The National
Industry-Occupation

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Volume
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# The National 

U.S. Department of Labor<br>Raymond J. Donovan, Secretary<br>Bureau of Labor Statistics<br>Janet L. Norwood, Commissioner

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## Preface

Over the past several decades, the Bureau of Labor Statistics has issued many publications on occupational demand and supply to assist planners of education and training programs, guidance counselors, and others involved in helping individuals plan their careers. Several of these publications also were designed to assist in developing information on occupational demand and supply for States and local areas. This bulletin, part of the Bureau's continuing program of occupational research, updates information presented in earlier publications on the occupational structure of industries.

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# The National Industry-Occupation Employment Matrix: Volume I 

## Introduction

An industry-occupation matrix is a table depicting the occupational employment structure of industries. For each industry included, it presents the proportion of total employment accounted for by each detailed occupation. By transposing the industry-occupation matrix table (i.e., by transforming rows into columns), it is also possible to identify how total employment in a specific occupation is distributed by industry. The blS industryoccupation matrices discussed in this bulletin divide total U.S. employment into 425 occupations and 260 industries.

This bulletin contains national matrices for 1970, 1978, and projected 1990. These data differ from matrices published previously in that they use the occupation and industry classification system of the 1970 Census of Population. The earlier matrices were based on the more limited classification system used in the 1960 Census of Population.

The primary purpose of this bulletin also differs from that of earlier publications. In the past, data on national employment by industry and occupation were designed primarily for use in preparing projections of occupational requirements for States and areas. A secondary purpose was to present projections of national occupational requirements. The information contained in this bulletin serves primarily the latter purpose.

Users of data on projections should be aware that BLS will shift the basis for its industry-occupation matrices sometime in the early 1980's from the census data used in this bulletin to data collected under a Bureau survey developed specifically for this purpose-the Occupational Employment Statistics (OES) survey. This bulletin is intended to fill the needs of data users until publication of matrices developed from oes survey data.

There are several advantages to developing current and projected employment estimates by industry and occupation using oes survey data rather than Census of Population data. The oes surveys provide information for more specific occupations and industries than is provided by census data. In addition, the OES surveys are conducted over a 3 -year period rather than once every 10 years and, therefore, allow for more frequent updating of the occupational staffing patterns of industries. More information on the oES survey program can be obtained from the bLS Handbook of Methods (Bulletin 1910).

The text of this bulletin is divided into four sections. The first describes the 1970 industry-occupation matrix, which is the base matrix used to develop projections. It discusses both the data sources used to supplement the 1970 census, and the comparability of matrix data with census data. The second section discusses the procedures and data used to update the 1970 base matrix to 1978. The third section discusses the development of the projected 1990 matrix. It includes information about the assumptions underlying the projections and methods used to project the occupational structure of individual industries. The final section covers the procedures used to develop industry employment estimates for the 1970, 1978, and projected 1990 matrices. It identifies the differences between data collected and tabulated by the Bureau of the Census for BLS in a monthly survey of households (the Current Population Survey) and employment data tabulated by BLS which are collected by State agencies from payroll records of employers.

Table 1 presents the percentage distribution of 425 occupations and occupational groups in 260 industries and industry groups for 1970,1978 , and projected 1990. The distribution of occupational employment by industry for the same years is presented in table 2. Other information presented includes national nonagricultural employment of wage and salary workers by industry for 1970, 1978, and projected 1990 (table 3); total national employment by industry for 1970, 1978, and projected 1990 (table 4); and national 1978 employment, projected 1990 requirements, and annual openings, 1978-90, by occupation (table 5). (Tables 2-5 are found in volume II of this bulletin.)

The occupational distributions presented in tables 1 and 2 are shown to two decimal places in order to display as many cells as possible with greater than zero employment values (a ratio of .00 signifies either zero employment in the cell or a ratio of less than .005 ). However, as described in the following sections, data in the industry occupation matrix for past years are derived from a variety of sources which are imprecise. Therefore, the occupational ratios should be considered only as approximations rather than as exact measures. Furthermore, the projected ratios contain a substantial degree of error in some cases and should be used with caution.

The projections of industry and occupational employment requirements in this bulletin supersede
those published in previous reports in this series. They are consistent with BLS projections of the economy to 1990 which were described in Employment Projections for the 1980's (BLS Bulletin 2030). They were developed from the Bureau's base projection model, which assumes a moderately expanding labor force, a relatively slow decline in inflation and unemployment, and moderate government expenditures. More detailed assumptions are described in Bulletin 2030.

Because of continuous changes in the factors that affect long-run economic, industrial, and occupational growth, the Bureau revises its projections every other year. Therefore, work is already underway on revisions of projections presented in this bulletin. In the interim, users should adjust the staffing patterns in accord with their knowledge of major changes in the economy since the projections were prepared.

## The 1970 matrix

The 1970 matrix is based primarily on the detailed occupation-by-industry statistics obtained from the 1970 Decennial Census. ${ }^{1}$ However, the 1970 matrix differs from 1970 census data in three important ways: (1) Employment data from a number of other sources were used in the matrix because they are considered more reliable than some census data; (2) the matrix uses estimates of total wage and salary worker employment by industry derived from the Bureau's monthly establishment survey, and (3) the BLS matrix was made consistent with major occupational group employment estimates from the Current Population Survey (CPS). The use of such data, which are available annually, allows the matrix to be updated to current years.

Raw data from the 1970 census were used as the first step in developing the BLS 1970 matrix. Data on occupational employment from sources other than the census were then inserted into the appropriate industryoccupation cells, and revised occupational distributions were calculated for each industry. The sources include data compiled by:

- Professional societies, especially those covering medical and health occupations.
- The U.S. Department of Health, Education, and Welfare (now the Department of Health and Human Services) for teachers and librarians.
- U.S. regulatory agencies for regulated interstate industries, including railroads, airlines, telephone and telegraph communications, and pipelines.
- The U.S. Civil Service Commission (now the Office of Personnel Management) for employment of Federal Government workers.
- The Bureau of Labor Statistics, through occupational surveys of skilled technical manpower.
- The Bureau of the Census in the Current Population Survey.
One significant problem encountered in developing the matrix was the seasonal bias in census data resulting from
the April 1 reference date. The principal means of eliminating this bias was to develop 1970 annual average industry employment estimates to which the 1970 occupational ratios in each industry, as adjusted from outside sources, could be applied.

The resulting occupational employment estimates within each industry were summed to preliminary annual average national totals. Because occupational data were inserted from several sources, however, these preliminary national occupational totals did not add to annual average national employment obtained from the Current Population Survey. ${ }^{2}$

Matrix cells were made consistent with annual average industry and occupational totals through an iterative forcing procedure. (A discussion of the method used to develop industry control totals is presented in the final section.) Data for major occupational groups from the Current Population Survey were used as overall occupational control totals, but data from other sources mentioned earlier were used as control totals for several detailed occupations. The iterative procedure adjusts the internal cells of the matrix to make them consistent with known control levels by alternately forcing first to industry employment totals, then to occupation totals. The procedure is repeated until all internal cells are consistent with both the industry and occupational employment controls. Within this procedure any of the internal cells can be held constant.

## Updating the 1970 matrix to 1978

Since comprehensive and reliable intercensal occupational information by industry has been meager in the past, the bLS industry-occupation matrix has been used as a tool to estimate occupational requirements for years more current than the 1970 base period. The occupational structure of most industries changes slowly; changes in industry employment have a more significant effect on the short-run growth or decline of specific occupations and on the changing occupational structure of total U.S. employment. Thus, if reliable occupational staffing patterns are available for a base year, reasonably accurate employment estimates for specific occupations in the next year can be obtained by multiplying the occupational structure of each industry in the first year by actual total employment for each industry in the second year. National totals can be derived by summing the resulting occupational employment estimates of individual industries.

These procedures yield reasonably reliable occupational estimates when updating a matrix from one year to the next. However, since the 1970 matrix was updated by 8 years rather than 1 year, it was necessary to determine whether multiplying 1970 occupational

[^0]structures by 1978 industry employment totals yielded reliable occupational estimates for 1978. This was tested by comparing occupational estimates derived from independent sources with those derived by using 1970 staffing patterns. In a majority of the cases, the differences were of too great a magnitude to accept the matrix-derived occupational estimates. Primarily, the occupational estimates produced in this manner did not reflect changes in the occupational structure of industries that had occurred between 1970 and 1978.

In order to approximate structural changes over the 1970-78 period, the proportions of each occupation in each industry were projected from 1970 to 1978 . These projections were based on the historical census trends and on an anlaysis of factors that likely influenced the trends, such as changes in product mix or changes in production methods. The resulting patterns for all mining and manufacturing industries were made consistent with 1970-78 production and nonproduction worker employment trends as reported in the Bureau's Current Employment Survey (CES) statistics. The projected 1978 patterns were multiplied by the respective industry employment estimates and the occupational cells summed to national totals. These estimates were also compared with those derived from independent sources, and the magnitude of the differences was analyzed. The differences calculated when 1978 estimated patterns were used were generally smaller than the differences calculated when 1970 patterns were used and, for this reason, the projected patterns were used to develop the final matrix for 1978.

Final national occupational estimates for 1978 were developed in much the same way as those for 1970. Annual average CPS data for total employment and for broad occupational groups served as control totals to which the initial estimates for specific matrix occupations were forced into consistency. Where other data sources provided better estimates than those derived from the matrix approach, they were inserted into their appropriate matrix cells and also, where applicable, used as total estimates. All other matrix cells were then made consistent with the final industry and occupation control totals by the same iterative forcing procedure used to develop the 1970 matrix.

## Projecting the matrix to 1990

The Bureau's projected 1990 industry-occupational matrix and occupational projections presented in this bulletin are based on a series of assumptions about the behavior of the economy over the projection period and its characteristics in the target year. One of the most important assumptions describes the labor force in the target year. The Bureau's 1990 projections presented in this bulletin assume that the size, sex, and age composition of the labor force will change as indicated by the intermediate labor force projections published by BLS in Employment Projections for the 1980's. By 1990, approximately 121.5 million persons are projected to be
in the labor force. With 2.1 million persons assumed to be members of the Armed Forces, the remaining 119.4 million will constitute the civilian labor force. Finally, since the unemployment rate was assumed to decline to 4.5 percent by 1990 , civilian employment was computed to be 114 million persons.

Other major assumptions underlying the national employment projections are: (1) The institutional framework of the U.S. economy will not change radically; (2) current social, technological, and scientific trends will continue; (3) no major event such as widespread or long-lasting energy shortages or war will significantly alter the industrial structure of the economy or alter the rate of economic growth; (4) inflation will declerate to 5.2 percent annually during 1980-90; (5) a stable, long-run unemployment rate close to 4.5 percent annually will be achieved by the mid-1980's; and (6) higher energy prices will not constrain growth in gross national product.

Projection methods. Although a variety of techniques were used, the following steps generally were followed in projecting the growth of occupations to 1990: (1) Total employment requirements in each specific matrix industry were estimated (see the section on developing current and projected employment for matrix industries); (2) the occupational structure (ratios) in each specific industry was projected to 1990 ; (3) the occupational ratios were multiplied by the projected total employment requirements in each industry to derive an estimate of occupational requirements in each industry in 1990 ; and (4) total employment estimates for each specific matrix occupation were obtained by summing the projections across all industries.

Trends in the proportion of each occupation in each detailed industry were projected from historical statistics and other factors that might influence occupational structures, such as changing technology of production and shifting product mix. As a first approximation, however, 1990 occupational patterns for all specific matrix industries were obtained by extrapolating trends in the structure of industries as indicated by 1960 and 1970 census data. The resulting patterns for all mining and manufacturing industries were then made consistent with 1960-78 production and nonproduction worker employment trends reported in the establishment employment data discussed previously.

Bureau analysts studied technological, institutional, and other causes of past changes in the occupational structure of specific industries to determine whether these factors were likely to affect future occupational structures to a similar, greater, or lesser extent. Unless bases were found for modification, trends in the postWorld War II period were assumed to persist to 1990. For many occupational ratios, particularly those of small size, the initial projections based on a continuation of past trends in industry-occupational composition were
used in the final matrix. Projections of ratios of large size, however, were often modified based on analysis of the underlying factors. Since an increase or decrease in proportionate employment for one occupation in a particular industry requires offsetting changes in other occupations in the industry, few of the occupational ratios that were as large as 1 percent were exact extrapolations of past trends.

Employment requirements in some occupations were projected independently of the occupation's relative importance in an industry. This technique was particularly useful for occupations that are affected by a limited number of variables and are located primarily in one industry or group of industries, such as teachers. The number of teachers required, for example, is affected by the number of pupils (which is affected by birth rates and trends in the proportion of children who attend school) and by trends in the ratio of teachers to pupils (which depends upon educational practices and financing). The requirements for physicians are related to the size of the population, the age distribution of the population, technological developments, and expenditures for health care. Other occupations that were projected directly included dentists, registered nurses, airplane pilots and mechanics, radio repairers, and business machine repairers. For occupations in which the direct projection technique as well as the industry-occupational matrix approach was used, the differences in the employment projections were analyzed and reconciled. The final estimates were then inserted into the appropriate matrix cell.

Because a variety of data sources were used to develop the occupational projections, both for total national employment and for specific industries, the occupational totals resulting from the above procedures did not add to the assumed projected civilian employment totals. The final matrix was therefore based on a reconciliation of the individual matrix cells with industry and occupational control totals and projected civilian employment through the previously described iterative forcing procedure used in developing the 1970 matrix.

## Developing current and projected employment estimates for matrix industries

Estimates of industry employment used to develop the industry-occupation matrix were based on the industry configuration used to classify data in the 1970 census and in the Current Population Survey. These data include private wage and salary workers, unpaid family workers, and government workers-Federal, State, and local. The CPS and census data include the noninstitutional population 16 years of age and over, and each person is counted only once; workers with two jobs are counted in their primary occupation and in the industry where their primary job is located.

The CPS statistics, however, are based on a national survey of a sample of households. The industrial distribu-
tion of workers based on household data is not considered to be as reliable as the distribution based on the Bureau's monthly survey of establishments. ${ }^{3}$ Therefore, in developing the matrix industry employment estimates, the establishment series was used to estimate employment of wage and salary workers of industries covered, and the CPS was used to estimate employment of most other workers.

Several conceptual differences between the household and establishment series had to be reconciled. In the establishment series, workers on unpaid leave are not counted in the employment total but are counted in the household series; estimates of these workers by industry are, therefore, based on CPS household data. Also, in the establishment series a worker may be counted more than once, if he or she is employed by more than one establishment. To eliminate this double counting, a procedure was developed based upon data on multiple jobholders reported in the CPS.

A variety of other steps were taken to develop a comprehensive set of industry employment statistics that were conceptually consistent with the CPS industry configuration, including the following: Industry estimates for all classes of workers in agriculture, forestry, fisheries, direct selling establishments, nonprofit organizations, private households, and government public administration (except postal service) were based on CPS data. Estimates of State and local government workers (except public administration) in the following industry sectors were obtained from Public Employment in 1970 (U.S. Department of Commerce, April 1971): Education, highways, welfare services, hospitals and convalescent institutions, liquor stores, sanitary services, water supply, local transportation systems, and public utilities. Estimates for Federal Government workers (except for public administration) in most industries were obtained from Employment and Wages of Workers Covered by State Unemployment Insurance Laws and Unemployment Compensation for Federal Employees by Industry and State (U.S. Department of Labor, 1970).

Industry projections. The Bureau's industry projections were developed under the same broad assumptions presented earlier in the discussion about occupations. The beginning point was to translate the assumed labor force projections into the level of gross national product (GNP) that would be produced by the labor force at the assumed level of unemployment. Unemployed persons were subtracted from the labor force estimate and the result was multiplied by a projection of output per worker. The estimates of future output per worker were based on a nalysis of trends in productivity growth among industries and changes in the average weekly hours of

[^1]work. Next, the projection of GNP was divided among its major components: Consumer expenditures, business investment, government expenditures-Federal, State, and local-and net exports. Each of these components was broken down by producing industry. Thus consumer expenditures, for example, were divided among industries producing goods and services such as housing, food, automobiles, medical care, and education. ${ }^{4}$

Once developed for these products and services, estimates were translated into detailed projections of industry output, not only for the industries producing the final product, but also for the intermediate industries which provide the raw materials, electric power, transportation, services, and other inputs required in the production process. To facilitate this translation, the Department of Commerce has developed input-output tables which indicate the amount of output of each industry-steel, glass, plastics, etc.-that is required to produce a final product, automobiles, for example.
Using estimates of future output per hour based on studies of productivity and technological trends for each industry, industry employment projections were derived from the output estimates. ${ }^{5}$
The projections then were compared with employment projections developed using regression analysis. This
analysis developed equations that relate employment by industry to combinations of economic variables, such as population and income, that are considered determinants of long-run changes in employment. By analyzing projections from input-output procedures and regression analysis, Bureau analysts identified areas where one method produced projections that were inconsistent with past trends or with the Bureau's economic model, and the projections were adjusted accordingly. The regression method also was used in developing projections in greater industry detail than comes from the input-output portion of the bls Economic Growth model.
${ }^{4}$ For a complete discussion of the assumptions and methods used to project real gross national product, see Methodology for Projections of Industry Employment to 1990, BLS Bulletin 2036 (Bureau of Labor Statistics, 1980).
${ }^{\text {S }}$ In developing matrix industry estimates, data on wage and salary workers only were derived from this procedure. Separate estimates were obtained for the other classes of workers in each industry (selfemployed persons, unpaid family workers, and government workers) from time series developed from the data sources described previously. Summing the wage and salary estimates with the other classes of workers yielded total employment estimates in each industry.

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

| $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | $\begin{gathered} \text { Agricultre, } \\ \text { forestry, } \\ \text { fisheries } \end{gathered}$ |  |  | Agricalture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | - 1978 | 1990 |


| 13.88 | 15.09 | 14.78 | 2. 13 | 3. 24 | 4.20 | 1.38 | 1.99 | 2. 75 |
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| 1.40 | 1.23 | 1.24 | .06 | .09 | . 12 | . 02 | . 02 | . 04 |
| . 08 | . 06 | . 06 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
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| . 02 | . 02 | . 02 | .09 | . 15 | . 25 | . 08 | .13 | . 22 |
| .01 | .01 | .01 | . 00 | .01 | . 00 | .00 | .00 | . 00 |
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| - 20 | . 21 | . 22 | . 00 | .01 | . 00 | . 00 | . 00 | . 00 |
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| .36 | . 46 | . 50 | .01 | . 01 |  | .00 | . 00 | . 00 |
| . 22 | . 26 | . 28 | . 00 | .01 | . 01 | .00 | .00 | . 00 |
| . 11 | . 17 | . 19 | . 00 | .00 | .00 | .00 | .00 | . 00 |
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| . 04 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 | .00 | . 00 | . 00 | .00 | . 00 | .00 |
| . 15 | - 14 | . 16 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| . 37 | -40 | . 44 | . 00 | .00 | . 00 | .00 | . 00 | .00 |
| . 01 | . 01 | . 01 | . 00 | .00 | . 00 | .00 | . 00 | .00 |
| . 91 | 1. 06 | 1.28 | .01 | . 00 | . 00 | .01 | .00 | . 00 |
| . 10 | . 17 | . 20 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 03 | . 03 | . 04 | . 54 | . 70 | . 89 | . 56 | . 73 | . 93 |
| . 35 | . 54 | . 59 | . 01 | .01 | . 02 | . 01 | . 01 | . 02 |
| . 17 | . 23 | . 23 | . 00 | .00 | . 00 | .00 | . 00 | .00 |
| . 02 | . 04 | . 06 | .00 | . 00 | .00 | .00 | . 00 | . 00 |
| . 02 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 07 | . 11 | .12 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 08 | . 14 | .15 | . 01 | .01 | . 01 | .01 | .01 | .01 |
| . 20 | . 23 | . 25 | . 09 | .13 | . 19 | . 07 | .10 | . 16 |
| . 06 | . 08 | . 09 | . 07 | . 10 | . 16 | . 07 | . 10 | . 16 |
| . 03 | . 03 | . 03 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| . 01 | . 01 | .01 | .00 | .00 | .00 | . 00 | . 00 | . 00 |
| . 04 | . 05 | . 05 | .01 | . 01 | .01 | .00 | . 00 | . 00 |
| .05 | . 06 | .07 | .01 | . 02 | . 02 | .00 | .00 | . 00 |
| . 36 | . 46 |  |  | . 01 | .01 | . 00 | . 00 | . 00 |
| . 22 | . 26 | . 28 | . 00 | . 01 | . 01 | .00 | .00 | . 00 |
| . 11 | . 17 | . 19 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 02 | . 03 | . 03 | . 00 | . 00 | .00 | .00 | . 00 | .00 |
| . 15 | .28 | . 32 | . 00 | .01 | . 01 | . 00 | . 00 | . 00 |
| . 08 | . 13 | . 15 | .00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 04 | . 12 | . 13 | .00 | .00 | . 00 | . 00 | . 00 | . 00 |
| . 01 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |


$100.00 \quad 100.00 \quad 100.00$
$13.88-15.09 \quad 14.78$
$100.00 \quad 100.00 \quad 100.00$
3.24
4.20
$1.23 \quad 1.24$

Electrical
Industrial
Metalluryical
Petroleum
Sales
ife and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Physicists and astronomers
Mathematical specialists
tuaries
icians

Engineering, science technicians
agricultural,biolgcl,exc healto
Chemical technicians
Electrical and electronic
Industrial engineering
surveyors
Other engineering, science tech

Chiropractors
Dentists
Dietitians
Pharmacists
Physicians and osteopatins
Podiatrists
istered nurses
Veterinarians
ealth technologists, tecanicians
Elinical lab technologists, tecb
Dental hygienists
t,tech
Other health technicians
echnicians, except health
Airplane pilots
Air traffic controllers
Flight engineers
Other technicians except health

Computer programers
Computer systems analysts
other computer specialists
cial scientists
Psycholoyist
Urban and regional planners

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre, forestry, fisheries |  |  | Agriculture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Teachers | 4.11 | 3.91 | 3.13 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Adult education | . 07 | .09 | . 08 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| College and university | . 55 | . 62 | . 44 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Elementary school | 1.63 | 1.44 | 1.39 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Preschool and kindergarten | . 22 | . 25 | . 25 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| secondary school | 1.40 | 1.27 | .77 | . 00 | .00 | . 00 | . 00 | .00 | . 00 |
| Other teachers | . 25 | . 25 | . 21 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Mriters, artists, entertainers | 1.05 | 1.32 | 1.28 | - 35 | . 53 | . 65 | . 35 | . 54 | . 66 |
| Actors | . 01 | . 01 | . 02 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Athletes and kindred workers | . 07 | . 11 | . 10 | . 28 | . 42 | . 45 | . 28 | . 43 | . 48 |
| Authors | . 03 | . 05 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Dancers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Designers | .15 | . 18 | . 16 | .01 | . 01 | .01 | . 01 | .01 | . 01 |
| Editors and reporters | . 19 | . 20 | .21 | . 00 | . 01 | .01 | . 00 | . 00 | . 00 |
| Musicians and composers | - 13 | - 16 | . 18 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 13 | . 21 | . 18 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Photographers | . 09 | . 10 | . 09 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Public relations specialists | . 10 | - 14 | . 14 | . 01 | . 01 | . 01 | . 00 | . 00 | .01 |
| Radio and tv announcers | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other writers,artists, entertain | . 09 | - 13 | -11 | . 06 | . 09 | . 16 | . 06 | . 10 | . 17 |
| Other professional and technical | 3.15 | 3.73 | 3.67 | - 79 | 1.26 | 1.57 | - 14 | .21 | . 31 |
| Accountants | . 94 | 1.07 | 1.11 | . 04 | . 09 | . 14 | . 03 | . 07 | . 11 |
| Architects | . 08 | . 08 | - 10 | . 08 | . 09 | . 08 | . 07 | . 09 | . 08 |
| Archivists and curators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| clergy | .31 | . 28 | . 24 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Religious workers, except cleryy | . 06 | . 06 | . 07 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Farm management advisors | . 01 | . 01 | . 01 | . 00 | .01 | . 07 | . 00 | .01 | . 07 |
| Foresters and conservationists | . 06 | . 06 | . 06 | . 64 | 1.01 | 1.23 | . 02 | . 01 | . 02 |
| Judges | . 02 | . 02 | . 02 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Lawyers | . 38 | . 52 | . 53 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Librarians | . 15 | . 16 | . 14 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Operations and systems research | . 10 | . 13 | - 12 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personnel, labor relations wkrs | . 38 | . 45 | . 42 | . 02 | . 04 | . 03 | . 01 | . 02 | . 02 |
| Other research workers | . 15 | . 13 | . 12 | .01 | . 01 | .01 | . 00 | .00 | . 00 |
| Recreation workers | . 08 | - 14 | . 14 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Social workers | .31 | . 42 | . 42 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Vocation, education counselors | . 14 | . 19 | .17 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Managers, officials, proprietors | 9.52 | 10.71 | 10.70 | . 60 | . 99 | 1.33 | . 47 | . 72 | . 93 |
| Buyers, sales, loan managers | 1.73 | 1.76 | 2.08 | . 04 | . 08 | . 10 | .03 | . 06 | . 09 |
| Bank,financial managers | . 51 | . 58 | .73 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Credit managers | . 09 | . 05 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Buyers,shippers, farm products | .03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Buyers, wholesale, retail trade | . 20 | - 19 | - 18 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Purchasing agents, buyers,other | . 22 | . 20 | .23 | . 02 | . 04 | . 06 | . 02 | . 03 | . 05 |
| Sales manager, retail trade | . 35 | - 37 | . 47 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Sales manager, exc retail trade | . 34 | . 35 | . 39 | . 02 | . 03 | .04 | . 01 | . 03 | . 04 |
| Administrators, public inspectors | . 96 | 1.08 | 1.06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Assess, control, local pubadmin | . 04 | . 04 | . 04 | . 00 | .00 | . 00 | . 00 | .00 | . 00 |
| Construction inspector, puilic | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Health administrators | . 13 | . 20 | . 25 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Inspectors, exc construct, pablic | . 11 | . 10 | - 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Officials, administrators, public | . 33 | . 33 | -30 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Postmasters,mail supervisors | . 05 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| School administrators, colleye | . 05 | . 06. | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| School admin, elem, secondary | . 22 | - 29 | . 25 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other managers, officials, proprts | 6.83 | 7. 88 | 7.57 | . 56 | -91 | 1.23 | . 44 | . 65 | . 84 |
| Funeral directors | . 05 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mgrs, superintendents, building | -13 | . 17 | - 19 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| office managers, other | . 37 | . 40 | . 46 | . 04 | . 07 | . 08 | . 04 | . 06 | . 07 |
| Officers, pilots, pursers, ship | . 04 | . 04 | . 03 | . 05 | . 09 | . 17 | . 00 | .00 | . 00 |
| officials of lodges, unions | . 08 | . 09 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad conductors | . 05 | . 04 | . 03 | . 00 | . 00 | .00 | .00 | .00 | . 00 |
| Restaurant, cafe,bar,managers | . 59 | . 65 | . 59 | .01 | . 00 | . 00 | . 01 | . 00 | . 00 |
| other managers, administrators | 5.53 | 6.46 | 6.16 | . 46 | . 75 | .99 | . 40 | . 59 | .77 |

Table 1. Percent distribution of industry employment by occupation. 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre, forestry, fisheries |  |  | Agricalture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | 6.38 | 6.31 | 6.67 | .17 | . 38 | . 58 | . 16 | . 38 | . 59 |
| Advertising agentsssales worker | . 08 | . 10 | . 12 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Demonstrators | .07 | . 06 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hucksters and peddlers | -27 | - 22 | . 18 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Insurance agents and brokers | . 52 | . 60 | . 60 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Newspaper carriers and vendors | . 09 | . 08 | . 08 | - 00 | . 00 | -00 | .00 | . 00 | . 00 |
| Real estate agents, brokers | -40 | - 59 | . 59 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock and bond sales agents | . 13 | . 12 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other sales workers | 4.80 | 4. 53 | 4.93 | - 17 | . 38 | . 57 | . 16 | . 38 | . 59 |
| Clerical workers | 17.47 | 17.91 | 19.05 | 1.00 | 1.66 | 1.77 | . 88 | 1.48 | 1.56 |
| Stenographrs, typists, secretaries | 4.94 | 5.01 | 5.79 | . 33 | -63 | .70 | .27 | - 54 | - 57 |
| Legal secretaries | . 13 | - 17 | . 20 | - 00 | . 00 | -00 | -00 | . 00 | . 00 |
| Medical secretaries | . 10 | . 09 | . 16 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| other secretaries | 3.31 | 3.54 | 4.28 | . 26 | - 52 | . 59 | . 23 | . 49 | . 53 |
| Stenographers | . 16 | . 10 | . 06 | .01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Typists | 1.24 | 1.11 | 1.09 | . 06 | - 10 | - 10 | . 03 | . 04 | . 04 |
| Office machine operators | . 80 | . 88 | .76 | - 02 | . 03 | . 02 | . 02 | . 02 | .01 |
| Bookkeeping and billing | .09 | . 05 | . 06 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Calculating | . 04 | . 03 | . 03 | - 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Computer and peripheral equip | - 19 | . 42 | -41 | . 00 | . 01 | . 01 | . 00 | . 01 | .01 |
| Duplicating | . 02 | . 02 | . 02 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Keypunch | . 38 | - 29 | . 18 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 |
| Tabulating | .01 | -00 | . 00 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other office machine operators | . 07 | . 07 | . 06 | . 00 | - 00 | .00 | .00 | .00 | . 00 |
| Other clerical workers | 11.72 | 12.03 | 12.49 | . 64 | -99 | 1.04 | . 59 | . 93 | . 97 |
| Bank tellers | . 37 | . 48 | . 45 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Billing clerks | -16 | -17 | -23 | . 00 | . 01 | . 01 | . 00 | . 01 | .01 |
| Bookkeepers | 1.96 | 1.94 | 1.79 | . 32 | - 51 | . 55 | .31 | . 50 | . 52 |
| Cashiers | 1.23 | 1.49 | 1.84 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Clerical assistant,soc welfare | . 00 | . 04 | . 04 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| clerical supervisors, other | . 24 | . 27 | . 28 | . 01 | . 01 | . 01 | . 01 | . 01 | - 00 |
| collectors, bill and account | . 08 | . 08 | . 08 | - 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Counter clerks, exc food | .39 | - 40 | . 43 | . 00 | . 02 | . 02 | .00 | . 02 | . 02 |
| Dispatchers, starters, vehicle | . 08 | . 09 | . 09 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Enumerators and interviewers | . 08 | . 07 | . 06 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | -42 | . 50 | . 48 | -01 | . 02 | . 02 | .01 | .01 | . 02 |
| Expediters, production controlrs | -25 | . 24 | -26 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| File clerks | .34 | . 29 | . 29 | . 01 | . 02 | . 02 | .01 | . 01 | . 02 |
| Insurance adjusters, examiners | . 13 | . 18 | . 21 | . 00 | - 00 | -00 | . 00 | . 00 | . 00 |
| Library attendants, assistants | . 15 | - 18 | . 17 | . 00 | . 00 | .00 | .00 | . 00 | .00 |
| Mail carriers, post office | . 34 | - 26 | . 23 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | . 17 | - 16 | . 16 | . 01 | .01 | .00 | . 01 | . 01 | . 00 |
| Messengers and office helpers | .07 | . 07 | . 06 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Meter readers, utilities | . 05 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Payroll, timekeeping clerks | . 22 | . 24 | . 22 | . 01 | . 04 | .05 | . 01 | . 04 | . 04 |
| Postal clerks | . 40 | . 28 | - 18 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Proofreaders | .03 | . 03 | . 04 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Real estate appraisers | .03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Receptionists | . 54 | . 62 | . 66 | - 14 | . 16 | . 18 | . 14 | . 16 | . 18 |
| Shipping and receiving clerks | - 56 | . 49 | . 50 | . 01 | . 02 | . 01 | .01 | . 02 | .01 |
| Statistical clerks | . 37 | - 40 | . 42 | . 02 | . 03 | . 02 | -01 | . 02 | . 02 |
| Stock clerks and store keepers | -63 | - 54 | . 53 | - 01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Teachers aides, exc monitors | . 24 | . 36 | . 46 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telegraph operators | . 02 | . 01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone operators | . 49 | . 33 | . 25 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Ticket, station, express agents | - 12 | - 11 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Weighers | . 06 | . 05 | . 05 | . 01 | . 03 | . 03 | . 01 | . 02 | . 02 |
| Misc clerical workers | 1.48 | 1.58 | 1.86 | . 05 | . 08 | . 08 | . 04 | . 07 | . 06 |
| Crafts and kindred workers | 13.28 | 13.13 | 13.04 | - 86 | 1.65 | 1.89 | . 75 | 1.53 | 1.75 |


|  | $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre, forestry, fisheries |  |  | Agriculture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 3.94 | 3.98 | 3.93 | . 37 | . 62 | . 76 | . 33 | . 57 | .73 |
| Carpenters and apprentices | 1.26 | 1.33 | 1.22 | . 14 | . 24 | . 27 | -13 | . 22 | . 23 |
| Brick,stonemasons, apprentices | . 22 | . 22 | . 19 | .01 | . 02 | . 02 | .01 | . 02 | . 02 |
| Eulldozer operators | . 13 | . 13 | .17 | . 10 | . 14 | . 21 | . 10 | . 13 | . 22 |
| Cement and concrete finishers | .08 | . 09 | . 10 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 00 | . 63 | . 65 | . 01 | . 04 | . 05 | .01 | . 04 | . 05 |
| Excavating, gradiny mach operatr | . 36 | . 32 | . 36 | . 06 | . 08 | . 09 | . 05 | . 07 | . 08 |
| Floor layers, exc tile setters | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 51 | . 51 | . 48 | . 03 | . 04 | . 05 | . 02 | . 04 | . 05 |
| paperhangers | . 01 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | - 00 | . 00 |
| plasterers and apprentices | . 04 | . 03 | . 03 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | . 47 | . 45 | . 45 | . 01 | . 05 | . 07 | . 01 | . 05 | . 08 |
| Roofers and slaters | . 08 | . 12 | - 12 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Structural metal craft workers | - 10 | . 08 | . 09 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| rile setters | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 1.75 | 1.77 | 1.69 | . 22 | . 43 | .37 | . 20 | . 41 | . 33 |
| Metalworkg craft wrkrs, exc mecn | 1.45 | 1.27 | 1.28 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 |
| Blacksmiths | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Boilermakers | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Heat treaters, annealers | .03 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Forge and hammer operators | .02 | . 02 | . 02 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 13 | . 10 | . 11 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Macainists and apprentices | . 55 | . 51 | . 51 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Millwrights | . 10 | . 10 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Molders, metal and apprentices | . 07 | - 06 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| pattern and moldmakers | . 05 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Rollers and finishers, inetal | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 19 | . 16 | . 17 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Tool and diemakers, apprentices | .23 | . 18 | - 18 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | 3.37 | 3.53 | 3.79 | . 18 | . 37 | . 56 | . 16 | . 35 | . 53 |
| Air cond, heating, retrig meca | . 17 | . 22 | .22 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Aircrait mechanics | . 15 | - 14 | . 13 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Auto body repairers | . 20 | - 20 | . 21 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | 1.07 | 1.09 | 1.11 | . 05 | . 06 | . 06 | . 04 | . 05 | .06 |
| Data processing mach repairers | . 05 | . 07 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Farm implement mechanics | .06 | . 07 | . 07 | . 03 | . 06 | . 08 | . 03 | . 06 | . 08 |
| Heavy equip mech, incl diesel | . 87 | 1.01 | 1.23 | . 08 | . 23 | -39 | . 08 | . 21 | . 37 |
| Housenold appliance mechanics | . 15 | . 15 | . 16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Loom fixers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Office machine repairers | .08 | . 07 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Radio, television repairers | .17 | . 14 | . 15 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Railroad, Car shop repairers | .07 | . 05 | . 04 | .00 | . 00 | .00 | .00 | . 00 | . 00 |
| Other mechanics and apprentices | .29 | . 31 | . 28 | .01 | . 02 | . 02 | . 01 | . 01 | . 02 |
| grinting trade crafts workers | . 50 | . 45 | . 38 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Bookbinders | . 04 | . 03 | . 03 | .00 | . 00 | .00 | . 00 | .00 | . 00 |
| Compositors and typesetters | . 22 | . 19 | . 14 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Engravers exc photoengravers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photoengravers, lithograpners | . 04 | . 04 | . 05 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| press, plate printers, aprentices | . 18 | - 18 | . 16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Transport, public util craft wirs | . 64 | . 59 | . 50 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Elec pwr line instaler, repaicer | . 13 | . 13 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Locomotive engineers | .05 | . 05 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Locomotive engineers' nelpers | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Power station operators | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Teleptone installers, repairers | . 36 | - 32 | .27 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Telephone line instalr,splicess | . 07 | . 06 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |


|  | $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre, forestry. fisheries |  |  | Agriculture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.64 | 1.53 | 1.47 | . 07 | . 22 | . 18 | . 05 | . 19 | . 16 |
| Bakers | . 16 | . 14 | .11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 10 | . 09 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| carpet installers | . 06 | . 07 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Crane,derrick, hoist operator | . 22 | - 17 | - 19 | . 01 | . 04 | . 08 | .01 | . 03 | . 06 |
| Decorators, window dressers | . 09 | . 13 | . 15 | . 02 | . 10 | . 02 | . 02 | . 11 | . 02 |
| Dental laboratory technicians | . 04 | . 05 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furniture and wood finishers | . 03 | -03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Glaziers | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, log and lumber | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 16 | . 16 | . 14 | . 01 | . 02 | . 02 | . 01 | . 01 | .01 |
| Jewelers and watchmakers | . 05 | . 05 | . 06 | . 00 | . 00 | . 00 | . 00 | - 00 | - 00 |
| Millers, grain, flour, feed | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Motion picture projectionists | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| opticians,lens grinder, polisher | . 03 | . 05 | . 05 | . 00 | . 00 | -00 | . 00 | . 00 | . 00 |
| Shipfitters | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Shoe repairers | . 04 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 03 | . 03 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 23 | - 19 | . 16 | . 01 | . 02 | . 02 | . 00 | . 01 | . 02 |
| Tailors | . 09 | . 07 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Upholsterers | . 09 | . 06 | . 06 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts workers | . 12 | . 11 | .09 | . 02 | . 03 | .03 | .01 | . 02 | . 03 |
| operatives | 16.88 | 15. 28 | 14.58 | .91 | 1.71 | 2. 12 | . 82 | 1.59 | 1.93 |
| Operatives, except transport | 13.05 | 11.52 | 10.97 | .45 | . 95 | 1.17 | . 38 | . 84 | 1.02 |
| Semiskilled metalworking | 1.69 | 1.48 | 1.47 | . 02 | . 09 | . 11 | . 02 | . 09 | . 11 |
| Drill press operatives | . 10 | . 07 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendrs, smeltrs, pourers | - 10 | . 08 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Grinding machine operatives | . 18 | . 14 | .11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heaters, metal | . 01 | . 01 | . 01 | - 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Lathe, milling mach operatives | . 20 | - 13 | .12 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Metal platers | . 05 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Other precision mach operators | - 10 | . 07 | . 08 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Punch, stamping press operatives | . 23 | -18 | . 17 | . 00 | - 00 | - 00 | - 00 | -00 | -00 |
| Solderers | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Welders and flamecutters | -68 | . 72 | .80 | . 02 | . 09 | .11 | .02 | . 08 | . 10 |
| Semiskilled textile operatives | . 56 | . 41 | .31 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Carding. lapping combing oprs | . 02 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Knitters, loopers, and toppers | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Spinners, twisters, winders | - 19 | - 14 | . 12 | . 00 | - 00 | -00 | - 00 | - 00 | . 00 |
| Weavers | . 06 | . 04 | .03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other textile operatives | -24 | - 18 | . 14 | . 00 | . 00 | - 00 | . 00 | -00 | . 00 |
| Semiskilled packing, inspectiny | 1.85 | 1.64 | 1.66 | . 14 | . 34 | . 41 | . 14 | - 33 | . 39 |
| Checkers, examiners, mfy | . 88 | . 78 | . 80 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Graders and scrters, mfy | . 06 | . 05 | .05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Meat wrappers, retail trade | . 06 | . 06 | . 06 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Packer,wrapper,exc meat, prodce | . 83 | . 72 | . 73 | . 11 | . 29 | -35 | - 10 | . 29 | .33 |
| Produce grdr,fkrs, exc fact, farm | .03 | . 03 | .03 | . 03 | . 05 | . 06 | .03 | . 05 | . 06 |


|  | $\begin{gathered} \text { Total } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre. forestry, fisheries |  |  | Agriculture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 8.95 | 8.00 | 7.53 | - 29 | - 52 | . 65 | . 23 | -43 | . 52 |
| Aspestos,insulation workers | . 03 | . 05 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Assemblers | 1.20 | 1.23 | 1.46 | . 00 | . 00 | . 01 | -00 | . 00 | . 01 |
| Bottling, canning operatives | . 08 | . 06 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors, helpers | . 01 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| clothing ironers and pressers | . 25 | . 14 | . 11 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| cutting operatives, otner | . 30 | . 28 | .28 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Dressmakers, exc factory | - 14 | . 15 | - 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Drillers, earth | .07 | . 08 | . 07 | . 00 | . 02 | . 05 | . 00 | . 02 | . 05 |
| Dry wall installers, lathers | .00 | . 11 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | .04 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 16 | . 13 | .11 | . 00 | - 00 | . 00 | .00 | . 00 | . 00 |
| Garage wrkr,gas station atten | . 64 | . 44 | . 32 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| Laundry,dry cleang oprs,other | . 24 | . 18 | . 22 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Meat cutters, Lutchers, exc mfy | . 26 | - 22 | . 16 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Meat cutters and butchers | . 11 | . 09 | .09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mine operatives, other | -21 | . 22 | . 22 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| Mixing operatives | . 10 | . 09 | . 08 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Oilers, greasers, exc automobiles | . 07 | . 06 | . 04 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Painters, mfg articles | -23 | . 19 | . 19 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Photographic process vorkers | . 09 | -10 | . 10 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Riveters and fasteners | . 04 | -03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sailors and deckhands | . 05 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 15 | . 14 | . 14 | . 02 | . 05 | . 08 | . 01 | . 04 | . 07 |
| Sewers and stitchers | 1.18 | . 87 | . 93 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Shomaking machine operatives | .09 | . 05 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purnace tendr,stokr, exc metal | . 12 | . 08 | . 06 | . 01 | .01 | . 03 | . 00 | . 01 | . 01 |
| Winding operatives, other | . 09 | . 08 | . 09 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Miscellaneous machine operatves | 1.66 | 1.56 | 1.34 | - 11 | . 20 | . 23 | .11 | . 20 | . 23 |
| Other operatives, exc transport | 1.28 | 1.27 | 1.07 | - 12 | . 20 | . 24 | . 08 | . 13 | . 13 |
| Transport equipment operatives | 3.83 | 3.75 | 3.61 | . 46 | . 76 | . 94 | . 43 | .75 | . 91 |
| Boat operators | .01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Bus drivers | .29 | . 36 | .30 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Conductors, operators, urban rail | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Delivery and route workers | . 73 | . 61 | . 57 | . 06 | . 19 | .21 | . 06 | . 19 | - 21 |
| Fork lift, tow motor operatives | . 36 | - 39 | -40 | . 02 | . 03 | . 03 | . 02 | . 03 | . 03 |
| Rail venicle cperators, other | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Parking attendants | . 04 | . 05 | . 04 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Railroad brake operators | . 06 | . 05 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | .07 | . 05 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 19 | -19 | . 14 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Truck drivers | 2.07 | 2.04 | 2.05 | - 37 | . 53 | . 68 | . 35 | . 52 | . 66 |
| Service workers | 13.31 | 13.60 | 14.63 | . 25 | . 32 | . 33 | . 22 | - 28 | . 28 |
| Cleaning service workers | 2.53 | 2.58 | 2.66 | . 14 | - 17 | . 14 | . 13 | . 16 | . 13 |
| Lodging gtrs cleaners, exc privt | . 27 | - 20 | . 26 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Bldg interior cleaners, other | . 78 | . 91 | 1.07 | . 05 | . 06 | . 05 | . 04 | . 06 | . 05 |
| Janitors and sextons | 1.48 | 1.47 | 1.34 | . 09 | - 10 | . 08 | . 07 | . 08 | . 07 |
| Food service workers | 3.92 | 4. 50 | 4.96 | . 05 | . 08 | . 07 | . 04 | . 06 | . 06 |
| Bartenders | . 24 | - 30 | . 32 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Waiters' assistants | . 14 | . 23 | . 31 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cooks,exc private households | 1.05 | 1.26 | 1.37 | . 04 | . 06 | . 06 | . 03 | . 05 | . 04 |
| Dishwashers | . 26 | . 25 | . 35 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Food counter, fountain workers | . 36 | . 49 | . 57 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Waiters | 1.39 | 1. 47 | 1.43 | . 01 | . 01 | . 02 | .01 | . 01 | . 01 |
| Other food serv wkrs, exc privt | . 50 | . 51 | . 61 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Health service workers | 1.85 | 2.09 | 2.76 | . 01 | . 02 | . 01 | .01 | . 02 | . 01 |
| Dental assistants | . 13 | . 16 | . 20 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 17 | . 26 | . 44 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Health trainees | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Nursing aides and orderlies | 1.06 | 1. 10 | 1.38 | . 01 | . 00 | . 00 | . 01 | .00 | . 00 |
| practical nurses | . 46 | . 55 | . 74 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |


|  | $\begin{gathered} \text { motal } \\ \text { all } \\ \text { industries } \end{gathered}$ |  |  | Agricultre, forestry, fisheries |  |  | Agriculture |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 1.80 | 1. 76 | 1.87 | .01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Flight attendants | . 04 | . 05 | . 07 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Attendants, recreation, amusement | - 10 | . 12 | . 15 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| attendants, personal serv,other | . 08 | . 08 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Baggage porters and belliops | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Barbers | . 20 | - 13 | . 12 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Boarding, lodging housekeepers | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Child care workers, exc private | . 43 | . 41 | . 48 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Elevator operators | . 05 | . 04 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hairdressers and cosmetologists | . 61 | . 57 | . 55 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 14 | . 14 | . 16 | .01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| School monitors | .03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| ushers, recreation and amusement | . 02 | . 02 | .01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Welfare service aides | .02 | . 10 | - 10 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Protective service workers | 1.33 | 1.44 | 1.59 | . 04 | . 04 | . 09 | . 03 | . 03 | . 06 |
| Crossing guards,bridgetenders | . 06 | . 05 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Pirefighters | .23 | . 23 | . 24 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Guards | . 49 | - 58 | . 72 | .03 | . 03 | . 08 | . 03 | . 03 | . 06 |
| Police and detectives | . 49 | . 50 | . 51 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Sheriffs and bailiffs | . 05 | . 06 | .07 | . 00 | .00 | . 00 | . 00 | .00 | . 00 |
| Private househcld workers | 1.88 | 1.23 | . 78 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Child care workers | . 71 | . 52 | . 29 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Cooks | . 05 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Housekeepers | . 15 | - 13 | . 06 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Launderers | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| cleaners and servants | . 96 | . 56 | . 41 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Laborers, except farm | 5.31 | 5.01 | 4.48 | 6.22 | 9.76 | 11.11 | 4.99 | 8.13 | 10.04 |
| Animal caretakers, exc famm | .09 | .13 | . 14 | 1.10 | 1.77 | 2.90 | 1.10 | 1.78 | 2.92 |
| Carpenter helpers | . 15 | . 11 | . 09 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter helpr | 1.02 | . 91 | . 85 | . 04 | . 05 | . 03 | .03 | .04 | . 03 |
| Fishers, hunters, trappers | . 04 | . 05 | . 03 | . 92 | 1.42 | . 95 | . 00 | . 00 | . 00 |
| Preight and material handiers | . 95 | . 87 | . 77 | . 05 | . 07 | . 08 | . 04 | . 06 | . 07 |
| Garbage collectors | . 11 | . 11 | . 15 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenis, groundkeepers, exc farin | . 68 | . 72 | . 64 | 3.69 | 5.96 | 6.69 | 3.75 | 6.15 | 6.92 |
| Longshore workers, stevedores | .07 | . 06 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Timbercutting, logging workers | - 10 | . 09 | . 06 | . 01 | . 01 | .01 | .01 | . 01 | .01 |
| Stock handlers | . 91 | . 97 | -91 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Vehicle washers, equip cleaners | .22 | . 22 | . 18 | . 01 | . 01 | . 02 | . 01 | . 01 | .01 |
| Warehouse laborers, other | . 19 | . 17 | . 13 | .01 | . 01 | .01 | . 00 | .00 | .00 |
| Other laborers | .75 | . 60 | . 50 | . 38 | . 44 | .39 | . 05 | . 06 | . 07 |
| Farmers and farm workers | 3.98 | 2.97 | 2.06 | 87.87 | 80.29 | 76.68 | 90.35 | 83.90 | 80.18 |
| Parmers and farm managers | 2.19 | 1.57 | 1.13 | 48.24 | 42.47 | 41.90 | 49.61 | 44.38 | 43.81 |
| Farmers (owners and tenants) | 2.14 | 1.53 | 1.08 | 47.32 | 41.47 | 40.00 | 48.65 | 43.33 | 41.82 |
| farm managers | . 04 | . 04 | . 05 | . 93 | 1.00 | 1.91 | . 95 | 1.05 | 1.99 |
| Parm laborers, farm supervisors | 1.80 | 1. 40 | -94 | 39.62 | 37.82 | 34.78 | 40.74 | 39.52 | 36.37 |
| Farm labor supervisors | . 04 | . 04 | . 03 | . 87 | 1.12 | 1.18 | . 90 | 1.17 | 1.23 |
| Farm laborers, wage workers | 1.14 | 1.03 | . 70 | 25.19 | 27.87 | 25.91 | 25.90 | 29.12 | 27.09 |
| Farm laborers, unpaid family | . 60 | . 32 | . 19 | 13.31 | 8.58 | 7.02 | 13.69 | 8.96 | 7.34 |
| Farm laborers, self-employed | .01 | . 01 | . 02 | . 25 | . 26 | . 68 | . 26 | . 27 | . 71 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Agriculturl production |  |  | Services, except horticultre |  |  | Horticultrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | . 22 | - 52 | 1.09 | 21.20 | 18.79 | 16.13 | 2.94 | 2.48 | 2.24 |
| Engineers, technical | . 07 | . 02 | . 04 | . 04 | . 02 | . 02 | . 04 | . 03 | . 03 |
| Civil | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | . 02 | .01 | . 01 |
| Sales | . 00 | . 00 | . 00 | .01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Other engineers | . 00 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 | .01 | . 02 |
| Life and physical scientists | . 04 | . 09 | -18 | . 70 | . 55 | - 79 | . 54 | - 56 | -59 |
| Agricultural | .03 | . 07 | . 13 | . 49 | -40 | .61 | . 53 | . 54 | . 58 |
| Biological | . 00 | . 01 | . 04 | . 18 | . 13 | . 16 | . 01 | . 02 | . 01 |
| Chemists | .00 | . 01 | . 02 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 00 | - 00 | . 00 |
| Statisticians | .00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | .00 | .00 |
| Engineering, science technicians | . 03 | . 08 | . 14 | 1.46 | 1.66 | 1.97 | -40 | . 35 | - 32 |
| Agricultural, biolgcl, exc healta | . 03 | . 06 | . 11 | 1.37 | 1.57 | 1.84 | . 02 | . 02 | . 01 |
| Drafters | . 00 | . 00 | .00 | -01 | . 01 | . 01 | . 28 | . 23 | . 25 |
| Surveyors | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | - 10 | . 09 | . 05 |
| Other engineering, science tech | .01 | . 01 | . 02 | . 06 | . 07 | . 10 | . 01 | . 01 | .01 |
| Medical workers, exc technicians | . 01 | . 02 | . 02 | 11.38 | 9.89 | 8.84 | . 00 | . 00 | . 00 |
| Dietitians | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Registered murses | -00 | - 00 | . 00 | . 12 | . 05 | -04 | . 00 | . 00 | . 00 |
| Veterinarians | . 01 | . 02 | . 02 | 11.22 | 9.80 | 8.79 | . 00 | . 00 | . 00 |
| Other medical and health tech | .00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Health technologists, technicians | . 00 | . 00 | . 00 | . 15 | . 19 | . 15 | . 00 | . 00 | . 00 |
| Clinical lab technologists, tech | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 | .00 | . 00 | . 00 |
| Other health technicians | . 00 | . 00 | . 00 | . 10 | . 15 | .13 | - 00 | . 00 | - 00 |
| Technicians, except health | .00 | . 00 | . 00 | 1.41 | 1.33 | 1.57 | . 01 | . 01 | . 00 |
| Airplane pilots | . 00 | . 00 | . 00 | 1.38 | 1.32 | 1.56 | . 00 | . 00 | . 00 |
| Radio operators | . 00 | . 00 | .00 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Other technicians except healta | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 |
| Computer specialists | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 01 | . 01 | . 01 |
| Computer programers | . 00 | . 00 | .00 | . 02 | . 02 | . 02 | . 01 | .01 | .01 |
| Social scientists | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | .00 |
| Economists | . 00 | . 00 | .00 | . 01 | .01 | .01 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | . 08 | . 21 | . 49 | 5.51 | 4.85 | 2.47 | . 16 | . 14 | - 12 |
| Athletes and kindred workers | . 07 | - 17 | . 38 | 4.54 | 3.92 | 1.58 | . 00 | . 00 | . 00 |
| Designers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 15 | -13 | - 11 |
| Public relations specialists | . 00 | . 00 | .00 | . 06 | . 04 | . 04 | . 01 | . 01 | .01 |
| Other writers,artists, entertain | . 02 | . 04 | - 10 | .92 | - 90 | . 86 | . 00 | . 00 | . 00 |
| Other professional and technical | . 04 | - 10 | . 22 | - 50 | . 25 | . 29 | 1.79 | 1.38 | 1. 17 |
| Accountants | . 02 | . 06 | - 11 | . 15 | . 12 | - 12 | . 09 | . 11 | . 15 |
| Architects | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | 1.63 | 1.22 | . 99 |
| Farm management advisors | . 00 | . 01 | . 08 | . 04 | . 02 | . 05 | . 00 | -00 | . 00 |
| Foresters and conservationists | .01 | . 01 | . 01 | - 22 | . 06 | . 05 | . 01 | . 01 | . 00 |
| Home management advisors | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wirs | . 01 | . 02 | . 02 | . 05 | . 03 | . 03 | . 06 | - 04 | . 03 |
| Other research workers | . 00 | . 00 | . 00 | . 03 | . 01 | .03 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | . 04 | . 09 | . 20 | 5.74 | 4.89 | 4.63 | 3.39 | 3.83 | 3.44 |
| Buyers, sales, loan managers | . 01 | . 03 | . 04 | - 30 | - 29 | . 29 | - 19 | . 21 | . 24 |
| Bank, financial managers | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 | .00 | . 00 | . 00 |
| Purchasing agents, buyers, other | .01 | . 02 | . 03 | $\bigcirc 17$ | - 15 | . 17 | . 06 | . 07 | . 12 |
| Sales manager, exc retail trade | . 01 | . 01 | . 02 | - 10 | . 11 | . 10 | . 12 | . 13 | . 12 |
| Other managers, officials, proprts | .03 | . 06 | - 15 | 5.44 | 4.60 | 4.34 | 3.21 | 3.62 | 3.20 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| office managers, other | .01 | . 03 | . 04 | .31 | . 27 | . 23 | - 20 | . 19 | . 20 |
| Other managers, administrators | .01 | . 03 | . 11 | 5.12 | 4.32 | 4.10 | 2.99 | 3.41 | 2.98 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Agriculturl production |  |  | Services, except horticultre |  |  | Horticultrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1.990 |
| Sales workers | . 08 | . 31 | . 55 | . 68 | . 45 | . 35 | 1.19 | 1.11 | 1.36 |
| Auctioneers | . 00 | . 00 | . 00 | . 09 | . 06 | . 06 | .00 | . 00 | . 00 |
| Other sales wrikers | . 08 | . 31 | . 55 | . 59 | . 39 | . 29 | 1.19 | 1.11 | 1.36 |
| Clerical vorkers | . 33 | . 82 | . 78 | 8.84 | 7.92 | 6.37 | 3.18 | 2.83 | 3.17 |
| Stenographrs,typists, secretaries | . 10 | . 32 | .30 | 2.32 | 2.29 | 2.13 | 1.46 | 1.27 | 1.28 |
| Medical secretaries | . 00 | . 00 | . 00 | . 04 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Other secretaries | . 08 | - 29 | . 28 | 1.96 | 2.06 | 1.99 | 1.34 | 1.17 | 1.19 |
| Stenographers | . 00 | . 01 | . 00 | . 05 | .01 | . 00 | . 02 | . 02 | .01 |
| Typists | .01 | . 03 | . 02 | . 27 | . 20 | - 14 | - 10 | . 09 | . 08 |
| Office machine operators | .01 | . 01 | . 00 | . 19 | - 16 | . 11 | . 02 | . 02 | . 02 |
| Bookkeeping and billing | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Calculating | . 00 | . 00 | . 00 | . 03 | .01 | . 00 | . 00 | . 00 | .00 |
| Computer and feripheral equip | . 00 | . 00 | - 00 | . 03 | . 06 | . 07 | . 00 | . 01 | . 01 |
| Keypunch | . 00 | . 00 | . 00 | . 08 | . 05 | . 01 | .01 | . 01 | . 01 |
| Other office machine operators | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 00 | . 00 | .00 |
| Other clerical workers | - 22 | -48 | . 48 | 6.33 | 5.48 | 4.13 | 1.69 | 1.54 | 1.86 |
| Billing clerks | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 02 | . 03 | . 02 |
| Bookkeepers | .16 | . 32 | . 30 | 2.49 | 2.19 | 1.64 | 1.02 | -89 | 1.26 |
| Cashiers | . 01 | . 02 | . 02 | . 05 | . 04 | . 03 | . 07 | . 05 | . 02 |
| Clerical superrisors, other | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 | .01 | .01 | .01 |
| Counter clerks, exc food | . 00 | . 02 | . 03 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 |
| Dispatchers, starters, venicle | . 00 | - 00 | . 00 | .01 | . 01 | . 01 | - 00 | . 00 | . 00 |
| Estimators, investigators, other | . 00 | . 00 | . 00 | . 06 | . 09 | . 08 | . 07 | . 10 | .11 |
| Expediters, frcduction controlrs | - 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 |
| File clerks | . 00 | . 01 | . 01 | . 08 | . 08 | . 09 | -03 | . 02 | .01 |
| Mail handlers,exc post office | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | .03 | . 03 | . 02 |
| Messengers and office belpers | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 01 | . 02 | . 01 |
| Payroll, timekeeping clerks | .01 | . 04 | . 05 | . 03 | -02 | . 01 | . 05 | . 05 | . 01 |
| Receptionists | . 00 | . 00 | . 00 | 2.61 | 2.11 | 1.68 | -08 | . 07 | -09 |
| Shipping and receiving clerks | .01 | . 02 | . 01 | . 09 | . 05 | . 01 | . 03 | . 02 | . 01 |
| Statistical clerks | . 01 | . 01 | . 01 | . 13 | - 14 | . 09 | . 03 | . 03 | -01 |
| Stock clerks and store keepers | . 01 | . 02 | . 02 | . 03 | . 02 | . 01 | . 05 | . 03 | .01 |
| Telephone operators | -00 | - 00 | -00 | . 00 | . 00 | - 00 | - 01 | . 01 | . 01 |
| Weighers | . 00 | . 01 | -01 | . 11 | . 12 | . 09 | -00 | .00 | .00 |
| Misc clerical workers | . 01 | . 02 | . 01 | .47 | . 48 | . 29 | .19 | . 19 | . 25 |
| Crafts and kindred workers | . 45 | 1. 21 | 1.43 | 2.21 | 1.89 | 1.94 | 5.19 | 4.91 | 4.68 |
| Construction crafts workers | . 22 | . 45 | . 55 | . 78 | . 61 | - 60 | 1.87 | 1.90 | 2.61 |
| Carpenters and apprentices | . 13 | . 24 | . 26 | . 20 | . 17 | . 14 | . 11 | . 08 | . 04 |
| Brick, stonemasons, apprentices | . 01 | . 02 | . 02 | . 00 | . 00 | - 00 | . 03 | . 02 | .01 |
| Bulldozer operators | . 04 | . 04 | . 04 | . 31 | . 26 | - 31 | 1.04 | 1.12 | 1.82 |
| cement and concrete finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Electricians and apprentices | . 01 | . 04 | . 06 | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Excavating,grading mach operatr | . 02 | . 03 | . 04 | - 12 | -09 | . 09 | . 46 | . 46 | . 54 |
| Painters and apprentices | . 02 | . 04 | . 05 | . 07 | . 04 | . 02 | . 05 | . 05 | . 04 |
| Plumbers, pipefitters, aprentices | . 01 | . 04 | . 07 | . 01 | . 01 | -01 | . 17 | -15 | . 16 |
| Tile setters | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 00 | . 00 | - 00 |
| Blue collar worker supervisors | . 06 | . 25 | . 24 | . 53 | . 41 | . 38 | 2.66 | 2.28 | 1.19 |
| Metalworkg craft urkrs,exc mech | .01 | . 01 | . 00 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Blacksmiths | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | .00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | .11 | . 29 | -47 | . 75 | . 77 | . 87 | . 51 | . 59 | .76 |
| Air cond, heating, refrig meca | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | .00 |
| Aircraft mechanics | . 00 | - 00 | . 00 | . 12 | . 07 | . 06 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 03 | . 03 | . 03 | - 15 | - 13 | - 14 | . 16 | . 16 | . 19 |
| Farm implement mechanics | . 02 | - 06 | . 09 | - 11 | - 12 | - 10 | - 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | . 05 | - 19 | .35 | . 30 | . 38 | . 50 | . 24 | - 31 | . 44 |
| Other mechanics and apprentices | .00 | .00 | . 00 | . 06 | . 05 | . 05 | . 10 | - 11 | . 12 |
| Transport, public util craft wirs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| tlec pur line instaler, repairer | . 00 | .00 | .00 | .00 | .00 | . 00 | .03 | .03 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Agriculturl production |  |  | Services. except horticultre |  |  | Horticultrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 05 | . 21 | . 18 | . 13 | . 08 | . 07 | .11 | . 10 | . 08 |
| Crane, derrick, hoist operator | . 01 | . 04 | . 07 | . 01 | . 01 | .01 | . 05 | . 03 | . 02 |
| Decorators, indow dressers | . 02 | - 12 | . 02 | . 02 | . 01 | .01 | . 04 | . 05 | . 04 |
| Inspectors, other | . 01 | . 01 | . 01 | . 07 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Stationary engineers | . 00 | . 02 | . 03 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| other crafts workers | .01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Operatives | . 46 | 1.21 | 1.49 | 5.94 | 5.53 | 4.93 | 2.38 | 2.06 | 2.41 |
| Operatives, except transport | . 19 | . 61 | . 78 | 3.49 | 3.54 | 2.94 | . 87 | . 86 | . 91 |
| Semiskilled metalworking | . 02 | . 09 | . 12 | . 01 | . 01 | . 01 | . 08 | . 07 | . 07 |
| Grinding machine operatives | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Punch,stamping press operatives | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Welders and flamecutters | . 02 | . 09 | . 12 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Semiskilled packing, inspectiny | . 09 | . 31 | . 38 | 1. 16 | . 98 | . 80 | . 00 | .00 | . 00 |
| packer,wrapper,exc meat,prodce | . 09 | . 31 | . 38 | . 52 | .34 | . 20 | . 00 | . 00 | . 00 |
| Produce grdr, pkrs, exc fact, farm | . 00 | . 00 | .00 | . 64 | . 64 | . 60 | .00 | . 00 | . 00 |
| Other operatives, exc transport | . 09 | . 21 | . 28 | 2.32 | 2.55 | 2. 13 | . 79 | . 79 | . 85 |
| Assemblers | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | . 14 | - 15 | . 12 |
| Drillers, earth | . 00 | . 03 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Meat cutters, rutchers, exc mfg | . 00 | . 00 | . 00 | . 06 | .03 | .01 | . 00 | . 00 | . 00 |
| Mixing operatives | . 00 | . 00 | . 00 | . 10 | . 11 | . 10 | . 00 | . 00 | . 00 |
| Oilers,greasers,exc automobiles | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| painters, mfg articles | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | .00 | .00 | . 00 |
| Sawyers | . 00 | . 03 | . 06 | . 04 | . 03 | . 03 | . 24 | . 22 | . 23 |
| Furnace tendr,stokr,exc metal | . 00 | . 01 | . 01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 03 | . 07 | . 08 | 1.51 | 1.73 | 1.39 | . 19 | . 19 | . 19 |
| Other operatives, exc transport | . 04 | . 08 | . 07 | . 53 | - 58 | . 53 | .20 | .21 | . 29 |
| Transport equipment operatives | . 27 | . 60 | . 71 | 2.45 | 2.00 | 1.98 | 1.51 | 1.20 | 1.50 |
| Delivery and route workers | . 06 | . 21 | . 25 | . 26 | . 17 | . 08 | . 00 | . 00 | . 00 |
| Fork lift,tow motor operatives | . 01 | . 02 | . 02 | . 12 | . 15 | . 12 | . 04 | . 04 | . 04 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 00 | - 00 | . 00 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 | . 00 | . 00 | .00 |
| Truck drivers | . 20 | . 37 | . 44 | 2.00 | 1.64 | 1.76 | 1.47 | 1.16 | 1.46 |
| Service workers | . 15 | . 21 | . 21 | 1.40 | 1.14 | . 83 | . 31 | . 31 | . 28 |
| Cleaning service workers | . 08 | - 10 | . 06 | . 83 | . 74 | . 55 | . 29 | - 29 | . 25 |
| Lodging gtrs cleaners, exc privt | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | -00 | . 00 |
| Bldg interior cleaners, other | . 03 | . 05 | . 04 | . 21 | . 22 | - 15 | . 06 | . 06 | . 05 |
| Janitors and sextons | . 04 | . 03 | . 02 | . 62 | . 53 | . 39 | . 23 | . 23 | . 21 |
| Food service workers | . 04 | . 07 | . 06 | . 14 | . 08 | . 05 | . 00 | . 00 | .00 |
| Cooks, exc private households | . 03 | . 06 | . 05 | . 08 | . 04 | . 02 | . 00 | . 00 | .00 |
| Dishwashers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| waiters | . 01 | . 01 | . 02 | . 03 | . 02 | .01 | .00 | .00 | .00 |
| Other food serv ukrs,exc privt | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Health service vorkers | . 00 | . 00 | . 00 | . 22 | . 18 | . 12 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | . 00 | - 12 | . 14 | - 10 | .00 | . 00 | . 00 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 07 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Practical nurses | . 00 | . 00 | . 00 | . 04 | . 01 | .01 | . 00 | . 00 | . 00 |
| Personal service workers | . 01 | . 02 | . 03 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Elevator operators | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Protective service workers | . 02 | . 02 | . 06 | . 20 | . 12 | . 11 | . 02 | . 02 | . 02 |
| Guards | . 02 | . 02 | . 06 | . 19 | . 11 | . 11 | . 02 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by otcupation, 1970, 1978 and projected 1990

|  | Agriculturl production |  |  | Services, except horticultre |  |  | Horticultrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | . 00 | . 00 | . 00 | 26.14 | 27.84 | 30.33 | 81.42 | 82.48 | 82.43 |
| Animal caretakers, exc farm | . 00 | . 00 | .00 | 22.29 | 24.57 | 28.19 | . 00 | . 00 | . 00 |
| Carpenter helpers | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Constr labr, exc carpenter helpr | . 00 | . 00 | .00 | . 10 | . 07 | . 02 | . 59 | . 50 | . 35 |
| Freight and material handlers | . 00 | . 00 | . 00 | . 55 | . 54 | -40 | . 31 | . 31 | . 31 |
| Gardenrs, groundkeepers, exc farm | . 00 | . 00 | . 00 | 1.99 | 1.57 | - 90 | 80.29 | 81.44 | 81.58 |
| Timbercutting, logging workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 12 | - 11 | - 11 |
| Stock handlers | . 00 | . 00 | . 00 | -06 | . 05 | . 04 | . 04 | -04 | . 02 |
| Teamsters | .00 | . 00 | . 00 | -01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Vehicle washers,equip cleaners | . 00 | . 00 | . 00 | . 09 | . 11 | - 10 | . 04 | . 04 | . 04 |
| Warehouse laborers, other | . 00 | . 00 | . 00 | . 05 | . 03 | . 01 | . 01 | . 01 | . 01 |
| other laborers | . 00 | . 00 | . 00 | . 99 | . 88 | . 67 | . 00 | . 00 | . 00 |
| Farmers and farm workers | 98.28 | 95.64 | 94.25 | 27.85 | 31.56 | 34.49 | . 00 | . 00 | . 00 |
| Farmers and farmmanagers | 54.69 | 51.81 | 53.58 | 1.87 | 2.35 | 2.52 | . 00 | . 00 | . 00 |
| Farmers (owners and tenants) | 53.67 | 50.63 | 51.22 | 1.31 | 1.73 | 1.83 | . 00 | . 00 | . 00 |
| Farm managers | 1.02 | 1. 18 | 2.36 | . 55 | -62 | . 70 | . 00 | .00 | . 00 |
| Farm laborers, farm supervisors | 43.59 | 43.83 | 40.67 | 25.99 | 29.20 | 31.97 | . 00 | . 00 | . 00 |
| Farm labor sufervisors | . 92 | 1.23 | 1.27 | 1.32 | 1.60 | 1.94 | . 00 | . 00 | . 00 |
| Farm laborers, wage workers | 27.41 | 32.13 | 30.01 | 22.10 | 23.48 | 26.05 | . 00 | . 00 | . 00 |
| Farm laborers, unpaid family | 15.06 | 10.47 | 9.00 | 1.00 | . 46 | . 25 | . 00 | . 00 | . 00 |
| Farm laborers, self-employed | . 20 | . 01 | . 39 | 1.56 | 3. 66 | 3.72 | . 00 | . 00 | . 00 |

Table 1. Percent distribution or industry employment by occupation, 1970 , 1978 and projected 1990

|  | Forestry |  |  | Pisheries |  |  | Mining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| professional and technical | 50.06 | 55.08 | 59.66 | 3.56 | 3.88 | 9.34 | 10.61 | 12.11 | 12.21 |
| Engineers, technical | 2.61 | 2.58 | 2.84 | . 40 | . 47 | . 90 | 3.03 | 3.15 | 3.55 |
| Chemical | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 17 | . 18 | . 13 |
| Civil | 2.07 | 2.04 | 2.35 | . 00 | . 00 | . 00 | .19 | - 16 | . 18 |
| Electrical | . 07 | . 07 | . 05 | .00 | . 00 | . 00 | .16 | .17 | . 12 |
| Industrial | . 13 | . 14 | . 17 | . 00 | . 00 | . 00 | . 16 | . 18 | . 17 |
| Mechanical | . 07 | . 10 | . 17 | . 40 | . 47 | . 90 | . 23 | . 25 | . 25 |
| Metallurgical | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 04 |
| Mining | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 53 | . 48 | . 67 |
| Petroleum | .00 | . 00 | .00 | . 00 | . 00 | . 00 | 1.39 | 1.55 | 1.86 |
| Sales | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 07 | . 07 |
| Other engineers | . 27 | - 24 | . 10 | . 00 | . 00 | . 00 | . 09 | . 09 | . 07 |
| Life and physical scientists | 1.28 | 2.07 | 1.81 | . 68 | . 95 | 1.84 | 2.65 | 2.64 | 3.04 |
| Agricultural | . 64 | .91 | .93 | . 28 | . 42 | . 92 | . 00 | . 00 | . 00 |
| Atmospheric and space | . 08 | . 21 | . 19 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Biological | . 46 | . 85 | . 62 | . 39 | . 51 | . 92 | . 00 | . 00 | . 01 |
| Chemists | . 06 | .07 | . 05 | .00 | . 00 | . 00 | . 42 | . 43 | .41 |
| Geologists | .00 | . 00 | -00 | . 00 | . 00 | . 00 | 2.20 | 2.17 | 2.58 |
| Marine | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 01 | . 02 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 03 | . 03 |
| Other life, physical scientists | . 03 | . 04 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Matnematical sfecialists | . 11 | . 11 | . 05 | . 03 | . 02 | . 00 | . 03 | . 04 | . 02 |
| Mathematicıans | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Statisticians | . 10 | . 10 | . 05 | . 03 | . 02 | . 00 | . 02 | . 02 | . 01 |
| Engineering, science technicians | 2.43 | 2.94 | 2.83 | . 29 | - 37 | . 72 | 1.91 | 2.16 | 2.23 |
| Agricultural, biolgcl, exc health | . 12 | . 14 | . 11 | . 13 | . 11 | . 18 | . 01 | . 01 | . 01 |
| Chemical technicians | . 00 | . 00 | . 00 | . 03 | . 05 | . 02 | . 31 | . 36 | . 36 |
| Drafters | - 53 | . 58 | . 65 | . 04 | . 04 | . 05 | . 54 | . 54 | . 56 |
| Electrical and electronic | . 16 | . 21 | . 14 | . 00 | . 00 | . 00 | . 11 | . 15 | . 14 |
| Industrial engineering | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Mechanical engineering | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors | . 95 | 1.18 | 1.28 | . 00 | . 00 | . 00 | . 25 | . 25 | . 22 |
| other engineering, science teca | . 67 | . 82 | . 64 | - 10 | . 17 | . 46 | . 68 | . 83 | . 93 |
| Medical workers, exc technicians | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | .03 | . 02 | . 03 |
| Physicians and osteopatas | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| zegistered nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Health technologists, technicians | . 02 | . 03 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other health technicians | . 02 | . 03 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Technicians, except health | 1.18 | 1.62 | 1.36 | . 00 | . 00 | . 00 | . 25 | . 43 | . 56 |
| Airplane pilots | - 13 | - 18 | -21 | . 00 | . 00 | . 00 | . 09 | . 22 | - 37 |
| Radio operators | . 48 | . 52 | -23 | . 00 | . 00 | . 00 | . 04 | . 05 | . 02 |
| other technicians except nealta | . 57 | . 92 | . 92 | .00 | . 00 | .00 | - 12 | . 17 | - 17 |
| Computer specialists | -19 | . 26 | -18 | . 03 | . 03 | . 04 | . 43 | -63 | . 60 |
| Computer frogramers | . 17 | - 23 | - 15 | . 03 | . 03 | . 04 | . 28 | . 36 | - 34 |
| Computer systems analysts | . 02 | . 04 | . 04 | - 00 | . 00 | . 00 | - 14 | . 23 | . 25 |
| other computer specialists | . 00 | .00 | . 00 | . 00 | .00 | . 00 | . 02 | -03 | . 02 |
| Social scientists | . 14 | . 25 | .17 | . 00 | . 00 | . 00 | . 07 | . 13 | . 11 |
| Economists | . 13 | - 22 | - 17 | . 00 | . 00 | . 00 | . 06 | . 12 | . 11 |
| Psychologists | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | - 00 |
| Sociologists | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Writers, artists, entertainers | . 36 | . 51 | . 62 | . 00 | . 00 | . 00 | . 11 | . 14 | - 10 |
| Designers | . 09 | . 11 | . 04 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| editors and reforters | . 14 | . 23 | -41 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Photographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| public relations specialists | - 13 | . 17 | .17 | . 00 | . 00 | .00 | . 08 | . 11 | . 08 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Forestry |  |  | Fisheries |  |  | Mining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 41.73 | 44.69 | 49.76 | 2. 13 | 2.05 | 5.84 | 2.12 | 2.78 | 1.98 |
| Accountants | . 59 | . 77 | . 75 | . 14 | . 22 | . 86 | 1.49 | 1.90 | 1.47 |
| Architects | .23 | . 20 | . 09 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Farm management advisors | . 04 | . 05 | . 07 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Poresters and conservationists | 39.37 | 42.11 | 48.05 | 1.87 | 1.74 | 4.94 | .01 | . 01 | . 03 |
| Layyers | . 02 | . 03 | . 00 | . 00 | . 00 | .00 | . 21 | .41 | . 22 |
| Librarians | . 04 | . 04 | . 00 | . 00 | .00 | . 00 | .01 | .01 | . 00 |
| Operations and systems research | . 02 | . 03 | . 01 | . 00 | . 00 | . 00 | . 07 | . 10 | . 07 |
| Personnel.labor relations ykrs | . 55 | . 72 | . 50 | .03 | . 02 | . 01 | . 25 | . 28 | . 16 |
| Other research workers | . 45 | . 38 | . 11 | - 10 | . 06 | . 03 | . 09 | . 07 | . 04 |
| Recreation workers | . 17 | . 31 | .16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Vocation, education counselors | .05 | . 06 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 4.11 | 5.93 | 6.09 | 6.69 | 8.32 | 14.87 | 6.76 | 7.80 | 6.57 |
| Buyers, sales, loan managers | . 59 | . 60 | . 48 | . 12 | . 11 | .21 | 1.04 | 1.07 | . 98 |
| Bank, financial managers | . 09 | . 08 | . 02 | .00 | .00 | .00 | . 09 | . 09 | . 05 |
| credit managers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | . 02 | . 02 |
| Purchasing agents, buyers, other | . 41 | . 39 | . 26 | - 11 | . 09 | . 19 | . 72 | . 73 | . 67 |
| Sales manager, exc retail trade | . 09 | . 13 | -19 | .01 | . 01 | . 02 | . 19 | - 23 | . 23 |
| Other managers, officials, proprts | 3.53 | 5.33 | 5.62 | 6.56 | 8.22 | 14.66 | 5.72 | 6.73 | 5.60 |
| Mgrs, superintendents, building | .03 | . 03 | . 03 | .00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| office managers, other | . 28 | . 33 | . 30 | . 07 | . 07 | . 18 | .36 | . 43 | .47 |
| officers, pilots, pursers,ship | . 02 | . 02 | - 02 | 4.01 | 4.47 | 8.05 | . 12 | . 12 | .11 |
| kestaurant, cafe, bar,managers | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Other managers, administrators | 3.18 | 4.95 | 5.26 | 2.48 | 3.68 | 6.43 | 5.22 | 6.16 | 4.99 |
| Sales workers | .37 | . 43 | . 42 | . 59 | . 51 | . 00 | . 47 |  |  |
| advertising agents, sales worker | . 00 | . 00 | -00 | . 00 | . 00 | .00 | . 00 | .01 | . 03 |
| Other sales workers | .37 | . 43 | . 42 | . 59 | . 51 | .00 | .47 | . 40 | . 16 |
| Clerical workers | 8.30 | 8.88 | 8.89 | 1.56 | 1.76 | 3.40 | 9.00 | 9.76 | 8.17 |
| Stenographrs, typists, secretaries | 4.37 | 4.60 | 5.14 | . 65 | . 78 | 1.69 | 3.30 | 3.49 | 3.05 |
| Legal secretaries | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 08 | . 08 | . 09 |
| Other secretaries | 1.70 | 1.86 | 2.55 | . 48 | . 55 | 1.13 | 2.64 | 2.90 | 2.58 |
| Stenographers | . 41 | . 29 | . 25 | . 02 | . 01 | . 01 | . 15 | . 09 | . 02 |
| Typists | 2.27 | 2.45 | 2.35 | . 15 | . 22 | . 55 | .44 | . .42 | . 36 |
| Office machine operators | . 38 | . 43 | .30 | .03 | . 04 | .07 | . 66 | . 95 | . 54 |
| Bookkeeping and billing | . 02 | . 01 | . 01 | .01 | .01 | .01 | .04 | .02 | .01 |
| Calculating | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | .01 |
| Computer and feripheral equip | . 05 | - 12 | . 09 | . 02 | . 03 | . 05 | . 26 | . 61 | . 35 |
| Duplicating | . 02 | - 02 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Keypunch | . 23 | . 21 | . 14 | . 00 | . 00 | .00 | .27 | . 24 | . 12 |
| Other office machine operators | . 05 | . 06 | . 04 | . 00 | . 00 | .00 | . 04 | . 04 | . 02 |


|  | Forestry |  |  | Fisheries |  |  | hining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1973 | 1978 | 1990 |
| Other clerical workers | 3.55 | 3.86 | 3.45 | . 88 | . 93 | 1.65 | 5.04 | 5.31 | 4.59 |
| Billing clerks | . 03 | . 04 | . 03 | . 00 | . 00 | .00 | . 10 | . 11 | . 12 |
| Bookkeepers | . 86 | . 96 | 1.23 | -37 | . 44 | . 96 | 1.50 | 1.54 | 1.28 |
| Cashiers | .09 | . 11 | . 27 | . 03 | . 02 | . 02 | . 04 | .06 | . 08 |
| Clerical supervisors, other | . 27 | - 38 | . 33 | . 00 | . 00 | . 00 | . 12 | . 15 | . 13 |
| collectors, bill and account | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Counter clerks, exc food | . 00 | - 00 | . 00 | . 02 | - 02 | . 04 | . 05 | .05 | . 04 |
| Dispatchers, starters, vehicle | . 06 | . 06 | . 06 | . 00 | . 00 | . 00 | . 22 | . 24 | . 22 |
| Estimators, investigators, other | . 22 | . 26 | - 11 | . 00 | - 00 | . 00 | . 25 | . 32 | . 21 |
| Expediters, prcduction controlrs | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 | - 22 | . 25 | . 22 |
| File clerks | . 25 | . 23 | . 11 | . 02 | . 01 | . 02 | -14 | . 14 | . 13 |
| Library attendants, assistants | .04 | . 04 | . 01 | . 00 | - 00 | . 00 | . 01 | -01 | . 00 |
| Mail handlers, exc fost office | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .09 | . 10 | . 07 |
| messengers and office helpers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| Payroll, timekeeping clerks | . 12 | . 17 | . 17 | . 02 | . 04 | . 06 | . 24 | . 28 | . 25 |
| Receptionists | . 25 | . 26 | . 12 | . 03 | .03 | .06 | . 17 | - 17 | - 11 |
| Shipping and receiving clerks | . 06 | . 06 | .07 | - 10 | . 06 | . 02 | . 12 | . 11 | . 12 |
| Statistical clerks | . 26 | . 28 | . 16 | . 07 | . 06 | . 00 | . 27 | . 34 | . 27 |
| Stock clerks and store keepers | . 26 | . 20 | . 09 | . 05 | - 03 | . 01 | . 49 | . 43 | . 41 |
| Telephone operators | . 05 | . 02 | . 00 | . 00 | . 00 | . 00 | . 13 | - 10 | . 09 |
| Weighers | . 24 | . 26 | . 15 | . 06 | . 06 | . 11 | . 29 | . 26 | . 24 |
| Misc clerical workers | . 43 | . 49 | . 51 | . 13 | . 17 | . 36 | . 56 | . 62 | . 56 |
| Crafts and kindred workers | 6.30 | 5.98 | 5.54 | 2.35 | 2.45 | 4.07 | 24.29 | 24.83 | 26.69 |
| Construction crafts workers | 2.38 | 2.21 | 1.86 | 1.01 | 1.01 | 1.30 | 7.46 | 7.08 | 8.69 |
| Carpenters and apprentices | . 61 | . 82 | 1.12 | . 50 | . 62 | 1.13 | 1.34 | 1.43 | 1.61 |
| Brick, stonemasons, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 08 | . 05 |
| Bulldozer operators | . 60 | - 38 | . 18 | .17 | . 12 | . 00 | 1.30 | 1.26 | 2.15 |
| Cement and concrete finishers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Electricians and apprentices | . 04 | . 03 | . 02 | . 02 | . 02 | . 01 | 1.62 | 1.69 | 1.98 |
| Excavating,grading mach operatr | . 98 | - 83 | . 44 | . 09 | . 06 | . 00 | 2.54 | 2.07 | 2.30 |
| Floor layers, exc tile setters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| painters and apprentices | . 12 | . 10 | . 02 | . 20 | - 17 | . 12 | . 17 | . 15 | . 11 |
| Plumbers, pipefitters, aprentices | . 04 | . 04 | . 08 | . 01 | . 01 | . 02 | . 36 | . 37 | . 44 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Blue collar worker supervisors | 1.10 | 1.13 | 1.32 | - 40 | - 50 | 1.10 | 5.63 | 6.32 | 6.24 |
| Metalworkg craft wrkrs, exc meca | . 05 | . 05 | . 06 | . 07 | . 09 | . 25 | . 95 | 1.03 | 1.56 |
| Blacksmiths | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | .03 | . 00 |
| Boilermakers | .00 | .00 | . 00 | .00 | . 00 | . 00 | . 08 | . 07 | . 07 |
| Porge and hammer operators | . 00 | . 00 | . 00 | -00 | - 00 | . 00 | .01 | . 01 | . 02 |
| Machinists and apprentices | . 04 | . 05 | . 06 | . 07 | . 09 | . 25 | . 62 | . 73 | 1.20 |
| Millwrights | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 14 | . 14 | . 21 |
| Sheetmetal workers, apprentices | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| Mechanics,repairers,installers | 1.48 | 1.36 | 1.09 | . 47 | - 51 | 1.07 | 5.49 | 6.20 | 7.31 |
| Air cond, heating, refrig mecn | . 00 | . 00 | . 00 | . 02 | . 03 | . 06 | . 05 | .07 | . 06 |
| Aircraft mechanics | . 02 | . 03 | . 05 | - 00 | . 00 | . 00 | -02 | . 03 | . 05 |
| Auto body repairers | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 | . 01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 61 | .47 | . 14 | . 07 | . 05 | . 06 | . 81 | . 68 | . 53 |
| Data processing mach repairers | . 00 | . 00 | . 00 | -00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | . 53 | . 62 | . 74 | . 21 | .31 | . 88 | 4.06 | 4.84 | 6.19 |
| Radio, television repairers | . 21 | - 17 | .15 | . 00 | . 00 | . 00 | .03 | . 03 | . 03 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 07 |
| Other mechanics and apprentices | . 11 | .07 | .01 | - 14 | - 10 | . 04 | . 46 | . 48 | . 36 |
| Printing trade crafts workers | .01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 04 | . 05 | . 04 |
| Compositors and typesetters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| Press, plate printers, aprentices | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Transport, public util craft wkrs | . 16 | . 09 | . 00 | . 00 | . 00 | . 00 | -16 | . 17 | . 15 |
| Elec pwr line instaler, repairer | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 |
| Locomotive engineers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 10 | . 09 |
| Power station operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | . 04 |
| Telephone installers, repairers | .16 | .09 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 |


|  | Forestry |  |  | Fisheries |  |  | Mining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.13 | 3. 14 | 1.21 | . 40 | . 35 | . 35 | 4.56 | 3.98 | 2.70 |
| Crane,derrick,hoist operator | . 14 | . 17 | . 46 | . 09 | . 09 | .21 | 1.03 | . 80 | . 97 |
| Inspectors, log and lumber | . 34 | . 39 | -38 | .00 | . 00 | - 00 | . 00 | .00 | . 00 |
| Inspectors, other | . 31 | - 36 | -33 | .03 | . 03 | . 03 | . 49 | . 61 | . 65 |
| Sign painters and letterers | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 06 | . 04 | . 01 | . 10 | . 07 | . 04 | 2.88 | 2.45 | 1.01 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 09 | . 06 | . 02 |
| Other crafts workers | . 27 | . 17 | . 03 | . 18 | . 16 | . 07 | . 06 | . 06 | . 06 |
| Operatives | 3.28 | 2.75 | 2.52 | 5.25 | 6.29 | 10.59 | 42.25 | 39.22 | 41.29 |
| operatives, except transport | 1.95 | 1.91 | 2. 13 | 4.02 | 4.85 | 7.35 | 35.03 | 32.23 | 32.55 |
| Semiskilled metalworking | . 19 | . 20 | . 21 | . 14 | . 17 | .41 | 2.04 | 2.05 | 2.17 |
| Drill press oferatives | .00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | .00 | . 00 |
| gurnace tendrs, smeltrs, pourers | .00 | . 00 | -00 | .00 | .00 | .00 | .03 | . 03 | . 02 |
| Grinding machine operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 13 | .11 | . 07 |
| Lathe,milling mach operatives | . 01 | . 01 | . 01 | . 03 | . 02 | .03 | . 04 | . 03 | . 02 |
| other precision mach operators | .01 | .01 | . 01 | .01 | . 01 | . 00 | . 01 | . 01 | . 00 |
| Welders and flamecutters | . 17 | . 19 | . 19 | . 10 | - 15 | . 39 | 1.81 | 1.87 | 2.06 |
| Semiskilled packing. inspecting | . 13 | . 13 | . 12 | . 70 | . 83 | 1.44 | . 06 | . 04 | . 02 |
| Packer, wrapper,exc meat, prodce | . 13 | . 13 | . 12 | .69 | . 82 | 1.44 | . 06 | . 04 | . 02 |
| Produce grdr,fkrs,exc fact,farm | . 00 | . 00 | - 00 | .01 | . 01 | . 00 | .00 | .00 | . 00 |
| Other operatives, exc transport | 1.64 | 1.58 | 1.80 | 3.18 | 3.85 | 5.49 | 32.92 | 30.14 | 30.36 |
| Assemblers | . 01 | . 02 | . 02 | . 00 | .00 | . 00 | . 05 | . 08 | . 13 |
| Blasters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 59 | . 58 | . 58 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | . 03 | . 04 | . 08 | . 00 | . 00 | . 00 |
| Surveyors' helpers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 08 | - 12 |
| Cutting operatives, other | . 10 | . 08 | . 04 | . 00 | . 00 | . 00 | . 73 | . 80 | . 97 |
| Drillers, earth | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | 4.16 | 4.34 | 4.07 |
| Filer, polisher,sander, buffer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Garage wrkrgas station atten | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 05 | . 03 | . 02 |
| Mine operatives,other | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | 26.02 | 23.07 | 23.32 |
| Mixing operatives | . 02 | . 02 | . 01 | . 00 | . 00 | -00 | . 05 | . 06 | . 06 |
| Oilers.greasers,exc autonobiles | . 01 | . 01 | . 01 | . 04 | . 03 | . 00 | . 81 | . 80 | . 83 |
| Photographic frocess workers | . 02 | . 03 | . 03 | . 00 | . 00 | .00 | . 01 | .01 | . 00 |
| sailors and deckhands | . 00 | . 00 | -00 | . 13 | . 08 | . 00 | . 07 | . 07 | . 09 |
| Sawyers | . 29 | . 33 | . 64 | . 00 | . 00 | . 00 | . 08 | . 08 | . 08 |
| Purnace tendr,stokr,exc metal | . 32 | . 26 | . 59 | . 03 | . 02 | . 08 | . 16 | . 10 | - 12 |
| Miscellaneous machine operatres | . 25 | . 23 | . 16 | . 15 | . 19 | . 35 | . 01 | . 01 | . 00 |
| other operatives, exc transport | . 59 | . 59 | . 32 | 2.79 | 3.47 | 4.98 | . 01 | .01 | . 01 |
| Transport equipment operatives | 1.32 | . 84 | . 39 | 1.23 | 1.44 | 3.24 | 7.23 | 7.00 | 8.74 |
| Boat operators | . 00 | . 00 | . 00 | . 56 | . 64 | . 96 | . 05 | . 06 | . 04 |
| Bus drivers | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 05 | . 06 | . 12 | . 13 | . 15 | . 34 | .23 | . 21 | . 22 |
| Fork lift, tow motor operatives | . 06 | . 05 | .09 | . 04 | . 05 | . 09 | . 30 | . 33 | . 38 |
| Rail venicle operators, other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.11 | 1.03 | . 85 |
| Railroad brake operators | . 00 | . 00 | . 00 | . 00 | .00 | .00 | . 01 | . 01 | . 02 |
| Taxicab drivers, chauffeurs | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| Truck drivers | 1.19 | . 71 | . 17 | . 50 | . 61 | 1.86 | 5.50 | 5.33 | 7.22 |
| Service workers | 1.68 | 1.37 | . 97 | 1.16 | 1.09 | 2.08 | 1.46 | 1.30 | . 96 |
| cleaning service workers | . 92 | . 74 | . 22 | . 38 | - 32 | . 39 | - 92 | . 82 | . 54 |
| Bldg interior cleaners, other | . 12 | . 08 | . 02 | . 10 | . 09 | . 10 | . 11 | .11 | . 06 |
| Janitors and sextons | . 80 | .65 | - 20 | . 28 | . 24 | . 29 | . 81 | .72 | . 48 |
| Food service wcrkers | - 19 | . 15 | . 08 | - 58 | . 55 | . 88 | . 15 | . 14 | . 14 |
| Haiters' assistants | . 01 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Cooks, exc private households | . 16 | - 13 | . 04 | . 53 | . 51 | . 78 | . 10 | . 09 | . 06 |
| Dishwashers | .01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 |
| Food counter, fountain vorkers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 04 |
| Waiters | .01 | . 01 | . 01 | . 05 | . 04 | . 09 | .01 | . 01 | .01 |
| Other food serv wkrs.exc privt | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |


|  | Porestry |  |  | Fisheries |  |  | Mining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Elevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | . 04 |
| Protective service workers | . 57 | . 48 | . 67 | . 20 | - 22 | - 82 | . 36 | - 30 | - 22 |
| Firefighters | . 39 | . 35 | . 63 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Guards | . 15 | - 10 | . 01 | . 17 | . 20 | . 82 | . 35 | . 28 | . 20 |
| Police and detectives | . 03 | . 04 | . 03 | . 04 | . 02 | . 00 | .01 | - 01 | . 00 |
| Laborers, except farm | 25.91 | 19.58 | 15.91 | 78.85 | 75.69 | 55.65 | 5.16 | 4.57 | 3.93 |
| Animal caretakers, exc farm | . 02 | . 03 | . 02 | 2.24 | 2.93 | 5.36 | .01 | . 01 | . 01 |
| Carpenter helfers | . 13 | . 15 | . 20 | - 10 | - 09 | . 18 | .08 | . 07 | . 09 |
| Constr labr,exc carpenter helpr | . 51 | - 38 | . 09 | .13 | . 09 | . 04 | . 85 | .71 | . 40 |
| Fishers, hunters,trappers | . 00 | . 00 | . 00 | 74.25 | 70.26 | 46.44 | . 00 | . 00 | . 00 |
| Freight and material handlers | . 20 | . 16 | . 20 | . 36 | . 40 | . 58 | 2.87 | 2.63 | 2.43 |
| Gardenrs, groundkeepers, exc tarm | 2.73 | 2.69 | 2.08 | . 59 | . 74 | 1.33 | .07 | . 07 | . 06 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 00 | .01 | . 02 |
| Timbercutting, logging workers | . 32 | - 26 | . 14 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 |
| Stock handlers | . 00 | - 00 | . 00 | . 19 | - 18 | - 14 | .04 | . 04 | . 03 |
| Teamsters | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Vehicle wasbers, equip cleaners | . 01 | . 01 | . 01 | . 12 | . 11 | . 07 | .13 | . 11 | . 05 |
| Warehouse laborers, other | . 18 | . 21 | . 18 | . 04 | . 05 | . 17 | - 16 | . 17 | . 25 |
| Other laborers | 21.80 | 15.70 | 13.00 | .79 | .79 | 1.30 | . 94 | .74 | . 56 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Metal } \\ & \text { mining } \end{aligned}$ |  |  | Coal mining |  |  | Crude petroleum. natural gas |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 8.84 | 9.43 | 9.70 | 2.02 | 2. 28 | 2.66 | 18.37 | 19.38 | 21.22 |
| Engineers,technical | 2.55 | 2.61 | 3.15 | . 87 | . 92 | 1.18 | 5.08 | 4.85 | 5.81 |
| Chemical | . 07 | . 07 | .06 | . 02 | . 02 | . 03 | . 31 | . 28 | . 22 |
| Civil | - 14 | . 11 | . 13 | . 08 | . 07 | - 10 | . 29 | . 23 | . 26 |
| Electrical | . 11 | - 11 | . 11 | . 07 | . 06 | . 04 | . 26 | . 25 | . 20 |
| Industrial | -21 | - 24 | . 22 | . 07 | . 09 | - 12 | . 21 | .23 | . 20 |
| Mechanical | . 16 | . 15 | . 13 | . 06 | . 06 | . 05 | . 38 | . 39 | . 44 |
| Metallurgical | . 16 | . 18 | . 16 | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| Mining | 1.61 | 1.67 | 2.25 | - 57 | - 60 | - 83 | . 18 | . 17 | . 20 |
| Petroleum | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | 3.16 | 3.02 | 4.01 |
| Sales | . 01 | .01 | .01 | . 00 | . 00 | . 00 | . 14 | . 12 | . 13 |
| Other engineers | .06 | . 06 | . 07 | . 02 | . 02 | . 02 | - 15 | . 13 | . 12 |
| Life and physical scientists | 2.49 | 2.40 | 2.44 | . 19 | - 20 | . 22 | 4.86 | 4.42 | 5.69 |
| Biological | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 02 |
| Chemists | 1.11 | 1.13 | . 95 | . 15 | - 16 | . 16 | . 40 | . 45 | . 49 |
| Geologists | 1.38 | 1.27 | 1.49 | . 04 | . 04 | . 06 | 4.41 | 3.89 | 5.09 |
| Marine | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 02 | . 04 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 06 |
| Mathematical sfecialists | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 06 | . 07 | . 05 |
| Mathematicians | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 03 | . 03 | .03 |
| Statisticians | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 |
| Engineering, science technicians | 1.57 | 1.72 | 2.00 | . 44 | . 49 | . 60 | 3.15 | 3.31 | 3.67 |
| Agricultural, biolgcl, exc healta | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Chemical technicians | . 14 | . 14 | . 08 | . 00 | . 00 | . 00 | - 58 | . 62 | . 72 |
| Drafters | . 41 | . 37 | . 41 | . 10 | . 09 | . 11 | . 98 | . 90 | 1.00 |
| Electrical and electronic | . 06 | . 08 | . 10 | . 01 | . 01 | . 01 | . 22 | . 26 | . 26 |
| Industrial engineering | . 03 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors | .27 | - 28 | . 30 | . 22 | - 24 | - 27 | . 32 | - 29 | . 20 |
| Other engineering, science tech | . 65 | .79 | 1.05 | - 12 | . 15 | - 20 | 1.04 | 1.22 | 1.48 |
| Medical workers, exc technicians | . 10 | .09 | . 04 | . 01 | .01 | . 01 | . 02 | . 02 | . 04 |
| Physicians and osteopaths | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Registered nurses | . 06 | . 05 | .01 | . 01 | .01 | .01 | . 01 | . 02 | . 04 |
| Health technolcgists,technicians | .01 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Other bealth technicians | . 01 | . 02 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Technicians, except health | . 15 | . 21 | . 23 | . 05 | . 07 | . 07 | . 42 | . 71 | 1.04 |
| Airplane pilots | . 02 | . 03 | . 02 | . 02 | . 03 | . 02 | . 18 | -39 | . 76 |
| Radio operators | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 07 | .09 | . 03 |
| Tool programers,numerical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | . 01 |
| Other technicians ercept health | .11 | . 17 | -21 | . 03 | . 04 | . 05 | . 17 | . 23 | .23 |
| Computer specialists | . 23 | - 30 | . 26 | . 03 | . 04 | . 05 | . 84 | 1.10 | 1.18 |
| Computer programers | . 14 | . 17 | . 14 | . 02 | . 03 | . 03 | . 54 | . 63 | . 66 |
| Computer systers analysts | . 08 | . 13 | . 11 | . 01 | . 02 | . 02 | . 26 | . 41 | . 49 |
| Other computer specialists | . 01 | . 01 | .01 | . 00 | - 00 | . 00 | . 04 | . 06 | . 03 |
| Social scientists | . 02 | . 03 | . 03 | . 01 | . 02 | . 02 | .14 | . 23 | . 21 |
| Economists | . 02 | . 03 | .03 | .01 | . 02 | . 02 | -13 | . 22 | .21 |
| Writers,artists, entertainers | . 06 | . 08 | . 08 | . 00 | . 00 | . 00 | .19 | . 23 | . 19 |
| Designers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 |
| Photographers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Public relations specialists | . 06 | . 08 | . 08 | . 00 | . 00 | . 00 | .13 | .17 | . 15 |

