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ABSTRACT

This document provides tabular data on scientists, engineers, and technicians in manufacturing industries for 1980, as well as in non-manufacturing industries for 1981. The tables are arranged in six sections. The first three sections focus on scientists, engineers, and technicians in manufacturing industries for 1980 by major occupational group and detailed industry of employment, by detailed occupation and broad industry group of employment, and as a percent of total employment in the industry, and the relative error. The next three sections focus on scientists, engineers, and technicians in nonmanufacturing industries for 1981 by major occupational group and detailed industry of employment, by detailed occupation and broad industry group of employment, and as a percent of total employment in the industry, and the relative error. Although summary statistics included in the 1980 data have already been published, the data by detailed field, or by 3-digit Standard Industrial Classification code, are now presented for the first time. Therefore, the 1980 data are at the same level of detail as the 1981 data, providing researchers and analysts with comparable data for the two industrial categories. (JN)

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contents

	Page
Section:	
A. General	1
B. Technical Notes	3
C. Detailed Statistical Tables	7

section a

general

This report includes tabular data on scientists, engineers, and technicians in manufacturing industries for 1980, as well as in nonmanufacturing industries for 1981. Although summary statistics included in the 1980 data have already been published, the data by detailed field, or by 3-digit Standard Industrial Classification code, are now presented for the first time. Therefore, the 1980 data are at the same level of detail as the 1981 data, providing researchers and analysts with comparable data for the two industrial categories.

National estimates of employment in scientific, engineering, and technical (SET) occupations presented in this publication are based on data from the Occupational Employment Statistics (OES) survey. The survey is part of a larger Federal/State cooperative effort designed to produce national, State, and local data on occupational employment by industry for nonfarm wage and salary workers. The Bureau of Labor Statistics (BLS) has primary responsibility for developing survey procedures and providing technical guidance. State Employment Security Agencies implement the survey at State and local levels, developing current and projected employment statistics for their relevant labor markets. BLS conducts supplemental surveys in noncooperating States and aggregates data to provide national employment estimates.

In the midseventies, the National Science Foundation (NSF) recognized the

potential use of these data for providing reliable estimates of the utilization of scientists, engineers, and technicians by private industry. Observation of trends provides insight into the dynamics of this labor market as occupational requirements respond to variations in growth among industries and to the impact of technological and other factors within industry. Since 1977, NSF has provided BLS with financial assistance to expand the survey's coverage of SET occupations and has ensured the development of national estimates by supporting data collection in nonparticipating States.

This publication presents estimates by 2- and 3-digit Standard Industrial Classification (SIC) codes. The 1980 estimates are comparable to the 1977 2-digit estimates published in *Employment of Scientists, Engineers, and Technicians in Manufacturing Industries, 1977* (Detailed Statistical Tables) (NSF 80-306). The 1981 estimates

are comparable to the 1978 2-digit estimates published in *Scientists, Engineers, and Technicians in Private Industry: 1978-80* (Special Report) (NSF 80-320). Analyses of trends are also available: *Changing Employment Patterns of Scientists, Engineers, and Technicians in Manufacturing Industries: 1977-80* (Final Report) (NSF 82-321), and for the 1978-81 period, "Technical Employment Growth Accelerates in Selected Nonmanufacturing Industries," *Science Resources Studies Highlights* (NSF 83-321). Requests for information concerning reports based on the OES surveys may be addressed as follows:

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technical notes

scope of the survey

The Occupational Employment Statistics (OES) survey is conducted over a 3-year cycle: manufacturing industries are surveyed in the first year; mining, construction, financial, and various service industries in the nonmanufacturing sector are surveyed in the second; and trade, communications, transportation, and public utilities are surveyed in the third. Data in this report were derived from the 1980 and 1981 surveys of private manufacturing and nonmanufacturing establishments, respectively. The former are in Standard Industrial Classification (SIC) codes 20 through 39; the private nonmanufacturing establishments are in SIC codes 10-17, 60-67, 70, 72, 73, 75, 76, 78-81 (except 806), 83, 84, 86 (except 866), and 89. The reference dates of the survey were the weeks that included April 12, May 12, or June 12, depending on the SIC of the sampled unit. Geographically, the survey covered all 50 States and the District of Columbia.

method of collection¹

Schedules for the OES survey were mailed to personnel offices of most sample establishments. Nonrespondents were pursued by two additional mailings at 6-week intervals, after which telephone followups were attempted. Field personnel

visited those companies that were essential to the survey because of their large absolute or relative employment within a given industry.

Each industry being surveyed received a questionnaire in which occupational detail was limited to primary production activities. Abbreviated survey forms, in which the number of relevant occupations was further limited, were sent to small establishments to diminish the reporting burden and encourage participation. On each questionnaire specific occupations were grouped under broad census headings, each with a residual category for work functions not explicitly listed on the survey form. Each respondent was asked to identify, in the residual categories, any occupations for which employment levels were significant; surveys in subsequent years would then be revised to include such jobs explicitly.

limitations on analysis

Data collection methodology in the OES survey introduces several problems that should be taken into account when interpreting these data. First, the OES survey tends to understate requirements in specific occupational fields. Second, this same survey characteristic can be expected to overstate cross-industry differences in staffing patterns; the finer the level of detail, the more serious the problem. This occurs because an occupation will be listed explicitly on an industry's questionnaire only if it is judged to be a major job class; otherwise, it is enumerated in a residual category.

occupational and industrial classification

The OES survey collects data for approximately 1,650 occupations and combines two classification systems: The Dictionary of Occupational Titles (DOT) and the 1980 Census of Population. The DOT system is used to develop occupational categories and definitions because its classification scheme is detailed. Summary categories and residual groups are comparable to the broader categories used in the Census.

Industries surveyed were classified according to the 1972 SIC codes. Reporting establishments were categorized on the basis of major product or activity for the previous calendar year.

concepts

An establishment, such as a factory, is the primary sampling unit in the survey. In general, it represents a single physical location and engages primarily in one type of economic activity. When several, distinct activities are performed in a single location, each one is construed as being performed in an individual establishment, depending on whether separate payroll records and other criteria are met.

Employment includes several categories of personnel: Full- and part-time workers; workers on paid vacation or on other types of leave except extended leave; workers on unpaid short-term absences; salaried

¹ Description of the OES survey can be found in Department of Labor, Bureau of Labor Statistics, *Occupational Employment Statistics Handbook* (Washington, D.C.: Supt. of Documents, U.S. Government Printing Office, April 1979).

officers, executives, and staff of unincorporated firms; employees temporarily assigned to other units; and employees for whom the unit is their permanent duty station. Excluded from coverage are proprietors (owners and partners of unincorporated firms), unpaid family workers, and workers on extended leave.

Occupation refers to the job in which employees are working rather than to the one for which they were trained. Skilled personnel are an exception. When engaged in the sale of scientific and engineering (S/E) equipment, such personnel are categorized in terms of their fields of specialization. Categorization as a scientist or engineer requires that an individual be working with a level of knowledge equivalent to that acquired by completion of a 4-year college course with a major in that field, regardless of whether a college degree was ever obtained. Employees who perform multiple functions are reported only once, in the job that is believed to require the highest level of skill. Working supervisors, who spend more than one-fifth of their time doing work similar to that performed by individuals under their supervision, are classified in the occupation most closely related to their work duties.

sampling procedures

The OES survey is a probability sample with a sampling frame based on lists of establishments covered by State Unemployment Insurance systems. Because each cooperating State selects its own sample, the reference date of the sampling frame varied according to when the last sample frame was updated and the survey was conducted. The reference used for sampling in the two supplemental States for the 1981 survey was the first quarter of 1980; that used for the one supplemental survey in 1980 was the first quarter of 1979.

The survey universe is stratified by industry and size of establishment unit since these characteristics are believed to be primary determinants of occupational staffing patterns. Nine size-classes were represented, based on the number of people employed: 1-3, 4-9, 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, and 1,000 and over.

Reporting units with one to three employees were not sampled in all States. In such cases, this size-class was combined

with the next largest to form a 1-9 size-class. Reporting units with 250 or more employees were included in the sample with certainty. Samples for noncertainty size-classes were developed to produce State estimates with target relative errors of 10 percent to 15 percent at one standard deviation. The latter relative error options were provided to States so that survey costs could be reduced and used either to set an overall sample size or to sample size within a particular SIC.

The accuracy and efficiency of State samples were improved through use of State-by-State coefficients of variance estimates (CV's) from previous surveys. An optimization procedure, relating total cell employment to industry size-classes, was used to allocate the sample to size-class employment. The samples were then collected systematically with equal probability of selection within each State/SIC/size-class.

In order to produce national employment estimates, BLS surveyed the State that chose not to participate in the OES program in 1981. Sample size for the supplemental States was developed by first determining the sample size required for national estimates in each 2-digit SIC with a relative error at one standard deviation of 10 percent. This was accomplished by analyzing CV's and occupational rates for a set of occupations from the previous survey. Establishments with 1,000 or more employees were included in the supplemental sample with certainty. This national SIC sample size was then allocated to the non-cooperating State's size-class cells proportional to employment.

response

In 1980, usable responses were provided by 159,672 final eligible units from 111,860 establishments. The 1980 response rate was 70.1 percent based on units and 71.1 percent based on weighted employment. In 1981, usable responses were provided by 328,981 final eligible units from 239,598 establishments. The 1981 response rate was 72.8 percent based on units and 72.6 percent based on weighted employment.

estimation

A weight was determined for each sample unit from which a usable response was

received. Each weight was the product of two factors: (1) The inverse of the probability of selection roughly indicating the number of establishments a survey unit represented; and (2) Adjustment for non-response resulting from either unreturned questionnaires or unusable information.

For each of the 3-digit SIC/State/size-class sampling cells, the nonresponse factor was calculated as a ratio:

$$\frac{\text{Weighted sample employment of all eligible units in sample}}{\text{Weighted sample employment of all responding eligible units}}$$

The sample employments were taken from the sampling frame. If the factor in a cell was greater than a predetermined maximum, the cell was collapsed with other homogeneous cells within the SIC until the factor for the combined cell was not greater than the appropriate maximum factor. If the collapsing procedure terminated before satisfying the constraint (i.e., no more cells were available to collapse), then the appropriate maximum factor was used. For the first six size-classes, homogeneous cells were determined to be other size cells within the SIC and State. For remaining size-classes, homogeneous cells were determined to be other State cells within the SIC and size-class.

A combined ratio estimate of occupational employment was used to develop national estimates using total employment as the auxiliary variable. The estimating formula is:²

$$P = \sum_i \left[\frac{\sum_j \sum_k W_{ijk} P_{ijk}}{\sum_j \sum_k W_{ijk}} \right] M_{ij}$$

- where P = 2-digit industry occupational employment estimate,
 i = 3-digit industry within a 2-digit industry,
 j = size class,
 k = establishment,
 W_{ijk} = weight after nonresponse adjustment in ith industry, jth size-class and kth establishment,

²Computational forms for sampling variances of combined ratios and occupational estimates can be found in National Science Foundation, *Employment of Scientists, Engineers, and Technicians in Manufacturing Industries: 1977* (Detailed Statistical Tables) (NSF 80-300) (Washington, D.C. 1980).

e_{ijk} = total employment in i th industry, j th size-class and k th establishment, and.

M_i = population total employment in i th industry, obtained from the BLS Survey of Employment, Hours, and Earnings.

reliability of estimates

Estimates developed from a sample may reflect a condition other than that indicated by a complete survey of all establishments because either of two types of errors may be involved: nonsampling or sampling. Nonsampling error can be attributed to many sources including faulty design of questionnaires, failure of respondents to provide accurate information, or problems in recording, coding, or processing data. More serious nonsampling errors result either when a chosen sample fails to represent adequately the entire population or when nonresponding units from a well-designed sample differ from survey

respondents. Statistical adjustments made for nonresponding units in the latter case further exacerbate resulting biases. Careful survey design as well as effective checks and controls can eliminate some of the problems attributable to sources of non-sampling error. In general, however, the magnitude and nature of these biases are unknown.

The second type of error, sampling error, occurs because observations are made on a sample, not on the entire population. Conceptually, this error can be defined as the difference between an estimate derived from a sample and the actual value that would be expected if the entire universe were surveyed. Because actual population values are rarely observed, sampling error is approximated by the difference between the survey estimate and the average estimate that would be derived from all possible samples.

Estimates of a sample characteristic and its relative error permit construction of confidence intervals with a prescribed probability that the value from a complete coverage survey of all possible samples is contained therein. The complete coverage value would be included in the range:

(1) From one standard error below to

one standard error above the derived estimate for 68 percent of all samples.

(2) From two standard errors below to two standard errors above the derived estimate for 95 percent of all samples.

(3) From three standard errors below to three standard errors above the derived estimate for nearly all samples.

Sampling error in this report is expressed as relative error or the ratio of sampling error of an occupation to that occupation's employment estimate, expressed in percentage terms. The following example demonstrates interpretation of relative errors: Table C-3 indicates that there are 4,880 civil engineers employed in non-residential building construction (SIC 1540) with a relative error of 7.86 percent. Thus, the chances are 68 out of 100 that the actual employment level would differ from the survey estimate, in either direction, by 384 ($.0786 \times 4,880$); it is almost certain that the survey estimate differs by no more than 1,151 ($3 \times .0786 \times 4,880$) in either direction.

In this survey, as in others, particular care should be exercised in the interpretation of small estimates or small differences between estimates when relatively large sampling errors are indicated.

detailed statistical tables

	page
C-1. Scientists, engineers, and technicians in manufacturing industries by major occupational group and detailed industry of employment: 1980	9
C-2. Scientists, engineers, and technicians in manufacturing industries by detailed occupation and broad industry group of employment: 1980	14
C-3. Scientists, engineers, and technicians in each manufacturing industry as a percent of total employment in the industry, and the relative error: 1980	16
C-4. Scientists, engineers, and technicians in nonmanufacturing industries by major occupational group and detailed industry of employment: 1981	158
C-5. Scientists, engineers, and technicians in nonmanufacturing industries by detailed occupation and broad industry group of employment: 1981	163
C-6. Scientists, engineers, and technicians in each nonmanufacturing industry as a percent of total employment in the industry, and the relative error: 1981	167

TABLE C-1. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES
BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1980
[Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Sci- entists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Total manufacturing.....	1,338.4	100.0	139.4	100.0	605.5	100.0	593.6	100.0
DURABLE GOODS.....	1,645.7	78.1	61.5	44.1	515.1	85.1	469.0	79.0
Lumber and wood products.....	7.3	.5	1.0	.7	1.2	.2	5.1	.9
Logging camps and contractors.....	1.5	.1	.1	.1	.1	(1)	1.3	.2
Sawmills and planing mills.....	1.7	.1	.5	.4	.3	(1)	.9	.2
Millwork, plywood, structural wood.....	2.3	.2	.3	.2	.4	.1	1.5	.3
Wood containers.....	(1)	(1)	-	-	-	-	(1)	(1)
Wood buildings and mobile homes.....	1.1	.1	-	-	.2	(1)	.9	.1
Miscellaneous wood products.....	.6	(1)	-	-	.2	(1)	.4	.1
Furniture and fixtures.....	6.6	.5	.4	.3	2.6	.4	3.6	.6
Household furniture.....	2.4	.2	.2	.1	1.1	.2	1.1	.2
Office furniture.....	1.6	.1	.2	.1	.7	.1	.7	.1
Public building and related furniture.....	.6	(1)	-	-	.2	(1)	.4	.1
Partitions and office and store fixtures.....	1.4	.1	-	-	.3	.1	1.1	.2
Miscellaneous furniture and fixtures.....	.6	(1)	-	-	.3	(1)	.4	.1
Stone, clay, and glass products.....	20.3	1.5	2.0	1.4	8.8	1.5	9.6	1.6
Flat glass.....	.7	.1	.1	.1	.3	.1	.3	.1
Glass and glassware, pressed or blown.....	4.7	.3	.4	.3	2.0	.3	2.2	.4
Products of purchased glass.....	1.1	.1	-	-	.4	.1	.6	.1
Cement, hydraulic.....	1.5	.1	.4	.3	.4	.1	.7	.1
Structural clay products.....	.7	.1	-	-	.4	.1	.3	.1
Pottery and related products.....	1.3	.1	.1	(1)	.6	.1	.6	.1
Concrete, gypsum, and plaster products.....	3.2	.2	.3	.2	1.3	.2	1.5	.3
Cut stone and stone products.....	.3	(1)	-	-	-	-	.3	(1)
Miscellaneous nonmetallic mineral products.....	6.8	.5	.7	.5	3.2	.5	2.9	.5
Primary metals.....	49.1	3.7	4.8	3.4	21.9	3.6	22.3	3.8
Blast furnaces and basic steel products.....	21.9	1.6	2.4	1.7	9.5	1.6	9.9	1.7
Iron and steel foundries.....	7.5	.6	.4	.3	3.6	.6	3.5	.6
Primary nonferrous metals.....	4.0	.3	.6	.4	1.6	.3	1.9	.3
Secondary nonferrous metals.....	1.2	.1	.3	.2	.4	.1	.4	.1
Nonferrous rolling and drawing.....	11.3	.8	1.0	.7	5.1	.8	5.1	.9
Nonferrous foundries (castings).....	2.2	.2	-	-	1.1	.2	1.0	.2
Miscellaneous primary metal products.....	1.1	.1	.1	.1	.5	.1	.5	.1
Fabricated metal products.....	64.0	4.8	2.9	2.1	27.4	4.5	33.7	5.7
Metal cans and shipping containers.....	1.9	.1	.1	.1	1.0	.2	.8	.1
Cutlery, handtools, and hardware.....	5.1	.4	.4	.3	2.8	.5	1.9	.3
Heating equipment and plumbing fixtures.....	2.7	.2	.1	.1	1.3	.2	1.3	.2
Fabricated structural metal products.....	26.6	2.0	.5	.4	9.3	1.5	16.8	2.8

See footnotes at end of table.

TABLE C-1. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1980--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Screw machine products, and bolts, nuts and washers.....	2.6	0.2	0.1	0.1	1.4	0.2	1.1	0.2
Metal forgings and stampings.....	6.1	.5	.3	.3	3.3	.5	2.5	.4
Coating, engraving, and allied services.....	1.4	.1	.3	.2	.6	.1	.4	.1
Ordnance and accessories, n.e.c.....	5.5	.4	.4	.3	2.5	.4	2.7	.4
Miscellaneous fabricated metal products.....	11.9	.9	.5	.3	5.3	.9	6.2	1.0
Machinery, except electrical.....	271.5	20.3	12.3	8.8	124.6	20.6	134.6	22.7
Engines and turbines.....	15.7	1.2	.9	.6	8.9	1.5	5.9	1.0
Farm and garden machinery and equipment.....	10.4	.8	.7	.5	5.2	.9	4.6	.8
Construction and related machinery and equipment.....	31.8	2.4	1.5	1.1	14.4	2.4	15.8	2.7
Metalworking machinery and equipment.....	23.7	1.8	.7	.5	11.4	1.9	11.6	2.0
Special industry machinery except metalworking.....	21.6	1.6	.5	.4	9.9	1.6	11.2	1.9
General industrial machinery and equipment.....	26.3	2.0	.8	.6	13.1	2.2	12.4	2.1
Office, computing, and accounting machines.....	120.4	9.0	6.6	4.7	51.4	8.5	62.4	10.5
Refrigeration and service industry machinery.....	12.4	.9	.5	.4	5.4	.9	6.5	1.1
Miscellaneous machinery, except electrical.....	9.2	.7	.1	.1	4.9	.8	4.1	.7
Electrical machinery.....	298.6	22.3	15.8	11.3	153.1	25.3	129.7	21.9
Electrical transmission and distribution equipment.....	10.1	.8	.3	.2	4.9	.8	4.9	.8
Electrical industrial apparatus.....	24.2	1.8	1.1	.8	11.7	1.9	11.3	1.9
Household appliances.....	7.6	.6	.6	.4	4.2	.7	2.9	.5
Electric lighting and wiring equipment.....	11.6	.9	.6	.5	6.2	1.0	4.7	.8
Radio and television receiving equipment.....	9.3	.7	.3	.2	4.4	.7	4.5	.8
Communications equipment.....	137.2	10.3	8.5	6.1	75.1	12.4	53.6	9.0
Electronic components and accessories.....	85.8	6.4	3.7	2.7	40.4	6.7	41.7	7.0
Miscellaneous electrical equipment and supplies.....	12.9	1.0	.6	.4	6.2	1.0	6.1	1.0
Transportation equipment.....	220.4	16.5	16.4	11.8	131.8	21.8	72.1	12.1
Motor vehicles and equipment.....	43.4	3.2	3.4	2.4	24.8	4.1	15.1	2.6
Aircraft and parts.....	120.1	9.0	10.4	7.5	71.3	11.8	38.4	6.5
Ship and boat building and repair.....	15.2	.8	.4	.3	4.7	.8	5.1	.9
Railroad equipment.....	3.1	.2	.1	.1	1.7	.3	1.4	.2
Motorbicycles, bicycles, and parts.....	.6	(1)	(1)	(1)	.3	(1)	.3	(1)
Guided missiles and space vehicles and parts.....	41.9	3.1	2.1	1.5	28.5	4.7	11.3	1.9
Miscellaneous transportation equipment.....	1.0	.1	(1)	(1)	.5	.1	.5	.1
Instruments.....	97.7	7.3	5.3	3.8	40.3	6.7	52.1	8.8
Engineering and scientific instruments.....	16.7	1.2	.8	.5	8.4	1.4	7.6	1.3
Measuring and controlling instruments.....	40.0	3.0	1.7	1.2	18.7	3.1	19.6	3.3
Optical instruments and lenses.....	8.1	.6	.3	.2	3.7	.6	4.1	.7
Medical and dental instruments and supplies.....	12.9	1.0	1.3	1.0	3.2	.5	8.3	1.4
Ophthalmic goods.....	1.0	.1	-	-	.4	.1	.7	.1

See footnotes at end of table.

12

13

TABLE C-1. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1980--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Sci- entists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Photographic equipment and supplies.....	18.4	1.4	1.2	0.9	5.7	0.9	11.5	1.9
Watches, clocks, and parts.....	.6	(1)	-	-	.3	(1)	.3	(1)
Miscellaneous manufacturing.....	10.2	.8	.7	.5	3.2	.5	6.3	1.1
Jewelry, silverware, and plated ware.....	.5	(1)	.1	.1	.2	(1)	.3	.1
Musical instruments.....	1.1	.1	-	-	.3	(1)	.8	.1
Toys and sporting goods.....	3.0	.2	.2	.2	1.2	.2	1.6	.3
Pens, pencils, and office and art supplies.....	.9	.1	.1	.1	.3	.1	.4	.1
Costume jewelry and notions.....	.7	.1	-	-	.2	(1)	.4	.1
Miscellaneous manufactures.....	3.9	.3	.3	.2	1.0	.2	2.7	.4
NONDURABLE GOODS.....	292.7	21.9	77.9	55.9	90.2	14.9	124.6	21.0
Food and food products.....	31.6	2.4	10.6	7.6	9.0	1.5	12.0	2.0
Meat products.....	3.8	.3	.9	.7	1.5	.3	1.4	.2
Dairy products.....	4.7	.3	2.0	1.4	1.2	.2	1.5	.3
Preserved fruits and vegetables.....	4.3	.3	1.4	1.0	1.0	.2	2.0	.3
Grain mill products.....	4.2	.3	1.5	1.1	1.0	.2	1.7	.3
Bakery products.....	2.2	.2	.4	.3	1.2	.2	.6	.1
Sugar and confectionery products.....	3.3	.2	1.0	.7	.9	.1	1.4	.2
Fats and oils.....	1.1	.1	.4	.3	.3	.1	.3	.1
Beverages.....	4.7	.3	1.8	1.3	1.1	.2	1.8	.3
Miscellaneous food and kindred products.....	3.3	.2	1.1	.8	.8	.1	1.3	.2
Tobacco products.....	1.9	.1	.4	.3	.3	(1)	1.2	.2
Cigarettes.....	1.7	.1	.4	.3	.3	(1)	1.1	.2
Cigars.....	(1)	(1)	-	-	-	-	(1)	(1)
Tobacco (chewing and smoking).....	(1)	(1)	-	-	-	-	(1)	(1)
Tobacco stemming and redrying.....	.1	(1)	-	-	-	-	.1	(1)
Textiles.....	13.6	1.0	1.8	1.3	4.0	.7	7.7	1.3
Weaving mills, cotton.....	2.6	.2	.3	.3	.9	.1	1.4	.2
Weaving mills, manmade fibers.....	2.1	.2	.4	.3	.7	.1	1.0	.2
Weaving and finishing mills, wool.....	.3	(1)	-	-	.1	(1)	.2	(1)
Narrow fabric mills.....	.2	(1)	-	-	.1	(1)	.1	(1)
Knitting mills.....	1.8	.1	.3	.2	.5	.1	1.0	.2
Textile finishing, except wool and knit goods.....	2.4	.2	.3	.2	.3	(1)	1.8	.3
Floor covering mills.....	.8	.1	.1	.1	.2	(1)	.5	.1
Yarn and thread mills.....	1.4	.1	.1	.1	.4	.1	.8	.1
Miscellaneous textile goods.....	1.9	.1	.3	.2	.6	.1	1.0	.2
Apparel.....	5.3	.4	.5	.4	2.5	.4	2.3	.4
Men's and boys' suits and coats.....	.4	(1)	.1	(1)	.2	(1)	.2	(1)
Men's and boys' furnishings.....	1.6	.1	.2	.1	.9	.1	.6	.1

See footnotes at end of table.

TABLE C-1. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1980--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Women's and misses' outerwear.....	1.0	0.1	0.1	0.1	0.4	0.1	0.5	0.1
Women's and children's ungarments.....	.5	(1)	-	-	.2	(1)	.3	(1)
Hats, caps, and millinery.....	(1)	(1)	-	-	-	-	(1)	(1)
Children's outerwear.....	.2	(1)	-	-	.1	(1)	.1	(1)
Fur goods.....	(1)	(1)	-	-	-	-	(1)	(1)
Miscellaneous apparel and accessories.....	.2	(1)	-	-	.1	(1)	.2	(1)
Miscellaneous fabricated textile products.....	1.3	.1	.1	.1	.7	.1	.5	.1
Paper and allied products.....	23.6	1.8	3.6	2.6	9.5	1.6	10.5	1.8
Pulp mills.....	.9	.1	.1	.1	.4	.1	.4	.1
Paper mills, except building paper mills.....	7.7	.6	1.3	1.0	3.4	.6	3.0	.5
Paperboard mills.....	2.5	.2	.4	.3	1.1	.2	1.0	.2
Converted paper and paperboard products.....	10.2	.8	1.6	1.2	3.5	.6	5.1	.9
Paperboard containers and boxes.....	2.0	.1	.1	.1	1.0	.2	.9	.1
Building paper and board mills.....	.3	(1)	-	-	.1	(1)	.1	(1)
Printing and publishing.....	17.1	1.3	2.5	1.8	1.9	.3	12.6	2.1
Newspapers.....	4.2	.3	.7	.5	.3	.1	3.2	.5
Periodicals.....	2.8	.2	.7	.5	.2	(1)	1.8	.3
Books.....	1.8	.1	.5	.4	.3	(1)	1.0	.2
Miscellaneous publishing.....	1.6	.1	.1	.1	-	-	1.4	.2
Commercial printing.....	4.2	.3	.3	.2	.6	.1	3.2	.3
Manifold business forms.....	.7	.1	.1	.1	.2	(1)	.4	.1
Greeting card publishing.....	.7	.1	-	-	.2	(1)	.5	.1
Blankbooks and bookbinding.....	.3	(1)	-	-	.1	(1)	.1	(1)
Printing trade services.....	.9	.1	-	-	-	-	.9	.2
Chemicals.....	151.5	11.3	51.0	36.6	41.5	6.9	59.0	9.9
Industrial inorganic chemicals.....	24.5	1.8	6.0	4.3	9.1	1.5	9.4	1.6
Plastic and synthetic materials and manmade fibers.....	25.7	1.9	5.1	3.6	9.9	1.6	17.8	1.8
Drugs.....	38.1	2.8	18.5	13.2	4.2	.7	15.4	2.6
Soap, detergents, cosmetics, and toilet goods.....	9.7	.7	4.7	3.4	1.9	.3	3.1	.5
Paints and allied products.....	6.4	.5	3.5	2.5	.6	.1	2.3	.4
Industrial organic chemicals.....	32.6	2.4	8.1	5.8	11.8	2.0	12.7	2.1
Agricultural chemicals.....	5.5	.4	1.5	1.1	2.0	.3	2.1	.4
Miscellaneous chemical products.....	8.9	.7	3.6	2.6	2.1	.3	3.2	.5
Refined petroleum products.....	18.7	1.4	3.2	2.3	9.2	1.5	6.3	1.1
Petroleum refining.....	17.2	1.3	2.8	2.0	8.7	1.4	5.7	1.0
Paving and roofing materials.....	.6	(1)	.1	.1	.2	(1)	.3	(1)
Miscellaneous petroleum and coal products.....	.9	.1	.3	.2	.2	(1)	.3	.1
Rubber and plastic products.....	28.2	2.1	4.2	3.0	11.8	1.9	12.2	2.1

See footnotes at end of table.

