5.

Table K. Median Basic Annual Salaries of Full-Time Employed Persons in the 1974 and 1976 Fields of Science or Engineering in Current and Constant (1975) Dollars, by Field of Science or Engineering

Field of science or engineering	Basic annual salary in 1976 of 1976 S/E fields in current dollars ¹	Basic annual salary in 1974 of 1974 S/E fields ²		Change between the 1974 and 1976 S/E fields	
		In current dollars	In constant (1975) dollars ³	In current dollars	In constant (1975) dollars ³
Computer specialists.....	\$21,583	\$18,419	\$22,308	\$3,164	-725
Engineers.....	23,176	19,430	23,532	3,746	-356
Mathematical specialists.....	23,551	19,781	23,957	3,770	-406
Life scientists.....	20,893	17,807	21,566	3,086	-673
Physical scientists.....	23,132	19,544	23,670	3,588	-538
Environmental scientists.....	25,289	20,074	24,312	5,215	977
Psychologists.....	22,551	19,453	23,560	3,098	-1,009
Social scientists.....	24,217	20,206	24,472	4,011	-255
Out-of-scope.....	22,040	18,353	22,228	3,687	-188

¹Refers to job held in February 1976.

²Refers to job held in January 1974.

³For derivation of constant (1975) dollars, see "Explanations and Definitions".

Source: Table 5 and unpublished tabulations based on the 1974 survey.

1974-76 changes), the 1974-76 comparisons reveal that at least three groups—computer specialists, engineers, and psychologists—experienced a slight decline in real basic annual salary rates between 1974 and 1976 (table K). Although table K shows declines for all other groups except environmental scientists, these apparent declines are not statistically significant. The apparent increase for environmental scientists is also not statistically significant.

These 1974-76 comparisons in terms of constant or 1975 dollars must be approached cautiously, however. Problems are introduced into the comparisons by, among other things, the way the basic annual salary data are defined and collected, the nonresponse rates to the 1974 and 1976 surveys in general and to the salary items in particular, and the difficulty of establishing appropriate time periods for the constant-dollar computations. The trends, nevertheless, are also reflected in data from the CPS. In constant 1975 dollars, the CPS figures show that among male year-round full-time workers 14 years old and over, there was a decrease between total money earnings in 1973 and total money earnings in 1975 of \$1,193 for professional, technical, and kindred workers, of \$1,491 for managers and administrators except farm, and of \$790 for all such workers regardless of occupation.¹⁷

Federal support. The importance of the Federal Government to S/E activities in this country is shown clearly by the proportion in each group who received some kind of Federal financial support for their work (table 5). For most groups, between about 35 and 40 percent, with a high of 50 percent for life scientists, received Federal support. Even the lowest groups—computer specialists and the out-of-scope—had

nearly 25 percent of their members reporting Federal support. In addition, the proportion of each group supported by Federal funds has remained nearly constant since 1974.

The Department of Defense, was the most important source of Federal support in 1976 among computer specialists, engineers, mathematical specialists, and physical scientists. For life scientists, including agricultural scientists, the Department of Agriculture was the greatest single source of Federal support, as was the Department of Health, Education, and Welfare (HEW) for psychologists and social scientists. The chief support for environmental scientists was more varied, coming from four Government organizations: The National Science Foundation, the Department of the Interior, the Department of Defense, and the Department of Commerce. The 28 percent of the employed psychologists who were supported at least in part by the Department of Health, Education, and Welfare was the largest proportion in any one field to be supported by any one agency.

Some fields received substantial support from departments or agencies other than the primary source cited above. A relatively significant proportion of employed life scientists (16 percent), and employed mathematical specialists and physical scientists (both about 8 percent) were supported by the Department of Health, Education, and Welfare (HEW). The Energy and Research Development Administration also provided support to 9 percent of the employed physical scientists. The National Aeronautics and Space Administration (NASA) was a significant source of support of employed engineers (7 percent); and the National Science Foundation supported about 6 percent of the employed mathematical specialists and physical scientists.

The chief sources of Federal support to the 1976 groups were nearly the same as those for the 1974 groups. A significantly larger proportion of the 1976 psychologists than of the comparable 1974 group, however, received support from

¹⁷Current Population Reports, Series P-60, No. 105, op. cit., and Current Population Reports, Money Income in 1973 of Families and Persons in the United States, Series P-60, No. 97.

HEW—28 percent compared with 18 percent. The increased contribution of HEW to psychologists made it, as stated above, the largest single source of any one field; for the 1974 groups, the Department of Defense and the Department of Agriculture jointly held this position, with their support of 21 percent of the engineers and 21 percent of the life scientists, respectively. Another notable difference between the 1974 and 1976 groups was the increased proportion of employed mathematical specialists receiving HEW funds (4 percent in 1974, 9 percent in 1976).

Job Mobility in 1975 and 1976, 1974 and 1976, and 1972 and 1976. In general, among persons employed in the 2 years being compared, between 10 and 15 percent changed jobs in the 1-year 1975-76 period, 20 to 30 percent did so in the 2-year 1974-76 period, and about 35 to 50 percent in the 4-year 1972-76 period (table L). The mobility differentials among the time spans may be exaggerated, however, because of the high nonresponse rates, which ranged between

9 and 14 percent, for the 1974-76 and 1972-76 periods. The computer specialists and the out-of-scope group each had one of the highest proportions of job changers in each period. The high rates for the out-of-scope groups may be related to the factors that caused these persons to be outside of the S/E fields. The rates of the computer specialists may be partially accounted for by the relatively youthful average age of this group, the propensity to change jobs being greater among younger workers than among older workers in general.¹⁸

Job changing was somewhat more prevalent in the 1973-74 period than in the 1975-76 period and was also higher in the 1972-74 period than in the 1974-76 period. However, the out-of-scope were the most likely job-changers in all periods.

Persons who changed jobs between February 1975 and February 1976 were likely to remain within the same detailed occupation group (table M). About 40 percent or

¹⁸See U.S. Department of Labor, Bureau of Labor Statistics, *Job Tenure of American Workers, January 1973, Summary Special Labor Force Report, May 1974.*

Table L. Scientists or Engineers in 1976 by Job Mobility: 1975 to 1976, 1974 to 1976, and 1972 to 1976

Job mobility	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED IN FEBRUARY 1975 AND IN FEBRUARY 1976									
Number.....	46,823	584,749	22,358	62,672	105,172	24,805	30,269	40,072	139,501
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1975 and 1976.....	15.3	11.6	13.4	12.8	9.8	11.4	13.7	14.9	19.8
Same job in 1975 and 1976....	83.2	86.1	84.4	85.5	88.6	85.9	84.7	83.0	77.3
Not reported.....	1.5	2.3	2.1	1.7	1.6	2.7	1.6	2.1	2.8
TOTAL EMPLOYED IN 1974 AND IN FEBRUARY 1976									
Number.....	45,978	567,300	21,778	60,588	100,974	24,182	29,139	37,833	131,790
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1974 and 1976.....	31.4	24.8	23.4	22.0	20.6	23.4	24.1	27.5	34.7
Same job in 1974 and 1976....	59.1	63.2	66.7	68.5	69.6	62.4	67.6	63.5	51.9
Not reported.....	9.5	12.0	9.9	9.4	9.8	14.2	8.3	9.0	13.5
TOTAL EMPLOYED IN 1972 AND IN FEBRUARY 1976									
Number.....	46,743	583,557	21,984	61,693	103,229	24,114	29,758	39,012	136,778
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1972 and 1976.....	50.3	40.0	33.9	34.5	32.8	35.8	37.7	41.4	53.8
Same job in 1972 and 1976....	40.0	47.4	55.9	55.6	56.6	49.9	52.8	49.0	33.2
Not reported.....	9.7	12.6	10.2	9.9	10.6	14.3	9.5	9.6	13.0

Note: Detail may not add to total because of rounding.

Source: Table 5.

Table M. Scientists or Engineers in 1976 Who Changed Jobs Between February 1975 and February 1976, by Occupational Mobility

Occupational mobility	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL WITH JOB CHANGE									
Number.....	7,162	67,973	3,006	8,025	10,324	2,817	4,150	5,970	27,640
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Changed occupation.....	32.5	27.1	26.1	22.0	24.3	15.8	24.6	24.0	50.6
Did not change occupation....	43.0	50.5	52.1	57.8	58.1	67.8	61.7	61.5	30.7
Not reported.....	24.5	22.4	21.8	20.2	17.6	16.4	13.7	14.6	18.7

Note: Detail may not add to total because of rounding.

Source: Table 5.

more, up to the 68 percent for environmental scientists, of the job-changers in each S/E field reported work in the same detailed occupation for both jobs; the out-of-scope figure of 30.7 percent was the smallest of any of the groups. Although there seemed to be differences among the fields in the proportions changing occupations, the large number of not reported cases makes most comparisons unreliable. However, it does appear, as expected, that the out-of-scope group had the highest proportion of persons who left their former occupation group when changing jobs. Comparisons between the figures on occupational changes for the 1974 groups and those for the 1976 groups are also difficult to make, owing to the large proportions in both years who did not report occupation in one or both years.

Professional experience. As expected, years of professional experience and age are closely related, older persons in general having more opportunity to gain professional experience than younger ones (table N). Computer specialists, the group with the lowest median age, also had the lowest median for years of professional experience, 11.3 years; the oldest groups, engineers and environmental scientists, had the highest medians for years of professional experience, 19.1 and 19.4 years, respectively. Partially because the National Sample includes only persons who were in the labor force in 1970, most of the persons in each field were seasoned professionals with at least 6 years of experience. The bulk of the members of each group had between 6 and 30 years of professional experience. The upper end of the distributions (persons with 31 years or more experience) contained between 10 and 15 percent of some groups, though only 2 percent of the computer specialists and 6 percent of the psychologists were in these categories. Because professional experience was defined to include time in all professional jobs, including teaching, some of the professional experience of the persons in each group was probably gained in jobs outside of their current groups; this is espe-

cially true for many of the computer specialists who had more than 30 years of professional experience.

National interest topics. There was considerable diversity among fields in the topics of critical national interest on which their members spent the most time (table 5). Major proportions of the life scientists and psychologists (both at least two-thirds), and environmental scientists (79 percent) reported that they devoted a significant proportion of their time to at least one of the topics; only about one-third of the computer specialists reported such involvement.

The chief topic reported for each S/E field was one of the following: education (primarily teaching), national defense, energy and fuel, environmental protection and pollution control. Teaching was the most significant topic for the mathematical specialists (18 percent) and the social scientists (13 percent), reflecting the large proportions in these fields who worked for educational institutions. National defense was uppermost among engineers and computer specialists; energy and fuel for environmental scientists; environmental protection and pollution control for life and physical scientists; and health and education for psychologists.

The introduction in 1976 of "national defense" as a topic of critical national interest tends to complicate comparisons between the topics reported by the 1976 groups and those of the 1974 groups. Somewhat greater proportions of the 1976 engineers and computer specialists than of the 1974 members of these fields were involved, however, in areas of critical national interest. The opposite was true for the life scientists and psychologists. Education was less important for the social scientists and the psychologists in 1976 than in 1974. Education also decreased considerably for the mathematical specialists (from 32 percent in 1974 to 20 percent in 1976); but almost 13 percent of the 1976 mathematical specialists reported "national defense" as their most significant topic. There is some evidence that food production and technology was more important in 1976 than in 1974 for the life scientists.

Table N. Scientists or Engineers in 1976 Reporting Years of Professional Experience, by Number of Years

Years of professional experience	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL REPORTING YEARS OF PROFESSIONAL EXPERIENCE									
Number.....	48,584	616,264	23,307	66,085	111,037	25,834	32,260	42,178	145,383
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 1 year.....	0.1	0.1	-	0.2	0.1	0.1	0.1	0.4	0.6
1 to 5 years.....	4.0	2.1	4.7	7.6	6.2	5.6	11.0	7.3	7.4
6 to 10 years.....	37.4	16.4	27.4	20.9	20.1	12.6	25.7	26.7	21.3
11 to 15 years.....	31.3	17.2	21.2	18.8	18.1	16.4	20.4	21.0	20.7
16 to 20 years.....	16.2	19.0	16.9	17.7	15.9	18.8	15.8	12.9	18.6
21 to 25 years.....	7.3	17.1	13.7	13.6	14.7	20.9	12.8	11.8	12.6
26 to 30 years.....	2.1	13.5	8.3	10.9	9.8	13.0	8.0	9.8	9.2
31 to 35 years.....	1.2	6.4	3.6	4.4	6.7	5.5	2.7	4.5	4.5
36 to 40 years.....	0.2	5.4	2.9	3.6	6.0	4.4	2.5	3.9	3.8
41 years and over.....	0.2	2.8	1.4	2.4	2.6	2.8	1.1	1.8	1.3
Median years.....	11.3	19.1	14.3	15.6	16.7	19.4	13.4	14.0	15.0

- Represents zero.

Note: Detail may not add to total because of rounding.

Source: Table 5.

THE SAMPLE

The 1976 National Survey of Natural and Social Scientists and Engineers was the third survey based on the 1970 population of scientists and engineers to be conducted by the Bureau of the Census for the National Science Foundation. The first survey, the 1972 Professional, Technical, and Scientific Manpower Survey,¹⁹ was conducted among a nationwide sample of approximately 150,000 persons who were recorded in the 1970 Census of Population as being in the experienced civilian labor force in one of 65 engineering, scientific, or related occupations. The survey also included a small sample of persons who had completed 4 or more years of college but were not in any of the specified occupations. Based on responses in the 1972 survey and on criteria established by the National Science Foundation, approximately 50,000 persons from the 1972 survey sample (excluding the small sample of college graduates) were chosen as the sample for the series of longitudinal surveys known as the National Sample of Scientists and Engineers.²⁰ The 1976 National Survey of Natural and Social Scientists and Engineers was the second survey in this longitudinal series;

¹⁹ For a description of the 1972 survey and related matters, see U.S. Bureau of the Census, *Characteristics of Persons in Engineering and Scientific Occupations: 1972*, Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C., 1974.

²⁰ Results from the 1974 survey were published in U.S. Bureau of the Census, *Current Population Reports, Special Studies, Series P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974,"* U.S. Government Printing Office, Washington, D.C., 1975.

the 1974 National Survey of Scientists and Engineers was the first.²¹

Questionnaires for the 1976 survey were mailed in February 1976. The final result of all data collection activities was that completed questionnaires were obtained for 85.1 percent of the sample, approximately 42,650 persons. The 14.9 percent for whom completed questionnaires were not received includes persons who refused to participate, the deceased, and persons who returned questionnaires with insufficient information to permit processing.²²

For each sample case for which a completed questionnaire was obtained, the information from the 1976 survey was matched with the 1974 and 1972 survey data and the 1970 census data for the same person. Weights applied to sample cases in the 1972 survey were then used to weight the resultant matched data file. The use of the 1972 survey weights means that no adjustment for nonresponse was made to the 1976 survey results. Therefore, the 1976 estimates understate the characteristics being estimated for the 1972 survey population. This understatement varies to the extent that the 1976 noninterview rate varies for population subgroups.²³ An accounting for the nonresponses in 1976 by age, sex, and field of science or engineering in 1974 is shown in table 1.

Respondents to the 1976 National Survey of Natural and Social Scientists and Engineers were classified, again based

²¹ For a description of the selection process, see appendix D.

²² For an analysis of response, see appendix E.

²³ For a more complete discussion of the weighting and estimating procedures, see appendix A.

on criteria of the National Science Foundation, into 1 of 17 detailed fields of science and engineering in 1976 or into the category "not in a field of science or engineering in 1976." Except for table 1, the tables of this report are based exclusively on the characteristics of members of the universe represented by these respondents. Because the data in this report are based on a sample survey, they are subject to both sampling and nonsampling errors. The tables in appendix A present the standard errors of the totals and percentages for each of the 17 detailed and 8 major fields of science or engineering and for the category "not in a field of science or engineering in 1976."

THE QUESTIONNAIRE

Each panel member in the 1976 National Survey of Natural and Social Scientists and Engineers was asked to complete by self-enumeration a four-page questionnaire (reproduced in appendix B). A cover letter was printed on page one of the questionnaire, and a set of reference lists (also reproduced in appendix B) was attached to the questionnaire. The reference lists were used by respondents to self-code answers to inquiries on major field of study (question 1 of the questionnaire), kind of business (question 7), occupation (question 8), and professional identification (question 19).

DEFINITIONS AND EXPLANATIONS

The definitions for many of the characteristics shown in this report are self-explanatory or can best be understood by reference to the appropriate questionnaire items (see appendix C) or the reference lists in appendix B. An explanation of the other subjects is provided below.

Fields of science and engineering. Science or engineering (S/E) fields are categories established by the survey sponsor, the National Science Foundation, to identify persons who could be classified as engineers or scientists under most definitions. In general, to be classified into one of the fields, a person had to have at least two of the following three characteristics: (1) employment in the field, (2) attainment of a specified educational level in an academic discipline related to the field, or (3) self-identification, based upon total education and experience, as being in the field. More detailed information on the criteria for membership in a scientific and technical field is given in appendix D.

The major fields of science and engineering for which data are presented in this report and the detailed fields they comprise are as follows:

- Computer specialists
- Engineers
- Mathematical specialists
 - Mathematicians
 - Statisticians
- Life scientists
 - Agricultural scientists
 - Biologists
 - Medical scientists

- Physical scientists
 - Chemists
 - Physicists and astronomers
 - Other physical scientists
- Environmental scientists
 - Earth scientists
 - Atmospheric scientists
 - Oceanographers
- Psychologists
- Social Scientists
 - Economists
 - Sociologists and anthropologists
 - Other social scientists

Age in 1976. The reference period for age in 1976 was April 1976. The age classification is based on the age of the person at his or her last birthday. The median age is that age that divides the distribution into two equal parts, one-half being older than the median age and one-half younger. Median ages were derived from an estimation process that distributed the subject populations into the 5-year age groups given in table 1.

Race. The data on race are based on responses in the 1970 Census of Population. The "other races" category includes all races not included in the specific categories listed.

Divisions of the United States. The divisions of the United States shown in table 2 comprise the following States:

New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Middle Atlantic: New York, New Jersey, Pennsylvania

East North Central: Illinois, Indiana, Michigan, Ohio, Wisconsin

West North Central: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia

East South Central: Alabama, Kentucky, Mississippi, Tennessee

West South Central: Arkansas, Louisiana, Oklahoma, Texas

Mountain: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming

Pacific: Alaska, California, Hawaii, Oregon, Washington

Outlying areas of the United States include Puerto Rico, Guam, Virgin Islands, American Samoa, and Canal Zone.

Standard Metropolitan Statistical Areas (SMSA). In general, a standard metropolitan statistical area is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or twin cities with a combined

population of at least 50,000. The data in this report are restricted to SMSA boundaries as defined for the 1970 Census of Population. For more information, see 1970 Census of Population, Volume 1, **Characteristics of the Population**, Part 1, United States Summary.

Highest degree held. Highest degree held in 1976 refers to the highest academic degree awarded to the respondent in 1975 or earlier. Data on highest degree held were derived as follows: The level and the year of award of the highest degree received by the respondent between January 1972 and the beginning of 1976 (this degree will be referred to as degree "A") were compared with the level and year of award, determined from either the 1974 or 1972 survey, of the previously-designated highest degree held by the respondent (this degree is referred to as degree "B"). If degree "A" was at the same level or at a higher level than degree "B," and if its date of award was later than that of degree "B," degree "A" was designated as the highest degree held in 1976; otherwise, the degree "B" was designated as the highest degree held in 1976.²⁴

The "other degree" category includes persons whose highest academic degree was one of the following: RN, LLB, MD, and academic degrees other than those shown in table 3.

Except for engineers, the criteria for the science or engineering fields required that a person possess an academic degree at the bachelor's level or higher. In table 3, therefore, only engineers and persons not in a field of science or engineering in 1976 appear in the "associate degree" and "no degree" categories.

Major field of study for highest degree held. The data on major field of study refer to the major subject associated with the highest degree held in 1976 as determined by the method described above. For persons whose highest degree held in 1976 was received after January 1972, the data are derived from question 1, part b of the 1976 questionnaire or from question 2, part b5 of the 1974 questionnaire. For persons whose highest degree was awarded in 1971 or earlier, the data on major subject are based on the 1972 survey.

Employment status. Employed persons are those who reported that they were employed, either full time or part time, or on postdoctoral appointment during the reference week (February 8-14, 1976 or February 9-15, 1975). If a person did not report whether he or she was employed or on postdoctoral appointment, but the dates of his or her most recent job included February 1976 (or 1975), he or she was also considered employed. The unemployed are persons who marked the "unemployed and seeking work" category

²⁴After the data in tables 1-5 were tabulated, an error was discovered in the computer program that made the highest degree held in 1976 determinations. In short, the program incorrectly assigned "1976" as the year of award of the highest degree entered in item 1b of the 1976 questionnaire when the respondent indicated that he or she had not been awarded this degree by marking the "none" box in the "year degree was awarded or will be awarded" section. The influence of this error on the data of this report was negligible and did not justify their recalculation. For a fuller discussion of the problem and of its effect on the published data, see appendix G.

(box 4) of item 3a of the 1976 questionnaire. All other persons were classified as "not in the labor force" or as "labor force status not reported."

The statistics on employment status in February 1976 are not strictly comparable with those for February 1975. The editing rules for the 1976 survey rejected the questionnaire of any person who failed to report employment status in 1976, but did permit the respondent to leave status in 1975 unreported. Therefore, the data on employment status in 1975 have a category "employment status not reported," which does not appear for the data on status in 1976.

Unemployment in 1975. The data on unemployment in 1975 relate to the occurrence of unemployment during the entire calendar year, rather than just during the reference week.

Primary work activity in 1976. The data on primary work activity in 1976 were derived, in general, from answers to question 10 of the 1976 questionnaire. In certain instances of nonresponse to question 10, however, the data were derived from an imputation procedure that used responses to question 11.

Type of employer. The data on type of employer in 1976 are based on entirely on responses to question 12 of the 1976 questionnaire.

Basic annual salary rate. The statistics on salary refer to the basic annual salary associated with the job held in February 1976. The figures relate to salary before deductions for income tax, social security, retirement, etc., but do not include bonuses, overtime pay, or earnings from secondary jobs. For employees of educational institutions whose salary was for 9 or 10 months, the salary rate was adjusted to a 12-month basis. Median salaries were derived by an estimation process that distributed the subject populations into \$1,000 intervals.

Computation of constant dollar figures. The adjustment for price changes between 1974 and 1976 was made by converting the median basic annual salaries for each period into 1975 dollars on the basis of the change in the Consumer Price Index. The index figure for 1975 of 161.2 (1967=100) was applied to the basic annual salaries in 1976 of Table L, and the index figure for 1973 or 133.1 (1967=100) was applied to the basic annual salaries in 1974. The 1974 medians in current dollars were then multiplied by the factor 1.21 (i.e. $161.2 \div 133.1$) that represented the change in the price index between the two periods (1975=100). The constant dollar figures, for a number of reasons, are to be regarded as approximations. For further information, see U.S. Bureau of the Census, **Current Population Reports**, Series P-60, Number 104, pps. 76 and 77.

Job mobility in 1975 and 1976. Persons who reported being employed in February 1976 and in February 1975 in the 1976 survey were classified in the "job change between 1975 and 1976" category if they reported different jobs in Part

III of the questionnaire. Then, the detailed occupation of the 1976 job was compared with the detailed occupation of the 1975 job, and persons were classified as with same or different occupations or as "occupation change not reported."

Job mobility in 1974 and 1976. The data on job mobility between 1974 and 1976 were derived from answers on both the 1974 and 1976 questionnaires. Persons were classified as with a "job change between 1974 and 1976," if they were employed in both 1974 and 1976 and reported in the 1976 survey that their current job began in 1974 or later. Persons were classified as "same job in 1974 and 1976" if the beginning date of their most recent job was in 1973 or earlier, and

as "not reported" if they did not report the beginning date of the job.

Job mobility in 1972 and 1976. The data on job mobility between 1972 and 1976 were derived from answers on both the 1972 and 1976 questionnaires. Persons were classified as "job change between 1972 and 1976," if they were employed in both 1972 and 1976 and reported in the 1976 survey that the beginning date of their current job was in 1972 or later. Persons were classified as "same job in 1972 and 1976," if the beginning date of this job was in 1971 or earlier, and as "not reported" if they did not report the beginning date of the job.

Table 1. FIELD OF SCIENCE OR ENGINEERING IN 1976 OF PERSONS IN THE NATIONAL SAMPLE

(Detail may not add to total because of rounding.)