Table 1. Percent distribution of industry employment by occupation, 1970. 1978 and projected 1990

|  | $\begin{aligned} & \text { Metal } \\ & \text { mining } \end{aligned}$ |  |  | $\begin{array}{r} \text { Coal } \\ \text { mining } \end{array}$ |  |  | Crude petroleum, natural gas |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| other professicnal and technical | 1.67 | 1. 96 | 1.43 | . 41 | . 54 | . 52 | 3.62 | 4.44 | 3.34 |
| accountants | 1.05 | 1.21 | . 96 | . 30 | . 36 | - 32 | 2.57 | 3.05 | 2.54 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 02 | . 05 |
| Lawyers | . 11 | - 22 | . 18 | . 02 | . 08 | - 10 | . 41 | . 70 | . 35 |
| Librarians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Operations and systems researca | . 07 | - 10 | . 08 | . 01 | . 02 | . 01 | . 11 | - 15 | - 10 |
| Personnel, lator relations wkis | .31 | . 31 | . 15 | . 05 | . 06 | . 03 | . 37 | - 40 | .25 |
| other research workers | . 13 | . 11 | . 05 | . 02 | . 01 | . 03 | . 13 | - 10 | . 04 |
| Recreation workers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Managers, officials, proprietors | 3.02 | 3.57 | 3.11 | 2.53 | 2.88 | 2.54 | 9.82 | 10.55 | 9.55 |
| Buyers, sales, lcan managers | .53 | . 53 | . 54 | . 26 | . 25 | . 23 | 1.78 | 1.69 | 1.67 |
| Bank, financial managers | . 10 | . 11 | . 09 | . 03 | . 03 | . 02 | . 12 | - 12 | . 06 |
| credit managers | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 06 | . 04 | . 04 |
| purchasing agents, buyers,other | . 37 | . 35 | . 36 | . 19 | . 18 | . 17 | 1.29 | 1.18 | 1.17 |
| Sales manager, exc retail trade | . 06 | .07 | . 08 | . 04 | . 04 | . 05 | . 32 | - 36 | . 40 |
| Other managers, officials, proprts | 2.49 | 3.04 | 2.57 | 2.27 | 2.63 | 2.31 | 8.03 | 8.87 | 7.88 |
| Mgrs, superintendents, buildury | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 02 | . 05 |
| office managers, other | . 21 | . 25 | . 31 | . 11 | . 13 | - 11 | . 49 | - 58 | . 72 |
| officers, pilots, pursers, shif | . 00 | .00 | . 00 | .00 | . 00 | . 00 | . 22 | . 20 | . 20 |
| other managers, administrators | 2.27 | 2. 78 | 2.25 | 2.15 | 2.49 | 2.17 | 7.31 | 8.06 | 6.91 |
| Sales workers | . 13 | - 13 | . 07 | . 11 | - 13 | - 13 | . 69 | . 52 | - 15 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 06 |
| Other sales wcrkers | .13 | . 13 | . 07 | . 11 | . 13 | . 13 | . 69 | - 50 | .09 |
| clerical workers | 5.68 | 5.70 | 5.04 | 3.78 | 3.94 | 3.56 | 13.37 | 13.86 | 12.30 |
| Stenographrs,typists, secretaries | 2.11 | 2.04 | 1.79 | . 76 | . 83 | . 82 | 5.53 | 5.45 | 5.17 |
| Legal secretaries | . 03 | . 03 | . 05 | . 00 | . 00 | . 01 | . 16 | -15 | - 16 |
| other stcretaries | 1.69 | 1.67 | 1.48 | . 61 | . 70 | -69 | 4.37 | 4.50 | 4.37 |
| Stenograpners | .04 | . 02 | . 01 | . 02 | .01 | . 01 | - 29 | . 16 | . 03 |
| Typists | . 35 | . 31 | . 26 | . 13 | . 12 | . 12 | .71 | . 65 | . 60 |
| Office machine operators | .36 | . 41 | . 26 | . 11 | - 15 | - 10 | 1.20 | 1.60 | . 97 |
| Bookkeeping and billing | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 06 | -03 | . 02 |
| Calculating | . 01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 06 | . 04 | . 02 |
| Computer and feripheral equip | . 09 | . 19 | - 12 | . 04 | . 10 | . 07 | . 49 | 1.04 | . 65 |
| Duplicating | . 02 | . 01 | - 01 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| Keypunch | . 21 | . 18 | -11 | . 05 | . 04 | . 03 | . 47 | -38 | . 20 |
| Tabulating | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | .01 | . 01 | . 01 | .01 | . 00 | . 00 | . 07 | . 07 | . 04 |


|  | $\begin{array}{r} \text { Metal } \\ \text { mining } \end{array}$ |  |  | $\begin{array}{r} \text { Coal } \\ \text { mining } \end{array}$ |  |  | Crude petcoleum, natural gas |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 3.21 | 3. 25 | 2.99 | 2.91 | 2.96 | 2.64 | 6.63 | 6.81 | 6.17 |
| Billing clerks | . 08 | - 10 | . 13 | . 06 | . 06 | . 06 | . 12 | . 14 | . 15 |
| Bookkeepers | . 62 | . 60 | . 43 | . 61 | . 63 | - 58 | 2.11 | 2.07 | 1.88 |
| cashiers | . 01 | . 01 | .01 | . 04 | . 05 | . 06 | . 06 | . 07 | . 10 |
| Clerical supervisors, other | .08 | . 09 | . 08 | . 03 | . 04 | . 05 | -21 | . 25 | . 22 |
| Collectors, bill and account | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 |
| Counter clerks, exc food | . 06 | . 07 | . 08 | . 02 | . 03 | . 04 | . 05 | . 05 | . 03 |
| Dispatchers, starters, vehicle | . 06 | . 07 | . 09 | .01 | . 01 | . 01 | . 31 | . 33 | . 34 |
| Enumerators and interviewers | . 00 | - 00 | . 00 | . 01 | -01 | .01 | . 00 | . 00 | . 00 |
| dstimators, investigators, other | . 07 | -09 | . 07 | . 09 | . 11 | - 10 | . 44 | . 52 | .33 |
| Expediters, preduction controirs | . 16 | . 18 | . 17 | . 02 | . 02 | . 03 | . 36 | . 39 | . 39 |
| File clerks | .08 | . 07 | . 06 | . 02 | . 02 | . 02 | -26 | . 23 | . 25 |
| Library attendants, assistants | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Mail handlers,exc post office | . 03 | . 03 | . 03 | . 02 | . 02 | . 03 | . 16 | . 16 | . 11 |
| Messengers and office helpers | . 03 | . 03 | . 02 | .01 | . 01 | - 01 | . 03 | . 04 | . 04 |
| payroll, timekeeping clerks | . 31 | . 38 | -40 | . 18 | - 21 | . 19 | . 24 | - 28 | . 27 |
| heal estate appraisers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Receptionists | . 14 | . 12 | . 06 | . 03 | . 04 | . 05 | - 30 | . 28 | . 17 |
| Shipping and receiving clerks | . 13 | . 14 | - 20 | . 10 | . 08 | . 06 | . 09 | . 10 | . 13 |
| Statistical clerks | . 12 | . 14 | . 13 | . 08 | . 09 | . 06 | . 48 | . 54 | . 48 |
| Stock clerks and store keepers | -65 | . 59 | . 50 | 1.03 | . 95 | . 82 | . 21 | . 18 | . 14 |
| Telephone operators | . 11 | . 08 | . 05 | . 06 | . 05 | . 04 | - 18 | . 13 | . 13 |
| weighers | . 14 | . 15 | . 15 | . 38 | . 40 | . 36 | . 02 | . 01 | .01 |
| Misc clerical workers | .31 | . 33 | - 33 | . 11 | - 12 | . 08 | . 98 | 1.01 | . 99 |
| Crafts and kindred workers | 30.72 | 34.01 | 39.19 | 29.87 | 32.71 | 34.48 | 17.97 | 18.25 | 17.39 |
| Construction crafts workers | 9.61 | 9. 98 | 11.49 | 13.40 | 13.97 | 15.25 | 2.16 | 2.26 | 2.74 |
| Carpenters and apprentices | 1.55 | 1.78 | 1.99 | 3.96 | 4.27 | 3.79 | . 18 | . 21 | . 23 |
| Brick,stonemasons, apprentices | . 17 | -14 | . 04 | . 23 | -19 | . 11 | -01 | . 01 | . 00 |
| 3ullaozer operators | 1.49 | 1.57 | 2.49 | 2.58 | 2.77 | 4.32 | . 27 | . 28 | .43 |
| Cement and concrete finishers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 02 | . 05 |
| Electricians and apprentices | 2.83 | 3. 10 | 3.37 | 3.40 | 3.67 | 3.60 | . 56 | . 65 | . 80 |
| Excavating, grading mach operatr | 2.55 | 2.36 | 2.52 | 3.09 | 2.94 | 3.32 | . 42 | . 38 | . 36 |
| Floor layers, exc tile setters | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Painters and apprentices | . 31 | . 30 | . 24 | . 02 | . 02 | . 02 | . 18 | - 18 | . 15 |
| plumbers, pipefitters, aprentices | . 73 | . 73 | . 83 | . 07 | . 07 | . 07 | . 48 | - 52 | . 69 |
| Roofers and slaters | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | .00 | . 00 | . 00 |
| structural metal craft workers | .00 | . 00 | .00 | . 02 | . 01 | . 02 | .03 | . 02 | . 01 |
| Blue collar worker supervisors | 6.26 | 6.93 | 6.36 | 6.06 | 6.81 | 6.49 | 5.31 | 6.04 | 6.09 |
| Metalworkg craft wrkrs,exc meci | 2.65 | 3.17 | 4.79 | . 71 | . 86 | 1.19 | . 54 | . 70 | 1.19 |
| Blacksmiths | - 16 | . 09 | . 01 | . 05 | . 03 | .00 | . 02 | . 02 | . 00 |
| Boilermakers | -34 | . 28 | . 15 | . 02 | . 03 | . 04 | . 06 | . 06 | . 09 |
| Porge and hammer operators | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Machinists and apprentices | 1.44 | 1.88 | 3.21 | . 57 | . 70 | 1.01 | . 39 | . 54 | . 96 |
| Millwrights | . 56 | . 78 | 1.22 | . 04 | . 06 | .09 | . 02 | . 03 | . 06 |
| Rollers and finishers,metal | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 11 | - 12 | . 19 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Tool and diemakers, apprentices | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 |
| Mechanics, repairers,installers | 8.90 | 10.89 | 13.78 | 7.17 | 8.54 | 9.18 | 3.34 | 3.94 | 4.37 |
| Air cond, heating, refrig mecu | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 09 | .13 | . 13 |
| Aircraft mechanics | . 01 | . 03 | . 08 | . 00 | . 00 | . 00 | . 04 | . 05 | . 09 |
| Auto body repairers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Auto mecbanics and apprentices | 1.50 | 1.43 | 1.27 | . 46 | -43 | .33 | . 52 | . 48 | . 38 |
| Data processing mach repairers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Heavy eguip mech, incl diesel | 6.35 | 8.27 | 11.19 | 6.17 | 7.53 | 8.41 | 2.18 | 2.75 | 3.39 |
| Radio, television repairers | . 00 | . 00 | - 00 | . 03 | . 02 | . 01 | . 04 | . 04 | . 03 |
| Hailroad, car shop repairers | .27 | . 34 | . 52 | . 04 | . 05 | . 04 | . 00 | -00 | . 00 |
| Other mechanics and apprentices | .73 | . 79 | .71 | . 48 | - 51 | . 38 | . 46 | . 47 | . 32 |
| Printing trade crafts workers | . 04 | . 05 | . 07 | . 00 | . 00 | . 00 | . 07 | . 08 | . 08 |
| Compositors and typesetters | . 04 | . 05 | . 07 | . 00 | . 00 | .00 | . 03 | . 04 | . 04 |
| Press.plate printers, aprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 03 |
| Transport, public util craft wkrs | -43 | . 53 | . 39 | . 06 | . 07 | . 05 | . 09 | . 09 | . 08 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 04 | .00 |
| Locomotive engineers | . 31 | . 39 | -21 | . 05 | . 06 | . 04 | . 00 | . 00 | . 00 |
| Locomotive engineers' helpers | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Power station operators | . 11 | . 13 | .17 | . 01 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .01 | . 02 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{array}{r} \text { Metal } \\ \text { mining } \end{array}$ |  |  | $\begin{array}{r} \text { Coal } \\ \text { mining } \end{array}$ |  |  | Crude petroleum. natural gas |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 2.83 | 2.47 | 2.32 | 2.47 | 2.47 | 2.31 | 6.46 | 5.13 | 2.85 |
| crane,derrick, hoist operator | 1.79 | 1.53 | 1.79 | . 48 | . 41 | . 46 | . 50 | . 48 | . 75 |
| Inspectors, other | . 36 | . 37 | . 20 | . 80 | . 98 | 1.02 | . 48 | . 58 | . 60 |
| Stationary engineers | . 57 | - 46 | . 24 | 1.17 | 1.06 | . 84 | 5.41 | 4.00 | 1.43 |
| other crafts workers | . 11 | . 11 | . 09 | . 02 | . 01 | .01 | . 06 | . 07 | . 08 |
| operatives | 43.94 | 39.64 | 35.68 | 52.51 | 49.53 | 50.37 | 36.51 | 34.39 | 36.98 |
| Operatives, except transport | 37.17 | 32.24 | 25.06 | 44.03 | 40.91 | 41.03 | 32.95 | 30.65 | 32.07 |
| Semiskilled metalworking | 3.35 | 3.81 | 4.74 | 1.79 | 1.87 | 1.57 | 1.43 | 1.54 | 1.82 |
| Purnace tendrs,smeltrs, pourers | . 23 | . 24 | . 20 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine operatives | - 13 | - 11 | . 09 | . 04 | . 02 | . 02 | . 21 | . 17 | . 11 |
| Heaters, metal | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lathe, milling mach operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 04 | . 02 |
| other precision mach operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Welders and flamecutters | 2.97 | 3.45 | 4.42 | 1.75 | 1.84 | 1.55 | 1.15 | 1.32 | 1.68 |
| Other operatives, exc transport | 33.82 | 28.43 | 20.32 | 42.24 | 39.05 | 39.46 | 31.52 | 29.11 | 30.25 |
| Assemblers | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | - 11 | . 15 | . 26 |
| Blasters | .71 | . 73 | . 82 | 1.24 | 1.27 | 1.06 | . 25 | . 23 | . 19 |
| Surveyors' helpers | . 10 | . 11 | . 16 | .13 | . 16 | . 23 | . 06 | . 06 | . 06 |
| Cutting operatives, other | . 05 | . 06 | . 09 | 2.66 | 2.85 | 2.71 | . 07 | . 08 | . 08 |
| Drillers, earth | 4.08 | 3.92 | 2.84 | 2.46 | 2.21 | 1.33 | 5.73 | 5.96 | 6.74 |
| Garage wrkr,gas station atten | . 14 | . 10 | . 07 | . 00 | . 00 | . 00 | . 05 | . 03 | . 02 |
| Meat cutters, tutchers, exc mfy | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Mine operatives,other | 27.17 | 21.94 | 14.69 | 34.16 | 30.97 | 32.69 | 24.57 | 21.88 | 22.03 |
| mixing operatives | . 02 | . 02 | . 03 | . 04 | . 05 | . 07 | . 04 | . 04 | . 04 |
| Oilers,greasers, exc automobiles | 1.13 | 1.17 | 1.11 | 1.35 | 1.39 | 1.25 | . 35 | . 40 | . 52 |
| Photographic frocess workers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 11 | . 11 | . 18 |
| Sawyers | . 06 | . 06 | . 04 | . 07 | . 07 | . 06 | . 02 | . 02 | . 05 |
| Furnace tendr,stokr,exc metal | . 33 | . 28 | . 44 | . 07 | . 04 | .01 | . 08 | . 06 | . 08 |
| Winding operatives, other | -00 | - 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 01 | .00 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| other operatives, exc transport | . 03 | . 03 | . 03 | . 01 | . 01 | .01 | . 01 | .01 | . 00 |
| Transport equifment operatives | 6.78 | 7.40 | 10.63 | 8.48 | 8.62 | 9.34 | 3.56 | 3.75 | 4.92 |
| Boat operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 10 | . 09 | . 07 |
| Delivery and route workers | . 04 | . 04 | . 05 | . 13 | . 12 | . 11 | . 18 | . 17 | . 17 |
| Fork lift,tov motor oferatives | . 30 | . 38 | . 44 | . 37 | . 48 | . 57 | . 07 | . 09 | . 10 |
| Rail vehicle cperators, other | 1.08 | 1.00 | . 70 | 3.45 | 3.24 | 2.25 | . 29 | .23 | . 08 |
| Railroad brake operators | . 06 | . 08 | . 15 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 |
| Taxicab drivers, chauffeurs | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| Truck drivers | 5.24 | 5.83 | 9.25 | 4.53 | 4.77 | 6.42 | 2.87 | 3.11 | 4.45 |
| Service workers | 2.36 | 2.22 | 1.64 | .99 | . 94 | . 70 | 1.24 | 1.17 | . 95 |
| Cleaning service workers | 1.54 | 1.48 | 1.13 | . 60 | . 56 | . 36 | . 82 | .77 | . 51 |
| Bldg interior cleaners, other | . 14 | . 14 | . 09 | . 08 | . 08 | . 04 | - 12 | . 11 | - 05 |
| Janitors and sextons | 1.40 | 1.34 | 1.05 | . 52 | . 48 | . 31 | . 71 | . 66 | . 46 |
| Pood service workers | . 05 | . 05 | . 04 | . 01 | .01 | .00 | -28 | . 25 | . 29 |
| Bartenders | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Cooks, exc private households | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 20 | .16 | . 13 |
| Dishwashers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 08 |
| Waiters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 |
| Other food serv wkrs, exc privt | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Health service workers | . 05 | . 04 | . 08 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | .03 | . 02 | . 05 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| practical nurses | .02 | .01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |

Table 1. Fercent distribution of inaustry emplopment by occupation, 1970, 1978 and projected 1990

|  | $\begin{array}{r} \text { Metal } \\ \text { mining } \end{array}$ |  |  | $\begin{array}{r} \text { Coal } \\ \text { mining } \end{array}$ |  |  | Crude petroleum, natural g̣as |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 07 | . 09 | . 13 | . 03 | . 03 | . 03 | .01 | . 02 | . 04 |
| Attendants, personal serv,other | .00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| Elevator operators | . 07 | .09 | .13 | . 02 | . 02 | . 02 | . 01 | . 02 | . 04 |
| Protective service workers | -66 | . 57 | . 25 | . 36 | - 34 | - 31 | . 12 | - 13 | . 11 |
| Firefighters | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 | . 02 |
| guards | . 65 | . 56 | . 24 | . 34 | . 33 | . 29 | . 11 | . 11 | . 09 |
| Police and detectives | .01 | . 01 | . 01 | -01 | . 01 | . 01 | .01 | .01 | . 00 |
| Laborers, except farm | 5.31 | 5.31 | 5.57 | 8.19 | 7.61 | 5.56 | 2.03 | 1.88 | 1.47 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 02 | . 02 | .01 |
| Carpenter helfers | . 21 | . 21 | - 33 | . 05 | . 05 | . 05 | . 03 | . 03 | . 05 |
| Constr labr,exc carpenter helpr | . 85 | -81 | . 71 | . 61 | . 51 | . 28 | .75 | . 62 | -28 |
| Freight and material handlers | 1.96 | 2.03 | 2.16 | 5.63 | 5.45 | 4.14 | . 56 | . 57 | . 56 |
| Gardenrs, groundkeepers, exc farn | . 08 | . 08 | . 08 | . 03 | . 03 | . 03 | . 07 | . 07 | . 07 |
| Longshore workers, stevedores | .00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 02 | . 05 |
| Timbercutting, logging workers | . 00 | . 00 | .00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Stock handlers | . 05 | . 07 | . 08 | . 02 | . 03 | . 02 | . 02 | . 02 | . 02 |
| Teamsters | . 01 | . 01 | . 02 | . 01 | . 01 | .01 | .01 | .01 | . 03 |
| Vehicle washers,equip cleaners | . 22 | - 22 | . 13 | . 08 | . 08 | . 05 | . 10 | . 09 | . 03 |
| Harehouse labcrers, other | . 47 | . 55 | . 90 | . 02 | . 02 | . 02 | . 16 | . 18 | . 27 |
| Other laborers | 1.46 | 1.33 | 1.16 | 1.72 | 1.40 | . 95 | .31 | . 25 | - 12 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Nonmetallic mining and quarrying |  |  | constructn |  |  | $\begin{gathered} \text { General } \\ \text { building } \\ \text { contractors } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.12 | 4.49 | 4.51 | 4.12 | 3.39 | 3.73 | 2.04 | 1.81 | 2.02 |
| Engineers, technical | 1.17 | 1. 15 | 1.31 | 1.96 | 1.39 | 1.51 | .93 | . 69 | . 73 |
| Chemical | - 14 | . 14 | . 15 | . 02 | - 02 | . 02 | . 01 | . 01 | . 01 |
| Civil | . 13 | . 10 | .11 | 1.53 | . 98 | 1.03 | . 72 | . 49 | . 48 |
| Electiical | . 07 | . 07 | .05 | - 13 | . 12 | . 14 | . 05 | . 04 | . 05 |
| fndustrial | . 14 | . 15 | . 12 | . 05 | . 06 | . 08 | . 04 | . 05 | . 07 |
| Mechanical | - 14 | . 13 | . 12 | . 13 | . 12 | . 14 | . 08 | . 07 | . 08 |
| Metallurgical | . 02 | . 02 | . 02 | . 00 | - 00 | . 01 | . 00 | . 00 | . 00 |
| Mining | . 45 | . 46 | . 63 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Sales | . 05 | . 04 | . 05 | . 03 | . 03 | . 02 | . 02 | . 01 | . 01 |
| Other engineers | . 05 | . 05 | . 06 | . 06 | . 05 | . 08 | . 02 | . 02 | . 03 |
| Life and physical scientists | . 53 | . 53 | . 60 | . 04 | . 04 | . 05 | . 00 | . 01 | . 02 |
| agricultural | . 01 | . 01 | . 02 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Biological | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 00 | . 01 | . 02 |
| Chemists | . 28 | . 28 | . 24 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Geologists | . 25 | . 24 | . 35 | . 02 | . 01 | . 02 | . 00 | .00 | .00 |
| Engineering, science technicians | 1.06 | 1. 14 | 1.16 | 1.24 | 1.00 | 1.18 | . 40 | . 33 | . 41 |
| Agricultural, biolycl, exc health | . 01 | . 01 | . 01 | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Chemical technicians | . 16 | . 18 | . 17 | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Drafters | . 17 | . 15 | .16 | . 46 | . 36 | . 45 | . 28 | . 23 | . 28 |
| Electrical and electronic | . 02 | . 01 | .01 | . 04 | . 05 | . 08 | . 01 | . 01 | . 03 |
| Industrial engineering | . 06 | . 08 | . 10 | . 00 | . 00 | - 00 | . 00 | . 00 | - 00 |
| Mechanical engineering | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors. | . 11 | . 12 | . 13 | . 42 | . 30 | . 26 | . 09 | . 06 | . 04 |
| Other engineering, science tech | . 54 | . 59 | . 57 | . 25 | . 23 | . 33 | . 02 | . 03 | . 06 |
| Technicians, except health | . 16 | . 23 | . 28 | . 07 | . 08 | . 09 | . 02 | . 02 | . 03 |
| Airplane pilots | . 03 | . 06 | . 09 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Radio operators | -01 | . 01 | . 01 | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Other technicians except healta | . 11 | - 16 | . 17 | . 03 | . 04 | . 06 | . 01 | .01 | . 02 |
| Computer specialists | . 11 | . 14 | . 10 | . 06 | . 07 | . 07 | . 03 | . 03 | . 05 |
| computer programers | . 08 | . 09 | . 06 | . 04 | . 04 | . 05 | . 02 | . 02 | .03 |
| Computer systems analysts | . 03 | . 04 | . 03 | . 01 | . 02 | . 02 | . 01 | . 01 | . 02 |
| other computer specialists | .01 | . 01 | .01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Social scientists | .00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Economists | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 02 | . 02 |
| Mriters, artists, entertainers | - 10 | - 11 | . 07 | . 18 | . 22 | . 24 | -13 | - 15 | . 15 |
| Designers | . 02 | . 02 | . 00 | . 13 | - 15 | - 16 | . 09 | .11 | . 11 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Photographers | . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Public relations specialists | . 08 | .09 | . 07 | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 |
| Other professicnal and technical | - 99 | 1. 18 | 1.00 | . 54 | - 57 | - 58 | . 52 | - 55 | -62 |
| Accountants | .72 | . 85 | . 77 | - 35 | - 39 | . 42 | . 34 | - 37 | -41 |
| architects | . 00 | . 00 | . 00 | . 05 | . 04 | . 06 | -10 | . 09 | - 12 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | .03 | . 04 | . 01 | . 03 | . 03 | . 01 | . 01 | . 02 | . 01 |
| operations and systems research | . 02 | - 05 | . 06 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Personnel, labcr relations wkrs | - 19 | - 20 | . 12 | . 07 | . 07 | . 06 | . 05 | . 05 | . 04 |
| Other research workers | . 04 | . 04 | . 04 | .01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Recreation workers | .00 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 |
| Managers, officials, proprietors | 7.70 | 9.40 | 9.16 | 9.93 | 12.50 | 9.74 | 16.19 | 22.15 | 13.31 |
| Buyers, sales, lcan managers | . 65 | . 64 | . 64 | . 36 | . 36 | . 54 | . 32 | - 30 | . 38 |
| Bank,financial managers | - 10 | . 10 | . 06 | . 04 | . 04 | . 04 | . 06 | . 05 | . 05 |
| Credit managers | . 05 | . 03 | . 04 | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Purchasing agents, buyers, other | . 31 | - 30 | . 32 | . 26 | . 24 | -39 | . 15 | -14 | . 21 |
| Sales manager, exc retail trade | . 19 | . 21 | .22 | . 06 | . 08 | . 12 | .10 | . 11 | . 13 |
| Administrators, public inspectors | . 00 | . 00 | . 00 | . 08 | . 09 | . 08 | . 00 | -00 | . 00 |
| officials,administrators, public | . 00 | . 00 | . 00 | . 08 | . 09 | . 08 | .00 | .00 | . 00 |


|  | Nonmetallic mining and quarrying |  |  | Constructn |  |  | General building contractors |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers,officials, proprts | 7.05 | 8.77 | 8.51 | 9.49 | 12.06 | 9.12 | 15.88 | 21.85 | 12.93 |
| Mgrs, superintendents, buildiny | . 00 | . 00 | . 00 | . 02 | .03 | . 04 | . 06 | . 09 | . 13 |
| Office managers, other | . 49 | . 54 | . 57 | . 29 | . 31 | . 41 | -23 | . 24 | . 31 |
| officers, pilots, pursers,ship | . 13 | . 12 | . 13 | . 03 | -03 | . 05 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,managers | .01 | .01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 6.42 | 8.09 | 7.80 | 9.15 | 11.68 | 8.62 | 15.57 | 21.52 | 12.48 |
| Sales workers | . 67 | . 73 | . 65 | . 39 | . 44 | . 66 | . 60 | . 58 | . 56 |
| Advertising agents, sales worker | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales ucrkers | . 66 | . 72 | . 64 | . 39 | . 44 | . 66 | . 59 | . 58 | - 56 |
| Clerical workers | 7.67 | 7.81 | 7.19 | 5.79 | 5.88 | 6.15 | 4.88 | 4.77 | 4.83 |
| Stenographrs,typists, secretaries | 2.05 | 1.99 | 1.79 | 1.93 | 1.84 | 1.99 | 1.75 | 1.58 | 1.60 |
| Legal secretaries | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other secretaries | 1.78 | 1.77 | 1.62 | 1.55 | 1.56 | 1.70 | 1.58 | 1.45 | 1.47 |
| Stenographers | . 04 | . 02 | . 01 | . 07 | . 03 | . 01 | . 02 | .01 | . 00 |
| Typists | .23 | . 20 | . 15 | -30 | . 25 | . 28 | . 14 | . 12 | . 13 |
| Office machine operators | . 27 | . 36 | . 24 | .13 | .13 | . 12 | . 07 | . 07 | . 06 |
| Bookkeeping ard billing | . 03 | . 02 | . 01 | . 02 | .01 | . 01 | . 02 | .01 | . 02 |
| Computer and feripheral equip | .11 | . 24 | .17 | .03 | . 06 | . 06 | . 01 | . 03 | . 02 |
| Keypunch | . 12 | . 10 | . 06 | . 06 | . 04 | . 04 | . 04 | . 03 | . 02 |
| Other clerical workers | 5.35 | 5.46 | 5.15 | 3.74 | 3.91 | 4.03 | 3.06 | 3.12 | 3.17 |
| Billing clerks | . 12 | . 13 | . 15 | . 03 | . 04 | . 06 | . 02 | . 02 | . 04 |
| Bookkeepers | 1.84 | 1.83 | 1.64 | 1.35 | 1.32 | 1.08 | 1.15 | 1.05 | . 91 |
| Cashiers | . 04 | . 06 | . 11 | . 16 | . 14 | . 25 | . 01 | . 01 | . 02 |
| clerical supervisors, other | . 04 | . 05 | . 08 | . 05 | . 05 | . 06 | . 03 | . 04 | . 05 |
| collectors, bill and account | . 02 | . 01 | -01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Counter clerks, exc food | . 06 | . 06 | . 07 | . 02 | . 02 | .03 | . 01 | . 01 | . 02 |
| Dispatchers, starters, vehicle | . 42 | - 44 | . 45 | . 03 | . 04 | . 06 | . 01 | . 01 | . 01 |
| Estimators, investigators,other | . 13 | . 15 | -11 | . 86 | 1.06 | . 95 | . 88 | 1.06 | . 99 |
| Expediters, prcduction controirs | - 16 | - 17 | -15 | . 09 | . 10 | . 16 | . 09 | . 10 | . 15 |
| File clerks | . 07 | . 06 | . 06 | . 06 | . 05 | . 06 | . 04 | .03 | . 04 |
| Mail handlers.exc fost office | .05 | . 06 | . 06 | . 03 | . 03 | . 03 | -02 | . 02 | . 03 |
| messengers and office helpers | . 01 | . 01 | . 01 | - 02 | . 02 | . 02 | - 02 | . 02 | .03 |
| payroll,timekeeping clerks | . 27 | . 30 | . 24 | . 24 | - 26 | . 27 | . 21 | . 22 | . 23 |
| Real estate afpraisers | . 00 | . 00 | - 00 | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Receptionists | . 07 | . 07 | . 06 | . 12 | . 11 | .11 | . 14 | . 13 | . 13 |
| Shipping and receiving clerks | . 20 | . 18 | - 14 | . 04 | . 04 | . 05 | . 03 | . 03 | . 04 |
| Statistical clerks | . 12 | . 15 | - 16 | .08 | . 08 | . 10 | . 03 | . 03 | . 04 |
| Stock clerks and store keepers | . 38 | . 34 | . 27 | . 14 | . 13 | . 19 | . 06 | . 05 | . 08 |
| Telephone operators | .11 | . 09 | . 10 | . 03 | . 02 | . 02 | . 03 | . 02 | . 01 |
| weighers | . 96 | . 99 | . 93 | .03 | . 03 | . 05 | . 01 | . 01 | . 01 |
| Misc clerical workers | - 30 | . 33 | . 37 | .32 | . 33 | - 42 | . 28 | . 28 | . 34 |
| Crafts and kindred workers | 27.31 | 28. 36 | 31.09 | 53.46 | 53.82 | 55.80 | 52.28 | 50.41 | 55.34 |
| Construction crafts workers | 11.09 | 10.67 | 11.94 | 44.08 | 44.03 | 45.11 | 47.90 | 46.05 | 50.12 |
| Carpenters and apprentices | . 71 | . 76 | . 70 | 15.32 | 15.67 | 15.18 | 36.20 | 35.44 | 35.94 |
| Brick,stonemasons, apprentices | . 11 | . 09 | . 05 | 3.23 | 3.05 | 2.91 | 3.82 | 3.37 | 3.78 |
| Bulldozer operators | 2.05 | 2.02 | 2.69 | 1.08 | 1.11 | 1.52 | . 37 | . 39 | . 62 |
| cement and concrete finishers | .00 | . 00 | . 01 | 1.29 | 1.29 | 1.47 | 1.32 | 1.20 | 1.47 |
| Electricians and apprentices | . 96 | . 99 | . 90 | 4.24 | 4.75 | 5.24 | -62 | . 64 | . 91 |
| Excavating.grading mach operatr | 6.93 | 6.51 | 7.38 | 4.82 | 4.13 | 4.83 | 1.16 | 1.05 | 1.72 |
| Floor layers, exc tile setters | . 00 | . 00 | . 00 | . 31 | . 23 | . 20 | . 10 | . 08 | . 08 |
| Painters and apprentices | . 21 | . 19 | . 13 | 5.51 | 5.30 | 5.10 | 1.42 | 1.31 | 2.13 |
| Paperhangers | . 00 | . 00 | . 00 | . 19 | . 31 | . 30 | . 02 | . 04 | . 03 |
| plasterers and apprentices | . 00 | . 00 | . 00 | . 55 | . 43 | . 38 | . 32 | . 26 | . 42 |
| Plumbers, pipefitters, aprentices | . 13 | . 11 | . 06 | 4.62 | 4.50 | 4.34 | 1.01 | . 90 | 1.35 |
| Roofers and slaters | . 00 | . 00 | . 00 | 1.31 | 1.89 | 1.99 | . 32 | . 45 | . 57 |
| Structural metal craft workers | .00 | .00 | . 00 | 1.09 | . 92 | 1.11 | 1.12 | .81 | . 91 |
| Tile setters | . 00 | . 00 | . 01 | . 51 | . 45 | . 55 | . 12 | . 12 | . 19 |
| Blue collar worker supervisors | 5.38 | 6.05 | 6.04 | 2.72 | 2.78 | 2.60 | 2.31 | 2.38 | 2.51 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Nonmetallic mining and quarrying |  |  | Constructn |  |  | General building contractors |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Metalworkg craft urkrs, exc mech | . 85 | . 92 | 1.03 | 1.45 | 1.41 | 1.76 | .47 | .43 | . 55 |
| Blacksmiths | . 04 | . 02 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | .01 | . 01 | .01 | . 10 | - 10 | . 11 | . 06 | . 05 | . 06 |
| Forge and hammer operators | . 02 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Machinists and apprentices | . 56 | . 64 | . 81 | .09 | - 10 | . 15 | . 03 | . 04 | . 06 |
| Millurights | . 19 | - 21 | . 17 | .12 | . 14 | . 17 | . 15 | . 16 | . 20 |
| Sheetmetal workers, apprentices | . 00 | . 00 | .00 | 1.12 | 1.07 | 1.33 | .21 | . 18 | . 23 |
| tool and diemakers, apprentices | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Mechanics, repairers,installers | 5.82 | 6.83 | 7.99 | 2.52 | 2.97 | 3.43 | . 47 | . 54 | . 88 |
| air cond, heating, refrig mech | . 01 | . 01 | . 03 | . 79 | 1. 11 | 1. 10 | . 04 | . 06 | . 08 |
| auto mechanics and apprentices | 1.37 | 1.27 | 1.04 | -43 | . 36 | . 35 | . 08 | . 07 | . 11 |
| Heavy equip mech, incl diesel | 4.14 | 5.26 | 6.70 | - 99 | 1. 17 | 1.54 | . 30 | . 36 | . 63 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 18 | . 20 | . 27 | . 02 | . 03 | . 03 |
| Radio, television repairers | . 04 | . 04 | . 07 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Railroad, car shop repairers | . 02 | - 02 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 24 | . 23 | . 12 | . 10 | . 11 | . 15 | . 02 | . 02 | . 03 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | . 03 | . 02 | . 03 |
| compositors and typesetters | . 00 | .00 | .00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 |
| Transport, public util craft *krs | . 21 | - 34 | . 50 | . 44 | . 44 | . 37 | . 05 | . 05 | . 06 |
| Elec pur line instaler, repairer | .00 | . 00 | . 00 | . 32 | . 32 | . 28 | . 03 | . 04 | . 05 |
| Locomotive engineers | . 20 | . 33 | . 48 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Locomotive engineers' helpers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | .00 | . 00 | . 00 | . 09 | . 09 | . 08 | . 01 | . 01 | . 02 |
| Telephone line instalr,splicers | .00 | . 00 | .00 | . 02 | . 02 | . 02 | . 00 | .00 | . 00 |
| Other crafts, kindred workers | 3.97 | 3.55 | 3.58 | 2.22 | 2. 16 | 2.50 | 1.06 | . 93 | 1. 19 |
| Cabinetmakers | .01 | . 01 | . 01 | . 09 | . 08 | . 05 | . 21 | . 19 | . 12 |
| Carpet installers | . 00 | . 00 | . 00 | . 48 | - 58 | . 66 | . 03 | . 04 | . 09 |
| crane, derrick, hoist operator | 2.38 | 2.07 | 2.62 | . 57 | . 45 | . 55 | . 52 | - 41 | . 59 |
| Decorators, vindow dressers | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| glaziers | . 01 | . 01 | . 01 | . 12 | . 16 | . 29 | . 02 | .03 | . 08 |
| Inspectors, other | . 24 | - 26 | - 19 | . 61 | . 55 | . 56 | - 12 | . 12 | - 12 |
| Sign painters and letterers | . 00 | . 00 | .00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Stationary engineers | . 79 | . 68 | . 45 | . 10 | . 06 | . 02 | . 06 | . 04 | . 01 |
| Stone cutters, stone carvers | . 48 | . 44 | . 21 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 |
| Other crafts workers | . 07 | . 08 | . 08 | . 23 | . 24 | .31 | . 09 | - 10 | . 17 |
| Operatives | 41.90 | 38.90 | 38.35 | 7.99 | 8.58 | 9.00 | 3.60 | 4.18 | 5.26 |
| Operatives, except transport | 27.07 | 23. 12 | 17.00 | 4.20 | 5.39 | 6.27 | 2.36 | 3.11 | 4.20 |
| Semiskilled metalworking | 2.77 | 2.88 | 2.94 | 1.18 | 1.40 | 2.22 | . 68 | . 80 | 1.48 |
| Drill press oferatives | .06 | . 03 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine operatives | . 08 | . 06 | . 04 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Lathe,milling mach operatives | . 09 | - 07 | . 05 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other precision mach operators | .03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| welders and flamecutters | 2.52 | 2. 70 | 2.84 | 1.14 | 1.36 | 2.17 | . 68 | . 80 | 1.48 |
| Semiskilled packing, inspectiny | . 35 | $.31$ | $.20$ | .00 | . 00 | .00 | . 00 | . 00 | .00 |
| Packer,wrapper,exc meat, prodce | . 35 | . 31 | . 20 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |

Table 1. Percent distrifution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Nonmetallic mining and quarrying |  |  | Constructn |  |  | General building contractors |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 23.95 | 19.93 | 13.85 | 3.02 | 4.00 | 4.05 | 1.68 | 2.31 | 2.72 |
| Asbestos, insulation workers | . 00 | . 00 | . 03 | . 42 | . 67 | . 78 | . 09 | . 13 | . 18 |
| Assemblers | . 00 | . 00 | . 00 | . 05 | . 07 | . 12 | .03 | . 04 | . 07 |
| Blasters | . 53 | . 55 | . 64 | . 03 | . 03 | .03 | . 01 | .01 | .01 |
| Surveyors' helpers | . 00 | . 00 | . 00 | . 08 | . 07 | . 07 | . 06 | . 05 | . 05 |
| Cutting operatives, other | . 45 | . 49 | . 51 | . 04 | . 04 | . 07 | . 03 | .03 | . 05 |
| Drillers, earth | 2.58 | 2.36 | 1.43 | .41 | . 40 | . 32 | . 03 | . 04 | . 06 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | . 99 | 1.76 | 1.80 | . 92 | 1.50 | 1.65 |
| Filer, polisher, sander, buf fer | . 14 | . 12 | . 06 | . 01 | . 02 | . 03 | .01 | .01 | . 03 |
| Garage wrkr,gas station atten | . 01 | . 01 | . 01 | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Mine operatives,other | 18.46 | 14.72 | 9.68 | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Mixing operatives | . 12 | . 13 | -15 | . 01 | .01 | . 03 | .01 | . 01 | . 03 |
| oilers,greasers,exc automobiles | . 97 | . 93 | . 69 | . 17 | . 14 | .07 | . 10 | . 08 | . 04 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Riveters and fasteners | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 01 | .01 | . 03 |
| Sailors and deckhands | . 09 | . 07 | . 06 | -05 | . 02 | . 00 | .00 | . 00 | . 00 |
| Sayyers | . 28 | . 30 | .31 | . 04 | . 04 | . 03 | . 05 | . 05 | . 05 |
| Furnace tendr,stokr,exc metal | . 31 | . 24 | . 29 | . 02 | . 01 | . 01 | . 01 | . 01 | .01 |
| Winding operatives, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | .00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | . 21 | . 22 | . 19 | .16 | . 17 | . 23 |
| other operatives, exc transport | .00 | . 00 | . 00 | . 43 | .46 | . 43 | .16 | . 18 | . 24 |
| Transport equifment operatives | 14.83 | 15.78 | 21.35 | 3.79 | 3.19 | 2.73 | 1.24 | 1.07 | 1.06 |
| Boat operators | .06 | . 06 | . 07 | .01 | .01 | .01 | .00 | .00 | . 00 |
| Delivery and route workers | . 02 | . 63 | . 87 | .11 | . 10 | . 12 | . 08 | . 06 | . 08 |
| Fork lift,tow motor operatives | .75 | . 90 | . 92 | . 11 | . 14 | . 20 | . 14 | . 17 | . 23 |
| Rail vehicle operators, other | . 18 | . 17 | . 14 | .00 | . 01 | . 01 | .00 | .00 | . 00 |
| Railroad brake operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Truck drivers | 13.20 | 13.99 | 19.34 | 3.52 | 2.91 | 2.38 | 1.01 | . 82 | . 75 |
| Service workers | 1.83 | 1.68 | 1.08 | . 81 | .67 | . 65 | . 73 | . 60 | . 46 |
| Cleaning service workers | 1.05 | . 97 | . 63 | .51 | . 44 | .41 | . 55 | . 46 | . 34 |
| Bldg interior cleaners, other | .11 | - 12 | -10 | . 10 | . 10 | . 11 | . 17 | . 16 | .15 |
| Janitors and sextons | . 94 | . 85 | . 52 | .41 | . 34 | . 30 | .38 | . 30 | . 19 |
| Food service workers | . 07 | . 05 | . 04 | . 03 | . 02 | . 02 | . 02 | . 02 | . 01 |
| Cooks, exc private households | . 06 | . 03 | . 01 | .01 | . 01 | . 01 | .01 | .00 | .00 |
| Dishwashers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Haiters | . 01 | . 01 | . 01 | . 01 | .01 | .01 | .01 | . 01 | .01 |
| Other food serv wkrs,exc privt | .01 | . 01 | - 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 02 | . 02 | .01 | . 02 | . 02 | . 02 | . 06 | . 04 | . 03 |
| Elevator operators | . 02 | . 02 | .01 | . 01 | . 01 | .01 | . 04 | . 03 | -01 |
| Housekeepers, exc private homes | . 00 | . 00 | .00 | . 01 | . 00 | .01 | . 02 | . 02 | . 02 |
| Protective service workers | . 69 | . 65 | -41 | . 25 | - 20 | .21 | . 10 | . 09 | . 08 |
| Crossing guards,bridgetenders | . 00 | . 00 | . 00 | . 07 | . 05 | . 07 | .00 | .00 | . 00 |
| rirefighters | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Guards | . 67 | . 63 | . 39 | . 16 | . 14 | . 14 | .10 | .09 | . 08 |
| Police and detectives | . 02 | . 01 | . 01 | . 02 | . 01 | .00 | .00 | . 00 | .00 |
| Laborers, except farm | 8.79 | 8.62 | 7.99 | 17.51 | 14.71 | 14.28 | 19.69 | 15.50 | 18.23 |
| Carpenter helfers | . 13 | . 13 | . 20 | 1.96 | 1.29 | . 80 | 5.67 | 3.33 | 1.46 |
| Constr labr, exc carpenter helpr | 1.38 | 1.28 | 1.00 | 14.85 | 12.71 | 12.68 | 13.63 | 11.75 | 16.22 |
| Freight and material handlers | 5.72 | 5.76 | 5.56 | . 29 | - 28 | .31 | . 21 | . 21 | . 30 |
| Garbage collectors | . 01 | . 01 | . 02 | -01 | . 01 | . 02 | .00 | .00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 12 | - 13 | . 14 | . 29 | . 30 | . 34 | . 12 | . 15 | . 19 |
| Timbercutting, logging workers | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 00 | -00 | . 00 |
| Stock handlers | . 09 | . 09 | . 06 | . 02 | . 03 | . 04 | .01 | .01 | . 02 |
| Vehicle washers, equip cleaners | . 17 | . 18 | . 11 | . 03 | . 03 | . 04 | . 01 | . 01 | . 02 |
| Warehouse labcrers, other | . 09 | - 11 | . 18 | .05 | . 05 | . 04 | .03 | . 02 | . 02 |
| Other laborers | 1.06 | . 93 | .71 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |


|  | General contractors ex building |  |  | Special trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 10.15 | 8.83 | 9.04 | 1.28 | 1.27 | 1.50 | 9.44 | 9.92 | 9.66 |
| Engineers, techrical | 4.92 | 3.72 | 3.78 | . 56 | . 49 | . 58 | 3.05 | 2.81 | 2.75 |
| Aeronautical | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 27 | . 23 | . 22 |
| Chemical | . 06 | . 07 | . 05 | . 00 | . 00 | . 00 | . 21 | . 20 | . 20 |
| Civil | 4.19 | 2.98 | 2.98 | -22 | . 16 | .17 | .07 | . 05 | . 04 |
| Electrical | . 19 | . 18 | . 17 | . 13 | - 13 | . 16 | . 80 | . 72 | . 68 |
| Industrial | . 11 | . 13 | . 15 | . 02 | . 02 | . 03 | . 56 | . 58 | . 59 |
| Mechanical | .21 | . 21 | .19 | . 11 | . 11 | . 14 | . 66 | . 61 | . 60 |
| Metallurgical | - 01 | . 01 | . 02 | - 00 | - 00 | . 00 | . 06 | . 06 | . 06 |
| Mining | . 01 | . 01 | .01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sales | . 01 | . 01 | . 01 | . 06 | . 04 | . 04 | . 09 | . 07 | . 05 |
| Other engineers | .13 | . 13 | . 20 | . 02 | . 02 | .03 | . 33 | . 29 | . 30 |
| Life and physical scientists | . 13 | . 13 | - 15 | . 00 | . 00 | . 00 | . 44 | . 44 | . 41 |
| Agricultural | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Biological | . 00 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 04 | . 04 |
| Chemists | . 04 | . 04 | . 03 | . 00 | . 00 | .00 | . 36 | . 35 | . 33 |
| Geologists | . 06 | . 05 | . 07 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Marine | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Physicists and astronomers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 03 | .03 | . 03 |
| Mathematical specialists | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 04 | .03 | . 03 |
| Statisticians | . 02 | . 02 | .03 | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Engineering, science technicians | 3.36 | 2.97 | 3.22 | . 30 | . 29 | . 37 | 2.21 | 2.24 | 2.38 |
| Agricultural, tiolgcl, exc healta | . 11 | . 10 | .07 | . 00 | . 00 | . 00 | . 10 | - 11 | . 12 |
| Chemical technicians | . 15 | . 14 | . 16 | . 00 | . 00 | . 00 | . 30 | . 31 | . 34 |
| Drafters | . 95 | . 80 | . 95 | . 22 | . 19 | - 24 | . 69 | . 62 | -67 |
| Electrical and electronic | . 05 | . 07 | . 10 | . 05 | . 06 | . 11 | . 43 | . 48 | . 53 |
| Industrial engineering | . 00 | .00 | . 00 | . 00 | . 00 | - 00 | . 09 | . 11 | - 12 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 00 | -00 | . 00 | . 06 | . 07 | . 07 |
| Surveyors | 1.31 | 1.06 | . 85 | . 02 | . 02 | . 01 | . 00 | .00 | . 00 |
| Other engineering, science tech | . 80 | .81 | 1.08 | . 02 | . 02 | . 02 | . 53 | . 54 | . 54 |
| Medical workers, exc tecanicians | . 01 | .01 | . 01 | .00 | . 00 | . 00 | . 08 | . 07 | . 07 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Registered nurses | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 06 | . 05 | . 05 |
| Health technolcgists, tecinicians | .00 | .00 | .00 | . 00 | . 00 | . 00 | . 02 | .03 | . 03 |
| Other health technicians | . 00 | - 00 | .00 | . 00 | - 00 | . 00 | . 02 | . 03 | . 02 |
| Technicians, except health | . 20 | - 25 | . 26 | . 02 | . 02 | . 02 | . 06 | . 07 | . 09 |
| Airplane pilots | . 02 | . 03 | .03 | . 01 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Radio operators | . 08 | . 09 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Tool pragramers,numerical | . 00 | . 00 | .00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 |
| other technicians except healta | . 10 | . 13 | . 16 | . 01 | . 01 | . 02 | . 02 | . 03 | . 04 |
| Computer specialists | . 15 | . 19 | - 19 | . 01 | . 02 | . 02 | - 50 | . 66 | . 65 |
| Computer programers | . 11 | - 12 | . 12 | . 01 | . 01 | . 02 | . 31 | . 36 | . 35 |
| Computer systems analysts | . 04 | . 05 | . 06 | . 00 | . 00 | . 00 | . 17 | . 25 | . 26 |
| other computer specialists | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | . 05 | . 04 |
| Social scientists | .03 | . 04 | . 04 | .00 | . 00 | . 00 | . 13 | . 21 | . 22 |
| Economists | . 02 | . 03 | .03 | .00 | . 00 | . 00 | . 12 | . 20 | . 22 |
| Urban and regional planners | .01 | .01 | .01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Teachers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 03 |
| Adult education | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | . 04 | . 03 |
| Writers, artists, entertainers | . 33 | . 40 | . 42 | . 11 | - 15 | . 17 | 1.21 | 1.43 | 1.37 |
| Authors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| Designers | . 22 | . 27 | . 28 | . 09 | .11 | . 12 | . 30 | . 36 | . 31 |
| Editors and reforters | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | -48 | . 57 | . 62 |
| Painters and sculptors | .03 | . 04 | . 06 | . 01 | . 02 | . 03 | - 14 | . 17 | . 11 |
| Photographers | .03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 09 | .09 | - 11 |
| public relaticns specialists | . 04 | . 05 | . 05 | . 01 | . 02 | . 02 | . 08 | - 10 | . 09 |
| other uriters,artists, entertain | . 01 | . 02 | . 01 | . 00 | . 00 | .00 | . 08 | . 10 | . 08 |


|  | General contractors ex building |  |  | special trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | . 97 | 1.08 | .95 | . 26 | . 31 | . 34 | 1.67 | 1.88 | 1.63 |
| Accountants | . 57 | . 67 | . 67 | . 21 | - 25 | - 28 | . 86 | . 97 | . 93 |
| Architects | .07 | . 06 | . 08 | . 01 | . 01 | . 02 | . 01 | .01 | . 01 |
| Foresters and conservationists | .05 | . 04 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Lawyers | . 07 | . 09 | . 02 | . 00 | . 00 | . 00 | . 05 | . 08 | . 05 |
| Librarians | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Operations and systems research | .03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 24 | .33 | . 29 |
| Personnel, labcr relations ukrs | . 15 | . 16 | . 11 | . 04 | . 04 | . 03 | . 35 | . 37 | . 26 |
| Other research workers | .03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 11 | . 09 | . 06 |
| Managers, officials, proprietors | 7.53 | 9. 64 | 10.78 | 8.17 | 9.14 | 7.24 | 6.04 | 7.00 | 7.11 |
| Buyers,sales.lcan managers | . 56 | - 56 | . 81 | . 26 | . 28 | . 47 | 1.26 | 1.24 | 1.39 |
| Bank, tinancial managers | . 04 | . 04 | . 04 | . 03 | . 03 | . 03 | . 13 | . 12 | . 10 |
| Credit managers | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 06 | . 04 | . 03 |
| Buyers, shippers,farm products | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| purchasing agents, buyers, other | . 49 | . 47 | . 72 | . 16 | . 16 | . 28 | . 50 | . 46 | . 51 |
| Sales manager, exc retail trade | .03 | . 04 | . 05 | . 07 | . 08 | . 16 | . 55 | . 61 | . 73 |
| Administrators, public inspectors | .27 | . 33 | . 30 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| officials,administrators, public | .27 | . 33 | . 30 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Otner managers, officials, proprts | 6.70 | 8.76 | 9.68 | 7.91 | 8.86 | 6.77 | 4.77 | 5.76 | 5.71 |
| Mgrs, superintendents, building | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Office managers, otner | . 31 | - 35 | -39 | . 30 | - 33 | . 47 | . 27 | . 29 | . 32 |
| officers, pilots, pursers,ship | - 10 | . 11 | . 17 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Uther managers, administrators | 6.27 | 8.27 | 9.09 | 7.61 | 8.52 | 6.30 | 4.48 | 5.46 | 5.38 |
| Sales workers | . 13 | . 16 | . 21 | . 45 | . 53 | . 97 | 2.40 | 2.40 | 2.54 |
| Advertising agents, sales worker | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 11 | . 15 | . 18 |
| Newspaper carriers and vendors | .00 | . 00 | .00 | . 00 | . 00 | . 00 | . 29 | . 25 | . 28 |
| other sales wrikers | . 13 | . 15 | . 21 | . 45 | . 53 | .97 | 2.00 | 2.01 | 2.08 |
| Clerical workers | 6.77 | 6.94 | 7.58 | 5.63 | 5.88 | 5.99 | 12.27 | 12.06 | 11.91 |
| Stenographrs, typists, secretaries |  | 2.11 | 2.37 | 1.83 | 1.83 | 1.97 | 3.58 | 3.51 | 3.86 |
| Legal secretaries | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| other secretaries | 1.38 | 1.47 | 1.75 | 1.64 | 1.66 | 1.79 | 2.58 | 2.69 | 3.14 |
| Stenographers | . 19 | . 10 | . 03 | . 02 | . 01 | . 00 | . 10 | . 05 | . 02 |
| Typists | . 63 | - 53 | -58 | - 17 | . 16 | -18 | . 88 | .75 | . 68 |
| Office machine operators | . 29 | . 34 | . 29 | . 05 | . 05 | . 06 | . 88 | . 97 | - 70 |
| Bcokkeeping and billing | . 02 | . 01 | - 01 | . 01 | . 01 | .01 | . 06 | . 03 | . 02 |
| Calculating | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 05 | . 03 | . 02 |
| computer and feripheral equip | . 08 | - 17 | - 13 | . 01 | . 02 | . 04 | . 23 | - 50 | . 42 |
| Duplicating | .02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Keypunch | . 14 | . 11 | . 10 | . 02 | . 02 | .01 | . 42 | . 32 | . 18 |
| Tabulating | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| other office machine operators | -02 | . 02 | . 01 | . 00 | . 00 | .00 | . 07 | . 07 | . 04 |


|  | General contractors ex building |  |  | Special trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 4.27 | 4.49 | 4.92 | 3.75 | 4.00 | 3.96 | 7.81 | 7.59 | 7.35 |
| Billing clerks | . 03 | . 04 | . 05 | . 04 | . 05 | . 08 | .18 | . 20 | . 25 |
| Bookkeepers | 1.06 | 1.03 | . 75 | 1.65 | 1.62 | 1.36 | 1.32 | 1.30 | 1.26 |
| Cashiers | . 49 | . 50 | . 83 | . 01 | . 02 | . 03 | . 06 | . 06 | . 07 |
| Clerical supervisors, other | . 10 | . 11 | - 11 | . 02 | . 03 | .03 | . 13 | - 15 | . 14 |
| collectors, bill and account | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Counter clerks, exc food | . 01 | . 02 | . 02 | . 02 | . 02 | . 04 | - 24 | . 25 | . 28 |
| Dispatchers, starters, venicle | . 07 | . 08 | .11 | . 03 | . 03 | . 05 | . 04 | . 04 | . 04 |
| estimators, investigators, otaer | . 47 | . 60 | . 50 | 1.11 | 1. 31 | 1.20 | . 24 | . 27 | . 19 |
| Expediters, prcduction controirs | . 12 | - 15 | . 21 | .06 | . 08 | . 14 | . 73 | . 76 | . 83 |
| File clerks | . 12 | - 10 | . 12 | . 04 | . 03 | . 04 | . 24 | . 20 | - 20 |
| Library attendants, assistants | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Mail handlers, exc fost office | . 05 | . 05 | . 06 | . 01 | . 01 | . 02 | . 18 | . 17 | . 15 |
| Messengers and office helpers | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | . 05 | . 05 | . 03 |
| Paycoll, timekeeping clerks | . 39 | . 44 | . 42 | . 15 | . 17 | . 19 | - 40 | . 43 | . 36 |
| Proofreaders | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 14 | - 16 | . 19 |
| Real estate affraisers | . 12 | . 14 | . 20 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Receptionists | . 10 | - 10 | . 10 | . 11 | . 11 | . 11 | . 20 | . 18 | . 13 |
| Shipping and receiving clerks | .03 | . 03 | . 04 | . 05 | . 05 | . 06 | 1.18 | 1.08 | 1.10 |
| Statistical clerks | . 19 | . 21 | . 26 | .03 | . 03 | . 04 | . 32 | .34 | . 33 |
| Stock clerks and store keepers | . 27 | . 26 | . 35 | . 11 | . 11 | . 15 | . 90 | . 76 | . 67 |
| 'elephone operators | . 05 | . 03 | .04 | . 03 | . 02 | . 02 | . 14 | . 09 | . 06 |
| Ticket, station, express agents | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| deighers | . 10 | . 11 | . 16 | .00 | . 00 | .00 | . 15 | - 14 | . 10 |
| Misc clerical workers | . 44 | . 46 | . 57 | .27 | . 29 | . 38 | .92 | . 94 | . 95 |
| crafts and kindred workers | 33.73 | 34.30 | 35.35 | 67.06 | 66.04 | 68.14 | 19.49 | 19.62 | 20.30 |
| Construction crafts workers | 21.90 | 21.73 | 23.36 | 56.62 | 54.98 | 55.34 | 2.47 | 2.39 | 2.37 |
| Carpenters and apprentices | 2.26 | 2.46 | 2.62 | 12.76 | 12.73 | 11.65 | . 58 | . 62 | . 59 |
| Brick,stonerasons, apprentices | . 27 | -29 | . 36 | 4.87 | 4.37 | 3.95 | .09 | . 07 | . 04 |
| Bulldozer oferators | 2.48 | 2.73 | 3.31 | . 54 | . 60 | . 93 | . 10 | . 10 | . 12 |
| Cement and concrete tinishers | . 97 | 1.05 | 1.06 | 1.49 | 1.47 | 1.70 | . 01 | . 02 | - 02 |
| Electricians and apprentices | . 56 | . 61 | . 64 | 8.58 | 9.05 | 10.25 | . 79 | . 79 | . 81 |
| Excavating.grading mach operatr | 12.86 | 12. 15 | 12.66 | 1.49 | 1.38 | 1.84 | .07 | . 06 | . 05 |
| Floor layers, exc tile setters | . 01 | . 01 | .01 | . 62 | . 43 | . 38 | .01 | . 01 | . 01 |
| Painters and apprentices | . 50 | - 48 | . 98 | 10.99 | 9.91 | 9.10 | . 26 | -25 | . 22 |
| Paperhangers | . 00 | . 00 | .00 | . 41 | . 62 | . 63 | .00 | . 00 | . 00 |
| Plasterers and apprentices | . 03 | . 02 | . 01 | 1.02 | . 73 | -59 | . 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | 1.40 | 1.44 | 1.27 | 8.67 | 7.98 | 7.73 | . 40 | . 37 | -40 |
| Roofers and slaters | . 01 | . 01 | . 01 | 2.70 | 3.63 | 3.91 | . 00 | - 01 | -01 |
| Structural metal craft workers | . 53 | . 45 | . 41 | 1.44 | 1.23 | 1.63 | . 12 | - 10 | . 09 |
| Tile setters | .03 | . 03 | . 04 | 1.04 | - 84 | 1.05 | . 01 | . 00 | . 01 |
| Blue collar worker supervisors | 4.16 | 4.44 | 3.45 | 2.00 | 2.09 | 2.15 | 3.97 | 4.27 | 4.29 |
| Metalworkg craft wrkrs, exc mecn | . 34 | - 37 | .43 | 2.71 | 2.47 | 3.19 | 4.94 | 4.79 | 4.94 |
| Blacksmiths | . 01 | . 01 | . 00 | .01 | - 01 | . 01 | . 02 | . 01 | . 00 |
| Boilermakers | . 37 | . 07 | . 07 | . 14 | . 13 | - 16 | . 09 | . 09 | . 11 |
| Heat treaters, annealers | . 00 | . 00 | .00 | . 00 | . 00 | - 00 | . 12 | .11 | . 08 |
| Forge and hammer operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 09 | . 09 | . 09 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 51 | . 47 | . 52 |
| Machinists and apprentices | . 14 | . 17 | . 26 | . 08 | . 08 | . 13 | 1.88 | 1.97 | 2.01 |
| Millwrights | . 06 | . 08 | . 07 | . 14 | - 16 | - 20 | -36 | . 39 | . 41 |
| Molders, metal and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 28 | . 26 | . 26 |
| Pattern and mcldmakers | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | - 20 | - 15 | . 15 |
| Rollers and finishers, metal | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 12 | -11 | - 10 |
| Sheetmetal workers, apprentices | . 03 | . 02 | .01 | 2.33 | 2.08 | 2.69 | . 40 | . 34 | . 35 |
| Tool and diemakers, apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 88 | . 80 | . 86 |
| Mechanics, repairers,installers | 3.29 | 3.78 | 4.56 | 3.11 | 3.77 | 4.11 | 3.58 | 3.96 | 4.83 |
| Air cond, heating, refrig mech | . 03 | . 03 | . 03 | 1.69 | 2.22 | 2.28 | . 10 | . 12 | - 12 |
| Aircraft mechanics | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 19 | . 18 | - 19 |
| Auto body repairers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Auto mechanics and apprentices | 1.13 | 1.04 | . 96 | . 15 | . 13 | . 11 | . 40 | . 36 | . 39 |
| Data processing mach repairers | . 00 | - 00 | .00 | . 00 | - 00 | . 00 | . 06 | -08 | - 13 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Heavy equip mech, incl diesel | 1.78 | 2.31 | 3.00 | . 83 | . 96 | 1.16 | 2.17 | 2.63 | 3.38 |
| Household appliance mechanics | . 23 | . 26 | -43 | . 23 | . 25 | . 30 | . 05 | . 06 | . 06 |
| Loom fixers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .09 | . 07 | . 06 |
| Office machine repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 04 |
| Radio, television repairers | . 04 | . 03 | . 03 | . 04 | . 03 | . 02 | . 08 | . 06 | . 11 |
| Hailroad, car shop repairers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| other mechanics and apprentices | . 00 | . 08 | .10 | . 16 | . 18 | . 24 | . 35 | . 34 | . 29 |


|  | General contractors ex building |  |  | Special trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Printing trade crafts workers | . 08 | . 08 | . 06 | . 00 | .00 | .00 | 1.78 | 1.80 | 1. 56 |
| Bookbinders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 15 | . 12 | . 13 |
| Compositors and typesetters | .03 | . 03 | . 01 | . 00 | . 00 | - 00 | . 77 | . 77 | . 54 |
| Electrotypers and stereotypers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .03 | .01 | . 00 |
| Engravers exc photoengravers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Photoengravers, lithographers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 15 | .17 | .21 |
| Press, plate printers,aprentices | . 02 | . 02 | . 03 | .00 | . 00 | . 00 | .63 | . 70 | . 65 |
| Transport, public util craft wkrs | . 68 | . 73 | -48 | . 49 | . 48 | . 47 | . 18 | .16 | . 13 |
| Elec pur line instaler, repairer | . 57 | . 60 | . 39 | . 31 | . 32 | . 33 | .01 | .01 | . 01 |
| Loconotive engineers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | . 02 | . 02 |
| Power station operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Telephone installers, repairers | . 05 | . 05 | . 05 | .17 | . 15 | . 12 | . 14 | . 12 | . 09 |
| Telephone line instalr, splicers | . 05 | . 06 | . 03 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | 3.30 | 3. 17 | 3.02 | 2.14 | 2.25 | 2.88 | 2.58 | 2.26 | 2. 18 |
| Bakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 27 | . 21 | . 15 |
| Cabinetmakers | .01 | . 01 | . 01 | . 07 | . 07 | . 05 | . 22 | - 25 | . 26 |
| carpet installers | . 00 | . 00 | . 00 | 1.03 | 1.17 | 1.36 | . 01 | . 01 | . 02 |
| Crane, derrick,hoist operator | . 97 | . 82 | .74 | . 33 | . 28 | -42 | . 56 | . 46 | . 58 |
| Decorators, window dressers | . 00 | . 00 | - 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Dental laboratory technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 07 | . 06 | . 04 |
| Glaziers | . 00 | . 00 | . 00 | . 26 | - 30 | . 58 | . 02 | . 02 | . 02 |
| Inspectors, log and lumber | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 08 | . 09 |
| Inspectors, other | 1.87 | 1.89 | 1.82 | . 05 | . 05 | . 05 | . 12 | . 13 | . 12 |
| Jewelers and matchmakers | .00 | . 00 | . 00 | . 00 | .00 | . 00 | . 06 | . 06 | . 09 |
| Millers, grain, flour, feed | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 05 |
| Opticians,lens grinder, polisner | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 07 | . 07 |
| Shipfitters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 04 |
| Shoe repairers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | .01 | . 01 |
| Sign painters and letterers | . 07 | . 08 | - 12 | . 00 | . 00 | . 00 | . 02 | .01 | . 00 |
| Stationary engineers | . 17 | . 11 | . 03 | . 07 | . 05 | . 01 | . 26 | . 19 | .11 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 02 | . 03 | . 02 |
| Tailors | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 19 | . 17 | . 16 |
| Upholsterers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 17 | - 12 | . 12 |
| Other crafts workers | .21 | . 24 | . 31 | . 32 | .31 | . 38 | .31 | .26 | . 19 |
| Operatives | 13.12 | 12.75 | 10.90 | 6.97 | 8.57 | 9.85 | 42.97 | 42.34 | 43.07 |
| operatives, except transport | 3.84 | 4.21 | 4.31 | 5.43 | 7.19 | 8.52 | 39.50 | 38.95 | 39. 28 |
| Semiskilled metalworking | 1.20 | 1. 52 | 2.13 | 1.43 | 1.63 | 2.67 | 5.84 | 5.55 | 5.61 |
| Drill press oferatives | . 01 | . 01 | . 01 | .01 | .01 | . 01 | . 38 | . 30 | . 25 |
| Furnace tendrs,smeltrs, pourers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 38 | . 37 | . 36 |
| Grinding machine operatives | .30 | . 00 | .00 | . 01 | .01 | . 02 | . 71 | . 60 | . 51 |
| Heaters, metal | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | . 03 | . 02 |
| Lathe, milling mach operatives | . 00 | . 00 | .00 | . 04 | . 03 | . 04 | . 76 | . 58 | . 57 |
| Metal platers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 17 | . 18 | . 16 |
| Other precision mach operators | . 02 | . 02 | . 02 | . 01 | .01 | . 01 | .38 | . 32 | . 35 |
| Punch,stamping press operatives | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 91 | - 82 | . 82 |
| Solderers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 21 | . 17 | . 09 |
| Welders and flamecutters | 1.18 | 1. 50 | 2.10 | 1.36 | 1.57 | 2.58 | 1.92 | 2.17 | 2.49 |
| Semiskilled textile operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.23 | 1.86 | 1.50 |
| Carding, lapping combing oprs | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 07 | . 03 |
| Knitters, loopers, and toppers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 18 | - 14 | . 11 |
| Spinners, tuisters, winders | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 76 | .65 | . 57 |
| Weavers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | .23 | .18 | . 12 |
| Other textile operatives | .00 | . 00 | .00 | .00 | . 00 | .00 | .97 | .81 | . 67 |
| Semiskilled packing, inspecting | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | 6.26 | 6.17 | 6.66 |
| Checkers, examiners, mfg | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | 3.51 | 3.57 | 3.85 |
| Graders and scrters, mfy | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 23 | . 22 | . 22 |
| Packer,wrapper,exc meat, prodce | . 00 | . 00 | . 00 | .00 | .00 | . 00 | 2.51 | 2.38 | 2.60 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | General contractors ex building |  |  | Special. trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 2.63 | 2. 69 | 2.18 | 4.00 | 5. 55 | 5.86 | 25.22 | 25.38 | 25.50 |
| Asbestos, insulation vorkers | . 03 | . 05 | . 04 | . 85 | 1. 28 | 1.54 | . 03 | . 04 | . 04 |
| Assemolers | .03 | . 04 | .05 | . 08 | - 10 | . 18 | 4.67 | 5.46 | 6.78 |
| Blasters | . 09 | - 10 | - 10 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | -00 | - 00 | . 00 | . 29 | . 28 | . 25 |
| Surveyors* helpers | . 22 | - 20 | - 18 | . 01 | . 01 | . 01 | . 00 | - 00 | - 00 |
| clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 33 | . 23 | . 20 |
| Cutting operatives, other | . 02 | . 02 | .03 | . 05 | . 06 | - 10 | 1.07 | 1.09 | 1.10 |
| Drillers, earth | -25 | -29 | . 35 | . 71 | -64 | . 43 | . 05 | . 05 | . 06 |
| Dry wall installers, lathers | . 02 | . 04 | . 04 | 1.67 | 2.81 | 2.92 | . 00 | . 00 | - 00 |
| Dyers | . 00 | . 00 | -00 | . 00 | - 00 | . 00 | . 14 | -13 | -15 |
| Filer, polisher, sander, buffer | . 00 | - 00 | .00 | . 03 | . 03 | . 05 | . 61 | - 57 | -47 |
| Garage urkr,gas station atten | -06 | -05 | . 06 | -00 | - 00 | -00 | . 02 | . 01 | . 01 |
| Laundry, dry cleang oprs,other | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Meat cutters and butchers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 45 | -40 | . 41 |
| Mixing operatives | .01 | . 01 | . 02 | . 01 | . 01 | . 03 | . 37 | . 36 | -33 |
| Oilers,greasers,exc automobiles | . 41 | . 37 | . 17 | . 06 | . 05 | . 03 | -14 | -13 | - 12 |
| painters, mfg articles | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 77 | . 70 | .73 |
| Photographic frocess workers | . 04 | . 04 | . 04 | -01 | -01 | . 01 | . 11 | - 12 | - 13 |
| 日iveters and fasteners | . 01 | -01 | . 02 | .01 | - 01 | - 02 | -14 | . 14 | - 14 |
| Sailors and deckhands | . 15 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | -06 | . 07 | -05 | . 02 | . 02 | . 02 | -55 | . 59 | . 62 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | 4.55 | 3.83 | 4. 25 |
| Shoemaking machine operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 34 | . 24 | -13 |
| Furnace tendr, stokr,exc metai | . 05 | . 03 | . 02 | . 01 | . 01 | . 01 | . 28 | -17 | . 15 |
| Winding operatives, other | -01 | . 01 | . 02 | . 02 | - 02 | . 04 | . 33 | . 34 | . 40 |
| Miscellaneous machine operatves | . 31 | . 33 | .21 | . 18 | - 18 | - 15 | 6.08 | 6.38 | 5.73 |
| other operatives, exc transport | . 88 | . 99 | . 77 | . 28 | . 31 | . 33 | 3.88 | 4.11 | 3. 29 |
| Transport equipment operatives | 9.28 | 8.54 | 6.59 | 1.54 | 1. 39 | 1.33 | 3.41 | 3.39 | 3.79 |
| Boat operators | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 10 | . 10 | . 09 | . 14 | - 12 | . 16 | . 79 | -62 | . 58 |
| Fork lift, tow motor oferatives | - 12 | - 16 | - 20 | . 09 | - 12 | -19 | 1.07 | 1.26 | 1.37 |
| Rail venicle cperators, other | . 01 | - 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Railroad brake operators | .00 | - 00 | .00 | . 00 | - 00 | . 00 | . 01 | . 02 | . 03 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .03 |
| Taxicab drivers, chauffeurs | . 07 | . 06 | . 02 | . 01 | . 01 | . 01 | . 06 | . 05 | . 03 |
| Truck drivers | 8.95 | 8. 18 | 6.23 | 1.29 | 1.13 | . 96 | 1.44 | 1.40 | 1.74 |
| Service workers | 1.67 | 1.47 | 1.30 | . 28 | . 28 | . 38 | 2.14 | 1.86 | 1.41 |
| Cleaning service workers | .90 | - 80 | .61 | . 23 | - 24 | - 34 | 1.41 | 1.23 | - 87 |
| Bldg interior cleaners, other | . 09 | - 10 | . 12 | . 07 | -07 | . 09 | . 24 | . 22 | - 16 |
| Janitors and sextons | .81 | - 70 | . 49 | . 16 | - 17 | . 25 | 1.17 | 1.01 | .71 |
| Pood service workers | . 06 | . 05 | .03 | . 02 | . 01 | . 01 | . 16 | - 12 | . 12 |
| Cooks, exc private households | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 06 | . 05 | . 05 |
| Dishwashers | .00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | -02 | -02 | . 02 |
| waiters | . 02 | . 01 | .01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| other food serv wirs, exc privt | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 |
| Health service workers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 |
| Nursing aides and orderlies | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Personal service workers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 06 | . 05 | . 04 |
| Attendants, personal serv,other | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Elevator operators | . 01 | . 01 | .01 | . 01 | .01 | . 01 | . 03 | . 03 | . 02 |
| Protective service workers | .70 | . 62 | .65 | . 03 | . 02 | . 01 | - 50 | . 46 | . 37 |
| Crossing guards, bridgetenders | . 22 | -18 | . 23 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Firefighters | . 01 | . 01 | . 01 | .00 | . 00 | - 00 | . 02 | . 01 | . 01 |
| Guards | . 43 | . 42 | .41 | . 02 | . 02 | . 01 | . 48 | . 44 | . 35 |
| Police and detectives | .05 | . 02 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | General contractors ex building |  |  | Special trade contractors |  |  | Manufacturing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | 26.90 | 25.92 | 24.84 | 10.18 | 8. 29 | 5.94 | 5.26 | 4.79 | 4.02 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | -01 |
| Carpenter helfers | . 56 | . 51 | . 55 | . 89 | - 68 | . 60 | . 06 | . 06 | . 09 |
| Constr labrexc carpenter helpr | 25.05 | 23.99 | 22.71 | 8.80 | 7. 14 | 4.88 | . 19 | . 15 | . 12 |
| Freight and material handlers | . 32 | - 35 | . 42 | . 31 | - 28 | . 25 | 2.08 | 1.97 | 1.86 |
| Garbage collectors | . 04 | . 04 | . 07 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 79 | - 87 | . 94 | . 06 | . 06 | . 07 | . 05 | . 05 | . 05 |
| Timbercutting, logging workers | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 | -40 | . 41 | . 26 |
| Stock handlers | . 02 | . 02 | . 03 | . 04 | . 04 | . 05 | . 50 | . 49 | . 33 |
| Teamsters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Venicle washers,equip cleaners | . 05 | . 05 | . 05 | . 02 | . 03 | -03 | . 32 | -28 | . 16 |
| warehouse labcrers, otner | .05 | . 04 | . 03 | . 06 | . 06 | . 06 | . 18 | - 16 | - 14 |
| Other laborers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | 1.45 | 1.18 | . 98 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Durable goods |  |  | ordnance |  |  | Lumber and wood products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 11.03 | 11.09 | 10.51 | 26.04 | 26.59 | 24.79 | 2.09 | 2.29 | 2.68 |
| Engineers,technical | 4.43 | 3.95 | 3.74 | 12.98 | 12.01 | 10.99 | . 34 | . 33 | . 41 |
| Aeronautical | . 46 | - 38 | .35 | 1.33 | 1.40 | 1.41 | . 00 | . 00 | . 00 |
| Chemical | . 07 | - 06 | . 05 | . 23 | . 22 | . 22 | . 01 | . 00 | . 00 |
| Civil. | . 09 | . 06 | . 05 | . 31 | - 22 | . 17 | . 04 | .03 | . 05 |
| Electrical | 1.32 | 1. 16 | 1.05 | 3.48 | 3.18 | 2.61 | . 05 | . 06 | . 07 |
| Industrial | . 76 | . 78 | . 81 | 1.78 | 1.78 | 1.53 | . 11 | . 11 | . 12 |
| Mechanical | 1.01 | . 90 | . 85 | 3.39 | 3.08 | 3.12 | . 05 | . 05 | . 09 |
| Hetallurgical | . 11 | - 10 | -10 | . 11 | . 11 | - 10 | .00 | . 00 | . 00 |
| Sales | . 14 | . 10 | . 07 | . 02 | . 01 | . 00 | . 02 | .01 | . 02 |
| other engineers | -48 | -41 | . 42 | 2.33 | 2.01 | 1.83 | . 06 | . 06 | . 05 |
| Life and physical scientists | . 26 | . 25 | . 23 | .71 | . 80 | . 99 | .03 | .03 | . 02 |
| Atinospheric and space | . 00 | . 01 | . 01 | . 04 | .07 | - 10 | . 00 | . 00 | . 00 |
| Biological | . 01 | . 01 | . 01 | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Cnemists | . 20 | . 19 | . 16 | . 31 | . 34 | . 49 | .03 | .03 | . 02 |
| Marine | - 00 | . 00 | . 00 | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Physicists and astronomers | . 05 | . 04 | . 04 | . 32 | . 32 | . 31 | .00 | . 00 | . 00 |
| Other life, physical scientists | . 00 | . 00 | -00 | . 02 | . 02 | . 02 | -00 | . 00 | . 00 |
| Mathenatical sfecialists | . 04 | . 04 | . 04 | . 27 | . 27 | . 28 | . 01 | . 01 | . 00 |
| Mathematicians | . 01 | . 01 | . 01 | . 12 | - 11 | . 06 | . 00 | . 00 | . 00 |
| Statisticians | . 03 | .03 | . 03 | . 15 | . 16 | . 22 | .01 | .00 | . 00 |
| Engineering, science technicians | 2.66 | 2.61 | 2.67 | 4.44 | 4.68 | 5.06 | . 34 | . 34 | . 44 |
| Agricultural, biolgcl, exc health | . 00 | . 00 | . 01 | . 04 | . 05 | - 10 | . 00 | -00 | . 00 |
| Chemical technicians | . 07 | . 07 | . 07 | . 12 | - 15 | . 24 | .01 | .01 | . 01 |
| Drafters | 1.07 | . 93 | -97 | . 97 | . 81 | . 81 | . 19 | . 18 | . 25 |
| Electrical and electronic | . 72 | . 79 | . 84 | 1.44 | 1.63 | 1.81 | . 02 | . 02 | . 02 |
| Industrial engineering | . 11 | - 14 | - 14 | . 17 | -23 | . 25 | . 01 | . 02 | . 02 |
| Mathematical technicians | . 00 | - 00 | . 00 | .03 | . 03 | . 05 | .00 | . 00 | . 00 |
| Mechanical engineering | . 09 | - 10 | -11 | . 16 | - 19 | . 23 | . 00 | . 00 | . 00 |
| Surveyors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Other engineering, science tecn | . 59 | . 58 | . 53 | 1.50 | 1.58 | 1.55 | . 09 | . 09 | . 13 |
| Medical workers, exc technicians | .08 | . 07 | . 06 | . 12 | . 09 | . 03 | . 01 | . 01 | .01 |
| Physicians and osteopaths | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Begistered nurses | .07 | . 06 | . 05 | . 11 | . 08 | . 03 | . 01 | .01 | .01 |
| Health technolcgists, technicians | . 02 | . 04 | . 04 | . 03 | . 04 | . 03 | .00 | . 00 | . 00 |
| Other health technicians | . 02 | . 04 | . 03 | . 03 | . 04 | . 03 | .00 | . 00 | . 00 |
| Technicians, except health | . 08 | - 10 | - 11 | .23 | . 32 | . 45 | . 03 | . 04 | . 06 |
| Airplane pilots | . 02 | . 03 | . 03 | . 02 | . 04 | . 06 | . 02 | . 03 | . 04 |
| Radio operators | . 01 | . 01 | . 00 | .03 | . 03 | . 02 | . 00 | . 01 | . 01 |
| Tool programers, $n$ umerical | . 02 | . 02 | -03 | . 02 | - 03 | .05 | . 00 | . 00 | . 00 |
| Other technicians except health | . 03 | . 04 | . 05 | . 15 | . 22 | . 32 | .01 | .01 | .01 |
| Computer specialists | . 69 | . 88 | . 86 | 1.81 | 2.38 | 2.28 | . 08 | . 10 | - 10 |
| Computer programers | .42 | . 47 | -45 | 1.09 | 1.24 | 1.13 | . 05 | . 06 | . 06 |
| Computer systems analysts | . 23 | -34 | . 35 | . 61 | . 93 | . 99 | .03 | . 04 | . 05 |
| Other computer specialists | . 04 | . 07 | . 05 | . 11 | . 21 | . 16 | . 00 | . 00 | . 00 |
| Social scientists | . 15 | - 24 | . 28 | .25 | . 44 | . 58 | .03 | . 05 | . 05 |
| Economists. | . 14 | . 24 | . 28 | . 23 | . 42 | . 58 | . 03 | . 05 | . 05 |
| Psychologists | . 00 | . 01 | . 00 | .01 | . 02 | .00 | .00 | . 00 | . 00 |
| Teachers | . 05 | . 05 | . 04 | . 11 | . 09 | - 02 | . 00 | . 00 | . 00 |
| Adult education | .05 | .05 | . 04 | . 11 | . 09 | . 02 | .00 | . 00 | . 00 |
| writers,artists, entertainers | . 71 | . 80 | . 66 | 1.52 | 1.59 | 1.02 | . 11 | . 13 | . 16 |
| Authors | . 05 | . 05 | . 04 | . 13 | - 12 | -04 | . 00 | . 00 | . 00 |
| Designers | . 32 | . 38 | . 32 | - 37 | . 40 | . 34 | . 06 | . 07 | . 07 |
| Editors and reforters | . 05 | . 05 | . 05 | . 15 | - 15 | . 12 | . 00 | . 00 | . 00 |
| Painters and sculftors | . 07 | . 07 | . 05 | . 22 | . 25 | - 14 | . 01 | . 01 | . 01 |
| Photographers | . 04 | . 03 | . 03 | . 16 | . 14 | . 10 | . 01 | . 01 | . 01 |
| Public relations specialists | . 06 | . 08 | . 07 | . 06 | . 07 | . 03 | . 03 | . 04 | . 06 |
| other writers,artists, entertain | . 12 | . 13 | .11 | .43 | .47 | . 25 | . 01 | .00 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Durable goods |  |  | ordnance |  |  | Lumber and wood products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.86 | 2.06 | 1.79 | 3.57 | 3.88 | 3.07 | 1.11 | 1.27 | 1.42 |
| Accountants | . 96 | 1.04 | 1.01 | 1.36 | 1.46 | 1.57 | -41 | - 50 | . 65 |
| Architects | .02 | . 01 | . 01 | . 03 | . 02 | . 02 | . 02 | . 01 | . 01 |
| Foresters and conservationists | . 03 | . 03 | . 02 | . 00 | - 00 | . 00 | . 45 | -48 | . 48 |
| Lavyers | . 05 | . 07 | . 04 | . 09 | . 11 | . 02 | . 02 | . 04 | . 06 |
| Librarians | . 02 | . 02 | . 01 | . 09 | . 08 | . 06 | . 00 | . 00 | . 01 |
| Operations and systems research | . 32 | -43 | . 38 | 1.00 | 1.27 | . 85 | . 04 | . 05 | . 05 |
| Personnel, labor relations wkrs | . 39 | . 39 | . 27 | . 67 | . 66 | - 42 | . 15 | . 16 | - 14 |
| Other research workers | . 09 | . 07 | . 06 | . 33 | . 25 | . 12 | .03 | . 02 | . 03 |
| Recreation workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 |
| Managers, officials, proprietors | 5.91 | 6.77 | 6.69 | 5.82 | 6.26 | 5.13 | 6.47 | 8.09 | 9.12 |
| Buyers, sales, lcan managers | 1.24 | 1. 24 | 1.50 | 1.15 | 1.05 | 1. 11 | . 74 | . 65 | . 59 |
| Bank, financial managers | . 13 | . 13 | - 12 | . 23 | . 24 | - 26 | . 05 | . 04 | - 02 |
| Credit managers | . 05 | . 03 | . 03 | . 01 | . 00 | - 00 | . 03 | . 02 | -02 |
| Purchasing agents, buyers, other | . 61 | . 56 | . 66 | . 84 | . 72 | . 75 | . 42 | . 34 | . 27 |
| Sales manager, exc retail trade | . 44 | . 51 | . 70 | . 08 | . 08 | - 10 | . 25 | . 25 | . 27 |
| Other managers, officials, proprts | 4.68 | 5.53 | 5.19 | 4.67 | 5.22 | 4.01 | 5.73 | 7.44 | 8.53 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| office managers, other | . 23 | . 26 | . 30 | . 09 | . 09 | - 10 | . 30 | -29 | .29 |
| other managers, administrators | 4.43 | 5.26 | 4.87 | 4.57 | 5.11 | 3.89 | 5.42 | 7.13 | 8.23 |
| Sales workers | 1.47 | 1. 45 | 1.40 | . 22 | . 18 | . 08 | 1.02 | 1.13 | 1.62 |
| Advertising agents,sales orker | . 01 | . 02 | . 03 | . 01 | . 01 | .01 | .01 | . 01 | . 02 |
| Other sales warkers | 1.45 | 1.44 | 1.37 | . 22 | . 17 | . 06 | 1.01 | 1.12 | 1.60 |
| Clerical workers | 12.24 | 11.98 | 11.80 | 15.67 | 15.50 | 15.13 | 5.10 | 5.09 | 5.26 |
| Stenographrs, typists, secretaries | 3.65 | 3. 51 | 3.74 | 5.50 | 4.97 | 4.92 | 1.43 | 1.49 | 1.77 |
| Legal secretaries | . 01 | . 01 | . 02 | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Other secretaries | 2.68 | 2.74 | 3.10 | 3.75 | 3.60 | 3.59 | 1.21 | 1.30 | 1.56 |
| Stenographers | . 11 | . 06 | .03 | . 25 | . 11 | . 02 | . 01 | . 01 | . 00 |
| Typists | . 85 | .70 | . 59 | 1.47 | 1.23 | 1.27 | .21 | . 18 | . 21 |
| office machine operators | . 89 | 1.02 | . 79 | 1.28 | 1.78 | 1.51 | . 22 | . 20 | - 16 |
| Bookkeeping and billing | . 05 | . 03 | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 | . 00 |
| Calculating | . 03 | . 02 | . 02 | . 02 | . 02 | . 04 | . 01 | .01 | .01 |
| Computer and feripheral equip | . 27 | . 56 | . 47 | . 55 | 1. 16 | - 96 | . 05 | . 10 | . 10 |
| Duplicating | . 04 | . 03 | . 03 | . 08 | . 08 | . 10 | . 01 | .01 | .01 |
| Keypunch | . 44 | . 34 | - 21 | . 50 | -42 | . 29 | - 11 | . 07 | . 03 |
| Tabulating | . 02 | . 01 | . 00 | . 02 | . 01 | . 00 | . 01 | . 00 | .00 |
| Other office machine operators | . 05 | . 05 | . 03 | . 08 | . 08 | . 08 | . 01 | .01 | . 01 |