TABLE C-1. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1980--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Tires and inner tubes.....	10.9	0.8	2.3	1.6	3.8	0.6	4.8	0.8
Rubber and plastics footwear.....	.2	(1)	-	-	.1	(1)	.1	(1)
Reclaimed rubber.....	(1)	(1)	-	-	-	-	(1)	(1)
Rubber and plastic hose and belting.....	.9	.1	-	-	.5	.1	.4	.1
Fabricated rubber products, n.e.c.....	4.1	.3	.7	.5	1.6	.3	1.8	.3
Miscellaneous plastic products.....	12.1	.9	1.2	.9	5.8	1.0	5.0	.8
Leather products.....	1.4	.1	.1	.1	.6	.1	.7	.1
Leather tanning and finishing.....	.2	(1)	-	-	.1	(1)	.1	(1)
Boot and shoe cut stock and findings.....	(1)	(1)	-	-	-	-	(1)	(1)
Footwear, except rubber.....	.9	.1	.1	.1	.4	.1	.4	.1
Leather gloves and mittens.....	-	-	-	-	-	-	-	-
Luggage.....	.1	(1)	-	-	.1	(1)	(1)	(1)
Handbags and personal leather goods.....	.1	(1)	-	-	.1	(1)	(1)	(1)
Leather goods, n.e.c.....	(1)	(1)	-	-	-	-	(1)	(1)

- No amount available

(1) Value is less than .05 for numbers and less than .005 for percents.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

TABLE C-2. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES,
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1980
 [Numbers in thousands]

Industry	Scientists								Engineers					
	All fields	Total	Physical	Mathematical	Life	Social	Computer analyst	Other	Total	Aeronautical	Chemical	Civil	Elec/Electron	Mechanical
Total manufacturing.....	1338.4	139.4	64.2	6.8	10.7	0.7	51.5	5.5	605.3	23.0	32.9	6.7	159.4	126.0
DURABLE GOODS.....	1045.7	61.5	17.0	4.4	.8	.7	36.4	2.3	515.1	23.0	5.9	5.4	154.1	102.0
Lumber and wood products.....	7.3	1.0	-	-	.8	-	.2	-	1.2	-	-	-	-	.3
Furniture and fixtures.....	6.6	.4	-	-	-	-	.4	-	2.6	-	-	-	-	.6
Stone, clay, and glass products	20.3	2.0	1.2	-	-	-	.8	-	8.8	-	.3	.5	.4	2.3
Primary metals.....	49.1	4.8	2.4	-	-	-	2.3	.1	21.9	-	.6	.8	2.5	4.9
Fabricated metal products.....	64.0	2.9	.9	-	-	-	1.9	(1)	27.4	-	.1	1.4	1.5	11.7
Machinery, except electrical...	271.5	12.3	.9	-	-	-	11.4	.1	124.6	-	.8	1.4	34.2	36.6
Electrical machinery.....	298.6	15.8	3.1	1.3	-	.1	10.4	.9	153.1	-	2.1	-	82.6	18.7
Transportation equipment.....	220.4	16.4	6.6	3.1	-	.6	6.2	-	131.8	23.0	1.0	1.2	14.2	19.5
Instruments.....	97.7	5.3	1.6	-	-	-	2.5	1.1	40.3	-	.9	-	18.8	6.0
Miscellaneous manufacturing....	10.2	.7	.3	-	-	-	.3	-	3.2	-	-	-	-	1.4
NONDURABLE GOODS.....	292.7	77.9	47.2	2.4	9.9	-	15.1	3.2	90.2	-	27.0	1.2	5.2	24.0
Food and food products.....	31.6	10.6	6.0	-	1.5	-	2.2	.8	9.0	-	.5	-	-	4.5
Tobacco products.....	1.9	.4	.2	-	-	-	.1	-	.3	-	-	-	-	.1
Textiles.....	13.6	1.8	.7	-	-	-	1.1	-	4.0	-	-	-	-	1.1
Apparel.....	5.3	.5	-	-	-	-	.5	-	2.5	-	-	-	-	.2
Paper and allied products.....	23.6	3.6	2.0	-	-	-	.9	.6	9.5	-	1.8	-	.9	2.8
Printing and publishing.....	17.1	2.5	.3	.3	-	-	1.9	-	1.9	-	-	-	.2	.4
Chemicals.....	151.5	51.0	32.9	2.0	8.4	-	5.9	1.7	41.5	-	19.0	.8	3.0	8.6
Refined petroleum products.....	18.7	3.2	2.5	-	-	-	.7	.1	9.2	-	3.7	.4	.4	2.3
Rubber and plastic products....	28.2	4.2	2.6	.1	-	-	1.5	-	11.8	-	1.9	-	.7	3.8
Leather products.....	1.4	.1	-	-	-	-	.1	-	.6	-	-	-	-	.1

See footnotes at end of table.

TABLE C-2. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN MANUFACTURING INDUSTRIES,
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1980--con.
 [Numbers in thousands]

Industry	Engineers		Technicians						
	Indus- trial	Oth- er	Total	Pro- gram- mer	Draft- er	Engi- neer- ing	Sci- ence	Un- spe- ci- fied	Other
Total manufacturing.....	122.8	134.6	593.6	81.0	119.3	259.5	133.1	0.7	-
DURABLE GOODS.....	106.6	118.0	469.0	65.9	106.0	237.1	60.1	(1)	-
Lumber and wood products.....	.4	.5	5.1	.3	1.6	.2	2.9	(1)	-
Furniture and fixtures.....	1.4	.6	3.6	.7	2.0	.4	.4	-	-
Stone, clay, and glass products	2.2	3.1	9.6	.7	2.7	2.8	3.3	-	-
Primary metals.....	4.7	8.5	22.3	2.2	3.6	9.7	6.7	-	-
Fabricated metal products.....	8.4	4.4	33.7	3.7	18.8	7.3	3.8	-	-
Machinery, except electrical...	32.3	19.2	134.6	32.8	35.8	58.2	7.8	-	-
Electrical machinery.....	28.3	21.5	129.7	14.1	19.8	86.4	9.5	-	-
Transportation equipment.....	21.7	51.0	72.1	7.2	12.8	40.7	11.4	-	-
Instruments.....	5.9	8.7	52.1	3.4	7.2	28.9	12.7	-	-
Miscellaneous manufacturing....	1.3	.5	6.3	.7	1.6	2.4	1.5	-	-
NONDURABLE GOODS.....	16.2	16.6	124.6	15.1	13.3	22.4	73.0	.7	-
Food and food products.....	2.5	1.4	12.0	2.1	.9	1.3	7.7	-	-
Tobacco products.....	.1	.1	1.2	-	.1	.2	.8	.2	-
Textiles.....	2.0	.9	7.7	.9	-	1.0	5.8	-	-
Apparel.....	2.0	.2	2.3	.9	-	.7	.5	.1	-
Paper and allied products.....	1.4	2.6	10.5	1.0	1.0	1.5	6.8	.1	-
Printing and publishing.....	.7	.6	12.6	4.2	5.4	1.8	1.2	-	-
Chemicals.....	4.0	6.0	59.0	4.1	3.5	10.0	41.5	-	-
Refined petroleum products....	.5	1.9	6.3	.3	.7	2.1	3.1	-	-
Rubber and plastic products....	2.5	2.7	12.2	1.3	1.7	3.6	5.4	.1	-
Leather products.....	.3	.1	.7	.2	-	.2	.2	.1	-

- No amount available

(1) Value is less than .05.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980

Meat products (SIC 2010)

Field	Total	Percent of industry employment	Relative error
Total.....	3,850	1.01	(1)
Engineers.....	1,530	.41	(1)
Industrial.....	620	.17	7.30
Mechanical.....	740	.20	6.64
Other, n.e.c.....	170	.04	(1)
Scientists.....	920	.24	(1)
Chemists.....	450	.12	8.77
Biological scientists.....	170	.04	11.07
All other natural and mathematical scientists.....	80	.02	(1)
Systems analysts.....	220	.06	10.73
Technicians.....	1,400	.36	(1)
Computer programmer.....	360	.09	8.41
Drafter.....	80	.02	15.73
All other engineering technicians.....	190	.05	(1)
Biological science technicians.....	390	.10	12.19
All other science technicians.....	120	.03	(1)
All other technicians.....	260	.07	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Dairy products (SIC 2020)

Field	Total	Percent of industry employment	Relative error
Total.....	4,660	2.52	(1)
Engineers.....	1,210	.65	(1)
Chemical.....	120	.06	27.22
Industrial.....	320	.17	14.00
Mechanical.....	620	.34	6.97
Other, n.e.c.....	150	.08	(1)
Scientists.....	1,960	1.07	(1)
Chemists.....	1,150	.64	22.64
Biological scientists.....	460	.25	11.85
All other natural and mathematical scientists.....	120	.06	(1)
Systems analysts.....	230	.12	17.10
Technicians.....	1,490	.80	(1)
Computer programmer.....	280	.15	13.03
Drafter.....	100	.05	28.33
All other engineering technicians.....	180	.10	(1)
Biological science technicians.....	390	.21	16.56
All other science technicians.....	260	.14	(1)
All other technicians.....	280	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Preserved fruits and vegetables (SIC 2030)

Field	Total	Percent of industry employment	Relative error
Total.....	4,340	1.79	(1)
Engineers.....	980	.40	(1)
Industrial.....	360	.15	7.96
Mechanical.....	480	.20	7.19
Other, n.e.c.....	140	.05	(1)
Scientists.....	1,400	.59	(1)
Chemists.....	590	.25	10.06
Biological scientists.....	240	.10	13.45
All other natural and mathematical scientists.....	260	.11	(1)
Systems analysts.....	310	.13	13.80
Technicians.....	1,960	.80	(1)
Computer programmer.....	330	.14	11.49
Drafter.....	150	.06	10.73
All other engineering technicians.....	130	.05	(1)
Biological science technicians.....	540	.22	12.88
All other science technicians.....	340	.14	(1)
All other technicians.....	470	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Grain mill products (SIC 2040)

Field	Total	Percent of industry employment	Relative error
Total.....	4,170	2.84	(1)
Engineers.....	970	.66	(1)
Chemical.....	130	.09	14.76
Industrial.....	260	.18	8.36
Mechanical.....	410	.28	9.82
Other, n.e.c.....	170	.11	(1)
Scientists.....	1,500	1.02	(1)
Chemists.....	910	.63	7.89
Biological scientists.....	120	.08	17.56
All other natural and mathematical scientists.....	200	.13	(1)
Systems analysts.....	270	.18	16.31
Technicians.....	1,700	1.16	(1)
Computer programmer.....	180	.12	13.09
Drafter.....	150	.10	11.78
All other engineering technicians.....	130	.09	(1)
Biological science technicians.....	450	.31	17.92
All other science technicians.....	440	.30	(1)
All other technicians.....	350	.24	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Bakery products (SIC 2050)

Field	Total	Percent of industry employment	Relative error
Total.....	2,230	0.94	(1)
Engineers.....	1,160	.49	(1)
Industrial.....	240	.10	11.45
Mechanical.....	790	.34	6.67
Other, n.e.c.....	130	.05	(1)
Scientists.....	440	.19	(1)
Chemists.....	230	.10	28.23
Systems analysts.....	210	.09	23.20
Technicians.....	630	.26	(1)
Computer programmer.....	150	.06	15.75
Drafter.....	80	.03	27.67
All other engineering technicians.....	160	.07	(1)
Science technicians.....	140	.06	(1)
All other technicians.....	100	.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Sugar and confectionery products (SIC 2060)

Field	Total	Percent of industry employment	Relative error
Total.....	3,260	3.26	(1)
Engineers.....	860	.86	(1)
Chemical.....	80	.08	15.46
Industrial.....	150	.15	10.53
Mechanical.....	470	.47	7.98
Other, n.e.c.....	160	.16	(1)
Scientists.....	1,020	1.02	(1)
Chemists.....	600	.60	7.64
Biological scientists.....	90	.09	23.06
All other natural and mathematical scientists.....	110	.11	(1)
Systems analysts.....	220	.22	17.89
Technicians.....	1,380	1.38	(1)
Computer programmer.....	190	.19	13.17
Drafter.....	200	.20	12.97
All other engineering technicians.....	150	.15	(1)
Biological science technicians.....	280	.28	18.31
All other science technicians.....	280	.28	(1)
All other technicians.....	280	.28	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Fats and oils (SIC 2070)

Field	Total	Percent of industry employment	Relative error
Total.....	1,120	2.51	(1)
Engineers.....	330	.73	(1)
Chemical.....	60	.13	21.07
Industrial.....	80	.18	17.19
Mechanical.....	130	.29	21.69
Other, n.e.c.....	60	.13	(1)
Scientists.....	440	1.00	(1)
Chemists.....	440	1.00	10.39
Technicians.....	350	.78	(1)
Computer programmer.....	90	.20	26.80
Engineering technicians.....	80	.18	(1)
Science technicians.....	110	.25	(1)
All other technicians.....	70	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Beverages (SIC 2080)

Field	Total	Percent of industry employment	Relative error
Total.....	4,660	1.89	(1)
Engineers.....	1,090	.44	(1)
Industrial.....	250	.10	10.36
Mechanical.....	530	.22	23.93
Other, n.e.c.....	310	.12	(1)
Scientists.....	1,760	.72	(1)
Chemists.....	1,090	.45	7.65
Biological scientists.....	240	.10	16.19
All other natural and mathematical scientists.....	50	.02	(1)
Systems analysts.....	380	.15	12.57
Technicians.....	1,810	.73	(1)
Computer programmer.....	310	.12	10.09
Drafter.....	100	.04	14.73
All other engineering technicians.....	120	.05	(1)
Biological science technicians.....	490	.20	17.56
All other science technicians.....	420	.17	(1)
All other technicians.....	370	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous food and kindred products (SIC 2090)

Field	Total	Percent of industry employment	Relative error
Total.....	3,270	1.92	(1)
Engineers.....	840	.49	(1)
Chemical.....	120	.07	33.09
Industrial.....	220	.13	17.32
Mechanical.....	340	.20	9.65
Other, n.e.c.....	160	.09	(1)
Scientists.....	1,120	.66	(1)
Chemists.....	580	.34	12.66
Biological scientists.....	140	.08	20.74
Systems analysts.....	400	.24	46.96
Technicians.....	1,310	.77	(1)
Computer programmer.....	220	.13	13.21
Engineering technicians.....	200	.12	(1)
Biological science technicians.....	190	.11	33.92
All other science technicians.....	420	.25	(1)
All other technicians.....	280	.16	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Cigarettes (SIC 2110)

Field	Total	Percent of industry employment	Relative error
Total.....	1,720	3.73	(1)
Engineers.....	280	.60	(1)
Industrial.....	80	.17	21.36
Mechanical.....	140	.30	19.84
Other, n.e.c.....	60	.13	(1)
Scientists.....	370	.80	(1)
Chemists.....	230	.50	23.53
Systems analysts.....	140	.30	21.58
Technicians.....	1,070	2.33	(1)
Drafter.....	110	.24	20.33
Electrical/electronic technicians.....	190	.41	21.74
All other technicians.....	770	1.68	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Cigars (SIC 2120)

Field	Total	Percent of industry employment	Relative error
Total.....	40	0.53	(1)
Technicians.....	40	.53	(1)
Field unspecified.....	40	.53	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Tobacco (chewing and smoking) (SIC 2130)

Field	Total	Percent of industry employment	Relative error
Total.....	30	0.65	(1)
Technicians.....	30	.65	(1)
Field unspecified.....	30	.65	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Tobacco stemming and redrying (SIC 2140)

Field	Total	Percent of industry employment	Relative error
Total.....	90	1.55	(1)
Technicians.....	90	1.55	(1)
Field unspecified.....	90	1.55	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Weaving mills, cotton (SIC 2210)

Field	Total	Percent of industry employment	Relative error
Total.....	2,610	1.68	(1)
Engineers.....	900	.58	(1)
Industrial.....	520	.34	7.04
Mechanical.....	160	.10	8.03
Other, n.e.c.....	220	.14	(1)
Scientists.....	350	.22	(1)
Chemists.....	70	.04	16.57
Systems analysts.....	280	.18	15.89
Technicians.....	1,360	.88	(1)
Computer programmer.....	250	.16	16.00
Engineering technicians.....	280	.18	11.09
Science technicians.....	540	.35	(1)
All other technicians.....	290	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Weaving mills, manmade fibers (SIC 2220)

Field	Total	Percent of industry employment	Relative error
Total.....	2,140	1.72	(1)
Engineers.....	750	.60	(1)
Industrial.....	440	.36	6.50
Mechanical.....	190	.15	11.68
Other, n.e.c.....	120	.09	(1)
Scientists.....	410	.33	(1)
Chemists.....	70	.05	14.32
Systems analysts.....	340	.28	24.92
Technicians.....	980	.79	(1)
Computer programmer.....	110	.09	20.43
Engineering technicians.....	140	.11	10.11
Science technicians.....	410	.33	(1)
All other technicians.....	320	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Weaving and finishing mills, wool (SIC 2230)

Field	Total	Percent of industry employment	Relative error
Total.....	350	1.69	(1)
Engineers.....	150	.73	(1)
Field unspecified.....	150	.73	(1)
Technicians.....	200	.96	(1)
Engineering technicians.....	60	.29	37.19
Science technicians.....	120	.58	(1)
All other technicians.....	20	.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Narrow fabric mills (SIC 2240)

Field	Total	Percent of industry employment	Relative error
Total.....	240	1.00	(1)
Engineers.....	100	.42	(1)
Field unspecified.....	100	.42	(1)
Technicians.....	140	.58	(1)
Science technicians.....	70	.29	(1)
All other technicians.....	70	.29	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Knitting mills (SIC 2250)

Field	Total	Percent of industry employment	Relative error
Total.....	1,790	0.77	(1)
Engineers.....	530	.23	(1)
Industrial.....	370	.16	7.68
Mechanical.....	160	.07	11.32
Scientists.....	270	.12	(1)
Chemists.....	90	.04	12.63
Systems analysts.....	180	.08	11.72
Technicians.....	990	.42	(1)
Computer programmer.....	220	.09	9.57
Engineering technicians.....	160	.07	17.02
Colorist.....	270	.12	11.11
All other science technicians.....	230	.10	(1)
All other technicians.....	110	.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Textile finishing, except wool and knit goods (SIC 2260)

Field	Total	Percent of industry employment	Relative error
Total.....	2,380	3.06	(1)
Engineers.....	300	.38	(1)
Industrial.....	140	.18	8.55
Mechanical.....	100	.13	9.08
Other, n.e.c.....	60	.07	(1)
Scientists.....	280	.36	(1)
Chemists.....	200	.26	9.01
Systems analysts.....	80	.10	29.59
Technicians.....	1,800	2.32	(1)
Computer programmer.....	60	.07	16.82
Engineering technicians.....	60	.07	18.53
Colorist.....	860	1.12	7.75
All other science technicians.....	560	.73	(1)
All other technicians.....	260	.33	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Floor covering mills (SIC 2270)

Field	Total	Percent of industry employment	Relative error
Total.....	760	1.33	(1)
Engineers.....	210	.37	(1)
Industrial.....	140	.25	13.27
Mechanical.....	70	.12	18.29
Scientists.....	70	.12	(1)
Systems analysts.....	70	.12	20.52
Technicians.....	480	.84	(1)
Computer programmer.....	410	.19	14.32
Colorist.....	140	.25	18.76
All other science technicians.....	80	.14	(1)
All other technicians.....	150	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Yarn and thread mills (SIC 2280)

Field	Total	Percent of industry employment	Relative error
Total.....	1,370	1.02	(1)
Engineers.....	430	.32	(1)
Industrial.....	270	.20	5.91
Mechanical.....	160	.12	11.94
Scientists.....	150	.11	(1)
Chemists.....	80	.06	16.27
Systems analysts.....	70	.05	18.64
Technicians.....	790	.59	(1)
Computer programmer.....	90	.06	18.33
Engineering technicians.....	170	.13	9.52
Colorist.....	80	.06	15.65
All other science technicians.....	350	.27	(1)
All other technicians.....	100	.07	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous textile goods (SIC 2290)

Field	Total	Percent of industry employment	Relative error
Total.....	1,930	2.79	(1)
Engineers.....	640	.92	(1)
Industrial.....	160	.23	9.39
Mechanical.....	270	.39	11.64
Other, n.e.c.....	210	.30	(1)
Scientists.....	300	.43	(1)
Chemists.....	210	.30	16.93
Systems analysts.....	90	.13	19.24
Technicians.....	990	1.44	(1)
Computer programmer.....	90	.13	15.59
Engineering technicians.....	120	.17	17.51
Colorist.....	140	.20	12.77
All other science technicians.....	510	.75	(1)
All other technicians.....	130	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Men's and boys' suits and coats (SIC 2310)

Field	Total	Percent of industry employment	Relative error
Total.....	420	0.51	(1)
Engineers.....	170	.21	(1)
Industrial.....	170	.21	12.19
Scientists.....	60	.07	(1)
Systems analysts.....	60	.07	22.52
Technicians.....	190	.23	(1)
Computer programmer.....	160	.20	26.99
All other technicians.....	30	.03	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Men's and boys' furnishings (SIC 2320)

Field	Total	Percent of industry employment	Relative error
Total.....	1,650	0.42	(1)
Engineers.....	900	.23	(1)
Industrial.....	800	.21	4.09
Mechanical.....	100	.02	18.14
Scientists.....	190	.05	(1)
Systems analysts.....	190	.05	14.51
Technicians.....	560	.14	(1)
Computer programmer.....	260	.07	11.37
Engineering technicians.....	180	.04	15.17
All other technicians.....	120	.03	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Women's and misses' outerwear (SIC 2330)

Field	Total	Percent of industry employment	Relative error
Total.....	990	0.21	(1)
Engineers.....	390	.09	(1)
Industrial.....	390	.09	7.82
Scientists.....	140	.03	(1)
Systems analysts.....	140	.03	33.18
Technicians.....	460	.09	(1)
Computer programmer.....	260	.06	13.82
Engineering technicians.....	150	.03	19.70
All other technicians.....	40	(1)	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Women's and children's ungergarments (SIC 2340)

Field	Total	Percent of industry employment	Relative error
Total.....	460	0.50	(1)
Engineers.....	200	.22	(1)
Industrial.....	200	.22	7.41
Technicians.....	260	.28	(1)
Computer programmer.....	90	.10	9.80
Engineering technicians.....	90	.10	16.43
All other technicians.....	80	.08	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Hats, caps, and millinery (SIC 2350)

Field	Total	Percent of industry employment	Relative error
Total.....	20	0.10	(1)
Technicians.....	20	.10	(1)
Field unspecified.....	20	.10	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Children's outerwear (SIC 2360)

Field	Total	Percent of industry employment	Relative error
Total.....	180	0.27	(1)
Engineers.....	80	.12	(1)
Industrial.....	80	.12	7.76
Technicians.....	100	.15	(1)
Field unspecified.....	100	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Fur goods (SIC 2370).

Field	Total	Percent of industry employment	Relative error
Total.....	10	0.27	(1)
Technicians.....	10	.27	(1)
Field unspecified.....	10	.27	(1)

See footnotes at end of table.

201 10

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous apparel and accessories (SIC 2380)

Field	Total	Percent of industry employment	Relative error
Total.....	230	0.40	(1)
Engineers.....	70	.12	(1)
Industrial.....	70	.12	11.09
Technicians.....	160	.28	(1)
Computer programmer.....	60	.10	15.65
All other technicians.....	100	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous fabricated textile products (SIC 2390)

Field	Total	Percent of industry employment	Relative error
Total.....	1,330	0.75	(1)
Engineers.....	690	.39	(1)
Industrial.....	320	.18	7.41
Mechanical.....	140	.08	15.66
Other, n.e.c.....	230	.13	(1)
Scientists.....	130	.07	(1)
Systems analysts.....	130	.07	19.03
Technicians.....	510	.29	(1)
Computer programmer.....	120	.07	12.86
Engineering technicians.....	260	.15	15.91
Science technicians.....	70	.04	34.90
All other technicians.....	60	.03	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Logging camps and contractors (SIC 2410)

Field	Total	Percent of industry employment	Relative error
Total.....	1,520	1.88	(1)
Engineers.....	80	.10	(1)
Field unspecified.....	80	.10	(1)
Scientists.....	120	.15	(1)
Agricultural scientists.....	120	.15	12.36
Technicians.....	1,320	1.63	(1)
Drafter.....	70	.08	32.61
All other engineering technicians.....	60	.07	(1)
Timber cruiser.....	950	1.18	12.68
All other technicians.....	240	.30	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Sawmills and planing mills (SIC 2420)

Field	Total	Percent of industry employment	Relative error
Total.....	1,750	0.81	(1)
Engineers.....	290	.13	(1)
Industrial.....	70	.03	12.71
Mechanical.....	110	.05	12.58
Other, n.e.c.....	110	.05	(1)
Scientists.....	550	.26	(1)
Agricultural scientists.....	550	.26	9.87
Technicians.....	910	.42	(1)
Drafter.....	80	.03	20.37
Timber cruiser.....	580	.28	8.48
All other science technicians.....	60	.02	(1)
All other technicians.....	190	.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Millwork, plywood, structural wood (SIC 2430)

Field	Total	Percent of industry employment	Relative error
Total.....	2,270	1.15	(1)
Engineers.....	440	.21	(1)
Industrial.....	200	.10	12.15
Mechanical.....	130	.06	10.14
Other, n.e.c.....	110	.05	(1)
Scientists.....	290	.15	(1)
Agricultural scientists.....	120	.06	17.36
Systems analysts.....	170	.09	16.12
Technicians.....	1,540	.79	(1)
Computer programmer.....	250	.13	13.25
Drafter.....	750	.39	7.30
All other engineering technicians.....	90	.04	(1)
Timber cruiser.....	220	.11	16.18
All other science technicians.....	60	.03	(1)
All other technicians.....	170	.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Wood containers (SIC 2440)

Field	Total	Percent of industry employment	Relative error
Total.....	50	0.11	(1)
Technicians.....	50	.11	(1)
Field unspecified.....	50	.11	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Wood buildings and mobile homes (SIC 2450)

Field	Total	Percent of industry employment	Relative error
Total.....	1,060	1.73	(1)
Engineers.....	180	.29	(1)
Industrial.....	70	.11	11.94
Other, n.e.c.....	110	.18	(1)
Technicians.....	880	1.44	(1)
Drafter.....	660	1.09	6.07
All other engineering technicians.....	60	.09	(1)
All other technicians.....	160	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con..