Line No.	Sex, age in 1976, and field in 1974	Total, National Sample of Scientists and Engineers	Field of science or engineering in 1976								
			Computer specialists	Engineers	Mathematical specialists			Life scientists			
					Total	Mathemati- cians	Statisti- cians	Total	Agricul- tural scientists	Biologists	Medical scientists
1	Total persons.....	1,400,143	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Male.....	94.4	87.6	99.6	86.5	87.7	83.3	87.5	99.6	82.2	72.8
4	Female.....	5.6	12.4	0.4	13.5	12.3	16.7	12.5	0.4	17.8	27.2
5	Under 30 years.....	5.5	8.6	4.5	4.8	5.2	3.6	4.6	3.4	6.1	2.6
6	30 to 34 years.....	16.3	31.9	12.6	22.6	23.3	20.7	16.0	11.7	19.5	15.2
7	35 to 39 years.....	17.0	25.3	15.5	19.6	20.8	16.6	17.9	17.1	18.9	16.4
8	40 to 44 years.....	15.1	16.3	15.0	14.9	14.9	14.8	15.8	16.9	14.5	17.4
9	45 to 49 years.....	14.3	9.8	15.6	14.8	15.5	13.2	14.1	15.7	13.8	11.2
10	50 to 54 years.....	13.0	4.8	15.4	8.0	7.0	10.4	12.2	14.9	10.4	11.5
11	55 to 59 years.....	8.3	2.3	9.5	6.4	6.0	7.5	8.8	9.2	7.5	12.6
12	60 to 64 years.....	5.4	0.7	6.1	4.8	3.7	7.7	5.8	6.0	5.0	7.7
13	65 to 69 years.....	3.2	0.2	3.7	3.3	2.8	4.6	3.1	3.5	2.5	4.5
14	70 and over.....	1.8	0.1	2.1	0.9	0.8	1.0	1.7	1.6	2.0	0.9
15	Median age (years).....	43.7	36.9	45.8	41.0	40.2	43.1	43.7	45.3	41.9	44.5
FIELD OF SCIENCE OR ENGINEERING IN 1974											
16	Total persons.....	1,400,143	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
17	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
18	Computer specialists.....	3.9	73.1	0.5	3.9	5.0	1.0	(Z)	(Z)	-	-
19	Engineers.....	49.1	7.7	89.4	3.2	3.0	3.5	0.7	0.4	1.0	0.7
20	Mathematical specialists.....	2.0	1.9	0.1	81.9	80.5	85.5	0.1	-	0.1	0.3
21	Mathematicians.....	1.4	1.8	0.1	58.2	79.9	2.6	(Z)	-	(Z)	-
22	Statisticians.....	0.6	(Z)	(Z)	23.7	0.7	82.9	0.1	-	0.1	0.3
23	Life scientists.....	5.4	-	0.1	0.1	-	0.4	85.4	87.9	85.8	77.0
24	Agricultural scientists.....	2.1	-	(Z)	-	-	-	33.1	82.5	4.4	0.3
25	Biologists.....	2.6	(Z)	(Z)	(Z)	-	0.2	41.8	5.2	78.0	13.9
26	Medical scientists.....	0.8	-	(Z)	0.1	-	0.2	10.5	0.2	3.4	62.8
27	Physical scientists.....	8.6	1.0	0.6	0.4	0.6	-	2.5	0.7	3.5	3.4
28	Chemists.....	6.2	0.3	0.3	0.3	0.4	-	2.2	0.6	3.2	2.7
29	Physicists and astronomers.....	2.0	0.6	0.2	0.1	0.1	-	0.1	-	0.2	0.3
30	Other physical scientists.....	0.4	0.1	0.1	0.1	0.1	-	0.2	0.1	0.1	0.4
31	Environmental scientists.....	2.1	0.1	0.1	-	-	-	0.5	0.9	0.3	-
32	Earth scientists.....	1.8	0.1	0.1	-	-	-	0.3	0.8	(Z)	-
33	Atmospheric scientists.....	0.2	0.1	(Z)	-	-	-	(Z)	(Z)	-	-
34	Oceanographers.....	0.1	-	(Z)	-	-	-	0.1	-	0.3	-
35	Psychologists.....	2.5	(Z)	(Z)	-	-	-	0.4	-	0.1	2.0
36	Social scientists.....	3.4	0.2	0.1	0.9	0.3	2.5	0.2	0.3	-	0.3
37	Economists.....	1.4	0.1	(Z)	0.7	0.1	2.3	0.1	0.3	-	-
38	Sociologists and anthropologists.....	0.8	(Z)	-	-	-	-	(Z)	-	-	0.1
39	Other social scientists.....	1.2	0.1	(Z)	0.2	0.2	0.2	(Z)	(Z)	-	0.1
40	Not in a field in 1974.....	10.6	12.7	4.6	6.4	6.8	5.5	7.1	7.0	5.6	12.8
41	Did not report in 1974.....	12.3	3.1	4.5	3.2	3.9	1.6	3.3	2.7	3.6	3.6

OF SCIENTISTS AND ENGINEERS, BY FIELD OF SCIENCE OR ENGINEERING IN 1974, AGE IN 1976, AND SEX

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Did not report in 1976	Line No.
Physical scientists				Environmental scientists				Psychologists	Social scientists							
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists				
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	214,677	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
92.5	90.6	97.6	96.0	96.8	96.5	97.6	100.0	72.3	81.1	91.1	75.9	74.1	91.3	92.6	3	
7.5	9.4	2.4	4.0	3.2	3.5	2.4	-	27.7	18.9	8.9	24.1	25.9	8.7	7.4	4	
4.1	3.7	5.2	4.5	4.0	4.2	1.2	6.2	5.6	4.1	2.9	3.3	5.8	7.1	8.2	5	
15.9	15.7	16.9	15.3	10.0	9.2	11.4	19.9	20.9	21.8	17.9	24.6	24.1	19.2	20.0	6	
17.8	15.9	23.2	19.6	13.3	12.4	11.1	32.9	17.3	15.5	14.6	17.2	15.4	16.9	19.4	7	
15.2	14.7	16.4	16.4	18.9	19.4	18.2	11.9	13.7	12.6	11.9	13.5	12.8	16.1	14.6	8	
13.6	13.5	13.7	15.3	19.0	20.3	13.9	10.3	14.6	12.6	12.2	12.9	12.8	13.3	12.4	9	
12.6	13.5	10.0	11.9	14.0	14.6	13.7	4.2	13.0	11.6	15.0	10.9	8.5	11.2	10.1	10	
9.1	10.4	5.3	9.8	10.6	9.2	21.5	7.0	6.6	8.9	9.0	8.4	9.1	7.7	6.1	11	
6.4	6.9	5.2	4.4	5.5	5.3	7.8	3.3	4.1	5.9	6.5	5.1	5.6	5.0	4.3	12	
3.4	3.8	2.4	2.3	3.8	4.4	0.7	1.7	2.4	4.2	5.5	2.5	3.8	2.5	2.7	13	
1.8	1.9	1.8	0.5	1.0	0.9	0.4	2.6	1.8	2.9	4.5	1.5	2.1	1.0	2.2	14	
44.0	45.0	41.4	43.3	46.0	46.2	47.9	38.6	42.3	43.4	46.1	41.8	41.8	42.1	40.8	15	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	214,677	16	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17	
0.2	0.1	0.4	0.6	0.1	0.2	-	-	0.4	0.5	0.6	0.5	0.4	5.5	2.2	18	
3.4	2.2	6.0	8.8	1.9	1.8	1.2	4.8	0.6	1.2	1.7	-	1.4	23.6	24.0	19	
0.1	-	0.2	-	(Z)	0.1	-	-	0.1	0.3	0.5	0.4	-	1.9	1.1	20	
0.1	-	0.2	-	(Z)	0.1	-	-	-	-	-	-	-	1.4	0.8	21	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	
1.7	2.0	0.3	5.3	0.6	0.7	-	-	0.1	0.3	0.5	0.4	0.4	0.6	0.2	23	
0.3	0.2	-	2.9	0.6	0.7	-	-	0.5	0.5	0.5	0.7	0.4	4.5	2.6	24	
1.2	1.4	0.1	2.0	-	-	-	-	-	0.2	0.4	-	0.1	1.7	1.1	25	
0.3	0.3	0.3	0.4	-	-	-	-	0.3	0.2	0.1	0.6	0.1	1.6	1.1	26	
-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	0.4	27	
86.2	89.1	81.6	67.3	3.1	2.9	4.8	2.6	-	0.2	0.2	-	0.2	3.6	3.2	28	
63.9	88.6	0.6	6.6	0.3	0.3	0.4	-	-	-	-	-	-	2.5	2.3	29	
18.9	0.2	77.5	12.7	1.4	1.1	2.9	1.6	-	0.1	0.2	-	0.1	0.9	0.8	30	
3.4	0.3	3.5	48.1	1.4	1.4	1.5	1.0	-	0.1	-	-	0.2	0.3	0.1	31	
0.6	0.1	0.6	8.6	88.5	88.4	90.3	86.2	-	0.5	-	-	1.3	0.6	1.1	32	
0.5	0.1	0.2	8.3	73.5	88.1	3.3	2.4	-	0.4	-	-	1.1	0.6	0.9	33	
0.1	-	0.4	0.2	10.3	0.1	85.2	-	-	0.1	-	-	0.2	(Z)	0.1	34	
(Z)	(Z)	-	0.2	4.7	0.2	1.8	83.8	-	-	-	-	-	(Z)	(Z)	35	
-	-	-	-	-	-	-	-	86.8	0.6	-	0.1	1.6	1.1	1.3	36	
(Z)	(Z)	-	0.2	0.2	0.2	-	-	1.3	78.2	82.0	86.6	69.3	4.6	1.7	37	
-	-	-	-	-	-	-	-	-	32.6	81.0	0.1	2.8	1.6	0.9	38	
-	-	-	-	-	-	-	-	-	20.4	-	85.2	2.9	0.7	0.3	39	
(Z)	(Z)	-	0.2	0.2	0.2	-	-	1.3	25.2	1.0	1.3	63.6	2.2	0.6	40	
3.7	3.3	4.1	7.6	2.7	2.9	2.3	0.9	5.8	12.9	9.5	7.8	19.3	49.2	6.7	41	
4.0	3.3	6.8	1.5	2.8	2.8	1.5	5.6	4.5	5.1	4.9	4.0	6.1	5.3	56.2	42	

Table 2. SELECTED SOCIAL CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected social characteristics	Field of science or engineering in 1976										
		Computer specialists	Engineers	Mathematical specialists			Life scientists					
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists		
1	RACE											
2	All races.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738		
3	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
4	White.....	96.3	96.7	93.2	93.7	92.1	96.2	98.6	94.4	96.0		
5	Black.....	1.6	0.7	3.8	4.2	2.7	1.4	0.4	2.3	1.3		
6	Japanese, Chinese, or Korean.....	1.3	2.2	2.5	1.8	4.2	1.7	0.8	2.6	1.4		
7	All other races.....	0.8	0.5	0.5	0.3	1.1	0.7	0.2	0.8	1.3		
8	RESIDENCE IN 1976											
9	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738		
10	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
11	United States.....	99.2	99.3	98.8	99.2	97.8	99.1	99.6	98.6	99.7		
12	Northeast.....	31.7	26.5	22.5	21.3	25.7	18.6	9.4	21.8	31.9		
13	New England.....	8.0	7.9	5.8	6.3	4.7	5.4	3.3	6.1	8.4		
14	Middle Atlantic.....	23.6	18.6	16.7	15.0	21.0	13.2	6.1	15.7	23.5		
15	North Central.....	19.7	23.5	20.8	21.5	19.0	26.0	25.4	27.7	21.6		
16	East North Central.....	14.7	17.6	15.9	16.8	13.6	16.2	12.2	19.5	15.0		
17	West North Central.....	5.0	5.8	4.9	4.7	5.4	9.8	13.1	8.2	6.6		
18	South.....	27.8	26.1	36.7	34.5	42.2	30.6	34.7	28.0	28.7		
19	South Atlantic.....	16.5	13.2	24.1	21.3	31.4	16.6	17.0	16.2	17.0		
20	East South Central.....	3.3	4.1	3.9	4.3	2.9	5.7	7.8	4.4	4.9		
21	West South Central.....	8.1	8.8	8.7	9.0	7.9	8.3	9.9	7.4	6.8		
22	West.....	19.9	23.2	18.8	21.8	11.0	24.0	30.0	21.1	17.6		
23	Mountain.....	3.2	4.8	5.8	6.9	2.9	7.0	11.4	4.9	2.7		
24	Pacific.....	16.7	18.4	13.0	15.0	8.1	16.9	18.7	16.2	14.9		
25	Outlying areas of the United States.....	0.1	(2)	-	-	-	(2)	0.1	(2)	-		
26	Foreign country.....	0.8	0.7	1.2	0.8	2.2	0.8	0.3	1.4	0.3		
27	Not reported.....	-	-	-	-	-	-	-	-	-		
28	SELECTED SMSA'S OF RESIDENCE IN 1976											
29	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738		
30	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
31	Metropolitan areas.....	85.1	81.1	75.9	73.3	82.6	57.4	39.2	64.4	82.4		
32	Anaheim-Santa Ana-Garden Grove, Calif.....	1.6	2.0	0.8	1.1	0.3	0.9	0.2	1.2	1.8		
33	Los Angeles-Long Beach, Calif.....	4.9	4.9	2.4	2.8	1.4	1.8	0.2	2.2	4.9		
34	San Diego, Calif.....	1.1	0.9	0.8	0.9	0.6	0.7	(2)	1.4	0.1		
35	San Francisco-Oakland, Calif.....	2.2	2.0	1.6	1.4	2.2	2.4	1.5	2.7	3.4		
36	San Jose, Calif.....	2.2	1.8	1.3	1.8	-	0.8	0.5	0.9	1.0		
37	Denver, Colo.....	0.6	1.3	0.9	1.1	0.3	0.7	0.8	0.7	0.6		
38	Washington, D.C.-Md.-Va.....	6.0	3.1	11.4	7.3	21.9	3.9	2.8	4.2	6.2		
39	Atlanta, Ga.....	1.3	0.7	0.5	0.4	0.7	0.6	0.3	0.5	1.4		
40	Chicago, Ill.....	4.2	3.3	3.2	2.4	5.2	2.6	0.9	3.1	5.4		
41	New Orleans, La.....	0.4	0.7	0.2	0.2	0.2	0.3	-	0.4	0.7		
42	Baltimore, Md.....	1.3	1.2	2.0	2.5	0.6	0.8	0.1	1.1	1.9		
43	Boston, Mass.....	2.8	2.3	1.8	1.7	2.1	0.9	-	1.3	2.1		
44	Detroit, Mich.....	1.7	2.2	1.4	1.6	1.0	0.6	(2)	1.0	0.6		
45	Minneapolis-St. Paul, Minn.....	1.1	1.5	0.7	0.5	1.1	1.4	2.0	0.8	1.8		
46	St. Louis, Mo.-Ill.....	0.9	1.3	0.9	1.0	0.5	0.4	0.1	0.7	0.5		
47	Newark, N.J.....	1.8	1.6	1.1	0.5	2.7	0.9	0.1	1.5	1.3		
48	Paterson-Clifton-Passaic, N.J.....	0.9	0.9	0.5	0.1	1.3	0.6	(2)	1.1	0.3		
49	New York, N.Y.....	6.5	3.2	4.2	4.5	3.3	3.3	0.6	3.4	10.2		
50	Rochester, N.Y.....	1.0	0.8	1.1	0.9	1.7	0.3	(2)	0.3	0.7		
51	Cincinnati, Ohio-Ky.-Ind.....	0.9	0.9	0.8	0.9	1.0	0.7	0.4	1.1	0.6		
52	Cleveland, Ohio.....	0.8	1.1	0.3	0.4	-	0.6	0.1	0.8	1.1		
53	Philadelphia, Pa.-N.J.....	2.6	3.3	1.8	1.9	1.7	1.7	0.4	2.2	3.6		
54	Pittsburgh, Pa.....	1.5	1.8	0.8	0.9	0.5	0.4	0.2	0.4	0.7		
55	Dallas, Texas.....	1.5	1.1	1.5	1.7	1.2	0.3	0.1	0.4	0.5		
56	Houston, Texas.....	2.2	2.2	1.4	1.3	1.4	0.6	0.1	0.8	1.2		
57	Seattle-Everett, Wash.....	1.8	1.9	1.0	1.0	1.0	0.5	0.4	0.7	0.4		
58	Other metropolitan areas.....	31.0	33.0	31.6	32.5	29.1	28.7	27.3	29.5	29.6		
59	Nonmetropolitan areas.....	14.0	18.1	22.8	25.8	15.2	41.6	60.2	34.1	17.3		
60	Outlying areas of the United States or foreign countries.....	0.8	0.7	1.2	0.8	2.2	0.9	0.4	1.4	0.3		
61	Not reported.....	0.1	0.1	(2)	0.1	-	0.1	0.1	0.2	-		

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Social scientists							
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers	Psychologists	Total	Economists	Sociologists and anthropologists	Other social scientists			
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
94.3	93.7	95.6	96.2	98.1	98.4	98.5	91.8	97.9	96.0	95.9	95.9	96.0	96.5	3	
1.6	2.0	0.4	1.1	0.1	-	0.4	1.9	1.6	1.7	1.4	2.4	1.7	1.4	4	
3.3	3.3	3.7	2.7	1.4	1.1	1.1	6.3	0.2	1.6	2.0	1.6	1.3	1.6	5	
0.8	1.0	0.3	-	0.4	0.4	-	-	0.2	0.7	0.8	-	1.0	0.5	6	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	7	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	8	
99.0	99.3	98.1	97.6	97.7	97.3	100.0	98.2	99.1	98.4	98.4	98.0	98.6	99.3	9	
30.7	31.4	29.2	28.1	10.1	8.6	16.4	20.8	31.9	26.2	23.3	29.7	26.9	28.1	10	
7.3	6.7	9.0	8.7	4.3	2.8	7.8	19.1	7.6	6.7	5.2	10.1	6.3	8.7	11	
23.4	24.7	20.2	19.4	5.9	5.7	8.6	1.7	24.3	19.4	18.2	19.7	20.6	19.4	12	
23.8	27.1	15.3	16.6	10.2	10.1	14.7	1.1	24.6	22.8	21.4	24.5	23.1	26.0	13	
18.3	20.8	11.8	14.2	6.2	6.3	8.0	1.1	17.8	15.7	14.7	17.7	15.6	18.6	14	
5.5	6.3	3.5	2.4	3.9	3.8	6.7	-	6.8	7.0	6.6	6.9	7.5	7.4	15	
25.8	26.1	23.9	30.5	45.5	45.8	42.5	46.4	22.1	30.6	39.5	21.7	26.8	25.9	16	
15.6	14.9	15.6	25.4	12.5	8.9	26.1	38.4	12.7	22.7	29.6	14.7	20.3	16.6	17	
3.5	3.7	3.0	2.5	2.7	2.8	2.9	1.7	3.2	3.4	4.5	2.6	2.8	3.9	18	
6.7	7.4	5.3	2.6	30.2	34.2	13.5	6.3	6.2	4.5	5.4	4.4	3.7	7.4	19	
18.7	14.8	29.8	22.5	32.0	32.9	26.4	29.8	20.6	18.9	14.2	22.0	21.7	19.3	20	
5.1	3.8	8.2	9.3	16.9	19.0	10.0	-	4.4	4.7	4.2	7.1	3.8	3.8	21	
13.6	11.0	21.5	13.2	15.0	13.9	16.4	29.8	16.2	14.2	10.0	14.9	18.0	15.5	22	
(2)	(2)	(2)	-	0.1	0.1	-	0.9	(2)	-	-	-	-	0.2	23	
1.0	0.6	1.8	2.4	2.2	2.6	-	0.9	0.8	1.6	1.6	2.0	1.4	0.5	24	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	26	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	27	
78.5	78.5	78.8	77.3	77.4	77.4	81.7	66.7	80.1	77.4	80.8	72.1	77.2	78.6	28	
1.1	1.0	1.2	1.1	1.1	1.4	-	-	1.6	0.6	0.1	0.4	1.3	1.5	29	
2.8	2.3	4.6	2.2	4.1	4.2	3.7	4.1	3.5	2.4	1.7	1.8	3.4	3.6	30	
1.2	0.5	3.1	1.9	1.1	0.4	-	14.5	1.3	0.8	0.2	1.1	1.2	0.7	31	
3.1	2.6	4.9	1.9	2.5	2.7	2.6	-	2.1	3.6	2.6	2.1	5.5	2.4	32	
1.3	0.8	2.6	2.8	1.1	1.2	1.1	-	1.3	0.5	0.4	0.5	0.7	1.4	33	
1.0	0.8	1.1	3.1	7.6	8.7	3.4	-	0.9	0.8	0.7	1.6	0.5	0.9	34	
4.3	2.7	7.7	10.3	6.3	4.4	14.1	18.7	4.5	13.0	21.1	4.1	9.9	3.5	35	
0.5	0.5	0.4	0.5	0.2	0.1	0.8	-	0.7	0.7	0.6	1.1	0.5	1.0	36	
3.9	4.6	1.9	3.3	0.8	0.8	1.5	-	4.2	2.2	2.1	3.3	1.6	4.3	37	
0.5	0.5	0.4	-	3.4	4.0	0.4	0.8	0.2	0.3	0.5	0.4	0.1	0.3	38	
1.6	1.4	2.1	1.3	0.5	0.4	0.4	2.4	1.2	1.0	1.5	0.3	0.8	1.1	39	
2.7	1.8	4.9	4.7	1.4	1.0	5.1	-	2.2	1.7	1.7	2.4	1.3	2.4	40	
1.3	1.4	1.1	1.2	0.3	0.3	0.8	-	0.9	0.8	1.3	0.2	0.5	1.8	41	
1.5	1.8	0.7	0.8	0.4	0.5	0.4	-	1.1	1.5	1.6	0.7	1.9	1.7	42	
1.0	1.2	0.6	0.2	0.3	0.3	0.8	-	0.9	0.7	0.6	0.6	0.7	1.4	43	
2.5	3.0	1.2	2.2	0.3	0.3	0.4	-	0.9	0.5	0.7	0.4	0.3	1.2	44	
1.3	1.5	0.7	0.6	-	-	-	-	0.6	1.0	1.5	0.6	0.8	1.6	45	
3.9	3.6	5.0	3.6	1.4	1.2	2.6	0.8	8.1	6.8	7.7	5.8	6.5	5.3	46	
1.7	1.8	1.6	1.6	-	-	-	-	0.7	0.2	0.1	0.3	0.3	0.6	47	
1.0	1.3	0.1	0.4	0.1	0.2	-	-	0.7	0.6	1.4	0.1	0.2	0.7	48	
1.0	1.2	0.4	0.2	0.1	-	1.2	-	1.2	0.5	0.5	1.0	0.3	1.0	49	
3.6	4.5	1.8	0.7	0.5	0.8	-	-	4.2	2.7	1.5	3.3	3.6	3.2	50	
1.3	1.4	1.2	1.5	1.5	1.8	-	-	1.7	1.0	1.8	0.5	0.4	0.9	51	
0.8	0.8	0.9	0.4	3.9	3.4	8.7	-	1.2	0.4	0.6	0.4	0.1	1.5	52	
1.3	1.4	1.1	0.8	9.0	10.8	0.7	-	1.1	0.7	1.1	1.0	0.1	1.7	53	
0.5	0.5	0.6	0.4	0.5	0.2	0.8	3.6	0.6	1.1	0.2	1.3	2.0	1.3	54	
31.8	33.5	27.1	29.6	28.8	28.8	31.5	21.8	32.6	31.4	26.9	36.8	32.7	31.6	55	
20.3	20.7	19.3	20.1	20.3	19.9	17.9	31.6	18.8	20.9	17.7	25.7	21.4	20.5	56	
1.0	0.7	1.9	2.4	2.3	2.7	-	1.8	0.9	1.6	1.6	2.0	1.4	0.7	57	
0.1	0.1	0.1	0.2	(2)	-	0.4	-	0.2	0.1	-	0.1	0.1	0.2	58	

Table 3. SELECTED EDUCATIONAL CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected educational characteristics	Field of science or engineering in 1976								
		Computer specialists	Engineers	Mathematical specialists			Life scientists			
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
HIGHEST DEGREE HELD										
1	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	With a degree.....	100.0	97.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4	Associate.....	-	1.5	-	-	-	-	-	-	-
5	Bachelor's.....	62.2	68.1	28.6	25.7	36.1	30.4	54.0	15.8	17.6
6	Master's.....	30.6	22.3	30.1	30.2	29.9	22.2	20.0	24.3	21.1
7	Doctorate.....	7.0	5.3	40.7	43.7	33.2	45.6	25.8	59.5	50.6
8	Other degree.....	0.2	0.2	0.5	0.4	0.8	1.8	0.1	0.4	10.8
9	No degree.....	-	2.6	-	-	-	-	-	-	-
MAJOR FIELD OF STUDY FOR HIGHEST DEGREE HELD										
10	Total, with a degree.....	50,691	641,226	24,831	17,873	6,958	70,027	26,315	33,975	9,738
11	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
12	Computer science and systems analysis.....	13.0	0.2	0.7	0.8	0.4	(2)	(2)	-	-
13	Engineering.....	16.2	86.5	1.3	1.2	1.5	0.8	0.6	1.0	0.5
14	Mathematical sciences.....	23.7	1.1	80.4	90.4	54.8	0.4	0.5	0.1	1.3
15	Agricultural sciences.....	0.3	0.2	1.3	0.1	4.4	34.1	81.3	7.0	0.9
16	Biological sciences.....	1.3	0.2	0.7	-	2.4	50.2	13.1	81.0	43.1
17	Medical sciences.....	0.7	0.2	0.7	0.3	1.8	5.3	-	1.4	33.3
18	Chemistry.....	1.2	1.2	0.3	0.2	0.7	1.4	0.1	1.7	4.0
19	Physics and astronomy.....	4.6	2.1	1.2	1.6	0.2	0.9	0.1	1.2	2.1
20	Earth, space, and marine sciences.....	1.2	0.4	0.1	0.1	-	0.1	-	0.3	-
21	Psychology.....	2.0	0.1	0.5	-	1.9	0.8	-	0.6	3.4
22	Economics.....	3.0	0.2	3.0	-	10.7	0.3	0.7	(2)	-
23	Sociology and anthropology.....	0.7	(2)	0.7	-	2.7	0.1	0.1	(2)	0.3
24	Other social sciences.....	2.3	0.3	0.5	-	1.8	0.2	0.3	(2)	0.3
25	Business and commerce.....	2.6	1.0	0.1	-	0.5	0.1	8.2	0.1	-
26	All other fields.....	26.1	5.5	7.7	4.6	15.4	4.5	2.5	4.9	8.1
27	Field not reported.....	1.0	0.9	0.6	0.6	0.8	0.8	0.4	0.7	2.7
SUPPLEMENTAL TRAINING IN 1975¹										
28	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
29	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30	With supplemental training in 1975.....	56.9	37.5	27.6	26.9	29.6	34.1	43.5	26.5	35.1
31	On-the-job training.....	33.8	16.8	13.8	14.1	13.1	18.9	30.8	11.6	11.9
32	Military training applicable to civilian occupations.....	0.8	0.8	0.7	1.0	0.2	0.5	0.7	0.3	0.9
33	Extension or correspondence courses.....	4.0	3.6	3.3	3.4	2.8	3.6	4.8	1.9	6.3
34	Employer training programs.....	32.3	17.2	10.7	9.8	12.9	11.5	18.3	7.4	7.8
35	Adult education center.....	6.5	4.1	2.0	1.9	2.4	4.1	4.0	3.9	5.3
36	Other training.....	13.6	7.6	7.1	7.7	5.4	9.5	10.0	7.7	14.5
37	No supplemental training in 1975.....	28.3	42.6	53.6	54.3	51.8	47.5	38.9	54.3	47.1
38	Not reported.....	14.7	19.9	18.8	18.9	18.6	18.4	17.7	19.2	17.8

¹Sum of types of training may exceed total with training because of multiple response.