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|  | Durable goods |  |  | ordnance |  |  | Lumber and wood products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 7.70 | 7.45 | 7.27 | 8.88 | 8.75 | 8.70 | 3.46 | 3.40 | 3.33 |
| Billing clerks | . 16 | . 18 | . 24 | . 05 | . 06 | . 10 | . 08 | . 09 | . 11 |
| Bookkeepers | 1.15 | 1. 14 | 1.09 | . 84 | . 82 | . 88 | 1.14 | 1.16 | 1.23 |
| Cashiers | . 04 | . 04 | . 04 | . 05 | . 04 | . 04 | . 01 | . 02 | . 02 |
| Clerical supervisors, other | . 13 | - 15 | . 15 | . 26 | - 30 | - 36 | . 03 | . 03 | . 03 |
| Counter clerks,exc food | . 19 | . 21 | . 24 | . 00 | . 00 | . 00 | . 07 | . 08 | . 09 |
| Dispatchers, starters, vehicle | . 04 | . 04 | . 05 | . 03 | . 03 | . 03 | . 01 | .01 | . 01 |
| cistinators, investigators, other | . 29 | . 32 | . 25 | . 30 | - 34 | . 24 | -13 | .13 | . 12 |
| Expediters, frcauction controlrs | -98 | 1.00 | 1.12 | 1.57 | 1.70 | 1.91 | . 14 | - 13 | - 11 |
| File clerks | . 25 | - 20 | . 20 | - 31 | -27 | . 32 | . 03 | . 03 | . 03 |
| Library attendants, assistants | . 02 | . 02 | . 01 | . 05 | . 05 | .03 | . 00 | . 00 | . 00 |
| Mail handlers, exc fost office | . 11 | . 11 | . 11 | . 15 | - 13 | . 11 | . 03 | . 03 | . 02 |
| Messengers and office nelpers | . 02 | . 02 | . 01 | . 04 | .03 | . 03 | . 02 | . 02 | . 02 |
| Payroll,timekeeping clerks | . 42 | . 44 | - 33 | - 42 | . 44 | . 36 | . 18 | . 20 | . 23 |
| Heceptionists | -18 | - 17 | . 14 | . 13 | - 13 | - 16 | . 08 | . 06 | . 04 |
| Snipping and receiving clerks | 1.05 | . 94 | . 87 | -42 | - 36 | . 29 | - 52 | . 50 | . 53 |
| Statistical clerks | -36 | . 38 | . 38 | . 51 | . 55 | . 57 | - 38 | . 40 | . 40 |
| Stock clerks and store keepers | 1.12 | . 95 | . 89 | 1.49 | 1.26 | 1.20 | . 25 | . 17 | . 09 |
| Telephone operators | - 13 | . 08 | . 04 | - 20 | . 11 | . 04 | . 05 | . 04 | . 04 |
| Neighers | . 09 | . 08 | . 08 | . 35 | - 39 | . 62 | . 03 | . 03 | . 03 |
| Misc clerical workers | . 98 | . 99 | 1.03 | 1.71 | 1.74 | 1.44 | . 27 | . 27 | . 19 |
| Crafts and kindred workers | 21.96 | 21.44 | 21.84 | 16.87 | 16.74 | 17.42 | 15.85 | 17.04 | 20.91 |
| Construction crafts workers | 3.30 | 3. 12 | 2.94 | 2.20 | 1.97 | 1.64 | 4.44 | 4.56 | 4.82 |
| Carpenters and apprentices | . 84 | -89 | . 82 | . 58 | . 53 | . 39 | 2.26 | 2.37 | 2.24 |
| Brick, stonemasons, apprentices | - 14 | - 10 | . 06 | . 03 | . 03 | . 04 | . 02 | . 01 | . 01 |
| Bulldozer operators | . 13 | . 12 | . 14 | . 05 | . 04 | . 02 | - 94 | . 98 | 1.23 |
| Cement and concrete finishers | . 02 | . 02 | . 03 | . 00 | . 00 | -00 | - 00 | . 00 | . 00 |
| Electricians and apprentices | 1.01 | . 97 | . 94 | . 78 | - 74 | . 65 | . 40 | . 48 | . 83 |
| Excavating, grading mach operatr | . 10 | . 08 | . 06 | . 04 | . 03 | . 01 | . 51 | . 44 | . 26 |
| Floor layers, exc tile setters | . 02 | . 01 | . 02 | . 01 | - 00 | . 01 | . 02 | .01 | . 01 |
| painters and apprentices | . 37 | . 35 | .31 | - 26 | . 24 | . 21 | . 18 | - 14 | . 08 |
| Plumbers, pipefitters, aprentices | . 46 | . 40 | . 40 | . 43 | - 36 | . 30 | - 10 | . 10 | . 15 |
| Roofers and slaters | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Structural metal craft workers | . 21 | . 16 | . 15 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Tile setters | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Blue collar worker supervisors | 3.87 | 4.04 | 3.75 | 4. 19 | 4.26 | 3.82 | 3.56 | 4.15 | 5.25 |
| metalvorkg craft wrkrs,exc mech | 7.66 | 7. 13 | 6.92 | 4.40 | 4.10 | 4.61 | 1.68 | 1.97 | 3.01 |
| Blacksmitis | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Boilermakers | . 12 | . 12 | - 15 | . 01 | . 01 | .01 | . 01 | . 02 | . 03 |
| Heat treaters, annealers | . 20 | - 18 | .14 | . 06 | . 06 | . 04 | .00 | . 00 | . 00 |
| Forge and hammer operators | . 15 | . 14 | . 14 | .04 | . 04 | . 05 | . 02 | . 02 | . 03 |
| Job and die setters, metal | . 85 | . 78 | . 83 | . 09 | . 09 | . 12 | . 02 | . 02 | . 02 |
| Machinists and apprentices | 2.74 | 2.75 | 2.53 | 2.44 | 2.39 | 2.87 | . 52 | . 65 | 1.09 |
| Millwrights | -46 | . 49 | . 50 | . 38 | . 37 | . 30 | . 93 | 1.13 | 1.66 |
| Molders, metal and apprentices | . 49 | . 44 | . 43 | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 |
| Pattern and moldmakers | -33 | . 24 | . 21 | . 10 | - 08 | . 09 | . 10 | . 07 | . 08 |
| Rollers and finisbers,metal | . 20 | . 18 | . 17 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Sheetmetal workers, apprentices | . 65 | . 54 | . 52 | -39 | . 33 | - 35 | . 02 | . 02 | . 03 |
| tool and diemakers, apprentices | 1.45 | 1.27 | 1.32 | . 86 | . 72 | .73 | . 04 | . 05 | . 07 |
| Mechanics, repairers,installers | 3.81 | 4. 18 | 5.30 | 4.93 | 5.44 | 6.64 | 1.76 | 1.97 | 2.60 |
| Air cond, heating, refrig meca | .11 | - 14 | . 13 | . 14 | . 16 | . 14 | .01 | . 01 | .01 |
| Aircraft mechanics | . 33 | . 29 | . 31 | -25 | . 23 | . 16 | . 00 | . 00 | . 00 |
| Auto body repairers | . 03 | . 02 | . 02 | -01 | . 01 | . 01 | - 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 52 | . 48 | . 56 | -25 | - 22 | . 26 | . 27 | . 21 | - 17 |
| Data processing mach repairers | . 09 | - 12 | . 20 | . 04 | . 06 | . 10 | . 00 | . 00 | . 00 |
| Farm implement mechanics | .01 | . 01 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Heavy equip miech, incl diesel | 2.03 | 2.50 | 3.37 | 3.04 | 3.54 | 4.40 | 1.39 | 1.67 | 2.36 |
| Household appliance mechanics | . 07 | . 07 | . 09 | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Office machine repairers | . 07 | . 04 | . 05 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 14 | -09 | . 17 | - 20 | - 13 | . 06 | . 00 | - 00 | . 00 |
| kailroad, car shop repairers | .03 | . 03 | . 04 | . 02 | . 03 | . 06 | .01 | . 01 | . 01 |
| Other mechanics and apprentices | . 39 | . 38 | .32 | . 92 | 1.02 | 1.36 | . 08 | . 06 | . 04 |
| Printing trade crafts workers | . 21 | . 20 | . 15 | . 20 | . 15 | . 05 | . 05 | . 06 | . 09 |
| Compositors and typesetters | . 08 | . 07 | . 06 | . 08 | . 05 | . 01 | . 03 | . 04 | . 05 |
| Engravers exc photoengravers | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Photoengravers, lithographers | . 02 | . 01 | .01 | . 02 | .01 | . 00 | . 00 | . 01 | .01 |
| press,plate printers,aprentices | . 06 | . 07 | . 07 | . 09 | . 08 | .03 | . 01 | . 02 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Lurable goods |  |  | Ordnance |  |  | Lumber and wood products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport, purlic util craft wers | . 29 | . 25 | . 19 | .11 | . 10 | . 06 | . 04 | .05 | . 05 |
| Elec pwr line instaler, repairer | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Locomotive engineers | . 02 | . 02 | . 03 | . 02 | . 02 | . 01 | . 01 | . 02 | . 03 |
| Power station operators | . 02 | . 02 | .01 | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Telephone installers, repairers | . 24 | - 19 | . 14 | .06 | . 05 | . 04 | . 01 | . 01 | . 00 |
| Other crafts, kindred workers | 2.83 | 2.53 | 2.59 | . 85 | .71 | . 60 | 4.32 | 4.28 | 5.11 |
| Cabinetmakers | . 38 | . 41 | . 41 | . 01 | . 01 | . 00 | . 68 | .73 | . 81 |
| Carpet installers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 90 | . 71 | .87 | . 28 | . 20 | . 16 | . 89 | . 83 | 1.17 |
| Decorators, window dressers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | .01 | .01 |
| Dental laboratory technicians | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Furniture and wood finishers | . 12 | . 11 | . 06 | . 00 | . 00 | . 00 | . 14 | . 11 | . 07 |
| Glaziers | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 10 | . 09 | . 08 |
| Inspectors, lcg and lumber | . 12 | . 13 | . 14 | . 00 | . 00 | .00 | 2.15 | 2.21 | 2.66 |
| Inspectors, other | . 17 | . 18 | . 16 | . 17 | - 16 | .11 | . 01 | .01 | . 02 |
| Jewelers and watchmakers | .11 | . 11 | . 15 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Opticians,lens grinder, polisner | . 09 | . 12 | . 12 | . 02 | . 02 | . 01 | .00 | . 00 | .00 |
| Shipfitters | . 09 | . 08 | . 06 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| sign painters and letterers | . 02 | . 01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 20 | . 13 | . 07 | . 26 | . 20 | . 13 | . 12 | . 09 | . 08 |
| Stone cutters, stone carvers | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Tailors | . 01 | . 01 | . 01 | . 01 | . 02 | . 04 | .00 | .00 | . 00 |
| Upholsterers | . 28 | . 20 | . 19 | . 01 | . 02 | . 05 | .01 | .01 | .01 |
| other crafts morkers | . 24 | . 21 | . 20 | . 07 | . 07 | . 09 | . 23 | . 19 | . 19 |
| Operatives | 39.53 | 40.14 | 41.73 | 28.35 | 28.26 | 30.70 | 39.52 | 39.02 | 40.01 |
| Operatives, except transfort | 36.68 | 37.12 | 38.28 | 26.43 | 26.52 | 29.18 | 31.72 | 30.73 | 30.46 |
| Semiskilled metalworking | 9.62 | 8.88 | 8.78 | 3.87 | 3.41 | 3.65 | 1.43 | 1.13 | 1. 13 |
| Drill press oferatives | . 63 | . 49 | . 40 | . 43 | . 32 | . 25 | . 11 | . 06 | . 04 |
| Furnace tendrs, smeltrs, pourers | . 64 | . 62 | . 57 | . 03 | . 04 | . 05 | . 01 | . 01 | . 01 |
| Grinding machine operatives | 1.20 | . 98 | .81 | - 43 | - 37 | . 46 | - 14 | . 09 | .08 |
| Heaters, metal | . 07 | . 05 | . 04 | . 01 | . 01 | - 00 | . 00 | . 00 | .00 |
| Lathe,milling mach operatives | 1.25 | . 93 | . 90 | -88 | . 64 | . 65 | . 54 | .34 | . 19 |
| Vetal platers | . 29 | . 29 | . 25 | . 17 | . 19 | . 22 | . 01 | . 01 | . 00 |
| Other precisicn mach operators | . 63 | - 52 | . 56 | . 26 | . 22 | - 32 | . 13 | . 08 | .04 |
| Punch, stamping press operatives | 1.48 | 1.31 | 1.30 | . 28 | . 27 | - 39 | . 09 | .06 | . 03 |
| solderers | . 35 | . 28 | . 15 | . 24 | . 21 | . 11 | . 01 | . 01 | . 00 |
| welders and flamecutters | 3.11 | 3.41 | 3.80 | 1.16 | 1.16 | 1.20 | .40 | .48 | .74 |
| Semiskilled packing, inspectiny | 5.47 | 5.25 | 5.11 | 6.69 | 6.30 | 6.43 | 1.81 | 1.96 | 2.59 |
| Checkers, examiners, mfg | 4.09 | 4.00 | 4.01 | 6.07 | 5.82 | 6.18 | . 62 | . 74 | 1.20 |
| Graders and scrters, riy | . 11 | - 10 | . 07 | . 04 | . 03 | . 00 | . 45 | . 49 | . 56 |
| Packer,wrapper, exc meat, prodce | 1.28 | 1.16 | 1.03 | . 59 | . 46 | . 26 | .74 | . 73 | . 83 |
| Other operatives, exc transport | 21.59 | 22.98 | 24.40 | 15.88 | 16.81 | 19.09 | 28.47 | 27.64 | 26.74 |
| Aspestos, insulation workers | . 03 | . 04 | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Assemblers | 7.39 | 8.36 | 10.01 | 7.16 | 8.06 | 9.70 | 2.10 | 2.33 | 3.16 |
| Blasters | .01 | . 01 | . 01 | . 13 | . 09 | .03 | . 01 | . 01 | .01 |
| Bottling, canning operatives | . 01 | . 01 | . 01 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Surveyors helpers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| cutting operatives, other | . 85 | - 90 | . 97 | - 18 | - 19 | . 22 | 2.15 | 2.05 | 2.02 |
| Drillers, earth | . 09 | . 08 | . 09 | . 10 | . 10 | . 13 | . 00 | . 00 | . 00 |
| Dyers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| riler, polisher, sander, burfer | - 99 | - 91 | . 75 | - 39 | . 39 | .43 | 1.32 | . 98 | . 58 |
| Garage wrkr,gas station atten | . 01 | . 01 | . 01 | . 03 | . 02 | . 03 | . 02 | . 01 | . 01 |
| Laundry,dry cleang oprs,other | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 | .00 | .00 | .00 |
| ifeat cutters and butchers | . 00 | - 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Mixing operatives | . 19 | . 19 | . 18 | . 23 | . 23 | . 25 | .11 | .11 | . 09 |
| oilers,greasers, exc automobiles | . 14 | - 13 | . 11 | . 13 | . 12 | . 08 | . 14 | . 15 | . 18 |
| Painters, mfg articles | 1.15 | 1.03 | 1.07 | . 59 | - 53 | .73 | -57 | . 42 | - 26 |
| Photographic frocess workers | .11 | . 10 | . 10 | -18 | - 16 | . 10 | . 01 | .01 | .01 |
| ®iveters and fasteners | - 19 | . 18 | . 19 | . 05 | . 06 | .11 | . 66 | . 58 | . 51 |
| Sawyers | . 89 | . 92 | . 94 | . 09 | . 07 | . 04 | 9.78 | 9.89 | 10.49 |
| Sewers and stitchers | .34 | . 31 | . 43 | - 50 | . 42 | . 55 | . 06 | . 05 | . 05 |
| Furnace tendr,stokr, exc metal | . 26 | - 15 | . 10 | -36 | . 21 | . 09 | .75 | .49 | . 45 |
| winding operatives, other | . 44 | . 48 | . 60 | . 07 | . 06 | . 04 | . 05 | . 05 | . 03 |
| Miscellaneous machine oferatves | 4.82 | 5.17 | 5.16 | 3.41 | 3.56 | 3.74 | 6.11 | 6.13 | 5.47 |
| other oferatives, exc transport | 3.69 | 4.00 | 3.65 | 2.19 | 2.45 | 2.74 | 4.59 | 4.35 | 3.39 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Durable goods |  |  | Ordnance |  |  | Lumber and wood products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Iransport equipment operatives | 2.84 | 3.02 | 3.45 | 1.92 | 1.74 | 1.53 | 7.80 | 8.29 | 9.55 |
| Boat operators | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 |
| Bus arivers | . 00 | . 00 | . 00 | . 03 | . 03 | . 00 | .00 | . 00 | . 00 |
| Delivery and route workers | . 20 | . 18 | . 22 | . 07 | . 06 | . 05 | . 28 | . 28 | . 32 |
| Fork lift, tow motor operatives | 1.13 | 1. 36 | 1.52 | . 89 | . 99 | 1.12 | 3.05 | 3.54 | 4.08 |
| Rail vehicle cperators, other | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Parking attendants | . 00 | . 00 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad brake operators | . 02 | . 03 | . 04 | . 04 | . 06 | . 15 | . 02 | . 03 | . 03 |
| Railroad switch operators | . 04 | . 04 | . 04 | . 02 | . 02 | . 03 | .01 | .01 | .00 |
| Taxicab drivers, chauffeurs | . 07 | . 06 | . 04 | . 06 | . 04 | .00 | . 01 | . 01 | . 01 |
| Truck drivers | 1.37 | 1. 34 | 1.57 | . 79 | . 53 | . 18 | 4.42 | 4.41 | 5.10 |
| Service workers | 2.04 | 1. 81 | 1.42 | 2.85 | 2.66 | 2.69 | 1.75 | 1.51 | 1.25 |
| Cleaning service workers | 1.34 | 1. 20 | .97 | 1.25 | 1. 15 | 1.13 | . 92 | . 69 | . 34 |
| Bldg interior cleaners, other | . 22 | . 20 | . 17 | . 09 | . 09 | . 11 | . 15 | . 12 | - 07 |
| Janitors and sextons | 1.12 | 1.00 | .80 | 1.16 | 1.06 | 1.02 | . 77 | . 57 | . 27 |
| Pood service workers | . 10 | . 08 | . 08 | . 13 | . 11 | . 10 | . 03 | . 03 | . 03 |
| maiters' assistants | . 00 | . 00 | .00 | . 01 | . 01 | . 03 | -00 | . 00 | . 00 |
| Cooks, exc private households | . 03 | . 02 | . 01 | . 04 | . 03 | . 01 | . 02 | . 02 | .01 |
| Dishwashers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Food counter, fountain workers | . 02 | . 02 | . 02 | .03 | . 03 | . 01 | . 00 | . 00 | . 00 |
| waiters | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Other food serv wkrs, exc privt | .03 | . 02 | . 03 | . 03 | . 02 | . 03 | . 01 | .01 | . 01 |
| Health service workers | . 01 | . 01 | .01 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 00 | . 00 | .00 |
| Practical nurses | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Personal service workers | .03 | . 03 | .02 | . 06 | . 06 | . 06 | . 01 | . 01 | . 01 |
| Attendants, personal serv, other | . 01 | . 01 | .01 | . 04 | . 04 | . 04 | . 00 | . 00 | .00 |
| Elevator operators | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| housekeepers, exc private nomes | . 01 | . 01 | .01 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Protective service workers |  | . 49 | . 35 | 1.39 | 1.33 |  | . 78 | . 78 | . 87 |
| Firefighters | . 02 | . 02 | . 02 | . 12 | . 09 | . 08 | . 01 | . 01 | . 01 |
| Guards | . 53 | . 47 | . 33 | 1.23 | 1.20 | 1.29 | . 77 | .76 | . 85 |
| Police and detectives | . 01 | . 01 | . 00 | . 05 | . 03 | . 00 | . 01 | - 00 | . 01 |
| Laborers, except farm | 5.83 | 5.32 | 4.62 | 4.18 | 3.79 | 4.07 | 28.21 | 25.83 | 19.15 |
| Carpenter nelfers | . 09 | . 08 | . 13 | . 03 | . 02 | . 02 | . 31 | . 28 | . 41 |
| Constr labr, exc carpenter helpr | . 25 | . 20 | - 15 | . 09 | . 07 | . 07 | . 23 | . 16 | . 08 |
| Freight and material handlers | 1.97 | 1.91 | 1.90 | 1.52 | 1.43 | 1.64 | 9.60 | 8.89 | 7.75 |
| Gardenrs, groundkeepers, exc tamin | .05 | . 05 | .05 | . 09 | - 10 | . 07 | . 14 | . 14 | . 12 |
| Longshore workers, stevedores | . 01 | . 01 | . 01 | . 02 | . 02 | . 00 | . 01 | . 02 | . 02 |
| Timbercutting, logging workers | . 69 | . 68 | . 42 | . 01 | - 01 | . 01 | 12.57 | 12.22 | 8.29 |
| Stock handlers | . 41 | . 43 | . 35 | . 23 | . 23 | . 20 | . 18 | . 15 | . 08 |
| Teamsters | . 04 | . 03 | . 01 | .00 | . 00 | . 00 | . 71 | . 46 | . 15 |
| Vebicle washers,equif cleaners | . 24 | - 24 | -18 | . 17 | - 19 | . 23 | . 09 | .08 | . 05 |
| Warehouse labcrers, other | . 12 | . 10 | . 08 | .16 | - 12 | . 07 | . 08 | . 07 | . 05 |
| Other laborers | 1.96 | 1.58 | 1.33 | 1.86 | 1.61 | 1.75 | 4.29 | 3.36 | 2.16 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Logging |  |  | Saumill, planing and mill vork |  |  | $\begin{gathered} \text { Misc } \\ \text { wood } \\ \text { products } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.30 | 1.48 | 1.70 | 2.16 | 2.40 | 2.76 | 2.55 | 2.76 | 3.05 |
| Engineers, technical | . 18 | - 18 | . 22 | . 33 | . 33 | . 41 | . 51 | . 46 | . 51 |
| Chemical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Civil | . 04 | . 02 | . 01 | . 03 | . 03 | . 06 | . 04 | . 04 | . 06 |
| Electrical | . 04 | . 05 | . 06 | . 05 | . 05 | . 06 | . 08 | . 09 | - 12 |
| Industrial | . 03 | . 05 | . 07 | . 11 | . 11 | . 12 | . 19 | . 17 | . 15 |
| Mechanical | . 01 | . 01 | . 01 | . 05 | . 06 | . 09 | . 08 | . 09 | . 13 |
| Petroleum | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Sales | . 01 | . 00 | . 00 | . 02 | . 02 | . 03 | . 02 | . 01 | . 00 |
| Other engincers | .03 | . 04 | . 06 | . 07 | . 06 | . 05 | .07 | . 06 | . 05 |
| Life and physical scientists | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 08 | . 08 | . 08 |
| Chemists | .00 | . 00 | . 00 | . 02 | . 02 | .01 | . 08 | . 08 | . 08 |
| Mathematical specialists | .00 | . 00 | .00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Engineering, science tecinicians | . 06 | . 07 | . 09 | -39 | - 39 | . 51 | - 44 | . 43 | . 45 |
| Chemical technicians | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Drafters | .02 | .03 | . 06 | . 26 | . 25 | - 35 | - 14 | . 11 | . 09 |
| Electrical and electronic | . 03 | . 01 | . 01 | . 02 | -02 | . 02 | . 05 | . 05 | . 02 |
| Industrial engineering | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 04 | . 05 | . 04 |
| Surveyors | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 | . 00 | .00 | . 00 |
| Other engineering,science tecn | . 02 | . 02 | . 02 | . 07 | . 07 | . 09 | . 21 | . 23 | . 30 |
| Medical workers, exc technicians | . 01 | .00 | .00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Registered nurses | . 01 | .00 | .00 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 |
| Technicians, except health | . 00 | . 00 | . 00 | . 03 | . 05 | .07 | . 03 | . 05 | . 09 |
| Airplane pilots | . 00 | . 00 | . 00 | . 02 | . 04 | . 06 | . 01 | . 02 | . 02 |
| other technicians except health | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | .03 | . 06 |
| Computer specialists | . 02 | . 03 | . 02 | . 08 | - 11 | - 11 | . 10 | .13 | . 14 |
| computer programers | . 02 | . 03 | . 02 | . 05 | . 06 | . 06 | . 06 | . 07 | . 07 |
| Computer systems analysts | . 00 | . 00 | . 00 | . 03 | . 04 | . 05 | . 04 | . 06 | . 07 |
| Social scientists | . 00 | . 00 | . 00 | . 05 | . 08 | . 08 | . 01 | . 01 | . 00 |
| Economists | . 00 | . 00 | .00 | . 04 | . 07 | . 08 | . 01 | .01 | .00 |
| Teachers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 01 | .01 | . 01 |
| Adult educaticn | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Writers, artists, entertainers | . 01 | . 01 | . 00 | . 10 | . 13 | . 17 | . 23 | . 25 | . 24 |
| Designers | . 01 | . 01 | . 00 | . 05 | . 06 | . 07 | . 13 | . 14 | - 13 |
| painters and sculptors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 03 |
| Photographers | .00 | . 00 | . 00 | .01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Public relaticns specialists | . 00 | - 00 | . 00 | . 04 | . 05 | . 08 | -04 | . 06 | . 07 |
| other writers,artists, entertain | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 |
| Other professicnal and tecanical | 1.03 | 1.19 | 1.37 | 1.12 | 1.27 | 1.40 | 1.15 | 1.32 | 1.52 |
| Accountants | . 10 | . 11 | . 13 | . 47 | . 59 | . 71 | . 51 | . 63 | . 81 |
| architects | -00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Foresters and conservationists | -90 | 1.04 | 1.20 | - 38 | . 38 | . 39 | . 25 | . 25 | . 28 |
| Lawyers | . 00 | . 00 | .00 | . 02 | . 05 | . 06 | . 02 | . 06 | . 10 |
| Operations and systeins research | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 | . 08 | . 11 | - 10 |
| Personnel, labor relations wkrs | . 03 | . 05 | . 05 | . 15 | . 17 | . 14 | . 24 | . 25 | - 20 |
| other research workers | . 00 | . 00 | . 00 | .03 | . 02 | . 04 | . 04 | . 02 | . 03 |
| Managers, officials, proprietors | 6.52 | 9.45 | 12.11 | 6.04 | 7.24 | 8.15 | 7.82 | 9.48 | 9.94 |
| Buyers, sales,lcan managers | -33 | - 30 | . 26 | . 82 | - 72 | . 64 | . 85 | . 76 | . 65 |
| Bank, tinancial managers | . 01 | . 01 | . 00 | . 06 | . 05 | . 02 | . 05 | . 06 | . 05 |
| Credit managers | .01 | . 00 | . 00 | . 04 | . 03 | . 04 | .01 | . 01 | . 00 |
| Purchasing agents, buyers,otner | . 30 | . 27 | . 24 | . 44 | . 36 | . 28 | . 44 | . 36 | . 26 |
| Sales manager, exc retail trade | .02 | . 02 | . 02 | -28 | -29 | . 31 | .34 | . 34 | .34 |
| Other managers, officials, proprts | 6.19 | 9.15 | 11.85 | 5.22 | 6.51 | 7.52 | 6.98 | 8.72 | 9.29 |
| Mgrs, superintendents, buildiny | .00 | . 00 | . 00 | - 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| office managers, other | . 07 | . 07 | . 06 | . 29 | . 29 | . 28 | . 54 | . 53 | . 45 |
| other managers, administrators | 6.12 | 9.07 | 11.79 | 4.91 | 6.21 | 7.22 | 6.43 | 8.17 | 8.82 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Logging |  |  | Sammill. planing and mill vork |  |  | $\begin{gathered} \text { Misc } \\ \text { prooducts } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | . 22 | . 26 | . 28 | 1.05 | 1.22 | 1.69 | 1.64 | 1.71 | 2.25 |
| Advertising agents, sales worker | .00 | . 00 | . 00 | . 01 | - 02 | . 03 | . 01 | . 01 | . 00 |
| Other sales vorkers | .22 | . 26 | . 28 | 1.04 | 1.21 | 1.65 | 1.64 | 1.70 | 2.25 |
| Clerical vorkers | 1.27 | 1.48 | 1.67 | 5.61 | 5.68 | 5.65 | 6.95 | 6.81 | 6.42 |
| Stenographrs,typists, secretaries | . 30 | . 36 | .37 | 1.54 | 1.66 | 1.95 | 2.08 | 2.09 | 2.15 |
| Other secretaries | . 27 | . 32 | . 32 | 1.31 | 1.45 | 1.71 | 1.73 | 1.80 | 1.90 |
| Stenographers | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Typists | .03 | . 03 | . 05 | . 21 | . 20 | . 24 | . 34 | . 28 | . 25 |
| office machine operators | . 06 | . 06 | . 04 | . 22 | - 19 | . 13 | . 34 | . 40 | . 31 |
| Bookkeeping and billing | .01 | . 00 | . 00 | . 03 | . 01 | . 00 | . 04 | . 02 | . 00 |
| Calculating | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Computer and feripheral equip | .01 | . 03 | . 04 | . 04 | . 07 | . 08 | . 11 | . 24 | - 20 |
| Keypunch | . 03 | . 02 | . 01 | -13 | . 08 | . 03 | .13 | . 09 | . 05 |
| Tabulating | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Other office rachine operators | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Other clerical workers | . 92 | 1.06 | 1.25 | 3.84 | 3.84 | 3.57 | 4.54 | 4.32 | 3.96 |
| Billing clerks | . 02 | . 02 | . 02 | . 08 | . 08 | . 10 | . 15 | . 16 | . 22 |
| Bookk eepers | . 37 | . 65 | . 77 | 1.21 | 1.25 | 1.26 | 1.45 | 1.40 | 1.43 |
| Cashiers | . 01 | . 01 | . 01 | - 02 | . 02 | . 02 | . 01 | . 00 | . 00 |
| Clerical supervisors, other | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 05 | . 06 | . 07 |
| Counter clerks,exc food | . 03 | . 04 | . 07 | -07 | . 08 | . 09 | . 11 | - 11 | - 13 |
| Dispatchers, starters, vehicle | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | -02 | . 02 | . 02 |
| Estimators, investigators, other | . 03 | . 03 | . 03 | -17 | -18 | - 16 | . 08 | . 08 | . 07 |
| Expediters, prcduction controlrs | . 02 | . 03 | . 03 | - 13 | - 12 | - 10 | - 26 | - 25 | -19 |
| File clerks | . 00 | . 00 | . 00 | -03 | - 03 | . 03 | . 05 | . 04 | - 05 |
| Mail handlers,exc fost office | . 00 | . 00 | . 00 | . 03 | - 02 | . 02 | . 06 | . 06 | . 06 |
| Messengers and office helpers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 03 | . 04 | . 04 |
| Payroll, timekeeping clerks | . 04 | . 06 | . 07 | - 19 | . 22 | . 25 | .27 | . 29 | . 26 |
| Receptionists | . 00 | . 00 | . 00 | . 08 | - 07 | . 05 | -13 | . 10 | . 05 |
| Shipping and receiving clerks | . 04 | . 05 | . 06 | -54 | . 54 | . 52 | -91 | - 85 | -84 |
| Statistical clerks | . 04 | . 06 | . 08 | - 56 | . 60 | . 56 | -13 | . 14 | - 15 |
| Stock clerks and store keepers | . 03 | . 02 | .01 | . 27 | . 19 | . 09 | . 38 | . 28 | - 12 |
| Telephone operators | . 01 | . 01 | . 01 | . 06 | -05 | . 04 | . 06 | . 04 | . 04 |
| Weighers | . 02 | . 02 | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 | . 03 |
| Misc clerical workers | . 06 | . 07 | . 07 | - 30 | . 30 | .21 | . 35 | - 36 | . 22 |
| Crafts and kindred workers | 10.38 | 10.68 | 12.30 | 17.14 | 18.80 | 22.23 | 16.73 | 17.73 | 22.57 |
| Construction crafts workers | 5.18 | 5.04 | 5.35 | 4.38 | 4.57 | 4.89 | 3.97 | 4.05 | 4.31 |
| Carpenters and apprentices | . 34 | . 41 | . 35 | 2.72 | 2.91 | 2.65 | 2.53 | 2.61 | 2.29 |
| Brick, stonemasons, apprentices | . 03 | . 02 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Bulldozer operators | 2.59 | 2.70 | 3.58 | . 65 | . 64 | . 97 | - 37 | - 35 | . 50 |
| Electricians and apprentices | . 04 | . 05 | . 08 | - 50 | - 58 | . 88 | -44 | -58 | 1.13 |
| Excavating, grading mach operatr | 2.19 | 1.86 | 1.34 | -16 | - 11 | . 08 | . 09 | . 07 | . 07 |
| Ploor layers, exc tile setters | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 01 | -00 | . 01 |
| painters and apprentices | .00 | . 00 | . 00 | - 15 | . 12 | .07 | . 44 | - 34 | . 16 |
| plumbers, pipefitters, dprentices | . 00 | . 00 | . 00 | . 13 | - 14 | - 18 | . 08 | . 08 | - 15 |
| Roofers and slaters | . 00 | . 00 | . 00 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| Tile setters | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 | .01 | . 00 | . 00 |
| Blue collar worker supervisors | 1.50 | 1.73 | 1.67 | 3.75 | 4.45 | 5.17 | 4.86 | 5.61 | 7.65 |
| Metalworky craft urkrs, exc mech | . 21 | . 29 | . 46 | 1.97 | 2.42 | 3.47 | 2.06 | 2.21 | 3.30 |
| Blacksmiths | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | - 02 | . 03 | . 06 |
| Forge and hammer operators | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 06 | . 06 | . 07 |
| Job and die setters, metal | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 06 | . 05 | . 06 |
| Machinists and apprentices | .09 | . 13 | . 24 | . 52 | . 66 | . 96 | . 95 | 1.13 | 1.94 |
| Millwrights | . 10 | - 14 | . 19 | 1.32 | 1.62 | 2.32 | -46 | - 54 | - 78 |
| Pattern and mcldmakers | . 00 | . 00 | . 00 | . 05 | . 05 | . 07 | - 36 | - 22 | - 15 |
| Rollers and finishers,metal | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Sheetmetal workers, apprentices | . 00 | . 00 | . 00 | . 02 | -02 | . 02 | . 03 | . 03 | . 05 |
| rool and diemakers, apprentices | . 01 | . 01 | . 02 | . 02 | . 03 | . 05 | - 13 | . 14 | . 18 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Logging |  |  | Sammill. planing and mill work |  |  | $\begin{gathered} \text { Misc } \\ \text { vood } \\ \text { products } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 1.05 | 1. 19 | 1.33 | 1.81 | 2.02 | 2.53 | 2.25 | 2-60 | 3.55 |
| Air cond, heating, refrig mecn | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| auto body repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| auto mechanics and apprentices | . 38 | . 34 | . 36 | . 25 | - 19 | . 16 | . 21 | . 15 | . 11 |
| Heavy equip mech, incl diesel | . 04 | . 82 | . 96 | 1.45 | 1.74 | 2.32 | 1.88 | 2.29 | 3.33 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | .01 | .01 |
| Loom fixers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | .01 |
| Radio, television repairecs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .01 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 03 | . 03 | .01 | . 08 | . 06 | . 04 | . 10 | . 09 | . 05 |
| Printing trade crafts workers | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 25 | . 30 | . 38 |
| Compositors and typesetters | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 16 | . 19 | . 20 |
| Engravers exc photoengravers | .01 | . 00 | . 00 | .00 | . 00 | .00 | . 02 | . 02 | . 00 |
| Photoengravers, lithograpners | .00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Press, plate printers, aprentices | .01 | . 01 | . 00 | .00 | . 00 | . 00 | .05 | . 07 | . 13 |
| Transport, public util craft wkrs | .03 | . 03 | .03 | . 05 | . 05 | . 04 | . 03 | . 06 | . 07 |
| Locomotive engineers | .01 | . 01 | . 01 | . 01 | . 02 | . 03 | . 03 | . 05 | . 07 |
| power station operators | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 | .00 | .00 | . 00 |
| Telephone installers, repairers | . 02 | . 02 | . 02 | . 00 | - 00 | . 00 | .01 | . 01 | . 01 |
| Other crafts, kindrea workers | 2.39 | 2. 38 | 3.46 | 5.18 | 5.29 | 6.13 | 3.32 | 2.91 | 3.31 |
| Cabinetmakers | . 02 | . 03 | . 03 | . 94 | 1.09 | 1.22 | . 44 | . 27 | . 17 |
| Crane, derrick, hoist operator | 1.87 | 1.86 | 2.93 | . 65 | . 58 | . 90 | . 74 | . 61 | .85 |
| Decorators, yindow dressers | .00 | . 00 | . 00 | - 00 | . 00 | .00 | . 01 | . 03 | . 06 |
| Furniture and wood finishers | . 00 | .00 | .00 | . 12 | . 09 | . 06 | .32 | . 24 | . 15 |
| Glaziers | . 00 | . 00 | .00 | . 15 | - 15 | . 12 | . 02 | . 03 | . 03 |
| Inspectors, lcg and lumber | . 48 | . 47 | . 49 | 3.10 | 3.21 | 3.67 | . 64 | . 74 | 1.24 |
| Inspectors, other | . 00 | . 00 | . 00 | -01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Stationary engineers | . 01 | . 01 | . 01 | . 12 | - 10 | . 09 | .18 | . 12 | . 08 |
| Upholsterers | .00 | . 00 | .00 | .01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Other crafts workers | . 02 | .01 | . 02 | . 06 | . 05 | . 04 | . 95 | . 85 | .73 |
| operatives | 15.27 | 16.08 | 18.26 | 42.21 | 42.07 | 41.38 | 53.04 | 52.11 | 49.62 |
| operatives, except transport | 6.59 | 7.49 | 8.31 | 33.99 | 33.31 | 31.45 | 47.38 | 45.63 | 41.35 |
| Semiskilled metainorkiny | . 21 | . 21 | . 21 | 1.45 | 1.21 | 1.16 | 2.49 | 1.78 | 1.62 |
| Drill press oferatives | .00 | . 00 | .00 | . 09 | . 05 | . 03 | . 26 | . 14 | . 08 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | .00 | .00 | . 00 | .00 | . 02 | . 03 | . 05 |
| Grinding machine operatives | . 02 | . 01 | . 01 | - 17 | . 12 | . 11 | . 14 | . 09 | . 06 |
| Lathe,milling mach operatives | . 04 | . 03 | . 01 | . 52 | . 34 | . 19 | 1.08 | . 65 | . 29 |
| Metal platers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 03 | . 02 |
| Other precision mach operators | .01 | . 00 | . 00 | . 13 | . 08 | . 04 | - 26 | - 17 | -08 |
| Punch,stamping press operatives | . 01 | .01 | .01 | .07 | . 05 | . 02 | . 24 | . 15 | . 08 |
| Solderers | .01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 03 | . 02 | . 01 |
| Welders and flamecutters | . 13 | . 15 | . 18 | . 47 | . 57 | . 78 | . 40 | . 51 | . 96 |
| Semiskilled packing, inspectiny | . 23 | . 30 | . 39 | 1.37 | 1.57 | 1.64 | 4.69 | 4.87 | 6.53 |
| Checkers, examiners, mfy | . 10 | . 13 | . 17 | . 44 | . 55 | . 68 | 1.67 | 1.96 | 3.26 |
| Graders and scrters, mfy | . 09 | . 12 | . 15 | . 33 | . 40 | . 40 | 1.17 | 1.16 | 1.24 |
| Packer, wrapper,exc meat, prodce | .04 | . 05 | . 07 | . 59 | . 63 | . 56 | 1.85 | 1.75 | 2.03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Logging |  |  | Saumill. planing and mill work |  |  | $\begin{gathered} \text { Misc } \\ \text { wood } \\ \text { products } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 6.15 | 6.99 | 7.71 | 31.17 | 30.53 | 28.65 | 40.20 | 38.97 | 33.27 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Assemblers | . 08 | . 13 | . 23 | 1.96 | 2.20 | 2.80 | 4.41 | 4.95 | 5.95 |
| Blasters | . 02 | . 02 | . 02 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Survejors helpers | . 01 | . 02 | . 03 | . 01 | .01 | . 02 | - 00 | . 00 | . 00 |
| Cutting operatives, other | . 13 | . 15 | . 15 | 2.63 | 2.54 | 2.39 | 2.47 | 2.39 | 2.15 |
| Drillers, earth | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 01 |
| Dyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 |
| Filer, polisher, sander, buffer | .07 | . 05 | . 04 | 1.42 | 1.09 | . 69 | 2.14 | 1.53 | . 59 |
| Garage urkr,gas station atten | .01 | .01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Laundry,dry cleang oprs,other | . 00 | . 00 | -00 | . 00 | . 00 | .00 | .01 | . 01 | . 01 |
| Mixing operatives | . 01 | . 01 | . 00 | -14 | . 14 | - 12 | - 12 | - 10 | . 06 |
| oilers,greasers,exc autonobiles | .03 | . 03 | .03 | .18 | . 20 | . 22 | . 11 | . 13 | .18 |
| Painters, mfg articles | . 00 | . 00 | . 00 | . 40 | . 31 | . 18 | 1.63 | 1.19 | . 66 |
| Photographic frocess workers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .01 | -00 | . 00 |
| Riveters and fasteners | . 00 | . 00 | . 00 | -29 | . 26 | . 23 | 2.43 | 2.17 | 1.60 |
| Sayyers | 4.02 | 4.73 | 5.72 | 12.00 | 12.01 | 12.12 | 7.93 | 8.23 | 8.95 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 07 | . 06 | . 05 | . 10 | . 08 | . 07 |
| Furnace tendr,stokr,exc metal | . 08 | . 06 | . 06 | . 93 | .61 | . 49 | .77 | - 54 | . 58 |
| Winding operatives, other | . 01 | . 01 | . 00 | . 04 | . 04 | . 03 | . 13 | . 11 | . 05 |
| Miscellaneous machine operatves | 1.10 | 1.18 | -89 | 6.61 | 6.73 | 5.55 | 9.08 | 9.16 | 8.07 |
| other operatives, exc transport | . 55 | . 58 | . 53 | 4.43 | 4.30 | 3.72 | 8.78 | 8.28 | 4.22 |
| Transport equifment operatives | 8.67 | 8.59 | 9.95 | 8.22 | 8.76 | 9.92 | 5.66 | 6.48 | 8.27 |
| Delivery and route workers | . 14 | - 16 | . 20 | . 31 | - 32 | . 36 | . 29 | . 30 | - 30 |
| Fork lift, tow motor operatives | . 53 | . 65 | . 60 | 3.79 | 4.43 | 4.75 | 2.99 | 3.55 | 4.38 |
| Rail vehicle cperators, other | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Railroad brake operators | . 01 | . 01 | . 01 | . 02 | . 03 | . 03 | . 02 | . 04 | . 04 |
| Eailcoad suitch operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Taxicab drivers, chauffeurs | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 |
| Truck drivers | 7.97 | 7.74 | 9.13 | 4.08 | 3.96 | 4.77 | 2.28 | 2.54 | 3.53 |
| Service workers | . 36 | . 34 | . 33 | 2.05 | 1.80 | 1.49 | 2.05 | 1.73 | 1.14 |
| cleaning service workers | . 16 | - 14 | - 13 | 1.03 | - 78 | . 38 | 1.27 | . 97 | . 36 |
| bldg interior cleaners, other | . 04 | . 04 | . 04 | . 16 | . 13 | . 08 | . 24 | . 20 | . 08 |
| Janitors and sextons | . 11 | . 10 | . 09 | . 88 | . 65 | . 30 | 1.04 | . 77 | . 28 |
| Food service workers | . 05 | . 04 | . 03 | .03 | . 02 | . 02 | .03 | . 04 | . 05 |
| Cooks, exc private households | . 04 | .03 | . 02 | . 02 | . 01 | .01 | . 01 | . 01 | . 01 |
| Dishwashers | . 01 | . 01 | .01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Food counter, fountain vorkers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | .01 | . 01 |
| Waiters | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| other food serv ukrs, exc privt | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Personal service workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 |
| Attendants, personal serv,other | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| elevator operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| Protective service workers | . 16 | . 17 | .18 | . 99 | - 99 | 1.09 | . 71 | . 70 | . 69 |
| Firefighters | . 00 | . 00 | . 00 | -01 | . 01 | . 01 | . 02 | . 01 | . 02 |
| Guards | . 15 | .17 | -18 | . 96 | - 97 | 1.07 | .69 | . 68 | . 68 |
| laborers, except farm | 64.68 | 60.24 | 53.36 | 23.74 | 20.80 | 16.65 | 9.21 | 7.68 | 5.02 |
| Carpenter helfers | . 04 | . 05 | . 05 | . 36 | . 33 | . 53 | . 40 | . 36 | . 29 |
| Constr labr, exc carpenter helpr | . 08 | . 05 | . 01 | -24 | . 17 | . 10 | . 31 | . 22 | . 08 |
| Preight and material handlers | 4.12 | 4.03 | 3.05 | 12.68 | 11.85 | 10.41 | 4.75 | 4.26 | 3.34 |
| Gardenrs, groundkeepers, exc farin | +19 | - 19 | .13 | - 11 | . 11 | - 10 | . 20 | - 20 | - 17 |
| Longshore workers, stevedores | . 04 | . 06 | . 07 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Timbercutting, logging vorkers | 58.77 | 54.90 | 49.83 | 3.01 | 2.52 | 1.84 | . 97 | . 82 | . 48 |
| Stock handlers | . 07 | . 08 | . 07 | .18 | . 15 | . 07 | . 28 | . 25 | . 14 |
| Teamsters | 1.31 | . 83 | . 10 | .76 | . 48 | . 21 | . 02 | . 02 | . 01 |
| Vehicle washers,equip cleaners | . 06 | . 05 | . 05 | -09 | . 08 | . 05 | - 14 | . 12 | . 05 |
| Warehouse laborers, other | . 01 | . 01 | .01 | .11 | - 10 | . 06 | . 05 | . 04 | . 02 |
| Other laborers | . 00 | . 00 | . 00 | 6.21 | 5.01 | 3.27 | 2.09 | 1.39 | . 44 |

Table 1. Percent distribution of industry employment ty occupation, 1970, 1978 and projected 1990
Furniture
and
$1970 \quad 1978 \quad 1990$

Stone, clay. products
$1970 \quad 1978 \quad 1990$

Glass and glass products
$1970 \quad 1978 \quad 1990$

Total all occupations

| Professional and technical |
| :---: |
| Engineers, technical |
| Chemical |
| Civil |
| Electrical |
| Industrial |
| Mechanical |
| Metallurgical |
| Uining |
| Sales |
| other engineers |
| Life and physical scientists |
| Chemists |
| Geologists |
| Physicists and astronomers |
| Mathematical sfecialists |
| Statisticians |
| Engineering, science technicians |
| Chemical technicians |
| Drafters |
| Blectrical and electronic |
| Industrial engineering |
| Hechanical engineering |
| Other engineering, science tech |
| Medical workers, exc technicians |
| Registered nurses |
| Technicians, except health |
| Airplane pilots |
| Radio operators |
| Tool programers, ${ }^{\text {numerical }}$ |
| Other technicians except health |
| Computer specialists |
| Computer programers |
| Computer systems analysts |
| Social scientists |
| Economists |
| Teachers |
| Adult education |
| Writers artists, entertainers |
| Designers |
| Editors and reforters |
| painters and sculptors |
| Photographers |
| Public relaticns specialists other writers,artists,entertain |
|  |  |
|  |
| Accountants |
| Architects |
| Lawyers |
| Librarians |
| Operations and systems research |
| personnel.labor relations wks other research workers |
|  |  |

Managers, officials, proprietors
Buyers, sales, loan managers
Bank, financial managers
Credit managers
purchasing agents, buyers, other
Sales manager, exc retail trade
ngineering, science technicians
Chemical technicians
Blectrical and electronic
Industrial engineering
Mechanical engineering