Miscellaneous wood products (SIC 2490)

Field	Total	Percent of industry employment	Relative error
Total.....	630	0.77	(1)
Engineers.....	250	.30	(1)
Industrial.....	90	.11	10.01
Mechanical.....	70	.08	9.73
Other, n.e.c.....	90	.11	(1)
Technicians.....	380	.47	(1)
Drafter.....	90	.11	19.12
Science technicians.....	90	.11	(1)
All other technicians.....	200	.25	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Household furniture (SIC 2510)

Field	Total	Percent of industry employment	Relative error
Total.....	2,370	0.77	(1)
Engineers.....	1,060	.35	(1)
Industrial.....	720	.24	6.43
Mechanical.....	180	.06	11.61
Other, n.e.c.....	160	.05	(1)
Scientists.....	200	.06	(1)
Systems analysts.....	200	.06	14.06
Technicians.....	1,110	.36	(1)
Computer programmer.....	400	.13	10.17
Drafter.....	370	.12	8.93
All other engineering technicians.....	190	.06	(1)
All other technicians.....	150	.05	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Office furniture (SIC 2520)

Field	Total	Percent of industry employment	Relative error
Total.....	1,570	3.15	(1)
Engineers.....	710	1.43	(1)
Industrial.....	380	.77	14.26
Mechanical.....	170	.34	23.59
Other, n.e.c.....	160	.32	(1)
Scientists.....	180	.36	(1)
Systems analysts.....	180	.36	24.95
Technicians.....	680	1.36	(1)
Computer programmer.....	220	.44	22.69
Drafter.....	260	.52	15.86
All other engineering technicians.....	180	.36	(1)
All other technicians.....	20	.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Public building and related furniture (SIC 2530)

Field	Total	Percent of industry employment	Relative error
Total.....	600	2.49	(1)
Engineers.....	240	.99	(1)
Industrial.....	90	.37	7.57
Mechanical.....	70	.29	9.88
Other, n.e.c.....	80	.33	(1)
Technicians.....	360	1.50	(1)
Drafter.....	250	1.04	8.60
All other technicians.....	110	.46	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Partitions and office and store fixtures (SIC 2540)

Field	Total	Percent of industry employment	Relative error
Total.....	1,410	2.18	(1)
Engineers.....	320	.49	(1)
Industrial.....	110	.17	9.50
Mechanical.....	90	.14	10.42
Other, n.e.c.....	120	.18	(1)
Technicians.....	1,090	1.69	(1)
Computer programmer.....	60	.09	9.69
Drafter.....	900	1.41	7.60
All other engineering technicians.....	80	.12	(1)
All other technicians.....	50	.07	(1)

See footnotes at end of table.

63

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous furniture and fixtures (SIC 2590)

Field	Total	Percent of industry employment	Relative error
Total.....	630	2.37	(1)
Engineers.....	270	1.01	(1)
Industrial.....	90	.34	16.22
Mechanical.....	120	.45	16.75
Other, n.e.c.....	60	.22	(1)
Technicians.....	360	1.36	(1)
Computer programmer.....	70	.26	26.54
Drafter.....	220	.84	11.16
All other technicians.....	70	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Pulp mills (SIC 2610)

Field	Total	Percent of industry employment	Relative error
Total.....	870	5.23	(1)
Engineers.....	360	2.16	(1)
Chemical.....	150	.90	11.74
Mechanical.....	110	.66	10.04
Other, n.e.c.....	100	.60	(1)
Scientists.....	140	.84	(1)
Chemists.....	140	.84	28.75
Technicians.....	370	2.23	(1)
Engineering technicians.....	70	.42	(1)
Science technicians.....	120	.72	31.25
All other technicians.....	180	1.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Paper mills, except building paper mills (SIC 2620)

Field	Total	Percent of industry employment	Relative error
Total.....	7,670	4.32	(1)
Engineers.....	3,370	1.91	(1)
Chemical.....	970	.55	9.48
Electrical/electronic.....	420	.24	7.95
Industrial.....	340	.19	8.61
Mechanical.....	1,220	.69	8.49
Other, n.e.c.....	420	.24	(1)
Scientists.....	1,340	.75	(1)
Chemists.....	680	.38	11.66
All other natural and mathematical scientists.....	280	.16	(1)
Systems analysts.....	380	.21	11.58
Technicians.....	2,960	1.66	(1)
Computer programmer.....	310	.17	9.12
Drafter.....	380	.21	13.11
All other engineering technicians.....	450	.25	(1)
Science technicians.....	780	.44	15.22
All other technicians.....	1,040	.59	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Paperboard mills SIC 2630)

Field	Total	Percent of industry employment	Relative error
Total.....	2,520	3.77	(1)
Engineers.....	1,140	1.71	(1)
Chemical.....	290	.44	8.75
Electrical/electronic.....	130	.19	7.35
Industrial.....	170	.25	10.52
Mechanical.....	360	.54	10.36
Other, n.e.c.....	190	.29	(1)
Scientists.....	360	.53	(1)
Chemists.....	220	.33	11.08
All other natural and mathematical scientists.....	50	.07	(1)
Systems analysts.....	90	.13	13.35
Technicians.....	1,020	1.53	(1)
Computer programmer.....	110	.16	9.88
Drafter.....	130	.19	10.98
All other engineering technicians.....	170	.25	(1)
Science technicians.....	230	.35	23.77
All other technicians.....	380	.58	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Converted paper and paperboard products (SIC 2640)

Field	Total	Percent of industry employment	Relative error
Total.....	10,240	4.53	(1)
Engineers.....	3,500	1.55	(1)
Chemical.....	380	.17	14.55
Electrical/electronic.....	270	.12	18.33
Industrial.....	490	.21	6.70
Mechanical.....	790	.35	9.34
Other, n.e.c.....	1,570	.70	(1)
Scientists.....	1,610	.71	(1)
Chemists.....	980	.43	25.23
All other natural and mathematical scientists.....	290	.13	(1)
Systems analysts.....	340	.15	16.93
Technicians.....	5,130	2.27	(1)
Computer programmer.....	330	.14	9.68
Drafter.....	390	.17	21.29
All other engineering technicians.....	640	.28	(1)
Science technicians.....	1,430	.64	37.38
All other technicians.....	2,340	1.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Paperboard containers and boxes (SIC 2650)

Field	Total	Percent of industry employment	Relative error
Total.....	2,000	0.91	(1)
Engineers.....	970	.44	(1)
Electrical/electronic.....	70	.03	15.82
Industrial.....	410	.19	4.76
Mechanical.....	290	.13	8.73
Other, n.e.c.....	200	.09	(1)
Scientists.....	140	.06	(1)
Systems analysts.....	140	.06	15.06
Technicians.....	890	.41	(1)
Computer programmer.....	240	.11	13.19
Drafter.....	150	.07	10.17
All other engineering technicians.....	170	.08	(1)
All other technicians.....	330	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Building paper and board mills (SIC 2660)

Field	Total	Percent of industry employment	Relative error
Total.....	270	2.41	(1)
Engineers.....	130	1.16	(1)
Field unspecified.....	130	1.16	(1)
Technicians.....	140	1.25	(1)
Field unspecified.....	140	1.25	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Newspapers (SIC 2710)

Field	Total	Percent of industry employment	Relative error
Total.....	4,180	0.93	(1)
Engineers.....	350	.06	(1)
Electrical/electronic.....	120	.02	21.96
Industrial.....	110	.02	30.18
Other, n.e.c.....	120	.02	(1)
Scientists.....	670	.15	(1)
Mathematical scientists.....	90	.02	(1)
Systems analysts.....	580	.13	6.87
Technicians.....	3,160	.72	(1)
Computer programmer.....	1,170	.27	8.07
Drafter.....	880	.20	13.17
Electrical/electronic technicians.....	870	.20	7.40
All other technicians.....	240	.05	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Periodicals (SIC 2720)

Field	Total	Percent of industry employment	Relative error
Total.....	2,770	3.14	(1)
Engineers.....	220	.25	(1)
Industrial.....	150	.17	47.56
Other, n.e.c.....	70	.08	(1)
Scientists.....	750	.85	(1)
Statistician.....	170	.19	19.10
Physical scientists.....	160	.18	(1)
Systems analysts.....	420	.48	14.97
Technicians.....	1,800	2.04	(1)
Computer programmer.....	530	.60	13.64
Drafter.....	980	1.12	16.11
Electrical/electronic technicians.....	120	.13	39.23
All other technicians.....	170	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Books (SIC 2730)

Field	Total	Percent of industry employment	Relative error
Total.....	1,790	1.71	(1)
Engineers.....	260	.24	(1)
Industrial.....	190	.18	27.02
Other, n.e.c.....	70	.06	(1)
Scientists.....	520	.50	(1)
Systems analysts.....	520	.50	13.85
Technicians.....	1,010	.97	(1)
Computer programmer.....	770	.75	13.92
Drafter.....	80	.07	35.75
All other technicians.....	160	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous publishing (SIC 2740)

Field	Total	Percent of industry employment	Relative error
Total.....	1,600	3.25	(1)
Scientists.....	150	.30	(1)
Mathematical scientists.....	60	.12	(1)
Systems analysts.....	90	.18	14.40
Technicians.....	1,450	2.95	(1)
Computer programmer.....	290	.59	12.33
Drafter.....	980	2.00	15.01
Electrical/electronic technicians.....	70	.14	40.05
All other technicians.....	110	.22	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Commercial printing (SIC 2750)

Field	Total	Percent of industry employment	Relative error
Total.....	4,170	0.95	(1)
Engineers.....	610	.12	(1)
Electrical/electronic.....	90	.02	22.20
Industrial.....	200	.04	8.99
Mechanical.....	200	.04	14.02
Other, n.e.c.....	120	.02	(1)
Scientists.....	330	.07	(1)
Chemists.....	100	.02	15.31
Systems analysts.....	230	.05	8.72
Technicians.....	3,230	.76	(1)
Computer programmer.....	760	.18	9.23
Drafter.....	1,780	.42	9.21
Electrical/electronic technicians.....	310	.07	20.28
All other technicians.....	380	.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Manifold business forms (SIC 2760)

Field	Total	Percent of industry employment	Relative error
Total.....	700	1.40	(1)
Engineers.....	190	.38	(1)
Industrial.....	80	.16	13.84
Mechanical.....	110	.22	38.38
Scientists.....	100	.20	(1)
Systems analysts.....	100	.20	23.10
Technicians.....	410	.82	(1)
Computer programmer.....	150	.30	15.78
Drafter.....	130	.26	15.77
All other engineering technicians.....	110	.22	(1)
All other technicians.....	20	.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con

Greeting card publishing (SIC 2770)

Field	Total	Percent of industry employment	Relative error
Total.....	710	2.84	(1)
Engineers.....	200	.80	(1)
Field unspecified.....	200	.80	(1)
Technicians.....	510	2.04	(1)
Computer programmer.....	300	1.20	43.62
Engineering technicians.....	100	.40	(1)
All other technicians.....	110	.44	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Blankbooks and bookbinding (SIC 2780)

Field	Total	Percent of industry employment	Relative error
Total.....	260	0.40	(1)
Engineers.....	123	.18	(1)
Mechanical.....	60	.09	12.70
Other, n.e.c.....	60	.09	(1)
Technicians.....	140	.22	(1)
Computer programmer.....	50	.09	21.40
Engineering technicians.....	80	.13	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Printing trade services (SIC 2790)

Field	Total	Percent of industry employment	Relative error
Total.....	900	2.03	(1)
Technicians.....	900	2.03	(1)
Computer programmer.....	220	.50	13.94
Drafter.....	530	1.20	21.23
Electrical/electronic technicians.....	100	.22	13.76
All other technicians.....	50	.11	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Industrial inorganic chemicals (SIC 2810)

Field	Total	Percent of industry employment	Relative error
Total.....	24,540	14.91	(1)
Engineers.....	9,090	5.52	(1)
Chemical.....	3,710	2.26	6.89
Civil.....	310	.18	15.17
Electrical/electronic.....	840	.51	13.13
Industrial.....	660	.40	14.70
Mechanical.....	1,790	1.09	9.89
Safety.....	380	.23	9.75
Other, n.e.c.....	1,490	.85	(1)
Scientists.....	6,040	3.67	(1)
Mathematical scientists.....	400	.24	20.06
Chemists.....	3,900	2.38	7.85
Biological scientists.....	170	.10	24.04
Medical scientists.....	80	.04	22.88
All other natural and mathematical scientists.....	410	.25	(1)
Systems analysts.....	1,080	.66	20.10
Technicians.....	9,410	5.72	(1)
Computer programmer.....	580	.35	13.13
Drafter.....	980	.59	15.72
Electrical/electronic technicians.....	460	.28	18.21
Industrial engineering technicians.....	200	.12	27.16
All other engineering technicians.....	2,000	1.22	(1)
Physical science technicians.....	2,520	1.54	15.44
Biological science technicians.....	510	.31	36.70
All other science technicians.....	1,130	.69	(1)
All other technicians.....	1,030	.62	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Plastics and synthetic materials and manmade fibers (SIC 2820)

Field	Total	Percent of industry employment	Relative error
Total.....	25,706	12.37	(1)
Engineers.....	9,860	4.75	(1)
Chemical.....	4,790	2.32	8.27
Civil.....	290	.14	20.57
Electrical/electronic.....	820	.39	17.95
Industrial.....	770	.37	8.34
Mechanical.....	2,110	1.02	14.28
Safety.....	350	.16	6.74
Other, n.e.c.....	730	.35	(1)
Scientists.....	5,080	2.44	(1)
Mathematical scientists.....	280	.13	27.15
Chemists.....	3,640	1.76	5.20
Life scientists.....	70	.03	(1)
All other natural and mathematical scientists.....	210	.10	(1)
Systems analysts.....	880	.42	15.96
Technicians.....	10,760	5.18	(1)
Computer programmer.....	620	.30	20.53
Drafter.....	980	.47	31.17
Electrical/electronic technicians.....	530	.25	13.77
Industrial engineering technicians.....	210	.10	21.91
All other engineering technicians.....	1,890	.91	(1)
Physical science technicians.....	2,650	1.28	10.74
Biological science technicians.....	200	.09	29.50
All other science technicians.....	1,140	.55	(1)
All other technicians.....	2,540	1.23	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Drugs (SIC 2830)

Field	Total	Percent of industry employment	Relative error
Total.....	38,070	19.02	(1)
Engineers.....	4,220	2.10	(1)
Chemical.....	1,370	.68	12.08
Electrical/electronic.....	240	.12	14.78
Industrial.....	1,040	.52	15.29
Mechanical.....	840	.42	17.50
Safety.....	170	.08	8.81
Other, n.e.c.....	560	.28	(1)
Scientists.....	18,460	9.24	(1)
Mathematical scientists.....	780	.39	12.08
Chemists.....	8,170	4.10	7.02
Agricultural scientists.....	200	.10	30.23
Biological scientists.....	5,000	2.51	8.81
Medical scientists.....	1,690	.84	15.74
All other natural and mathematical scientists.....	830	.41	(1)
Systems analysts.....	1,790	.89	12.19
Technicians.....	15,390	7.63	(1)
Computer programmer.....	1,090	.54	10.81
Drafter.....	310	.15	10.74
Electrical/electronic technicians.....	470	.23	16.07
Industrial engineering technicians.....	200	.10	19.26
All other engineering technicians.....	530	.26	(1)
Physical science technicians.....	3,200	1.60	17.26
Biological science technicians.....	6,320	3.17	10.98
All other science technicians.....	1,870	.93	(1)
All other technicians.....	1,490	.70	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Soap, detergents, cosmetics, and toilet goods (SIC 2840)

Field	Total	Percent of industry employment	Relative error
Total.....	9,710	6.87	(1)
Engineers.....	1,880	1.32	(1)
Chemical.....	500	.35	9.42
Electrical/electronic.....	60	.04	14.90
Industrial.....	440	.31	9.43
Mechanical.....	520	.37	8.39
Safety.....	60	.04	10.23
Other, n.e.c.....	300	.21	(1)
Scientists.....	4,730	3.37	(1)
Mathematical scientists.....	110	.07	17.78
Chemists.....	3,650	2.61	6.07
Biological scientists.....	280	.20	16.29
Systems analysts.....	690	.49	12.75
Technicians.....	3,100	2.18	(1)
Computer programmer.....	470	.33	9.71
Drafter.....	130	.09	10.51
All other engineering technicians.....	240	.17	(1)
Physical science technicians.....	1,110	.79	13.38
Biological science technicians.....	290	.20	14.57
All other science technicians.....	540	.38	(1)
All other technicians.....	320	.22	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Paints and allied products (SIC 2850)

Field	Total	Percent of industry employment	Relative error
Total.....	6,370	9.58	(1)
Engineers.....	590	.87	(1)
Chemical.....	270	.40	13.47
Industrial.....	60	.09	10.31
Mechanical.....	110	.16	11.91
Other, n.e.c.....	150	.22	(1)
Scientists.....	3,460	5.22	(1)
Chemists.....	3,360	5.07	3.79
Systems analysts.....	100	.15	9.12
Technicians.....	2,320	3.49	(1)
Computer programmer.....	140	.21	9.54
Engineering technicians.....	100	.15	(1)
Physical science technicians.....	1,700	2.56	9.21
All other science technicians.....	200	.30	(1)
All other technicians.....	180	.27	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Industrial organic chemicals (SIC 2860)

Field	Total	Percent of industry employment	Relative error
Total.....	32,600	18.65	(1)
Engineers.....	11,810	6.75	(1)
Chemical.....	6,250	3.59	8.40
Civil.....	240	.13	21.03
Electrical/electronic.....	830	.47	14.02
Industrial.....	710	.40	11.43
Mechanical.....	2,430	1.39	12.47
Safety.....	370	.21	8.44
Other, n.e.c.....	980	.56	(1)
Scientists.....	8,070	4.61	(1)
Mathematical scientists.....	400	.23	31.51
Chemists.....	5,730	3.29	10.29
Agricultural scientists.....	150	.08	29.32
Biological scientists.....	420	.24	21.04
Medical scientists.....	110	.06	31.34
All other natural and mathematical scientists.....	220	.12	(1)
Systems analysts.....	1,040	.59	14.15
Technicians.....	12,720	7.29	(1)
Computer programmer.....	720	.41	12.82
Drafter.....	770	.44	16.15
Electrical/electronic technicians.....	740	.42	19.37
All other engineering technicians.....	1,720	.99	(1)
Physical science technicians.....	3,490	2.00	11.44
Biological science technicians.....	740	.42	20.12
All other science technicians.....	3,510	2.02	(1)
All other technicians.....	1,030	.59	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Agricultural chemicals (SIC 2870)

Field	Total	Percent of industry employment	Relative error
Total.....	5,550	7.38	(1)
Engineers.....	1,960	2.61	(1)
Chemical.....	1,080	1.45	7.75
Electrical/electronic.....	120	.16	9.80
Industrial.....	140	.18	12.62
Mechanical.....	410	.55	9.69
Safety.....	110	.14	7.08
Other, n.e.c.....	100	.13	(1)
Scientists.....	1,490	1.99	(1)
Chemists.....	1,200	1.61	7.48
Agricultural scientists.....	50	.06	24.76
Biological scientists.....	120	.16	29.73
Systems analysts.....	120	.16	11.95
Technicians.....	2,100	2.78	(1)
Computer programmer.....	180	.24	14.39
Drafter.....	170	.22	8.12
Electrical/electronic technicians.....	80	.10	17.69
All other engineering technicians.....	210	.28	(1)
Physical science technicians.....	520	.69	15.49
Biological science technicians.....	280	.37	18.55
All other science technicians.....	320	.43	(1)
All other technicians.....	340	.45	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous chemical products (SIC 2890)

Field	Total	Percent of industry employment	Relative error
Total.....	8,930	9.40	(1)
Engineers.....	2,090	2.19	(1)
Chemical.....	1,080	1.14	9.27
Electrical/electronic.....	70	.07	13.54
Industrial.....	180	.19	10.17
Mechanical.....	410	.43	12.50
Safety.....	110	.11	9.41
Other, n.e.c.....	240	.25	(1)
Scientists.....	3,640	3.85	(1)
Mathematical scientists.....	60	.06	17.70
Chemists.....	3,230	3.43	5.70
Biological scientists.....	90	.09	25.74
All other natural and mathematical scientists.....	60	.06	(1)
Systems analysts.....	200	.21	13.80
Technicians.....	3,200	3.36	(1)
Computer programmer.....	260	.27	13.12
Drafter.....	150	.15	12.48
Electrical/electronic technicians.....	70	.07	23.08
All other engineering technicians.....	330	.35	(1)
Physical science technicians.....	1,470	1.56	14.11
Biological science technicians.....	130	.13	36.60
All other science technicians.....	430	.45	(1)
All other technicians.....	360	.38	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Petroleum refining (SIC 2910)

Field	Total	Percent of industry employment	Relative error
Total.....	17,180	10.69	(1)
Engineers.....	8,720	5.42	(1)
Chemical.....	3,590	2.24	11.29
Civil.....	400	.25	18.42
Electrical/electronic.....	410	.25	12.72
Industrial.....	430	.26	23.36
Mechanical.....	2,320	1.33	11.64
Petroleum.....	460	.28	24.26
Safety.....	370	.23	12.88
Other, n.e.c.....	840	.52	(1)
Scientists.....	2,770	1.72	(1)
Chemists.....	1,680	1.05	12.94
Earth scientists.....	320	.20	40.66
All other natural and mathematical scientists.....	70	.04	(1)
Systems analysts.....	700	.43	26.05
Technicians.....	5,690	3.55	(1)
Computer programmer.....	320	.20	20.00
Drafter.....	740	.46	10.48
Electrical/electronic technicians.....	240	.15	21.62
All other engineering technicians.....	1,680	1.05	(1)
Science technicians.....	1,640	1.02	14.91
All other technicians.....	1,070	.67	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Paving and roofing materials (SIC 2950)

Field	Total	Percent of industry employment	Relative error
Total.....	630	2.03	(1)
Engineers.....	240	.77	(1)
Industrial.....	60	.19	12.55
Mechanical.....	60	.19	1.67
Other, n.e.c.....	120	.39	(1)
Scientists.....	120	.39	(1)
Chemists.....	120	.39	16.42
Technicians.....	270	.87	(1)
Engineering technicians.....	70	.22	(1)
Science technicians.....	160	.52	13.83
All other technicians.....	40	.13	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous petroleum and coal products (SIC 2990)

Field	Total	Percent of industry employment	Relative error
Total.....	883	7.04	(1)
Engineers.....	210	1.68	(1)
Chemical.....	130	.80	18.87
Other, n.e.c.....	100	.88	(1)
Scientists.....	340	2.72	(1)
Chemists.....	340	2.72	9.28
Technicians.....	330	2.64	(1)
Engineering technicians.....	110	.88	(1)
Science technicians.....	150	1.20	15.93
All other technicians.....	70	.56	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1920--con.

Tires and inner tubes (SIC 3010)

Field	Total	Percent of industry employment	Relative error
Total.....	10,860	8.87	(1)
Engineers.....	3,770	3.08	(1)
Chemical.....	1,050	.86	45.33
Electrical/electronic.....	350	.28	33.99
Industrial.....	540	.44	16.48
Mechanical.....	1,270	1.04	41.75
Other, n.e.c.....	560	.46	(1)
Scientists.....	2,270	1.85	(1)
Mathematical scientists.....	60	.04	38.26
Chemists.....	1,260	1.03	44.55
Systems analysts.....	950	.78	47.97
Technicians.....	4,820	3.94	(1)
Computer programmer.....	630	.51	44.35
Drafter.....	320	.26	35.62
Industrial engineering technicians.....	240	.19	42.45
All other engineering technicians.....	890	.73	(1)
Science technicians.....	790	.65	24.58
All other technicians.....	1,950	1.60	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Rubber and plastics footwear (SIC 3020)

Field	Total	Percent of industry employment	Relative error
Total.....	120	3.81	(1)
Engineers.....	80	.36	(1)
Field unspecified.....	80	.36	(1)
Technicians.....	100	.45	(1)
Field unspecified.....	100	.45	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Reclaimed rubber (SIC 3030)

Field	Total	Percent of industry employment	Relative error
Total.....	20	2.22	(1)
Technicians.....	20	2.22	(1)
Field unspecified.....	20	2.22	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Rubber and plastics hose and belting (SIC 3040)

Field	Total	Percent of industry employment	Relative error
Total.....	920	4.17	(1)
Engineers.....	500	2.27	(1)
Industrial.....	90	.41	19.16
Mechanical.....	150	.68	18.02
Other, n.e.c.....	260	1.13	(1)
Technicians.....	420	1.90	(1)
Engineering technicians.....	240	1.09	(1)
Science technicians.....	120	.54	29.24
All other technicians.....	60	.27	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Fabricated rubber products, n.e.c. (SIC 3060)

Field	Total	Percent of industry employment	Relative error
Total.....	4,110	3.98	(1)
Engineers.....	1,650	1.60	(1)
Chemical.....	170	.16	6.62
Electrical/electronic.....	63	.05	8.46
Industrial.....	470	.46	7.25
Mechanical.....	530	.62	7.30
Other, n.e.c.....	320	.31	(1)
Scientists.....	670	.65	(1)
Chemists.....	550	.54	5.92
Systems analysts.....	120	.11	10.55
Technicians.....	1,790	1.73	(1)
Computer programmer.....	190	.18	8.73
Drafter.....	280	.27	6.75
Industrial engineering technicians.....	120	.11	5.91
All other engineering technicians.....	540	.53	(1)
Science technicians.....	440	.43	7.65
All other technicians.....	220	.21	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous plastics products (SIC 3070)

Field	Total	Percent of industry employment	Relative error
Total.....	12,070	2.65	(1)
Engineers.....	5,800	1.28	(1)
Chemical.....	710	.16	11.19
Electrical/electronic.....	340	.07	11.42
Industrial.....	1,450	.32	6.94
Mechanical.....	1,770	.39	6.32
Other, n.e.c.....	1,530	.34	(1)
Scientists.....	1,240	.27	(1)
Chemists.....	820	.18	17.22
Systems analysts.....	420	.09	12.90
Technicians.....	5,030	1.10	(1)
Computer programmer.....	520	.11	7.85
Drafter.....	1,100	.24	6.40
Industrial engineering technicians.....	350	.07	10.35
All other engineering technicians.....	1,270	.28	(1)
Science technicians.....	1,470	.33	12.34
All other technicians.....	320	.07	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Leather tanning and finishing (SIC 3110)

Field	Total	Percent of industry employment	Relative error
Total.....	190	0.98	(1)
Engineers.....	60	.31	(1)
Field unspecified.....	60	.31	(1)
Technicians.....	130	.67	(1)
Engineering technicians.....	60	.31	15.07
All other technicians.....	70	.36	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1922--con.