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Psychologists	Social scientists						
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists			
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.9	3	
-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	4	
34.1	39.4	16.3	41.5	42.7	45.7	37.4	7.6	8.1	21.6	25.2	13.8	22.6	55.3	5	
18.5	17.8	19.5	23.1	28.3	28.2	30.7	24.4	29.5	28.8	24.4	19.7	38.5	27.9	6	
47.3	42.6	64.2	35.3	28.9	26.0	31.6	68.1	62.1	49.2	49.6	66.4	38.6	7.9	7	
0.2	0.2	(Z)	-	0.1	0.1	0.4	-	0.2	0.4	0.8	0.1	0.3	2.6	8	
-	-	-	-	-	-	-	-	-	-	-	-	-	3.1	9	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	152,747	10	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	11	
(Z)	-	0.1	-	(Z)	0.1	-	-	-	0.1	0.1	-	0.1	1.0	12	
3.2	2.6	2.4	15.3	5.3	5.1	5.4	7.8	0.4	0.4	0.6	0.1	0.4	28.4	13	
0.5	0.3	0.7	2.6	1.9	1.5	4.9	1.7	0.1	0.3	0.1	-	0.6	6.1	14	
0.9	0.8	-	6.6	2.2	2.6	0.7	-	-	0.3	0.8	-	-	3.8	15	
8.2	11.1	0.2	3.8	1.1	0.8	-	7.7	0.3	0.2	-	0.1	0.3	4.5	16	
0.7	0.8	0.3	1.3	-	-	-	-	0.1	0.1	0.1	-	0.2	2.7	17	
58.2	80.3	1.1	7.8	1.1	0.7	3.9	0.9	-	0.1	0.1	-	0.1	4.1	18	
24.8	1.0	92.7	45.8	6.8	5.1	19.7	4.4	(Z)	0.1	0.1	-	0.1	2.4	19	
0.7	0.2	0.6	8.2	76.0	79.2	56.6	69.4	-	0.1	0.1	-	0.1	0.8	20	
0.1	(Z)	0.1	-	(Z)	0.1	-	-	91.8	2.1	-	0.4	5.4	3.7	21	
(Z)	0.1	-	-	0.3	0.4	-	-	-	36.0	87.8	0.1	4.7	4.2	22	
(Z)	-	(Z)	-	(Z)	(Z)	-	-	0.1	22.9	0.3	92.6	4.7	1.6	23	
(Z)	(Z)	(Z)	-	0.4	0.3	0.8	1.1	0.6	20.5	3.6	1.4	48.9	4.0	24	
0.3	0.4	(Z)	-	0.1	0.1	0.4	-	-	0.1	0.3	0.1	-	5.6	25	
2.0	1.8	1.1	8.7	3.7	3.0	7.1	6.1	6.0	16.3	5.3	4.6	34.3	24.7	26	
0.4	0.4	0.5	-	0.9	1.0	0.4	0.9	0.5	0.5	0.9	0.6	0.2	2.2	27	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	28	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	29	
31.1	32.3	24.7	43.9	34.4	35.3	29.4	31.6	39.9	25.3	21.0	18.0	33.9	40.0	30	
14.3	15.3	9.6	22.2	16.7	17.3	11.4	18.2	18.7	11.5	10.5	7.6	14.8	20.4	31	
0.5	0.4	0.7	-	0.4	0.3	1.5	0.6	0.8	0.6	0.4	0.1	1.0	1.0	32	
2.9	2.6	3.2	5.5	3.3	3.0	6.2	1.7	2.8	3.3	1.5	2.0	6.0	3.8	33	
11.4	11.5	9.3	20.6	14.5	14.5	14.8	13.0	7.5	10.0	8.9	4.3	14.5	16.3	34	
3.5	4.1	1.7	2.6	4.2	4.7	2.0	1.5	4.6	3.2	1.4	2.3	5.6	4.5	35	
7.3	7.4	6.9	8.9	7.8	8.1	6.4	6.5	20.7	7.7	5.0	5.0	12.1	10.8	36	
49.9	48.5	56.0	41.4	45.0	44.7	45.5	48.2	41.8	53.9	57.5	61.4	45.9	42.2	37	
19.0	19.2	19.3	14.8	20.6	20.0	25.1	20.3	18.3	20.8	21.6	20.6	20.2	17.8	38	

Table 4. SELECTED EMPLOYMENT STATUS CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected employment status characteristics	Field of science or engineering in 1976								
		Computer specialists	Engineers	Mathematical specialists			Life scientists			
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
EMPLOYMENT STATUS IN FEBRUARY 1976										
1	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	In labor force.....	96.4	93.2	93.4	94.0	91.7	92.9	93.7	92.3	92.8
4	Employed.....	95.0	91.3	91.6	91.7	91.2	91.5	92.8	91.0	89.7
5	Full time.....	93.6	89.9	88.1	88.4	87.3	87.2	90.8	84.9	85.9
6	Part time.....	1.3	1.2	3.0	2.8	3.7	3.1	1.5	4.3	3.2
7	Seeking full-time work.....	0.2	0.3	0.6	0.7	0.2	0.6	0.4	0.9	0.4
8	Not seeking full-time work.....	1.1	0.9	2.3	2.0	3.1	2.4	1.1	3.3	2.8
9	Not reported.....	(2)	0.1	0.2	0.1	0.4	(2)	-	(2)	-
10	Full or part time not reported.....	0.1	0.2	0.4	0.5	0.2	1.2	0.5	1.8	0.6
11	Unemployed.....	1.4	1.9	1.8	2.3	0.5	1.5	1.0	1.4	3.0
12	Not in labor force.....	3.6	6.8	6.6	6.0	8.3	7.1	6.3	7.7	7.2
13	Retired.....	1.2	6.3	4.4	3.7	6.3	4.7	6.1	3.9	4.0
14	Other.....	2.4	0.4	2.2	2.3	2.0	2.3	0.1	3.8	3.2
15	Not reported.....	(2)	0.1	(2)	0.1	-	(2)	(2)	-	-
EMPLOYMENT STATUS IN FEBRUARY 1975										
16	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
17	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
18	In labor force.....	95.2	92.4	93.1	93.7	91.6	92.6	93.2	92.5	91.7
19	Employed.....	94.1	90.9	92.3	92.5	91.6	91.7	93.1	91.1	90.1
20	Full time.....	90.8	88.3	87.3	87.2	85.5	86.0	89.9	83.2	85.6
21	Part time.....	1.3	1.1	4.1	4.0	4.5	3.1	1.4	4.7	2.1
22	Seeking full-time work.....	0.2	0.2	0.8	1.1	-	0.5	0.2	0.9	0.1
23	Not seeking full-time work.....	1.1	0.8	3.0	2.9	3.2	2.5	1.2	3.7	2.0
24	Not reported.....	(2)	0.1	0.4	0.1	1.3	(2)	-	0.1	-
25	Full or part time not reported.....	2.0	1.6	1.4	1.3	1.6	2.6	1.8	3.3	2.4
26	Unemployed.....	1.1	1.5	0.8	1.1	-	0.9	0.1	1.4	1.6
27	Not in labor force.....	3.3	5.0	5.5	5.0	6.7	5.3	4.9	5.7	5.0
28	Retired.....	0.8	4.6	3.3	2.6	5.0	3.4	4.8	2.6	2.3
29	Other.....	2.3	0.3	1.5	1.5	1.5	1.8	(2)	2.9	2.7
30	Not reported.....	0.1	0.1	0.7	0.9	0.2	0.1	(2)	0.2	-
31	Employment status not reported.....	1.5	2.6	1.4	1.3	1.7	2.1	1.9	1.8	3.2
FULL-TIME EMPLOYMENT IN SCIENCE OR ENGINEERING IN 1976										
32	Total employed full time February 1976...	47,443	591,736	21,875	15,804	6,071	61,091	23,887	28,839	8,365
33	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
34	In science or engineering.....	96.2	95.0	92.1	92.4	91.6	93.4	90.1	95.3	96.5
35	Not in science or engineering.....	2.7	3.3	6.2	5.9	7.1	4.8	7.7	3.2	1.7
36	Preferred nonscience or nonengineering.....	1.0	0.5	0.9	0.7	1.5	1.8	3.8	0.3	1.4
37	Promoted out of science or engineering.....	0.7	1.3	1.3	1.8	-	0.8	1.4	0.6	-
38	Pay better in nonscience or nonengineering.....	0.1	0.3	0.4	0.5	-	0.7	0.3	1.3	-
39	Locational preference.....	0.2	0.1	1.3	1.1	1.8	0.2	0.6	-	-
40	Science or engineering position not available.....	0.1	0.5	0.2	0.3	0.2	0.2	0.2	0.3	-
41	Other reason.....	0.4	0.5	2.0	1.4	3.4	0.5	0.4	0.6	0.2
42	Reason not reported.....	0.2	0.1	0.1	0.1	0.2	0.5	1.2	0.1	0.2
43	Not reported.....	1.1	1.7	1.6	1.8	1.3	1.8	2.2	1.5	1.7
FULL-TIME EMPLOYMENT IN SCIENCE OR ENGINEERING IN 1975										
44	Total employed full time February 1975...	46,013	581,188	21,538	15,588	5,950	60,254	23,663	28,255	8,336
45	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
46	In science or engineering.....	97.5	95.9	93.4	93.5	93.3	93.9	90.1	95.9	98.2
47	Not in science or engineering.....	2.1	3.0	4.9	5.2	4.3	4.4	7.1	3.0	1.6
48	Preferred nonscience or nonengineering.....	0.6	0.5	0.6	0.4	1.3	1.5	2.9	0.4	1.6
49	Promoted out of science or engineering.....	0.2	1.2	1.6	2.2	-	0.7	1.2	0.5	-
50	Pay better in nonscience or nonengineering.....	0.2	0.3	0.4	0.5	-	0.7	0.2	1.2	-
51	Locational preference.....	0.1	0.1	0.3	0.4	-	0.4	1.0	-	-
52	Science or engineering position not available.....	0.4	0.3	0.3	0.4	-	0.2	0.2	0.2	-
53	Other reason.....	0.3	0.4	1.6	1.1	3.0	0.4	0.4	0.6	-
54	Reason not reported.....	0.3	0.1	0.2	0.2	-	0.5	1.2	0.1	-
55	Not reported.....	0.5	1.1	1.6	1.3	2.4	1.6	2.8	1.1	0.3
UNEMPLOYMENT IN CALENDAR YEAR 1975										
56	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
57	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
58	Unemployed in calendar year 1975.....	4.5	4.4	3.5	4.2	1.7	3.0	1.4	3.9	4.4
59	1 to 4 weeks.....	1.1	0.7	0.5	0.6	0.4	0.8	0.4	0.8	1.9
60	5 to 10 weeks.....	1.5	0.8	0.8	0.8	0.8	0.3	0.1	0.5	-
61	11 to 14 weeks.....	0.5	0.4	0.6	0.7	0.2	0.3	-	0.4	0.3
62	15 to 26 weeks.....	0.4	0.7	0.6	0.8	-	0.7	0.7	0.8	0.7
63	27 weeks or more.....	0.7	1.3	0.7	0.9	0.3	0.8	(2)	1.2	1.5
64	Median weeks of unemployment.....	7.9	14.6	11.7	12.7	7.2	15.8	16.2	15.9	14.2
65	Duration not reported.....	0.3	0.5	0.3	0.4	-	0.1	0.1	0.2	-
66	Not unemployed in calendar year 1975.....	92.5	89.7	92.4	92.1	93.2	91.9	93.1	91.3	90.3
67	Not reported.....	3.0	5.9	4.1	3.7	5.1	5.1	5.5	4.8	5.4

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Social scientists							
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers	Psychologists	Total	Economists	Sociologists and anthropologists	Other social scientists			
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
92.9	91.8	95.2	97.3	94.5	94.9	91.6	94.2	94.3	91.2	90.6	93.0	90.7	94.2	3	
91.5	90.4	93.8	96.9	93.6	94.0	91.6	92.3	91.8	89.7	89.6	90.4	89.3	92.2	4	
87.9	87.2	88.8	94.3	91.3	91.5	90.9	87.3	84.1	85.2	86.8	84.6	84.0	88.2	5	
2.4	2.0	3.4	2.6	1.3	1.5	0.7	-	6.8	3.6	2.2	5.5	3.8	3.5	6	
0.4	0.3	0.6	0.2	0.1	0.1	0.3	-	1.5	0.8	0.4	1.4	0.8	0.8	7	
1.9	1.6	2.6	2.4	1.0	1.2	0.4	-	5.1	2.8	1.9	4.1	2.9	2.7	8	
0.1	0.1	0.1	-	0.1	0.2	-	-	0.2	0.1	-	-	0.1	0.1	9	
1.2	1.1	1.6	-	1.1	1.0	-	-	0.9	0.9	0.6	0.3	1.5	0.5	10	
1.4	1.4	1.4	0.4	0.9	0.9	-	1.9	2.5	1.5	1.0	2.6	1.4	2.0	11	
7.1	8.2	4.8	2.7	5.5	5.1	-	8.4	5.8	5.7	8.8	9.4	9.3	5.8	12	
5.6	6.4	3.9	2.1	4.6	4.1	8.0	4.9	3.5	5.8	8.0	2.3	5.7	4.0	13	
1.4	1.7	0.7	0.4	0.4	0.4	0.4	-	2.2	2.7	1.3	4.5	2.9	1.8	14	
0.1	(Z)	0.2	0.2	0.6	0.6	-	0.9	(Z)	0.3	0.1	0.2	0.7	0.1	15	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	16	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17	
92.6	91.8	94.3	97.2	94.5	95.2	89.5	94.2	92.5	91.0	90.7	92.4	90.4	92.5	18	
91.4	90.5	92.9	96.3	94.0	94.7	89.5	94.2	91.0	90.3	90.3	91.0	90.0	90.4	19	
86.2	85.8	86.5	91.0	89.6	90.8	85.2	82.2	81.5	84.2	86.7	82.4	82.8	86.0	20	
2.3	1.8	3.5	4.3	1.9	2.0	1.1	1.0	6.8	4.0	2.2	6.8	4.2	3.2	21	
0.5	0.4	0.7	1.9	0.4	0.4	-	1.0	1.0	0.9	0.2	1.5	1.1	0.6	22	
1.7	1.3	2.7	2.4	1.2	1.4	0.4	-	5.4	2.9	1.8	5.1	2.6	2.2	23	
0.1	0.1	0.2	-	0.3	0.2	0.8	-	0.4	2.1	0.1	0.1	0.5	0.4	24	
2.9	3.0	2.8	1.0	2.5	1.9	3.2	11.0	2.6	2.1	1.4	1.9	3.0	1.2	25	
1.3	1.3	1.4	0.9	0.5	0.6	-	-	1.5	0.7	0.5	1.4	0.4	2.0	26	
5.8	6.6	3.9	1.8	3.9	3.1	9.4	4.9	4.4	6.8	7.6	5.1	6.9	5.8	27	
4.4	5.0	3.1	1.4	3.5	2.6	9.0	4.9	2.3	4.3	6.0	1.6	4.2	3.4	28	
1.3	1.5	0.8	0.2	0.4	0.4	0.4	-	2.0	2.2	1.5	3.5	2.2	2.3	29	
0.1	0.1	-	0.2	0.1	0.1	-	-	0.1	0.2	0.2	-	0.5	0.1	30	
1.6	1.6	1.8	0.9	1.6	1.7	1.1	0.9	3.1	2.2	1.6	2.5	2.7	1.8	31	
102,917	73,058	24,432	5,427	24,635	20,478	2,930	1,226	28,747	38,843	15,388	8,719	14,737	138,901	32	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	33	
97.4	97.3	97.2	99.0	97.0	96.4	99.5	100.0	90.7	82.6	83.1	86.6	79.7	61.5	34	
1.3	1.5	1.2	0.3	1.5	1.8	-	-	7.4	15.7	15.1	12.4	18.3	36.1	35	
0.4	0.3	0.6	-	0.6	0.7	-	-	2.7	5.2	5.5	4.3	5.4	10.7	36	
0.6	0.8	0.3	0.3	0.2	0.2	-	-	0.7	1.4	2.5	0.4	0.9	6.5	37	
(Z)	(Z)	-	-	0.1	0.1	-	-	0.5	0.6	0.4	1.8	0.1	4.0	38	
(Z)	(Z)	-	-	-	-	-	-	0.3	1.6	0.9	0.9	2.7	1.9	39	
0.1	0.1	0.1	(Z)	0.5	0.1	-	-	0.2	0.9	0.8	0.1	1.4	2.4	40	
0.1	0.1	(Z)	-	0.6	0.6	-	-	2.1	4.1	3.1	4.8	4.6	8.3	41	
1.3	1.5	0.8	0.2	0.1	0.1	-	-	0.8	2.0	2.0	-	3.1	2.3	42	
1.3	1.2	1.6	0.6	1.5	1.7	0.5	-	2.0	1.7	1.8	1.0	2.0	2.4	43	
100,903	71,873	23,794	5,236	24,202	20,303	2,745	1,154	27,872	38,402	15,375	8,496	14,530	135,424	44	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	45	
97.9	97.8	98.4	98.2	97.9	97.5	100.0	100.0	92.9	84.5	85.3	88.2	81.7	62.6	46	
1.4	1.4	1.2	1.3	1.4	1.6	-	-	5.8	13.6	12.7	10.1	16.5	32.3	47	
0.3	0.3	0.6	-	0.6	0.7	-	-	2.2	4.6	4.2	3.8	5.5	10.1	48	
0.6	0.7	0.3	0.3	0.2	0.2	-	-	0.7	1.1	1.8	0.3	0.9	5.6	49	
(Z)	(Z)	0.1	-	(Z)	0.1	-	-	0.5	0.4	0.4	1.0	0.1	3.7	50	
0.1	0.1	-	-	-	-	-	-	0.2	1.3	0.9	1.0	2.0	1.7	51	
0.2	0.2	0.2	1.0	(Z)	0.1	-	-	0.6	0.8	1.5	0.4	0.4	2.1	52	
(Z)	0.1	-	-	0.5	0.6	-	-	1.5	3.2	1.4	3.3	5.1	6.7	53	
0.1	0.1	-	-	-	-	-	-	0.2	2.1	2.5	0.8	2.6	2.3	54	
0.1	0.1	0.1	0.4	0.7	0.9	-	-	1.3	1.9	2.0	1.7	1.8	5.1	55	
0.7	0.8	0.4	0.4	0.7	0.9	-	-	-	-	-	-	-	-	56	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	57	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	58	
3.3	3.3	3.4	3.0	2.4	2.3	3.6	1.0	5.0	3.7	1.9	7.6	3.2	7.0	59	
0.5	0.5	0.3	0.5	0.4	0.4	0.4	-	0.6	0.6	0.2	1.9	0.2	1.5	60	
0.5	0.4	0.8	0.9	0.4	0.5	-	1.0	0.8	0.8	0.2	1.9	0.8	1.2	61	
0.5	0.5	0.4	0.5	0.1	0.1	-	-	0.9	0.7	0.2	2.1	0.3	1.4	62	
0.4	0.4	0.5	0.2	0.3	0.3	-	-	0.8	0.8	0.4	1.0	1.1	0.8	63	
1.2	1.2	1.3	0.6	0.3	0.4	-	-	1.5	0.6	0.7	0.6	0.5	1.7	64	
15.5	16.1	16.9	9.7	8.9	9.5	(B)	(B)	13.8	12.0	22.3	9.9	15.5	11.8	65	
0.2	0.3	0.1	0.2	0.9	0.6	3.3	-	0.4	0.2	0.3	-	0.3	0.4	66	
92.2	92.3	91.4	94.2	92.8	92.7	92.9	93.8	90.2	90.7	92.7	88.5	90.0	87.8	67	
4.5	4.4	5.2	2.8	4.8	4.9	3.5	5.2	4.8	5.6	5.5	3.9	6.7	5.2	67	

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
		Computer specialists	Engineers	Mathematical specialists			Life scientists			
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
OCCUPATION IN 1976										
1	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Computer specialists, total.....	95.3	0.5	1.8	2.4	0.4	(Z)	-	(Z)	-
4	Computer systems analysts.....	53.1	0.2	0.5	0.7	-	(Z)	-	(Z)	-
5	Computer scientists.....	13.3	(Z)	0.6	0.8	-	-	-	-	-
6	Other computer specialists.....	28.9	0.3	0.8	1.0	0.4	-	-	-	-
7	Engineers, total.....	0.5	79.0	0.8	1.1	-	0.2	0.4	0.1	-
8	Aeronautical and astronautical.....	-	3.4	0.1	0.2	-	-	-	-	-
9	Agricultural.....	-	0.5	-	-	-	(Z)	(Z)	-	-
10	Chemical.....	-	4.9	-	-	-	-	-	-	-
11	Civil and architectural.....	-	12.0	-	-	-	(Z)	0.1	-	-
12	Electrical and electronic.....	0.3	19.8	0.1	0.2	-	-	-	-	-
13	Industrial.....	0.1	3.7	-	-	-	-	-	-	-
14	Mechanical.....	-	17.2	-	-	-	-	-	-	-
15	Metallurgical and materials.....	-	2.1	-	-	-	(Z)	(Z)	-	-
16	Mining, petroleum, and geological.....	-	1.6	-	-	-	-	-	-	-
17	Nuclear.....	-	0.8	-	-	-	-	-	-	-
18	Environmental and sanitary.....	-	1.8	-	-	-	-	-	-	-
19	Operations research/systems.....	(Z)	1.7	0.5	0.7	-	(Z)	-	0.1	-
20	Other engineering fields.....	0.1	9.4	0.1	0.1	-	0.1	0.3	(Z)	-
21	Mathematicians and statisticians, total.....	0.2	0.4	74.0	69.4	86.0	(Z)	0.1	-	-
22	Mathematicians.....	0.2	(Z)	46.7	64.2	1.6	-	-	-	-
23	Statisticians and actuaries.....	-	(Z)	23.9	0.6	84.0	(Z)	0.1	-	-
24	Operations research analysts.....	(Z)	0.4	3.4	4.6	0.4	-	-	-	-
25	Life scientists, total.....	-	(Z)	-	-	-	79.9	75.6	80.8	88.5
26	Agricultural scientists.....	-	(Z)	-	-	-	29.5	75.4	1.7	-
27	Biological scientists.....	-	-	-	-	-	26.3	0.1	54.3	0.1
28	Biochemists and biophysicists.....	-	-	-	-	-	2.2	-	4.6	-
29	Medical scientists.....	-	(Z)	-	-	-	12.4	-	0.6	88.4
30	Other life scientists.....	-	-	-	-	-	9.5	0.1	19.6	-
31	Physical scientists, total.....	-	0.1	0.1	0.2	-	0.4	0.1	0.7	-
32	Chemists.....	-	(Z)	-	-	-	0.3	0.1	0.5	-
33	Physicists and astronomers.....	-	(Z)	-	-	-	-	-	-	-
34	Other physical scientists.....	-	(Z)	0.1	0.2	-	0.1	-	0.2	-
35	Environmental scientists, total.....	-	(Z)	0.1	-	0.2	0.2	0.3	0.1	-
36	Earth scientists.....	-	(Z)	0.1	-	0.2	0.2	0.3	0.1	-
37	Atmospheric scientists, meteorologists.....	-	(Z)	-	-	-	(Z)	(Z)	-	-
38	Oceanographers.....	-	(Z)	-	-	-	(Z)	-	(Z)	-
39	Psychologists.....	-	-	-	-	-	-	-	-	-
40	Social scientists, total.....	-	(Z)	-	-	-	0.1	0.1	0.1	-
41	Economists.....	-	(Z)	-	-	-	(Z)	0.1	-	-
42	Sociologists and anthropologists.....	-	-	-	-	-	(Z)	-	0.1	-
43	Other social scientists.....	-	-	-	-	-	-	-	-	-
44	Health occupations.....	-	(Z)	-	-	-	0.1	-	0.2	0.4
45	Technicians and technologists, except medical.....	-	0.6	-	-	-	0.5	0.1	0.9	-
46	Teachers ¹	(Z)	0.1	1.1	1.6	-	1.2	0.5	2.0	0.1
47	Administrators and managers.....	1.0	14.6	18.7	21.4	12.0	13.9	19.8	11.1	7.0
48	Other occupations.....	-	1.4	0.7	1.0	-	1.2	1.2	1.6	-
49	Not reported.....	2.1	3.4	2.6	3.1	1.4	2.3	1.7	2.3	3.9
INDUSTRY IN 1976										
50	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
51	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
52	Agriculture, forestry, and fisheries.....	0.1	0.4	1.4	0.1	4.8	22.7	50.7	7.0	0.1
53	Mining and petroleum extraction.....	0.6	1.5	0.3	0.4	-	-	-	-	-
54	Construction.....	0.1	3.9	0.7	0.2	1.7	0.2	0.2	0.3	-
55	Manufacturing, total.....	44.4	50.1	15.2	14.9	15.9	6.9	5.4	7.8	8.0
56	Primary metal industries.....	1.6	2.1	0.4	0.3	0.6	0.2	-	0.4	-
57	Fabricated metal industries.....	0.8	2.8	0.5	0.6	0.2	0.1	-	0.1	-
58	Machinery, except electrical and electronic.....	0.8	3.9	0.2	0.2	-	0.1	-	0.1	-
59	Electrical machinery, equipment, and supplies.....	1.5	3.7	0.8	1.2	-	0.1	0.2	(Z)	-
60	Electronic machinery and computing equipment.....	23.6	11.5	4.0	4.7	2.3	(Z)	0.1	(Z)	-
61	Aircraft and aircraft parts.....	2.5	6.3	1.6	1.6	1.7	0.1	-	(Z)	0.3
62	Motor vehicles and motor vehicle equipment.....	1.5	3.1	1.3	1.4	1.1	(Z)	-	-	0.1
63	Ordnance.....	1.8	4.1	1.5	1.9	0.5	-	-	-	-
64	Chemicals and allied products.....	3.0	5.0	3.0	1.5	6.8	3.8	2.0	4.7	6.1
65	Petroleum refining and related industries.....	2.5	2.6	0.4	0.4	0.6	0.1	0.1	0.1	-
66	Other manufacturing.....	4.8	4.9	1.4	1.0	2.2	2.5	3.1	2.2	1.5
67	Transportation, communications, and other public utilities.....	4.4	5.5	3.0	3.1	2.8	0.4	0.4	0.4	-
68	Wholesale and retail trade.....	1.9	0.6	0.3	0.4	0.2	0.8	1.8	0.3	-
69	Finance, insurance, and real estate.....	7.7	0.4	0.7	0.5	1.2	0.3	0.4	0.4	-
70	Educational institutions, total.....	7.8	3.3	47.1	55.0	26.6	41.6	21.4	54.1	53.7
71	College or university.....	6.6	2.8	38.4	45.6	19.8	29.8	20.2	41.5	15.2
72	Other.....	1.2	0.5	8.6	9.4	6.7	11.8	1.2	12.6	38.5
73	Health services.....	1.3	0.3	1.3	0.4	3.8	5.0	-	3.9	22.9
74	Services, except education and health, total.....	14.9	20.2	13.7	12.9	15.9	9.5	5.2	13.1	8.5
75	Engineering and architectural services.....	2.7	14.0	1.4	1.6	0.8	0.2	0.4	0.1	-
76	Research institutions.....	4.4	4.5	9.1	8.9	9.5	8.1	3.9	11.3	8.1
77	Other.....	7.9	1.7	3.2	2.3	5.6	1.2	0.9	1.7	0.4
78	Public administration.....	8.3	5.9	10.1	5.2	22.5	6.1	8.5	5.5	1.7
79	Federal.....	3.8	2.5	5.4	2.7	12.3	3.8	5.5	3.0	1.3
80	Other.....	4.5	3.5	4.7	2.5	10.2	2.4	2.9	2.5	0.4
81	Military.....	0.3	0.3	0.4	0.4	0.4	0.1	(Z)	0.1	-
82	Other industries.....	6.1	4.6	3.2	3.4	2.5	4.1	4.1	4.9	1.2
83	Not reported.....	1.9	3.1	2.7	3.1	1.7	2.3	2.0	2.1	3.9

See footnotes at end of table.