Medical workers,exc technicians Registered nurses

Technicians, except health Radio operators
tool programers,numerical other technicians except health

Computer specialists
Computer programers
Social scientists
Economists

Adult education
Writers, artists, entertainers Designers
ditors and reforters
painters and sculptors Photographers
other writers,artists, entertain
Other professional and technical accountants
Architects
avyers
operations and systems research Personnel, labor relations wkrs other researcb morkers
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| . 01 | . 01 | .01 |
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| .03 | . 02 | . 00 |
| . 40 | . 33 | . 24 |
| . 36 | . 35 | . 33 |
| . 28 | . 27 | . 24 |
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| . 07 | . 07 | . 08 |
| . 03 | . 02 | . 01 |
| . 02 | . 02 | .01 |
| 1.48 | 1. 50 | 1. 57 |
| . 05 | . 05 | . 04 |
| . 37 | - 33 | . 39 |
| . 11 | . 09 | . 03 |
| . 15 | . 19 | - 20 |
| . 02 | .02 | .01 |
| . 79 | . 83 | . 90 |
| . 15 | . 15 | - 14 |
| . 15 | . 14 | . 14 |
| . 07 | . 09 | .11 |
| . 02 | .03 | . 05 |
| . 01 | .01 | .01 |
| . 01 | . 01 | . 01 |
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| . 22 | . 28 | . 24 |
| . 14 | . 15 | .13 |
| . 08 | . 12 | . 11 |
| . 11 | . 15 | .11 |
| . 10 | . 15 | - 11 |
| . 02 | . 02 | .01 |
| . 02 | . 02 | . 01 |
| . 87 | . 97 | . 67 |
| . 25 | . 31 | . 35 |
| . 02 | . 02 | . 02 |
| . 50 | - 52 | . 17 |
| . 03 | . 03 | . 04 |
| . 06 | . 07 | . 07 |
| . 02 | . 02 | .01 |
| 1.45 | 1.63 | 1.34 |
| . 75 | -84 | . 72 |
| . 02 | . 01 | . 01 |
| . 02 | . 03 | .01 |
| . 01 | . 01 | .01 |
| . 16 | . 25 | . 29 |
| . 37 | . 38 | .24 |
| . 12 | . 10 | . 07 |
| 4.02 | 4.58 | 4.60 |
| . 79 | . 70 | . 54 |
| . 13 | .11 | . 06 |
| .03 | .01 | .01 |
| . 31 | . 25 | . 18 |
| . 32 | . 32 | . 30 |

Table 1. Fercent distribution of industry employment by occupation, 1970. 1978 and projected 1990

|  | ```Furniture and fixtures``` |  |  | Stone, clay, and glass products |  |  | $\begin{aligned} & \text { Glass and } \\ & \text { glass } \\ & \text { products } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers,officials, proprts | 4.65 | 5.69 | 5.94 | 5.95 | 7.26 | 7.70 | 3.23 | 3.88 | 4.06 |
| Office managers, other | . 31 | - 33 | . 36 | . 47 | . 47 | . 45 | . 19 | . 19 | . 19 |
| Officers, pilots, pursers,snip | . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Gestaurant, cafe, bar, managers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other managers, administrators | 4.33 | 5.35 | 5.56 | 5.46 | 6.77 | 7.23 | 3.03 | 3.68 | 3.87 |
| Sales workers | 2.29 | 2.40 | 2.84 | 2.15 | 2.30 | 2.88 | 1.20 | 1.22 | 1.43 |
| Advertising agents, sales morker | .01 | . 02 | . 03 | . 01 | . 02 | . 04 | . 01 | . 02 | . 04 |
| other sales workers | 2.27 | 2.38 | 2.81 | 2.14 | 2.28 | 2.84 | 1.18 | 1.20 | 1.39 |
| Clerical workers | 9.38 | 9.37 | 9.67 | 9.96 | 9.67 | 9.24 | 9.27 | 8.87 | 8.70 |
| Stenoyraphrs,typists, secretaries | 2.58 | 2.66 | 3.17 | 3.07 | 3.06 | 3.54 | 3.05 | 3.06 | 3.70 |
| Legal secretaries | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 03 | . 02 | . 03 |
| Other secretaries | 1.96 | 2. 10 | 2.63 | 2.41 | 2.51 | 3.04 | 2.45 | 2.56 | 3.23 |
| Stenographers | . 05 | . 03 | . 02 | . 08 | . 03 | . 00 | -07 | . 03 | . 01 |
| typists | . 58 | . 52 | . 52 | . 56 | . 49 | . 47 | . 51 | . 45 | . 44 |
| office machine operators | . 46 | . 48 | . 29 | . 51 | - 55 | . 32 | . 54 | . 52 | . 28 |
| Bookkeeping and billing | . 05 | . 02 | .01 | . 05 | . 02 | .01 | . 03 | . 01 | . 00 |
| Calculating | . 02 | . 01 | . 01 | . 02 | . 01 | .01 | . 03 | . 02 | . 00 |
| Computer and feripheral equip | . 11 | . 23 | - 16 | - 15 | . 31 | - 22 | -13 | . 26 | - 19 |
| Duplicating | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Keypunch | .25 | - 19 | - 10 | . 25 | - 18 | . 07 | . 31 | . 20 | . 06 |
| Takulating | . 00 | . 00 | .00 | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 |
| other office machine operators | . 02 | . 02 | . 01 | -02 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Other clerical workers | 6.34 | 6.24 | 6.21 | 6.38 | 6.07 | 5.38 | 5.68 | 5.29 | 4.72 |
| Billing clerks | . 20 | . 22 | . 27 | . 20 | . 21 | . 23 | - 18 | -18 | . 22 |
| Bookkeepers | 1.31 | 1.33 | 1.44 | 1.48 | 1.46 | 1.47 | . 96 | . 97 | 1.05 |
| Casniers | .03 | . 04 | . 06 | . 04 | . 04 | . 04 | . 05 | . 05 | . 03 |
| clerical supervisors, other | . 07 | . 08 | . 07 | . 11 | . 13 | . 11 | . 11 | . 12 | - 10 |
| collectors, bill and account | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 | . 01 | . 01 | - 01 |
| counter clerks,exc food | . 19 | . 20 | . 20 | - 14 | - 15 | . 14 | . 14 | . 14 | . 13 |
| Dispatchers, starters, vehicle | . 02 | . 02 | . 02 | - 38 | . 37 | . 32 | . 02 | . 02 | . 02 |
| Estimators, investigators, otner | .21 | . 24 | . 14 | . 19 | - 20 | . 10 | . 15 | . 15 | . 07 |
| Expediters, prcduction controlrs | . 48 | . 49 | . 47 | . 45 | -43 | . 32 | . 52 | . 47 | . 30 |
| File clerks | . 14 | . 13 | - 15 | - 12 | . 11 | - 11 | -14 | . 12 | . 12 |
| Mail nandlers, exc fost office | . 08 | . 07 | . 06 | . 07 | . 07 | .05 | . 09 | . 08 | . 05 |
| Messengers and office helpers | . 02 | . 02 | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Payroll, timekeeping clerks | . 39 | - 44 | -43 | -40 | -43 | . 37 | . 45 | . 48 | . 40 |
| Receptionists | . 20 | - 18 | . 12 | - 18 | - 15 | . 07 | . 15 | . 12 | . 05 |
| Shipping and receiving clerks | 1.57 | 1.51 | 1.72 | - 84 | - 77 | . 84 | 1.05 | . 97 | 1.08 |
| Statistical clerks | . 13 | . 14 | . 12 | . 20 | . 21 | - 17 | . 19 | . 20 | . 16 |
| Stock clerks and store keepers | . 70 | . 53 | . 25 | . 57 | . 41 | . 16 | . 59 | . 41 | . 13 |
| Telephone operators | . 12 | - 10 | . 12 | - 12 | . 08 | . 08 | . 13 | . 09 | . 07 |
| Weighers | . 00 | . 00 | . 00 | -19 | . 17 | . 09 | . 09 | . 07 | . 03 |
| Misc clerical workers | . 48 | . 50 | . 55 | . 65 | . 65 | . 68 | . 66 | . 66 | . 70 |
| Crafts and kindred workers | 26.84 | 26.06 | 25.70 | 18.45 | 19.20 | 21.51 | 17.80 | 19.20 | 22.69 |
| Construction crafts workers | 3.88 | 4.04 | 4.00 | 3.60 | 3.32 | 3.30 | 2.33 | 2.28 | 2.48 |
| Carpenters and apprentices | 3.00 | 3. 24 | 3.38 | . 58 | . 64 | . 72 | . 48 | . 50 | . 55 |
| Brick, stonemasons, apprentices | .01 | . 01 | . 01 | . 41 | . 28 | . 09 | - 20 | . 14 | . 04 |
| Bulldozer operators | . 00 | . 00 | . 00 | -25 | . 22 | . 20 | -13 | . 11 | . 08 |
| Cement and concrete finisners | . 00 | - 00 | . 00 | - 34 | . 36 | . 54 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 17 | . 19 | . 23 | - 86 | -90 | 1.00 | .98 | 1.06 | 1.36 |
| Excavating.grading mach operatr | .01 | . 01 | . 02 | . 69 | . 52 | . 30 | . 08 | . 06 | . 03 |
| Painters and apprentices | . 62 | . 52 | -25 | . 10 | . 07 | . 03 | - 11 | . 08 | . 03 |
| Plasterers and apprentices | . 01 | . 01 | . 00 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| plumbers, pipefitters, aprentices | . 04 | . 05 | . 08 | - 25 | - 25 | . 37 | . 32 | - 31 | . 39 |
| Structural metal craft workers | . 02 | . 01 | . 02 | . 02 | . 01 | . 00 | . 03 | . 02 | . 01 |
| Tile setters | . 01 | .01 | . 01 | . 06 | . 03 | .01 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 4.43 | 5.17 | 6.30 | 5.09 | 5.68 | 6.43 | 4.91 | 5.42 | 6.13 |
| Metalworkg craft wrkrs, exc mech | 1.30 | 1.23 | 1.17 | 2.45 | 2.71 | 3.98 | 3.72 | 4.30 | 6.88 |
| Biacksmiths | . 00 | . 00 | .00 | . 02 | . 01 | . 00 | . 01 | . 01 | . 00 |
| Boilermakers | . 00 | . 00 | . 00 | . 02 | .03 | . 04 | . 01 | . 01 | . 01 |
| Heat treaters, annealers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 02 | . 04 |
| forge and hammer operators | .01 | . 01 | . 02 | . 01 | . 02 | .03 | . 01 | . 02 | . 04 |
| Job and die setters, metal | . 11 | . 09 | . 06 | . 06 | . 05 | . 04 | . 05 | . 04 | . 03 |
| Machinists and apprentices | . 57 | . 59 | - 54 | 1.57 | 1.81 | 2.78 | 2.74 | 3.26 | 5.32 |
| Millwrights | . 11 | . 12 | -14 | . 35 | - 42 | . 55 | . 43 | . 51 | . 69 |
| Pattern and moldmakers | . 10 | . 08 | . 09 | . 08 | . 07 | . 10 | . 13 | . 11 | . 17 |
| Rollers and finishers,metal | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | -01 | . 01 | . 01 |
| Sheetmetal workers, apprentices | . 19 | . 15 | . 10 | . 09 | -09 | . 13 | - 13 | .13 | . 20 |
| Tool and diemakers, apprentices | . 22 | . 20 | . 22 | .19 | . 19 | . 29 | . 18 | . 20 | . 38 |


|  | Furniture and fixtures |  |  | Stone, clay, and glass products |  |  | Glass and glass products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers,installers | 1.32 | 1. 82 | 2.28 | 4.40 | 4.76 | 4.82 | 4.03 | 4.60 | 5.02 |
| Air cond, heating, refrig mecu | . 01 | . 02 | . 01 | . 07 | - 10 | . 11 | . 14 | . 20 | . 22 |
| Aircraft mechanics | .03 | . 05 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto body repairers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 06 | . 05 | .03 | . 88 | . 68 | . 30 | . 07 | . 05 | . 02 |
| Data processiry mach repairers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 1.24 | 1. 54 | 1.98 | 3. 15 | 3.72 | 4.26 | 3.49 | 4.08 | 4.62 |
| Household appliance mechanics | . 06 | . 06 | . 03 | . 01 | .01 | . 01 | . 01 | .01 | .01 |
| Loom fixers | . 00 | . 00 | . 00 | .02 | . 02 | .03 | -03 | .03 | . 04 |
| Office machinc repairers | . 02 | . 02 | -04 | . 00 | . 00 | . 00 | .01 | . 00 | . 00 |
| Radio, television repairers | . 03 | . 03 | . 04 | . 01 | . 01 | . 02 | .03 | . 02 | . 04 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 02 | .01 |
| other mechanics and apprentices | . 05 | . 05 | . 02 | .24 | - 20 | . 08 | . 23 | .18 | . 05 |
| Printing trade crafts warkers | . 07 | . 09 | . 13 | . 09 | . 11 | . 15 | . 16 | . 17 | .23 |
| compositors and typesetters | . 05 | . 06 | . 09 | . 04 | . 04 | . 07 | .03 | . 05 | . 10 |
| Engravers exc photoengravers | . 01 | . 00 | . 00 | . 02 | . 02 | . 01 | . 05 | . 03 | . 00 |
| Press, plate frinters,aprentices | . 02 | . 02 | .04 | .03 | . 04 | . 07 | . 07 | . 09 | . 14 |
| Transport, public util craft wkrs | . 02 | . 02 | . 02 | . 05 | . 05 | . 04 | . 04 | .03 | . 09 |
| slec pur line instaler, repairer | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Loconotive engineers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Power station operators | . 01 | . 01 | . 01 | . 02 | . 02 | .01 | . 03 | . 03 | . 01 |
| Other crafts, kindred workers | 15.62 | 13. 70 | 11.81 | 2.77 | 2.59 | 2.81 | 2.61 | 2.40 | 1.94 |
| Bakers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Cabinetmakers | 6.57 | 6.96 | 6.69 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| carpet installers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Crane, derrick, hoist operator | . 07 | - 06 | . 10 | 1.05 | - 92 | 1.33 | . 31 | . 24 | . 24 |
| Decorators, window dressers | . 01 | . 02 | . 03 | . 01 | . 01 | . 02 | .01 | . 01 | . 00 |
| Furniture and wood finishers | 2.58 | 2.22 | 1.09 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Glaziers | . 03 | . 04 | . 05 | -18 | . 20 | . 21 | . 62 | . 67 | . 67 |
| Inspectors, log and lumber | . 08 | . 09 | -12 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 02 | . 02 | . 03 | . 05 | . 06 | . 07 | . 03 | . 04 | . 04 |
| Jewelers and watchmakers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 |
| opticians,lens grinder, polisner | . 00 | . 00 | . 00 | . 08 | - 11 | . 16 | - 26 | . 36 | . 51 |
| Stationary engineers | . 08 | . 05 | . 01 | . 26 | . 19 | . 07 | . 17 | . 12 | . 05 |
| Stone cutters, stone carvers | . 00 | - 00 | . 00 | . 69 | . 74 | . 76 | . 01 | . 02 | . 04 |
| Tailors | . 17 | . 17 | . 17 | . 01 | . 01 | . 00 | .01 | . 01 | .01 |
| Upholsterers | 5.83 | 3. 92 | 3.46 | .01 | . 01 | . 00 | . 02 | . 01 | . 01 |
| other crafts workers | . 17 | . 13 | . 05 | . 42 | . 33 | . 15 | 1.15 | . 89 | .33 |
| operatives | 47.32 | 47.09 | 47.00 | 45.71 | 45.22 | 46.00 | 52.41 | 51.84 | 51.71 |
| Operatives, except transport | 44.69 | 44.30 | 43.49 | 35.02 | 33.92 | 30.69 | 48.54 | 47.65 | 46.98 |
| Semiskilled metalworking | 3.73 | 3.34 | 3.23 | 2.81 | 2.49 | 2.38 | 1.86 | 1.50 | 1.40 |
| Drill press cferatives | . 19 | . 12 | . 03 | . 13 | . 08 | . 02 | . 07 | . 04 | .01 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | . 00 | . 18 | - 20 | . 26 | -14 | . 15 | .21 |
| Grinding machine operatives | . 08 | . 06 | . 03 | . 23 | . 17 | . 09 | .09 | . 07 | . 04 |
| Heaters, metal | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .03 |
| Lathe,milling mach operatives | . 54 | - 35 | -19 | . 50 | - 31 | - 14 | . 66 | . 39 | -15 |
| Metal platers | . 05 | . 04 | -01 | . 04 | . 03 | . 01 | . 05 | . 03 | . 01 |
| other precisicn mach operators | . 59 | . 40 | . 21 | . 06 | . 04 | . 02 | . 07 | . 04 | . 02 |
| Punch, stamping press oferatives | -60 | . 48 | . 26 | . 38 | . 26 | . 08 | . 17 | . 10 | . 02 |
| Solderers | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| Welders and flamecutters | 1.67 | 1. 89 | 2.50 | 1.29 | 1.41 | 1.75 | . 58 | .65 | - 91 |
| Semiskilled packing, inspecting | 3.87 | 4. 16 | 5.52 | 8.64 | 8.73 | 10.80 | 20.59 | 20.72 | 24.91 |
| Checkers, examiners, mfy | 1.92 | 2. 17 | 2.98 | 4.71 | 4.95 | 6.37 | 11.65 | 12.08 | 14.74 |
| Graders and scriters, mfg | . 05 | . 05 | . 07 | . 33 | . 29 | . 20 | . 31 | . 26 | . 12 |
| Packer,wrapper,exc meat, prodce | 1.91 | 1. 94 | 2.47 | 3.61 | 3.49 | 4.23 | 8.63 | 8.38 | 10.06 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Furniture } \\ & \text { and } \\ & \text { fixtures } \end{aligned}$ |  |  | Stone, clay, and glass products |  |  | $\begin{aligned} & \text { glass and } \\ & \text { glass } \\ & \text { products } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 37.09 | 36.79 | 34.75 | 23.56 | 22.70 | 17. 51 | 26.09 | 25.43 | $20.67^{*}$ |
| Asbestos,insulation workers | . 00 | . 00 | . 00 | . 07 | . 08 | . 04 | . 03 | . 05 | . 06 |
| Assemblers | 7.63 | 8.76 | 11.07 | 1.21 | 1.39 | 1.93 | 2.50 | 2.80 | 3.59 |
| Blasters | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Clotining ironers and pressers | . 03 | . 02 | . 01 | . 01 | - 00 | . 00 | . 02 | . 01 | . 01 |
| Cutting operatives, otier | 1.39 | 1.43 | 1.35 | 1.50 | 1.47 | 1.31 | 3.71 | 3.59 | 3.05 |
| Drillers, earth | . 00 | - 00 | . 00 | . 08 | . 06 | . 02 | . 00 | - 00 | . 00 |
| Dry wall installers, lathers | . 01 | . 01 | .01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 02 | . 02 | . 04 | . 01 | . 01 | . 01 | . 02 | . 03 | . 04 |
| Filer, polisher, sander, bufter | 4.94 | 3.90 | 1.50 | . 95 | . 75 | - 32 | 1.74 | 1.39 | . 63 |
| Garaye wrkr,gas station atten | . 01 | - 00 | . 00 | . 04 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Mixing operatives | . 10 | . 10 | . 09 | 1.46 | 1.41 | 1.11 | . 44 | . 40 | . 28 |
| Oilers,greasers,exc automodiles | . 03 | . 04 | . 05 | - 37 | . 37 | . 35 | . 17 | . 17 | . 19 |
| painters, mfg articles | 4.22 | 3.44 | 2.49 | . 63 | . 48 | . 30 | . 43 | . 32 | . 17 |
| Photographic process workers | . 02 | . 02 | . 03 | . 03 | -03 | . 03 | . 04 | . 04 | - 03 |
| Riveters and fasteners | . 44 | . 42 | .35 | . 06 | . 05 | . 03 | . 12 | . 11 | . 06 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Sawyers | 4.33 | 4.68 | 5.66 | - 30 | - 30 | . 26 | - 20 | . 20 | . 24 |
| Sewers and stitchers | 3.62 | 3.23 | 3.86 | . 10 | -09 | . 10 | . 10 | . 08 | . 08 |
| Shoemaking machine operatives | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metai | . 23 | . 11 | . 02 | 1.33 | - 80 | . 61 | . 83 | -67 | 1.12 |
| Winding operatives, other | . 04 | - 04 | . 03 | - 20 | . 17 | . 07 | . 41 | - 32 | - 10 |
| Miscellaneous machine operatves | 5.30 | 5.59 | 4.88 | 9.14 | 9.19 | 7.41 | 10.64 | 10.67 | 8.50 |
| other oferatives, exc transport | 4.72 | 4.95 | 3.31 | 6.02 | 5.98 | 3.53 | 4.69 | 4.57 | 2.49 |
| Transport equipment operatives | 2.64 | 2.79 | 3.50 | 10.69 | 11.30 | 15.31 | 3.88 | 4.19 | 4. 74 |
| Delivery and route workers | . 47 | . 47 | . 70 | . 78 | . 72 | . 88 | . 23 | . 22 | . 34 |
| Fork lift, tow motor operatives | . 67 | - 81 | .91 | 2.40 | 2.68 | 2.56 | 2.41 | 2.74 | 2.75 |
| Rail vehicle cperators, other | . 00 | - 00 | . 00 | . 02 | . 02 | . 03 | . 02 | . 02 | . 05 |
| Railroad brake operators | . 01 | - 00 | . 00 | . 03 | . 04 | . 09 | . 00 | . 00 | . 00 |
| Bailroad switch oferators | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 02 | . 02 | . 01 | . 05 | . 04 | . 02 | . 03 | . 04 | . 04 |
| Truck drivers | 1.47 | 1.49 | 1.89 | 7.37 | 7.74 | 11.65 | 1.17 | 1.16 | 1.57 |
| Service workers | 1.75 | 1. 56 | .99 | 2.19 | 1.75 | . 83 | 2.63 | 2.03 | - 88 |
| Cleaning service workers | 1.18 | 1.04 | - 59 | 1.60 | 1. 22 | . 43 | 1.85 | 1.36 | . 43 |
| Bldg interior cleaners, other | - 20 | - 18 | . 08 | . 27 | . 21 | . 07 | . 33 | . 26 | . 08 |
| Janitors and sextons | $\rightarrow 98$ | . 86 | -51 | 1.33 | 1.00 | . 36 | 1.52 | 1.11 | . 35 |
| Food service workers | .07 | . 06 | . 09 | . 06 | . 05 | . 03 | . 13 | . 10 | . 06 |
| Cooks, exc private households | . 02 | . 02 | . 02 | . 02 | . 02 | .01 | . 04 | . 03 | . 02 |
| Dishwashers | . 01 | . 01 | .01 | - 00 | . 00 | .00 | . 01 | . 01 | .01 |
| Food counter, fountain workers | . 01 | . 02 | -04 | .01 | . 01 | .01 | . 04 | . 03 | . 01 |
| Maiters | .01 | . 01 | . 02 | . 01 | . 01 | .01 | . 03 | . 02 | . 01 |
| Other food serv wkrs, exc privt | . 02 | . 01 | .01 | . 01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| Health service workers | .01 | .01 | . 00 | . 02 | . 02 | . 02 | . 03 | . 03 | . 03 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Practical nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Personal service workers | . 04 | . 03 | . 02 | . 04 | . 03 | . 02 | . 07 | . 05 | . 03 |
| Attendants, personal serv,other | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 05 | . 03 | . 01 |
| Elevator operators | . 03 | . 02 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | .01 | . 00 | -00 | . 02 | .01 | . 01 |
| Protective service workers | . 46 | . 43 | . 29 | . 47 | . 44 | . 33 | . 55 | . 50 |  |
| Firefighters | . 01 | . 01 | . 01 | . 02 | . 01 | . 02 | . 03 | . 03 | . 04 |
| Guards | -44 | . 41 | . 27 | . 45 | -42 | . 31 | . 52 | -47 | - 31 |
| Police and detectives | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Laborers, except farm | 4.28 | 4.08 | 3.99 | 8.36 | 7.20 | 5.34 | 6.36 | 5.65 | 4. 16 |
| Carpenter helfers | - 55 | . 53 | . 89 | . 22 | - 20 | . 32 | . 04 | . 03 | . 04 |
| Constr labr, exc carpenter helpr | . 07 | . 05 | . 02 | . 85 | . 74 | . 60 | . 09 | . 07 | . 02 |
| Freight and material handlers | 2.44 | 2.41 | 2.31 | 4.28 | 3.83 | 3.04 | 4.00 | 3.68 | 3.00 |
| Gardenrs, groundkeepers, exc farm | .03 | . 03 | . 03 | - 10 | . 09 | . 06 | . 09 | . 09 | . 06 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | -01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Timbercutting, logging workers | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Stock handlers | . 36 | - 33 | . 13 | . 49 | . 42 | . 17 | . 25 | . 22 | . 07 |
| Teamsters | . 01 | . 00 | . 00 | . 01 | -01 | . 02 | . 02 | . 02 | - 04 |
| Venicle washers,equip cleaners | . 13 | - 10 | . 03 | . 34 | - 29 | - 10 | . 66 | - 54 | -17 |
| Warehouse labcrers, other | . 18 | - 19 | . 25 | . 20 | -19 | -19 | . 32 | . 30 | . 31 |
| other laborers | . 49 | 42 | . 31 | 1.86 | 1.41 | . 83 | . 89 | . 71 | . 45 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Cement. concrete, plaster |  |  | $\begin{gathered} \text { Structural } \\ \text { clay } \\ \text { products } \end{gathered}$ |  |  | Pottery and related products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 5.74 | 5.82 | 4.81 | 3.88 | 3.99 | 3.89 | 5.85 | 6.45 | 7.14 |
| Engineers, technical | 1.36 | 1.17 | 1.00 | . 81 | . 67 | . 59 | 1.43 | 1. 32 | 1.32 |
| Chemical | . 07 | . 07 | . 05 | . 25 | - 16 | . 02 | . 26 | - 19 | . 06 |
| Civil | . 39 | . 30 | . 31 | -08 | . 07 | . 12 | . 04 | -03 | . 04 |
| Electrical | . 08 | . 07 | . 05 | . 01 | . 02 | . 02 | . 12 | - 13 | . 15 |
| Industrial | . 26 | . 27 | . 23 | . 16 | - 16 | . 15 | . 47 | -48 | . 45 |
| Mechanical | . 17 | . 16 | . 14 | . 08 | - 06 | . 03 | . 19 | . 18 | .23 |
| Mining | . 02 | . 02 | . 01 | . 00 | - 00 | . 00 | - 00 | . 00 | - 00 |
| Sales | . 09 | . 07 | . 07 | - 13 | - 11 | - 15 | . 08 | . 08 | . 14 |
| Other engineers | . 25 | . 21 | . 14 | . 10 | . 09 | . 10 | . 27 | . 24 | . 25 |
| Life and physical scientists | . 49 | . 41 | . 20 | -43 | . 41 | . 29 | - 22 | - 22 | - 35 |
| Chemists | . 45 | . 38 | . 16 | . 40 | - 38 | . 24 | . 22 | . 22 | .23 |
| Geologists | . 03 | . 02 | . 03 | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Physicists and astronomers | .01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 12 |
| Mathematical specialists | .03 | . 03 | . 02 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| statisticians | . 02 | . 02 | . 02 | .01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Engineering, science technicians | 1.75 | 1.73 | 1.54 | 1.24 | 1. 30 | 1.50 | 1.48 | 1.55 | 1.95 |
| Agriculturai, tiolgcl, exc healtn | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Chemical technicians | . 97 | . 99 | . 82 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Drafters | . 47 | . 40 | . 39 | . 21 | . 21 | . 34 | .43 | -4) | . 63 |
| Electrical and electronic | . 04 | . 04 | . 03 | .03 | . 03 | . 02 | - 10 | . 09 | . 06 |
| Industrial engineering | . 05 | . 05 | . 04 | . 12 | . 14 | - 12 | . 12 | -14 | . 11 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 04 | . 04 | . 02 |
| Surveyors | . 01 | . 01 | - 01 | .01 | .01 | . 03 | . 00 | . 00 | . 00 |
| Other engineering, science tech | . 22 | . 24 | - 26 | . 84 | . 89 | .96 | . 78 | . 85 | 1.11 |
| Medical workers.exc technicians | . 01 | . 01 | . 01 | . 04 | -06 | . 13 | . 06 | . 08 | . 13 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 01 | . 04 | . 00 | . 00 | . 00 |
| Registered nurses | . 01 | . 01 | . 01 | . 04 | - 05 | . 09 | . 06 | . 08 | . 13 |
| Technicians, except healtn | . 08 | - 10 | . 09 | . 02 | . 03 | . 05 | . 04 | . 06 | . 09 |
| Airplane pilots | . 04 | . 06 | . 07 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Radio operators | . 03 | . 03 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other technicians except health | .01 | . 01 | . 01 | .01 | . 02 | . 03 | . 04 | . 06 | . 09 |
| Computer specialists | .21 | . 25 | - 20 | . 08 | - 10 | . 10 | . 07 | . 10 | . 10 |
| Computer programers | . 14 | . 16 | . 13 | . 06 | . 07 | . 06 | . 05 | . 06 | . 05 |
| Computer systems analysts | . 07 | - 10 | -08 | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 |
| Social scientists | . 10 | . 13 | . 08 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Economists | . 08 | . 12 | . 08 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Political scientists | .01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Teachers | .01 | . 01 | . 03 | . 04 | . 04 | . 02 | . 04 | . 04 | .01 |
| Adult education | . 01 | . 01 | . 03 | . 04 | . 04 | . 02 | . 04 | . 04 | . 01 |
| writers,artists, entertainers | . 23 | . 29 | . 28 | . 38 | . 44 | . 30 | 1.78 | 2.27 | 2.41 |
| Designers | . 09 | . 11 | . 11 | . 19 | - 23 | . 20 | . 93 | 1.28 | 1.79 |
| Editors and reforters | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 03 | . 03 | .03 | . 12 | . 13 | . 05 | . 77 | . 88 | . 48 |
| Photographers | . 00 | . 00 | . 00 | . 01 | -01 | .01 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 09 | . 12 | . 11 | . 05 | . 06 | . 03 | . 04 | . 07 | . 10 |
| Other writers,artists, entertain | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 04 | . 05 | .04 |
| Other professicnal and technical | 1.48 | 1.69 | 1.37 | . 82 | . 91 | . 86 | . 72 | . 83 | . 77 |
| Accountants | . 99 | 1. 14 | 1.04 | . 58 | . 67 | . 67 | .35 | . 39 | . 38 |
| Architects | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Lawyers | . 07 | . 12 | . 08 | . 00 | . 00 | . 00 | . 03 | .06 | . 06 |
| Librarians | . 02 | .01 | . 01 | - 00 | . 00 | . 00 | - 00 | .00 | . 00 |
| operaticns and systems research | . 09 | . 11 | . 08 | . 05 | . 07 | . 08 | - 11 | . 16 | - 15 |
| Personnel, lakor relations wirs | . 24 | . 25 | . 15 | . 12 | . 13 | . 09 | - 16 | .17 | . 16 |
| other research workers | . 08 | . 06 | . 01 | . 07 | . 05 | .03 | . 06 | . 04 | . 01 |
| Managers, officials, proprietors | 10.50 | 12.20 | 12.12 | 5.59 | 7.49 | 10.25 | 3.82 | 4.48 | 5.04 |
| Buyers, sales,lcan managers | 1.32 | 1. 17 | -91 | . 79 | . 74 | . 76 | .71 | . 68 | . 74 |
| Bank, financial managers | . 14 | . 13 | . 07 | . 07 | . 06 | . 07 | . 06 | . 06 | . 07 |
| Credit managers | . 15 | . 09 | . 10 | . 09 | . 06 | . 08 | . 03 | . 03 | . 04 |
| Purchasing agents, buyers, other | . 38 | . 30 | . 18 | . 25 | . 21 | - 18 | . 32 | . 26 | . 20 |
| Sales manager. exc retail trade | . 65 | . 65 | . 57 | . 39 | . 41 | . 43 | .30 | . 33 | . 44 |

Table 1. Percent distribution of industry employment by occupation, 1970. 1978 and projected 1990

|  | Cement, concrete, plaster |  |  | $\begin{gathered} \text { Structural } \\ \text { clay } \\ \text { products } \end{gathered}$ |  |  | Pottery and related products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 9.18 | 11.03 | 11.21 | 4.81 | 6.76 | 9.50 | 3.11 | 3.80 | 4.29 |
| Mgrs, superintendents, building | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| office managers, other | .73 | . 72 | .61 | . 40 | . 40 | . 39 | . 20 | . 21 | . 23 |
| officers, pilots, pursers,smip | . 03 | . 02 | . 01 | . 02 | . 02 | . 02 | . 00 | .00 | . 00 |
| Other managers, administrators | 8.41 | 10.27 | 10.57 | 4.39 | 6.34 | 9.10 | 2.91 | 3.60 | 4.06 |
| Sales workers | 2.80 | 2. 98 | 3.66 | 2.14 | 2.66 | 4.32 | 1.47 | 1.69 | 2.70 |
| Advertising agents, sales worker | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales workers | 2.78 | 2.95 | 3.63 | 2.14 | 2.66 | 4.32 | 1.47 | 1.69 | 2.70 |
| Clerical workers | 10.71 | 10.29 | 9.05 | 6.25 | 6.17 | 6.43 | 8.08 | 7.71 | 8.17 |
| Stenographrs,typists, secretaries | 3.14 | 3.07 | 3.25 | 1.96 | 1.97 | 2.27 | 2.33 | 2.41 | 3.43 |
| Legal secretaries | .03 | . 03 | -02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other stcretaries | 2.60 | 2.64 | 2.89 | 1.53 | 1.63 | 1.97 | 1.81 | 1.96 | 2.91 |
| Stenographers | . 08 | . 03 | . 00 | . 09 | . 04 | . 01 | . 03 | . 02 | . 01 |
| typists | . 43 | . 37 | . 33 | . 34 | . 29 | . 30 | . 49 | . 43 | . 51 |
| Office machine operators | . 48 | - 52 | . 29 | . 33 | - 31 | . 21 | -46 | . 54 | . 47 |
| Bookkeeping and billing | . 08 | . 03 | . 01 | . 03 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Calculating | . 01 | . 01 | .01 | . 02 | . 01 | . 01 | . 03 | . 01 | . 01 |
| Computer and feripheral equip | . 15 | . 31 | . 19 | . 06 | . 13 | . 12 | . 14 | . 32 | - 34 |
| Keypunch | . 21 | . 15 | . 06 | . 18 | . 14 | . 07 | . 22 | . 16 | . 09 |
| Tabulating | .01 | .00 | . 00 | . 02 | . 00 | . 00 | .01 | . 00 | . 00 |
| Other office machine operators | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | . 04 | . 04 | . 03 |
| Other clerical workers | 7. 10 | 6.71 | 5.52 | 3.95 | 3.90 | 3.95 | 5.29 | 4.75 | 4.28 |
| Billing clerks | . 23 | . 24 | . 25 | . 20 | - 20 | . 23 | . 06 | . 06 | . 07 |
| Bookkeepers | 2.32 | 2.24 | 2.05 | . 93 | . 90 | . 80 | . 69 | .74 | 1.06 |
| Cashiers | . 02 | . 02 | . 01 | . 00 | . 00 | .00 | . 13 | . 15 | . 24 |
| Clerical supervisors, other | . 13 | . 15 | . 12 | . 07 | -08 | . 09 | . 04 | . 04 | . 03 |
| collectors, bill and account | .03 | . 03 | . 03 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Counter clerks,exc food | . 11 | . 11 | . 09 | . 08 | . 09 | . 11 | . 14 | . 15 | -18 |
| Dispatchers, starters, vehicle | 1.05 | 1.02 | . 85 | - 01 | . 01 | . 01 | . 04 | . 04 | . 05 |
| Estimators, investigators,other | . 22 | - 22 | . 10 | . 08 | . 08 | . 05 | . 11 | - 12 | . 09 |
| Expediters, prcduction controlrs | . 30 | . 30 | . 24 | . 27 | . 25 | . 21 | . 36 | .33 | . 23 |
| Pile clerks | . 09 | . 08 | . 07 | . 06 | . 05 | . 06 | . 14 | . 13 | . 22 |
| Mail handlers,exc post office | . 07 | . 06 | . 04 | . 05 | . 05 | . 04 | . 09 | . 08 | . 08 |
| Messengers and of fice helpers | . 02 | . 02 | . 02 | . 04 | . 05 | . 08 | .00 | . 00 | . 00 |
| Payroll, timekeeping clerks | . 34 | . 36 | . 28 | . 40 | - 44 | . 41 | . 49 | . 52 | . 49 |
| teceptionists | . 18 | . 13 | . 04 | . 16 | . 17 | . 20 | . 25 | . 24 | . 22 |
| Shipping and receiving clerks | . 33 | . 31 | . 33 | . 81 | - 80 | 1.03 | 1.13 | . 84 | . 42 |
| Statistical clerks | . 19 | . 20 | . 13 | . 11 | - 12 | . 11 | -29 | . 31 | . 28 |
| Stock clerks and store keepers | . 41 | - 30 | . 11 | . 30 | - 23 | - 12 | . 90 | . 65 | . 31 |
| Telephone operators | . 14 | . 10 | . 10 | . 02 | . 02 | . 01 | . 14 | . 05 | . 01 |
| Weighers | . 28 | . 24 | .11 | . 01 | . 01 | . 01 | . 09 | . 08 | . 06 |
| Misc clerical workers | . 61 | . 59 | . 56 | .31 | . 32 | . 36 | . 22 | - 22 | . 26 |
| Crafts and kindred workers | 19.92 | 19.47 | 18.70 | 14.37 | 14.80 | 16.54 | 11.21 | 11.91 | 14.39 |
| Construction crafts workers | 5.47 | 4.88 | 4.39 | 3.90 | 3.30 | 2.75 | 1.37 | 1.28 | 1.30 |
| Carpenters and apprentices | . 82 | . 88 | .92 | . 43 | - 50 | . 67 | . 32 | . 37 | . 56 |
| Brick, stonemasons, apprentices | . 42 | . 27 | . 05 | 1.17 | . 88 | - 34 | . 26 | -19 | . 09 |
| Bulldozer operators | . 36 | . 29 | . 18 | . 40 | . 37 | . 49 | . 00 | . 00 | . 00 |
| cement and concrete finishers | . 97 | 1.00 | 1.45 | . 06 | . 05 | . 03 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 94 | . 92 | . 77 | . 47 | . 53 | . 68 | . 48 | . 44 | - 32 |
| Excavating, grading mach operatr | 1.51 | 1.15 | . 66 | . 60 | -42 | . 17 | . 04 | . 03 | . 01 |
| Painters and apprentices | . 12 | . 09 | . 04 | - 18 | - 14 | . 04 | . 12 | . 10 | . 05 |
| Plasterers and apprentices | . 06 | . 05 | . 09 | . 03 | . 02 | . 01 | . 00 | .00 | . 00 |
| Plumbers, pipefitters, aprentices | . 17 | - 17 | . 23 | . 16 | . 16 | -22 | . 13 | . 14 | . 24 |
| Roofers and slaters | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Structural metal craft workers | . 04 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Tile setters | . 05 | . 02 | . 01 | .41 | . 24 | . 08 | . 01 | . 01 | .01 |
| Blue collar worker supervisors | 5.34 | 5.88 | 6.19 | 4.57 | 5.07 | 5.65 | 3.91 | 4.28 | 5.02 |
| Metalworkg craft wrims, exc mech | 1.01 | 1.03 | 1.10 | 1.44 | 1.60 | 2.30 | 2.85 | 2.79 | 3.15 |
| Blacksmiths | .03 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 06 | . 06 | . 10 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Heat treaters, annealers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 04 | . 05 | - 10 |
| Forge and hammer operators | . 02 | . 02 | .03 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 01 | . 01 | . 01 | . 05 | . 04 | . 02 | . 13 | . 09 | . 07 |
| Machinists and apprentices | . 60 | . 63 | . 68 | . 89 | 1.07 | 1.70 | 1.92 | 1.78 | 1.34 |
| Millwrights | . 18 | . 19 | . 17 | -22 | . 25 | - 31 | .27 | . 39 | . 79 |
| Pattern and mcldmakers | . 04 | . 03 | .03 | . 07 | . 06 | . 09 | - 10 | -09 | - 20 |
| zollers and finishers, metal | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 04 | . 02 | .01 | .01 | . 01 | . 01 | . 03 | . 02 | . 01 |
| Tool and diemakers, apprentices | . 04 | . 04 | . 07 | . 14 | . 10 | . 09 | . 37 | . 37 | . 65 |


|  | Cement, concrete. plaster |  |  | $\begin{gathered} \text { Structural } \\ \text { clay } \\ \text { products } \end{gathered}$ |  |  | Pottery and related products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 5.57 | 5.55 | 4.61 | 3.57 | 3.98 | 4.56 | 2.55 | 2.98 | 3.98 |
| Air cond, heating, refrig meca | . 02 | . 03 | . 03 | . 03 | . 04 | . 05 | .03 | . 06 | . 08 |
| Auto body repairers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | 2.11 | 1.62 | .70 | . 67 | . 49 | .17 | . 12 | . 09 | . 04 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | .00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 3.13 | 3.64 | 3.79 | 2.74 | 3.34 | 4.27 | 2.16 | 2.62 | 3.73 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .03 | . 03 | . 03 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 03 |
| other mechanics and apprentices | . 29 | - 24 | . 08 | . 08 | . 07 | . 04 | . 20 | . 17 | . 07 |
| Printing trade crafts workers | . 06 | . 06 | . 07 | . 01 | .01 | . 03 | . 15 | . 20 | . 31 |
| Compositors and typesetters | . 02 | . 03 | . 03 | .00 | . 00 | .00 | .06 | . 07 | . 10 |
| Engravers exc photoengravers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .03 | . 03 | . 06 |
| press, plate printers,aprentices | . 02 | . 02 | . 04 | . 01 | .01 | . 03 | .06 | . 10 | . 15 |
| Transport, public util craft wkrs | . 07 | . 08 | . 06 | . 03 | . 03 | . 04 | .03 | . 02 | . 01 |
| Locomotive engineers | . 03 | . 04 | . 04 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Power station operators | . 02 | . 01 | . 01 | - 01 | . 01 | .01 | . 01 | .01 | .01 |
| Telephone installers, repairers | .01 | . 01 | . 01 | .01 | .01 | . 01 | . 02 | . 01 | . 01 |
| Other crafts, kindred workers | 2.3 .9 | 2.00 | 2.28 | . 85 | . 80 | 1.22 | .35 | . 37 | . 62 |
| Crane,derrick,hoist operator | 1.80 | 1. 54 | 2.07 | . 58 | . 56 | 1.04 | .11 | . 10 | . 21 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | .00 | .00 | . 00 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | .00 |
| Glaziers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | . 03 | . 03 | . 05 |
| Inspectors, 1 cg and 1 umber | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Inspectors, other | . 03 | - 04 | . 02 | . 02 | . 02 | . 03 | . 06 | .07 | . 12 |
| Opticians, lens grinder, polisner | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | .01 | . 02 |
| Stationary engineers | . 37 | . 26 | . 09 | . 11 | . 08 | . 03 | . 12 | . 12 | . 18 |
| Stone cutters, stone carvers | . 00 | . 06 | . 04 | . 05 | . 04 | . 03 | .01 | .01 | . 02 |
| Upholsterers | . 00 | - 00 | . 00 | . 02 | . 01 | . 02 | .00 | . 00 | .00 |
| other crafts workers | . 13 | - 11 | . 06 | . 05 | . 04 | . 03 | .03 | . 02 | . 02 |
| Operatives | 41.08 | 41.19 | 45.88 | 43.23 | 43.23 | 42.36 | 59.54 | 58.78 | 54.74 |
| Operatives, except transport | 19.00 | 18.20 | 13.96 | 33.69 | 32.87 | 30.26 | 57.26 | 56.17 | 50.59 |
| Semiskilled metalworking | 2.90 | 2.79 | 2.82 | 1.76 | 1.75 | 2.16 | 2.85 | 2.42 | 2. 51 |
| Drill press oferatives | . 12 | . 06 | . 01 | . 02 | .01 | . 00 | .07 | . 04 | . 01 |
| Furnace tenars, smeltrs, pourers | . 05 | . 05 | . 06 | . 16 | . 17 | . 24 | . 60 | . 70 | 1.15 |
| Grinding machine operatives | . 09 | . 07 | . 03 | . 25 | .19 | - 13 | . 55 | .41 | . 27 |
| Lathe, milling rach operatives | . 29 | . 18 | . 07 | - 10 | . 06 | . 03 | . 66 | .43 | . 30 |
| Metal platers | . 00 | - 00 | . 00 | . 02 | . 02 | .01 | . 15 | . 11 | . 03 |
| Other precision mach operators | . 02 | . 01 | . 01 | . 07 | . 05 | . 02 | . 08 | .05 | . 03 |
| Punch,stamping press operatives | . 10 | . 07 | . 02 | . 14 | . 09 | . 03 | . 35 | . 25 | . 12 |
| Welders and flamecutters | 2.23 | 2.35 | 2.63 | 1.00 | 1.16 | 1.69 | . 39 | . 43 | . 61 |
| Semiskilled packing, inspecting | 1.26 | 1. 19 | 1.11 | 5.20 | 5.57 | 7.34 | 8.10 | 8. 18 | 10.44 |
| Checkers, examiners, mfy | -61 | - 65 | . 82 | 1.71 | 1.93 | 2.71 | 4.96 | 5.12 | 6.52 |
| Graders and scrers, mig | . 06 | . 06 | .06 | 1.76 | 1.85 | 2.15 | . 18 | . 18 | . 20 |
| Packer,urapper,exc meat,prodce | . 59 | . 47 | . 23 | 1.73 | 1.79 | 2.48 | 2.96 | 2.88 | 3.72 |