Boot and shoe cut stock and findings (SIC 3130)

Field	Total	Percent of industry employment	Relative error
Total.....	20	0.18	(1)
Technicians.....	20	.18	(1)
Field unspecified.....	20	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Footwear, except rubber (SIC 3140)

Field	Total	Percent of industry employment	Relative error
Total.....	940	0.61	(1)
Engineers.....	370	.24	(1)
Industrial.....	270	.18	7.16
Mechanical.....	100	.06	12.78
Scientists.....	120	.08	(1)
Systems analysts.....	120	.08	18.23
Technicians.....	450	.29	(1)
Computer programmer.....	200	.13	15.28
Engineering technicians.....	160	.10	45.50
All other technicians.....	90	.06	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Luggage (SIC 3160)

Field	Total	Percent of industry employment	Relative error
Total.....	130	0.76	(1)
Engineers.....	80	.47	(1)
Industrial.....	80	.47	19.15
Technicians.....	50	.29	(1)
Field unspecified.....	50	.29	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Handbags and personal leather goods (SIC 3170)

Field	Total	Percent of industry employment	Relative error
Total.....	120	0.39	(1)
Engineers.....	70	.23	(1)
Field unspecified.....	70	.23	(1)
Technicians.....	50	.16	(1)
Field unspecified.....	50	.16	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Leather goods, n.e.c. (SIC 3190)

Field	Total	Percent of industry employment	Relative error
Total.....	20	0.21	(1)
Technicians.....	20	.21	(1)
Field unspecified.....	20	.21	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Flat glass (SIC 3210)

Field	Total	Percent of industry employment	Relative error
Total.....	750	4.37	(1)
Engineers.....	350	2.04	(1)
Electrical/electronic.....	50	.29	13.08
Industrial.....	60	.35	13.50
Mechanical.....	80	.47	14.32
Ceramic.....	50	.29	14.33
Other, n.e.c.....	110	.64	(1)
Scientists.....	80	.47	(1)
Systems analysts.....	80	.47	15.18
Technicians.....	320	1.86	(1)
Electrical/electronic technicians.....	100	.58	27.56
All other engineering technicians.....	90	.52	(1)
All other technicians.....	130	.76	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Glass and glassware, pressed or blown (SIC 3220)

Field	Total	Percent of industry employment	Relative error
Total.....	4,660	3.63	(1)
Engineers.....	2,030	1.59	(1)
Chemical.....	100	.07	33.71
Electrical/electronic.....	180	.14	23.57
Industrial.....	480	.38	30.44
Mechanical.....	670	.53	28.35
Ceramic.....	260	.20	17.90
Other, n.e.c.....	340	.27	(1)
Scientists.....	400	.31	(1)
Chemists.....	160	.12	47.16
Systems analysts.....	240	.19	37.33
Technicians.....	2,230	1.73	(1)
Computer programmer.....	130	.10	12.29
Drafter.....	320	.25	22.17
Electrical/electronic technicians.....	310	.24	23.51
Mechanical engineering technicians.....	190	.15	37.34
Industrial engineering technicians.....	110	.08	32.35
All other engineering technicians.....	310	.28	(1)
Science technicians.....	410	.32	47.80
All other technicians.....	400	.31	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Products of purchased glass (SIC 3230)

Field	Total	Percent of industry employment	Relative error
Total.....	1,080	2.38	(1)
Engineers.....	440	.97	(1)
Industrial.....	140	.31	15.63
Mechanical.....	170	.37	16.65
Other, n.e.c.....	130	.29	(1)
Technicians.....	640	1.41	(1)
Computer programmer.....	70	.15	17.81
Drafter.....	260	.58	20.63
All other engineering technicians.....	100	.22	(1)
Science technicians.....	150	.33	48.49
All other technicians.....	60	.13	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Cement, hydraulic (SIC 3240)

Field	Total	Percent of industry employment	Relative error
Total.....	1,540	5.04	(1)
Engineers.....	370	1.19	(1)
Civil.....	50	.16	10.12
Electrical/electronic.....	60	.19	8.82
Industrial.....	90	.29	9.34
Mechanical.....	80	.26	8.98
Other, n.e.c.....	90	.29	(1)
Scientists.....	450	1.49	(1)
Chemists.....	450	1.49	6.32
Technicians.....	720	2.36	(1)
Drafter.....	60	.19	16.55
Electrical/electronic technicians.....	80	.26	15.89
Science technicians.....	470	1.55	7.13
All other technicians.....	110	.36	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Structural clay products (SIC 3250)

Field	Total	Percent of industry employment	Relative error
Total.....	720	1.54	(1)
Engineers.....	400	.86	(1)
Industrial.....	90	.19	14.18
Ceramic.....	210	.46	14.53
Other, n.e.c.....	100	.21	(1)
Technicians.....	320	.68	(1)
Drafter.....	90	.19	19.09
All other engineering technicians.....	90	.19	(1)
Science technicians.....	80	.17	47.83
All other technicians.....	60	.13	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Pottery and related products (SIC 3260)

Field	Total	Percent of industry employment	Relative error
Total.....	1,290	2.69	(1)
Engineers.....	630	1.32	(1)
Industrial.....	130	.27	12.14
Mechanical.....	110	.23	14.07
Ceramic.....	270	.57	12.32
Other, n.e.c.....	120	.25	(1)
Scientists.....	60	.12	(1)
Systems analysts.....	60	.12	22.45
Technicians.....	600	1.25	(1)
Computer programmer.....	60	.12	15.88
Drafter.....	100	.21	14.68
Industrial engineering technicians.....	70	.14	18.73
All other engineering technicians.....	120	.25	(1)
Science technicians.....	160	.34	40.70
All other technicians.....	90	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Concrete, gypsum, and plaster products (SIC 3270)

Field	Total	Percent of industry employment	Relative error
Total.....	3,220	1.49	(1)
Engineers.....	1,340	.62	(1)
Civil.....	430	.20	8.81
Industrial.....	490	.23	5.85
Mechanical.....	240	.11	12.72
Other, n.e.c.....	180	.08	(1)
Scientists.....	330	.15	(1)
Chemists.....	200	.09	22.62
Systems analysts.....	130	.06	21.16
Technicians.....	1,550	.72	(1)
Computer programmer.....	210	.10	12.09
✓ Drafter.....	1,030	.49	6.11
All other engineering technicians.....	100	.04	(1)
Science technicians.....	100	.04	14.76
All other technicians.....	110	.05	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Cut stone and stone products (SIC 3280)

Field	Total	Percent of industry employment	Relative error
Total.....	280	2.39	(1)
Technicians.....	280	2.39	(1)
Drafter.....	260	2.22	9.07
All other technicians.....	20	.17	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous nonmetallic mineral products (SIC 3290)

Field	Total	Percent of industry employment	Relative error
Total.....	6,810	4.88	(1)
Engineers.....	3,220	2.32	(1)
Chemical.....	230	.16	14.39
Civil.....	60	.04	36.95
Electrical/electronic.....	100	.07	11.36
Industrial.....	700	.51	6.79
Mechanical.....	920	.67	12.41
Ceramic.....	230	.16	16.71
Other, n.e.c.....	980	.71	(1)
Scientists.....	690	.49	(1)
Chemists.....	390	.28	14.82
Systems analysts.....	300	.21	14.07
Technicians.....	2,900	2.07	(1)
Computer programmer.....	240	.17	11.29
Drafter.....	570	.41	8.78
Electrical/electronic technicians.....	100	.07	18.30
Mechanical engineering technicians.....	400	.29	30.48
Industrial engineering technicians.....	160	.11	22.84
All other engineering technicians.....	450	.32	(1)
Science technicians.....	420	.30	15.25
All other technicians.....	560	.40	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1986

Blast furnaces and basic steel products (SIC 3310)

Field	Total	Percent of industry employment	Relative error
Total.....	21,860	3.91	(1)
Engineers.....	9,510	1.70	(1)
Chemical.....	150	.02	11.37
Civil.....	640	.11	14.53
Electrical/electronic.....	1,150	.21	10.79
Industrial.....	2,110	.38	6.13
Mechanical.....	1,860	.34	8.08
Metallurgists/metallurgical.....	2,060	.37	6.49
Safety.....	420	.07	8.26
Other, n.e.c.....	1,120	.20	(1)
Scientists.....	2,440	.44	(1)
Chemists.....	1,060	.19	6.83
All other natural and mathematical scientists.....	60	.01	(1)
Systems analysts.....	1,320	.24	8.09
Technicians.....	9,910	1.77	(1)
Computer programmer.....	1,000	.18	6.46
Drafter.....	1,510	.27	6.29
Electrical/electronic technicians.....	1,200	.22	15.60
Radiographer.....	80	.01	15.40
Mechanical engineering technicians.....	240	.04	14.01
Tool programmer, numerical controls.....	140	.02	22.30
Spectroscopist.....	410	.07	10.75
Industrial engineering technicians.....	980	.18	11.45
All other engineering technicians.....	1,560	.28	(1)
Science technicians.....	1,940	.35	9.55
All other technicians.....	850	.15	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Iron and steel foundries (SIC 3320)

Field	Total	Percent of industry employment	Relative error
Total.....	7,510	3.27	(1)
Engineers.....	3,630	1.59	(1)
Civil.....	90	.04	18.80
Electrical/electronic.....	100	.04	10.63
Industrial.....	820	.36	8.88
Mechanical.....	790	.35	10.30
Metallurgists/metallurgical.....	750	.33	7.91
Safety.....	130	.05	10.14
Other, n.e.c.....	950	.42	(1)
Scientists.....	380	.16	(1)
Chemists.....	160	.07	9.65
Systems analysts.....	220	.09	9.39
Technicians.....	3,500	1.52	(1)
Computer programmer.....	220	.09	8.17
Drafter.....	560	.25	7.97
Electrical/electronic technicians.....	120	.05	15.89
Radiographer.....	380	.17	15.72
Mechanical engineering technicians.....	220	.09	16.75
Tool programmer, numerical controls.....	70	.03	24.33
Spectroscopist.....	220	.09	7.49
Industrial engineering technicians.....	460	.20	8.30
All other engineering technicians.....	380	.17	(1)
Science technicians.....	460	.20	8.64
All other technicians.....	410	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Primary nonferrous metals (SIC 3330)

Field	Total	Percent of industry employment	Relative error
Total.....	4,000	5.33	(1)
Engineers.....	1,560	2.08	(1)
Chemical.....	200	.27	8.57
Electrical/electronic.....	250	.33	7.09
Industrial.....	200	.27	13.56
Mechanical.....	380	.51	6.05
Metallurgists/metallurgical.....	250	.33	5.26
Safety.....	80	.10	4.92
Other, n.e.c.....	200	.27	(1)
Scientists.....	580	.77	(1)
Chemists.....	390	.52	5.60
All other natural and mathematical scientists.....	60	.08	(1)
Systems analysts.....	130	.17	7.94
Technicians.....	1,860	2.48	(1)
Computer programmer.....	90	.12	7.71
Drafter.....	240	.32	5.99
Electrical/electronic technicians.....	100	.13	12.21
Mechanical engineering technicians.....	120	.16	36.98
Spectroscopist.....	100	.13	10.45
All other engineering technicians.....	220	.29	(1)
Science technicians.....	560	.75	9.00
All other technicians.....	430	.58	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Secondary nonferrous metals (SIC 3340)

Field	Total	Percent of industry employment	Relative error
Total.....	1,170	4.56	(1)
Engineers.....	430	1.67	(1)
Chemical.....	50	.19	37.17
Industrial.....	80	.31	13.57
Mechanical.....	60	.23	17.69
Metallurgists/metallurgical.....	150	.59	26.61
Other, n.e.c.....	90	.35	(1)
Scientists.....	300	1.18	(1)
Chemists.....	300	1.18	14.65
Technicians.....	440	1.71	(1)
Spectroscopist.....	100	.39	16.53
All other engineering technicians.....	100	.39	(1)
Science technicians.....	180	.70	18.87
All other technicians.....	60	.23	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Nonferrous rolling and drawing (SIC 3350)

Field	Total	Percent of industry employment	Relative error
Total.....	11,280	5.10	(1)
Engineers.....	5,130	2.32	(1)
Chemical.....	230	.10	12.87
Civil.....	100	.04	16.45
Electrical/electronic.....	970	.44	12.04
Industrial.....	1,030	.47	8.06
Mechanical.....	1,360	.62	10.16
Metallurgists/metallurgical.....	790	.36	14.37
Safety.....	150	.06	11.11
Other, n.e.c.....	500	.23	(1)
Scientists.....	1,030	.47	(1)
Chemists.....	420	.19	12.06
Systems analysts.....	610	.28	8.99
Technicians.....	5,120	2.31	(1)
Computer programmer.....	560	.25	12.96
Drafter.....	910	.41	8.61
Electrical/electronic technicians.....	700	.32	12.56
Mechanical engineering technicians.....	180	.08	11.52
Tool programmer, numerical controls.....	100	.04	29.58
Spectroscopist.....	240	.11	14.88
Industrial engineering technicians.....	250	.11	13.07
All other engineering technicians.....	760	.35	(1)
Science technicians.....	900	.41	17.62
All other technicians.....	520	.23	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Nonferrous foundries (castings) (SIC 3360).

Field	Total	Percent of industry employment	Relative error
Total.....	2,170	2.21	(1)
Engineers.....	1,130	1.16	(1)
Industrial.....	320	.33	7.75
Mechanical.....	350	.36	7.67
Metallurgists/metallurgical.....	190	.19	12.67
Other, n.e.c.....	270	.28	(1)
Technicians.....	1,040	1.05	(1)
Computer programmer.....	70	.07	11.54
Drafter.....	360	.37	7.34
Radiographer.....	160	.16	15.48
Industrial engineering technicians.....	100	.10	10.83
All other engineering technicians.....	240	.24	(1)
All other technicians.....	110	.11	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous primary metal products (SIC 3390)

Field	Total	Percent of industry employment	Relative error
Total.....	1,090	4.05	(1)
Engineers.....	550	2.05	(1)
Industrial.....	110	.41	13.04
Mechanical.....	80	.30	12.27
Metallurgists and metallurgical.....	220	.82	11.67
Other, n.e.c.....	140	.52	(1)
Scientists.....	70	.26	(1)
Chemists.....	70	.26	20.59
Technicians.....	470	1.74	(1)
Drafter.....	70	.26	16.62
All other engineering technicians.....	90	.33	(1)
Science technicians.....	220	.82	24.74
All other technicians.....	90	.33	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Metal cans and shipping containers (SIC 3410)

Field	Total	Percent of industry employment	Relative error
Total.....	1,900	2.52	(1)
Engineers.....	990	1.31	(1)
Electrical/electronic.....	100	.13	31.30
Industrial.....	230	.30	15.72
Mechanical.....	600	.80	23.39
Other, n.e.c.....	60	.03	(1)
Scientists.....	150	.20	(1)
Chemists.....	60	.08	40.69
Systems analysts.....	90	.12	36.02
Technicians.....	760	1.01	(1)
Computer programmer.....	60	.08	29.11
Drafter.....	150	.20	30.28
Electrical/electronic technicians.....	120	.16	26.94
All other engineering technicians.....	220	.29	(1)
Science technicians.....	60	.08	45.63
All other technicians.....	150	.20	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Cutlery, handtools, and hardware (SIC 3420)

Field	Total	Percent of industry employment	Relative error
Total.....	5,130	3.15	(1)
Engineers.....	2,800	1.73	(1)
Electrical/electronic.....	90	.05	13.52
Industrial.....	1,100	.68	6.97
Mechanical.....	1,200	.75	7.10
Other, n.e.c.....	410	.25	(1)
Scientists.....	430	.26	(1)
Physical scientists.....	70	.04	(1)
Systems analysts.....	360	.22	12.83
Technicians.....	1,900	1.16	(1)
Computer programmer.....	350	.21	9.44
Drafter.....	750	.47	6.44
Electrical/electronic technicians.....	70	.04	15.45
Mechanical engineering technicians.....	130	.08	10.87
All other engineering technicians.....	290	.18	(1)
Science technicians.....	200	.12	26.37
All other technicians.....	110	.06	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Heating equipment and plumbing fixtures (SIC 3430)

Field	Total	Percent of industry employment	Relative error
Total.....	2,740	4.11	(1)
Engineers.....	1,310	1.97	(1)
Electrical/electronic.....	70	.10	19.45
Industrial.....	430	.65	6.62
Mechanical.....	670	1.01	12.34
Other, n.e.c.....	140	.21	(1)
Scientists.....	100	.15	(1)
Systems analysts.....	100	.15	9.80
Technicians.....	1,330	1.99	(1)
Computer programmer.....	140	.21	9.01
Drafter.....	710	1.07	7.43
Mechanical engineering technicians.....	170	.25	14.57
All other engineering technicians.....	160	.24	(1)
All other technicians.....	150	.22	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Fabricated structural metal products (SIC 3440)

Field	Total	Percent of industry employment	Relative error
Total.....	26,640	5.21	(1)
Engineers.....	9,330	1.82	(1)
Chemical.....	90	.01	17.33
Civil.....	1,210	.24	10.77
Electrical/electronic.....	440	.08	17.96
Industrial.....	2,110	.42	8.30
Mechanical.....	3,710	.73	8.17
Metallurgists/metallurgical.....	250	.04	21.46
Other, n.e.c.....	1,520	.30	(1)
Scientists.....	550	.10	(1)
Chemists.....	60	.01	23.94
Systems analysts.....	490	.09	11.14
Technicians.....	16,760	3.29	(1)
Computer programmer.....	1,010	.20	9.88
Drafter.....	12,280	2.44	3.65
Electrical/electronic technicians.....	300	.05	16.61
Mechanical engineering technicians.....	610	.12	18.64
Tool programmer, numerical controls.....	300	.05	10.55
All other engineering technicians.....	1,150	.22	(1)
Science technicians.....	290	.05	24.69
All other technicians.....	820	.16	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Screw machine products and bolts, nuts, and washers (SIC 3450)

Field	Total	Percent of industry employment	Relative error
Total.....	2,620	2.39	(1)
Engineers.....	1,360	1.25	(1)
Industrial.....	370	.34	7.69
Mechanical.....	770	.71	9.72
Metallurgists/metallurgical.....	80	.07	12.69
Other, n.e.c.....	140	.13	(1)
Scientists.....	110	.10	(1)
Systems analysts.....	110	.10	11.81
Technicians.....	1,150	1.04	(1)
Computer programmer.....	170	.15	9.97
Drafter.....	430	.40	6.30
Mechanical engineering technicians.....	140	.13	15.44
Tool programmer, numerical controls.....	110	.10	12.34
All other engineering technicians.....	170	.15	(1)
Science technicians.....	80	.07	18.75
All other technicians.....	50	.04	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Metal forgings and stampings (SIC 3460)

Field	Total	Percent of industry employment	Relative error
Total.....	6,110	2.30	(1)
Engineers.....	3,270	1.24	(1)
Civil.....	60	.02	28.99
Electrical/electronic.....	110	.04	15.07
Industrial.....	1,180	.45	5.39
Mechanical.....	1,170	.45	5.96
Metallurgists/metallurgical.....	180	.06	13.27
Other, n.e.c.....	570	.22	(1)
Scientists.....	350	.11	(1)
Chemists.....	50	.01	18.86
All other natural and mathematical scientists.....	50	.01	(1)
Systems analysts.....	250	.09	17.29
Technicians.....	2,490	.95	(1)
Computer programmer.....	320	.12	11.02
Drafter.....	1,100	.42	6.53
Electrical/electronic technicians.....	160	.06	14.79
Mechanical engineering technicians.....	130	.05	17.67
Tool programmer, numerical controls.....	210	.08	12.30
All other engineering technicians.....	310	.12	(1)
All other technicians.....	260	.10	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Coating, engraving, and allied services (SIC 3470)

Field	Total	Percent of industry employment	Relative error
Total.....	1,360	1.36	(1)
Engineers.....	590	.59	(1)
Electrical/electronic.....	50	.05	37.28
Industrial.....	120	.12	15.83
Mechanical.....	320	.32	13.64
Other, n.e.c.....	100	.10	(1)
Scientists.....	320	.32	(1)
Chemists.....	320	.32	10.01
Technicians.....	450	.45	(1)
Drafter.....	150	.15	19.43
All other engineering technicians.....	100	.10	(1)
Science technicians.....	120	.12	16.68
All other technicians.....	80	.08	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Ordnance and accessories, n.e.c. (SIC 3480)

Field	Total	Percent of industry employment	Relative error
Total.....	5,520	8.90	(1)
Engineers.....	2,480	4.01	(1)
Civil.....	60	.09	21.69
Electrical/electronic.....	220	.35	16.49
Industrial.....	930	1.51	10.91
Mechanical.....	850	1.38	8.21
Other, n.e.c.....	420	.68	(1)
Scientists.....	370	.59	(1)
Chemists.....	230	.37	30.81
Systems analysts.....	140	.22	13.60
Technicians.....	2,670	4.30	(1)
Computer programmer.....	190	.30	10.76
Drafter.....	400	.65	10.26
Electrical/electronic technicians.....	300	.48	14.25
Mechanical engineering technicians.....	220	.35	17.65
Tool programmer, numerical controls.....	100	.16	16.96
All other engineering technicians.....	490	.79	(1)
Science technicians.....	540	.87	34.29
All other technicians.....	430	.70	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Nonferrous foundries (castings) (SIC 3360)

Field	Total	Percent of industry employment	Relative error
Total.....	2,170	2.21	(1)
Engineers.....	1,130	1.16	(1)
Industrial.....	320	.33	7.75
Mechanical.....	350	.36	7.67
Metallurgists/metallurgical.....	190	.19	12.47
Other, n.e.c.....	270	.28	(1)
Technicians.....	1,040	1.05	(1)
Computer programmer.....	70	.07	11.54
Drafter.....	360	.37	7.34
Radiographer.....	160	.16	15.48
Industrial engineering technicians.....	100	.10	10.83
All other engineering technicians.....	240	.24	(1)
All other technicians.....	110	.11	(1)

See footnotes at end of table.

8

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous primary metal products (SIC 3390)

Field	Total	Percent of industry employment	Relative error
Total.....	1,090	4.05	(1)
Engineers.....	550	2.05	(1)
Industrial.....	110	.41	13.04
Mechanical.....	80	.30	12.27
Metallurgists/metallurgical.....	220	.82	11.67
Other, n.e.c.....	140	.52	(1)
Scientists.....	70	.26	(1)
Chemists.....	70	.26	20.59
Technicians.....	470	1.74	(1)
Drafter.....	70	.26	16.62
All other engineering technicians.....	90	.33	(1)
Science technicians.....	220	.82	24.74
All other technicians.....	90	.33	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous fabricated metal products (SIC 3490)

Field	Total	Percent of industry employment	Relative error
Total.....	11,950	4.67	(1)
Engineers.....	5,310	2.09	(1)
Chemical.....	60	.02	23.39
Civil.....	60	.02	19.15
Electrical/electronic.....	380	.15	24.05
Industrial.....	1,900	.75	5.31
Mechanical.....	2,400	.95	5.38
Metallurgists/metallurgical.....	130	.05	10.47
Other, n.e.c.....	380	.15	(1)
Scientists.....	480	.18	(1)
Chemists.....	80	.03	19.41
Systems analysts.....	400	.15	8.90
Technicians.....	6,160	2.40	(1)
Computer programmer.....	490	.19	6.30
Drafter.....	2,840	1.12	6.20
Electrical/electronic technicians.....	420	.16	23.96
Mechanical engineering technicians.....	740	.29	12.24
Tool programmer, numerical controls.....	290	.11	9.67
All other engineering technicians.....	900	.35	(1)
Science technicians.....	160	.06	14.66
All other technicians.....	320	.12	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Engines and turbines (SIC 3510)

Field	Total	Percent of industry employment	Relative error
Total.....	15,720	11.60	(1)
Engineers.....	8,940	6.62	(1)
Civil.....	80	.05	31.25
Electrical/electronic.....	800	.59	21.97
Industrial.....	1,890	1.41	13.84
Mechanical.....	3,540	2.63	16.02
Metallurgists/metallurgical.....	250	.18	23.49
Other, n.e.c.....	2,380	1.77	(1)
Scientists.....	860	.63	(1)
Physical scientists.....	270	.20	(1)
Systems analysts.....	590	.43	51.01
Technicians.....	5,920	4.35	(1)
Computer programmer, business.....	440	.32	16.64
Computer programmer, scientific and technical.....	130	.09	23.00
Drafter.....	1,320	.98	14.57
Electrical/electronic technicians.....	620	.46	25.80
Mechanical engineering technicians.....	1,060	.77	21.98
Tool programmer, numerical controls.....	340	.25	31.21
Industrial engineering technicians.....	360	.26	22.46
All other engineering technicians.....	1,070	.79	(1)
Science technicians.....	280	.20	47.96
All other technicians.....	320	.23	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Farm and garden machinery and equipment (SIC 3520)

Field	Total	Percent of industry employment	Relative error
Total.....	10,390	5.87	(1)
Engineers.....	5,170	2.93	(1)
Chemical.....	130	.10	26.06
Civil.....	170	.09	21.11
Electrical/electronic.....	390	.17	15.51
Industrial.....	1,950	1.11	11.02
Mechanical.....	1,960	1.12	13.38
Metallurgists/metallurgical.....	250	.14	22.31
Other, n.e.c.....	360	.20	(1)
Scientists.....	660	.37	(1)
Systems analysts.....	660	.37	42.21
Technicians.....	4,560	2.57	(1)
Computer programmer, business.....	360	.20	8.63
Computer programmer, scientific and technical.....	90	.05	23.68
Drafter.....	1,430	.81	5.68
Electrical/electronic technicians.....	210	.12	16.33
Mechanical engineering technicians.....	590	.33	15.91
Tool programmer, numerical controls.....	110	.06	12.71
Industrial engineering technicians.....	880	.50	16.19
All other engineering technicians.....	580	.33	(1)
Science technicians.....	100	.05	24.15
All other technicians.....	210	.12	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Construction and related machinery and equipment (SIC 3530)

Field	Total	Percent of industry employment	Relative error
Total.....	31,800	8.08	(1)
Engineers.....	14,430	3.68	(1)
Civil.....	390	.10	26.54
Electrical/electronic.....	1,550	.39	14.34
Industrial.....	4,450	1.14	6.82
Mechanical.....	5,980	1.53	6.70
Metallurgists/metallurgical.....	300	.07	15.21
Other, n.e.c.....	1,760	.45	(1)
Scientists.....	1,530	.38	(1)
Physical scientists.....	170	.04	(1)
Systems analysts.....	1,360	.34	31.08
Technicians.....	15,840	4.02	(1)
Computer programmer, business.....	1,070	.27	9.22
Computer programmer, scientific and technical.....	260	.06	18.89
Drafter.....	8,600	2.20	8.05
Electrical/electronic technicians.....	910	.23	16.76
Mechanical engineering technicians.....	1,100	.28	17.50
Tool programmer, numerical controls.....	950	.24	9.07
Industrial engineering technicians.....	1,140	.29	14.64
All other engineering technicians.....	870	.22	(1)
Science technicians.....	210	.05	24.61
All other technicians.....	730	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Metalworking machinery and equipment (SIC 3540)

Field	Total	Percent of industry employment	Relative error
Total.....	23,660	6.28	(1)
Engineers.....	11,370	3.03	(1)
Civil.....	150	.04	24.48
Electrical/electronic.....	1,670	.44	8.45
Industrial.....	3,400	.91	6.57
Mechanical.....	5,040	1.35	5.81
Metallurgists/metallurgical.....	290	.07	16.07
Other, n.e.c.....	820	.22	(1)
Scientists.....	660	.17	(1)
Systems analysts.....	660	.17	28.19
Technicians.....	11,630	3.08	(1)
Computer programmer, business.....	640	.17	6.49
Computer programmer, scientific and technical.....	230	.06	12.26
Drafter.....	6,080	1.63	3.97
Electrical/electronic technicians.....	1,420	.38	11.32
Mechanical engineering technicians.....	500	.13	11.98
Tool programmer, numerical controls.....	1,040	.27	5.86
Industrial engineering technicians.....	510	.13	11.93
All other engineering technicians.....	480	.12	(1)
Science technicians.....	300	.08	36.96
All other technicians.....	430	.11	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Special industry machinery except metalworking (SIC 3550)

Field	Total	Percent of industry employment	Relative error
Total.....	21,610	10.13	(1)
Engineers.....	9,860	4.64	(1)
Chemical.....	280	.13	17.76
Electrical/electronic.....	1,520	.71	8.17
Industrial.....	2,730	1.29	25.87
Mechanical.....	4,730	2.23	5.99
Other, n.e.c.....	600	.28	(1)
Scientists.....	540	.24	(1)
Chemists.....	160	.07	21.52
Systems analysts.....	380	.17	32.11
Technicians.....	11,210	5.25	(1)
Computer programmer, business.....	900	.42	34.92
Computer programmer, scientific and technical.....	640	.30	49.55
Drafter.....	4,920	2.32	3.78
Electrical/electronic technicians.....	1,880	.88	26.52
Mechanical engineering technicians.....	670	.31	12.46
Tool programmer, numerical controls.....	520	.24	6.25
Industrial engineering technicians.....	360	.17	11.75
All other engineering technicians.....	580	.27	(1)
Science technicians.....	260	.12	18.85
All other technicians.....	480	.22	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