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Psychologists	Social scientists						
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists			
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
0.3	(Z)	1.2	-	0.1	0.1	0.4	-	0.5	(Z)	-	-	0.1	6.4	3	
0.2	-	0.6	-	(Z)	0.1	-	-	0.2	-	-	-	-	1.3	4	
(Z)	-	(Z)	-	(Z)	-	-	-	-	-	-	-	-	0.1	5	
0.1	(Z)	0.5	-	(Z)	-	0.4	-	0.4	(Z)	-	-	0.1	5.0	6	
1.7	1.2	3.7	0.2	1.2	1.5	-	-	(Z)	-	-	-	-	4.2	7	
(Z)	-	0.1	-	-	-	-	-	-	-	-	-	-	0.1	8	
(Z)	-	-	-	-	-	-	-	-	-	-	-	-	(Z)	9	
0.4	0.6	(Z)	-	-	-	-	-	-	-	-	-	-	0.2	10	
-	-	-	-	0.1	0.2	-	-	-	-	-	-	-	0.5	11	
0.4	-	1.9	-	(Z)	0.1	-	-	(Z)	-	-	-	-	0.9	12	
(Z)	(Z)	0.1	-	0.1	0.1	-	-	-	-	-	-	-	0.4	13	
(Z)	-	0.1	-	-	-	-	-	-	-	-	-	-	0.8	14	
0.2	0.2	0.2	-	0.2	0.3	-	-	-	-	-	-	-	0.1	15	
0.1	0.1	0.1	-	0.6	0.8	-	-	-	-	-	-	-	(Z)	16	
0.1	-	0.2	0.2	-	-	-	-	-	-	-	-	-	0.1	17	
(Z)	(Z)	(Z)	-	-	-	-	-	-	-	-	-	-	0.1	18	
(Z)	(Z)	0.1	-	-	-	-	-	-	-	-	-	-	0.3	19	
0.3	0.2	0.8	-	0.1	0.1	-	-	-	-	-	-	-	0.7	20	
0.1	0.1	0.3	-	(Z)	0.1	-	-	0.2	0.3	0.6	0.3	-	0.8	21	
(Z)	-	0.1	-	-	0.1	-	-	-	0.1	0.3	-	-	0.2	22	
(Z)	-	0.1	-	(Z)	0.1	-	-	-	0.1	0.2	0.2	-	0.3	23	
0.1	0.1	-	-	-	-	-	-	(Z)	0.1	0.1	0.1	-	0.3	24	
8.1	11.2	0.7	0.2	(Z)	0.1	-	-	0.3	0.4	0.2	1.3	-	0.7	25	
(Z)	(Z)	-	-	-	-	-	-	-	(Z)	0.1	-	-	0.1	26	
0.1	0.1	0.1	-	-	-	-	-	-	-	-	-	-	0.1	27	
7.5	10.7	0.4	-	-	-	-	-	-	-	-	-	-	0.1	28	
0.2	0.2	0.2	0.2	-	-	-	-	0.3	0.3	-	1.3	-	0.3	29	
0.1	0.1	-	-	(Z)	0.1	-	-	-	(Z)	0.1	-	-	0.1	30	
70.1	67.6	74.2	84.7	0.1	0.1	-	-	-	-	-	-	-	0.8	31	
47.5	67.0	0.3	0.5	(Z)	0.1	-	-	-	-	-	-	-	0.4	32	
17.7	0.1	73.5	-	(Z)	-	-	-	-	-	-	-	-	0.1	33	
4.8	0.5	0.4	84.1	(Z)	0.1	-	-	-	-	-	-	-	0.3	34	
0.2	0.1	0.6	-	86.7	86.0	92.7	84.9	(Z)	-	-	-	-	0.1	35	
0.1	0.1	0.2	-	71.3	85.7	-	0.9	-	-	-	-	-	0.1	36	
0.1	-	0.3	-	10.7	0.1	90.7	-	(Z)	-	-	-	-	(Z)	37	
(Z)	-	0.1	-	4.7	0.2	2.0	84.1	-	-	-	-	-	(Z)	38	
-	-	-	-	-	-	-	-	78.6	(Z)	-	0.1	-	0.2	39	
0.1	0.1	-	-	(Z)	-	-	0.8	0.6	69.8	71.8	75.2	64.7	0.4	40	
0.1	0.1	-	-	(Z)	-	-	-	(Z)	28.1	71.4	-	0.9	0.1	41	
(Z)	(Z)	-	-	(Z)	-	-	0.8	-	17.0	-	74.4	0.2	(Z)	42	
-	-	-	-	-	-	-	-	0.6	24.7	0.4	0.7	63.6	0.2	43	
0.2	0.2	0.1	-	-	-	-	-	0.3	0.2	-	0.3	0.2	3.7	44	
0.1	0.1	(Z)	-	-	-	-	-	-	-	-	-	-	5.9	45	
0.7	0.5	0.8	2.0	0.6	0.7	-	-	3.7	2.8	2.6	2.7	2.9	6.6	46	
16.1	16.8	15.4	9.9	8.7	8.7	6.5	13.3	11.8	23.2	21.6	17.8	28.1	46.2	47	
0.4	0.4	0.3	-	0.1	0.1	-	-	1.2	1.1	1.3	1.1	0.9	21.0	48	
2.0	1.7	2.7	2.9	2.4	2.7	0.4	1.0	2.6	2.2	1.8	1.2	3.1	3.1	49	
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	50	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	51	
1.1	1.1	(Z)	5.9	1.5	1.7	0.8	-	-	1.2	2.0	1.2	0.5	2.5	52	
0.4	0.5	0.2	0.9	27.8	33.4	-	-	-	0.1	0.2	-	-	0.5	53	
0.1	(Z)	0.1	-	0.4	0.5	-	-	-	0.6	0.2	0.4	-	0.1	54	
42.7	52.1	18.6	26.9	11.6	13.2	4.6	2.0	2.4	9.2	12.9	4.1	8.6	35.0	55	
1.2	1.5	0.2	1.0	0.6	0.8	-	-	-	0.9	1.4	-	1.0	1.4	56	
0.6	0.8	0.1	-	-	-	-	-	-	0.1	0.3	0.6	-	2.3	57	
0.1	0.1	0.4	-	-	-	-	-	-	0.1	-	0.2	0.3	2.2	58	
1.3	0.8	2.3	2.5	-	-	-	-	0.3	0.2	0.3	-	0.2	1.7	59	
3.3	1.9	6.9	5.4	0.6	0.7	-	-	0.4	1.7	2.1	0.3	2.2	8.8	60	
1.0	0.7	1.5	3.3	-	-	-	-	0.3	1.0	0.4	1.1	1.5	2.4	61	
0.9	0.9	0.8	0.9	-	-	-	-	(Z)	0.5	0.6	1.4	-	2.2	62	
1.2	0.8	2.2	1.3	0.2	0.1	0.8	0.7	0.1	0.1	-	-	0.2	1.0	63	
24.5	33.9	0.9	6.1	1.0	0.7	3.4	-	0.5	0.7	1.7	-	0.1	4.1	64	
2.5	3.3	0.6	0.4	8.6	10.3	-	-	(Z)	0.4	1.1	-	-	1.5	65	
6.1	7.3	2.8	6.0	0.6	0.6	0.4	1.3	0.6	3.2	4.7	1.1	2.9	7.4	66	
1.1	1.0	1.2	2.4	1.4	1.3	2.7	-	0.2	1.3	2.9	0.3	0.2	4.2	67	
0.4	0.4	0.1	-	(Z)	0.1	-	-	1.0	0.8	1.4	1.0	-	4.5	68	
0.1	0.1	0.1	0.3	-	-	-	-	1.3	3.3	5.2	3.7	1.3	3.9	69	
23.7	19.3	37.8	17.5	17.3	16.1	20.2	29.0	50.0	48.5	37.8	72.7	45.1	11.6	70	
19.5	15.0	33.9	14.3	15.8	14.5	19.3	28.1	29.7	43.6	36.2	65.8	37.8	6.7	71	
4.1	4.3	3.9	3.2	1.5	1.6	0.8	0.9	20.3	5.0	1.6	6.9	7.3	4.9	72	
2.3	2.8	1.3	0.9	(Z)	0.1	-	-	22.9	2.3	0.1	2.6	4.3	3.8	73	
16.4	11.4	29.8	23.1	17.9	14.6	28.6	48.1	12.4	10.4	10.2	6.8	12.7	12.7	74	
0.9	0.4	2.4	0.2	2.6	2.9	-	2.9	0.1	0.6	0.8	0.2	0.8	4.2	75	
14.1	9.4	26.0	21.6	11.9	8.2	23.4	45.2	4.3	4.9	4.9	4.6	5.1	2.1	76	
1.5	1.6	1.3	1.3	3.5	3.4	5.1	-	7.9	4.9	4.6	2.0	6.8	6.4	77	
4.0	3.7	2.5	15.3	13.2	10.2	33.0	17.9	4.0	17.8	21.5	4.9	21.5	7.5	78	
1.8	1.6	1.6	5.2	7.3	4.8	24.5	8.6	1.2	8.8	14.3	1.9	7.2	2.3	79	
2.3	2.1	1.0	10.2	5.9	5.4	8.5	9.3	2.8	9.0	7.2	3.0	16.3	5.2	80	
0.1	(Z)	0.1	-	0.1	0.2	-	-	0.1	(Z)	-	-	0.1	0.5	81	
5.4	5.4	5.2	5.7	6.3	6.0	9.7	2.9	2.1	3.0	3.5	1.3	3.5	6.7	82	
2.3	2.1	3.0	1.1	2.3	2.7	0.4	-	3.0	1.8	1.8	1.5	2.0	2.8	83	

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
		Computer specialists	Engineers	Mathematical specialists			Life scientists			
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
PRIMARY WORK ACTIVITY IN 1976										
1	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Research and development, total.....	17.0	30.1	12.7	13.8	9.7	27.7	23.7	29.4	33.0
4	Basic research.....	0.8	0.6	4.5	5.4	2.1	12.0	3.7	15.9	21.4
5	Applied research.....	1.3	3.1	4.7	4.3	5.6	12.3	15.4	11.0	8.4
6	Development.....	9.7	12.7	2.4	2.8	1.3	3.4	4.5	2.6	3.2
7	Design.....	5.1	13.8	1.1	1.3	0.7	0.1	0.2	(2)	-
8	Management or administration, total.....	19.3	33.7	22.0	22.4	21.0	29.2	42.2	19.2	28.2
9	Research and development.....	7.3	11.6	9.3	8.9	10.3	11.0	9.8	11.4	12.9
10	Other.....	12.1	22.2	12.7	13.5	10.7	18.2	32.4	7.8	15.3
11	Teaching and training.....	3.9	2.3	37.1	45.8	14.7	24.0	7.0	36.9	26.2
12	Production and inspection.....	4.4	15.1	4.0	3.8	4.5	7.2	11.3	5.6	1.8
13	Quality control.....	1.3	3.7	1.7	1.4	2.5	1.8	1.0	2.8	0.8
14	Operations.....	1.6	9.1	1.7	1.7	1.7	4.0	8.3	1.4	1.0
15	Distribution-sales.....	1.6	2.4	0.6	0.7	0.3	1.4	2.0	1.4	-
16	Consulting.....	8.3	5.3	2.1	1.3	4.0	2.6	4.1	1.7	1.8
17	Clinical diagnosis.....	0.1	0.1	-	-	-	0.6	0.3	0.6	1.3
18	Consulting.....	8.2	5.2	2.1	1.3	4.0	2.0	3.8	1.1	0.6
19	Report writing, statistical work, and computer applications.....	42.1	4.3	17.9	8.2	42.9	3.3	4.6	2.6	2.1
20	Report writing.....	1.9	2.2	1.2	0.5	3.1	2.3	3.0	2.1	1.4
21	Statistical work.....	0.8	0.9	12.5	2.1	39.3	0.7	1.5	0.3	-
22	Computer applications.....	39.4	1.1	4.2	5.6	0.5	0.3	0.2	0.2	0.7
23	Other activities.....	1.9	4.4	0.8	1.2	-	2.7	4.1	1.8	1.5
24	Not reported.....	3.1	4.8	3.4	3.5	3.3	3.2	2.9	2.8	5.4
TYPE OF EMPLOYER IN 1976										
25	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
26	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
27	Business or industry.....	70.8	69.0	24.4	23.9	25.6	20.1	26.6	17.0	13.1
28	Educational institutions, total.....	7.6	4.4	46.8	54.7	26.4	42.8	22.7	54.8	56.4
29	Junior or 2-year college, technical institute	0.3	0.4	6.9	9.1	1.2	3.7	0.8	6.1	3.4
30	Medical school.....	0.3	(2)	1.3	-	4.7	8.8	-	6.5	41.1
31	4-year college or university, other than medical school.....	6.8	3.8	37.9	45.0	19.7	29.7	21.8	40.9	12.0
32	Elementary or secondary school system.....	0.1	0.1	0.7	0.6	0.9	0.6	0.1	1.2	-
33	Hospital or clinic.....	0.7	0.1	0.2	-	0.8	2.0	-	1.3	9.9
34	Nonprofit organization.....	2.8	1.6	2.4	2.4	2.6	2.1	0.5	2.9	3.4
35	U.S. military service/commissioned corps.....	0.3	0.4	0.5	0.4	0.6	0.2	(2)	0.1	1.2
36	Government, total.....	12.5	16.1	21.1	14.6	37.7	28.4	46.0	19.3	11.1
37	U.S. Government.....	7.3	9.3	15.3	11.7	24.5	20.1	34.6	12.1	7.9
38	State government.....	2.0	3.1	3.0	1.2	7.8	6.5	9.5	5.3	2.4
39	Local or other government.....	3.2	3.7	2.8	1.7	5.4	1.7	1.9	1.9	0.9
40	International agency.....	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	-
41	Self-employed.....	1.2	3.3	1.0	0.3	2.8	1.1	1.8	0.8	0.1
42	Other.....	1.7	1.7	0.8	0.7	1.0	1.1	0.4	1.5	1.1
43	Not reported.....	2.3	3.4	2.8	2.9	2.3	2.2	1.8	2.1	3.6
BASIC ANNUAL SALARY RATE OF FULL-TIME EMPLOYED²										
44	Total employed full time in February 1976	47,443	591,736	21,875	15,804	6,071	61,091	23,887	28,839	8,365
45	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
46	With salary reported.....	93.2	88.5	93.6	93.0	95.2	91.8	92.8	91.1	91.1
47	Less than \$8,000.....	0.3	0.4	0.8	0.7	0.9	1.1	0.8	1.7	-
48	\$8,000 to \$9,999.....	0.7	0.4	0.3	0.3	0.2	1.0	0.7	1.2	0.8
49	\$10,000 to \$14,999.....	5.0	3.7	6.5	6.4	6.8	11.0	12.2	10.5	9.2
50	\$15,000 to \$19,999.....	24.8	19.4	20.0	20.4	18.7	26.4	33.4	24.5	12.6
51	\$20,000 to \$24,999.....	35.9	29.6	26.6	26.4	27.2	23.4	23.5	23.8	21.8
52	\$25,000 to \$29,999.....	16.9	19.0	21.2	21.4	20.6	15.5	14.3	15.3	19.3
53	\$30,000 to \$39,999.....	8.8	12.3	14.9	14.5	15.8	10.2	6.3	11.0	18.3
54	\$40,000 to \$49,999.....	0.7	2.2	3.1	2.4	4.7	2.0	0.6	1.8	6.8
55	\$50,000 and over.....	0.2	1.5	0.4	0.4	0.2	1.2	0.8	1.2	2.4
56	Median salary (dollars).....	21,583	23,176	23,551	23,528	23,636	20,893	19,856	21,184	25,170
57	Salary not reported.....	6.8	11.5	6.4	7.0	4.8	8.2	7.2	8.9	8.9
JOB MOBILITY										
58	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
59	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60	Employed in February 1975.....	97.2	97.3	98.3	98.1	98.9	97.8	98.8	97.6	96.0
61	Job change between 1975 and 1976.....	14.9	11.3	13.2	13.7	12.0	12.5	10.9	13.6	13.2
62	Different occupation.....	4.8	3.1	3.5	3.5	3.4	2.8	2.3	3.5	1.5
63	Same occupation.....	6.4	5.7	6.9	7.0	6.5	7.2	6.9	6.9	9.2
64	Occupation change not reported.....	3.6	2.5	2.9	3.2	2.1	2.5	1.6	3.2	2.5
65	Same job in 1975 and 1976.....	80.9	83.7	83.0	82.4	84.7	83.7	85.6	82.5	82.3
66	Not reported.....	1.5	2.3	2.1	2.1	2.2	1.6	2.3	1.4	0.6
67	Not employed or employment status not reported in February 1975.....	2.8	2.7	1.7	1.9	1.1	2.2	1.2	2.4	4.0
68	Employed in January 1974.....	95.5	94.4	95.8	95.3	97.1	94.6	96.7	92.7	95.6
69	Job change between 1974 and 1976.....	30.0	23.4	22.4	21.7	24.2	20.9	20.3	20.8	22.5
70	Same job in 1974 and 1976.....	56.4	59.7	63.9	63.9	64.0	64.8	66.2	64.0	63.7
71	Not reported.....	9.1	11.3	9.5	9.7	8.9	8.9	10.2	7.8	9.3
72	Not employed or employment status not reported in January 1974.....	4.5	5.6	4.2	4.7	2.9	5.4	3.3	7.3	4.4
73	Employed in 1972.....	97.1	97.1	96.7	97.5	94.6	96.3	97.8	95.1	96.4
74	Job change between 1972 and 1976.....	48.8	38.8	32.8	31.3	36.7	33.3	33.7	32.5	34.9
75	Same job in 1972 and 1976.....	38.8	46.1	54.0	56.1	48.7	53.5	53.7	54.3	50.0
76	Not reported.....	9.4	12.2	9.9	10.1	9.2	9.5	10.4	8.3	11.4
77	Not employed or employment status not reported in 1972.....	2.9	2.9	3.3	2.5	5.4	3.7	2.2	4.9	3.6

See footnotes at end of table.

BY FIELD OF SCIENCE OR ENGINEERING: 1976—Continued

For meaning of symbols, see text)

Field of science or engineering in 1976—Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Psychologists	Social scientists						
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists			
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
42.0	41.5	43.3	43.1	29.4	27.3	31.4	58.8	8.7	11.5	12.9	14.4	8.4	7.5	3	
13.8	12.5	19.0	8.3	8.8	7.6	10.3	25.0	2.7	4.2	2.1	10.8	2.3	0.9	4	
15.8	15.0	16.1	25.7	14.9	13.8	15.7	30.0	4.9	6.7	9.8	3.3	5.6	1.3	5	
11.6	13.6	6.4	7.5	5.0	5.4	3.0	2.8	0.3	0.5	0.8	0.2	0.4	3.1	6	
0.8	0.3	1.9	1.6	0.8	0.6	2.4	1.0	0.7	0.2	0.1	0.2	0.2	2.2	7	
25.1	25.9	22.9	24.9	27.1	27.8	22.5	26.1	22.4	29.2	29.5	19.6	34.7	43.6	8	
16.7	16.7	16.5	17.6	11.0	10.2	11.9	21.2	7.9	10.1	12.4	6.6	9.9	6.4	9	
8.4	9.1	6.4	7.3	16.1	17.6	10.6	4.9	14.5	19.1	17.0	13.0	24.8	37.2	10	
14.1	11.4	22.1	12.4	11.1	11.3	11.4	7.5	27.5	33.6	26.5	53.6	29.0	8.0	11	
9.4	12.3	1.8	4.3	6.6	6.9	7.4	-	1.7	3.6	4.5	0.8	4.4	14.6	12	
7.1	9.5	1.1	1.4	2.1	2.5	0.4	-	0.8	0.4	0.1	0.3	0.6	2.3	13	
1.6	1.9	0.6	3.0	3.9	4.3	3.0	-	0.1	2.2	2.2	0.1	3.4	5.4	14	
0.6	0.9	0.1	-	0.6	0.1	4.0	-	0.8	1.0	2.2	0.3	0.3	6.9	15	
2.0	2.2	1.3	2.9	7.2	7.9	4.8	-	21.9	4.5	4.0	1.1	6.9	4.0	16	
0.4	0.5	-	-	(Z)	0.1	-	-	15.3	0.6	0.1	-	1.5	1.1	17	
1.7	1.7	1.3	2.9	7.1	7.9	4.8	-	6.6	3.8	3.9	1.1	5.4	3.0	18	
2.4	1.6	4.1	4.8	7.9	7.2	14.3	3.7	2.3	9.8	14.5	7.6	6.2	7.9	19	
1.4	1.3	1.4	3.5	4.4	5.0	1.2	1.7	1.0	4.4	6.4	3.1	3.1	2.4	20	
0.3	0.2	0.3	0.9	2.4	1.2	11.4	2.0	1.0	4.9	7.8	3.0	3.2	1.8	21	
0.7	0.1	2.4	0.4	1.1	1.1	1.7	-	0.4	0.5	0.3	1.5	-	3.7	22	
2.1	2.5	0.6	4.5	6.2	6.4	6.5	1.9	11.2	4.0	3.7	1.2	5.9	8.2	23	
2.9	2.6	3.8	3.0	4.6	5.2	1.8	2.0	4.2	3.8	4.4	1.8	4.4	6.1	24	
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	25	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	26	
52.7	61.7	29.2	38.0	42.6	48.0	18.7	8.9	8.6	18.3	25.6	13.2	14.0	56.4	27	
24.3	19.9	38.2	18.8	17.2	16.1	17.8	34.4	49.1	47.6	37.2	72.7	43.0	11.6	28	
1.7	1.4	2.8	2.0	1.3	1.4	0.4	0.9	2.2	2.7	1.5	4.8	2.6	2.0	29	
2.6	3.3	0.9	1.7	(Z)	0.1	-	-	2.7	0.9	-	1.9	1.1	1.1	30	
19.7	15.0	34.4	15.1	15.7	14.4	17.4	33.6	30.0	43.2	35.7	66.0	37.2	6.5	31	
0.2	0.2	0.3	-	0.1	0.2	-	-	14.2	0.9	0.1	-	2.2	2.0	32	
0.9	1.2	0.4	-	(Z)	0.1	-	-	14.3	1.0	-	1.4	1.7	2.0	33	
3.6	2.3	7.1	4.5	1.5	0.9	4.7	2.6	6.5	4.3	1.9	3.4	7.3	1.9	34	
0.1	0.1	0.2	0.2	0.2	0.2	0.4	-	0.2	(Z)	-	-	0.1	0.5	35	
14.1	11.0	18.8	33.7	27.4	21.7	56.8	52.1	10.2	23.2	28.7	7.4	27.0	11.6	36	
10.5	7.4	16.7	23.3	19.7	15.0	45.5	36.4	3.6	13.1	20.6	3.7	11.0	4.6	37	
1.5	1.7	0.6	2.2	3.4	3.6	3.3	0.9	3.7	4.9	3.3	1.0	8.8	3.5	38	
2.1	1.9	1.4	8.2	4.3	3.1	8.1	14.7	2.9	5.2	4.8	2.7	7.1	3.5	39	
0.1	-	-	1.9	(Z)	-	-	-	(Z)	0.8	1.8	0.1	0.1	0.1	40	
1.1	1.3	0.6	0.5	7.6	9.1	-	1.0	7.2	1.5	1.7	0.2	2.1	10.5	41	
1.1	0.7	2.4	1.3	1.0	1.0	1.3	-	1.8	1.3	0.9	0.3	2.4	2.1	42	
2.1	1.9	3.1	1.1	2.5	2.9	0.4	1.0	2.2	2.0	2.2	1.3	2.4	3.4	43	
102,917	73,058	24,432	5,427	24,635	20,478	2,930	1,226	28,747	38,843	15,388	8,719	14,737	138,901	44	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	45	
90.9	90.1	92.5	94.5	88.3	86.5	96.7	98.1	91.6	92.5	91.3	96.0	91.7	84.1	46	
0.7	0.7	0.6	0.2	0.4	0.5	-	-	0.7	1.3	1.2	1.3	1.3	1.0	47	
0.6	0.7	0.4	0.7	0.5	0.7	-	-	0.4	0.8	-	0.3	1.9	1.5	48	
7.3	8.2	4.6	7.0	3.8	4.3	1.7	-	6.7	5.9	-	8.5	5.6	10.2	49	
18.9	20.7	14.2	15.5	15.0	15.2	12.0	18.1	22.2	17.3	9.4	20.8	23.6	19.2	50	
25.8	24.8	28.3	28.2	22.4	21.0	30.3	27.1	27.7	25.0	22.4	26.4	26.9	21.0	51	
16.9	16.1	19.2	18.2	20.3	19.1	24.0	31.1	16.1	18.3	21.9	18.1	14.7	13.1	52	
16.6	14.8	20.5	22.9	19.4	18.2	26.4	21.8	13.6	17.1	20.7	16.7	13.7	12.0	53	
2.9	3.1	2.7	1.4	3.6	4.1	1.8	-	2.5	3.9	5.6	2.7	2.8	2.9	54	
1.3	1.1	2.0	0.5	2.8	3.3	0.5	-	1.8	2.9	5.5	1.3	1.2	3.1	55	
23,132	22,512	24,729	24,126	25,289	25,226	25,662	25,404	22,518	24,217	26,252	23,238	22,540	22,040	56	
9.1	9.9	7.5	5.5	11.7	13.5	3.3	1.9	8.4	7.5	8.7	4.0	8.3	15.9	57	
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	58	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	59	
98.2	98.3	97.6	99.3	98.1	98.4	96.0	99.0	96.5	98.0	98.5	97.4	97.8	96.0	60	
9.6	8.8	11.7	11.7	11.1	12.3	4.3	7.9	13.2	14.6	14.1	18.4	12.8	19.0	61	
2.3	1.6	3.9	4.9	1.8	1.9	0.4	1.9	3.3	3.5	2.7	2.5	4.9	9.6	62	
5.6	5.4	6.4	4.5	7.6	8.3	2.7	6.0	8.2	9.0	9.3	12.4	6.6	5.8	63	
1.7	1.8	1.3	2.2	1.8	2.0	1.2	-	1.8	2.1	2.1	3.5	1.4	3.6	64	
87.0	88.0	84.3	85.6	84.3	82.9	91.3	90.2	81.7	81.3	82.0	76.8	83.3	74.3	65	
1.5	1.5	1.6	2.0	2.7	3.1	0.4	0.9	1.6	2.1	2.4	2.3	1.7	2.7	66	
1.8	1.7	2.4	0.7	1.9	1.6	4.0	1.0	3.5	2.0	1.5	2.6	2.2	4.0	67	
94.3	94.8	92.0	97.9	95.7	95.8	98.4	87.4	92.9	92.5	94.1	92.3	91.1	90.7	68	
19.4	18.3	21.4	24.6	22.3	23.8	17.8	8.7	22.4	25.4	26.0	26.1	24.5	31.5	69	
65.6	65.8	65.0	65.7	59.7	57.3	70.6	74.8	62.8	58.8	59.1	57.5	59.2	47.1	70	
9.2	10.6	5.6	7.6	13.6	14.7	9.9	3.9	7.7	8.4	9.0	8.8	7.4	12.2	71	
5.7	5.2	8.0	2.1	4.3	4.2	1.6	12.6	7.1	7.5	5.9	7.7	8.9	9.3	72	
96.4	96.8	95.5	95.1	95.4	95.2	100.0	88.0	94.9	95.4	96.8	94.2	94.8	94.2	73	
31.6	29.9	34.1	42.6	34.2	33.9	35.7	34.9	35.8	39.5	39.7	37.6	40.5	50.6	74	
54.6	55.7	53.5	47.6	46.5	46.5	54.4	49.1	50.1	46.7	47.4	48.4	45.1	31.3	75	
10.2	11.2	7.8	7.6	13.6	14.8	9.9	3.9	9.0	9.2	9.7	8.2	9.1	12.2	76	
3.6	3.2	4.5	4.9	4.6	4.8	-	12.0	5.1	4.6	3.2	5.8	5.2	5.8	77	