Table 1. Percent distribution of industry employment by occupation, 1970 , 1978 and projected 1990

|  | Cement, concrete, plaster |  |  | $\begin{gathered} \text { structural } \\ \text { clay } \\ \text { products } \end{gathered}$ |  |  | Pottery and related products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 14.84 | 14.23 | 10.03 | 26.73 | 25.55 | 20.76 | 46.31 | 45.57 | 37.64 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Assemblers | . 00 | . 00 | .00 | . 74 | . 91 | 1.46 | 2.06 | 2.21 | 2.67 |
| Blasters | . 08 | . 08 | . 10 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Surveyors' helpers | . 01 | . 01 | .01 | . 00 | - 00 | - 00 | -00 | . 00 | . 00 |
| cutting operatives, other | . 31 | . 29 | . 21 | . 44 | - 45 | . 44 | . 67 | -68 | . 76 |
| Drillers, earth | . 11 | . 08 | . 02 | . 08 | . 06 | . 03 | . 02 | . 01 | .01 |
| Dyers | . 00 | . 00 | . 00 | . 03 | - 02 | . 01 | . 00 | . 00 | . 00 |
| Filer, polisher,sander, buffer | . 08 | . 06 | . 02 | . 14 | - 10 | . 03 | . 94 | .73 | . 33 |
| Garage wrkr,gas station atten | .07 | . 04 | . 01 | .04 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Laundry,dry cleang oprs,other | . 00 | . 00 | . 00 | . 01 | . 01 | -01 | . 00 | . 00 | . 00 |
| Mixing operatives | 2.55 | 2.45 | 1.86 | 1.40 | 1.37 | 1.21 | 1.30 | 1.31 | 1.38 |
| oilers, greasers, exc automobiles | . 67 | . 65 | . 61 | . 30 | - 33 | . 47 | . 10 | . 10 | . 11 |
| painters, mfg articles | . 21 | . 17 | . 10 | . 59 | - 43 | . 21 | 3.72 | 2.93 | 2.28 |
| Photographic frocess workers | . 03 | -03 | . 02 | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 |
| Riveters and fasteners | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Sailors and deckhands | . 04 | . 03 | . 03 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 08 | . 07 | .06 | . 07 | . 08 | . 11 | . 15 | - 16 | . 18 |
| Sewers and stitchers | . 03 | . 02 | . 03 | . 03 | . 03 | . 03 | . 06 | . 06 | . 08 |
| Furnace tendr,stokr,exc metal | -99 | . 55 | . 20 | 4.38 | 2.78 | 1.93 | 1.71 | 1.10 | . 87 |
| winding operatives, other | . 03 | . 03 | . 02 | . 02 | . 01 | . 01 | . 10 | . 09 | . 05 |
| Miscellaneous machine operatves | 5.34 | 5.31 | 3.84 | 11.93 | 12.47 | 11.03 | 13.34 | 13.94 | 14.07 |
| other operatives, exc transport | 4.21 | 4.36 | 2.89 | 6.49 | 6.47 | 3.71 | 22.13 | 22.22 | 14.81 |
| transport equipment operatives | 22.07 | 22.99 | 31.91 | 9.54 | 10.36 | 12.10 | 2.28 | 2.60 | 4.15 |
| Boat operators | . 02 | . 02 | . 02 | -00 | - 00 | . 00 | . 00 | - 00 | . 00 |
| Delivery and route workers | 1.79 | 1.63 | 1.84 | . 51 | - 50 | . 71 | . 15 | -13 | . 18 |
| Fork lift,tow motor operatives | 2.22 | 2.50 | 2.27 | 5.15 | 6.00 | 6.32 | 1.06 | 1.27 | 1.57 |
| Rail vehicle cperators, other | . 02 | . 02 | . 03 | . 08 | . 08 | . 11 | . 00 | . 00 | . 00 |
| Railroad brake operators | . 05 | . 07 | - 15 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 06 | . 07 | .11 | .00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 07 | . 04 | . 00 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Truck drivers | 17.85 | 18.64 | 27.49 | 3.79 | 3.77 | 4.95 | 1.06 | 1.19 | 2.40 |
| Service workers | 1.74 | 1.37 | . 57 | 1.92 | 1.58 | . 77 | 2.34 | 1.96 | 1.08 |
| Cleaning service workers | 1.29 | - 96 | . 29 | 1.49 | 1. 19 | -47 | 2.00 | 1.66 | . 89 |
| Bldg interior cleaners, other | . 20 | . 16 | . 05 | -26 | - 21 | . 08 | . 47 | . 41 | - 19 |
| Janitors and sextons | 1.09 | . 80 | . 25 | 1.24 | . 98 | - 39 | 1.53 | 1.25 | . 70 |
| rood service workers | . 02 | . 02 | . 01 | . 02 | . 02 | . 03 | -00 | . 00 | . 00 |
| Cooks, exc private households | . 02 | . 02 | .01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Waiters private bousehold | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -00 | .00 | . 00 |
| Personal service workers | .03 | . 03 | .03 | . 03 | . 03 | .03 | . 02 | . 02 | . 04 |
| Elevator operators | . 03 | . 03 | . 03 | . 03 | . 03 | . 03 | . 02 | . 02 | . 04 |
| Protective service workers | . 40 | . 37 | . 24 | . 38 | - 35 | . 25 | . 32 | - 28 | - 16 |
| Firefighters | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 | . 02 | . 02 | . 03 |
| Guards | . 40 | . 37 | . 24 | . 36 | - 32 | . 20 | . 29 | . 24 | . 11 |
| Police and detectives | . 00 | . 00 | . 00 | . 00 | - 00 | - 00 | -01 | . 01 | . 02 |
| Laborers, except farm | 7.51 | 6.67 | 5.22 | 22.62 | 20.09 | 15.45 | 7.70 | 7.03 | 6.75 |
| Carpenter helfers | -54 | - 50 | . 75 | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter helpr | 1.78 | 1.62 | 1.35 | 1.20 | -84 | - 24 | . 16 | . 10 | . 02 |
| Freight and material handlers | 3.16 | 2. 90 | 2.21 | 13.36 | 12.90 | 12.29 | 4.20 | 4.05 | 4.38 |
| Garbage collectors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farin | . 08 | - 08 | . 05 | . 23 | . 26 | - 19 | . 09 | . 08 | . 10 |
| Longshore workers, stevedores | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Timbercutting, logging workers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 06 | . 05 | - 04 |
| Stock handiers | .27 | . 23 | . 07 | 1.69 | 1.50 | . 59 | . 47 | - 42 | - 18 |
| Teamsters | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 | .00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | . 19 | . 16 | . 06 | . 16 | - 13 | . 04 | . 38 | . 33 | - 14 |
| parehouse labcrers, other | . 08 | . 05 | .01 | . 11 | . 09 | . 04 | . 28 | . 32 | . 57 |
| Other laborers | 1.37 | 1.09 | .66 | 5.81 | 4.32 | 1.96 | 2.05 | 1.67 | 1.31 |


|  | Misc nonmetallc. stone |  |  | $\begin{gathered} \text { Primary } \\ \text { metal } \\ \text { industries } \end{gathered}$ |  |  | Blast <br> furnaces, steel works |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 7.75 | 7.91 | 6.86 | 6.24 | 6.70 | 6.59 | 6.23 | 6.76 | 6.66 |
| Engineers, technical | 2.27 | 2. 10 | 1.91 | 1.87 | 1.85 | 1.85 | 1.73 | 1.68 | 1.60 |
| Chemical | . 33 | - 33 | . 35 | . 08 | . 08 | . 09 | . 07 | -08 | . 10 |
| Civil | . 06 | . 05 | . 08 | . 10 | . 08 | . 09 | . 15 | . 12 | . 15 |
| Electrical | . 16 | . 16 | . 20 | . 20 | - 20 | . 19 | -19 | . 20 | .25 |
| Industrial | -65 | . 66 | . 56 | . 51 | . 54 | . 52 | - 50 | - 51 | .43 |
| Mechanical | -40 | . 34 | . 25 | . 32 | - 31 | . 33 | . 27 | . 24 | . 19 |
| Metallurgical | . 06 | . 06 | . 05 | -46 | . 48 | -48 | -41 | . 42 | - 38 |
| Mining | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 | .00 |
| Sales | . 17 | - 13 | . 11 | . 08 | . 07 | . 06 | . 04 | . 03 | . 02 |
| other engineers | . 43 | . 37 | . 30 | -11 | - 10 | . 09 | - 10 | . 08 | . 07 |
| Life and physical scientists | . 49 | . 44 | . 33 | . 61 | . 61 | - 56 | . 70 | . 70 | . 64 |
| Chemists | .43 | . 38 | .21 | . 58 | - 58 | . 53 | . 68 | . 68 | . 60 |
| Geologists | . 05 | - 05 | - 10 | . 01 | . 01 | - 01 | . 01 | . 01 | . 02 |
| Marine | . 09 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | . 01 | . 02 |
| Mathematical sfecialists | . 02 | . 01 | . 02 | . 03 | . 03 | . 03 | . 03 | . 03 | .04 |
| Mathematicians | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Statisticians | . 02 | . 01 | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Engineering, science technicians | 2.21 | 2. 16 | 1.97 | 1.64 | 1.69 | 1.89 | 1.64 | 1.73 | 1.94 |
| Agricultural, biolgcl, exc healta | . 01 | . 01 | .01 | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 |
| Chemical technicians | . 16 | - 16 | -11 | . 07 | . 07 | . 06 | . 08 | . 07 | . 04 |
| Drafters | . 55 | -45 | . 43 | . 49 | . 46 | . 61 | -45 | . 44 | . 63 |
| Electrical and electronic | . 05 | - 06 | . 04 | -07 | -07 | . 08 | . 07 | . 07 | . 03 |
| Industrial engineering | -15 | - 19 | . 20 | - 10 | . 14 | . 17 | . 09 | . 12 | . 15 |
| Mechanical engineering | . 04 | . 04 | . 02 | . 11 | . 12 | . 14 | - 19 | . 23 | - 26 |
| Surveyors | . 02 | . 02 | . 03 | - 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other engineering, science tech | 1.24 | 1.24 | 1.14 | . 80 | . 83 | . 82 | . 75 | . 80 | . 83 |
| Medical workers, exc technicians | . 07 | . 06 | . 05 | . 11 | - 11 | . 12 | . 13 | . 14 | . 17 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | -01 | . 01 | - 01 | - 02 | . 01 | . 01 |
| Registered nurses | . 06 | .06 | . 05 | . 11 | . 11 | . 12 | . 12 | . 12 | . 15 |
| Health technolcgists, technicians | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Other mealth technicians | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 |
| Technicians, except health | . 04 | . 05 | . 04 | . 04 | . 05 | . 07 | . 03 | . 05 | . 07 |
| Airplane pilots | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 02 | . 03 | . 05 |
| Badio operators | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other technicians except health | . 02 | . 03 | . 03 | . 02 | . 03 | . 04 | . 01 | . 01 | . 02 |
| Computer specialists | . 15 | - 21 | .21 | . 26 | - 35 | . 37 | . 30 | - 40 | . 43 |
| Computer programers | . 08 | . 09 | . 09 | - 17 | - 20 | . 22 | . 19 | . 24 | . 26 |
| Computer systems analysts | . 06 | . 09 | . 11 | . 08 | - 13 | . 13 | - 10 | . 15 | . 15 |
| other computer specialists | . 02 | . 03 | . 02 | .01 | -03 | . 02 | - 01 | . 02 | . 02 |
| Social scientists | - 14 | . 22 | . 20 | . 08 | . 13 | . 13 | . 10 | - 16 | - 17 |
| Economists | . 14 | - 22 | - 20 | . 07 | - 12 | .13 | . 10 | . 16 | . 17 |
| Teachers | .01 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Adult education | . 01 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Writerspartists, entertainers | .61 | . 68 | . 45 | - 14 | . 17 | - 16 | . 12 | . 14 | . 12 |
| Designers | . 19 | . 23 | - 23 | . 06 | . 07 | .06 | . 04 | . 04 | . 03 |
| Editors and reforters | . 00 | - 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 |
| painters and sculptors | . 34 | . 36 | . 15 | . 00 | .01 | .01 | . 00 | . 00 | .00 |
| Photographers. | .01 | . 01 | . 01 | .01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Public relations specialists | . 05 | . 07 | . 05 | . 04 | . 05 | . 04 | . 04 | . 05 | . 03 |
| other writers,artists, entertain | .01 | .01 | . 01 | . 02 | . 02 | . 02 | .01 | . 02 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Misc nonmetallc. stone |  |  | $\begin{gathered} \text { Primary } \\ \text { metal } \\ \text { industries } \end{gathered}$ |  |  | $\begin{gathered} \text { Blast } \\ \text { furnaces, } \\ \text { steel works } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.74 | 1.95 | 1.69 | 1.45 | 1.69 | 1.40 | 1.43 | 1.70 | 1.49 |
| accountants | 1.05 | 1.21 | 1.20 | . 82 | - 95 | . 85 | . 80 | -93 | . 86 |
| Lawyers | . 03 | . 03 | . 01 | . 04 | . 06 | . 03 | . 05 | .09 | . 07 |
| Librarians | . 02 | . 02 | .01 | . 01 | . 01 | .01 | . 01 | .01 | . 02 |
| Operations and systems researcia | - 18 | - 25 | . 22 | -19 | - 28 | . 25 | . 20 | . 31 | . 30 |
| Personnel, labor relations wirs | . 32 | . 33 | . 23 | . 32 | . 33 | . 21 | . 30 | . 33 | . 24 |
| Other research workers | . 14 | - 10 | . 03 | . 07 | . 05 | . 04 | . 06 | . 04 | . 01 |
| Managers, officials, proprietors | 7.13 | 8.19 | 8.72 | 3.43 | 4.10 | 4. 14 | 2.07 | 2.47 | 2.76 |
| Buyers,sales, lcan managers | 1.34 | 1.25 | 1.17 | . 73 | . 73 | . 82 | . 51 | . 49 | . 51 |
| Bank, financial managers | . 13 | . 12 | . 09 | . 08 | . 09 | . 09 | . 04 | . 04 | . 04 |
| Credit managers | . 07 | . 04 | . 04 | . 04 | . 03 | . 03 | . 04 | .03 | . 03 |
| Purchasing agents, buyers,otiner | . 44 | . 36 | . 27 | - 32 | . 30 | - 31 | .23 | . 20 | . 19 |
| Sales manager, exc retail trade | .71 | . 73 | .77 | . 29 | . 32 | . 40 | . 20 | . 22 | . 26 |
| Other managers,officials, proprts | 5.79 | 6.94 | 7.56 | 2.70 | 3.37 | 3.32 | 1.55 | 1.98 | 2. 25 |
| office managers, other | . 53 | . 56 | . 64 | . 17 | - 18 | . 21 | . 11 | . 11 | . 12 |
| Officers, pilots, pursers,ship | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other managers, administrators | 5.24 | 6.36 | 6.91 | 2.52 | 3. 18 | 3.10 | 1.43 | 1.85 | 2. 12 |
| Sales workers | 2.62 | 2. 72 | 3.41 | - 90 | . 94 | 1.06 | . 63 | . 69 | .91 |
| Advertising agents, sales worker | . 01 | . 02 | . 06 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other sales wcrkers | 2.61 | 2. 70 | 3.35 | . 89 | . 94 | 1.06 | . 63 | . 68 | . 91 |
| Clericai workers | 11.94 | 11.52 | 11.21 | 10.21 | 10.09 | 9.74 | 10.98 | 11.08 | 11.00 |
| Stenographrs,typists, secretaries | 3.70 | 3. 59 | 4.10 | 2.48 | 2.42 | 2.58 | 2.20 | 2.18 | 2.65 |
| Legal secretaries | . 01 | . 01 | . 01 | .01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Medical secretaries | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 |
| other secretaries | 2.63 | 2.71 | 3.29 | 1.69 | 1.78 | 1.99 | 1.29 | 1.40 | 1.86 |
| Stenographers | . 10 | . 04 | . 00 | . 11 | . 05 | .01 | . 14 | . 07 | . 02 |
| Typists | . 96 | . 83 | . 79 | . 66 | - 58 | . 56 | . 75 | . 69 | . 75 |
| Office machine operators | . 62 | . 72 | . 44 | . 71 | . 81 | . 59 | - 82 | . 94 | . 69 |
| Bookkeeping and billing | . 03 | . 01 | . 00 | . 04 | . 02 | . 02 | . 03 | . 02 | . 01 |
| calculating | . 02 | . 01 | .01 | . 03 | . 02 | . 02 | . 04 | . 02 | .01 |
| Computer and feripheral equip | . 22 | . 44 | . 28 | - 19 | -40 | . 32 | . 21 | .46 | . 38 |
| Duplicating | .03 | . 02 | . 01 | . 03 | . 02 | . 01 | . 04 | . 03 | . 01 |
| Keypunch | . 29 | . 21 | . 11 | -39 | . 31 | . 20 | -46 | . 38 | . 27 |
| Tabulating | .01 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | .03 | . 03 | .03 | .03 | . 03 | . 02 | .03 | . 03 | . 02 |
| Other clerical workers | 7.61 | 7.22 | 6.67 | 7.02 | 6.86 | 6.57 | 7.96 | 7.96 | 7.65 |
| Billing clerks | . 22 | . 23 | . 25 | . 18 | . 19 | . 25 | - 20 | . 22 | . 27 |
| Bookkeepers | 1.29 | 1.27 | 1.34 | . 85 | . 85 | . 84 | . 75 | . 78 | . 91 |
| Cashiers | . 03 | . 04 | . 04 | .03 | . 03 | . 03 | . 03 | . 03 | . 02 |
| Clerical supervisors, other | . 13 | - 14 | . 14 | . 14 | - 15 | - 15 | - 19 | .21 | . 20 |
| collectors, bill and account | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Counter clerks,exc food | . 24 | .24 | . 22 | - 16 | - 17 | . 18 | .21 | - 22 | . 24 |
| Dispatchers,starters, venicle | . 01 | - 01 | . 01 | . 03 | . 03 | .03 | . 05 | . 05 | . 06 |
| Enumerators and interviewers | .01 | . 01 | . 02 | -00 | . 00 | - 00 | . 00 | - 00 | . 00 |
| Estimators, investigators, other | . 29 | . 31 | . 17 | -19 | . 22 | . 14 | . 20 | . 22 | . 13 |
| Expediters. frcduction controlrs | .72 | - 68 | . 53 | + 91 | -90 | . 86 | 1.22 | 1.20 | 1.02 |
| File clerks | . 18 | . 15 | - 15 | - 17 | - 15 | - 16 | . 19 | . 18 | . 22 |
| Insurance adjusters, examiners | . 00 | - 00 | -00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 01 | - 01 | . 00 | . 01 | . 02 | . 01 |
| Mail bandlers,exc fost office | . 06 | . 05 | . 04 | . 10 | . 10 | . 08 | . 13 | . 12 | . 10 |
| Messengers and office helpers | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | . 03 | . 02 | . 02 |
| Payroll, timekeeping clerks | . 41 | - 45 | -43 | . 51 | - 55 | . 48 | . 48 | . 54 | . 51 |
| Receptionists | . 20 | . 17 | . 10 | - 12 | . 12 | . 10 | . 08 | . 07 | . 04 |
| Shipping and receiving clerks | 1.32 | 1.23 | 1.42 | 1.04 | . 97 | 1.04 | . 87 | . 86 | 1.09 |
| Statistical clerks | . 25 | . 26 | . 22 | . 56 | . 60 | . 58 | . 96 | 1.09 | 1. 10 |
| Stock clerks and store keepers | . 81 | - 60 | . 27 | . 69 | . 57 | . 43 | . 67 | . 51 | - 25 |
| Telephone operators | .13 | . 09 | . 11 | - 10 | . 06 | . 03 | . 08 | . 05 | . 03 |
| weigners | . 30 | . 27 | .17 | . 37 | - 35 | . 29 | . 48 | . 44 | . 28 |
| Misc clerical workers | 1.00 | . 99 | 1.04 | . 83 | . 82 | . 86 | 1.13 | 1.13 | 1. 14 |
| Crafts and kindred workers | 21.07 | 22.49 | 27.53 | 29.70 | 29.59 | 32.08 | 33.22 | 34.17 | 39.72 |


|  | $\begin{gathered} \text { Misc } \\ \text { nonmetallc, } \\ \text { stone } \end{gathered}$ |  |  | $\begin{gathered} \text { Primary } \\ \text { metal } \\ \text { industries } \end{gathered}$ |  |  | Blast furnaces, steel works |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 2.88 | 2.81 | 3.29 | 4.65 | 4.29 | 4. 12 | 6.28 | 6.13 | 6.51 |
| Carpenters and apprentices | - 50 | . 55 | . 66 | . 48 | -48 | -36 | . 56 | . 60 | . 63 |
| Brick,stonemasons, apprentices | -40 | . 32 | . 17 | . 71 | . 57 | . 34 | 1.16 | 1.00 | . 64 |
| Bulldozer operators | . 26 | . 25 | . 42 | . 35 | . 29 | . 29 | . 61 | . 52 | . 45 |
| Cement and concrete finishers | . 02 | . 03 | . 04 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Electricians and apprentices | . 87 | . 93 | 1.14 | 1.79 | 1.82 | 1.97 | 2.24 | 2.44 | 2.98 |
| Excavating.grading mach operatr | . 43 | . 32 | . 17 | . 14 | - 12 | - 10 | . 14 | - 11 | . 07 |
| Floor layers, exc tile setters | .01 | . 01 | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Painters and apprentices | . 00 | . 00 | .00 | . 14 | - 13 | . 10 | . 14 | - 12 | . 06 |
| Plumbers, pipefitters, aprentices | . 35 | . 39 | . 66 | .77 | . 70 | .79 | 1.06 | 1.07 | 1.45 |
| structural metal craft workers | . 00 | . 00 | . 00 | . 24 | . 17 | - 14 | . 33 | . 24 | . 22 |
| Tile setters | . 04 | . 03 | . 02 | . 00 | .00 | . 01 | . 00 | .00 | . 00 |
| Blue collar worker supervisors | 5.56 | 6.32 | 7.79 | 5.30 | 5.80 | 5.76 | 4.94 | 5.69 | 6.87 |
| Metalworkg cratt wrkrs, exc mecn | 3.36 | 3.65 | 5.23 | 9.91 | 9.83 | 10.69 | 8.35 | 8.79 | 10.15 |
| Blacksmiths | . 03 | . 02 | . 00 | . 10 | . 07 | . 02 | . 10 | . 07 | . 02 |
| Boilermakers | . 00 | - 00 | . 00 | . 21 | - 19 | . 21 | . 36 | . 37 | . 49 |
| Heat treaters, annealers | . 00 | . 00 | . 00 | . 63 | . 62 | . 61 | - 51 | . 54 | . 62 |
| Forge and bammer operators | . 02 | . 01 | . 01 | -42 | . 42 | . 44 | . 23 | . 23 | .23 |
| Job and die setters, metal | . 16 | . 13 | . 09 | . 51 | . 45 | . 41 | . 25 | . 20 | . 16 |
| Machinists and apprentices | 1.74 | 2.06 | 3.28 | 1.84 | 1.97 | 2.25 | 1.55 | 1.55 | 1.36 |
| Millwrights | -62 | . 73 | . 98 | 1.48 | 1.66 | 2.07 | 2.31 | 2.80 | 3.85 |
| Molders, metal and apprentices | . 00 | . 00 | . 00 | 2.24 | 2. 15 | 2.20 | -39 | . 39 | . 52 |
| Pattern and moldmakers | . 10 | . 07 | . 08 | . 31 | - 24 | . 28 | . 08 | .07 | . 11 |
| Rollers and finishers,metal | .07 | . 06 | . 05 | 1.27 | 1. 19 | 1.06 | 2.11 | 2.08 | 1.92 |
| Sheetmetal workers, apprentices | . 19 | . 18 | . 28 | - 20 | . 18 | . 21 | . 19 | . 19 | . 28 |
| Tool and diemakers, apprentices | . 44 | . 39 | . 47 | . 72 | . 70 | . 92 | -29 | . 31 | . 60 |
| Mechanics, repairers,installers | 3.94 | 4.49 | 5.16 | 3.71 | 4.32 | 5.24 | 4.13 | 4.67 | 5. 17 |
| Air cond, heating, refrig meca | . 08 | - 11 | . 12 | . 07 | . 09 | . 09 | . 07 | . 10 | . 12 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | .03 | . 01 | . 02 | . 05 |
| Auto mechanics and apprentices | . 30 | . 24 | . 14 | . 20 | - 18 | . 14 | - 21 | . 18 | . 12 |
| Data processing mach repairecs | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 |
| Parm implement mechanics | . 02 | . 02 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Heavy equip mech, incl diesel | 3.21 | 3.83 | 4.68 | 2.68 | 3.31 | 4.37 | 2.70 | 3.27 | 3.99 |
| Household appliance mechanics | . 01 | . 01 | . 01 | . 02 | . 03 | . 02 | . 02 | . 02 | . 02 |
| Loom fixers | .03 | . 04 | . 06 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Radio, television repairers | .03 | . 02 | . 02 | . 06 | . 06 | . 08 | . 11 | -11 | . 17 |
| Railrodd, car shof repairers | . 00 | . 00 | . 00 | . 08 | . 09 | . 12 | . 17 | -19 | . 27 |
| Other mechanics and apprentices | .26 | . 23 | . 12 | . 57 | - 53 | . 36 | . 83 | .75 | . 41 |
| Printing trade crafts workers | . 07 | . 09 | - 13 | - 10 | - 11 | - 14 | - 13 | . 15 | . 25 |
| Compositors and typesetters | . 06 | . 08 | . 12 | . 06 | . 06 | .08 | . 08 | - 10 | . 17 |
| klectrotypers and stereotypers | . 00 | . 00 | . 00 | . 01 | - 00 | . 01 | . 02 | .01 | . 01 |
| press, plate printers, aprentices | - 00 | . 00 | . 00 | . 03 | . 04 | .05 | . 03 | - 04 | . 06 |
| Transport, public util craft wkrs | . 03 | . 04 | . 07 | . 24 | . 29 | -32 | . 42 | . 57 | - 72 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Locomotive engineers | . 02 | . 03 | . 06 | . 13 | - 18 | - 22 | - 26 | -40 | . 56 |
| Locomotive engineers' helpers | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 | . 03 | . 02 | . 03 |
| Pover station operators | . 01 | . 01 | . 01 | . 06 | . 05 | . 05 | . 09 | . 10 | . 11 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Uther crafts, kindred workers | 5.23 | 5.08 | 5.86 | 5.77 | 4.95 | 5.83 | 8.97 | 8.19 | 10.05 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 |
| crane,derrick, hoist operator | 1.34 | 1.21 | 2.01 | 4.07 | 3.33 | 4.53 | 6.24 | 5.43 | 7.72 |
| Decorators, uindow dressers | . 02 | . 04 | . 10 | -01 | . 01 | . 02 | . 01 | . 01 | . 04 |
| Furniture and wood tinishers | .01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 01 | . 00 | . 00 |
| Inspectors, other | - 12 | . 15 | .21 | . 88 | . 98 | . 90 | 1.45 | 1.66 | 1.65 |
| Jewelers and watchmakers | . 03 | - 02 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Suipfitters | . 00 | - 00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 | . 02 |
| Sign painters and letterers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 32 | . 21 | . 06 | . 43 | - 30 | - 14 | . 64 | - 52 | . 31 |
| Stone cutters. stone carvers | 3.19 | 3.26 | 3.36 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Tailors | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | - 00 |
| Upholsterers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts morkers | . 18 | . 15 | . 09 | . 35 | . 29 | . 20 | . 58 | - 51 | . 28 |
| operatives | 40.68 | 39.39 | 36.36 | 35.21 | 36.18 | 35.21 | 28.56 | 28.79 | 24.40 |
| Operatives, except transport | 36.13 | 34.49 | 30.12 | 31.83 | 32.55 | 31.10 | 25.40 | 25.31 | 20.39 |

Table 1. Percent distribution of industry employment by occupation. 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { nonmetallc, } \\ \text { stone } \end{gathered}$ |  |  | $\begin{gathered} \text { Primary } \\ \text { metal } \\ \text { industries } \end{gathered}$ |  |  | Blast furnaces, steel works |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled metalworking | 4.44 | 3.60 | 3.03 | 11.40 | 10.81 | 10.16 | 10.14 | 9.70 | 7.45 |
| Drill press oferatives | - 30 | - 17 | . 04 | . 25 | . 19 | . 12 | . 13 | . 08 | . 02 |
| Purnace tendrs, smeltrs, pourers | . 35 | - 36 | -44 | 3.92 | 4.05 | 3.79 | 3.52 | 3.56 | 2.79 |
| Grinding machine operatives | . 54 | - 39 | . 22 | 1.80 | 1.39 | 1.13 | 1.25 | . 95 | . 60 |
| Heaters, metal | . 00 | . 00 | . 00 | . 43 | - 39 | . 31 | . 66 | . 64 | . 57 |
| Lathe,milling mach operatives | .72 | . 44 | . 21 | . 80 | - 55 | . 41 | . 82 | . 54 | . 33 |
| Metal platers | . 04 | . 04 | . 01 | .11 | - 10 | . 07 | . 08 | . 06 | . 01 |
| Other precision mach operators | . 11 | . 07 | . 03 | . 18 | - 14 | . 11 | . 15 | - 10 | . 06 |
| Punch, stamping press operatives | 1.24 | . 84 | . 27 | 1.00 | . 87 | . 77 | - 52 | . 37 | . 13 |
| Solderers | . 03 | . 02 | . 01 | . 05 | . 04 | . 02 | . 01 | . 01 | . 00 |
| Welders and flanecutters | 1.12 | 1. 27 | 1.81 | 2.86 | 3. 10 | 3.43 | 3.01 | 3.39 | 2.95 |
| Semiskilled packing, inspecting | 6.04 | 6.18 | 7.69 | 3.33 | 3.51 | 3.72 | 2.10 | 2.38 | 2.17 |
| Checkers, examiners, mfy | 3.14 | 3.37 | 4.43 | 2.53 | 2.75 | 3.00 | 1.69 | 1.98 | 1.72 |
| Graders and scrters, ifg | . 22 | . 20 | . 15 | . 10 | . 08 | . 05 | . 11 | . 08 | . 03 |
| Packer, wrapper, exc meat.prodce | 2.69 | 2.60 | 3.10 | .71 | . 67 | .67 | . 31 | . 32 | . 43 |
| Other operatives, exc transport | 25.64 | 24.71 | 19.40 | 17.11 | 18.23 | 17.22 | 13.16 | 13.23 | 10.77 |
| Asbestos.insulation vorkers | . 27 | . 30 | - 10 | . 02 | . 02 | . 02 | . 02 | . 03 | . 03 |
| Assemblers | 1.36 | 1.67 | 2.71 | . 98 | 1.24 | 1.61 | . 35 | . 47 | . 86 |
| Elasters | . 02 | . 02 | . 05 | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 |
| Cutting operatives, other | 1.15 | 1.13 | 1.01 | 1.11 | 1.13 | 1.20 | 1.79 | 1.86 | 1.90 |
| Drillers, earth | . 18 | . 12 | . 03 | . 05 | . 05 | . 04 | . 02 | . 02 | . 01 |
| Filer, polisher, sander, buffer | 1.67 | 1. 25 | . 43 | . 52 | . 53 | . 54 | . 20 | . 16 | . 06 |
| Garage wrkr,gas station atten | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | .01 | . 01 |
| Mixing operatives | 1.16 | 1. 12 | . 93 | . 16 | - 17 | - 20 | - 10 | - 10 | - 10 |
| Oilers,greasers,exc automobiles | . 29 | . 26 | . 19 | . 32 | . 29 | . 27 | . 40 | . 41 | . 48 |
| painters, mfg articles | . 60 | . 46 | . 31 | . 47 | . 41 | . 42 | . 41 | . 33 | . 24 |
| Photographic frocess workers | . 04 | . 04 | . 05 | . 03 | . 03 | . 04 | . 02 | . 03 | . 04 |
| Eiveters and fasteners | - 10 | -08 | . 04 | . 08 | . 08 | . 08 | . 07 | . 06 | . 06 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 02 | . 05 |
| Sawyers | . 98 | . 91 | . 67 | . 38 | . 36 | . 28 | . 21 | . 23 | - 30 |
| Sewers and stitchers | . 28 | . 24 | . 27 | . 02 | . 02 | . 04 | . 01 | . 01 | . 03 |
| Furnace tendr,stokr, exc metal | 1.13 | . 62 | . 23 | . 41 | . 26 | . 20 | . 46 | . 32 | . 31 |
| winding operatives, other | . 31 | . 26 | . 12 | . 43 | . 44 | . 49 | . 23 | . 20 | . 09 |
| Miscellaneous machine operatves | 10.74 | 10.93 | 9.29 | 7.21 | 7.95 | 7.69 | 4.05 | 4.18 | 3.49 |
| other operatives, exc transfort | 5.39 | 5.28 | 2.98 | 4.91 | 5.23 | 4.07 | 4.77 | 4.78 | 2.72 |
| Transport equipment operatives | 4.55 | 4.90 | 6.24 | 3.37 | 3.63 | 4.11 | 3.15 | 3.48 | 4.00 |
| Boat operators | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Bus drivers | .00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 02 | . 04 | . 02 |
| Delivery and route workers | . 18 | . 18 | . 26 | .11 | . 10 | . 11 | . 08 | . 08 | . 07 |
| Fork lift,tow motor operatives | 1.91 | 2.20 | 2.29 | 1.44 | 1.81 | 2.08 | . 94 | 1.13 | 1.08 |
| Rail vehicle cperators, other | . 02 | . 02 | . 01 | . 13 | . 12 | . 11 | . 24 | . 27 | . 27 |
| Parking attendants | . 01 | . 01 | .01 | . 00 | . 00 | . 12 | .00 | . 00 | . 34 |
| tailroad brake operators | . 05 | . 07 | .17 | . 13 | . 15 | . 25 | . 26 | . 32 | . 54 |
| Railroad suitch operators | . 05 | . 05 | . 07 | . 26 | . 27 | - 28 | . 53 | - 60 | . 58 |
| Taxicab drivers, chauffeurs | . 08 | . 08 | . 05 | . 06 | . 05 | . 02 | . 06 | . 06 | . 03 |
| Truck drivers | 2.24 | 2.29 | 3.38 | 1.23 | 1.10 | 1.13 | 1.03 | . 99 | 1.06 |
| Service workers | 2.37 | 1.97 | 1.14 | 2.69 | 2.42 | 2.18 | 2.93 | 2.59 | 2.88 |
| cleaning service workers | 1.70 | 1.33 | . 52 | 1.81 | 1.59 | 1.44 | 1.90 | 1.60 | 1.93 |
| Bldg interior cleaners, other | . 26 | . 20 | . 06 | . 34 | . 31 | . 35 | . 45 | . 40 | . 57 |
| Janitors and sextons | 1.44 | 1.13 | . 47 | 1.47 | 1.28 | 1.09 | 1.45 | 1.20 | 1.36 |
| Food service workers | . 07 | . 06 | . 04 | . 08 | . 06 | . 05 | .11 | . 08 | . 09 |
| Cooks, exc private households | . 02 | . 02 | .01 | . 02 | . 02 | .01 | . 03 | . 02 | . 02 |
| Dishwashers | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Pood counter, fountain workers | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 |
| waiters | . 01 | . 01 | . 01 | .03 | . 01 | . 01 | . 05 | . 03 | . 02 |
| Other food serv wkrs,exc privt | . 02 | . 02 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Health service workers | .03 | . 03 | . 06 | .01 | . 01 | .01 | . 02 | . 01 | . 02 |
| Health aides, except nursing | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 02 | . 02 | .05 | . 01 | . 00 | . 01 | . 02 | . 01 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Misc nonmetalle. stone |  |  | $\begin{gathered} \text { Primary } \\ \text { metal } \\ \text { industries } \end{gathered}$ |  |  | Blast <br> furnaces, steel works |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 02 | . 02 | .01 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Attendants, personal serv,otner | . 00 | . 00 | . 00 | . 03 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Elevator operators | .02 | . 02 | .01 | . 01 | .01 | . 02 | . 01 | . 01 | . 02 |
| Protective service workers | - 55 | - 54 | . 51 | . 76 | . 74 | . 66 | . 88 | . 87 | . 81 |
| Firefighters | . 02 | . 01 | . 01 | . 02 | . 02 | . 03 | . 04 | . 04 | . 05 |
| Guards | . 52 | . 52 | .49 | . 71 | - 70 | . 63 | . 81 | .81 | .75 |
| Police and detectives | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | .03 | . 03 | . 01 |
| Laborers, except farm | 6.45 | 5.81 | 4.77 | 11.63 | 9.99 | 8.99 | 15.39 | 13.46 | 11.69 |
| Carpenter helpers | . 08 | . 07 | -12 | . 07 | . 06 | . 06 | . 05 | . 04 | . 04 |
| Constr labr, exc carfenter helpr | . 44 | . 40 | . 39 | .71 | . 53 | . 40 | 1.11 | . 83 | . 69 |
| Preight and material handers | 2.55 | 2. 40 | 2.20 | 2.43 | 2.35 | 2.34 | 3.22 | 3.14 | 3.03 |
| Gardenrs, groundkeepers, exc farm | . 07 | . 07 | . 05 | . 05 | . 06 | . 07 | . 05 | . 05 | . 06 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | .01 | . 00 | .01 | . 01 | . 01 | . 01 |
| Stock handlers | . 65 | . 64 | -40 | . 19 | . 19 | . 16 | . 19 | . 19 | . 17 |
| Teamsters | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Vehicle washers, equip cleaners | . 23 | -19 | . 07 | . 29 | - 27 | . 16 | . 25 | . 21 | . 06 |
| Warehouse labcrers, other | . 26 | . 24 | -22 | . 09 | . 08 | . 07 | . 09 | . 08 | . 08 |
| Other laborers | 2.18 | 1.79 | 1.31 | 7.79 | 6.44 | 5.73 | 10.42 | 8.90 | 7.55 |


|  | other primary steel |  |  | Primary aluminum |  |  | Other primary nonferrous |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.79 | 5.07 | 5.21 | 7.65 | 8.18 | 8.22 | 7.65 | 8.02 | 7.61 |
| Engineers, technical | 1.46 | 1. 40 | 1.36 | 2.63 | 2.65 | 3.03 | 2.36 | 2.31 | 2. 30 |
| Chemical | . 04 | . 04 | . 05 | .11 | . 11 | - 11 | . 13 | . 12 | . 11 |
| civil | . 05 | . 04 | . 06 | . 12 | . 09 | . 08 | . 04 | . 03 | . 03 |
| Electrical | .09 | . 09 | . 10 | . 35 | - 32 | - 24 | -29 | - 26 | . 20 |
| Industrial | . 45 | . 45 | . 33 | . 55 | . 66 | -94 | . 62 | . 67 | . 73 |
| Mechanical | . 25 | . 25 | . 31 | . 67 | . 64 | . 72 | . 32 | . 31 | . 35 |
| Metallurgical | . 34 | - 33 | .33 | . 61 | . 64 | . 71 | . 70 | . 71 | . 72 |
| Mining | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Sales | . 12 | . 10 | . 09 | . 11 | . 09 | . 07 | . 12 | . 09 | . 07 |
| Other engineers | . 12 | . 10 | . 09 | .09 | - 10 | .15 | . 13 | . 11 | .09 |
| Life and physical scientists | . 38 | - 38 | . 32 | - 57 | . 57 | . 49 | . 78 | - 80 | . 87 |
| Atmospheric and space | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Biological | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | . 01 |
| Chemists | .37 | . 37 | .31 | . 53 | . 53 | -45 | . 70 | . 73 | . 80 |
| Geologists | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 05 | . 04 | . 03 |
| Physicists and astronomers | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 | . 02 | . 02 | . 03 |
| Mathematical sfecialists | .01 | .01 | . 01 | . 04 | . 04 | . 05 | . 03 | . 03 | . 04 |
| Mathematicians | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Statisticians | .01 | . 01 | . 01 | . 02 | . 03 | . 04 | . 02 | . 02 | .03 |
| Engineering, science technicians | 1.32 | 1.32 | 1.67 | 1.80 | 1.81 | 1.90 | 2.06 | 2.10 | 2.15 |
| Chemical technicians | . 04 | .03 | .01 | . 05 | . 06 | . 07 | . 10 | - 12 | . 16 |
| Drafters | . 51 | - 49 | . 70 | . 65 | - 57 | -63 | . 41 | - 36 | . 42 |
| Electrical and electronic | . 04 | . 04 | . 05 | . 06 | . 09 | . 14 | . 10 | . 13 | . 20 |
| Industrial engineering | . 10 | . 13 | . 14 | . 12 | . 17 | . 24 | . 12 | . 17 | . 23 |
| Mechanical ergineering | . 07 | . 07 | . 07 | . 03 | -05 | - 10 | . 03 | . 04 | . 06 |
| Surveyors | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other engincering, science tech | . 56 | . 56 | . 68 | . 88 | - 87 | . 71 | 1.29 | 1.28 | 1.08 |
| Medical workers, exc technicians | . 09 | . 09 | - 10 | . 09 | . 09 | . 09 | . 12 | - 12 | . 11 |
| Physicians and osteopaths | . 00 | . 00 | .00 | . 01 | .01 | . 02 | . 00 | .00 | . 00 |
| Registered nusses | . 09 | . 09 | -10 | . 08 | -08 | . 08 | - 12 | - 12 | .11 |
| Technicians, except health | .03 | . 04 | . 04 | . 05 | . 06 | . 08 | . 06 | . 08 | . 11 |
| Airplane pilots | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Tool programers,numerical | .01 | -01 | .01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| other technicians except heaita | . 01 | . 02 | . 02 | . 02 | .03 | . 05 | . 05 | . 07 | - 10 |
| Computer specialists | . 15 | . 20 | . 20 | . 38 | . 52 | . 62 | -29 | . 37 | - 36 |
| Computer programers | . 11 | - 13 | . 13 | . 21 | . 24 | . 28 | . 19 | . 23 | . 23 |
| Computer systems analysts | . 03 | . 05 | . 05 | .15 | - 23 | -29 | -08 | . 12 | - 12 |
| Other computer specialists | .01 | . 02 | . 03 | .03 | .06 | . 05 | . 01 | . 02 | . 01 |
| Social scientists | . 04 | . 06 | . 05 | . 09 | - 15 | - 20 | . 08 | - 14 | . 15 |
| Economists | . 04 | . 06 | . 05 | . 09 | . 15 | - 20 | . 07 | - 12 | . 14 |
| Psychologists | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .01 | . 02 | . 02 |
| Teachers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Adult education | . 01 | . 01 | .01 | .01 | .01 | . 01 | . 01 | . 01 | .01 |
| Writers, artists, entertainers | . 14 | . 16 | . 16 | - 24 | .31 | -29 | . 15 | . 16 | - 12 |
| Designers | .06 | . 07 | . 07 | . 11 | . 13 | - 10 | . 08 | . 09 | . 07 |
| Editors and reforters | .01 | .01 | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| painters and sculptors | . 00 | . 00 | . 00 | . 02 | . 05 | . 07 | - 00 | . 00 | . 00 |
| Photographers | . 02 | - 02 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Public relaticns specialists | . 03 | . 05 | . 05 | . 06 | . 08 | . 06 | . 02 | . 02 | . 01 |
| Other writers,artists, entertain | .01 | . 01 | .01 | . 03 | . 04 | . 04 | .03 | . 04 | .03 |