General industrial machinery and equipment (SIC 3560)

Field	Total	Percent of industry employment	Relative error
Total.....	26,340	8.12	(1)
Engineers.....	13,120	4.06	(1)
Chemical.....	270	.08	19.51
Civil.....	530	.16	22.85
Electrical/electronic.....	1,450	.45	6.93
Industrial.....	3,460	1.07	5.26
Mechanical.....	5,750	1.79	5.94
Metallurgists/metallurgical.....	270	.08	9.55
Other, n.e.c.....	1,390	.63	(1)
Scientists.....	850	.25	(1)
Chemists.....	80	.02	18.52
Systems analysts.....	770	.23	25.32
Technicians.....	12,370	3.81	(1)
Computer programmer, business.....	890	.27	6.82
Computer programmer, scientific and technical.....	200	.06	12.66
Drafter.....	5,460	1.70	3.88
Electrical/electronic technicians.....	1,170	.36	8.31
Mechanical engineering technicians.....	1,560	.48	9.05
Tool programmer, numerical controls.....	610	.19	6.41
Industrial engineering technicians.....	820	.25	8.79
All other engineering technicians.....	920	.28	(1)
Science technicians.....	350	.10	34.79
All other technicians.....	390	.12	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Office, computing, and accounting machines (SIC 3570)

Field	Total	Percent of industry employment	Relative error
Total.....	120,370	27.76	(1)
Engineers.....	51,360	11.86	(1)
Chemical.....	110	.02	16.39
Electrical/electronic.....	25,950	6.00	.58
Industrial.....	11,040	2.55	14.87
Mechanical.....	4,670	1.08	10.08
Other, n.e.c.....	9,590	2.21	(1)
Scientists.....	6,610	1.51	(1)
Chemists.....	110	.02	14.98
All other natural and mathematical scientists.....	90	.02	(1)
Systems analysts.....	6,410	1.47	38.65
Technicians.....	62,400	14.39	(1)
Computer programmer, business.....	10,220	2.36	17.28
Computer programmer, scientific and technical.....	11,530	2.66	15.91
Drafter.....	3,500	.80	5.62
Electrical/electronic technicians.....	25,900	5.99	7.07
Mechanical engineering technicians.....	2,520	.58	23.61
Tool programmer, numerical controls.....	220	.05	33.61
Industrial engineering technicians.....	670	.15	15.76
All other engineering technicians.....	5,050	1.16	(1)
Science technicians.....	350	.08	42.01
All other technicians.....	2,440	.56	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Refrigeration and service industry machinery (SIC 3580)

Field	Total	Percent of industry employment	Relative error
Total.....	12,420	7.30	(1)
Engineers.....	5,450	3.22	(1)
Civil.....	120	.07	30.10
Electrical/electronic.....	480	.28	12.14
Industrial.....	1,620	.96	7.25
Mechanical.....	2,750	1.63	22.65
Other, n.e.c.....	480	.28	(1)
Scientists.....	490	.27	(1)
Chemists.....	90	.05	19.22
Systems analysts.....	400	.22	63.11
Technicians.....	6,480	3.81	(1)
Computer programmer, business.....	390	.23	12.83
Computer programmer, scientific and technical.....	110	.06	21.04
Drafter.....	2,500	1.48	7.35
Electrical/electronic technicians.....	800	.47	14.57
Mechanical engineering technicians.....	720	.42	25.72
Tool programmer, numerical controls.....	120	.07	11.06
Industrial engineering technicians.....	760	.45	31.89
All other engineering technicians.....	360	.21	(1)
Science technicians.....	260	.15	21.42
All other technicians.....	460	.27	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous machinery, except electrical (SIC 3590)

Field	Total	Percent of industry employment	Relative error
Total.....	9,210	3.06	(1)
Engineers.....	4,930	1.66	(1)
Electrical/electronic.....	510	.17	9.72
Industrial.....	1,780	.60	4.89
Mechanical.....	2,180	.74	7.36
Metallurgists/metallurgical.....	70	.02	14.28
Other, n.e.c.....	390	.13	(1)
Scientists.....	130	.04	(1)
Systems analysts.....	130	.04	(1)
Technicians.....	4,150	1.36	(1)
Computer programmer, business.....	230	.07	11.99
Computer programmer, scientific and technical.....	120	.04	14.49
Drafter.....	1,960	.66	5.40
Electrical/electronic technicians.....	400	.13	12.78
Mechanical engineering technicians.....	350	.11	19.60
Tool programmer, numerical controls.....	460	.15	6.60
Industrial engineering technicians.....	170	.05	17.00
All other engineering technicians.....	220	.07	(1)
All other technicians.....	240	.08	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Electrical transmission and distribution equipment (SIC 3610)

Field	Total	Percent of industry employment	Relative error
Total.....	10,060	8.18	(1)
Engineers.....	4,870	3.98	(1)
Electrical/electronic.....	2,660	2.18	8.44
Industrial.....	1,390	1.14	9.23
Mechanical.....	580	.47	11.41
Other, n.e.c.....	240	.19	(1)
Scientists.....	320	.25	(1)
Systems analysts.....	320	.25	37.22
Technicians.....	4,870	3.95	(1)
Computer programmer, business.....	240	.19	10.93
Computer programmer, scientific and technical.....	110	.09	20.55
Drafter.....	2,180	1.79	8.44
Electrical/electronic technicians.....	1,470	1.20	8.49
Mechanical engineering technicians.....	240	.19	18.93
Tool programmer, numerical controls.....	60	.04	14.52
Industrial engineering technicians.....	200	.16	21.92
All other engineering technicians.....	150	.12	(1)
Science technicians.....	100	.08	36.56
All other technicians.....	120	.09	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Electrical industrial apparatus (SIC 3620)

Field	Total	Percent of industry employment	Relative error
Total.....	24,200	10.15	(1)
Engineers.....	11,710	4.93	(1)
Chemical.....	340	.14	34.85
Electrical/electronic.....	5,720	2.42	9.32
Industrial.....	2,400	1.01	5.93
Mechanical.....	2,280	.96	8.17
Metallurgists/metallurgical.....	110	.04	24.52
Other, n.e.c.....	860	.36	(1)
Scientists.....	1,150	.45	(1)
Mathematical scientists.....	80	.03	(1)
Chemists.....	140	.05	30.96
Physicists.....	180	.07	45.24
Systems analysts.....	750	.30	34.35
Technicians.....	11,340	4.77	(1)
Computer programmer, business.....	530	.22	10.60
Computer programmer, scientific and technical.....	290	.12	23.79
Drafter.....	2,790	1.18	6.79
Electrical/electronic technicians.....	4,140	1.75	8.95
Mechanical engineering technicians.....	740	.31	12.01
Tool programmer, numerical controls.....	190	.08	11.01
Industrial engineering technicians.....	530	.22	11.55
All other engineering technicians.....	1,210	.51	(1)
Science technicians.....	360	.15	31.16
All other technicians.....	560	.23	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Household appliances (SIC 3630)

Field	Total	Percent of industry employment	Relative error
Total.....	7,650	4.87	(1)
Engineers.....	4,200	2.70	(1)
Electrical/electronic.....	460	.29	13.18
Industrial.....	1,680	1.08	21.46
Mechanical.....	1,640	1.06	25.67
Other, n.e.c.....	420	.27	(1)
Scientists.....	560	.35	(1)
Chemists.....	80	.05	24.29
Systems analysts.....	480	.30	51.53
Technicians.....	2,890	1.82	(1)
Computer programmer, business.....	300	.19	14.62
Computer programmer, scientific and technical.....	140	.09	34.04
Drafter.....	530	.34	11.60
Electrical/electronic technicians.....	500	.32	15.28
Mechanical engineering technicians.....	470	.30	18.92
Tool programmer, numerical controls.....	60	.03	32.91
Industrial engineering technicians.....	200	.12	10.38
All other engineering technicians.....	270	.17	(1)
Science technicians.....	230	.14	28.33
All other technicians.....	190	.12	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Electric lighting and wiring equipment (SIC 3640)

Field	Total	Percent of industry employment	Relative error
Total.....	11,600	5.53	(1)
Engineers.....	6,200	2.97	(1)
Chemical.....	80	.03	15.20
Electrical/electronic.....	1,560	.75	8.59
Industrial.....	2,200	1.06	14.89
Mechanical.....	1,580	.76	13.97
Other, n.e.c.....	780	.37	(1)
Scientists.....	650	.31	(1)
Chemists.....	110	.05	18.83
Systems analysts.....	540	.26	(1)
Technicians.....	4,750	2.25	(1)
Computer programmer.....	540	.26	(1)
Drafter.....	1,320	.63	9.07
Electrical/electronic technicians.....	940	.45	13.67
Mechanical engineering technicians.....	690	.33	27.20
Tool programmer, numerical controls.....	100	.04	17.26
Industrial engineering technicians.....	290	.13	12.34
All other engineering technicians.....	400	.19	(1)
Science technicians.....	90	.04	18.93
All other technicians.....	380	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Radio and television receiving equipment (SIC 3650)

Field	Total	Percent of industry employment	Relative error
Total.....	9,260	8.45	(1)
Engineers.....	4,440	4.06	(1)
Electrical/electronic.....	1,510	1.38	17.68
Industrial.....	1,050	.96	17.19
Mechanical.....	560	.51	15.80
Other, n.e.c.....	1,320	1.21	(1)
Scientists.....	320	.28	(1)
Chemists.....	70	.06	36.11
Systems analysts.....	250	.22	59.53
Technicians.....	4,500	4.11	(1)
Computer programmer, business.....	310	.28	21.04
Computer programmer, scientific and technical.....	110	.10	48.23
Drafter.....	490	.45	20.81
Electrical/electronic technicians.....	2,630	2.41	15.60
Mechanical engineering technicians.....	480	.44	33.10
Industrial engineering technicians.....	90	.08	17.22
All other engineering technicians.....	240	.22	(1)
All other technicians.....	150	.13	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Communication equipment (SIC 3660)

Field	Total	Percent of industry employment	Relative error
Total.....	137,190	25.29	(1)
Engineers.....	75,130	13.88	(1)
Chemical.....	550	.10	33.64
Electrical/electronic.....	42,520	7.87	.69
Industrial.....	12,080	2.23	19.99
Mechanical.....	7,320	1.35	16.01
Metallurgists/metallurgical.....	250	.04	25.35
Other, n.e.c.....	12,410	2.29	(1)
Scientists.....	8,480	1.52	(1)
Mathematician.....	760	.14	36.20
Statistician.....	260	.04	29.17
Chemists.....	150	.02	21.10
Physicists.....	1,330	.24	35.14
All other natural and mathematical scientists.....	900	.16	(1)
Social scientists.....	100	.01	40.29
Systems analysts.....	4,980	.91	29.14
Technicians.....	53,580	9.89	(1)
Computer programmer, business.....	1,960	.36	16.53
Computer programmer, scientific and technical.....	3,960	.73	15.34
Drafter.....	6,970	1.29	7.50
Electrical/electronic technicians.....	26,570	4.92	6.12
Mechanical engineering technicians.....	2,280	.42	10.64
Tool programmer, numerical controls.....	390	.07	16.52
Industrial engineering technicians.....	1,380	.25	20.91
All other engineering technicians.....	6,100	1.12	(1)
Science technicians.....	600	.11	27.68
All other technicians.....	3,370	.62	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1980--con.

Electronic components and accessories (SIC 3670)

Field	Total	Percent of industry employment	Relative error
Total.....	85,830	15.15	(1)
Engineers.....	40,370	7.15	(1)
Chemical.....	960	.17	25.70
Electrical/electronic.....	26,540	4.71	6.78
Industrial.....	6,040	1.07	14.53
Mechanical.....	3,740	.66	13.67
Metallurgists/metallurgical.....	200	.03	21.29
Other, n.e.c.....	2,890	.51	(1)
Scientists.....	3,740	.63	(1)
Mathematician.....	90	.01	45.93
Statistician.....	60	.01	35.72
Chemists.....	420	.07	15.35
Physicists.....	540	.09	25.84
Systems analysts.....	2,630	.45	62.40
Technicians.....	41,720	7.37	(1)
Computer programmer, business.....	3,100	.55	31.18
Computer programmer, scientific and technical.....	860	.15	31.84
Drafter.....	4,700	.83	12.03
Electrical/electronic technicians.....	22,810	4.05	11.46
Mechanical engineering technicians.....	2,890	.51	19.88
Tool programmer, numerical controls.....	430	.07	14.81
Industrial engineering technicians.....	500	.08	19.34
All other engineering technicians.....	3,870	.68	(1)
Science technicians.....	1,030	.18	25.74
All other technicians.....	1,530	.27	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous electrical equipment and supplies (SIC 3690)

Field	Total	Percent of industry employment	Relative error
Total.....	12,860	8.57	(1)
Engineers.....	5,210	4.05	(1)
Chemical.....	130	.08	18.48
Electrical/electronic.....	1,650	1.11	8.53
Industrial.....	1,470	.98	10.94
Mechanical.....	970	.65	8.36
Other, n.e.c.....	1,990	1.33	(1)
Scientists.....	570	.36	(1)
Statistician.....	70	.04	38.72
Chemists.....	90	.06	11.66
Systems analysts.....	410	.26	40.32
Technicians.....	6,080	4.06	(1)
Computer programmer, business.....	300	.20	13.07
Computer programmer, scientific and technical.....	100	.06	21.06
Drafter.....	800	.53	7.93
Electrical/electronic technicians.....	2,930	1.97	10.27
Mechanical engineering technicians.....	550	.37	17.38
Industrial engineering technicians.....	120	.08	12.76
All other engineering technicians.....	510	.34	(1)
Science technicians.....	210	.14	13.88
All other technicians.....	200	.37	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Motor vehicles and equipment (SIC 3710)

Field	Total	Percent of industry employment	Relative error
Total.....	43,390	5.82	(1)
Engineers.....	24,830	3.36	(1)
Chemical.....	130	.01	13.88
Civil.....	140	.01	11.26
Electrical/electronic industrial.....	640	.08	11.42
Mechanical.....	5,050	.69	3.39
Metallurgists/metallurgical.....	3,810	.52	4.06
Other, n.e.c.....	350	.04	10.04
Other, n.e.c.....	14,710	2.01	(1)
Scientists.....	3,410	.44	(1)
Statistician.....	970	.13	13.67
All other mathematicians.....	130	.01	(1)
Chemists.....	230	.03	10.86
All other physical scientists.....	400	.05	(1)
Systems analysts.....	1,680	.22	41.62
Technicians.....	15,150	2.02	(1)
Computer programmer, business.....	1,460	.19	8.85
Computer programmer, scientific and technical.....	200	.02	23.91
Drafter.....	2,680	.36	5.40
Electrical/electronic technicians.....	470	.06	12.50
Mechanical engineering technicians.....	4,260	.58	22.65
Tool programmer, numerical controls.....	120	.01	8.09
Industrial engineering technicians.....	510	.06	4.96
All other engineering technicians.....	3,810	.52	(1)
Science technicians.....	320	.04	25.04
All other technicians.....	1,320	.18	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Aircraft and parts (SIC 3720)

Field	Total	Percent of industry employment	Relative error
Total.....	120,150	18.25	(1)
Engineers.....	71,300	10.87	(1)
Aeronautical.....	23,040	3.52	0.50
Chemical.....	510	.07	43.78
Civil.....	620	.09	22.77
Electrical/electronic.....	8,770	1.34	25.15
Industrial.....	11,320	1.73	12.27
Mechanical.....	9,780	1.49	13.24
Metallurgists/metallurgical.....	950	.14	22.97
Other, n.e.c.....	16,310	2.49	(1)
Scientists.....	10,400	1.55	(1)
Mathematician.....	470	.07	35.29
Statistician.....	720	.11	38.66
All other mathematicians.....	140	.02	(1)
Chemists.....	480	.07	24.45
Physicists.....	250	.03	45.55
All other physical scientists.....	4,310	.65	(1)
Social scientists.....	570	.08	(1)
Systems analysts.....	3,460	.52	43.37
Technicians.....	38,450	5.83	(1)
Computer programmer, business.....	1,600	.24	18.89
Computer programmer, scientific and technical.....	840	.12	18.79
Drafter.....	5,820	.89	28.52
Electrical/electronic technicians.....	6,860	1.05	20.88
Mechanical engineering technicians.....	3,390	.51	17.78
Tool programmer, numerical controls.....	1,620	.24	16.08
Industrial engineering technicians.....	2,610	.39	31.30
All other engineering technicians.....	7,130	1.09	(1)
Science technicians.....	900	.13	27.75
All other technicians.....	7,680	1.17	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Ship and boat building and repair (SIC 3730)

Field	Total	Percent of industry employment	Relative error
Total.....	10,180	4.70	(1)
Engineers.....	4,720	2.19	(1)
Civil.....	460	.21	41.35
Electrical/electronic.....	800	.37	30.73
Industrial.....	1,070	.50	15.46
Mechanical.....	1,320	.61	28.46
Other, n.e.c.....	1,070	.50	(1)
Scientists.....	400	.18	(1)
Physical scientists.....	100	.04	(1)
Systems analysts.....	300	.14	(1)
Technicians.....	5,060	2.53	(1)
Computer programmer.....	380	.17	(1)
Drafter.....	2,380	1.11	19.39
Electrical/electronic technicians.....	430	.20	42.09
Mechanical engineering technicians.....	340	.15	34.10
Industrial engineering technicians.....	170	.07	25.35
All other engineering technicians.....	1,100	.51	(1)
All other technicians.....	260	.12	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Railroad equipment (SIC 3740)

Field	Total	Percent of industry employment	Relative error
Total.....	3,120	4.26	(1)
Engineers.....	1,680	2.30	(1)
Electrical/electronic.....	70	.09	27.27
Industrial.....	490	.67	20.20
Mechanical.....	560	.77	22.31
Other, n.e.c.....	560	.77	(1)
Scientists.....	80	.11	(1)
Systems analysts.....	80	.11	(1)
Technicians.....	1,360	1.85	(1)
Computer programmer.....	110	.15	(1)
Drafter.....	620	.85	15.09
Mechanical engineering technicians.....	60	.08	34.43
Industrial engineering technicians.....	200	.27	21.04
All other engineering technicians.....	180	.24	(1)
All other technicians.....	190	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Motorbicycles, bicycles, and parts (SIC 3750)

Field	Total	Percent of industry employment	Relative error
Total.....	630	3.15	(1)
Engineers.....	290	1.45	(1)
Industrial.....	110	.55	22.04
Mechanical.....	180	.90	32.61
Scientists.....	50	.25	(1)
Systems analysts.....	50	.25	(1)
Technicians.....	290	1.45	(1)
Computer programmer.....	40	.20	(1)
Drafter.....	60	.30	16.72
All other engineering technicians.....	120	.60	(1)
All other technicians.....	70	.35	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Guided missiles and space vehicles and parts (SIC 3760)

Field	Total	Percent of industry employment	Relative error
Total.....	41,870	38.03	(1)
Engineers.....	28,480	25.89	(1)
Chemical.....	360	.32	42.22
Electrical/electronic.....	3,940	3.58	34.17
Industrial.....	3,550	3.23	45.59
Mechanical.....	3,700	3.36	27.23
Other, n.e.c.....	16,930	15.40	(1)
Scientists.....	2,060	1.86	(1)
Mathematical scientists.....	640	.58	(1)
Chemists.....	210	.19	40.95
All other physical scientists.....	590	.53	(1)
Systems analysts.....	620	.56	(1)
Technicians.....	11,330	10.28	(1)
Computer programmer.....	790	.71	(1)
Drafter.....	1,000	.90	49.44
All other engineering technicians.....	8,940	8.13	(1)
Science technicians.....	390	.35	(1)
All other technicians.....	210	.19	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous transportation equipment (SIC 3790)

Field	Total	Percent of industry employment	Relative error
Total.....	1,020	2.92	(1)
Engineers.....	520	1.50	(1)
Industrial.....	160	.46	10.58
Mechanical.....	200	.58	17.39
Other, n.e.c.....	160	.46	(1)
Scientists.....	40	.11	(1)
Systems analysts.....	40	.11	(1)
Technicians.....	460	1.31	(1)
Computer programmer.....	50	.14	(1)
Drafter.....	240	.69	12.04
All other engineering technicians.....	140	.40	(1)
All other technicians.....	30	.08	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Engineering and scientific instruments (SIC 3810)

Field	Total	Percent of industry employment	Relative error
Total.....	16,690	21.91	(1)
Engineers.....	8,360	10.99	(1)
Chemical.....	120	.15	32.88
Electrical/electronic.....	5,610	7.39	19.70
Industrial.....	460	.60	21.58
Mechanical.....	1,030	1.35	14.58
Other, n.e.c.....	1,140	1.50	(1)
Scientists.....	760	.98	(1)
Chemists.....	280	.36	23.42
All other natural and mathematical scientists.....	140	.18	(1)
Systems analysts.....	340	.44	14.09
Technicians.....	7,570	9.94	(1)
Computer programmer.....	500	.65	15.60
Drafter.....	1,590	2.09	7.31
Electrical/electronic technicians.....	3,410	4.49	15.23
Mechanical engineering technicians.....	380	.50	18.19
Tool programmer, numerical controls.....	90	.11	18.27
Industrial engineering technicians.....	100	.13	26.63
All other engineering technicians.....	890	1.17	(1)
Science technicians.....	190	.25	29.92
All other technicians.....	420	.55	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Measuring and controlling instruments (SIC 3820)

Field	Total	Percent of industry employment	Relative error
Total.....	40,050	16.38	(1)
Engineers.....	18,700	7.66	(1)
Chemical.....	260	.10	30.06
Electrical/electronic.....	8,880	3.64	10.30
Industrial.....	3,300	1.35	18.63
Mechanical.....	2,070	.85	7.55
Other, n.e.c.....	4,190	1.72	(1)
Scientists.....	1,700	.68	(1)
Chemists.....	240	.09	17.66
All other natural and mathematical scientists.....	210	.08	(1)
Systems analysts.....	1,250	.51	17.20
Technicians.....	19,650	8.04	(1)
Computer programmer.....	1,000	.41	11.46
Drafter.....	3,060	1.25	6.44
Electrical/electronic technicians.....	9,690	3.98	11.24
Mechanical engineering technicians.....	880	.36	10.05
Tool programmer, numerical controls.....	220	.09	13.47
Industrial engineering technicians.....	750	.30	22.12
All other engineering technicians.....	2,940	1.20	(1)
Science technicians.....	320	.13	19.38
All other technicians.....	790	.32	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Optical instruments and lenses (SIC 3830)

Field	Total	Percent of industry employment	Relative error
Total.....	8,130	24.57	(1)
Engineers.....	3,720	11.25	(1)
Electrical/electronic.....	1,770	5.36	14.90
Industrial.....	210	.63	25.60
Mechanical.....	780	2.36	28.21
Other, n.e.c.....	960	2.90	(1)
Scientists.....	280	.84	(1)
Chemists.....	100	.30	27.11
Systems analysts.....	180	.54	27.92
Technicians.....	4,130	12.48	(1)
Computer programmer.....	210	.63	18.10
Drafter.....	560	1.69	13.18
Electrical/electronic technicians.....	1,870	5.66	20.75
Mechanical engineering technicians.....	440	1.33	25.79
All other engineering technicians.....	830	2.51	(1)
All other technicians.....	220	.66	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Medical and dental instruments and supplies (SIC 3840)

Field	Total	Percent of industry employment	Relative error
Total.....	12,880	8.18	(1)
Engineers.....	3,190	2.02	(1)
Chemical.....	180	.11	14.30
Electrical/electronic.....	760	.48	11.33
Industrial.....	800	.51	6.76
Mechanical.....	1,000	.64	8.94
Other, n.e.c.....	450	.28	(1)
Scientists.....	1,340	.85	(1)
Chemists.....	680	.43	13.82
All other natural and mathematical scientists.....	270	.17	(1)
Systems analysts.....	390	.25	11.15
Technicians.....	8,350	5.31	(1)
Computer programmer.....	510	.32	11.63
Drafter.....	1,120	.71	8.61
Electrical/electronic technicians.....	2,210	1.41	10.48
Mechanical engineering technicians.....	500	.32	10.23
Tool programmer, numerical controls.....	70	.04	21.80
Industrial engineering technicians.....	220	.14	12.41
All other engineering technicians.....	320	.20	(1)
Science technicians.....	1,570	1.03	17.66
All other technicians.....	1,830	1.17	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Ophthalmic goods (SIC 3850)

Field	Total	Percent of industry employment	Relative error
Total.....	1,050	2.28	(1)
Engineers.....	390	.85	(1)
Industrial.....	150	.33	28.92
Mechanical.....	120	.26	18.50
Other, n.e.c.....	120	.26	(1)
Technicians.....	660	1.43	(1)
Computer programmer.....	80	.17	27.81
Drafter.....	80	.17	28.84
Electrical/electronic technicians.....	60	.13	33.18
Mechanical engineering technicians.....	80	.17	29.69
All other engineering technicians.....	130	.28	(1)
All other technicians.....	230	.51	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Photographic equipment and supplies (SIC 3860)

Field	Total	Percent of industry employment	Relative error
Total.....	18,370	13.71	(1)
Engineers.....	5,660	4.22	(1)
Chemical.....	340	.25	12.90
Electrical/electronic.....	1,740	1.30	13.03
Industrial.....	790	.59	18.69
Mechanical.....	970	.72	16.68
Other, n.e.c.....	1,820	1.36	(1)
Scientists.....	1,210	.90	(1)
Chemists.....	340	.25	11.80
All other natural and mathematical scientists.....	480	.36	(1)
Systems analysts.....	390	.29	19.92
Technicians.....	11,500	8.59	(1)
Computer programmer.....	610	.45	16.43
Drafter.....	700	.52	10.34
Electrical/electronic technicians.....	890	.66	12.77
Mechanical engineering technicians.....	390	.29	24.72
Tool programmer, numerical controls.....	70	.05	16.31
Industrial engineering technicians.....	60	.04	18.16
All other engineering technicians.....	1,720	1.29	(1)
Science technicians.....	580	.43	14.75
All other technicians.....	6,480	4.86	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Watches, clocks, and parts (SIC 3870)

Field	Total	Percent of industry employment	Relative error
Total.....	570	2.39	(1)
Engineers.....	290	1.21	(1)
Industrial.....	150	.63	21.51
Mechanical.....	70	.29	26.11
Other, n.e.c.....	70	.29	(1)
Technicians.....	280	1.18	(1)
Drafter.....	70	.29	18.84
All other engineering technicians.....	120	.51	(1)
All other technicians.....	90	.38	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Jewelry, silverware, and plated ware (SIC 3910)

Field	Total	Percent of industry employment	Relative error
Total.....	550	0.97	(1)
Engineers.....	180	.32	(1)
Industrial.....	110	.20	13.48
Mechanical.....	70	.12	22.22
Scientists.....	70	.12	(1)
Systems analysts.....	70	.12	19.60
Technicians.....	300	.53	(1)
Computer programmer.....	110	.20	14.00
Engineering technicians.....	130	.23	(1)
All other technicians.....	60	.10	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Musical instruments (SIC 3930)

Field	Total	Percent of industry employment	Relative error
Total.....	1,090	5.13	(1)
Engineers.....	270	1.26	(1)
Industrial.....	120	.56	10.02
Mechanical.....	80	.37	12.21
Other, n.e.c.....	70	.33	(1)
Technicians.....	820	3.87	(1)
Drafter.....	130	.61	9.73
Electrical/electronic technicians.....	420	1.99	12.92
All other engineering technicians.....	140	.66	(1)
All other technicians.....	130	.61	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Toys and sporting goods (SIC 3940)

Field	Total	Percent of industry employment	Relative error
Total.....	3,020	2.30	(1)
Engineers.....	1,200	1.00	(1)
Industrial.....	500	.42	10.85
Mechanical.....	470	.39	7.86
Other, n.e.c.....	230	.19	(1)
Scientists.....	220	.17	(1)
Chemists.....	80	.06	14.14
Systems analysts.....	140	.11	9.94
Technicians.....	1,600	1.33	(1)
Computer programmer.....	240	.20	10.14
Drafter.....	310	.26	9.13
Electrical/electronic technicians.....	310	.26	15.44
All other engineering technicians.....	310	.26	(1)
Science technicians.....	80	.06	26.86
All other technicians.....	350	.29	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Pens, pencils, and office and art supplies (SIC 3950)

Field	Total	Percent of industry employment	Relative error
Total.....	900	2.31	(1)
Engineers.....	330	.85	(1)
Industrial.....	110	.28	12.61
Mechanical.....	170	.44	11.17
Other, n.e.c.....	50	.13	(1)
Scientists.....	120	.31	(1)
Chemists.....	120	.31	12.59
Technicians.....	450	1.15	(1)
Computer programmer.....	70	.18	10.16
Drafter.....	80	.20	12.73
All other engineering technicians.....	90	.23	(1)
Science technicians.....	110	.28	16.61
All other technicians.....	100	.26	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Costume jewelry and notions (SIC 3960)

Field	Total	Percent of industry employment	Relative error
Total.....	680	1.27	(1)
Engineers.....	250	.47	(1)
Industrial.....	110	.21	11.39
Mechanical.....	140	.26	21.30
Technicians.....	430	.80	(1)
Computer programmer.....	80	.15	8.62
Drafter.....	60	.11	16.78
All other engineering technicians.....	160	.30	(1)
All other technicians.....	130	.24	(1)

See footnotes at end of table.