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
		Computer specialists	Engineers	Mathematical specialists			Life scientists			
				Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
PROFESSIONAL IDENTIFICATION IN 1976										
1	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Computer specialists.....	93.0	0.2	2.9	3.5	1.4	(2)	(2)	-	-
4	Engineers.....	0.3	81.3	2.2	2.7	0.8	0.1	0.1	0.1	0.1
5	Mathematicians and statisticians.....	0.6	0.4	75.2	70.5	87.1	0.1	0.1	0.1	-
6	Life scientists.....	-	(2)	0.1	-	0.2	81.9	77.2	84.6	85.6
7	Physical scientists.....	0.2	0.2	0.6	0.5	1.0	0.3	0.1	0.6	-
8	Environmental scientists.....	(2)	(2)	(2)	0.1	-	0.1	0.3	(2)	-
9	Psychologists.....	-	(2)	0.1	-	0.2	-	-	-	-
10	Social scientists.....	-	(2)	0.3	0.2	0.6	0.1	(2)	0.1	-
11	Administrators and managers.....	2.0	10.9	11.9	15.4	2.8	9.7	15.4	6.9	4.3
12	Other.....	0.1	0.5	1.9	2.6	-	2.4	1.6	2.8	3.0
13	Not reported.....	3.8	6.4	4.9	4.4	5.9	5.3	5.2	4.8	7.0
YEARS OF PROFESSIONAL EXPERIENCE										
14	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
15	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
16	With years of professional experience reported.....	95.8	93.6	93.9	94.2	92.9	94.4	94.4	94.5	93.8
17	Less than 1 year.....	0.1	0.1	-	-	-	0.2	0.1	0.3	-
18	1 to 5 years.....	3.8	1.9	4.4	4.5	4.2	7.2	3.6	10.1	6.8
19	6 to 10 years.....	35.8	15.3	25.7	24.6	28.5	19.7	14.5	24.1	18.8
20	11 to 15 years.....	30.0	16.1	19.9	21.5	15.7	17.7	17.1	18.5	16.5
21	16 to 20 years.....	15.5	17.8	15.8	16.8	13.4	16.7	20.4	13.9	16.2
22	21 to 25 years.....	7.0	16.0	12.8	12.4	13.9	12.8	15.9	11.2	10.4
23	26 to 30 years.....	2.0	12.7	7.8	7.6	8.2	10.3	13.3	8.0	10.3
24	31 to 35 years.....	1.1	6.0	3.4	3.0	4.3	4.1	3.5	4.0	6.4
25	36 to 40 years.....	0.2	5.1	2.7	2.2	4.0	3.4	2.5	4.2	4.6
26	41 years and over.....	0.2	2.6	1.3	1.6	0.6	2.2	1.8	2.1	3.9
27	Median years of professional experience.....	11.3	19.1	14.3	14.2	14.5	15.6	18.0	13.6	16.7
28	Years of professional experience not reported.....	4.2	6.4	6.1	5.8	7.1	5.6	5.6	5.5	6.2
FEDERAL SUPPORT IN 1976 ³										
29	Total employed in February 1976.....	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
30	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
31	With Federal support.....	26.1	37.7	36.3	31.0	50.0	50.0	57.4	42.9	54.6
32	Department of Agriculture.....	0.5	1.0	2.1	0.2	7.2	22.2	46.8	8.6	1.9
33	Department of Commerce.....	0.5	0.7	2.0	0.9	4.7	1.3	0.3	2.4	-
34	Department of Defense.....	14.0	21.4	15.7	18.5	8.2	2.3	1.0	2.8	4.2
35	Department of Health, Education, and Welfare.....	3.5	1.2	8.7	3.0	23.5	15.5	0.9	17.5	49.5
36	Department of Housing and Urban Development.....	0.6	1.9	0.6	0.2	1.6	0.2	0.1	0.3	-
37	Department of the Interior.....	0.5	1.3	0.5	0.7	0.2	5.3	7.5	5.1	-
38	Department of Justice.....	0.8	0.3	1.1	0.4	2.9	0.7	(2)	0.9	1.7
39	Department of Labor.....	9.4	9.2	1.6	0.6	4.2	(2)	(2)	-	-
40	Department of Transportation.....	1.7	5.4	1.9	1.7	2.6	0.4	(2)	0.7	0.3
41	Agency for International Development.....	0.2	0.1	0.5	0.3	1.0	0.5	0.5	0.6	0.1
42	Energy Research and Development Administration.....	1.8	3.9	1.4	1.8	0.6	1.1	0.1	2.2	0.3
43	Environmental Protection Agency.....	0.8	2.6	0.8	0.6	1.4	1.7	1.2	2.4	0.8
44	NASA.....	4.5	6.7	2.1	2.6	1.0	1.0	0.1	1.5	1.6
45	National Science Foundation.....	0.9	1.0	4.8	5.1	4.3	3.8	1.1	6.2	2.7
46	Nuclear Regulatory Commission.....	0.3	0.6	0.3	0.4	0.2	0.1	-	0.2	-
47	Other Department or Agency.....	2.0	1.9	1.5	0.7	3.7	2.3	1.1	3.3	2.5
48	Agency not known or not reported.....	1.1	0.8	0.6	0.5	0.4	1.1	0.5	1.3	1.6
49	No Federal support.....	67.4	55.2	55.4	59.3	45.4	43.3	38.3	49.1	36.7
50	Federal support not known.....	3.6	2.8	5.1	6.2	2.3	3.5	1.7	4.7	4.6
51	Not reported.....	3.0	4.2	3.2	3.5	2.3	3.2	2.6	3.4	4.1
NATIONAL INTEREST TOPICS ⁴										
52	Total persons.....	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
53	Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54	Health.....	2.3	1.0	6.0	2.0	16.1	16.7	0.8	18.9	51.6
55	Education, total.....	3.0	1.4	19.9	24.1	9.2	11.8	3.2	16.5	18.3
56	Teaching.....	1.9	1.2	18.8	23.3	7.1	10.3	2.8	15.3	13.1
57	Other.....	1.0	0.2	1.2	0.8	2.1	1.5	0.4	1.2	5.2
58	Environmental protection, pollution control.....	1.0	12.6	1.9	1.6	2.9	21.0	32.6	17.7	1.5
59	Space.....	3.3	4.3	1.8	2.4	0.2	0.2	(2)	0.4	0.1
60	National defense.....	12.1	16.6	12.7	14.6	7.7	0.5	0.4	0.7	0.2
61	Crime prevention and control.....	0.9	0.3	0.3	0.2	0.6	0.1	(2)	(2)	0.1
62	Food production and technology.....	0.9	1.5	1.5	0.2	4.7	17.7	32.6	11.0	0.4
63	Energy and fuel.....	5.2	13.4	3.4	4.3	1.3	0.6	0.8	0.7	-
64	Other mineral resources.....	0.1	1.0	0.6	0.8	-	0.1	0.3	-	-
65	Community development and services.....	2.2	3.0	1.8	1.4	3.0	1.2	1.8	1.0	-
66	Housing.....	0.2	1.9	0.3	0.2	0.5	0.2	0.5	-	-
67	Not applicable.....	55.5	29.0	36.2	35.0	39.1	18.2	16.1	20.4	15.7
68	Not reported.....	13.4	14.0	13.6	13.2	14.6	11.8	10.9	12.5	11.9

¹College or university teachers of science or engineering are excluded from teachers and included in occupation corresponding to subject taught.²Refers to salary for job held during the week of February 8-14, 1976.³Sum of individual agencies' support may exceed total with Federal support because of multiple response.⁴Area of national concern in which persons devoted the largest proportion of professional time.

BY FIELD OF SCIENCE OR ENGINEERING: 1976—Continued

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														Not in a field of science or engineering in 1976	Line No.
Physical scientists				Environmental scientists				Social scientists							
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers	Psychologists	Total	Economists	Sociologists and anthropologists	Other social scientists			
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2	
0.1	(Z)	0.2	-	0.1	0.1	0.4	-	-	0.3	0.4	0.6	0.2	6.8	3	
1.8	1.2	3.6	1.0	1.3	1.5	0.4	-	0.2	0.4	0.5	-	0.4	8.0	4	
(Z)	-	(Z)	-	0.5	0.6	-	-	0.1	0.1	0.2	-	-	1.2	5	
8.3	11.5	0.2	1.3	0.3	0.4	-	-	0.1	0.1	0.1	0.1	0.1	1.5	6	
73.1	70.2	79.9	83.3	1.5	0.7	6.3	3.6	-	0.2	-	-	-	0.4	7	
0.1	0.1	0.1	1.1	86.0	86.7	82.9	83.3	-	-	-	-	-	0.4	8	
-	-	-	-	-	-	-	-	86.0	0.1	-	0.1	0.1	0.2	9	
(Z)	(Z)	(Z)	-	-	-	-	-	0.4	74.7	82.5	69.9	1.3	10		
10.6	11.0	9.3	10.3	5.4	5.2	5.6	7.8	7.0	15.1	13.0	11.9	19.1	43.2	11	
1.0	0.9	1.2	1.0	0.7	0.8	0.4	-	1.5	2.6	2.4	1.8	3.4	28.5	12	
5.0	5.1	5.3	1.9	4.2	4.1	4.1	5.2	4.8	6.5	8.6	3.0	6.5	6.5	13	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	14	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	15	
94.9	95.2	93.8	94.8	95.7	95.6	97.0	94.8	94.4	92.5	92.1	95.7	91.1	92.3	16	
0.1	(Z)	0.1	0.3	0.1	0.1	0.4	-	0.1	0.3	0.1	-	0.8	0.6	17	
5.9	5.3	7.8	5.8	5.3	5.5	0.7	13.7	10.4	6.8	4.7	9.3	7.5	6.8	18	
19.0	17.7	23.3	18.6	12.1	11.3	15.5	15.9	24.3	24.7	22.3	30.4	23.8	19.7	19	
17.1	16.5	18.8	18.1	15.7	15.7	15.7	25.2	19.2	19.5	18.9	20.0	19.8	19.1	20	
15.1	15.0	14.7	19.4	18.0	17.9	18.3	18.6	14.9	11.9	10.9	11.5	13.3	17.1	21	
13.9	14.3	12.7	13.9	20.0	20.2	22.3	11.0	12.0	10.9	11.8	7.7	11.9	11.6	22	
9.3	10.0	6.7	11.2	12.4	13.3	10.4	2.9	7.5	9.0	11.5	8.2	7.0	8.5	23	
6.3	7.2	4.1	4.2	5.2	4.7	10.9	1.4	2.6	4.1	4.9	5.8	2.3	4.1	24	
5.6	6.6	3.7	1.7	4.2	4.2	6.0	0.9	2.4	3.6	4.7	1.8	3.6	3.5	25	
2.4	2.6	2.0	1.8	2.6	2.7	0.8	5.1	1.1	1.6	2.3	0.9	1.4	1.2	26	
16.7	17.8	14.4	16.3	19.4	19.6	20.9	13.3	13.4	14.0	15.0	11.9	13.2	15.0	27	
5.1	4.8	6.2	5.2	4.3	4.4	3.0	5.2	5.6	7.5	7.9	4.3	8.9	7.7	28	
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	29	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	30	
37.1	27.3	61.4	57.3	38.2	28.8	81.3	93.1	37.5	40.2	39.9	31.5	45.6	23.7	31	
1.7	2.0	0.3	5.0	3.2	3.5	2.0	-	0.2	5.6	9.5	4.6	2.3	1.4	32	
1.6	0.9	2.6	5.1	6.8	1.8	32.9	27.7	0.4	1.8	3.2	0.5	1.2	0.8	33	
11.6	5.7	27.2	19.7	7.3	4.5	14.5	35.6	5.0	5.8	6.0	1.9	8.0	8.2	34	
8.0	10.1	3.4	1.6	0.5	0.6	-	-	27.6	14.1	3.3	16.9	23.3	5.6	35	
0.1	0.1	0.1	0.5	0.6	0.6	0.4	-	0.1	2.7	2.8	1.0	3.7	1.4	36	
1.4	1.2	0.5	7.6	11.4	12.2	3.9	16.0	0.1	1.6	1.6	1.9	1.4	1.1	37	
0.5	0.7	0.2	0.4	0.6	0.7	-	-	3.3	2.8	0.6	3.2	4.7	1.4	38	
0.1	0.2	-	0.2	-	-	-	-	1.4	4.0	5.0	0.3	5.1	1.1	39	
1.0	1.0	1.1	0.9	1.1	1.0	-	4.9	0.8	1.8	2.3	0.4	2.2	2.6	40	
0.1	0.1	-	-	0.2	0.2	-	-	0.2	1.0	1.2	1.1	0.7	0.2	41	
8.7	5.4	18.2	9.8	2.6	1.9	8.3	1.7	0.1	0.8	0.9	0.6	0.7	1.6	42	
2.2	2.6	1.0	2.0	2.1	0.9	8.8	7.3	0.1	1.2	1.0	0.2	1.9	1.1	43	
4.3	1.8	10.7	9.8	3.5	2.1	13.4	4.7	0.5	0.9	1.4	0.2	0.8	2.9	44	
6.0	4.1	12.2	4.2	7.5	4.8	17.8	27.4	2.1	2.2	2.0	4.2	1.2	0.7	45	
0.5	0.5	0.8	0.4	0.2	0.3	-	-	-	0.1	-	-	0.1	0.2	46	
2.1	1.9	2.2	4.3	1.8	1.6	0.8	6.5	4.0	5.2	8.8	2.2	3.3	2.4	47	
0.6	0.4	0.7	2.1	0.3	0.4	-	-	2.3	1.0	1.7	0.8	0.4	1.3	48	
57.0	66.6	32.9	37.8	56.6	65.4	16.7	5.0	51.3	52.3	52.9	63.7	45.0	68.2	49	
2.9	3.4	1.7	2.5	1.3	1.4	0.8	-	7.2	3.6	3.1	2.5	4.7	3.5	50	
3.0	2.7	3.9	2.4	3.9	4.4	1.3	2.0	4.0	3.9	4.1	2.2	4.7	4.6	51	
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	52	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	53	
8.7	10.9	3.3	3.5	1.0	1.1	-	0.9	28.1	7.6	2.8	13.1	9.1	6.1	54	
8.0	6.5	12.6	8.0	4.2	3.4	9.9	4.1	23.9	15.5	11.4	23.8	14.6	5.7	55	
7.1	5.5	12.1	7.0	3.9	3.3	8.1	4.1	14.2	12.6	10.6	21.4	9.4	3.8	56	
0.9	1.0	0.4	1.0	0.3	0.1	1.8	-	9.7	2.9	0.8	2.5	5.2	1.9	57	
13.1	16.1	3.2	17.6	15.6	11.6	27.6	50.7	0.5	4.6	5.7	4.5	3.5	7.5	58	
2.8	0.6	8.5	7.0	2.0	1.3	7.7	-	0.3	0.3	0.7	-	0.1	1.3	59	
8.6	3.5	22.6	15.5	4.5	2.6	11.0	19.3	2.5	4.4	2.9	2.2	7.2	7.2	60	
0.5	0.5	0.3	1.4	-	-	-	-	2.7	3.3	0.5	5.6	4.9	1.3	61	
3.9	5.2	0.1	3.4	0.6	0.5	0.8	1.8	0.1	3.5	6.9	1.6	1.1	3.4	62	
9.0	7.1	14.1	11.9	40.2	48.0	2.7	2.6	0.7	2.6	5.5	0.7	0.8	6.8	63	
1.1	1.3	0.4	2.7	9.1	10.8	1.1	0.8	-	0.5	0.5	-	0.8	0.5	64	
0.7	0.7	0.4	0.9	1.0	1.1	1.1	-	6.9	10.1	6.0	7.2	16.0	5.2	65	
0.2	0.2	0.4	-	0.5	0.6	-	-	0.5	1.3	1.7	0.5	1.4	2.1	66	
28.6	32.5	18.7	19.2	10.7	8.5	25.8	11.3	20.9	31.9	35.5	29.3	29.7	39.0	67	
14.7	14.9	15.4	9.0	10.5	10.4	12.2	8.7	12.9	14.4	19.8	11.4	10.6	14.0	68	

Appendix A. Weighting and Estimating Procedures and Standard Errors of Totals and Percentages

WEIGHTING AND ESTIMATING PROCEDURES

As mentioned earlier, the estimates for this report were prepared by a ratio estimation procedure, using the weights derived for the 1972 survey. Therefore, no adjustment was made for nonresponse in the 1976 survey. The weighting procedure for the 1972 survey involved first, the preparation of preliminary estimates by weighting the results for each sample person by the reciprocal of the probability of selection. As a second step, these weights were adjusted by applying a factor for each age, sex, and race cell within each of the sample's occupational categories from the 1970 census. Within each of the cells, the factor was computed as the ratio of the 1970 census count to the preliminary estimate. The final weight was the factor multiplied by the original weight of each person. To the extent that the correlation between the data being tabulated and the estimated count of persons in the cells is positive, the ratio estimate procedure will improve the reliability of the estimate.

RELIABILITY OF THE ESTIMATES

There are two types of possible errors associated with estimates based on data from a sample survey—sampling and nonsampling error. The following is a description of the sampling and nonsampling errors associated with the survey data.

Sampling errors. The particular sample used for this survey is one of a large number of possible samples of the same size that could have been selected using the same sample design. Even if the same schedules, instructions, and enumerators were used, estimates from each of the different samples would differ from each other. The deviation of a sample estimate from the average of all possible samples is defined as the sampling error. The standard error of a survey estimate attempts to provide a measure of this variation among the estimates from the possible samples, and thus, is a measure of the precision with which an estimate from the sample approximates the average result of all possible samples.

As calculated for this report, the standard error also partially measures the variation in the estimates due to response and enumerator errors (nonsampling errors), but it does not measure, as such, any systematic biases in the data. Therefore, the accuracy of the estimates depends on

both the sampling and nonsampling errors, measured by the standard error, and biases and some additional nonsampling errors not measured by the standard error.

The sample estimate and its estimated standard error enable one to construct interval estimates that include the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these surveyed under identical conditions and an estimate and its estimated standard error were calculated from each sample, then:

1. Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the average result of all possible samples;
2. Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples;
3. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average result of all possible samples.

The average result of all possible samples may or may not be contained in any particular computed interval. However, for a particular sample one can say with specified confidence that the average result of all possible samples is included within the constructed interval.

A number of approximations and generalizations have been used so that these standard errors would be applicable to a wide variety of characteristics and still be prepared at a moderate cost. Thus, the standard errors in the following tables provide an indication of the order of magnitude, rather than precise measurements of the standard errors.

There are two sets of standard error tables shown: The table A series should be used for estimating standard errors on absolute numbers (total number of persons having a certain characteristic); the table B series should be used to obtain the standard error on a percentage.

The standard errors for estimating numbers or percents not shown in either set of tables may be approximated by linear interpolation. For example, of the 17,873 mathematicians, 30.2 percent have the Master's degree as the highest degree held in 1976. The standard error of this percent as computed from table A.6 is 1.9 percentage points. Based on

these data, it may be concluded that the expected proportion of mathematicians with a Master's degree as the highest degree held in 1976 lies within the interval 26.4 percent to 34.0 percent with 95 percent confidence.

The figures in these tables are not directly applicable to standard errors of differences between two sample estimates. The standard error of the estimated difference between two estimates may be approximated by the square root of the sum of the squares of the standard error of each estimate. This approximation will yield the exact result when the two characteristics are uncorrelated. If the two characteristics are positively (negatively) correlated, the approximation will overestimate (underestimate) the standard error of the difference.

For example, of the 17,873 mathematicians in 1976, 43.4 percent have the Ph.D. as the highest degree held in 1976. The standard error of this percent as computed from table A.6 is 2.1 percentage points. The standard error of the difference between the above percentages (i.e., 43.3 - 30.2 = 13.2 percent) is then approximately

$$\sqrt{(1.9)^2 + (2.1)^2} = 2.8 \text{ percent}$$

Based on these data, it may be concluded with 95 percent confidence that the average estimate of the difference of the percentages derived from all possible samples lies within the interval 7.6 percent to 18.8 percent.

The figures in these tables are not directly applicable to standard errors of estimated medians. The sampling variability of an estimated median depends upon the size of the base as well as on the distribution from which the median is determined. An approximate method for measuring the reliability of a median is to determine an interval about the estimated median, such that there is a stated degree of confidence that the median based on all possible samples lies within the interval. The following procedure may be used to estimate confidence limits of a median based on sample data: (1) from the appropriate standard error table B, determine the standard error of a 50 percent characteristic using the appropriate base; (2) add to and subtract from 50 percent the standard error determined in step (1); and (3) using the distribution for which the median is to be determined, read off the 68-percent confidence interval corresponding to the two points established in step (2). A 95-percent confidence interval may be determined by finding the values corresponding to 50 percent plus or minus twice the standard error in step (1). The procedure is illustrated by the following example.

The data for 1976 indicate that the estimate of the median age for engineers is 45.8 years. The distribution is shown in the table below.

From standard error table 2A the standard error of a 50 percent characteristic with a base of 658,549 is 0.5 percentage points. From the table of cumulative age distribution the percentage points that correspond to 45 years is 47.6 percent and to 50 years is 63.2 percent. The lower con-

Table for Distribution of Engineers by Age in 1976

Age (years)	Percentage	Cumulative distribution
Under 30.....	4.5	4.5
30 to 34.....	12.6	17.1
35 to 39.....	15.5	32.6
40 to 44.....	15.0	47.6
45 to 49.....	15.6	63.2
50 to 54.....	15.4	78.6
55 to 59.....	9.5	88.1
60 to 64.....	6.1	94.2
65 to 69.....	3.7	97.9
70 and over...	2.1	100.0

fidence limit corresponding to 49.5 percent (50 percent minus 0.5 percent) is found by linear interpolation between 45 years and 50 years to be 45.6 years, i.e.,

$$45 + (50-45) \times \frac{49.5-47.6}{63.2-47.6} = 45.6$$

Similarly, the upper confidence limit corresponding to 50.5 percent (50 percent plus 0.5 percent) is found to be 45.9 years. Consequently, the 68 percent confidence interval, as shown by the data, is from 45.6 years to 45.9 years. Similarly, we could conclude that the 95 percent confidence interval is from 45.4 years (the distribution point corresponding to 49.0 percent) to 46.1 years (corresponding to 51.0 percent).

Nonsampling errors. In general, nonsampling errors can be attributed to many sources: inability to obtain information about all cases, definitional difficulties, differences in the interpretation of questions, inability or unwillingness to provide correct information on the part of the respondents, mistakes in recording or coding the data, and other errors of collection, response, processing, coverage, and estimation for missing data. As can be seen from the above list, nonsampling errors are not unique to sample surveys, since they can, and do, occur in complete censuses as well.

The primary source of nonsampling error in estimates based on the 1976 survey is probably the high nonresponse rate. An adjustment in the estimation procedure for the 23 percent noninterview rate in the 1972 survey was made, but there still remains some unknown bias in the 1976 estimates due to differences in the characteristics of the weighted interviewed persons and noninterviewed persons. Further, since no adjustment was made for the additional 14.9 percent noninterview rate in 1976, estimates are on the average 14.9 percent lower than what they would have been had there been no additional nonresponse in 1976. For some characteristics, the estimates will be much more than 14.9 percent too low, because a relatively high proportion of noninterviews have this characteristic.