TABLE C-3. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH MANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1980--con.

Miscellaneous manufactures (SIC 3990)

Field	Total	Percent of industry employment	Relative error
Total.....	3,930	2.83	(1)
Engineers.....	990	.71	(1)
Industrial.....	360	.26	12.91
Mechanical.....	430	.31	12.03
Other, n.e.c.....	200	.14	(1)
Scientists.....	270	.19	(1)
Chemists.....	140	.10	15.18
Systems analysts.....	130	.09	11.50
Technicians.....	2,670	1.93	(1)
Computer programmer.....	200	.14	17.16
Drafter.....	1,060	.77	11.74
Electrical/electronic technicians.....	570	.41	18.04
All other engineering technicians.....	290	.21	(1)
Science technicians.....	180	.13	19.56
All other technicians.....	370	.27	(1)

(1) Relative error was not computed.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

TABLE C-13 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1981
[Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scientists	Percent	Engineers	Percent	Technicians	Percent
Total nonmanufacturing.....	973.9	100.0	226.2	100.0	288.2	100.0	459.5	100.0
Mining.....	97.3	10.0	31.8	14.1	34.9	12.1	30.6	6.7
Metallic minerals.....	8.5	.9	2.7	1.2	3.0	1.0	2.8	.6
Iron ores.....	1.0	.1	.1	.1	.6	.2	.2	(1)
Copper ores.....	2.6	.3	.6	.3	1.0	.3	1.0	.2
Lead and zinc ores.....	.5	(1)	.1	.1	.2	.1	.1	(1)
Gold and silver ores.....	.6	.1	.2	.1	.2	.1	.2	(1)
Bauxite and other aluminum ores.....	(1)	(1)	-	-	-	-	(1)	(1)
Ferroalloy ores, except vanadium.....	.6	.1	.1	(1)	.3	.1	.2	(1)
Metal mining services.....	1.5	.2	.8	.4	.3	.1	.4	.1
Miscellaneous metal ores.....	1.7	.2	.6	.3	.4	.2	.7	.1
Anthracite mining.....	(1)	(1)	-	-	-	-	(1)	(1)
Bituminous coal and lignite mining.....	6.6	.7	.8	.4	3.2	1.1	2.6	.6
Oil and gas extraction.....	78.8	8.1	27.7	12.2	27.4	9.5	23.7	5.2
Crude petroleum and natural gas.....	54.7	5.6	21.0	9.3	18.9	6.6	14.8	3.2
Natural gas liquids.....	.5	.1	.2	.1	.2	.1	.1	(1)
Oil and gas field services.....	23.6	2.4	6.5	2.9	8.3	2.9	8.8	1.9
Nonmetallic mining and quarrying.....	3.3	.3	.6	.3	1.2	.4	1.5	.3
Dimension stone.....	(1)	(1)	-	-	-	-	(1)	(1)
Crushed and broken stone.....	.4	(1)	.1	(1)	.2	.1	.1	(1)
Sand and gravel.....	.3	(1)	-	-	.2	.1	.1	(1)
Clay, ceramic, and refractory minerals.....	.8	.1	.1	(1)	.1	(1)	.5	.1
Chemical and fertilizer minerals.....	1.5	.2	.3	.1	.7	.2	.6	.1
Nonmetallic minerals (except fuels) services.....	.2	(1)	.1	.1	-	-	(1)	(1)
Miscellaneous nonmetallic minerals, except fuels.....	.2	(1)	-	-	.1	(1)	.1	(1)
Construction.....	91.7	9.4	.9	.4	50.3	17.4	40.5	8.8
General contractors and operative builders.....	19.6	2.0	.3	.2	11.0	3.8	8.2	1.8
Residential building construction.....	3.5	.4	-	-	1.1	.4	2.4	.5
Operative builders.....	.8	.1	.1	(1)	.2	.1	.6	.1
Nonresidential building construction.....	15.3	1.6	.3	.1	9.8	3.4	5.2	1.1
General contractors, except building.....	43.5	4.5	.6	.3	28.9	10.0	14.0	3.0
Highway and street construction.....	3.0	.3	-	-	1.7	.6	1.2	.3
Heavy construction, except highway and street.....	40.5	4.2	.6	.3	27.2	9.4	12.8	2.8
Special trade contractors.....	28.6	2.9	-	-	10.3	3.6	18.3	4.0
Plumbing, heating, and air conditioning.....	7.9	.8	-	-	4.0	1.4	3.9	.8
Painting, paper hanging, and decorating.....	.1	(1)	-	-	-	-	.1	(1)
Electrical work.....	13.9	1.4	-	-	3.8	1.3	10.1	2.2
Masonry, stonework, tile setting, and plastering.....	.6	.1	-	-	.3	.1	.3	.1

See footnotes at end of table.

TABLE C-4. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1981--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Carpentering and flooring.....	0.4	(1)	-	-	-	-	0.4	0.1
Roofing and sheet-metal work.....	.4	(1)	-	-	-	-	.4	.1
Concrete work.....	.3	(1)	-	-	3.2	0.1	.1	(1)
Water-well drilling.....	.1	(1)	-	-	.1	(1)	(1)	(1)
Miscellaneous special trade contractors.....	4.9	0.5	-	-	2.0	.7	3.0	.7
Finance, insurance, and real estate.....	91.1	9.4	41.0	18.1	5.3	1.8	44.8	9.7
Banking.....	20.9	2.1	10.0	4.4	.3	.1	10.5	2.3
Federal Reserve Banks.....	1.3	.1	.7	.3	-	-	.6	.1
Commercial and stock savings banks.....	18.4	1.9	8.7	3.8	.3	.1	9.4	2.0
Mutual savings banks.....	.6	.1	.3	.1	-	-	.4	.1
Trust companies, nondeposit.....	(1)	(1)	-	-	-	-	(1)	(1)
Establishments closely related to banking.....	.5	.1	.3	.2	-	-	.2	(1)
Credit agencies other than banks.....	5.5	.6	2.4	1.0	-	-	3.1	.7
Rediscount and financing institutions.....	.1	(1)	.1	(1)	-	-	(1)	(1)
Savings and loan associations.....	2.8	.3	1.3	.6	-	-	1.5	.1
Agricultural credit institutions.....	.2	(1)	.1	(1)	-	-	.1	(1)
Personal credit institutions.....	1.4	.1	.5	.2	-	-	.8	.2
Business credit institutions.....	.4	(1)	.1	.1	-	-	.2	.1
Mortgage bankers and brokers.....	.5	.1	.2	.1	-	-	.3	.1
Security and commodity brokers and dealers.....	4.9	.5	2.7	1.2	.1	(1)	2.2	.5
Security brokers and dealers.....	3.2	.3	1.7	.7	.1	(1)	1.4	.3
Commodity contracts brokers and dealers.....	(1)	(1)	-	-	-	-	(1)	(1)
Security and commodity exchanges.....	.3	(1)	.2	.1	-	-	.1	(1)
Security and commodity services.....	1.4	.1	.8	.3	-	-	.6	.1
Insurance carriers.....	45.5	4.7	22.0	9.7	2.1	.7	21.5	4.7
Life insurance.....	19.1	2.0	9.8	4.3	.4	.1	9.0	2.0
Accident and health insurance, medical service plans.....	7.9	.8	4.6	2.0	.1	(1)	3.2	.7
Fire, marine, and casualty insurance.....	17.6	1.8	7.4	3.3	1.6	.5	8.6	1.9
Surety insurance.....	.1	(1)	-	-	-	-	.1	(1)
Title insurance.....	.4	(1)	-	-	-	-	.4	.1
Pension, health, and welfare funds.....	.4	(1)	.2	.1	-	-	.2	(1)
Insurance carriers, n.e.c.....	(1)	(1)	-	-	-	-	(1)	(1)
Insurance agents, brokers, and services.....	5.3	.5	2.2	1.0	.8	.3	2.4	.5
Combined real estate, insurance, loan, law offices.....	(1)	(1)	-	-	-	-	(1)	(1)
Real estate.....	4.8	.5	.6	.3	1.4	.5	2.8	.6
Real estate operators and lessors.....	1.4	.1	.1	(1)	.7	.2	.7	.1
Real estate agents and managers.....	1.6	.2	.3	.2	.3	.1	1.0	.2
Title abstract offices.....	(1)	(1)	-	-	-	-	(1)	(1)

See footnotes at end of table.

TABLE C-4. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1981--con.
[Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Subdividers and developers.....	1.7	0.2	0.2	0.1	0.5	0.2	1.0	0.2
Holding and investment offices.....	4.2	.4	1.3	.6	.6	.2	2.3	.5
Holding offices.....	3.2	.3	.9	.4	.6	.2	1.7	.4
Investment offices.....	.1	(1)	-	(1)	-	-	(1)	(1)
Trusts.....	.3	(1)	.1	(1)	-	-	.2	.1
Miscellaneous investing.....	.6	.1	.2	.1	-	-	.3	.1
Services.....	370.2	38.0	53.2	23.5	132.6	46.0	184.5	40.1
Hotels and other lodging places.....	2.7	.3	.2	.1	1.1	.4	1.4	.3
Hotels, motels, and tourist courts.....	2.6	.3	.2	.1	1.1	.4	1.3	.3
Rooming and boarding houses.....	-	-	-	-	-	-	-	-
Camps and trailer parks.....	(1)	(1)	-	-	-	-	(1)	(1)
Organization hotels and lodging houses.....	-	-	-	-	-	-	-	-
Personal services.....	.8	.1	.1	(1)	.2	.1	.5	.1
laundry, cleaning, and garment services.....	.4	(1)	.1	(1)	.2	.1	.1	(1)
Photographic studios, portrait.....	.2	(1)	-	-	-	-	.2	(1)
Beauty shops.....	.1	(1)	-	-	-	-	.1	(1)
Barber shops.....	-	-	-	-	-	-	-	-
Shoe repair, shoe shine, and hat cleaning shops.....	(1)	(1)	-	-	-	-	(1)	(1)
Funeral service and crematories.....	.1	(1)	-	-	-	-	.1	(1)
Miscellaneous personal services.....	-	-	-	-	-	-	-	-
Business services.....	298.0	30.6	98.4	43.5	60.7	21.0	138.9	30.2
Advertising.....	.7	.1	.3	.1	-	-	.4	.1
Consumer credit reporting and collection agencies.....	.5	.1	.2	.1	-	-	.3	.1
Mailing, reproduction, commercial art, and stenography...	1.4	.1	.3	.1	.1	(1)	1.0	.2
Services to dwellings and other buildings.....	.5	(1)	(1)	(1)	.2	.1	.2	.1
News syndicates.....	.4	(1)	(1)	(1)	(1)	(1)	.3	.1
Personnel supply services.....	20.1	2.1	1.1	.5	6.3	2.2	12.7	2.8
Computer and data processing services.....	100.5	10.3	39.9	17.6	4.7	1.6	55.9	12.2
Miscellaneous business services.....	173.8	17.8	56.5	25.0	49.3	17.1	68.0	14.8
Automobile repair, service, and garages.....	.7	.1	.2	.1	-	-	.6	.1
Automobile rentals and leasing, without drivers.....	.6	.1	.2	.1	-	-	.4	.1
Automobile parking.....	(1)	(1)	-	-	-	-	(1)	(1)
Automobile repair shops.....	.1	(1)	-	-	-	-	.1	(1)
Automobile services, except repair.....	-	-	-	-	-	-	-	-
Miscellaneous repair services.....	17.4	1.8	.2	.1	2.7	.9	14.5	3.2
Electrical repair shops.....	14.1	1.5	.2	.1	2.1	.7	11.8	2.6
Watch, clock, and jewelry repair.....	(1)	(1)	-	-	-	-	(1)	(1)
Reupholstery and furniture repair.....	(1)	(1)	-	-	-	-	(1)	(1)

See footnotes at end of table.

TABLE C-4. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1981--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scientists	Percent	Engineers	Percent	Technicians	Percent
Miscellaneous repair shops and related services.....	3.2	0.3	-	-	0.6	0.2	2.7	0.6
Motion pictures.....	3.1	.3	0.1	0.1	.6	.2	2.4	.5
Motion picture production and services.....	2.7	.3	.1	.1	.5	.2	2.0	.4
Motion picture distribution and services.....	.2	(1)	-	-	-	-	.2	(1)
Motion picture theaters.....	.2	(1)	-	-	.1	(1)	.2	(1)
Amusement and recreation, except motion pictures.....	.9	.1	.1	(1)	.1	(1)	.8	.2
Dance halls, studios, and schools.....	(1)	(1)	-	-	-	-	(1)	(1)
Theatrical producer*, bands, and entertainers.....	.4	(1)	-	-	-	-	.4	.1
Bowling alleys and billiard and pool establishments.....	(1)	(1)	-	-	-	-	(1)	(1)
Commercial sports.....	-	-	-	-	-	-	-	-
Miscellaneous amusement and recreation services.....	.6	.1	.1	(1)	.1	(1)	.4	.1
Health services.....	10.1	1.0	9.3	4.1	.2	.1	.7	.1
Offices of physicians.....	2.2	.2	2.0	.9	-	-	.2	(1)
Offices of dentists.....	-	-	-	-	-	-	-	-
Offices of osteopathic physicians.....	-	-	-	-	-	-	-	-
Offices of other health practitioners.....	1.8	.2	1.8	.8	-	-	-	-
Nursing and personal care facilities.....	.3	(1)	.2	.1	.2	.1	-	-
Medical and dental laboratories.....	.7	.1	.4	.2	-	-	.2	.1
Outpatient care facilities.....	4.8	.5	4.6	2.1	-	-	.2	(1)
Health and allied services, n.e.c.....	.3	(1)	.2	.1	-	-	.1	(1)
Legal services.....	1.7	.2	.6	.3	-	-	1.1	.2
Social services.....	8.0	.8	7.7	3.4	-	-	.3	.1
Individual and family social services.....	2.8	.3	2.8	1.3	-	-	-	-
Job training and vocational rehabilitation services.....	1.1	.1	1.0	.4	-	-	.2	(1)
Child day care services.....	.1	(1)	.1	.1	-	-	-	-
Residential care.....	1.5	.2	1.5	.7	-	-	-	-
Social services, n.e.c.....	2.4	.2	2.3	1.0	-	-	.2	(1)
Museums, art galleries, and zoos.....	-	-	-	-	-	-	-	-
Museums and art galleries.....	-	-	-	-	-	-	-	-
Arboreta, botanical, and zoological gardens.....	-	-	-	-	-	-	-	-
Membership organizations.....	6.0	.6	1.8	.8	.9	.3	3.3	.7
Business organizations.....	1.3	.1	.6	.3	.3	.1	.4	.1
Professional membership organizations.....	.5	.1	.2	.1	.2	.1	.2	(1)
Labor unions and similar labor organizations.....	.1	(1)	-	-	-	-	.1	(1)
Civic, social, and fraternal associations.....	.7	.1	.2	.1	.1	(1)	.5	.1
Political organizations.....	(1)	(1)	-	-	-	-	(1)	(1)
Religious organizations.....	3.0	.3	.7	.3	.4	.1	1.9	.4
Membership organizations, n.e.c.....	.3	(1)	.1	(1)	-	-	.2	.1

See footnotes at end of table.

TABLE C-4. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY MAJOR OCCUPATIONAL GROUP AND DETAILED INDUSTRY OF EMPLOYMENT: 1981--con.
 [Numbers in thousands]

Industry	Scientists, engineers, and technicians							
	Total	Percent	Scien- tists	Percent	Engi- neers	Percent	Tech- nicians	Percent
Miscellaneous services.....	344.3	35.4	33.8	14.9	131.5	45.6	179.1	39.0
Engineering, architectural, and surveying services.....	299.1	30.7	10.6	4.7	124.4	43.1	164.2	35.7
Noncommercial education and research organizations.....	31.7	3.3	15.0	6.6	6.5	2.3	10.2	2.2
Accounting, auditing, and bookkeeping services.....	7.6	.8	4.0	1.8	.2	.1	3.4	.7
Services, n.e.c.....	5.9	.6	4.2	1.8	.4	.1	1.3	.3

- No amount available.

(1) Value is less than .05 for numbers and less than .005 for percents.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

TABLE C-5. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1981
 [Numbers in thousands]

Industry	Scientists								Engineers					
	Total	Physical	Mathematical	Life	Social	Computer analyst	Other	Total	Aeronautical	Chemical	Civil	Elec/Electron	Mechanical	
Total nonmanufacturing.....	973.9	226.2	54.7	18.5	13.8	35.0	104.0	0.2	288.2	3.3	9.8	70.4	61.0	50.4
Mining.....	97.3	31.8	26.6	.2	.4	-	4.6	.1	34.9	-	.7	.9	2.9	1.7
Metallic minerals.....	8.5	2.7	2.6	-	-	-	.1	-	3.0	-	-	-	-	.2
Anthracite mining.....	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
Bituminous coal and lignite mining.....	6.6	.8	.4	-	-	-	.3	.1	3.2	-	-	.2	-	.1
Oil and gas extraction.....	78.8	27.7	23.0	.2	.4	-	4.2	-	27.4	-	.6	.7	2.9	1.4
Nonmetallic mining and quarrying.....	3.3	.6	.6	-	-	-	-	-	1.2	-	.1	-	-	.1
Construction.....	91.7	.9	-	-	-	-	.9	-	50.3	-	-	17.3	6.2	9.8
General contractors and operative builders.....	19.6	.3	-	-	-	-	.3	-	11.0	-	-	5.9	.7	2.0
General contractors, except building.....	43.5	.3	-	-	-	-	.6	-	28.9	-	-	9.8	2.1	3.2
Special trade contractors.....	28.6	-	-	-	-	-	-	-	10.3	-	-	1.7	3.4	4.6
Finance, insurance and real estate.....	91.1	41.0	.1	8.7	-	1.2	31.0	-	5.3	-	-	-	-	-
Banking.....	20.9	10.0	-	-	-	.6	9.4	-	.3	-	-	-	-	-
Credit agencies other than banks.....	5.5	2.4	-	-	-	-	2.4	-	-	-	-	-	-	-
Security and commodity brokers and dealers.....	4.9	2.7	-	.6	-	.2	1.8	-	.1	-	-	-	-	-
Insurance agents, brokers, and services.....	5.3	2.2	-	1.2	-	-	1.0	-	.8	-	-	-	-	-
Insurance carriers.....	45.5	22.0	-	6.5	-	.3	15.2	-	2.1	-	-	-	-	-
Real estate.....	4.8	.6	-	.2	-	-	.3	-	1.4	-	-	-	-	-
Combined real estate, insurance, loan, law offices... (1)	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
Holding and investment offices.....	4.2	1.3	.1	.1	-	.1	1.0	-	.6	-	-	-	-	-
Services.....	693.9	152.4	28.0	9.7	13.4	33.7	67.5	.1	197.8	3.3	9.2	52.2	51.8	38.8
Hotels and other lodging places.....	2.7	.2	-	-	-	-	.2	-	1.1	-	-	-	-	-
Personal services.....	.8	.1	-	-	-	-	.1	-	.2	-	-	-	-	-
Business services.....	298.0	98.4	17.9	5.1	7.4	12.7	55.2	-	60.7	1.5	3.9	3.0	22.4	8.5
Automobile repair, service, and garages.....	.7	.2	-	-	-	-	.2	-	-	-	-	-	-	-
Miscellaneous repair services..	17.4	.2	-	-	-	-	.2	-	2.7	-	-	-	2.5	-

See footnotes at end of table.

TABLE C-5. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1981-con.
 [Numbers in thousands]

Industry	Scientists								Engineers					
	Total	Total	Physical	Mathematical	Life	Social	Computer analyst	Other	Total	Aeronautical	Chemical	Civil	Electron	Mechanical
Motion pictures.....	3.1	0.1	-	-	-	-	0.1	-	0.6	-	-	-	0.6	-
Amusement and recreation, except motion pictures.....	.9	.1	-	-	-	-	.1	-	.1	-	-	-	.1	-
Health services.....	10.1	9.3	0.1	-	0.4	8.4	.3	-	2.2	-	-	-	-	-
Legal services.....	1.7	.6	-	-	-	-	.6	-	2.2	-	-	-	-	-
Social services.....	8.0	7.7	-	0.6	-	7.0	.1	-	-	-	-	-	-	-
Museums, art galleries, and zoos.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Membership organizations.....	6.0	1.8	-	.5	-	.3	.9	0.1	.9	-	-	-	.5	-
Miscellaneous services.....	344.3	33.8	10.0	3.5	5.5	5.3	9.5	-	131.5	1.8	5.2	49.2	25.8	30.2

See footnotes at end of table.

TABLE C-5. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1981--con.
 [Numbers in thousands]

Industry	Engineers		Technicians						
	Indus- trial	Oth- er	Total	Pro- gram- mer	Draft- er	Engi- neer- ing	Sci- ence	Un- spec- ified	Other
Total nonmanufacturing.....	6.1	87.2	459.5	119.1	147.9	167.7	22.0	1.7	2.9
Mining.....	.3	28.2	30.6	3.4	6.6	14.8	5.3	.4	.4
Metallic minerals.....	.1	2.7	2.8	.1	.4	1.4	.9	(1)	(1)
Anthracite mining.....	-	-	(1)	-	-	-	-	(1)	(1)
Bituminous coal and lignite mining.....	.2	2.7	2.6	.3	.6	1.3	.4	-	-
Oil and gas extraction.....	-	21.8	23.7	3.0	5.5	11.9	3.3	-	-
Nonmetallic mining and quarrying.....	.4	1.0	1.5	-	.1	.3	.8	.4	.4
Construction.....	-	16.9	40.5	1.4	20.1	19.0	-	(1)	(1)
General contractors and operative builders.....	-	2.4	8.2	.6	5.8	1.8	-	-	-
General contractors, except building.....	-	13.8	14.0	.8	6.7	6.5	-	-	-
Special trade contractors.....	-	.6	18.3	-	7.5	10.7	-	(1)	(1)
Finance, insurance and real estate.....	-	5.3	44.8	40.1	2.2	1.4	.6	.5	.5
Banking.....	-	.3	10.5	9.9	-	.4	.2	(1)	(1)
Credit agencies other than banks.....	-	-	3.1	3.1	-	-	-	(1)	(1)
Security and commodity brokers and dealers.....	-	.1	2.2	2.0	-	-	-	.1	.1
Insurance agents, brokers, and services.....	-	.8	2.4	2.1	.3	-	-	-	-
Insurance carriers.....	-	2.1	21.5	20.5	.3	.2	.4	.1	.1
Real estate.....	-	1.4	2.8	.7	1.6	.4	-	-	-
Combined real estate, insurance, loan, law offices... Holding and investment offices.	-	-	(1)	-	-	-	-	(1)	(1)
Holding and investment offices.	-	.6	2.3	1.7	-	.4	-	.2	.2
Services.....	5.8	36.8	343.6	74.1	119.0	132.5	16.0	.7	1.9
Hotels and other lodging places	-	1.1	1.4	.4	-	1.0	-	(1)	(1)
Personal services.....	-	.2	.5	.1	-	-	-	.6	.4
Business services.....	3.2	18.0	138.9	60.3	19.0	51.1	8.5	-	-
Automobile repair, service, and garages.....	-	-	.6	.6	-	-	-	(1)	(1)
Miscellaneous repair services..	-	.2	14.5	.1	.5	13.9	-	(1)	(1)

See footnotes at end of table.

TABLE C-5. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN NONMANUFACTURING INDUSTRIES
 BY DETAILED OCCUPATION AND BROAD INDUSTRY GROUP OF EMPLOYMENT: 1981--con.
 [Numbers in thousands]

Industry	Engineers		Technicians						
	Industrial	Other	Total	Programmer	Drafter	Engineering	Science	Unspecified	Other
Motion pictures.....	-	-	2.4	0.2	-	0.8	-	0.2	1.4
Amusement and recreation, except motion pictures.....	-	-	.5	.1	-	.7	-	(1)	(1)
Health services.....	-	0.2	.7	.6	-	-	0.1	-	-
Legal services.....	-	-	1.1	1.1	-	-	-	-	-
Social services.....	-	-	.3	.2	-	.1	-	-	-
Museums, art galleries, and zoos.....	-	-	-	-	-	-	-	-	-
Membership organizations.....	-	.4	3.3	2.0	-	1.0	.2	(1)	(1)
Miscellaneous services.....	2.5	16.7	179.1	8.4	99.6	63.9	7.2	-	-

- No amount available.

(1) Value is less than .05.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981

Iron ores (SIC 1010)

Field	Total	Percent of industry employment	Relative error
Total.....	970	4.31	(1)
Engineers.....	600	2.57	(1)
Mechanical.....	80	.35	30.74
Metallurgists and metallurgical.....	70	.31	30.32
Mining.....	120	.53	17.89
Other, n.e.c.....	330	1.48	(1)
Scientists.....	150	.66	(1)
Chemists.....	90	.40	35.98
Earth scientists.....	60	.26	23.47
Technicians.....	220	.98	(1)
Engineering technicians.....	220	.98	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Copper ores (SIC 1020)

Field	Total	Percent of industry employment	Relative error
Total.....	2,600	7.07	(1)
Engineers.....	960	2.60	(1)
Industrial.....	100	.27	9.25
Mechanical.....	80	.21	6.28
Metallurgists and metallurgical.....	180	.49	3.04
Mining.....	280	.76	2.96
Safety.....	100	.27	4.58
Other, n.e.c.....	220	.60	(1)
Scientists.....	630	1.71	(1)
Chemists.....	190	.52	4.71
Earth scientists.....	320	.87	6.70
Systems analysts.....	120	.32	6.00
Technicians.....	1,010	2.76	(1)
Computer programmer.....	110	.30	3.65
Drafter.....	150	.41	3.61
Surveyor.....	110	.30	3.52
All other engineering technicians.....	180	.49	(1)
Science technicians.....	460	1.26	5.37

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Lead and zinc ores (SIC 1030)

Field	Total	Percent of industry employment	Relative error
Total.....	470	7.12	(1)
Engineers.....	210	3.18	(1)
Mining.....	80	1.21	1.81
Other, n.e.c.....	130	1.97	(1)
Scientists.....	130	1.97	(1)
Earth scientists.....	130	1.97	10.18
Technicians.....	130	1.97	(1)
Engineering technicians.....	130	1.97	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Gold and silver ores (SIC 1040)

Field	Total	Percent of industry employment	Relative error
Total.....	610	6.31	(1)
Engineers.....	210	2.17	(1)
Metallurgists and metallurgical.....	70	.72	17.73
Mining.....	140	1.45	13.21
Scientists.....	230	2.38	(1)
Chemists.....	90	.93	46.63
Earth scientists.....	140	1.45	15.57
Technicians.....	170	1.76	(1)
Surveyor.....	80	.83	20.67
All other engineering technicians.....	90	.93	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1921--con

Bauxite and other aluminum ores (SIC 1050)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	10	2.48	(1)
Technicians.....	10	2.48	(1)
Field unspecified.....	10	2.48	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Ferrous alloy ores, except vanadium (SIC 1069)

Field	Total	Percent of industry employment	Relative error
Total.....	579	7.21	(1)
Engineers.....	300	3.80	(1)
Metallurgists and metallurgical.....	60	.76	22.50
Mining.....	80	1.01	13.25
Other, n.e.c.....	160	2.03	(1)
Scientists.....	80	1.01	(1)
Earth scientists.....	80	1.01	13.46
Technicians.....	190	2.40	(1)
Engineering technicians.....	140	1.77	(1)
Science technicians.....	50	.63	29.35

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Metal mining services (SIC 1080)

Field	Total	Percent of industry employment	Relative error
Total.....	1,490	23.93	(1)
Engineers.....	290	4.65	(1)
Metallurgists and metallurgical.....	70	1.12	22.43
Mining.....	160	2.57	14.37
Other, n.e.c.....	60	.96	(1)
Scientists.....	330	13.35	(1)
Earth scientists.....	330	13.35	10.16
Technicians.....	370	5.93	(1)
Drafter.....	150	2.41	11.06
All other engineering technicians.....	110	1.76	(1)
Science technicians.....	110	1.76	24.17

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Miscellaneous metal ores (SIC 1090)

Field	Total	Percent of industry employment	Relative error
Total.....	1,740	11.01	(1)
Engineers.....	440	2.78	(1)
Metallurgists and metallurgical.....	50	.31	15.38
Mining.....	180	1.14	10.91
Safety.....	90	.57	9.72
Other, n.e.c.....	120	.76	(1)
Scientists.....	630	3.99	(1)
Chemists.....	90	.57	13.30
Earth scientists.....	540	3.42	12.05
Technicians.....	670	4.24	(1)
Drafters.....	120	.76	10.30
Surveyors.....	120	.76	11.23
All other engineering technicians.....	180	1.14	(1)
Science technicians.....	250	1.58	10.30

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Anthracite mining (SIC 1110)

Field	Total	Percent of industry employment	Relative error
Total.....	30	0.83	(1)
Technicians.....	30	.83	(1)
Field unspecified.....	30	.83	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Bituminous coal and lignite mining (SIC 1210)

Field	Total	Percent of industry employment	Relative error
Total.....	6,600	2.79	(1)
Engineers.....	3,170	1.35	(1)
Civil.....	210	.09	15.08
Industrial.....	190	.08	18.65
Mechanical.....	90	.03	24.04
Mining.....	1,440	.62	10.26
Safety.....	790	.34	7.44
Other, n.e.c.....	450	.19	(1)
Scientists.....	810	.33	(1)
Chemists.....	230	.09	19.75
Earth scientists.....	220	.09	26.07
All other natural and mathematical scientists.....	100	.04	(1)
Systems analysts.....	260	.11	19.69
Technicians.....	2,620	1.11	(1)
Computer programmer.....	320	.13	21.49
Drafter.....	620	.26	10.33
Surveyor.....	670	.29	8.28
Industrial engineering technicians.....	120	.05	36.36
All other engineering technicians.....	470	.18	(1)
Science technicians.....	420	.18	20.26

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1931-1960

Crude petroleum and natural gas (SIC 1310)

Field	Total	Percent of industry employment	Relative error
Total.....	54,720	21.77	(1)
Engineers.....	18,910	7.53	(1)
Chemical.....	610	.24	28.46
Civil.....	640	.25	30.36
Electrical/electronic.....	1,190	.47	32.67
Mechanical.....	710	.28	21.27
Petroleum.....	13,520	5.40	12.85
Safety.....	360	.14	49.31
Other, n.e.c.....	1,880	.75	(1)
Scientists.....	21,020	8.37	(1)
Mathematical scientists.....	170	.06	27.30
Chemists.....	1,140	.45	39.94
Earth scientists.....	15,520	6.20	10.82
All other physical scientists.....	220	.08	(1)
Life scientists.....	360	.14	48.31
Systems analysts.....	3,610	1.44	22.58
Technicians.....	14,790	5.87	(1)
Computer programmer.....	1,560	.62	18.25
Computer, prospecting and/or computer, seis graph.....	440	.17	25.85
Drafter.....	5,960	1.58	11.94
Electrical/electronic technicians.....	1,120	.44	34.33
Observer, electrical prospecting and/or gravity prospecting.....	290	.11	45.13
Scout.....	480	.19	25.68
Surveyor.....	630	.25	36.37
Civil engineering technicians.....	340	.13	38.04
All other engineering technicians.....	2,810	1.44	(1)
Science technicians.....	2,360	.94	26.52

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Natural gas liquids (SIC 1320)

Field	Total	Percent of industry employment	Relative error
Total.....	550	8.06	(1)
Engineers.....	210	3.08	(1)
Petroleum.....	210	3.08	17.65
Scientists.....	220	3.23	(1)
Earth scientists.....	220	3.23	22.39
Technicians.....	120	1.75	(1)
Drafter.....	50	.73	28.92
All other engineering technicians.....	70	1.02	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Oil and gas field services (SIC 1380)

Field	Total	Percent of industry employment	Relative error
Total.....	23,580	5.65	(1)
Engineers.....	8,330	2.90	(1)
Civil.....	100	.02	26.57
Electrical/electronic.....	1,740	.42	28.60
Mechanical.....	360	.16	31.29
Petroleum.....	4,700	1.14	14.81
Safety.....	320	.07	16.84
Other, n.e.c.....	810	.19	(1)
Scientists.....	6,460	1.55	(1)
Chemists.....	100	.02	49.91
Earth scientists.....	5,620	1.36	24.76
All other physical scientists.....	140	.03	(1)
Systems analysts.....	600	.14	28.00
Technicians.....	8,790	2.10	(1)
Computer programmer.....	1,010	.24	34.24
Drafter.....	1,480	.34	16.70
Electrical/electronic technicians.....	1,440	.33	21.15
Observer, electrical prospecting and/or gravity prospecting.....	980	.23	31.49
Surveyor.....	1,000	.24	32.46
Mechanical engineering technicians.....	520	.12	44.62
All other engineering technicians.....	1,460	.35	(1)
Science technicians.....	900	.21	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Dimension store (SIC 1410)

Field		Percent of industry em- ploy- ment	Relative error
Total.....	20	0.58	(1)
Technicians.....	20	.58	(1)
Field unspecified.....	20	.58	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Crushed and broken stone (SIC 1420)

Field	Total	Percent of industry employment	Relative error
Total.....	390	0.97	(1)
Engineers.....	180	.45	(1)
Field unspecified.....	180	.45	(1)
Scientists.....	70	.17	(1)
Physical scientists.....	70	.17	(1)
Technicians.....	140	.35	(1)
Field unspecified.....	140	.35	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Sand and gravel (SIC 1440)

Field	Total	Percent of industry employment	Relative error
Total.....	290	0.80	(1)
Engineers.....	170	.47	(1)
Mining.....	80	.22	15.05
Other, n.e.c.....	90	.25	(1)
Technicians.....	120	.33	(1)
Field unspecified.....	120	.33	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Clay, ceramic, and refractory minerals (SIC 1450)

Field	Total	Percent of industry employment	Relative error
Total.....	760	7.88	(1)
Engineers.....	140	1.45	(1)
Field unspecified.....	140	1.45	(1)
Scientists.....	80	.83	(1)
Physical scientists.....	80	.83	(1)
Technicians.....	540	5.60	(1)
Engineering technicians.....	90	.93	(1)
Science technicians.....	450	4.67	7.52

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Chemical and fertilizer minerals (SIC 1470)

Field	Total	Percent of industry employment	Relative error
Total.....	1,540	5.55	(1)
Engineers.....	660	2.37	(1)
Chemical.....	70	.25	15.04
Industrial.....	60	.21	17.28
Mechanical.....	120	.43	15.59
Mining.....	150	.54	7.37
Safety.....	70	.25	7.82
Other, n.e.c.....	190	.69	(1)
Scientists.....	300	1.08	(1)
Chemists.....	170	.61	12.65
Earth scientists.....	130	.47	15.01
Technicians.....	580	2.10	(1)
Drafter.....	80	.29	9.50
All other engineering technicians.....	180	.65	(1)
Science technicians.....	320	1.16	14.37

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Nonmetallic minerals (except fuels) services (SIC 1480)

Field	Total	Percent of industry employment	Relative error
Total.....	160	14.47	(1)
Scientists.....	150	13.57	(1)
Earth scientists.....	150	13.57	30.29
Technicians.....	10	.90	(1)
Field unspecified.....	10	.90	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Miscellaneous nonmetallic minerals, except fuels (SIC 1490)

Field	Total	Percent of industry employment	Relative error
Total.....	170	2.58	(1)
Engineers.....	100	1.52	(1)
Mining.....	50	.76	15.71
Other, n.e.c.....	50	.76	(1)
Technicians.....	70	1.06	(1)
Field unspecified.....	70	1.06	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Residential building construction (SIC 1520)

Field	Total	Percent of industry employment	Relative error
Total.....	3,510	0.64	(1)
Engineers.....	1,060	.19	(1)
Civil.....	810	.15	24.34
Other, n.e.c.....	250	.04	(1)
Technicians.....	2,450	.45	(1)
Computer programmer.....	60	.01	48.24
Drafter.....	2,200	.41	14.06
All other engineering technicians.....	190	.03	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Operative builders (SIC 1530)

Field	Total	Percent of industry employment	Relative error
Total.....	810	1.27	(1)
Engineers.....	180	.28	(1)
Civil.....	180	.28	23.64
Scientists.....	60	.09	(1)
Systems analysts.....	60	.09	24.30
Technicians.....	570	.90	(1)
Computer programmer.....	90	.14	21.57
Drafter.....	360	.57	16.06
All other engineering technicians.....	120	.19	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Nonresidential building construction (SIC 1540)

Field	Total	Percent of industry employment	Relative error
Total.....	15,260	2.93	(1)
Engineers.....	9,770	1.90	(1)
Civil.....	4,880	.95	7.86
Electrical/electronic.....	720	.14	17.60
Mechanical.....	1,990	.39	14.71
Safety.....	280	.05	11.32
Other, n.e.c.....	1,900	.37	(1)
Scientists.....	280	.05	(1)
Systems analysts.....	280	.05	13.98
Technicians.....	5,210	.98	(1)
Computer programmer.....	450	.08	11.05
Drafter.....	3,240	.63	7.26
Electrical/electronic technicians.....	80	.01	45.90
Surveyor.....	490	.09	11.74
Mechanical engineering technicians.....	220	.04	29.70
Civil engineering technicians.....	380	.07	19.11
All other engineering technicians.....	350	.06	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Highway and street construction (SIC 1610)

Field	Total	Percent of industry employment	Relative error
Total.....	2,970	1.07	(1)
Engineers.....	1,740	.63	(1)
Civil.....	1,440	.53	8.65
Safety.....	180	.06	8.99
Other, n.e.c.....	120	.04	(1)
Technicians.....	1,230	.44	(1)
Computer programmer.....	150	.05	17.04
Drafter.....	140	.05	14.99
Surveyor.....	750	.28	6.67
Civil engineering technicians.....	110	.04	17.26
All other engineering technicians.....	80	.02	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Heavy construction, except highway and street (SIC 1620)

Field	Total	Percent of industry employment	Relative error
Total.....	40,520	6.01	(1)
Engineers.....	27,170	4.04	(1)
Civil.....	8,320	1.24	8.85
Electrical/electronic.....	2,130	.31	18.40
Mechanical.....	3,210	.48	15.24
Safety.....	750	.11	8.35
Nuclear.....	400	.05	46.21
Other, n.e.c.....	12,360	1.85	(1)
Scientists.....	570	.08	(1)
Systems analysts.....	570	.08	15.74
Technicians.....	12,780	1.89	(1)
Computer programmer.....	630	.09	14.80
Drafter.....	6,590	.98	17.63
Electrical/electronic technicians.....	760	.11	28.39
Surveyor.....	2,070	.31	12.23
Mechanical engineering technicians.....	670	.10	25.98
Civil engineering technicians.....	720	.10	23.76
All other engineering technicians.....	1,340	.20	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Plumbing, heating, and air conditioning (SIC 1710)

Field	Total	Percent of industry employment	Relative error
Total.....	7,880	1.52	(1)
Engineers.....	4,010	.77	(1)
Mechanical.....	3,830	.74	7.14
Other, n.e.c.....	180	.03	(1)
Technicians.....	3,870	.75	(1)
Drafter.....	3,710	.72	5.31
All other engineering technicians.....	160	.03	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Painting, paper hanging, and decorating (SIC 1720)

Field	Total	Percent of industry employment	Relative error
Total.....	100	0.07	(1)
Technicians.....	100	.07	(1)
Engineering technicians.....	100	.07	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Electrical work (SIC 1730)

Field	Total	Percent of industry employment	Relative error
Total.....	13,940	3.39	(1)
Engineers.....	3,820	.92	(1)
Civil.....	220	.05	26.53
Electrical/electronic.....	3,380	.82	12.73
Mechanical.....	220	.05	32.15
Technicians.....	10,120	2.47	(1)
Drafter.....	500	.12	19.38
Electrical/electronic technicians.....	9,400	2.30	11.06
All other engineering technicians.....	220	.05	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Masonry, stonework, tile setting, and plastering (SIC 1740)

Field	Total	Percent of industry employment	Relative error
Total.....	560	0.16	(1)
Engineers.....	260	.07	(1)
Civil.....	140	.04	42.39
Other, n.e.c.....	120	.03	(1)
Technicians.....	300	.09	(1)
Drafter.....	300	.09	23.57

See footnotes at end of table.

5

7

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Carpentering and flooring (SIC 1750)

Field	Total	Percent of industry employment	Relative error
Total.....	380	0.30	(1)
Technicians.....	380	.30	(1)
Drafter.....	380	.30	24.07

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Roofing and sheet-metal work (SIC 1760)

Field	Total	Percent of industry employment	Relative error
Total.....	360	0.23	(1)
Technicians.....	360	.23	(1)
Drafter.....	360	.23	16.97

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Concrete work (SIC 1770)

Field	Total	Percent of industry employment	Relative error
Total.....	359	0.30	(1)
Engineers.....	210	.18	(1)
Civil.....	140	.12	23.87
Other, n.e.c.....	70	.06	(1)
Technicians.....	140	.12	(1)
Drafter.....	140	.12	21.55

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1961--con

Water-well drilling (SIC 1780)

Field	Total	Percent of industry employment	Relative error
Total.....	100	0.51	(1)
Engineers.....	80	.41	(1)
Field unspecified.....	80	.41	(1)
Technicians.....	20	.10	(1)
Field unspecified.....	20	.10	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con.

Miscellaneous special trade contractors (SIC 1790)

Field	Total	Percent of industry employment	Relative error
Total.....	4,950	1.19	(1)
Engineers.....	1,960	.46	(1)
Civil.....	1,160	.28	12.79
Mechanical.....	600	.14	21.57
Other, n.e.c.....	200	.04	(1)
Technicians.....	2,990	.73	(1)
Drafter.....	2,160	.53	10.67
All other engineering technicians.....	830	.20	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Federal Reserve Banks (SIC 6010)

Field	Total	Percent of industry employment	Relative error
Total.....	1,270	5.17	(1)
Scientists.....	710	2.89	(1)
Economists.....	310	1.26	15.07
Systems analysts.....	400	1.63	7.95
Technicians.....	560	2.28	(1)
Computer programmer.....	560	2.28	7.48

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1931--con

Commercial and stock savings banks (SIC 6020)

Field	Total	Percent of industry employment	Relative error
Total.....	18,410	1.22	(1)
Engineers.....	340	.02	(1)
Field unspecified.....	340	.02	(1)
Scientists.....	8,700	.53	(1)
Economists.....	320	.02	17.19
Systems analysts.....	8,380	.56	18.40
Technicians.....	9,370	.62	(1)
Computer programmer.....	8,790	.59	10.11
Engineering technicians.....	360	.02	(1)
Mathematical technicians.....	220	.01	36.77

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Mutual savings banks (SIC 6030)

Field	Total	Percent of industry employment	Relative error
Total.....	620	.082	(1)
Scientists.....	260	.34	(1)
Systems analysts.....	260	.34	12.55
Technicians.....	360	.48	(1)
Computer programmer.....	360	.48	8.46

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Trust companies, nondeposit (SIC 6040)

Field	Total	Percent of industry employment	Relative error
Total.....	30	1.20	(1)
Technicians.....	30	1.20	(1)
Field unspecified.....	30	1.20	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Establishments closely related to banking (SIC 6050)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	540	1.27	(1)
Scientists.....	340	.80	(1)
Systems analysts.....	340	.80	37.81
Technicians.....	200	.47	(1)
Computer programmer.....	200	.47	27.90

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Rediscount and financing institutions (SIC 6110)

Field	Total	Percent of industry employment	Relative error
Total.....	110	3.57	(1)
Scientists.....	70	2.27	(1)
Systems analysts.....	70	2.27	10.46
Technicians.....	40	1.30	(1)
Field unspecified.....	40	1.30	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Savings and loan associations (SIC 6120)

Field	Total	Percent of industry employment	Relative error
Total.....	2,800	1.04	(1)
Scientists.....	1,270	.47	(1)
Systems analysts.....	1,270	.47	8.23
Technicians.....	1,530	.57	(1)
Computer programmer.....	1,530	.57	7.05

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Agricultural credit institutions (SIC 6130)

Field	Total	Percent of industry employment	Relative error
Total.....	220	7.26	(1)
Scientists.....	190	.57	(1)
Systems analysts.....	100	.57	26.78
Technicians.....	120	.69	(1)
Computer programmer.....	120	.69	12.99

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Personal credit institutions (SIC 6140)

Field	Total	Percent of industry employment	Relative error
Total.....	1,400	0.67	(1)
Scientists.....	550	.26	(1)
Systems analysts.....	550	.26	12.24
Technicians.....	850	.41	(1)
Computer programmer.....	850	.41	9.11

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND * TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Business credit institutions (SIC 6150)

Field	Total	Percent of industry employment	Relative error
Total.....	380	1.15	(1)
Scientists.....	140	.42	(1)
Systems analysts.....	140	.42	25.29
Technicians.....	240	.73	(1)
Computer programmer.....	240	.73	19.67

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Mortgage bankers and brokers (SIC 6160)

Field	Total	Percent of industry employment	Relative error
Total.....	550	0.88	(1)
Scientists.....	230	.37	(1)
Systems analysts.....	230	.37	18.76
Technicians.....	320	.51	(1)
Computer programmer.....	320	.51	10.21

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Security brokers and dealers (SIC 6210)

Field	Total	Percent of industry employment	Relative error
Total.....	3,180	1.45	(1)
Engineers.....	80	.03	(1)
Field unspecified.....	80	.03	(1)
Scientists.....	1,670	.76	(1)
Statisticians.....	340	.15	34.11
Economists.....	150	.06	22.10
Systems analysts.....	1,180	.55	24.53
Technicians.....	1,430	.66	(1)
Computer programmer.....	1,430	.66	23.90

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Commodity contracts brokers and dealers (SIC 6220)

Field	Total	Percent of industry employment	Relative error
Total.....	40	0.32	(1)
Technicians.....	40	.32	(1)
Field unspecified.....	40	.32	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Security and commodity exchanges (SIC 6230)

Field	Total	Percent of industry employment	Relative error
Total.....	310	4.57	(1)
Scientists.....	220	3.24	(1)
Mathematical scientists.....	70	1.03	(1)
Social scientists.....	70	1.03	(1)
Systems analysts.....	80	1.18	12.75
Technicians.....	90	1.33	(1)
Field unspecified.....	90	1.33	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Security and commodity services (SIC 6280)

Field	Total	Percent of industry employment	Relative error
Total.....	1,390	4.95	(1)
Scientists.....	770	2.74	(1)
Statisticians.....	220	.78	21.29
Systems analysts.....	550	1.96	15.77
Technicians.....	620	2.21	(1)
Computer programmer.....	620	2.21	29.38

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Life insurance (SIC 6310)

Field	Total	Percent of industry employment	Relative error
Total.....	19,110	3.48	(1)
Engineers.....	380	.07	(1)
Field unspecified.....	380	.07	(1)
Scientists.....	9,760	1.78	(1)
Actuaries.....	2,980	.54	9.19
Statisticians.....	670	.12	40.71
All other mathematicians.....	120	.02	(1)
Economists.....	70	.01	32.06
Systems analysts.....	5,920	1.09	9.71
Technicians.....	8,970	1.63	(1)
Computer programmer.....	8,560	1.57	9.26
Engineering technicians.....	200	.03	(1)
Mathematical technicians.....	210	.03	18.84

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Accident and health insurance, medical service plans (SIC 6320)

Field	Total	Percent of industry employment	Relative error
Total.....	7,890	5.48	(1)
Engineers.....	110	.07	(1)
Field unspecified.....	110	.07	(1)
Scientists.....	4,600	3.19	(1)
Actuaries.....	500	.35	10.90
Statisticians.....	270	.18	10.40
All other mathematicians.....	120	.08	(1)
Economists.....	70	.04	30.12
Systems analysts.....	3,640	2.54	7.78
Technicians.....	3,180	2.22	(1)
Computer programmer.....	3,090	2.16	6.89
Mathematical technicians.....	90	.06	32.44

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: -1981--con

• Fire, marine, and casualty insurance (SIC 6330)

Field	Total	Percent of industry employment	Relative error
Total.....	17,630	3.66	(1)
Engineers.....	1,570	.33	(1)
Field unspecified.....	1,570	.33	(1)
Scientists.....	7,420	1.53	(1)
Actuaries.....	970	.20	10.98
Statisticians.....	440	.09	12.91
All other mathematicians.....	330	.06	(1)
Social scientrst.....	120	.02	(1)
Systems analysts.....	5,560	1.16	12.97
Technicians.....	8,640	1.80	(1)
Computer programmer.....	8,490	1.78	11.04
Drafter.....	70	.01	31.48
Mathematical technicians.....	80	.01	26.89

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Surety insurance (SIC 6350)

Field	Total	Percent of industry employment	Relative error
Total.....	60	0.97	(1)
Technicians.....	60	.97	(1)
Field unspecified.....	60	.97	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Title insurance (SIC 6360)

Field	Total	Percent of industry employment	Relative error
Total.....	400	0.88	(1)
Technicians.....	400	.88	(1)
Computer programmer.....	200	.44	26.64
Drafter.....	200	.44	28.63

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Pension, health, and welfare funds (SIC 6370)

Field	Total	Percent of industry employment	Relative error
Total.....	390	1.80	(1)
Scientists.....	190	.88	(1)
Actuaries.....	80	.37	34.62
Systems analysts.....	110	.51	24.33
Technicians.....	200	.92	(1)
Computer programmer.....	200	.92	16.61

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Insurance carriers, n.e.c. (SIC 6390)

Field	Total	Percent of industry employment	Relative error
Total.....	10	0.67	(1)
Technicians.....	10	.67	(1)
Field unspecified.....	10	.67	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Real estate operators and lessors (SIC 6510)

Field	Total	Percent of industry employment	Relative error
Total.....	1,430	0.28	(1)
Engineers.....	680	.14	(1)
Field unspecified.....	680	.14	(1)
Scientists.....	70	.01	(1)
Systems analysts.....	70	.01	23.56
Technicians.....	680	.13	(1)
Computer programmer.....	90	.01	27.69
Drafter.....	390	.08	24.03
All other engineering technicians.....	200	.04	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Real estate agents and managers (SIC 6530)

Field	Total	Percent of industry employment	Relative error
Total.....	1,640	0.42	(1)
Engineers.....	280	.07	(1)
Field unspecified.....	280	.07	(1)
Scientists.....	350	.09	(1)
Mathematical scientists.....	150	.04	(1)
Systems analysts.....	200	.05	29.23
Technicians.....	1,010	.26	(1)
Computer programmer.....	310	.08	42.74
Drafter.....	620	.16	23.42
All other engineering technicians.....	80	.02	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Title abstract offices (SIC 6540)

Field	Total	Percent of industry employment	Relative error
Total.....	50	0.24	(1)
Technicians.....	50	.24	(1)
Engineering technicians.....	50	.24	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Subdividers and developers (SIC 6550)

Field	Total	Percent of industry employment	Relative error
Total.....	1,670	1.19	(1)
Engineers.....	460	.33	(1)
Field unspecified.....	460	.33	(1)
Scientists.....	170	.12	(1)
Mathematical scientists.....	100	.07	(1)
Systems analysts.....	70	.05	20.30
Technicians.....	1,040	.74	(1)
Computer programmer.....	350	.25	34.54
Drafter.....	610	.44	19.33
Surveyor.....	80	.05	28.03

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Holding offices (SIC 6710)

Field	Total	Percent of industry employment	Relative error
Total.....	3,170	5.70	(1)
Engineers.....	580	1.04	(1)
Field unspecified.....	580	1.04	(1)
Scientists.....	900	1.62	(1)
Economists.....	70	.12	17.86
Systems analysts.....	830	1.50	12.24
Technicians.....	1,690	3.04	(1)
Computer programmer.....	1,410	2.54	12.27
Engineering technicians.....	280	.50	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Investment offices (SIC 6720)

Field	Total	Percent of industry employment	Relative error
Total.....	120	2.52	(1)
Scientists.....	70	1.47	(1)
Social scientists.....	70	1.47	(1)
Technicians.....	50	1.05	(1)
Computer programmer.....	50	1.05	14.10

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Trusts (SIC 6730)

Field	Total	Percent of industry employment	Relative error
Total.....	340	0.84	(1)
Scientists.....	110	.27	(1)
Mathematical scientists.....	110	.27	(1)
Technicians.....	230	.57	(1)
Field unspecified.....	230	.57	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Miscellaneous investing (SIC 6790)

Field	Total	Percent of industry employment	Relative error
Total.....	560	2.70	(1)
Scientists.....	210	1.01	(1)
Physical scientists.....	80	.38	(1)
Systems analysts.....	130	.63	44.04
Technicians.....	350	1.69	(1)
Computer programmer.....	230	1.11	36.93
Engineering technicians.....	120	.58	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Hotels, motels, and tourist courts (SIC 7010)

Field	Total	Percent of industry employment	Relative error
Total.....	2,650	0.22	(1)
Engineers.....	1,090	.09	(1)
Field unspecified.....	1,090	.09	(1)
Scientists.....	230	.02	(1)
Systems analysts.....	230	.02	23.51
Technicians.....	1,330	.11	(1)
Computer programmer.....	370	.03	21.96
Engineering technicians.....	960	.08	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Camps and trailer parks (SIC 7030)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	40	0.18	(1)
Technicians.....	40	.18	(1)
Field unspecified.....	40	.18	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Laundry, cleaning, and garment services (SIC 7210)

Field	Total	Percent of industry employment	Relative error
Total.....	360	0.09	(1)
Engineers.....	180	.05	(1)
Field unspecified.....	180	.05	(1)
Scientists.....	80	.02	(1)
Systems analysts.....	80	.02	19.48
Technicians.....	100	.02	(1)
Computer programmer.....	100	.02	25.38

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Photographic studios, portrait (SIC 7220)

Field	Total	Percent of industry employment	Relative error
Total.....	200	0.45	(1)
Technicians.....	200	.45	(1)
Field unspecified.....	200	.45	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Beauty shops (SIC 7230)

Field	Total	Percent of industry employment	Relative error
Total.....	100	0.03	(1)
Technicians.....	100	.03	(1)
Field unspecified.....	100	.03	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1931--con

Shoe repair; shoe shine, and hat cleaning shops (SIC 7250)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	10	0.14	(1)
Technicians.....	10	.14	(1)
Field unspecified.....	10	.14	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Funeral service and crematories (SIC 7260)