Standard Errors of Totals and Percentages for Computer Specialists, Life Scientists, Physical Scientists, and Chemists

Table 1A. Standard Errors of Totals

Size of estimate	Estimated standard error
970.....	190
2,910.....	340
5,820.....	480
9,700.....	620
14,550.....	750
20,370.....	870
27,160.....	990
34,920.....	1,100
43,650.....	1,200
53,350.....	1,290
64,020.....	1,300
75,660.....	1,440
88,270.....	1,480
101,850.....	1,510
117,043.....	1,520

Table 1B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
970.....	2.0	2.9	4.5	6.2	8.2	8.9	10.3
2,910.....	1.2	1.7	2.6	3.6	4.7	5.1	5.9
5,820.....	.8	1.2	1.8	2.5	3.4	3.6	4.2
9,700.....	.6	.9	1.4	1.9	2.6	2.8	3.2
14,550.....	.5	.7	1.2	1.6	2.1	2.3	2.7
20,370.....	.4	.6	1.0	1.3	1.8	1.9	2.2
27,160.....	.4	.5	.8	1.2	1.6	1.7	1.9
34,920.....	.3	.5	.7	1.0	1.4	1.5	1.7
43,650.....	.3	.4	.7	.9	1.2	1.3	1.5
53,350.....	.3	.4	.6	.8	1.1	1.2	1.4
64,020.....	.3	.4	.6	.8	1.0	1.1	1.3
75,660.....	.2	.3	.5	.7	.9	1.0	1.2
88,270.....	.2	.3	.5	.6	.9	.9	1.1
101,850.....	.2	.3	.4	.6	.8	.9	1.0
117,043.....	.2	.3	.4	.6	.7	.8	.9

Standard Errors of Totals and Percentages for Engineers, and Persons Not in a Field of Science or Engineering in 1976

Table 2A. Standard Errors of Totals

Size of estimate	Estimated standard error
5,480.....	560
16,440.....	970
32,880.....	1,360
54,800.....	1,750
82,200.....	2,130
115,080.....	2,490
153,440.....	2,840
197,280.....	3,180
246,600.....	3,490
301,400.....	3,790
361,680.....	4,060
427,440.....	4,310
498,680.....	4,520
575,400.....	4,700
658,548.....	4,840

Table 2B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
5,480.....	1.0	1.4	2.2	3.1	4.1	4.5	5.1
16,440.....	.6	.8	1.3	1.8	2.4	2.6	3.0
32,880.....	.4	.6	.9	1.3	1.7	1.8	2.1
54,800.....	.3	.5	.7	1.0	1.3	1.4	1.6
82,200.....	.3	.4	.6	.8	1.1	1.1	1.3
115,080.....	.2	.3	.5	.7	.9	1.0	1.1
153,440.....	.2	.3	.4	.6	.8	.8	1.0
197,280.....	.2	.2	.4	.5	.7	.7	.9
246,600.....	.2	.2	.3	.5	.6	.7	.8
301,400.....	.14	.2	.3	.4	.6	.6	.7
361,680.....	.13	.2	.3	.4	.5	.5	.6
427,440.....	.12	.2	.3	.3	.5	.5	.6
498,680.....	.11	.2	.2	.3	.4	.5	.5
575,400.....	.10	.10	.2	.3	.4	.4	.5
658,548.....	.09	.09	.2	.3	.4	.4	.5

Standard Errors of Totals and Percentages for Mathematical Specialists

Table 3A. Standard Errors of Totals

Size of estimate	Estimated standard error
200.....	70
600.....	130
1,200.....	190
2,000.....	240
3,000.....	300
4,200.....	350
5,600.....	390
7,200.....	440
9,000.....	480
11,000.....	510
13,200.....	540
15,600.....	570
18,200.....	590
21,000.....	600
24,831.....	600

Table 3B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
200.....	3.9	5.5	8.6	11.8	15.8	17.1	19.7
600.....	2.3	3.2	5.0	6.8	9.1	9.9	11.4
1,200.....	1.6	2.3	3.5	4.8	6.4	7.0	8.1
2,000.....	1.2	1.7	2.7	3.7	5.0	5.4	6.2
3,000.....	1.0	1.4	2.2	3.1	4.1	4.4	5.1
4,200.....	.9	1.2	1.9	2.6	3.4	3.7	4.3
5,600.....	.7	1.0	1.6	2.2	3.0	3.2	3.7
7,200.....	.7	.9	1.4	2.0	2.6	2.8	3.3
9,000.....	.6	.8	1.3	1.8	2.4	2.5	2.9
11,000.....	.5	.7	1.2	1.6	2.1	2.3	2.7
13,200.....	.5	.7	1.1	1.5	1.9	2.1	2.4
15,600.....	.4	.6	1.0	1.3	1.8	1.9	2.2
18,200.....	.4	.6	.9	1.2	1.7	1.8	2.1
21,000.....	.4	.5	.8	1.2	1.5	1.7	1.9
24,831.....	.4	.5	.8	1.1	1.4	1.5	1.8

Standard Errors of Totals and Percentages for Mathematicians, Agricultural Scientists, Environmental Scientists, Earth Scientists, Physicists and Astronomers, and Economists

Table 4A. Standard Errors of Totals

Size of estimate	Estimated standard error
220.....	80
660.....	140
1,320.....	200
2,200.....	260
3,300.....	320
4,620.....	370
6,160.....	430
7,920.....	480
9,900.....	530
12,100.....	570
14,520.....	620
17,160.....	660
20,020.....	690
23,100.....	720
27,502.....	750

Table 4B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
220.....	3.9	5.4	8.5	11.7	15.5	16.8	19.4
660.....	2.2	3.1	4.9	6.7	9.0	9.7	11.2
1,320.....	1.6	2.2	3.5	4.8	6.3	6.9	7.9
2,200.....	1.2	1.7	2.7	3.7	4.9	5.3	6.1
3,300.....	1.0	1.4	2.2	3.0	4.0	4.3	5.0
4,620.....	.8	1.2	1.8	2.5	3.4	3.7	4.2
6,160.....	.7	1.0	1.6	2.2	2.9	3.2	3.7
7,920.....	.6	.9	1.4	1.9	2.6	2.8	3.2
9,900.....	.6	.8	1.3	1.7	2.3	2.5	2.9
12,100.....	.5	.7	1.1	1.6	2.1	2.3	2.6
14,520.....	.5	.7	1.0	1.4	1.9	2.1	2.4
17,160.....	.4	.6	1.0	1.3	1.8	1.9	2.2
20,020.....	.4	.6	.9	1.2	1.6	1.8	2.0
23,100.....	.4	.5	.8	1.1	1.5	1.6	1.9
27,502.....	.3	.5	.8	1.0	1.4	1.5	1.7

Standard Errors of Totals and Percentages for Statisticians

Table 5A. Standard Errors of Totals

Size of estimate	Estimated standard error
50.....	30
150.....	50
300.....	80
500.....	100
750.....	130
1,050.....	150
1,400.....	180
1,800.....	200
2,250.....	220
2,750.....	250
3,300.....	270
3,900.....	290
4,550.....	320
5,250.....	340
6,958.....	390

Table 5B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
50.....	6.8	9.6	14.9	20.5	27.3	29.6	34.2
150.....	3.9	5.5	8.6	11.8	15.8	17.1	19.7
300.....	2.8	3.9	6.1	8.4	11.2	12.1	13.9
500.....	2.2	3.0	4.7	6.5	8.6	9.4	10.8
750.....	1.8	2.5	3.8	5.3	7.1	7.6	8.8
1,050.....	1.5	2.1	3.3	4.5	6.0	6.5	7.5
1,400.....	1.3	1.8	2.8	3.9	5.2	5.6	6.5
1,800.....	1.1	1.6	2.5	3.4	4.6	4.9	5.7
2,250.....	1.0	1.4	2.2	3.1	4.1	4.4	5.1
2,750.....	.9	1.3	2.0	2.8	3.7	4.0	4.6
3,300.....	.8	1.2	1.8	2.5	3.4	3.6	4.2
3,900.....	.8	1.1	1.7	2.3	3.1	3.4	3.9
4,550.....	.7	1.0	1.6	2.1	2.9	3.1	3.6
5,250.....	.7	.9	1.5	2.0	2.7	2.9	3.3
6,958.....	.6	.8	1.3	1.7	2.3	2.5	2.9

Standard Errors of Totals and Percentages for Medical Scientists, and Sociologists and Anthropologists

Table 6A. Standard Errors of Totals

Size of estimate	Estimated standard error
80.....	50
240.....	100
480.....	140
800.....	180
1,200.....	220
1,680.....	260
2,240.....	290
2,880.....	330
3,600.....	370
4,400.....	400
5,280.....	430
6,240.....	460
7,280.....	490
8,400.....	510
10,309.....	540

Table 6B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
80.....	7.3	10.3	16.0	22.0	29.4	31.8	36.7
240.....	4.2	5.9	9.2	12.7	17.0	18.4	21.2
480.....	3.0	4.2	6.5	9.0	12.0	13.0	15.0
800.....	2.3	3.3	5.1	7.0	9.3	10.1	11.6
1,200.....	1.9	2.7	4.1	5.7	7.6	8.2	9.5
1,680.....	1.6	2.2	3.5	4.8	6.4	6.9	8.0
2,240.....	1.4	1.9	3.0	4.2	5.6	6.0	6.9
2,880.....	1.2	1.7	2.7	3.7	4.9	5.3	6.1
3,600.....	1.1	1.5	2.4	3.3	4.4	4.7	5.5
4,400.....	1.0	1.4	2.2	3.0	4.0	4.3	5.0
5,280.....	.9	1.3	2.0	2.7	3.6	3.9	4.5
6,240.....	.8	1.2	1.8	2.5	3.3	3.6	4.2
7,280.....	.8	1.1	1.7	2.3	3.1	3.3	3.9
8,400.....	.7	1.0	1.6	2.2	2.9	3.1	3.6
10,309.....	.6	.9	1.4	1.9	2.6	2.8	3.2

Standard Errors of Totals and Percentages for Atmospheric Scientists

Table 7A. Standard Errors of Totals

Size of estimate	Estimated standard error
20.....	20
60.....	40
120.....	50
200.....	70
300.....	80
420.....	100
560.....	120
720.....	130
900.....	150
1,100.....	170
1,320.....	180
1,560.....	200
1,820.....	220
2,100.....	240
3,223.....	300

Table 7B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
20.....	11.4	16.1	25.0	34.5	46.0	49.8	57.5
60.....	6.6	9.3	14.5	19.9	26.5	28.7	33.2
120.....	4.7	6.6	10.2	14.1	18.8	20.3	23.5
200.....	3.6	5.1	7.9	10.9	14.5	15.7	18.2
300.....	3.0	4.2	6.5	8.9	11.9	12.8	14.8
420.....	2.5	3.5	5.5	7.5	10.0	10.9	12.5
560.....	2.2	3.0	4.7	6.5	8.7	9.4	10.9
720.....	1.9	2.7	4.2	5.7	7.7	8.3	9.6
900.....	1.7	2.4	3.7	5.1	6.9	7.4	8.6
1,100.....	1.5	2.2	3.4	4.6	6.2	6.7	7.7
1,320.....	1.4	2.0	3.1	4.2	5.7	6.1	7.1
1,560.....	1.3	1.8	2.8	3.9	5.2	5.6	6.5
1,820.....	1.2	1.7	2.6	3.6	4.8	5.2	6.0
2,100.....	1.1	1.6	2.4	3.4	4.5	4.9	5.6
3,223.....	.9	1.3	2.0	2.7	3.6	3.9	4.5

Standard Errors of Totals and Percentages for Oceanographers

Table 8A. Standard Errors of Totals

Size of estimate	Estimated standard error
10.....	10
30.....	20
60.....	30
100.....	40
150.....	50
210.....	60
280.....	70
360.....	90
450.....	100
550.....	120
660.....	130
780.....	150
910.....	170
1,050.....	190
1,404.....	240

Table 8B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
10.....	12.9	18.2	28.3	39.0	52.0	56.3	65.0
30.....	7.5	10.5	16.4	22.5	30.0	32.5	37.5
60.....	5.3	7.4	11.6	15.9	21.2	23.0	26.5
100.....	4.1	5.8	9.0	12.3	16.5	17.8	20.6
150.....	3.3	4.7	7.3	10.1	13.4	14.5	16.8
210.....	2.8	4.0	6.2	8.5	11.4	12.3	14.2
280.....	2.4	3.4	5.4	7.4	9.8	10.6	12.3
360.....	2.2	3.0	4.7	6.5	8.7	9.4	10.8
450.....	1.9	2.7	4.2	5.8	7.8	8.4	9.7
550.....	1.7	2.5	3.8	5.3	7.0	7.6	8.8
660.....	1.6	2.2	3.5	4.8	6.4	6.9	8.0
780.....	1.5	2.1	3.2	4.4	5.9	6.4	7.4
910.....	1.4	1.9	3.0	4.1	5.5	5.9	6.8
1,050.....	1.3	1.8	2.8	3.8	5.1	5.5	6.3
1,404.....	1.1	1.5	2.4	3.3	4.4	4.8	5.5

Standard Errors of Totals and Percentages for Psychologists and Social Scientists

Table 9A. Standard Errors of Totals

Size of estimate	Estimated standard error
370.....	130
1,110.....	230
2,220.....	320
3,700.....	410
5,550.....	500
7,770.....	580
10,360.....	660
13,320.....	740
16,650.....	810
20,350.....	870
24,420.....	920
28,860.....	970
33,670.....	1,010
38,850.....	1,030
45,582.....	1,050

Table 9B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
370.....	3.6	5.0	7.8	10.8	14.3	15.5	17.9
1,110.....	2.1	2.9	4.5	6.2	8.3	9.0	10.4
2,220.....	1.5	2.0	3.2	4.4	5.9	6.3	7.3
3,700.....	1.1	1.6	2.5	3.4	4.5	4.9	5.7
5,550.....	.9	1.3	2.0	2.8	3.7	4.0	4.6
7,770.....	.8	1.1	1.7	2.3	3.1	3.4	3.9
10,360.....	.7	.9	1.5	2.0	2.7	2.9	3.4
13,320.....	.6	.8	1.3	1.8	2.4	2.6	3.0
16,650.....	.5	.7	1.2	1.6	2.1	2.3	2.7
20,350.....	.5	.7	1.1	1.5	1.9	2.1	2.4
24,420.....	.4	.6	1.0	1.3	1.8	1.9	2.2
28,860.....	.4	.6	.9	1.2	1.6	1.8	2.0
33,670.....	.4	.5	.8	1.1	1.5	1.6	1.9
38,850.....	.3	.5	.8	1.0	1.4	1.5	1.7
45,582.....	.3	.5	.7	1.0	1.3	1.4	1.6

Standard Errors of Totals and Percentages for Biologists and Other Physical Scientists

Table 10A. Standard Errors of Totals

Size of estimate	Estimated standard error
280.....	90
840.....	170
1,680.....	240
2,800.....	310
4,200.....	380
5,880.....	450
7,840.....	520
10,080.....	590
12,600.....	660
15,400.....	730
18,480.....	800
21,840.....	870
25,480.....	940
29,400.....	1,010
33,975.....	1,090

Table 10B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
280.....	3.5	4.9	7.7	10.6	14.1	15.3	17.7
840.....	2.0	2.9	4.4	6.1	8.2	8.8	10.2
1,680.....	1.4	2.0	3.1	4.3	5.8	6.2	7.2
2,800.....	1.1	1.6	2.4	3.4	4.5	4.8	5.6
4,200.....	.9	1.3	2.0	2.7	3.6	3.9	4.6
5,880.....	.8	1.1	1.7	2.3	3.1	3.3	3.9
7,840.....	.7	.9	1.5	2.0	2.7	2.9	3.3
10,080.....	.6	.8	1.3	1.8	2.4	2.5	2.9
12,600.....	.5	.7	1.1	1.6	2.1	2.3	2.6
15,400.....	.5	.7	1.0	1.4	1.9	2.1	2.4
18,480.....	.4	.6	.9	1.3	1.7	1.9	2.2
21,840.....	.4	.6	.9	1.2	1.6	1.7	2.0
25,480.....	.4	.5	.8	1.1	1.5	1.6	1.9
29,400.....	.3	.5	.8	1.0	1.4	1.5	1.7
33,975.....	.3	.4	.7	1.0	1.3	1.4	1.6

Standard Errors of Totals and Percentages for Other Social Scientists

Table 11A. Standard Errors of Totals

Size of estimate	Estimated standard error
140.....	90
420.....	160
840.....	220
1,400.....	290
2,100.....	350
2,940.....	400
3,920.....	460
5,040.....	510
6,300.....	560
7,700.....	600
9,240.....	630
10,920.....	660
12,740.....	680
14,700.....	690
17,546.....	680

Table 11B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
140.....	6.6	9.3	14.4	19.9	26.5	28.7	33.1
420.....	3.8	5.4	8.3	11.5	15.3	16.6	19.1
840.....	2.7	3.8	5.9	8.1	10.8	11.7	13.5
1,400.....	2.1	2.9	4.6	6.3	8.4	9.1	10.5
2,100.....	1.7	2.4	3.7	5.1	6.8	7.4	8.6
2,940.....	1.4	2.0	3.2	4.3	5.8	6.3	7.2
3,920.....	1.2	1.8	2.7	3.8	5.0	5.4	6.3
5,040.....	1.1	1.5	2.4	3.3	4.4	4.8	5.5
6,300.....	1.0	1.4	2.2	3.0	3.9	4.3	4.9
7,700.....	.9	1.3	1.9	2.7	3.6	3.9	4.5
9,240.....	.8	1.1	1.8	2.4	3.3	3.5	4.1
10,920.....	.7	1.0	1.6	2.2	3.0	3.2	3.7
12,740.....	.7	1.0	1.5	2.1	2.8	3.0	3.5
14,700.....	.6	.9	1.4	1.9	2.6	2.8	3.2
17,546.....	.6	.8	1.3	1.8	2.4	2.6	3.0

Appendix B. Questionnaire and Reference Lists

O.M.B. No. 41-S75095; Approval Expires December 31, 1978

FORM PMS-26A (10-29-78)		U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		NOTICE - Your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes.																									
1976 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS				<p><i>Please read</i> instructions carefully before answering questions.</p> <p>Answer as accurately as you can by printing your reply clearly or by entering an "X" in the box next to the appropriate reply.</p> <p>When the instructions for a question direct you to enter a code and description from a list, please refer to the reference list attached to this questionnaire.</p>																									
A. Is the information shown in the mailing label above correct? <input type="checkbox"/> YES <input type="checkbox"/> NO - Please enter the correct information		<table border="1"> <tr> <td colspan="6">Name</td> </tr> <tr> <td colspan="6">Number and street</td> </tr> <tr> <td>City or town</td> <td>010</td> <td></td> <td>State (if USA)</td> <td>011</td> <td>ZIP code</td> </tr> <tr> <td colspan="6">Foreign country</td> </tr> </table>				Name						Number and street						City or town	010		State (if USA)	011	ZIP code	Foreign country					
Name																													
Number and street																													
City or town	010		State (if USA)	011	ZIP code																								
Foreign country																													
B. Is this mailing address the same address as your place of residence? <input type="checkbox"/> SAME <input type="checkbox"/> DIFFERENT - Please enter your city and State or foreign country of residence.		<table border="1"> <tr> <td>City or town</td> <td>State (if USA)</td> <td>ZIP code</td> </tr> <tr> <td colspan="3">Foreign country</td> </tr> </table>				City or town	State (if USA)	ZIP code	Foreign country																				
City or town	State (if USA)	ZIP code																											
Foreign country																													
<p>Dear Friend:</p> <p>Thank you for your continued cooperation in the National Sample of Scientists and Engineers, a series of biennial surveys sponsored by the National Science Foundation and conducted by the Bureau of the Census. From this series, a comprehensive picture of the development and utilization of America's scientists and engineers is being obtained. And, since the surveys include a sample of persons from various other fields, in addition to science and engineering, a valuable measure of the employment and skills among the highly educated population in general has been gained. Statistical data from these surveys are used for planning and analysis by Federal and State manpower agencies, private businesses, nonprofit research organizations, industrial and trade associations, and universities. Your cooperation, of course, has been an essential element in the success of this program.</p> <p>To extend the value of past surveys, the National Science Foundation has asked the Bureau to survey this sample of persons once again to collect current employment information and related data. This is the most reliable and least costly way to learn, for example, how the employment of highly trained persons is affected by fluctuations in the economy. For the survey to be successful and yield truly representative information, it is important that each person fill out and return the questionnaire.</p> <p>Please complete the questions which follow on pages 2 through 4 and return your questionnaire in the enclosed preaddressed envelope. For some questions you are instructed to enter a code and description from Reference List A, B, or C. These lists are attached to the questionnaire.</p> <p>This information is being collected under the authority of the National Science Foundation Act of 1950, as amended. The information you provide is confidential and may be seen only by sworn employees of the Bureau of the Census. The information cannot be used for anything but statistical purposes and cannot be given to any other Government agency, private concern, or individual. The data will be released only in the form of statistical summaries from which it will be impossible to identify information about any particular person. Your response is entirely voluntary and your failure to provide some or all of the requested information will in no way adversely affect you.</p> <p>Thank you for your cooperation.</p> <p>Sincerely,</p> <p><i>Vincent P. Barabba</i></p> <p>VINCENT P. BARABBA Director Bureau of the Census</p> <p>Enclosure</p>																													

PART I - EDUCATION AND TRAINING																																																																																														
1. EDUCATION FROM 1972 TO THE PRESENT																																																																																														
a. Since January 1972 have you attended any college, university, or other post high school institution? <input type="checkbox"/> 012 <input type="checkbox"/> Yes - Continue with 1b <input checked="" type="checkbox"/> 2 <input type="checkbox"/> No - Skip to question 2																																																																																														
b. List below each institution from which you have obtained (since January 1972) or are currently obtaining formal training beyond the high school level, and give the other information requested. Begin with the most recent and work back through January 1972. Use a separate row for each degree granted or worked for. Designate degrees by abbreviation (e.g., A.A., B.A., M.A., Ph.D., LL.B., M.D., etc.).																																																																																														
	College, university, or other post high school institution (Enter Name and State or foreign country)	Type of degree worked for, if any (Enter Ph.D., M.A., B.A., A.A., etc. or mark "None" box)	Major field of study (Enter code and description from Reference List A)	Year degree was awarded or will be awarded, (Enter year or mark "None" box)																																																																																										
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2. OTHER TRAINING RECEIVED IN 1974 OR 1975																																																																																														
Aside from formal education, which of the following types of training did you receive in 1974 or 1975? Mark the appropriate year for each type of training you have received.																																																																																														
<table style="width:100%; border: none;"> <tr> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">1974</td> <td></td> <td style="text-align: center;">1975</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1. On-the-job training</td> <td style="text-align: center;">1 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">1 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Military training applicable to civilian occupations</td> <td style="text-align: center;">2 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">2 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Extension or correspondence courses</td> <td style="text-align: center;">3 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">3 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. Courses at employer's training facility</td> <td style="text-align: center;">4 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">4 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. Courses at adult education center</td> <td style="text-align: center;">5 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">5 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. Other training</td> <td style="text-align: center;">6 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">6 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7. None</td> <td style="text-align: center;">7 <input type="checkbox"/></td> <td></td> <td style="text-align: center;">7 <input type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>															1974		1975							1. On-the-job training	1 <input type="checkbox"/>		1 <input type="checkbox"/>							2. Military training applicable to civilian occupations	2 <input type="checkbox"/>		2 <input type="checkbox"/>							3. Extension or correspondence courses	3 <input type="checkbox"/>		3 <input type="checkbox"/>							4. Courses at employer's training facility	4 <input type="checkbox"/>		4 <input type="checkbox"/>							5. Courses at adult education center	5 <input type="checkbox"/>		5 <input type="checkbox"/>							6. Other training	6 <input type="checkbox"/>		6 <input type="checkbox"/>							7. None	7 <input type="checkbox"/>		7 <input type="checkbox"/>							
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7. None	7 <input type="checkbox"/>		7 <input type="checkbox"/>																																																																																											
PART II - EMPLOYMENT STATUS																																																																																														
PLEASE NOTE that in items 3a-5 information is requested for both the current year, as of the week of February 8-14, 1976, and last year, as of the week of February 9-15, 1975. Please answer applicable questions in column (A), then in column (B).																																																																																														
	Week of February 8-14, 1976 (A)	Week of February 9-15, 1975 (B)																																																																																												
3a. What was your employment status as of the week indicated?	027 <input type="checkbox"/> 1 Employed full time - Skip to 4a <input type="checkbox"/> 2 Employed part time - Answer 3b <input type="checkbox"/> 3 On post doctoral appointment (fellowship, traineeship, research associate, etc.) - Skip to 4a <input type="checkbox"/> 4 Unemployed and seeking work - Go to column (B) <input type="checkbox"/> 5 Not employed and not seeking work - Skip to 5	028 <input type="checkbox"/> 1 Employed full time - Skip to 4a <input type="checkbox"/> 2 Employed part time - Answer 3b <input type="checkbox"/> 3 On post doctoral appointment (fellowship, traineeship, research associate, etc.) - Skip to 4a <input type="checkbox"/> 4 Unemployed and seeking work - Go to Part III <input type="checkbox"/> 5 Not employed and not seeking work - Skip to 5																																																																																												
b. If you worked part time, were you seeking full-time work?	029 <input type="checkbox"/> 1 Yes } Continue with 4a <input type="checkbox"/> 2 No }	030 <input type="checkbox"/> 1 Yes } Continue with 4a <input type="checkbox"/> 2 No }																																																																																												
4a. Were you working in a position related to science or engineering?	031 <input type="checkbox"/> 1 Yes - Go to top of column (B) <input type="checkbox"/> 2 No - Answer 4b	032 <input type="checkbox"/> 1 Yes - Go to Part III <input type="checkbox"/> 2 No - Answer 4b																																																																																												
b. What was the most important reason for taking this position?	033 MARK ONLY ONE BOX <input type="checkbox"/> 1 Preferred nonscience or nonengineering position <input type="checkbox"/> 2 Promoted out of science or engineering position <input type="checkbox"/> 3 Pay was better in nonscience or nonengineering position <input type="checkbox"/> 4 Locational preference <input type="checkbox"/> 5 Science or engineering position not available <input type="checkbox"/> 6 Other - Specify _____ (Go to top of column B)	034 MARK ONLY ONE BOX <input type="checkbox"/> 1 Preferred nonscience or nonengineering position <input type="checkbox"/> 2 Promoted out of science or engineering position <input type="checkbox"/> 3 Pay was better in nonscience or nonengineering position <input type="checkbox"/> 4 Locational preference <input type="checkbox"/> 5 Science or engineering position not available <input type="checkbox"/> 6 Other - Specify _____ (Go to Part III)																																																																																												
5. If you were not employed and not seeking work, were you principally	035 MARK ONLY ONE BOX <input type="checkbox"/> 1 Retired <input type="checkbox"/> 2 Other - Specify _____ (Go to top of column B)	036 MARK ONLY ONE BOX <input type="checkbox"/> 1 Retired <input type="checkbox"/> 2 Other - Specify _____ (Go to Part III)																																																																																												
PART III - JOB ACTIVITIES																																																																																														
INSTRUCTIONS FOR COMPLETING QUESTIONS 6-16b																																																																																														
a. Complete column (A) for questions 6-16b for the job held during the week of February 8-14, 1976 or for your most recent prior job held.																																																																																														
b. Column (B) should be completed only if the job you had during the week of February 9-15, 1975 differed from the job described in column (A). If the job was the same, mark the "YES" box at the top of column (B). NOTE: Consider a change of jobs to have occurred if (1) you changed employers; or (2) you remained with the same employer but there were significant changes in duties, levels of responsibility, or occupation; or (3) you worked at a different institution while on sabbatical leave from a college or university.																																																																																														
c. If you held more than one job during the weeks mentioned above, please report only the job at which you worked the greatest number of hours.																																																																																														
	Job held during week of February 8-14, 1976 or most recent prior job (A)	Job held during week of February 9-15, 1975 Was this the same job as entered in column (A)? 037 <input type="checkbox"/> 1 Yes - Do not complete column (B) <input type="checkbox"/> 2 No - Complete column (B) (B)																																																																																												
6. Where did you work? <small>Write in city and State or foreign country of company, business, agency, or other employer.</small>	038 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> City _____	039 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> City _____																																																																																												
	040 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> State or foreign country _____	041 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> State or foreign country _____																																																																																												