Field	Total	Percent of industry employment	Relative error
Total.....	140	0.19	(1)
Technicians.....	140	.19	(1)
Field unspecified.....	140	.19	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Advertising (SIC 7310)

Field	Total	Percent of industry employment	Relative error
Total.....	730	0.45	(1)
Scientists.....	310	.19	(1)
Statisticians.....	110	.07	38.73
Systems analysts.....	200	.12	(1)
Technicians.....	420	.26	(1)
Computer programmer.....	300	.19	(1)
Engineering technicians.....	120	.07	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Consumer credit reporting and collection agencies (SIC 7320)

Field	Total	Percent of industry employment	Relative error
Total.....	550	0.71	(1)
Scientists.....	200	.26	(1)
Systems analysts.....	200	.26	(1)
Technicians.....	350	.45	(1)
Computer programmer, business.....	290	.38	21.84
Computer programmer, scientific and technical.....	60	.07	30.93

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Mailing, reproduction, commercial art, and stenography (SIC 7330)

Field	Total	Percent of industry employment	Relative error
Total.....	1,410	1.08	(1)
Engineers.....	120	.09	(1)
Field unspecified.....	120	.09	(1)
Scientists.....	330	.25	(1)
Social scientists.....	70	.05	(1)
Systems analysts.....	260	.20	(1)
Technicians.....	960	.74	(1)
Computer programmer.....	360	.28	(1)
Drafter.....	530	.41	36.52
All other engineering technicians.....	70	.05	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Services to dwellings and other buildings (SIC 7340)

Field	Total	Percent of industry employment	Relative error
Total.....	470	0.08	(1)
Engineers.....	220	.04	(1)
Mechanical.....	160	.03	37.43
Other, n.e.c.....	60	.01	(1)
Scientists.....	10	(1)	(1)
Systems analysts.....	10	(1)	(1)
Technicians.....	240	.04	(1)
Engineering technicians.....	240	.04	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--cen

News syndicates (SIC 7350)

Field	Total	Percent of industry employment	Relative error
Total.....	420	5.90	(1)
Engineers.....	50	.70	(1)
Electrical/electronic.....	50	.70	35.34
Scientists.....	20	.28	(1)
Systems analysts.....	20	.28	(1)
Technicians.....	350	4.92	(1)
Computer programmer.....	60	.84	(1)
Electrical/electronic technicians.....	290	4.08	24.38

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Personnel supply services (SIC 7360)

Field	Total	Percent of industry employment	Relative error
Total.....	20,070	3.23	(1)
Engineers.....	6,260	1.01	(1)
Electrical/electronic.....	2,210	.36	30.69
Industrial.....	370	.06	32.28
Mechanical.....	890	.14	23.10
Safety.....	60	(1)	29.74
Other, n.e.c.....	2,730	.45	(1)
Scientists.....	1,150	.17	(1)
Mathematical scientists.....	100	.01	(1)
Physical scientists.....	110	.01	(1)
Social scientists.....	70	.01	(1)
Systems analysts.....	870	.14	(1)
Technicians.....	12,660	2.05	(1)
Computer programmer.....	1,390	.22	(1)
Drafter.....	5,040	.83	22.37
Electrical/electronic technicians.....	3,580	.59	32.26
Mechanical engineering technicians.....	1,200	.19	45.01
Industrial engineering technicians.....	150	.02	36.41
Civil engineering technicians.....	490	.08	46.79
All other engineering technicians.....	580	.09	(1)
Science technicians.....	230	.03	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Computer and data processing services (SIC 7370)

Field	Total	Percent of industry employment	Relative error
Total.....	100,520	30.20	(1)
Engineers.....	4,740	1.41	(1)
Electrical/electronic.....	3,760	1.13	14.90
Mechanical.....	160	.04	40.08
Other, n.e.c.....	820	.24	(1)
Scientists.....	39,870	11.99	(1)
Statisticians.....	100	.03	39.21
All other mathematicians.....	180	.05	(1)
Physical scientists.....	140	.04	(1)
All other social scientists.....	70	.02	(1)
Systems analysts.....	39,380	11.85	20.00
Technicians.....	55,910	16.80	(1)
Computer programmer, business.....	34,050	10.25	5.26
Computer programmer, scientific and technical.....	10,020	3.01	10.17
Drafter.....	1,020	.30	29.73
Electrical/electronic technicians.....	9,880	2.97	13.35
Mechanical engineering technicians.....	180	.05	27.52
All other engineering technicians.....	410	.12	(1)
Mathematical technicians.....	350	.10	38.64

See footnotes at end of table.

TABLE C-6. SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Miscellaneous business services (SIC 7390)

Field	Total	Percent of industry employment	Relative error
Total.....	173,800	11.86	(1)
Engineers.....	49,270	3.36	(1)
Aeronautical.....	1,530	.10	40.24
Chemical.....	3,940	.27	47.78
Civil.....	2,980	.20	17.19
Electrical/electronic.....	16,380	1.13	28.83
Industrial.....	2,870	.19	25.69
Mechanical.....	7,330	.50	23.00
Metallurgists and metallurgical.....	1,310	.09	49.00
Petroleum.....	650	.04	43.62
Safety.....	410	.02	40.72
Other, n.e.c.....	11,870	.82	(1)
Scientists.....	56,510	3.83	(1)
Mathematicians.....	1,560	.10	41.46
Statisticians.....	1,930	.13	20.28
All other mathematicians.....	1,110	.07	(1)
Chemists.....	9,600	.66	16.51
Earth scientists.....	1,590	.11	34.92
Oceanographers.....	210	.01	48.53
Physicists.....	3,750	.26	35.70
All other physical scientists.....	2,540	.17	(1)
Agricultural scientists.....	1,380	.09	34.29
Biological scientists.....	5,210	.36	21.67
All other life scientists.....	860	.05	(1)
Economists.....	2,430	.16	25.90
Psychologists.....	2,190	.15	26.86
Sociologists.....	770	.05	42.91
Urban and regional planners.....	800	.05	32.95
All other social scientists.....	6,310	.43	(1)
Systems analysts.....	14,270	.98	47.55
Technicians.....	68,020	4.67	(1)
Computer programmer, business.....	7,160	.49	14.00
Computer programmer, scientific and technical.....	6,620	.45	17.38
Drafter.....	12,370	.85	13.10
Electrical/electronic technicians.....	12,420	.86	18.17

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Miscellaneous business services (SIC 7390)

Field	Total	Percent of industry employment	Relative error
Mechanical engineering technicians.....	2,760	0.19	34.26
Civil engineering technicians.....	3,880	.26	22.98
All other engineering technicians.....	14,900	1.03	(1)
Science technicians.....	7,410	.51	26.34
Mathematical technicians.....	500	.03	39.11

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Automobile rentals and leasing, without drivers (SIC 7510)

Field	Total	Percent of industry employment	Relative error
Total.....	580	0.48	(1)
Scientists.....	160	.13	(1)
Systems analysts.....	160	.13	30.46
Technicians.....	420	.35	(1)
Computer programmer.....	420	.35	23.20

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Automobile parking (SIC 7820)

Field	Total	Percent of industry employment	Relative error
Total.....	10	.02	(1)
Technicians.....	10	.02	(1)
Field unspecified.....	10	.02	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Automobile repair shops (SIC 7530)

Field	Total	Percent of industry employment	Relative error
Total.....	140	0.03	(1)
Technicians.....	140	.03	(1)
Computer programmer.....	140	.03	33.49

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Electrical repair shops (SIC 7620)

Field	Total	Percent of industry employment	Relative error
Total.....	14,130	16.09	(1)
Engineers.....	2,130	2.42	(1)
Electrical/electronic.....	2,040	2.32	23.14
Other, n.e.c.....	90	.10	(1)
Scientists.....	160	.18	(1)
Systems analysts.....	160	.18	42.74
Technicians.....	11,840	13.49	(1)
Computer programmer.....	110	.12	31.15
Drafter.....	180	.20	33.12
Electrical/electronic technicians.....	11,440	13.05	5.01
All other engineering technicians.....	110	.12	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Watch, clock, and jewelry repair (SIC 7630)

Field	Total	Percent of industry employment	Relative error
Total.....	20	0.35	(1)
Technicians.....	20	.35	(1)
Field unspecified.....	20	.35	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--cont.

Reupholstery and furniture repair (SIC 7640)

Field	Total	Percent of industry employment	Relative error
Total.....	.10	0.04	(1)
Technicians.....	.10	.04	(1)
Field unspecified.....	.10	.04	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Miscellaneous repair shops and related services (SIC 7690)

Field	Total	Percent of industry employment	Relative error
Total.....	360	0.40	(1)
Technicians.....	360	.40	(1)
Electrical/electronic technicians.....	260	.29	42.79
All other engineering technicians.....	100	.11	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1931--con

Motion picture production and services (SIC 7810)

Field	Total	Percent of industry employment	Relative error
Total.....	2,670	3.30	(1)
Engineers.....	490	.61	(1)
Electrical/electronic.....	490	.61	29.50
Scientists.....	130	.16	(1)
Systems analysts.....	130	.16	29.17
Technicians.....	2,050	2.53	(1)
Computer programmer.....	230	.28	25.56
Electrical/electronic technicians.....	270	.33	41.60
Sound recording and reproduction technicians.....	1,190	1.48	16.99
All other engineering technicians.....	360	.44	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Motion picture distribution and services (SIC 7820)

Field	Total	Percent of industry employment	Relative error
Total.....	180	1.57	(1)
Technicians.....	180	1.57	(1)
Field unspecified.....	180	1.57	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Motion picture theaters (SIC 7830)

Field	Total	Percent of industry employment	Relative error
Total.....	230	0.18	(1)
Engineers.....	70	.05	(1)
Electrical/electronic.....	70	.05	33.77
Technicians.....	160	.13	(1)
Engineering technicians.....	160	.13	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Dance halls, studios, and schools (SIC 7910)

Field	Total	Percent of industry employment	Relative error
Total.....	10	0.05	(1)
Technicians.....	10	.05	(1)
Field unspecified.....	10	.05	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Theatrical producers, bands, and entertainers (SIC 7920)

Field	Total	Percent of industry employment	Relative error
Total.....	360	0.40	(1)
Technicians.....	360	.40	(1)
Electrical/electronic technicians.....	260	.29	42.79
All other engineering technicians.....	100	.11	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Bowling alleys and billiard and pool establishments (SIC 7930)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	10	(1)	(1)
Technicians.....	10	(1)	(1)
Field unspecified.....	10	(1)	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Miscellaneous amusement and recreation services (SIC 7990)

Field	Total	Percent of industry employment	Relative error
Total.....	570	0.10	(1)
Engineers.....	90	.01	(1)
Electrical/electronic.....	90	.01	28.04
Scientists.....	70	.01	(1)
Systems analysts.....	70	.01	37.21
Technicians.....	410	.08	(1)
Computer programmer.....	100	.02	35.75
Electrical/electronic technicians.....	260	.05	19.42
All other engineering technicians.....	50	.01	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Offices of physicians (SIC 8010)

Field	Total	Percent of industry employment	Relative error
Total.....	2,190	0.27	(1)
Scientists.....	2,010	.25	(1)
Biological scientists.....	120	.01	49.38
Psychologists.....	1,800	.23	24.51
All other social scientists.....	90	.01	(1)
Technicians.....	180	.02	(1)
Computer programmer.....	180	.02	27.98

See footnotes at end of table.

TABLE C-6 . SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con .

Offices of other health practitioners (SIC 8040)

Field	Total	Percent of industry employment	Relative error
Total.....	1,850	1.76	(1)
Scientists.....	1,850	1.76	(1)
Psychologists.....	1,850	1.76	32.25

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Nursing and personal care facilities (SIC 8050)

Field	Total	Percent of industry employment	Relative error
Total.....	340	0.02	(1)
Engineers.....	160	.01	(1)
Field unspecified.....	160	.01	(1)
Scientists.....	180	.01	(1)
Psychologists.....	180	.01	38.15

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1961--con

Medical and dental laboratories (SIC 8070)

Field	Total	Percent of industry employment	Relative error
Total.....	690	0.64	(1)
Scientists.....	440	.41	(1)
Physical scientists.....	130	.12	(1)
Biological scientists.....	310	.29	34.84
Technicians.....	250	.23	(1)
Computer programmer.....	160	.15	26.40
Science technicians.....	90	.08	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Outpatient care facilities (SIC 8080)

Field	Total	Percent of industry employment	Relative error
Total.....	4,770	3.23	(1)
Scientists.....	4,600	3.12	(1)
Psychologists.....	4,020	2.73	10.36
All other social scientists.....	330	.22	(1)
Systems analysts.....	250	.	26.82
Technicians.....	170	.	(1)
Computer programmer.....	170	.11	18.18

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Health and allied services, n.e.c. (SIC 8090)

Field	Total	Percent of industry employment	Relative error
Total.....	300	0.31	(1)
Scientists.....	220	.23	(1)
Social scientists.....	100	.17	(1)
Systems analysts.....	60	.06	32.21
Technicians.....	80	.08	(1)
Computer programmer.....	80	.08	29.55

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
 AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
 RELATIVE ERROR: 1981--con

Legal services (SIC 8100)

Field	Total	Percent of industry employment	Relative error
Total.....	1,730	0.30	(1)
Scientists.....	550	.11	(1)
Systems analysts.....	650	.11	25.06
Technicians.....	1,080	.19	(1)
Computer programmer.....	1,080	.19	23.78

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Individual and family social services (SIC 8320)

Field	Total	Percent of industry employment	Relative error
Total.....	2,830	1.42	(1)
Scientists.....	2,830	1.42	(1)
Statisticians.....	150	.07	29.06
Psychologists.....	2,540	1.23	12.78
Sociologists.....	80	.04	41.66
All other social scientists.....	60	.03	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Job training and vocational rehabilitation services (SIC 8330)

Field	Total	Percent of industry employment	Relative error
Total.....	1,120	0.56	(1)
Scientists.....	960	.48	(1)
Statisticians.....	120	.06	24.42
Psychologists.....	720	.36	13.93
All other social scientists.....	120	.06	(1)
Technicians.....	160	.08	(1)
Computer programmer.....	80	.04	24.11
Engineering technicians.....	80	.04	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR. 1981-1982

Child day care services (SIC 8353)

Field	Total	Percent of industry employment	Relative error
Total.....	140	0.04	(1)
Scientists.....	140	.04	(1)
Psychologists.....	140	.04	31.77

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Residential care (SIC 8360)

Field	Total	Percent of industry employment	Relative error
Total.....	1,510	0.64	(1)
Scientists.....	1,510	.64	(1)
Psychologists.....	1,350	.58	11.15
All other social scientists.....	160	.06	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Social services, n.e.c. (SIC 8390)

Field	Total	Percent of industry employment	Relative error
Total:.....	2,420	0.98	(1)
Scientists.....	2,260	.92	(1)
Statisticians.....	300	.12	24.22
Psychologists.....	1,430	.59	18.26
Urban and regional planners.....	150	.06	48.01
All other social scientists.....	290	.12	(1)
Systems analysts.....	90	.03	29.53
Technicians.....	160	.06	(1)
Computer programmer.....	160	.06	23.18

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981-1989

Business organizations (SIC 8610)

Field	Total	Percent of industry employment	Relative error
Total.....	1,350	1.57	(1)
Engineers.....	260	.36	(1)
Electrical/electronic.....	90	.10	42.12
Other, n.e.c.....	170	.29	(1)
Scientists.....	650	.86	(1)
Statisticians.....	300	.55	20.06
Economists.....	160	.19	18.67
Systems analysts.....	190	.22	13.99
Technicians.....	440	.54	(1)
Computer programmer.....	210	.26	14.50
Engineering technicians.....	120	.14	(1)
Science technicians.....	110	.15	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Professional membership organizations (SIC 2620)

Field	Total	Percent of industry employment	Relative error
Total.....	500	1.38	(1)
Engineers.....	160	.44	(1)
Field unspecified.....	160	.44	(1)
Scientists.....	160	.44	(1)
Statisticians.....	80	.22	20.95
Systems analysts.....	80	.22	17.58
Technicians.....	180	.50	(1)
Computer programmer.....	180	.50	9.51

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Labor unions and similar labor organizations (SIC 8630)

Field	Total	Percent of industry employment	Relative error
Total.....	130	0.08	(1)
Technicians.....	130	.08	(1)
Computer programmer.....	130	.08	16.33

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Civic, social, and fraternal associations (SIC 8540)

Field	Total	Percent of industry employment	Relative error
Total.....	710	0.22	(1)
Engineers.....	100	.03	(1)
Field unspecified.....	100	.03	(1)
Scientists.....	180	.05	(1)
All other natural and mathematical scientists.....	70	.02	(1)
Social scientists.....	110	.03	(1)
Technicians.....	460	.14	(1)
Computer programmer.....	160	.05	9.56
Engineering technicians.....	160	.05	(1)
Science technicians.....	140	.04	16.20

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Political organizations (SIC 8650)

Field	Total	Percent of industry employment	Relative error
Total.....	10	0.27	(1)
Technicians.....	10	.27	(1)
Field unspecified.....	10	.27	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY,
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Religious organizations (SIC 8660)

Field	Total	Percent of industry em- ploy- ment	Relative error
Total.....	2,970	0.30	(1)
Engineers.....	390	.04	(1)
Electrical/electronic.....	390	.04	10.56
Scientists.....	720	.07	(1)
Statisticians.....	160	.01	12.30
Systems analysts.....	560	.06	7.43
Technicians.....	1,860	.19	(1)
Computer programmer.....	1,200	.13	5.85
Electrical/electronic technicians.....	160	.01	14.31
All other engineering technicians.....	500	.05	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Membership organizations, n.e.c. (SIC 8690)

Field	Total	Percent of Industry employment	Relative error
Total.....	310	0.48	(1)
Scientists.....	70	.11	(1)
Systems analysts.....	70	.11	32.09
Technicians.....	240	.37	(1)
Computer programmer.....	160	.25	20.82
Engineering technicians.....	80	.12	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Engineering, architectural, and surveying services (SIC 8910)

Field	Total	Percent of industry employment	Relative error
Total.....	299,100	51.30	(1)
Engineers.....	124,360	21.33	(1)
Aeronautical.....	1,480	.25	28.84
Agricultural.....	340	.05	28.22
Chemical.....	4,900	.84	13.27
Civil.....	49,120	8.45	4.12
Electrical/electronic.....	22,520	3.87	6.17
Industrial.....	2,450	.42	19.87
Marine.....	1,490	.25	32.53
Mechanical.....	29,240	5.03	5.95
Metallurgists and metallurgical.....	480	.08	28.10
Mining.....	400	.06	32.15
Petroleum.....	990	.17	29.98
Safety.....	780	.13	38.38
Traffic.....	620	.10	22.75
Nuclear.....	1,510	.25	30.85
Other, n.e.c.....	8,040	1.38	(1)
Scientists.....	10,580	1.77	(1)
Mathematicians.....	350	.06	38.88
All other mathematicians.....	150	.02	(1)
Chemists.....	590	.10	21.54
Earth scientists.....	1,380	.23	20.37
Meteorologists.....	300	.05	30.63
Physicists.....	1,140	.19	45.99
All other physical scientists.....	1,050	.18	(1)
Biological scientists.....	470	.08	40.27
All other life scientists.....	130	.02	(1)
Economists.....	250	.04	22.13
Urban and regional planners.....	740	.12	15.14
All other social scientists.....	150	.02	(1)
Systems analysts.....	3,880	.66	39.36
Technicians.....	164,160	28.20	(1)
Computer programmer, business.....	980	.16	12.10
Computer programmer, scientific and technical.....	2,970	.51	13.35
Drafter.....	98,990	17.04	2.77

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Engineering, architectural, and surveying services (SIC 8910)

Field	Total	Percent of industry employment	Relative error
Electrical/electronic technicians.....	5,810	1.00	11.64
Surveyor.....	18,650	3.21	5.83
Mechanical engineering technicians.....	3,730	.64	12.75
Specification writers, engineering.....	1,200	.20	11.85
Industrial engineering technicians.....	150	.02	34.62
Civil engineering technicians.....	20,150	3.46	6.29
All other engineering technicians.....	9,320	1.60	(1)
Physical science technicians.....	940	.16	22.53
Biological science technicians.....	170	.02	35.69
All other science technicians.....	830	.14	(1)
Mathematical technicians.....	270	.04	39.98

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1921--con

Noncommercial education and research organizations (SIC 8920)

Field	Total	Percent of industry employment	Relative error
Total.....	31,700	26.90	(1)
Engineers.....	6,510	5.51	(1)
Aeronautical.....	280	.23	28.26
Chemical.....	330	.28	21.70
Civil.....	100	.08	26.25
Electrical/electronic.....	3,290	2.81	19.74
Industrial.....	80	.06	26.12
Mechanical.....	990	.84	18.68
Metallurgists and metallurgical.....	230	.19	29.27
Nuclear.....	140	.11	29.12
Other, n.e.c.....	1,070	.91	(1)
Scientists.....	14,970	12.70	(1)
Mathematicians.....	560	.47	16.22
Statisticians.....	400	.34	16.34
All other mathematicians.....	160	.13	(1)
Chemists.....	1,570	1.34	16.22
Earth scientists.....	270	.23	45.32
Meteorologists.....	220	.18	39.42
Physicists.....	1,480	1.26	19.17
All other physical scientists.....	520	.44	(1)
Biological scientists.....	3,030	2.58	14.70
Medical scientists.....	1,080	.92	17.76
All other life scientists.....	810	.69	(1)
Economists.....	740	.63	16.08
Psychologists.....	710	.60	34.70
Sociologists.....	620	.52	28.26
Urban and regional planners.....	280	.23	39.12
All other social scientists.....	840	.71	(1)
Systems analysts.....	1,680	1.43	37.23
Technicians.....	10,220	8.69	(1)
Computer programmer, business.....	290	.24	14.11
Computer programmer, scientific and technical.....	1,080	.92	12.55
Drafter.....	410	.35	17.63
Electrical/electronic technicians.....	1,990	1.70	20.26
Mechanical engineering technicians.....	950	.81	30.59

See footnotes at end of table.

TABLE C-6. SCIENTISTS, ENGINEERS, AND/ TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Noncommercial education and research organizations (SIC 8920)

Field	Total	Percent of industry employment	Relative error
All other engineering technicians.....	1,060	0.90	(1)
Physical science technicians.....	1,140	.97	17.45
Biological science technicians.....	2,490	2.12	14.86
All other science technicians.....	700	.59	(1)
Mathematical technicians.....	110	.09	46.56

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY
AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE
RELATIVE ERROR: 1981--con

Accounting, auditing, and bookkeeping services (SIC 8930)

Field	Total	Percent of industry employment	Relative error
Total.....	7,640	2.27	(1)
Engineers.....	220	.06	(1)
Field unspecified.....	220	.06	(1)
Scientists.....	4,050	1.20	(1)
Actuaries.....	120	.03	25.00
Social scientists.....	140	.04	(1)
Systems analysts.....	3,790	1.13	37.33
Technicians.....	3,370	1.01	(1)
Computer programmer, business.....	2,590	.78	11.82
Computer programmer, scientific and technical.....	210	.06	34.51
Engineering technicians.....	570	.17	(1)

See footnotes at end of table.

TABLE C-6 SCIENTISTS, ENGINEERS, AND TECHNICIANS IN EACH NONMANUFACTURING INDUSTRY AS A PERCENT OF TOTAL EMPLOYMENT IN THE INDUSTRY, AND THE RELATIVE ERROR: 1981--con

Services, n.e.c. (SIC 8990)

Field	Total	Percent of industry employment	Relative error
Total.....	5,880	27.28	(1)
Engineers.....	400	1.86	(1)
Field unspecified.....	400	1.86	(1)
Scientists.....	4,170	19.35	(1)
Actuaries.....	1,610	7.49	13.17
Mathematicians.....	90	.41	37.13
Statisticians.....	80	.37	48.60
Earth scientists.....	730	3.39	24.54
Meteorologists.....	550	2.55	41.08
All other physical scientists.....	170	.79	(1)
Psychologists.....	420	1.95	39.73
All other social scientists.....	380	1.76	(1)
Systems analysts.....	140	.64	55.38
Technicians.....	1,310	6.07	(1)
Computer programmer, business.....	160	.74	24.46
Computer programmer, scientific and technical.....	110	.51	24.85
Drafter.....	180	.83	38.47
All other engineering technicians.....	300	1.39	(1)
Science technicians.....	560	2.60	(1)

1/ Relative error not computed.

NOTE: Because of rounding, components may not add to totals.

SOURCES: Bureau of Labor Statistics and the National Science Foundation.

other science resources publications

	NSF No.	Price			
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"Real Growth In Federal R&D Funds—Estimated at 12% in 1984—Largest Increase Since Midsixties"	84-302	----	"Academic Employment of Scientists and Engineers Continued to Grow in 1982, but Slower than in Other Economic Sectors"	83-317	----
"Dollar Value of U.S. R&D Expenditures Overseas Declined in 1982"	83-329	----	"Growth in Neuroscience May Be Leveling Off"	83-314	----
"Companies Plan Increases in R&D Spending Through 1984"	83-327	----	"Graduate Science/Engineering Enrollment Rose 2% in 1981, Mostly in 'High-Tech' Fields"	83-310	----
"Defense, General Science, and Transportation Functions Lead 1984 Federal R&D Growth"	83-323	----	"Projected Employment Scenarios Show Possible Shortages in Some Engineering and Computer Specialties"	83-307	----
"Defense and Economy Major Factors in 7% Real Growth in National R&D Expenditures in 1984"	83-316	----	"Growth in Science and Engineering Enrollment Accelerated in 1980 to 1981—But Demand May Have Slackened in 1982"	83-300	----
S/E Personnel			Detailed Statistical Tables		
"Company and Federal Support Produce 17% Increase in 1981"	83-313	----	R&D Funds		
"Federal Science/Engineering (S/E) Support to Universities and Colleges Rose by 6% in FY 1981; Non-S/E Support Down 25%"	83-306	----	Research and Development in Industry, 1981. Funds, 1981; Scientists and Engineers, January 1981	83-325	----
"Real Growth Rate of Academic Expenditures Slowed to 2% in FY 1981"	83-304	----	Federal Funds for Research and Development, Fiscal Years 1982, 1983, and 1984, Volume XXXII	83-319	----
			Academic Science/Engineering: R&D Funds, Fiscal Year 1981	83-308	----
			S/E Personnel		
"1982 Doctorate Production Stable in Science and Engineering Fields, But Down in Science and Mathematics Education"	83-330	----	Science and Engineering Doctorates: 1960-82	83-328	In press
"No Change in Science and Engineering Student Quality Seen by 60% of Academic Officials: At Least 25% Percent Improvement"	83-322	----	Academic Science/Engineering: Scientists and Engineers, January 1982	83-311	----
			Academic Science/Engineering: Graduate Enrollment and Support, Fall 1981	83-305	----
			Composite		
			Characteristics of Doctoral Scientists and Engineers in the United States: 1981	82-332	----
			U.S. Scientists and Engineers: 1980	82-314	----
			Characteristics of Recent Science/Engineering Graduates: 1980	82-313	----
			Reports		
			R&D Funds		
			Federal Funds for Research and Development, Fiscal Years 1981, 1982, and 1983, Volume XXXI	83-320	In press
			Federal Support to Universities, Colleges, and Selected Non-profit Institutions, Fiscal Year 1981	83-315	\$6.50
			Trends to 1982 in Industrial Basic Research	83-302	\$3.50
			Federal R&D Funding for Energy: Fiscal Years 1971-83	83-301	----
			1990 R&D Funding Projections	82-315	\$3.50
			S/E Personnel		
			Women and Minorities in Science and Engineering	84-300	In press
			Composite		
			National Patterns of Science and Technology Resources, 1982	82-319	\$5.00
			Science and Engineering Personnel: A National Overview	82-318	\$5.00
			Academic Science/Engineering: 1971-82. R&D Funds, Scientists and Engineers, Graduate Enrollment, and Support	81-326	----