PART III - JOB ACTIVITIES - Continued		
	Job held during week of February 8-14, 1976 or most recent prior job (A)	Job held during week of February 9-15, 1975 (B)
7. What kind of business was this? <i>Enter code and description from Reference List B.</i>	042 <input type="text"/> <input type="text"/> <input type="text"/> ← CODE Description _____	043 <input type="text"/> <input type="text"/> <input type="text"/> ← CODE Description _____
	044 <input type="text"/> <input type="text"/> <input type="text"/> ← CODE Description _____	045 <input type="text"/> <input type="text"/> <input type="text"/> ← CODE Description _____
9. What work activities were related to this position? <i>Mark all activities in which you spent time.</i>	046 1 <input type="checkbox"/> Management or administration of research and development 2 <input type="checkbox"/> Management or administration of other than research and development 3 <input type="checkbox"/> Teaching and training - preparing and teaching courses, guiding and counseling students or trainees 4 <input type="checkbox"/> Basic research 5 <input type="checkbox"/> Applied research 6 <input type="checkbox"/> Development - product, process, and technical development	047 1 <input type="checkbox"/> Management or administration of research and development 2 <input type="checkbox"/> Management or administration of other than research and development 3 <input type="checkbox"/> Teaching and training - preparing and teaching courses, guiding and counseling students or trainees 4 <input type="checkbox"/> Basic research 5 <input type="checkbox"/> Applied research 6 <input type="checkbox"/> Development - product, process, and technical development
	048 7 <input type="checkbox"/> Report and technical writing, editing, information retrieval 8 <input type="checkbox"/> Clinical diagnosis 9 <input type="checkbox"/> Design - of equipment, processes, models 10 <input type="checkbox"/> Quality control, testing, evaluation, or inspection	049 7 <input type="checkbox"/> Report and technical writing, editing, information retrieval 8 <input type="checkbox"/> Clinical diagnosis 9 <input type="checkbox"/> Design - of equipment, processes, models 10 <input type="checkbox"/> Quality control, testing, evaluation, or inspection
	050 11 <input type="checkbox"/> Operations - production, maintenance, construction, installation 12 <input type="checkbox"/> Distribution - sales, traffic, purchasing, customer and public relations 13 <input type="checkbox"/> Statistical work - survey work, forecasting, statistical analysis	051 11 <input type="checkbox"/> Operations - production, maintenance, construction, installation 12 <input type="checkbox"/> Distribution - sales, traffic, purchasing, customer and public relations 13 <input type="checkbox"/> Statistical work - survey work, forecasting, statistical analysis
	052 14 <input type="checkbox"/> Consulting 15 <input type="checkbox"/> Computer applications 16 <input type="checkbox"/> Other activities - <i>Specify</i> _____	053 14 <input type="checkbox"/> Consulting 15 <input type="checkbox"/> Computer applications 16 <input type="checkbox"/> Other activities - <i>Specify</i> _____
	10. Among all the activities marked above which was your primary and which was your major secondary activity? <i>Fill in the appropriate code numbers (1 to 18) from question 9.</i>	CODE 054 _____ Primary 056 _____ Secondary
11. What percent of working time did you devote to each of the following activities? PLEASE NOTE Basic research is study directed toward gaining scientific knowledge primarily for its own sake. Applied research is study directed toward gaining scientific knowledge in an effort to meet a recognized need. Development is direction of the knowledge gained from research toward production of useful materials, devices, systems, and methods. <i>Entries in each column should sum to 100%</i>	058 _____ % Management or administration of research and development 060 _____ % Management or administration of other than research and development 062 _____ % Basic research 064 _____ % Applied research 066 _____ % Development 068 _____ % Design 070 _____ % Teaching 072 _____ % Consulting 074 _____ % Other - <i>Specify</i> _____ 100% TOTAL	059 _____ % Management or administration of research and development 061 _____ % Management or administration of other than research and development 063 _____ % Basic research 065 _____ % Applied research 067 _____ % Development 069 _____ % Design 071 _____ % Teaching 073 _____ % Consulting 075 _____ % Other - <i>Specify</i> _____ 100% TOTAL
	12. Which category best describes the type of organization of your principal employment or post doctoral appointment? MARK ONLY ONE BOX 01 <input type="checkbox"/> Business or industry 02 <input type="checkbox"/> Junior college, 2-year college, technical institute 03 <input type="checkbox"/> Medical school 04 <input type="checkbox"/> 4-year college or university, other than medical school 05 <input type="checkbox"/> Elementary or secondary school system 06 <input type="checkbox"/> Hospital or clinic 07 <input type="checkbox"/> Non-profit organization, other than hospital, clinic, or educational institution 08 <input type="checkbox"/> U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA 09 <input type="checkbox"/> U.S. Government, civilian employee 10 <input type="checkbox"/> State government 11 <input type="checkbox"/> Local or other government - <i>Specify</i> _____ 12 <input type="checkbox"/> International agency 13 <input type="checkbox"/> Self-employed 14 <input type="checkbox"/> Other - <i>Specify</i> _____	077 MARK ONLY ONE BOX 01 <input type="checkbox"/> Business or industry 02 <input type="checkbox"/> Junior college, 2-year college, technical institute 03 <input type="checkbox"/> Medical school 04 <input type="checkbox"/> 4-year college or university, other than medical school 05 <input type="checkbox"/> Elementary or secondary school system 06 <input type="checkbox"/> Hospital or clinic 07 <input type="checkbox"/> Non-profit organization, other than hospital, clinic, or educational institution 08 <input type="checkbox"/> U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA 09 <input type="checkbox"/> U.S. Government, civilian employee 10 <input type="checkbox"/> State government 11 <input type="checkbox"/> Local or other government - <i>Specify</i> _____ 12 <input type="checkbox"/> International agency 13 <input type="checkbox"/> Self-employed 14 <input type="checkbox"/> Other - <i>Specify</i> _____

PART III - JOB ACTIVITIES - Continued																													
		Job held during week of February 8-14, 1976 (A)		Job held during week of February 9-15, 1975 (B)																									
13. Between what dates did you hold this position? <i>Enter month and year</i>	078	From	079	To	OR Present <input type="checkbox"/>																								
14. What was the basic salary associated with this position? If you were on a post doctoral appointment, include stipend plus allowances. (Basic salary refers to salary before deductions for income tax, social security, retirement, etc. but does not include bonuses, overtime, summer teaching, or other payment for secondary jobs.)	082	\$ _____ .00	084	<input type="checkbox"/> Per year <input type="checkbox"/> Per month <input type="checkbox"/> Per week	083	\$ _____ .00	085	<input type="checkbox"/> Per year <input type="checkbox"/> Per month <input type="checkbox"/> Per week																					
If academically employed, mark whether salary is for - 1 <input type="checkbox"/> 9-10 months 2 <input type="checkbox"/> 11-12 months	086		088	<input type="checkbox"/> Did not hold this job in 1975 - Skip to 16a 089 \$ _____ .00 in 1975 092 <input type="checkbox"/> Per year <input type="checkbox"/> Per month <input type="checkbox"/> Per week If academically employed, mark whether salary is for - 1 <input type="checkbox"/> 9-10 months 2 <input type="checkbox"/> 11-12 months	090	\$ _____ .00 in 1974	093	<input type="checkbox"/> Did not hold this job in 1974 - Skip to 16a 091 \$ _____ .00 in 1974 095 <input type="checkbox"/> Per year <input type="checkbox"/> Per month <input type="checkbox"/> Per week If academically employed, mark whether salary is for - 1 <input type="checkbox"/> 9-10 months 2 <input type="checkbox"/> 11-12 months	094	<input type="checkbox"/> 9-10 months <input type="checkbox"/> 11-12 months																			
16a. Was ANY of your work supported or sponsored by U.S. Government funds?	096	<input type="checkbox"/> Yes - Continue with 16b <input type="checkbox"/> No <input type="checkbox"/> Don't know } Skip to 17a	097	<input type="checkbox"/> Yes - Continue with 16b <input type="checkbox"/> No <input type="checkbox"/> Don't know } Skip to 17a	b. Which of the following agencies or departments were supporting the work? <i>Mark as many as apply</i>	098	<input type="checkbox"/> Department of Housing and Urban Development <input type="checkbox"/> Department of the Interior <input type="checkbox"/> Department of Labor <input type="checkbox"/> Department of Defense <input type="checkbox"/> Department of Commerce <input type="checkbox"/> Department of Agriculture	099	<input type="checkbox"/> Department of Housing and Urban Development <input type="checkbox"/> Department of the Interior <input type="checkbox"/> Department of Labor <input type="checkbox"/> Department of Defense <input type="checkbox"/> Department of Commerce <input type="checkbox"/> Department of Agriculture	100	<input type="checkbox"/> Department of Transportation <input type="checkbox"/> Department of Justice <input type="checkbox"/> NIH (National Institutes of Health) <input type="checkbox"/> Alcohol and Drug Abuse Mental Health Administration	101	<input type="checkbox"/> Department of Transportation <input type="checkbox"/> Department of Justice <input type="checkbox"/> NIH (National Institutes of Health) <input type="checkbox"/> Alcohol and Drug Abuse Mental Health Administration	102	<input type="checkbox"/> Office of Education <input type="checkbox"/> Other H.E.W. - Specify <u> </u>	103	<input type="checkbox"/> Office of Education <input type="checkbox"/> Other H.E.W. - Specify <u> </u>	104	<input type="checkbox"/> NSF (National Science Foundation) <input type="checkbox"/> EPA (Environmental Protection Agency) <input type="checkbox"/> ERDA (Energy Research and Development Administration)	105	<input type="checkbox"/> NSF (National Science Foundation) <input type="checkbox"/> EPA (Environmental Protection Agency) <input type="checkbox"/> ERDA (Energy Research and Development Administration)	106	<input type="checkbox"/> Nuclear Regulatory Commission <input type="checkbox"/> AID (Agency for International Development) <input type="checkbox"/> Other agency or department - Specify <u> </u>	107	<input type="checkbox"/> Nuclear Regulatory Commission <input type="checkbox"/> AID (Agency for International Development) <input type="checkbox"/> Other agency or department - Specify <u> </u>	108	<input type="checkbox"/> Don't know source agency	109	<input type="checkbox"/> Don't know source agency
PART IV - OTHER INFORMATION																													
17a. At anytime during calendar year 1975 were you without a job AND actively seeking employment?	110	<input type="checkbox"/> Yes - Continue with 17b <input type="checkbox"/> No - Skip to question 18																											
b. For how many weeks were you seeking employment?	111	<input type="checkbox"/> 1 to 4 weeks <input type="checkbox"/> 5 to 10 weeks <input type="checkbox"/> 11 to 14 weeks	4	<input type="checkbox"/> 15 to 26 weeks	5	<input type="checkbox"/> 27 weeks or more																							
18. How many years of professional experience, including teaching, have you had? <i>Enter number of years</i>	112	_____ Years																											
19. Based on your total education and experience, what do you regard yourself as professionally? <i>Enter code and description from Reference List C.</i>	113	_____ ← CODE Description _____																											
20. Listed at the right are selected topics of critical national interest. If you devote a significant proportion of your professional time to any of these problem areas, please - mark the box for the one on which you spend the MOST time.	114	MARK ONLY ONE BOX																											
		01 <input type="checkbox"/> Health Education:	02 <input type="checkbox"/> Teaching	03 <input type="checkbox"/> Other	04 <input type="checkbox"/> Environment protection, pollution control	05 <input type="checkbox"/> Space	06 <input type="checkbox"/> National defense	07 <input type="checkbox"/> Crime prevention and control	08 <input type="checkbox"/> Food production and technology	09 <input type="checkbox"/> Energy and fuel	10 <input type="checkbox"/> Other mineral resources	11 <input type="checkbox"/> Community development and services	12 <input type="checkbox"/> Housing (planning, design, construction)	13 <input type="checkbox"/> Does not apply															
21. In the event that it is necessary to contact you to clarify some of the information you provided, may we contact you by telephone?	<input type="checkbox"/> Yes - Enter number(s) on which you can be reached → <input type="checkbox"/> No		Area code	Telephone number	Area code	Telephone number																							
22. Please enter the name of a person at an address other than yours through whom you can be reached.	Name	Address (Number and street)	City	State or foreign country	ZIP code																								
23. Print your name here					Date prepared																								

REFERENCE LIST B – KINDS OF BUSINESSES

This list is to be used in answering question 7 about the kind(s) of business or industry for which you worked. Please scan the entire list, choose the appropriate answer for the question and enter the code and description from this list. If none of the categories listed below adequately describes the kind of business for which you worked, use the "Other" category (code 731).

Code	Description	Code	Description
	Manufacturing		Other Kinds of Business
701	Aircraft, aircraft engines, aircraft parts	720	Agriculture, forestry, and fisheries
702	Chemicals and allied products	721	Business, personal, and professional services
703	Electrical machinery, equipment and supplies for the generation, storage, transformation, transmission, and utilization of electrical energy	722	Construction
704	Electronic apparatus, radio, television and communication equipment and parts	723	Engineering or architectural services
705	Electronic computers, accounting, calculating and office machinery and equipment	724	Finance, insurance, or real estate
706	Fabricated metal products (except ordnance, machinery and transportation equipment)	725	Mining and petroleum extraction
707	Machinery (except electrical) including engines and turbines, farming and construction machinery, mining, metalworking and other manufacturing and service industry machines	726	Private, nonprofit organizations other than educational institutions and hospitals
708	Motor vehicles and motor vehicle equipment including trucks, buses, automobiles, railroad engines and cars	727	Professional and technical societies
709	Ordnance, including manufacture of arms, ammunition, tanks, and complete guided missiles, space vehicles and equipment	728	Research institutions
710	Petroleum refining and related industries	729	Retail and wholesale trade
711	Primary metal industries, including smelting, refining, rolling, drawing, alloying, and manufacture of castings, forgings and other basic metal products	730	Transportation, communication, or other public utilities
712	Professional and scientific equipment and supplies	731	Other (Describe briefly under the applicable item on the questionnaire.)
713	Other manufacturing including printing and publishing		
	Educational Institutions		Public Administration (Include only uniquely governmental activities, such as the U.S. Postal Service, U.S. Air Force, State court, Department of Motor Vehicles, city building inspection, or city public welfare. For example, if you work for the U.S. Postal Service use code 733, Federal public administration; on the other hand, if you work at a Veterans' Administration Hospital, use code 718, Hospital or clinic; if you work at a State university, use code 714, College or university; if you work for a county road building agency, use code 722, Construction; if you work in a Defense Department research laboratory, use code 728, Research institution.)
714	College or university (offering at least a bachelor's degree)	732	Uniformed military service
715	Junior college or technical institute	733	Federal public administration
716	Medical school	734	State public administration
717	Other educational institutions	735	Local public administration (city, county, etc.)
	Health Services	737	Regional government
718	Hospital or clinic	736	Other government
719	Other medical and health services		

REFERENCE LIST C – OCCUPATIONS

This list is to be used in answering questions 8 and 19 about your occupational classification. Please scan the entire list, choose the appropriate entry and enter the code and description from this list. If you cannot find exactly the right entry, please choose the one that comes nearest to it. If none of the entries is at all appropriate, use the "Other" category (code 475) and enter a brief description in the space provided on the questionnaire.

Code	Description	Code	Description
	Engineers, including college professors and instructors		Health Occupations, including persons who are primarily practitioners. Persons engaged primarily in medical research, teaching, and similar activities use code 432, Medical scientist.
401	Engineer, aeronautical and astronautical	438	Physician or surgeon
402	Engineer, agricultural	439	Technician, dental
403	Engineer, chemical	440	Technician, medical
404	Engineer, civil and architectural	441	Other health occupation (Describe briefly under the applicable item on the questionnaire.)
405	Engineer, electrical and electronic		Technicians and Technologists, except medical
406	Engineer, industrial	442	Designer, electronic parts and machine tools
407	Engineer, mechanical	443	Designer, industrial
408	Engineer, metallurgical and materials	444	Designer, other
409	Engineer, mining, petroleum, and geological	445	Draftsman
410	Engineer, nuclear	446	Surveyor
411	Engineer, environmental and sanitary	447	Technician, biological and agricultural
412	Engineer, operations research/systems	448	Technician, electrical and electronic
413	Engineer, other fields (Describe briefly under the applicable item on the questionnaire.)	449	Technician, construction, highways, and architectural
	Computer Specialist, including college professors and instructors	450	Technician, mechanical
414	Computer programmer	451	Technician, other engineering
415	Computer systems analyst	452	Technician, physical science
416	Computer scientist	453	Technician, other fields (Describe briefly under the applicable item on the questionnaire.)
417	Other computer specialist (Describe briefly under the applicable item on the questionnaire.)		Teachers
	Mathematicians and Statisticians, including college professors and instructors	454	Teacher, elementary school
418	Actuary	455	Teacher, secondary school
419	Mathematician	456	Teacher, college and university, excluding engineering and science (Engineering and science teachers see codes 401-437 above.)
420	Statistician		Administrators, Managers, and Officials, excluding farm
421	Operations research analyst	476	Urban and regional planner
	Physical Scientists, including college professors and instructors	477	College president or dean
422	Chemist	478	Administrator or manager, scientific and technical research and development
423	Earth scientists including geologists, geophysicists, etc.	479	Administrator or manager, production and operations
424	Physicist, astronomer	480	Administrator, manager, or official, all other, excluding self-employed
425	Atmospheric scientist, meteorologist	461	Self-employed proprietor
426	Oceanographer		All Other Occupations
427	Other physical scientist (Describe)	462	Accountant
	Biological Scientists, including college professors and instructors	463	Attorney or judge
428	Agricultural scientists, including foresters and conservationists	464	Sales worker
429	Biological scientist	465	Clerical worker (such as bookkeeper, secretary, etc.)
430	Biochemist	466	Clergy
431	Biophysicist	467	Craft worker (such as baker, carpenter, electrician, mechanic, repair worker)
432	Medical scientist, excluding persons who are primarily medical practitioners; see Health Occupations	468	Farmer (owner, manager, tenant, or farm laborer)
433	Other biological scientist (Describe)	469	Fire fighter or police
	Social scientists, including college professors and instructors	470	Laborer, except farm
434	Economist	471	Librarian
435	Psychologist	472	Merchant or shopkeeper, self-employed
436	Sociologist or anthropologist	473	Operative (such as assembler, factory worker, miner, welder, truck driver, etc.)
437	Other social scientist (Describe briefly under the applicable item on the questionnaire.)	474	Postal worker
		475	Other occupations, not specified above (Describe briefly under the applicable item on the questionnaire.)

**CORRESPONDING MAJOR FIELDS OF STUDY, BY FIELD OF SCIENCE
OR ENGINEERING IN 1976**

(Codes are from reference list A of this appendix)

Fields of science or engineering in 1976	Corresponding major fields of study
Computer specialists.....	559
Engineers.....	532-550
Mathematical specialists.....	500, 557, 558
Life scientists.....	501-526, 551, 554-556
Physical scientists.....	560, 561, 565, 568
Environmental scientists.....	563, 566, 567
Psychologists.....	569-572
Social scientists.....	573-577, 580-584, 586, 587, 593

Appendix C. SOURCE OF DATA

Table number	Characteristic	Item number on 1976 questionnaire ¹	Source code ² on 1976 questionnaire
1	Sex		(From the 1972 survey response, if available; otherwise, from the 1970 census response)
1	Age in 1976*		(From the 1970 census response)
1	Field of science or engineering in 1974*		(From the 1972 or 1974 survey responses)
2	Race*		(From the 1970 census response)
2	Place of residence in 1976	A or B, page 1	010, 011
2	Selected SMSA's of residence: 1976*	A or B, page 1	010, 011
3	Highest degree held*	1b; otherwise from 1972 survey response	014, 016, 018, 020, 022, 024
3	Major field of study for highest degree held*	1b; otherwise from 1972 survey response	015, 019, 023
3	Supplemental training in 1975	2	026
4	Employment status: February 1976*	Part II, column A; and Part III, column A: 13	027, 029, 031, 035, 078, 079
4	Employment status: February 1975*	Part II, column B; and Part III, column B: 13	028, 030, 032, 036, 080, 081
4	Full-time employment in science or engineering: February 1976	Part II, column A: 3a, 4a, 4b	027, 031, 033
4	Full-time employment in science or engineering: February 1975	Part II, column B: 3a, 4a, 4b	028, 032, 034
4	Unemployment in 1975*	Part IV, 17a, 17b	110, 111
5	Occupation in 1976	Part III, column A: 8	044
5	Industry in 1976	Part III, column A: 7	042

See footnotes at end of table.

SOURCE OF DATA—Continued

Table number	Characteristic	Item number on 1976 questionnaire ¹	Source code ² on 1976 questionnaire
5	Primary work activity in 1976*	Part III, column A: 9, 10, 11	054, 058-072
5	Type of employer: 1976*	Part III, column A: 12	076
5	Basic annual salary: 1976*	Part III, column A: 14	082, 084, 086
5	Job mobility: 1975-1976* a) Job change b) Occupation change	a) Part III, column B: 6 b) Part III, column A, B: 8	a) 037 b) 044, 045
5	Job mobility: 1974 to 1976*	1974 survey response; and Part III, column A: 13	078
5	Job mobility: 1972 to 1976*	1972 survey response; and Part III, column A: 13	078
5	Professional identification in 1976	19	113
5	Years of professional experience	18	112
5	Federal support: 1976	Part III, column A: 16a, 16b	096, 098, 100, 102, 104, 106, 108
5	National interest topics	20	114

*For more information, see appropriate subject in section of text on "Definitions and Explanations."

¹The 1976 National Survey of Natural and Social Scientists and Engineers questionnaire is reprinted in appendix A.

²Source codes refer to sections of the 1976 questionnaire denoted by a 3-digit number inside a circle, e.g., (012) for the "Educational Attainment" section of page 2.

Appendix D. Criteria for Fields of Science or Engineering in 1976

CRITERIA FOR MEMBERSHIP IN A FIELD OF SCIENCE OR ENGINEERING IN 1976

Respondents in the 1976 National Survey of Natural and Social Scientists and Engineers were classified into a specific field of science and engineering in 1976 if they met, in relation to the specific field, any one of the criteria given below. Classification by these criteria proceeded such that all respondents were initially examined by the first criterion; those not placed into a field by the first criterion, were then examined by the second; those not categorized by the second, were examined by the third; and so on, until only those remained who met none of the criteria were classified as "not in a field of science or engineering in 1976." A respondent who failed to report the 1976 status of any item examined by these criteria was judged by his or her most recent entry for the item, be it from the 1974 or 1972 surveys. The academic degree levels and major fields of study used in these criteria refer to the highest degree held. The coincident and related occupations and professions are shown in the table in this appendix. Occupation of employment refers to the most recent job for which occupation was reported.

THE CRITERIA

A member of a field of science or engineering in 1976 is an individual who (1) had earned a master's degree or higher¹ in a coincident field of study and who regarded himself, based on his total education and experience, as having a coincident profession; or (2) had earned a Ph.D. in any field of social or natural science,² and was employed in a coincident occupation; or (3) had earned a bachelor's degree or higher in a coincident field of study, and was employed in a coincident occupation; or (4) had earned a bachelor's degree or higher in any field of study, was employed in a coincident occupation, and regarded himself as having a coincident profession; or (5) whose highest degree³ was in a coincident field of study⁴, and who was employed as a college president, college dean, or manager or administrator of research or development, production or operations⁵ or (6) had earned a bachelor's degree or higher in a coincident field of study,⁶ was employed in a related occupation, and regarded himself as having a coincident profession; or (7) had earned a bachelor's degree in a coincident field of study since 1969

¹ Engineers could meet this requirement with a bachelor's degree or higher.

² Codes 501-587 and 593 from list A of appendix B.

³ At the bachelor's level or higher.

⁴ Certain coincident fields of study are common to two fields of science or engineering. Therefore, persons meeting criterion 5 with field of study represented by codes 508 or 526 of list A of appendix B were classified exclusively as "biologists;" those with codes 565 or 568, were classified exclusively as "other physical scientists;" and those with code 581, were classified exclusively as "economists."

⁵ Codes 457-459 and 476 of list C of appendix B.

⁶ In addition to a coincident field of study, engineers could have earned a bachelor's degree or higher in codes 508, 529, 557, 559-561, 563-568 of list A of appendix B.

and who regarded himself as having a coincident profession; or (8) had earned a bachelor's degree or higher in any field or science⁷ and was employed as a college president, college dean, or administrator or manager of research or development, production or operations⁸ and who regarded himself as having a coincident profession; or (9) whose highest degree⁹ was in a related field of study and who was employed in a coincident occupation and who regarded himself professionally to be a college president, dean, or administrator or manager of research or development, production or operations.¹⁰ The field "engineers" also includes any individual who failed to meet any of the above 9 criteria but who had completed a minimum of two years of a program of study leading to a bachelor's degree in engineering or a related field of study before 1968, and was employed as an engineer, and regarded himself professionally to be an engineer or a manager or administrator of research or development, production or operations;¹¹ or who earned an associate degree before 1968, and was employed as an engineer, and regarded himself professionally to be an engineer or a manager or administrator of research or development, production, or operations.¹²

Some respondents to the 1976 survey reported "operations research analyst"¹³ as their occupation or profession. The National Science Foundation determined that certain of the above criteria should classify these persons as either "mathematicians" or "engineers." Such an individual, therefore, is classified by criteria 3 or 7 as a "mathematician" if he, depending upon the criterion specified, was either employed as or regarded himself professionally as an "operations research analyst" and met the educational requirement of the specified criterion as it related to mathematicians. Likewise, the individual was classified by criteria 3, 4, or 7 as an "engineer" if, depending on the criterion specified, his occupation and/or profession was "operations research analyst" instead of "engineer," and he met all the other requirements of the specified criterion as these related to engineers.¹⁴ In addition, an individual is classified as an engineer if he met none of the above criteria, but had earned a bachelor's degree in a field of study other than one coincident to a field of science or engineering, was employed as a college president, dean, manager or administrator of research or development, production or operations,¹⁵ and regarded himself professionally as an "operations research analyst."

⁷ For all fields except economists, codes 501-587 and 593 of list A of appendix B; for economists, codes 557, 558, 573-587, and 593 of list A of appendix B.

⁸ Codes 457-459, and 476 of list C of appendix B.

⁹ At the bachelor's level or higher.

¹⁰ Codes 457-459 and 476 of list C of appendix B.

¹¹ and ¹² Codes 458 and 459 of list C of appendix B.

¹³ Code 421 of list C of appendix B.

¹⁴ In this instance alone, "Operations research/management science" (code 500 of List A of appendix B) was considered to be a coincident field of study for engineers.

¹⁵ Codes 457-459 and 476 of list C of appendix B.

**COINCIDENT AND RELATED MAJOR FIELDS OF STUDY, OCCUPATIONS, AND PROFESSIONS,
BY FIELD OF SCIENCE OR ENGINEERING IN 1976**

(Codes are from reference lists A and C of appendix B)

Field of science or engineering in 1976	Major field of study		Occupation and profession	
	Coincident	Related	Coincident	Related
Computer specialists	559	501-526, 532-558, 560-568	415-417	401-413, 415-417, 419-438
Engineers	532-550	508, 529, 557, 559-561, 563-568	401-413	457-459, 476
Mathematical specialists:				
Mathematicians	557	532-550, 558-568, 576	419	401-413, 415-417, 419-438
Statisticians	558	518, 532, 535-545, 548, 550, 557, 559-572, 575, 576, 586, 587	420	401-413, 415-417, 419-438
Life scientists:				
Agricultural scientists	501-503, 506, 512, 514- 517, 519, 523, 524, 526	504, 505, 507-511, 513, 518, 520-522, 525, 532- 568	428	401-413, 415-417, 419-433, 438
Biologists	504, 505, 507-511, 513, 518, 520-522, 525, 526, 554	501-503, 506, 512, 514- 517, 519, 523, 524, 532- 553, 555-568	429, 431, 433	401-413, 415-417, 419-433, 438
Medical scientists	555, 556	501, 526, 532-550, 557-573	432	401-413, 415-417, 419-438
Physical scientists:				
Chemists	508, 561	501-507, 509-526, 532- 560, 562-568	422, 430	401-413, 415-417, 419-433, 438
Physicists and astronomers	560, 564	508, 509, 535-541, 543- 546, 550, 557-559, 561- 563, 565-568	424	401-413, 415-417, 419-433, 438
Other physical scientists	565, 568	501-526, 532-564, 566, 567	427	401-413, 415-417, 419-433, 438
Environmental scientists:				
Earth scientists	565, 566, 568	501-526, 532-564, 567	423	401-413, 415-417, 419-433, 438
Atmospheric scientists	563	501-526, 532-562, 564- 568	425	401-413, 415-417, 419-433, 438
Oceanographers	567	501-526, 532-566, 568	426	401-413, 415-417, 419-433, 438
Psychologists	569-572	509, 551, 552, 556- 558, 573, 586	435	401-413, 415-417, 419-438
Social scientists:				
Economists	575, 576, 581	501, 557-559, 574, 577-580, 582, 583, 589, 595	434	434-437
Sociologists and anthropologists	573, 586	569, 572, 574, 577, 579, 587, 593	436	401-413, 415-417, 419-438
Other social scientists	574, 577, 581-584, 587, 593	None	437	434-437

Appendix E. Sample Selection

The 156,116 sample cases for the 1972 Professional, Technical, and Scientific Manpower Survey were separated into two segments. The "target" segment consisted of 150,358 persons who were recorded by the 1970 Census of Population as being in one of 40 groups of scientific, engineering, or related occupations in the 1970 experienced civilian labor force. The "residual" segment consisted of 5,758 persons who were recorded by the 1970 census as having four or more years of college and as being in the 1970 experienced civilian labor force in occupations other than the 40 groups of target occupations.

The sample selection for the National Sample of Scientists and Engineers focused exclusively on the "target" segment. From this "target" segment, 115,557 persons responded in

the 1972 survey. Based on criteria established by the survey sponsor, the National Science Foundation, these respondents were classified as "in-scope," that is, in one of the fields of science or engineering in 1972, or as "out-of-scope," that is, not in a field of science or engineering in 1972. The in-scope cases, numbering 50,093 persons, became the sample for the 1974 National Survey of Scientists and Engineers, the 1976 National Survey of Natural and Social Scientists and Engineers, and all subsequent surveys in the National Sample of Scientists and Engineers.

The table in this appendix presents a distribution of the 1972 respondents from the 40 groups of census occupations in the "target" segment, according to their field of science or engineering in 1972.

FIELD OF SCIENCE OR ENGINEERING IN

(Un-

Line number	1970 census occupation ¹	Total	Field of science or engineering in 1972								
			Computer specialists	Engineers	Mathematical specialists			Life scientists			
					Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biological scientists	Medical scientists
1	Total target occupations.....	115,557	3,391	25,797	2,185	1,604	581	4,891	2,025	2,139	727
2	Operations and computer specialists.....	14,820	2,809	780	189	163	26	32	9	17	6
3	Computer programmers.....	4,515	732	101	67	61	6	8	2	5	1
4	Computer systems analysts.....	4,596	1,453	185	59	50	9	11	4	5	2
5	Computer specialists, n.e.c.....	991	215	116	17	16	1	3	1	1	1
6	Operations and systems analysts.....	4,718	409	378	46	36	10	10	2	6	2
7	Engineers.....	39,572	202	22,036	89	72	17	67	29	31	7
8	Aeronautical and astronautical engineers.....	4,715	23	2,985	23	21	2	6	2	3	1
9	Chemical engineers.....	4,308	14	3,233	5	5	9	9	2	6	1
10	Civil engineers.....	4,872	7	2,905	4	3	1	8	6	1	1
11	Electrical and electronic engineers...	5,429	68	3,301	11	10	1	2	1	-	1
12	Industrial engineers.....	4,767	23	1,634	23	12	11	14	5	8	1
13	Mechanical engineers.....	4,761	13	2,824	5	5	-	3	1	2	-
14	Metallurgical and materials engineers.	1,231	1	824	-	-	-	7	3	3	1
15	Mining and petroleum engineers.....	1,193	-	803	-	-	-	3	1	1	1
16	Sales engineers.....	4,060	14	1,328	1	1	-	3	1	2	-
17	Engineers, n.e.c., and engineering teachers.....	4,236	39	2,199	17	15	2	12	7	5	-
18	Mathematical specialists.....	4,579	155	139	1,679	1,218	461	22	4	12	6
19	Actuaries and statisticians.....	2,052	16	62	405	34	371	13	4	6	3
20	Mathematicians.....	2,527	139	77	1,274	1,184	90	9	-	6	3
21	Life scientists.....	6,611	4	71	6	1	5	3,713	1,718	1,683	312
22	Agricultural scientists.....	1,358	-	33	3	-	3	606	517	86	3
23	Foresters and conservationists ²	1,369	1	17	-	-	-	1,037	1,018	17	2
24	Biological scientists.....	3,884	3	21	3	1	2	2,070	183	1,580	307
25	Physical scientists.....	10,560	37	803	37	34	3	203	40	98	65
26	Chemists.....	4,883	9	334	7	5	2	138	28	67	43
27	Physicists.....	2,888	18	323	15	15	-	38	2	15	21
28	Other physical scientists.....	2,789	10	146	15	14	1	27	10	16	1
29	Social scientists.....	10,116	67	217	60	27	33	73	21	24	28
30	Economists.....	4,564	63	170	44	15	29	30	19	7	4
31	Psychologists.....	3,030	2	5	3	1	2	23	-	6	17
32	Other social scientists.....	2,522	2	42	13	11	2	20	2	11	7
33	Engineering and science technicians....	11,956	23	506	11	8	3	91	34	41	16
34	Agricultural, biological, and chemical technicians, ex. health....	2,105	2	34	2	2	-	50	19	23	8
35	Draftsmen.....	2,434	-	126	-	-	-	2	2	-	-
36	Electrical and electronic engineering technicians.....	2,025	8	79	2	1	1	2	-	1	1
37	Industrial and mechanical engineering technicians, and numerical control tool programmers.....	1,327	8	99	5	3	2	-	-	-	-
38	Surveyors.....	2,010	-	73	1	1	-	10	9	1	-
39	Mathematical technicians and engineering and science technicians, n.e.c.	2,055	5	95	1	1	-	27	4	16	7
40	Personnel and labor relations workers...	2,506	5	50	7	6	1	14	7	4	3
41	Health specialties teachers.....	1,055	-	5	-	-	-	220	5	22	193
42	Trade, industrial, and technical teachers.....	122	1	1	-	-	-	2	-	-	2
43	Miscellaneous teachers.....	659	1	18	3	3	-	6	1	2	3
44	Teachers, subject not specified.....	2,018	7	125	33	27	6	123	24	78	21
45	Technicians, n.e.c.....	1,234	3	17	1	1	-	5	2	2	1
46	Research workers, not specified.....	1,984	14	233	33	18	15	178	55	80	43
47	School administrators, college ²	1,138	4	28	4	3	1	36	10	20	6
48	Managers and administrators, n.e.c. ²	6,627	59	768	33	23	10	106	66	25	15

- Represents zero. n.e.c. Not elsewhere classified.

¹For detailed information on the composition of the census occupational categories, see U.S. Bureau of the Census, *Characteristics* page 120) for categories with line numbers 33-48, and appendix E for categories with line numbers 2-32.

²Excludes persons with fewer than four years of college.

1972, BY 1970 CENSUS OCCUPATION

weighted)

Field of science or engineering in 1972														Not in a field of science or engineering in 1972	Line number
Physical scientists				Environmental scientists				Psychologists	Social scientists						
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Atmospheric scientists	Earth scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists			
6,248	3,644	2,128	476	2,095	150	1,898	47	2,488	2,998	1,216	696	1,086	65,464	1	
61	18	35	8	19	2	17	-	22	106	50	12	44	10,802	2	
15	3	9	3	6	1	5	-	9	5	4	-	1	3,572	3	
18	4	11	3	5	1	4	-	6	34	18	4	12	2,825	4	
7	1	6	-	5	-	5	-	-	4	1	1	2	624	5	
21	10	9	2	3	-	3	-	7	63	27	7	29	3,781	6	
410	270	126	14	71	6	65	-	21	69	31	8	30	16,607	7	
46	12	31	3	4	1	3	-	3	10	3	-	7	1,615	8	
192	173	16	3	4	2	2	-	2	3	2	1	-	846	9	
2	2	-	-	14	-	14	-	1	6	2	-	4	1,925	10	
36	7	27	2	2	1	1	-	-	4	2	-	2	2,005	11	
37	27	8	2	4	2	2	-	7	27	15	2	10	2,998	12	
6	-	6	-	1	-	1	-	1	3	1	1	1	1,905	13	
18	14	4	-	1	-	1	-	1	1	-	-	1	378	14	
6	3	3	-	33	-	33	-	-	1	-	-	1	347	15	
12	7	4	1	2	-	2	-	2	5	2	1	2	2,693	16	
55	25	27	3	6	-	6	-	4	9	4	2	3	1,895	17	
50	21	25	4	8	-	8	-	25	75	36	10	29	2,426	18	
14	9	3	2	1	-	1	-	15	56	27	7	22	1,470	19	
36	12	22	2	7	-	7	-	10	19	9	3	7	956	20	
291	91	7	193	53	5	44	4	48	46	19	10	17	2,379	21	
43	7	-	36	12	2	10	-	-	25	16	2	7	636	22	
14	2	-	12	9	-	8	1	-	3	1	-	2	288	23	
234	82	7	145	32	3	26	3	48	18	2	8	8	1,455	24	
4,634	2,707	1,753	174	1,815	123	1,660	32	8	25	5	8	12	2,998	25	
2,692	2,641	13	38	13	1	11	1	2	8	2	4	2	1,680	26	
1,822	37	1,709	76	27	2	23	2	6	8	2	4	2	631	27	
120	29	31	1,60	1,775	120	1,626	29	-	9	1	-	8	687	28	
54	29	9	16	10	-	10	-	2,108	2,111	924	541	646	5,416	29	
23	18	3	2	3	-	3	-	10	992	917	5	70	3,229	30	
7	2	-	5	-	-	-	-	2,082	117	-	17	100	791	31	
24	9	6	9	7	-	7	-	16	1,002	7	519	476	1,396	32	
211	188	13	10	15	1	14	-	5	11	2	5	4	11,083	33	
158	150	2	6	3	-	3	-	-	2	-	1	1	1,854	34	
2	-	-	2	3	-	3	-	2	-	-	-	-	2,299	35	
5	4	1	-	1	1	-	-	-	2	1	1	-	1,926	36	
6	5	1	-	-	-	-	-	-	2	1	-	1	1,207	37	
1	1	-	-	-	-	-	-	-	2	-	1	1	1,923	38	
39	28	9	2	8	-	8	-	3	3	-	2	1	1,874	39	
12	8	3	1	1	-	1	-	20	53	9	4	40	2,344	40	
19	9	3	7	1	-	1	-	28	11	1	2	8	771	41	
-	-	-	-	-	-	-	-	1	1	-	-	1	116	42	
8	2	-	6	13	2	11	-	1	49	1	2	46	560	43	
98	47	42	9	25	-	23	2	61	127	32	46	49	1,419	44	
8	6	2	-	2	1	1	-	1	3	-	1	2	1,194	45	
259	158	77	24	37	7	21	9	68	111	27	25	59	1,051	46	
16	9	4	3	5	-	5	-	35	53	17	6	30	957	47	
117	81	29	7	20	3	17	-	36	147	62	16	69	5,341	48	

of Persons in Engineering and Scientific Occupations: 1972, Technical Paper No. 33, 1974, appendix A (especially list A,

Appendix F. Analysis of Response

The table in this appendix presents response rates of various components of the sample for the 1976 National Survey of Natural and Social Scientists and Engineers. The characteristics presented here are based on the 1970 census or on the 1976 survey. Since the percentages in the table are based on a complete count of the sample cases, no reference to the standard error tables is necessary.

Men were more likely than women to respond in the 1976 survey. About 88 percent of the men in the survey panel responded, compared with about 85 percent of women.

Response rates increased steadily by age from a rate of 75 percent for panel members under 25 years old to 89 percent for the age group 55 to 59 years old. After peaking

for the 55 to 59 years of age group, however, the response rate made slight declines in the groups above 60, dropping to 86 percent for persons 65 years and older. Since nonrespondents include deceased persons, this slight decrease in rates is expected. Overall, except for the two youngest age groups, over 80 percent of each age category responded in the 1976 survey; even the youngest groups, however, had rates of 75 percent and above.

There were only slight differences in response rates for 1976 among the various fields of science or engineering in 1974. The highest response rate, 94 percent, was that for physical scientists. The lowest rate was approximately 91 percent for computer specialists.

PERCENT DISTRIBUTION—ANALYSIS OF RESPONSE IN THE 1976 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS, BY FIELD OF SCIENCE OR ENGINEERING IN 1974, AGE IN 1976, AND SEX

Sex, age in 1976, and field of science or engineering in 1974	Response in 1976			
	Total		Respon- dents	Nonrespon- dents
	Number	Percent		
Total.....	50,093	100.0	85.1	14.9
SEX				
Male.....	46,877	100.0	88.3	11.7
Female.....	3,216	100.0	85.4	14.6
AGE IN 1976				
Under 25 years.....	8	100.0	75.0	25.0
25 to 29 years.....	2,278	100.0	77.8	22.2
30 to 34 years.....	8,094	100.0	81.3	18.7
35 to 39 years.....	8,743	100.0	83.0	17.0
40 to 44 years.....	7,883	100.0	85.3	14.7
45 to 49 years.....	7,365	100.0	87.4	12.6
50 to 54 years.....	6,515	100.0	88.6	11.4
55 to 59 years.....	4,214	100.0	89.1	10.9
60 to 64 years.....	2,638	100.0	88.6	11.4
65 to 69 years.....	1,545	100.0	87.7	12.3
70 years and over.....	810	100.0	81.6	18.4
FIELD OF SCIENCE OR ENGINEERING IN 1974				
Respondents in 1974.....	44,158	100.0	92.5	7.5
Total in-scope in 1974.....	39,473	100.0	92.8	7.2
Computer specialists.....	2,291	100.0	91.3	8.7
Engineers.....	20,814	100.0	92.5	7.5
Mathematical specialists.....	1,612	100.0	92.7	7.3
Life scientists.....	4,026	100.0	93.8	6.2
Physical scientists.....	4,824	100.0	94.4	5.6
Environmental scientists.....	1,867	100.0	92.8	7.2
Psychologists.....	1,989	100.0	91.8	8.2
Social scientists.....	2,050	100.0	92.1	7.9
Total out-of-scope in 1974.....	4,685	100.0	90.5	9.5
Nonrespondents in 1974.....	5,935	100.0	30.0	70.0

Appendix G. Highest Degree Held in 1976 Revisions

After the data in tables 1-5 of this report were tabulated, an error was found in the computer program that determined the highest degree held (HDH) in 1976 of each survey respondent. Because of the role of the 1976 HDH in establishing a respondent's field of science or engineering in 1976, the error could have introduced inaccuracies into the data on field of science or engineering in 1976, on highest degree held in 1976, and on other characteristics related to these two items. To measure the effects of the error, selected

tabulations of the 1976 survey response were recalculated to correct for the error. The table in this appendix compares the data on field of science or engineering in 1976 and highest degree held in 1976 presented in this report (in the table these are referred to as "published data") with the recalculated or "revised" data on these two characteristics. The differences between the published and the revised data are negligible and did not justify the recalculation and re-presentation of the data in tables 1-5 of this report.

**FIELD OF SCIENCE OR ENGINEERING IN 1976, BY HIGHEST DEGREE HELD IN 1976, BY
PUBLISHED AND REVISED DATA, BY NUMBER AND PERCENT CHANGE**

Field of science or engineering in 1976	Highest degree held in 1976							
	Total	Doctorate	Prof./medical	Master's	Bachelor's	Associate	Other	No degree
Total, fields of science or engineering								
Published data (a).....	1,027,906	187,114	3,085	237,719	572,654	9,910	101	17,323
Revised data (b).....	1,028,869	184,749	2,909	234,373	579,054	9,873	101	17,810
Change (b-a).....	+963	-2,365	-176	-3,346	+6,400	-37	-	+487
Percent change.....	+0.1	-1.3	-5.7	-1.4	+1.1	-0.4	-	+2.8
Computer specialists								
Published.....	50,691	3,565	114	15,507	31,505	-	-	-
Revised.....	50,290	3,074	97	14,868	32,251	-	-	-
Change.....	-401	-491	-17	-639	+746	-	-	-
Percent change.....	-0.8	-13.8	-14.9	-4.1	+2.4	-	-	-
Engineers								
Published.....	658,549	34,701	1,097	146,721	448,697	9,910	101	17,323
Revised.....	659,666	33,784	938	143,827	453,334	9,873	101	17,810
Change.....	+1,117	-917	-159	-2,894	+4,637	-37	-	+487
Percent change.....	+0.2	-2.6	-14.5	-2.0	+1.0	-0.4	-	+2.8
Mathematical specialists								
Published.....	24,831	10,118	134	7,470	7,109	-	-	-
Revised.....	24,983	9,950	134	7,674	7,224	-	-	-
Change.....	+152	-168	-	+204	+115	-	-	-
Percent change.....	+0.6	-1.7	-	+2.7	+1.6	-	-	-
Mathematicians								
Published.....	17,873	7,804	76	5,392	4,600	-	-	-
Revised.....	18,024	7,637	76	5,612	4,699	-	-	-
Change.....	+151	-167	-	+220	+99	-	-	-
Percent change.....	+0.8	-2.1	-	+4.1	+2.2	-	-	-
Statisticians								
Published.....	6,958	2,313	58	2,078	2,509	-	-	-
Revised.....	6,958	2,313	58	2,062	2,525	-	-	-
Change.....	-	-	-	-16	+16	-	-	-
Percent change.....	-	-	-	-0.8	+0.6	-	-	-
Life scientists								
Published.....	70,027	31,935	1,227	15,569	21,297	-	-	-
Revised.....	70,092	31,869	1,227	15,505	21,491	-	-	-
Change.....	+65	-66	-	-64	+194	-	-	-
Percent change.....	+0.1	-0.2	-	-0.4	+0.9	-	-	-
Agricultural scientists								
Published.....	26,315	6,787	36	5,272	14,220	-	-	-
Revised.....	26,315	6,787	36	5,209	14,284	-	-	-
Change.....	-	-	-	-63	+64	-	-	-
Percent change.....	-	-	-	-1.2	+0.4	-	-	-
Biologists								
Published.....	33,975	20,225	143	8,242	5,365	-	-	-
Revised.....	34,039	20,158	143	8,289	5,448	-	-	-
Change.....	+64	-67	-	+47	+83	-	-	-
Percent change.....	+0.2	-0.3	-	+0.6	+1.5	-	-	-
Medical scientists								
Published.....	9,738	4,924	1,048	2,055	1,711	-	-	-
Revised.....	9,738	4,924	1,048	2,007	1,759	-	-	-
Change.....	-	-	-	-48	+48	-	-	-
Percent change.....	-	-	-	-2.3	+2.8	-	-	-
Physical scientists								
Published.....	117,043	55,336	199	21,611	39,897	-	-	-
Revised.....	117,091	55,102	199	21,398	40,393	-	-	-
Change.....	+48	-234	-	-213	+496	-	-	-
Percent change.....	(Z)	-0.4	-	-1.0	+1.2	-	-	-
Chemists								
Published.....	83,788	35,655	187	14,916	33,029	-	-	-
Revised.....	83,812	35,486	187	14,763	33,376	-	-	-
Change.....	+24	-169	-	-153	+347	-	-	-
Percent change.....	(Z)	-0.5	-	-1.0	+1.1	-	-	-

See footnotes at end of table.

**FIELD OF SCIENCE OR ENGINEERING IN 1976, BY HIGHEST DEGREE HELD IN 1976, BY
PUBLISHED AND REVISED DATA, BY NUMBER AND PERCENT CHANGE—Continued**

Field of science or engineering in 1976	Highest degree held in 1976							
	Total	Doctorate	Prof./medical	Master's	Bachelor's	Associate	Other	No degree
Physicists and astronomers								
Published.....	27,502	17,649	12	5,362	4,477	-	-	-
Revised.....	27,525	17,584	12	5,302	4,626	-	-	-
Change.....	+23	-65	-	-60	+149	-	-	-
Percent change.....	+0.1	-0.4	-	-1.1	+3.3	-	-	-
Other physical scientists								
Published.....	5,754	2,031	-	1,332	2,390	-	-	-
Revised.....	5,754	2,031	-	1,332	2,390	-	-	-
Change.....	-	-	-	-	-	-	-	-
Percent change.....	-	-	-	-	-	-	-	-
Environmental scientists								
Published.....	26,997	7,799	36	7,632	11,529	-	-	-
Revised.....	26,980	7,740	36	7,537	11,666	-	-	-
Change.....	-17	-59	-	-95	+137	-	-	-
Percent change.....	-0.1	-0.8	-	-1.2	+1.2	-	-	-
Earth scientists								
Published.....	22,370	5,826	24	6,301	10,219	-	-	-
Revised.....	22,370	5,810	24	6,230	10,306	-	-	-
Change.....	-	-16	-	-71	+87	-	-	-
Percent change.....	-	-0.3	-	-1.1	+0.9	-	-	-
Atmospheric scientists								
Published.....	3,223	1,017	12	989	1,204	-	-	-
Revised.....	3,223	1,005	12	964	1,241	-	-	-
Change.....	-	-12	-	-25	+37	-	-	-
Percent change.....	-	-1.2	-	-2.5	+3.1	-	-	-
Oceanographers								
Published.....	1,404	956	-	342	106	-	-	-
Revised.....	1,387	925	-	343	119	-	-	-
Change.....	-17	-31	-	+1	+13	-	-	-
Percent change.....	-1.2	-3.2	-	+0.3	+12.3	-	-	-
Psychologists								
Published.....	34,186	21,244	79	10,098	2,765	-	-	-
Revised.....	34,203	21,050	79	10,267	2,808	-	-	-
Change.....	+17	-194	-	+169	+43	-	-	-
Percent change.....	(Z)	-0.9	-	+1.7	+1.6	-	-	-
Social scientists								
Published.....	45,582	22,417	199	13,111	9,855	-	-	-
Revised.....	45,565	22,181	199	13,297	9,887	-	-	-
Change.....	-17	-236	-	+186	+32	-	-	-
Percent change.....	(Z)	-1.1	-	+1.4	+0.3	-	-	-
Economists								
Published.....	17,726	8,798	135	4,322	4,471	-	-	-
Revised.....	17,709	8,698	135	4,389	4,488	-	-	-
Change.....	-17	-100	-	+67	+17	-	-	-
Percent change.....	-0.1	-1.1	-	+1.6	+0.4	-	-	-
Sociologists and anthropologists								
Published.....	10,309	6,845	14	2,031	1,420	-	-	-
Revised.....	10,309	6,790	14	2,085	1,420	-	-	-
Change.....	-	-55	-	+54	-	-	-	-
Percent change.....	-	-0.8	-	+2.7	-	-	-	-
Other social scientists								
Published.....	17,546	6,774	51	6,758	3,964	-	-	-
Revised.....	17,546	6,693	51	6,823	3,980	-	-	-
Change.....	-	-81	-	+65	+16	-	-	-
Percent change.....	-	-1.2	-	+1.0	+0.4	-	-	-
Not in a field of science or engineering in 1976								
Published.....	157,559	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Revised.....	156,597	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Change.....	-962	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent change.....	-0.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

- No cases reported.

Z Less than 0.05 percent.

NA Not available.

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