|  | $\begin{aligned} & \text { other } \\ & \text { primary } \\ & \text { steel } \end{aligned}$ |  |  | Primaryaluminum |  |  | Other primary nonferrous |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.19 | 1.41 | 1.29 | 1.76 | 1.97 | 1.49 | 1.72 | 1.89 | 1.39 |
| accountants | . 70 | . 84 | . 88 | 1.00 | 1.10 | . 82 | . 97 | 1.06 | . 82 |
| Architects | .00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Lauyers | . 02 | . 04 | . 03 | . 05 | . 06 | - 00 | . 03 | . 03 | .01 |
| Librarians | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Operations and systems research | . 15 | . 21 | - 18 | .21 | . 32 | . 29 | . 23 | .31 | . 26 |
| Personnel, labcr relations wkrs | . 29 | . 29 | . 17 | . 36 | . 38 | . 25 | . 37 | . 37 | . 21 |
| Other research workers | . 02 | . 01 | .03 | . 11 | . 10 | . 08 | . 11 | . 10 | . 09 |
| Managers, officials, proprietors | 3.98 | 4.89 | 5.13 | 4.57 | 5.16 | 5.28 | 5.13 | 5.46 | 4.26 |
| Buyers, sales, loan managers | . 76 | . 72 | . 67 | . 92 | - 93 | 1.13 | 1.10 | 1.12 | 1.43 |
| Bank, financial managers | . 09 | - 10 | . 09 | . 10 | . 10 | . 11 | . 16 | . 16 | . 15 |
| Credit managers | . 04 | . 03 | . 02 | . 06 | . 03 | . 03 | . 05 | . 03 | . 02 |
| Purchasing agents, tuyers, otner | . 33 | . 27 | . 21 | . 39 | .37 | . 46 | . 49 | . 47 | . 62 |
| Sales manager, exc retail trade | . 30 | - 32 | . 35 | - 38 | . 43 | . 53 | . 40 | . 46 | . 65 |
| Other managers,officials,proprts | 3.22 | 4. 17 | 4.46 | 3.64 | 4.23 | 4.16 | 4.03 | 4.34 | 2.83 |
| Office managers, other | . 23 | . 24 | . 27 | . 16 | - 17 | . 20 | . 21 | . 23 | . 29 |
| Restaurant, cafe, bar,managers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Other managers, administrators | 2.97 | 3.92 | 4.19 | 3.47 | 4.04 | 3. 95 | 3.81 | 4.10 | 2.53 |
| Sales workers | . 93 | 1. 03 | 1.42 | 1.22 | 1.19 | 1.13 | 1.29 | 1.14 | . 72 |
| advertising agents, sales worker | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other sales wcrkers | .93 | 1.02 | 1.40 | 1.22 | 1.19 | 1.13 | 1.28 | 1.13 | .71 |
| Clerical workers | 8.63 | 8.42 | 7.76 | 9.92 | 9.79 | 9.09 | 11.09 | 10.93 | 11.15 |
| Stenographrs,typists, secretaries | 2.08 | 2.01 | 2.14 | 3.14 | 2.96 | 2.62 | 3.39 | 3.18 | 3.16 |
| Legal secretaries | .01 | . 01 | . 01 | . 00 | .00 | . 00 | . 01 | . 01 | .01 |
| Medical secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other stcretaries | 1.48 | 1. 50 | 1.64 | 2.45 | 2.45 | 2.26 | 2.52 | 2.50 | 2.65 |
| Stenographers | . 09 | . 05 | . 01 | - 12 | . 05 | . 00 | . 09 | . 04 | . 00 |
| Typists | . 50 | . 46 | . 48 | . 56 | . 47 | . 34 | . 76 | . 63 | . 50 |
| Office machine operators | . 49 | . 55 | . 37 | . 66 | - 82 | . 66 | . 83 | . 93 | . 74 |
| Bookkeeping and billing | . 04 | . 02 | . 01 | . 00 | . 00 | . 00 | . 06 | . 03 | . 05 |
| Calculating | . 03 | . 02 | . 02 | .02 | . 02 | . 04 | . 03 | . 02 | . 03 |
| Computer and peripheral equip | . 13 | . 29 | . 24 | . 20 | . 43 | . 34 | . 21 | . 45 | . 35 |
| Duplicating | .01 | . 01 | . 01 | . 02 | . 01 | . 02 | . 02 | . 02 | . 03 |
| Keypunch | . 25 | . 19 | -08 | . 39 | . 32 | .23 | . 46 | .37 | . 25 |
| Tabulating | . 01 | . 00 | . 00 | . 01 | .00 | . 00 | .01 | . 00 | . 00 |
| other office machine operators | . 02 | . 02 | . 01 | . 03 | . 03 | . 04 | . 04 | . 04 | . 02 |
| Other clerical workers | 6.06 | 5.87 | 5.25 | 6.12 | 6.01 | 5.81 | 6.87 | 6.81 | 7.25 |
| Billing clerks | . 17 | - 18 | . 22 | . 11 | . 13 | . 17 | . 19 | . 22 | . 34 |
| Bookkeepers | . 83 | . 85 | . 78 | . 88 | . 83 | .70 | 1.09 | 1.03 | - 89 |
| Cashiers | . 04 | . 04 | . 03 | . 03 | . 03 | . 01 | . 03 | . 04 | . 06 |
| Clerical supervisors, other | . 06 | . 07 | . 07 | . 11 | - 14 | . 17 | . 14 | . 17 | . 20 |
| Counter clerks, exc food | . 13 | - 14 | - 14 | . 11 | . 13 | . 16 | -11 | . 12 | . 15 |
| Dispatchers, starters, vehicle | . 03 | . 03 | . 02 | . 00 | .00 | . 00 | .01 | . 01 | .01 |
| Enumerators and intervievers | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Estimators, investigators, other | . 22 | . 24 | - 13 | . 20 | - 23 | . 17 | . 14 | .17 | . 16 |
| Expediters, production controlrs | . 68 | . 64 | . 45 | . 72 | . 82 | 1.07 | . 65 | . 75 | 1.08 |
| File clerks | .12 | . 11 | . 13 | . 14 | . 11 | . 08 | . 20 | . 16 | . 15 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 01 | .01 | .01 | . 00 | .00 | . 00 |
| Mail handlers, exc post office | . 08 | -07 | -05 | . 12 | - 11 | . 09 | . 08 | -08 | . 10 |
| Messengers and office helpers | . 02 | . 02 | . 02 | .00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Payroll, timekeeping clerks | . 62 | . 69 | . 64 | . 42 | .43 | . 28 | -48 | . 47 | .29 |
| Receptionists | . 15 | . 13 | . 09 | . 18 | - 18 | . 19 | . 17 | . 16 | . 17 |
| Shipping and receiving clerks | 1.10 | 1.06 | 1.27 | 1.00 | . 81 | . 49 | 1.37 | 1.18 | . 97 |
| Statistical clerks | .25 | . 28 | . 25 | . 23 | . 25 | . 23 | . 31 | . 35 | . 39 |
| Stock clerks and store keepers | .71 | . 54 | . 26 | . 65 | . 61 | . 66 | .76 | . 72 | . 87 |
| Telephone operators | . 10 | . 06 | . 03 | . 15 | . 08 | . 03 | - 14 | . 08 | . 04 |
| weighers . | . 20 | . 18 | - 10 | . 34 | . 38 | . 48 | . 36 | .39 | - 51 |
| Misc clerical workers | . 55 | . 55 | . 57 | .69 | .73 | . 83 | . 62 | .67 | . 84 |
| Crafts and kindred workers | 29.86 | 30.56 | 33.70 | 26.43 | 25. 12 | 24.93 | 22.96 | 21.91 | 20.31 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | other primary steel |  |  | Primary <br> aluminum |  |  | Other primary nonferrous |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 3.26 | 3.09 | 3.03 | 3.90 | 3.48 | 3.11 | 3.43 | 2.98 | 2.18 |
| carpenters and apprentices | - 36 | . 42 | . 32 | . 58 | . 46 | . 16 | . 42 | .31 | . 08 |
| Brick,stonemasons, apprentices | . 51 | . 34 | . 07 | .34 | - 34 | - 38 | . 20 | . 19 | . 19 |
| Bulldozer operators | . 19 | . 16 | .13 | . 07 | . 09 | . 19 | . 16 | . 17 | - 34 |
| cement and concrete finishers | . 01 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Electricians and apprentices | 1.13 | 1. 24 | 1.56 | 1.87 | 1.80 | 1.90 | 1.69 | 1.48 | . 83 |
| Excavating.grading mach operatr | . 14 | . 11 | . 06 | . 07 | . 06 | . 06 | . 20 | -19 | - 27 |
| Painters and apprentices | . 14 | - 12 | . 06 | - 18 | - 19 | . 24 | . 11 | - 11 | - 12 |
| plumbers, pipefitters, aprentices | .47 | . 47 | . 60 | .70 | . 48 | . 14 | . 59 | . 49 | . 33 |
| koofers and slaters | . 00 | . 00 | . 00 | . 01 | - 01 | . 01 | . 00 | -00 | . 00 |
| Structural metal craft workers | .31 | . 22 | . 17 | . 06 | . 04 | .03 | .03 | . 02 | . 01 |
| Tile setters | .01 | . 01 | .03 | . 00 | . 00 | . 00 | .01 | .00 | .00 |
| Blue collar worker supervisors | 5.34 | 6.19 | 6.25 | 6.09 | 5.64 | 4.17 | 5.60 | 5.54 | 4.00 |
| Hetalworkg craft wrkrs, exc mecn | 13.81 | 13.46 | 14.52 | 8.82 | 8.22 | 8.32 | 8.15 | 7.46 | 7.02 |
| Blacksmiths | . 15 | . 12 | . 05 | . 06 | . 03 | . 00 | . 05 | . 03 | . 00 |
| Boilermakers | .11 | - 11 | -11 | . 02 | . 01 | . 01 | . 11 | . 08 | .03 |
| Heat treaters, annealers | 1.02 | 1. 03 | 1.07 | . 36 | - 30 | . 12 | . 47 | .37 | . 14 |
| Porge and hammer operators | . 93 | . 93 | .93 | . 20 | . 19 | .16 | .21 | . 21 | . 20 |
| Job and die setters, metal | . 54 | . 42 | . 25 | . 78 | . 73 | . 89 | . 92 | . 79 | . 79 |
| Machinists and apprentices | 1.96 | 2. 20 | 2.91 | 2.02 | 2. 17 | 2.51 | 2.22 | 2.33 | 2.64 |
| Millurights | 1.02 | 1. 20 | 1.52 | 1.00 | . 99 | 1.05 | - 50 | . 51 | . 42 |
| Molders, metal and apprentices | 5.60 | 5.24 | 5.21 | 1.92 | 1.65 | 1.29 | 1.54 | 1.31 | 1.01 |
| Pattern and ricldmakers | . 77 | -60 | . 69 | . 25 | . 17 | . 09 | . 14 | . 10 | . 07 |
| Rollers and finishers,metal | . 78 | .74 | . 58 | . 56 | . 58 | . 66 | . 49 | . 50 | . 55 |
| Sheetmetal workers, apprentices | . 14 | . 14 | . 19 | .21 | . 16 | - 18 | . 33 | . 25 | . 13 |
| tool and diemakers, apprentices | . 79 | . 74 | 1.02 | 1.45 | 1.26 | 1.36 | 1.17 | 1.00 | 1.05 |
| Hechanics, repairers, installers | 3.08 | 3.65 | 4.53 | 4.35 | 5.26 | 6.92 | 3.25 | 3.92 | 5. 35 |
| Air cond, heating, refrig mech | .03 | . 04 | .03 | . 12 | . 15 | . 14 | . 09 | . 11 | . 10 |
| Aircraft mechanics | .01 | .01 | . 03 | . 01 | . 01 | .01 | .01 | . 01 | . 01 |
| Auto body repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 19 | . 16 | - 10 | . 24 | - 22 | . 21 | . 16 | - 16 | - 20 |
| Data processing mach repairers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 03 | . 04 | . 07 | .01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | 2.53 | 3. 13 | 4.16 | 3.14 | 3. 97 | 5.62 | 2.55 | 3.18 | 4.56 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 07 | . 07 | . 08 | -03 | . 04 | . 04 |
| Badio, television repairers | . 03 | . 03 | . 05 | . 03 | . 02 | . 00 | . 01 | . 01 | . 01 |
| Railroad, car shop repairers | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Other mechanics and apprentices | . 26 | - 22 | .11 | .72 | .78 | . 81 | . 35 | . 38 | . 37 |
| Printing trade crafts workers | . 08 | . 09 | .12 | . 09 | . 07 | . 02 | . 09 | . 08 | .03 |
| Compositors and typesetters | . 04 | . 04 | . 06 | . 05 | . 03 | . 01 | . 05 | . 04 | . 00 |
| Engravers exc photoengravers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Press, plate printers,aprentices | .03 | . 04 | . 06 | . 03 | . 02 | . 01 | .03 | . 03 | . 03 |
| Transport, public util craft wkrs | .11 | . 14 | - 11 | . 05 | . 04 | . 01 | . 16 | - 16 | . 12 |
| zlec pur line instaler, repairer | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Locomotive engineers | . 05 | . 08 | . 07 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Locomotive engineers' helpers | . 01 | . 01 | . 02 | . 00 | - 00 | . 00 | . 01 | . 01 | .01 |
| Pover station operators | .03 | . 03 | . 02 | . 03 | . 03 | . 01 | . 03 | . 02 | . 01 |
| Telephone installers, repairers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 05 | . 05 | . 06 |
| Telephone line instalr,splicers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | other primary steel |  |  | Primary aluminum |  |  | other primary nonferrous |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 4.18 | 3.95 | 5.13 | 3.13 | 2.41 | 2.39 | 2.28 | 1.77 | 1.61 |
| Bakers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Crane,derrick, hoist operator | 3.11 | 2.76 | 4.16 | 2.29 | 1. 64 | 1.80 | 1.47 | 1.16 | 1.17 |
| Decorators, yindow dressers | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Glaziers | . 01 | . 01 | . 01 | . 02 | . 02 | .01 | .01 | .01 | .01 |
| Inspectors, lgg and lumber | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Inspectors, other | . 65 | . 83 | . 78 | . 45 | . 49 | .41 | . 16 | . 14 | . 06 |
| Jewelers and watchmakers | . 01 | . 01 | . 02 | . 00 | - 00 | . 00 | . 02 | . 02 | .01 |
| Opticians, lens grinder, polisuer | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | - 20 | . 15 | . 07 | . 28 | . 16 | .03 | . 37 | .18 | . 01 |
| other crafts workers | . 17 | . 14 | . 06 | . 09 | . 09 | .13 | . 24 | . 26 | . 34 |
| operatives | 37.14 | 37.29 | 35.91 | 41.94 | 42.60 | 44.09 | 43.88 | 44.88 | 47.83 |
| Operatives,except transport | 33.78 | 33.51 | 31.58 | 37.78 | 38.57 | 39.45 | 40.48 | 41.49 | 44.25 |
| Semiskilled metalworking | 14.38 | 13.48 | 13.75 | 10.30 | 9.75 | 9.59 | 10.37 | 9.71 | 9.62 |
| Drill press oferatives | . 31 | . 21 | . 10 | . 37 | . 31 | . 30 | . 34 | . 26 | . 23 |
| Furnace tendrs, smeltrs, pourers | 3.98 | 4. 28 | 4.48 | 4.36 | 4.36 | 3.97 | 4.52 | 4.46 | 4.34 |
| Grinding machine operatives | 3.35 | 2.47 | 1.95 | 1.16 | . 97 | . 95 | 1.07 | . 89 | . 88 |
| Heaters, metal | . 46 | . 43 | . 34 | . 09 | . 06 | .01 | . 07 | .05 | . 01 |
| Lathe,milling mach operatives | . 95 | . 63 | - 38 | . 58 | . 45 | . 49 | . 69 | . 53 | .61 |
| Metal platers | - 10 | . 07 | . 01 | . 04 | . 05 | . 06 | . 25 | . 27 | . 27 |
| other precision mach operators | . 23 | . 15 | . 07 | . 19 | . 16 | . 22 | . 19 | . 16 | . 19 |
| Punch,stamping press operatives | 1.14 | . 86 | -40 | 1.78 | 1.69 | 2.08 | 1.40 | 1.31 | 1.63 |
| Solderers | . 02 | . 02 | . 00 | . 01 | .01 | . 01 | . 22 | . 19 | . 10 |
| Welders and flamecutters | 3.85 | 4.36 | 6.03 | 1.72 | 1.70 | 1.50 | 1.64 | 1.59 | 1.38 |
| Semiskilled packing, inspecting | 3.55 | 3.75 | 4.80 | 4.65 | 4.24 | 3.62 | 5.12 | 4.89 | 4.88 |
| Checkers, examiners, mfg | 2.85 | 3. 00 | 3.68 | 2.96 | 2.96 | 3.10 | 3.78 | 3.79 | 4.21 |
| Graders and scrters, mfg | . 10 | - 10 | - 10 | . 03 | . 02 | . 01 | . 13 | - 10 | . 02 |
| Packer,wrapper, exc meat, prodce | . 60 | . 65 | 1.02 | 1.66 | 1.26 | . 52 | 1.21 | 1.00 | . 65 |
| Other operatives, exc transport | 15.85 | 16. 28 | 13.03 | 22.84 | 24.58 | 26.25 | 24.99 | 26.89 | 29.74 |
| Asbestos, insulation workers | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Assemblers | 1.18 | 1. 59 | 1.99 | 1.39 | 1.52 | 1.74 | 1.92 | 2.05 | 2.26 |
| Blasters . | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Cutting operatives, other | .00 | . 00 | . 00 | 1.05 | 1.11 | 1.25 | 1.25 | 1.39 | 1.85 |
| Drillers, earth | . 06 | - 05 | . 02 | . 06 | . 06 | . 08 | . 08 | . 09 | . 13 |
| Dyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Filer, polisher, sander, buffer | . 37 | . 27 | . 08 | 1.26 | 1.32 | 1.67 | 1.05 | 1.09 | 1.41 |
| Garage wrkr,gas station atten | . 01 | . 01 | . 01 | -01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| Laundry, dry cleang oprs,other | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Mixing operatives | . 18 | - 19 | .17 | . 08 | . 09 | . 12 | . 32 | . 35 | . 49 |
| oilers, greasers,exc automobiles | . 23 | - 24 | - 26 | . 27 | - 18 | . 03 | . 27 | . 19 | . 05 |
| Painters, mfg articles | . 42 | - 35 | . 26 | . 69 | . 65 | . 84 | . 51 | . 49 | .71 |
| Photographic frocess workers | . 04 | . 04 | . 05 | . 04 | .03 | . 01 | . 02 | . 02 | . 04 |
| Riveters and fasteners | -10 | - 10 | . 07 | . 09 | - 10 | . 12 | . 06 | . 06 | -09 |
| Sawyers | . 24 | . 26 | . 33 | 1. 10 | - 86 | . 28 | . 53 | -41 | . 14 |
| Sewers and stitchers | . 02 | . 02 | . 03 | . 02 | . 02 | . 02 | . 04 | . 04 | . 10 |
| Furnace tendr,stokr,exc metal | -28 | - 20 | - 20 | . 43 | . 23 | . 07 | . 47 | . 25 | . 07 |
| Winding operatives, other | . 23 | . 20 | . 10 | . 12 | . 14 | . 19 | 1.46 | 1.60 | 2.10 |
| Miscellaneous machine operatves | 7.84 | 8.10 | 6.77 | 11.13 | 12.37 | 13.68 | 11.30 | 12.17 | 12.79 |
| Other operatives, exc transport | 4.61 | 4.64 | 2.67 | 5.07 | 5.87 | 6.12 | 5.65 | 6.62 | 7.46 |
| Transport equipment operatives | 3.36 | 3. 77 | 4.33 | 4.16 | 4.03 | 4.64 | 3.40 | 3.39 | 3.59 |
| Delivery and route workers | . 15 | . 15 | . 23 | . 13 | - 10 | . 06 | . 09 | . 07 | . 04 |
| Fork lift,tow motor operatives | 1.60 | 1. 90 | 2.09 | 2.31 | 2.83 | 3.36 | 1.84 | 2.31 | 3.03 |
| Rail vehicle cperators, other | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 | . 08 | . 05 | . 01 |
| Railroad brake operators | .03 | . 04 | . 05 | . 00 | . 00 | . 00 | . 06 | . 09 | .21 |
| Railroad switch operators | . 08 | -09 | - 13 | . 01 | . 01 | . 03 | . 07 | . 09 | . 16 |
| Taxicab drivers, chauffeurs | . .06 | . 05 | . 02 | .05 | . 04 | . 01 | . 09 | . 05 | . 00 |
| Truck drivers | 1.40 | 1. 51 | 1.77 | 1.65 | 1.04 | 1.18 | 1.17 | .73 | - 14 |
| Service workers | 2.56 | 2. 30 | 1.66 | 2.56 | 2.41 | 1.98 | 2.39 | 2.25 | 1.89 |
| Cleaning service vorkers | 1.81 | 1. 58 | 1.05 | 1.81 | 1.69 | 1.37 | 1.60 | 1.48 | 1.20 |
| Bldg interior cleaners, other | . 28 | . 23 | . 20 | . 29 | . 29 | . 28 | . 23 | . 24 | . 23 |
| Janitors and sextons | 1.53 | 1. 35 | . 85 | 1.52 | 1.39 | 1.09 | 1.37 | 1.25 | . 97 |


|  | other primary steel |  |  | primary aluminum |  |  | Other primary nonferrous |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Rood service wcrkers | . 06 | . 04 | . 03 | . 07 | . 06 | . 04 | . 06 | . 05 | . 04 |
| Cooks, exc private households | . 02 | .01 | .01 | . 03 | . 02 | . 01 | . 02 | . 01 | . 00 |
| Pood counter,fountain workers | . 01 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Waiters | . 02 | . 01 | .01 | - 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other food serv wkrs.exc privt | .01 | -01 | .01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| dealth service workers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| practical nurses | .01 | . 01 | .01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 02 | . 02 | .02 | . 02 | . 02 | . 03 | .03 | . 03 | . 02 |
| Elevator operators | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Housekeepers, exc private nomes | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 | .00 |
| Protective service workers | . 66 | . 65 | . 56 | . 65 | . 64 | . 54 | . 71 | . 69 | . 63 |
| Firefighters | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Guards | . 63 | . 62 | . 54 | . 63 | . 62 | . 53 | . 67 | . 66 | . 62 |
| Police and detectives | . 01 | . 01 | . 30 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 |
| Laborers, except farm | 12.13 | 10.45 | 9.21 | 5.72 | 5.57 | 5.28 | 5.61 | 5.42 | 6.23 |
| carpenter helpers | . 06 | . 06 | . 09 | . 13 | . 10 | .10 | . 08 | . 05 | . 04 |
| Constr labr,exc carpenter helpr | . 39 | . 29 | . 10 | - 39 | - 36 | . 33 | . 47 | . 43 | . 40 |
| Freight and material handlers | 1.92 | 1.86 | 1.76 | 1.96 | 2.05 | 2.00 | 1.63 | 1.71 | 2.26 |
| Gardenrs, groundkeefers, exc farm | . 04 | . 04 | . 05 | . 08 | . 09 | . 10 | . 05 | . 06 | . 08 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 |
| Stock handiers | . 17 | . 16 | . 07 | . 16 | - 18 | . 19 | -23 | . 26 | . 26 |
| Teamsters | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Vehicle washers,equip cleaners | . 37 | - 31 | - 10 | . 25 | . 28 | . 28 | . 30 | . 33 | . 35 |
| narehouse labcrers, Other | . 10 | . 10 | . 10 | . 06 | . 04 | . 01 | . 13 | . 09 | . 03 |
| other laborers | 9.08 | 7.64 | 6.94 | 2.67 | 2.46 | 2.24 | 2.73 | 2.49 | 2.80 |

Table 1. Percent distribution of industry employment by occupation, 1970. 1978 and projected 1990


> Cutlery and other
> harduare
$1970 \quad 1978 \quad 1990$

Fabricated structural metal
$1970 \quad 1978$ 1990

Total all cccupations
Professional and technical
Engineers, technical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
Sales
Other engineers
Life and physical scientists
Atmospheric and space
Cnemists
Physicists and astronomers
Other life, fhysical scientists
Mathematical sfecialists
Statisticians
Engineering, science technicians
Chemical techricians
Drafters
Electrical and electronic
Industrial engineering
Mechanical engineering
Other engineering, science tecn
Medical workers,exc technicians
Registered nurses
Technicians,except healta
Airplane pilcts
Tool prograrers,numerical
other technicians except health

Computer specialists
Computer programers
Computer systems analysts
Other computer specialists
social scientists
Economists
Teachers
Adult education
Writers,artists,entertainers
Designers
Editors and reforters
Painters and sculptors
Photographers
Public relaticns specialists
Other writers,artists, entertiin
Other professicnal and technical
accountants
Architects
Lawyers
operations and systems researca
Personnel, labcr relations wiss
Other research workers
Managers, officials, proprietors
Euyers,sales,ican manayers
Bank, financial managers
creait managers
Pucchasing agents, buyers,other
Sales manager, exc retail trade
$100.00 \quad 100.00 \quad 100.00$
$6.00 \quad 6.10 \quad 5.41$
$1.96 \quad 1.83 \quad 1.67$
$\begin{array}{ll}.03 & .03 \\ .12 & .08 \\ .12 & .12\end{array}$



|  |  |  |
| :--- | :--- | :--- |
| .13 | .14 | .13 |
| .00 | -01 | .01 |
| .12 | .12 | .10 |


| .01 | .01 | .02 |
| :--- | :--- | :--- |
| .00 | .00 | .01 |


| .01 | .01 |
| :--- | :--- |
| .01 | .01 |


| 5.48 | 5.94 | 5.72 | 7.43 | 7.09 | 5.74 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1.90 | 1.93 | 2.16 | 2.25 | 1.90 | 1.27 |
| . 02 | . 03 | . 06 | . 03 | . 02 | . 01 |
| . 03 | . 03 | . 04 | . 30 | - 20 | . 10 |
| . 05 | . 06 | . 08 | . 20 | . 21 | . 23 |
| . 62 | . 66 | . 64 | -42 | . 41 | - 24 |
| . 97 | . 98 | 1. 16 | . 62 | . 54 | - 35 |
| . 03 | . 03 | . 05 | . 11 | . 11 | . 08 |
| . 05 | . 02 | . 00 | -23 | . 14 | . 04 |
| . 14 | - 12 | . 12 | . 34 | -29 | - 22 |
| . 09 | . 08 | . 04 | . 12 | . 12 | . 11 |
| . 01 | . 01 | . 01 | . 01 | . 01 | -02 |
| . 08 | . 07 | . 03 | . 08 | . 07 | . 03 |
| . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| . 03 | . 03 | . 04 | .01 | .01 | . 01 |
| . 03 | . 03 | . 04 | . 01 | . 01 | . 01 |
| 1.11 | 1.03 | .93 | 3.04 | 2.66 | 2.31 |
| . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| . 69 | . 59 | . 58 | 2.47 | 2.11 | 1.94 |
| . 04 | . 05 | . 06 | . 06 | . 05 | . 01 |
| . 10 | - 10 | . 05 | . 05 | . 05 | . 01 |
| . 01 | .01 | . 01 | . 03 | . 02 | .01 |
| .27 | . 27 | . 22 | .42 | -42 | . 33 |
| . 08 | . 08 | . 10 | . 04 | . 04 | .03 |
| . 07 | . 08 | . 10 | . 03 | . 03 | . 03 |
| . 04 | . 05 | . 05 | .03 | . 04 | . 04 |
| - 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 01 | . 02 | . 02 | . 02 |
| . 02 | . 03 | . 04 | . 01 | . 02 | . 03 |
| . 29 | . 39 | . 34 | . 20 | . 27 | . 23 |
| . 18 | . 20 | . 18 | . 14 | . 16 | . 14 |
| - 10 | . 14 | . 11 | . 05 | . 08 | . 08 |
| . 02 | . 05 | . 05 | .09 | . 02 | .01 |
| . 14 | . 22 | . 21 | . 06 | . 09 | . 09 |
| . 14 | - 22 | . 21 | . 06 | . 09 | . 09 |
| . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| . 30 | - 39 | . 45 | . 23 | . 28 | . 27 |
| . 19 | - 25 | . 29 | - 14 | . 17 | .14 |
| . 03 | . 04 | . 05 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | .03 | .03 | . 01 |
| . 00 | . 00 | . 00 | . 01 | .01 | .03 |
| . 06 | . 09 | . 10 | . 04 | . 06 | . 07 |
| . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| 1.50 | 1.74 | 1.42 | 1.44 | 1.66 | 1.38 |
| . 87 | 1.00 | . 84 | . 97 | 1.14 | 1.06 |
| . 00 | . 00 | - 00 | .02 | . 01 | . 00 |
| . 01 | . 01 | .01 | . 02 | .04 | . 02 |
| . 20 | . 29 | . 25 | - 12 | - 16 | . 12 |
| . 37 | . 41 | . 31 | . 28 | . 29 | . 17 |
| . 05 | . 04 | . 02 | . 03 | . 02 | . 00 |
| 6.33 | 7.42 | 8.00 | 7.79 | 9.02 | 8.88 |
| 1.56 | 1. 55 | 1.71 | 1.54 | 1.39 | 1.12 |
| . 16 | . 16 | . 14 | . 14 | . 12 | . 06 |
| . 09 | . 06 | . 08 | -08 | . 05 | . 06 |
| . 58 | - 53 | . 54 | . 74 | .62 | . 41 |
| . 72 | - 80 | . 97 | . 58 | . 60 | 58 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Pabricated } \\ & \text { metal } \\ & \text { products } \end{aligned}$ |  |  | Cutlery and other hardware |  |  | Fabricated structural metal |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 5.38 | 6.21 | 5.41 | 4.77 | 5.88 | 6. 28 | 6.25 | 7.63 | 7.76 |
| office managers, cther | . 34 | - 37 | . 42 | . 28 | . 29 | . 30 | -39 | . 40 | . 37 |
| Restaurant, cafe, bar,managers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| other managers, administrators | 5.03 | 5.83 | 4.98 | 4.49 | 5.59 | 5.98 | 5.86 | 7.22 | 7.37 |
| Sales workers | 1.76 | 1.68 | 1.49 | 2.58 | 2.83 | 3.80 | 1.94 | 1.92 | 1.79 |
| Advertising agents,sales worker | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Other sales wrikers | 1.75 | 1.67 | 1.47 | 2.57 | 2.82 | 3.79 | 1.93 | 1.91 | 1.77 |
| Clerical workers | 11.94 | 11.78 | 11.16 | 14.19 | 13.64 | 12.29 | 11.50 | 11.28 | 10.00 |
| Stenographrs,typists, secretaries | 3.37 | 3. 30 | 3.43 | 3.85 | 3.51 | 2.86 | 3.23 | 3.23 | 3.51 |
| Legal secretaries | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Medical secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other secretaries | 2.53 | 2.61 | 2.87 | 2.70 | 2.64 | 2.35 | 2.57 | 2.68 | 3.02 |
| Stenoyraphers | . 09 | . 04 | . 01 | . 10 | . 04 | . 00 | . 08 | . 04 | . 01 |
| typists | .75 | . 64 | . 54 | 1.03 | - 82 | . 48 | . 57 | . 51 | . 47 |
| Office machine operators | . 67 | . 73 | . 51 | 1.06 | 1.01 | . 58 | . 57 | - 59 | - 35 |
| Bookkeeping and billing | . 07 | . 04 | . 03 | . 09 | . 04 | . 02 | . 06 | . 02 | -01 |
| Calculating | . 03 | . 02 | . 02 | .06 | . 04 | . 03 | .03 | . 02 | - 01 |
| computer and peripheral equip | . 16 | . 36 | . 28 | . 18 | - 38 | - 26 | . 14 | . 30 | . 23 |
| Duplicating fer | . 02 | . 02 | . 02 | . 03 | . 03 | - 04 | . 01 | . 01 | . 01 |
| Keypunch | . 35 | . 27 | . 14 | . 62 | . 46 | . 20 | . 30 | - 22 | . 08 |
| Tabulating | . 01 | . 00 | . 01 | . 02 | . 01 | . 00 | .01 | . 00 | . 01 |
| other office machine operators | . 03 | .03 | . 02 | . 06 | . 05 | . 03 | . 02 | . 02 | .01 |
| Other clerical workers | 7.90 | 7. 75 | 7.22 | 9.28 | 9.12 | 8.85 | 7.69 | 7.46 | 6.15 |
| Billing clerks | . 21 | . 24 | . 32 | . 28 | . 31 | . 40 | . 16 | . 17 | . 21 |
| Bookkeepers | 1.37 | 1.35 | 1.25 | 1.37 | 1.33 | 1.12 | 1.55 | 1.53 | 1.47 |
| Cashiers | . 02 | . 02 | -03 | -02 | . 02 | . 01 | . 01 | . 01 | . 03 |
| Clerical supervisors, other | . 11 | - 13 | . 13 | - 11 | -13 | . 15 | -14 | . 16 | . 13 |
| Collectors, bill and account | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| counter clerks,exc food | . 18 | . 20 | . 23 | . 31 | - 33 | . 36 | . 13 | . 13 | - 13 |
| Dispatchers,starters, veaicle | .02 | . 02 | - 02 | . 02 | . 01 | . 01 | . 03 | . 03 | . 03 |
| estimators, investigators, other | . 46 | . 53 | . 36 | . 18 | - 20 | . 14 | . 94 | 1.01 | - 50 |
| Expediters, ficduction controlrs | . 71 | . 76 | -83 | . 85 | . 90 | -99 | -65 | . 61 | . 40 |
| File clerks | . 20 | - 16 | . 14 | - 33 | . 26 | - 16 | . 15 | .13 | . 11 |
| Mail handlers,exc post office | . 08 | . 08 | . 08 | . 17 | - 16 | - 15 | . 06 | . 06 | . 05 |
| Messengers and office helpers | .02 | . 02 | . 01 | . 03 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Payroll, timekeeping clerks | . 52 | . 55 | -42 | . 94 | 1.03 | . 89 | -39 | - 44 | -41 |
| Receptionists | . 24 | . 22 | .17 | . 34 | . 31 | . 22 | . 24 | . 20 | . 10 |
| Shipping and receiving clerks | 1.58 | 1. 35 | 1.11 | 2.11 | 2.05 | 2.45 | 1.14 | 1.08 | 1. 14 |
| Statistical clerks | .22 | - 25 | . 26 | . 34 | - 38 | . 35 | . 20 | - 22 | -17 |
| Stock clerks and store keepers | . 91 | . 81 | . 74 | 1.00 | . 83 | - 55 | . 65 | . 48 | - 19 |
| Telephone operators | . 13 | . 07 | . 03 | - 12 | . 07 | . 02 | - 10 | . 06 | . 02 |
| weighers | . 08 | . 08 | . 09 | . 08 | . 07 | . 04 | . 06 | . 06 | . 05 |
| Misc clerical workers | . 85 | - 90 | 1.00 | . 67 | . 71 | .81 | 1.08 | 1.07 | 1.02 |
| Crafts and kindred workers | 23.98 | 23. 23 | 23.68 | 21.26 | 22.30 | 27.14 | 26.94 | 26.01 | 27-98 |
| Construction crafts workers | 3.15 | 2.74 | 2.53 | 1.36 | 1.29 | 1.17 | 6.02 | 4.96 | 4.43 |
| Carpenters and apprentices | . 35 | - 36 | -35 | . 29 | . 30 | . 28 | .63 | .70 | . 78 |
| Brick, stonemasons, apprentices | . 13 | - 11 | . 09 | . 03 | . 02 | . 01 | . 11 | . 08 | . 02 |
| Bulldozer operators | . 06 | . 06 | - 10 | . 00 | - 00 | . 00 | . 05 | . 04 | . 02 |
| electricians and apprentices | . 65 | . 63 | . 54 | . 46 | -47 | -48 | . 56 | . 61 | . 75 |
| Excavating.grading mach operatr | . 05 | . 04 | . 05 | . 04 | . 04 | . 06 | . 04 | . 03 | . 01 |
| Painters and apprentices | . 36 | . 35 | - 30 | . 27 | - 25 | . 17 | . 50 | . 40 | . 15 |
| plumbers, pi pefitters, aprentices | . 35 | - 29 | -28 | . 18 | - 16 | . 14 | -47 | -48 | . 62 |
| Roofers and slaters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Structural metal craft workers | 1.20 | . 89 | . 81 | . 10 | . 07 | . 04 | 3.63 | 2.59 | 2.06 |
| Blue collar worker supervisors | 4.92 | 5.13 | 4.67 | 4.30 | 4.90 | 5.63 | 5.02 | 5.86 | 6.98 |
| Metalworkg craft urkrs, exc mech | 11.21 | 10.26 | 10.20 | 12. 14 | 12.27 | 15.89 | 11.22 | 10.54 | 11.27 |
| Blacksmiths | . 03 | . 02 | . 01 | . 03 | . 03 | . 02 | . 04 | . 03 | . 00 |
| Boilermakers | -51 | - 54 | . 78 | . 03 | . 04 | - 06 | 1.55 | 1.60 | 2.06 |
| Heat treaters, annealers | . 28 | . 25 | - 19 | . 67 | . 71 | . 81 | . 09 | . 09 | - 10 |
| Forge and hammer operators | . 43 | . 43 | -40 | . 96 | 1.02 | 1.24 | . 07 | . 08 | - 10 |
| Job and die setters, metal | 1.99 | 1.76 | 1.86 | 2.52 | 2. 17 | 1.99 | . 52 | -40 | . 23 |
| Machinists and apprentices | 2.61 | 2.54 | 2. 25 | 3.02 | 3.62 | 5.66 | 1.60 | 1.73 | 1.95 |
| Millwrights | . 34 | - 34 | . 29 | . 21 | . 22 | . 17 | . 25 | - 32 | . 47 |
| molders, metal and apprentices | . 38 | - 34 | . 30 | - 37 | - 34 | . 30 | - 31 | . 30 | . 34 |
| pattern and mcldmakers | . 18 | . 13 | -11 | . 14 | . 12 | - 16 | -24 | . 18 | - 15 |
| Rollers and finishers,metal | . 32 | . 33 | . 34 | - 56 | - 58 | . 62 | . 36 | . 34 | . 24 |
| Sheetmetal workers, apprentices | 2.01 | 1.80 | 1.97 | . 12 | . 08 | . 03 | 5.74 | 5.05 | 5.12 |
| Tool and diemakers, apprentices | 2.16 | 1.80 | 1.73 | 3.50 | 3.37 | 4.83 | . 47 | . 43 | . 51 |


|  | $\begin{aligned} & \text { Fabricated } \\ & \text { metal } \\ & \text { products } \end{aligned}$ |  |  | Cutlery and other hardware |  |  | Fabricated structural metal |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 2.84 | 3.46 | 4.53 | 2.54 | 2. 88 | 3.20 | 1.91 | 2. 12 | 2. 11 |
| Air cond, heating, refrig meca | . 08 | . 09 | . 06 | . 02 | . 04 | . 04 | . 13 | - 12 | . 04 |
| Aircraft mechanics | .01 | . 02 | . 03 | . 02 | . 03 | . 06 | -01. | . 02 | . 04 |
| Auto body repairers | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Auto mechanics and apprentices | . 15 | - 14 | . 13 | . 07 | . 06 | . 05 | . 14 | . 11 | . 04 |
| Farm implement mechanics | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Heavy equip mech, incl diesel | 2.21 | 2.82 | 4.01 | 1.56 | 1.95 | 2.63 | 1.26 | 1.53 | 1.79 |
| Household afpliance mechanics | . 06 | . 06 | . 04 | . 00 | . 00 | . 00 | . 17 | . 15 | . 07 |
| Radio, television repairers | . 02 | . 01 | .01 | . 01 | . 01 | . 01 | .01 | -01 | . 02 |
| Railroad, car shop repairers | .01 | . 01 | . 01 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Other mechanics and apprentices | . 28 | - 28 | . 20 | . 85 | . 79 | . 41 | .17 | .15 | . 07 |
| Printing trade crafts workers | . 39 | . 37 | . 26 | . 24 | . 30 | . 46 | . 08 | - 10 | - 15 |
| Compositors and typesetters | . 09 | . 08 | . 07 | . 09 | - 13 | . 24 | . 04 | .05 | . 08 |
| Engravers exc photoengravers | +09 | . 08 | . 04 | . 06 | . 07 | . 09 | . 00 | . 00 | . 00 |
| Photoengravers, lithographers | . 07 | . 05 | . 02 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Press, plate printers,aprentices | . 14 | . 15 | - 13 | . 07 | . 08 | - 12 | .04 | . 05 | . 07 |
| Transport, puilic util craft wirs | . 03 | . 04 | . 05 | . 02 | . 02 | . 02 | . 05 | . 07 | . 10 |
| Elec pwr line instaler, repairer | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Locomotive engineers | . 01 | . 01 | . 02 | . 00 | . 00 | - 00 | . 02 | . 03 | . 05 |
| Power station operators | . 01 | . 01 | .01 | . 01 | .01 | .01 | . 02 | . 02 | . 03 |
| Telephone installers, repairers | .01 | .01 | .01 | .00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other crafts, kindred workers | 1.42 | 1.23 | 1.44 | .67 | . 65 | - 77 | 2.63 | 2.36 | 2.95 |
| Bakers | . 01 | . 01 | . 07 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Cabinetmakers | . 04 | . 04 | . 05 | . 13 | . 17 | . 27 | . 04 | . 04 | . 03 |
| Crane, derrick, hoist operator | . 90 | . 77 | 1.06 | . 20 | - 18 | . 28 | 1.85 | 1.65 | 2.42 |
| Glaziers | . 04 | . 04 | . 02 | . 00 | - 00 | . 00 | . 11 | . 10 | . 05 |
| Inspectors, other | . 12 | . 13 | . 15 | . 09 | . 12 | . 15 | . 19 | . 24 | . 31 |
| Shipuitters | . 01 | . 01 | .01 | . 00 | .00 | . 00 | . 03 | . 02 | . 01 |
| Sign painters and letterers | . 01 | . 01 | . 02 | . 01 | -01 | . 01 | . 01 | . 01 | . 02 |
| Stationary engineers | . 14 | . 08 | . 01 | . 16 | - 11 | . 03 | . 16 | . 08 | .01 |
| Upholsterers | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts workers | . 13 | .12 | .09 | . 08 | . 07 | . 04 | . 23 | .19 | . 08 |
| Operatives | 42.41 | 42.86 | 45.09 | 44.30 | 42.30 | 38.33 | 38.26 | 39.38 | 42.04 |
| Operatives, except transport | 39.60 | 39.87 | 41.47 | 42.76 | 40.53 | 35.96 | 35.65 | 36.48 | 37.93 |
| Semiskilled metalworking | 16.32 | 15.76 | 16.91 | 13.85 | 11.23 | 7.99 | 18.09 | 18.40 | 20.98 |
| Drill press oferatives | . 70 | . 55 | .36 | 1.30 | . 85 | . 32 | . 60 | . 36 | . 15 |
| Furnace tendrs,smeltrs, pourers | . 52 | . 54 | . 56 | . 40 | . 42 | . 47 | . 47 | . 50 | . 59 |
| Grinding machine operatives | 1.31 | 1.05 | . 77 | 3.00 | 2.37 | 1.68 | . 82 | . 60 | . 29 |
| deaters, metal | . 04 | . 03 | . 03 | . 04 | . 05 | -06 | . 04 | . 04 | . 05 |
| Lathe, milling fach operatives | 1.10 | . 81 | . 74 | 1.46 | 1.01 | . 69 | . 55 | . 35 | . 15 |
| Metal platers | 1.15 | 1. 19 | . 98 | . 86 | . 73 | . 26 | . 05 | . 04 | . 01 |
| Other precision mach operators | . 90 | . 71 | . 67 | . 86 | . 63 | . 46 | . 19 | . 13 | . 05 |
| Punch,stamping press operatives | 4.31 | 3.79 | 3.76 | 4.19 | 3.26 | 1.69 | 2.42 | 1.72 | . 58 |
| Solderers | . 11 | . 09 | . 03 | . 08 | . 06 | . 01 | . 07 | . 04 | . 00 |
| Welders and flamecutters | 6.34 | 7.02 | 9.02 | 1.67 | 1.85 | 2.35 | 12.89 | 14.63 | 19.10 |
| Semiskilled packing, inspecting | 4.93 | 4. 54 | 3.87 | 7.37 | 7.20 | 7.50 | 2.07 | 2.21 | 2.74 |
| Checkers, exaniners, mfg | 3.27 | 3. 11 | 2.75 | 3.41 | 3.28 | 2.95 | 1.38 | 1.51 | 1.91 |
| Graders and scrters, mfy | . 12 | . 09 | . 04 | . 09 | . 11 | . 17 | . 02 | . 02 | . 01 |
| Packer, wrapper, exc meat, prodce | 1.54 | 1.34 | 1.09 | 3.86 | 3.81 | 4.38 | . 68 | . 68 | . 83 |

Table 1. Eercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Fabricated metal products |  |  | Cutlery and other harduare |  |  | Fabricated structural metal |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 18.15 | 19.57 | 20.68 | 21.54 | 22.11 | 20.48 | 15.48 | 15.88 | 14.21 |
| Asbestos,insulation workers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Assemblers | 4.67 | 5.24 | 6.18 | 7.99 | 8.90 | 10.44 | 4.20 | 4.86 | 6. 18 |
| Cutting operatives, other | 1.25 | 1.33 | 1.41 | . 01 | .01 | .01 | 1.86 | 1.85 | 1.52 |
| Drillers, earth | . 09 | . 08 | . 05 | .23 | .18 | . 07 | .13 | . 09 | . 02 |
| Filer, polisher,sander, buffer | 1.50 | 1.46 | 1.37 | 3.68 | 3.13 | 1.69 | . 47 | -38 | . 16 |
| Mixing operatives | . 10 | . 11 | . 14 | . 04 | . 05 | . 05 | . 04 | . 04 | . 03 |
| Oilers,greasers,exc automobiles | . 10 | . 09 | . 07 | . 10 | . 11 | - 17 | . 07 | . 07 | . 09 |
| Painters, uffg articles | 1.43 | 1.28 | 1.39 | . 97 | . 80 | . 63 | 1.47 | 1.18 | . 77 |
| Photographic frocess workers | . 06 | . 07 | . 08 | . 01 | . 01 | . 01 | . 14 | . 15 | .18 |
| Riveters and fasteners | . 18 | . 18 | . 20 | .33 | - 34 | . 36 | - 17 | . 16 | . 10 |
| Sawyers | . 20 | . 22 | . 28 | - 13 | - 14 | . 16 | . 53 | - 58 | . 70 |
| Sewers and stitchers | . 05 | . 05 | . 07 | . 07 | . 05 | . 05 | . 05 | . 04 | . 06 |
| Furnace tendr,stokr,exc metai | . 10 | . 06 | . 03 | .09 | . 07 | . 10 | . 09 | . 06 | . 04 |
| Minding operatives, other | . 19 | . 20 | . 22 | . 12 | . 11 | - 10 | . 07 | . 06 | . 02 |
| Miscellaneous machine operatves | 5.17 | 5. 74 | 6.02 | 4.96 | 5.20 | 4.50 | 3.15 | 3.30 | 2.70 |
| other operatives,exc transport | 3.04 | 3.45 | 3.16 | 2.80 | 2.99 | 2.15 | 3.03 | 3.04 | 1.63 |
| Transport equifment operatives | 2.81 | 2. 99 | 3.62 | 1.54 | 1.77 | 2.37 | 2.61 | 2.90 | 4. 12 |
| Delivery and route workers | .21 | . 19 | -21 | - 14 | . 14 | . 19 | . 24 | . 24 | . 36 |
| Fork lift,tow motor operatives | 1.42 | 1.77 | 2.15 | . 84 | 1.01 | 1.12 | .74 | . 87 | .89 |
| Rail vehicle cperators, other | . 00 | - 00 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Railroad brake operators | . 01 | .01 | . 01 | . 00 | - 00 | . 00 | . 03 | . 03 | . 02 |
| Bailroad suitch operators | .01 | . 01 | .02 | . 00 | . 00 | .00 | -03 | . 04 | . 06 |
| Taxicab drivers, chauffeurs | . 04 | . 02 | . 01 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Truck drivers | 1.12 | - 98 | 1.22 | - 56 | . 62 | 1.06 | 1.53 | 1.68 | 2.76 |
| Service workers | 1.76 | 1.58 | 1.10 | 1.84 | 1.66 | 1.14 | 1.45 | 1.17 | . 50 |
| Cleaning service workers | 1.29 | 1. 18 | . 87 | 1.28 | 1. 14 | .73 | 1.07 | . 84 | - 30 |
| Bldg interior cleaners, other | . 20 | . 18 | . 10 | .16 | . 14 | . 06 | . 18 | . 15 | . 04 |
| Janitors and sextons | 1.09 | 1.00 | . 77 | 1.11 | 1.00 | . 67 | . 89 | . 70 | . 25 |
| Food service warkers | . 05 | . 04 | . 04 | . 01 | . 01 | . 01 | . 04 | . 03 | -03 |
| cooks, exc private households | . 02 | . 01 | .01 | .01 | . 01 | .01 | . 01 | . 01 | . 01 |
| waiters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other food serv wkrs, exc privt | .01 | . 01 | .01 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Health service workers | . 01 | . 01 | .01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Nursing aides and orderlies | . 01 | . 00 | . 00 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Practical nurses | .01 | . 01 | .01 | . 00 | . 00 | .00 | . 01 | . 01 | . 02 |
| Personal service workers | .03 | . 02 | . 02 | . 03 | . 03 | . 02 | . 02 | . 02 | . 03 |
| Child care workers, exc private | . 01 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Elevator operators | . 02 | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Protective service workers | . 38 | - 33 | . 16 | . 50 | - 48 | . 36 | . 31 | . 26 | - 13 |
| Firefighters | . 01 | - 01 | . 02 | . 02 | . 02 | . 04 | . 01 | . 01 | . 01 |
| guards | . 37 | - 31 | - 14 | . 48 | -45 | - 32 | -30 | . 25 | . 10 |
| Police and detectives | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Laborers, except farm | 5.44 | 5.23 | 5.20 | 4.03 | 3.90 | 3.60 | 4.70 | 4.14 | 3.07 |
| Carpenter helpers | . 05 | . 05 | . 07 | . 01 | . 01 | . 01 | . 10 | . 09 | . 16 |
| Constr labr,exc carpenter helpr | . 23 | - 19 | . 12 | . 18 | . 14 | . 06 | . 37 | . 29 | .11 |
| Freight and material handlers | 1.89 | 1.97 | 2.27 | 1.90 | 1.93 | 2.12 | 1.55 | 1.49 | 1.28 |
| Gardenrs, groundkeepers, exc farm | . 02 | . 02 | . 02 | . 03 | . 04 | . 05 | . 04 | . 04 | . 02 |
| Stock handlers | . 39 | . 42 | . 35 | . 70 | - 69 | -41 | . 16 | . 13 | . 04 |
| Teamsters | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | . 26 | . 27 | - 23 | . 24 | . 22 | . 12 | . 08 | . 07 | . 02 |
| Warehouse labcrers, otner | . 15 | . 13 | . 10 | . 07 | - 06 | . 05 | - 14 | . 15 | . 18 |
| Other laborers | 2.44 | 2.18 | 2.03 | . 89 | . 80 | .77 | 2.26 | 1.88 | 1.27 |


|  | Screw machine products |  |  | Metal stamping |  |  | $\begin{gathered} \text { Misc } \\ \text { fabricated } \\ \text { metal } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.84 | 5. 16 | 4.66 | 4.58 | 4.76 | 4.14 | 5.82 | 6.04 | 5.72 |
| Engineers, technical | 1.74 | 1.73 | 1.83 | 1.61 | 1. 58 | 1.62 | 1.94 | 1.87 | 1.97 |
| Chemical | .01 | . 01 | . 01 | . 03 | . 03 | . 03 | . 04 | . 03 | . 01 |
| Civil | . 01 | . 00 | . 00 | . 02 | . 01 | . 01 | .06 | .03 | .01 |
| Electrical | .03 | . 03 | . 06 | . 07 | . 07 | . 07 | . 12 | .11 | . 08 |
| Industrial | . 61 | . 75 | 1.01 | . 54 | . 65 | . 85 | . 55 | . 68 | . 99 |
| Mechanical | . 63 | . 52 | . 26 | . 54 | .44 | .23 | . 59 | . 48 | . 26 |
| Metallurgical | - 15 | - 16 | - 20 | -11 | . 12 | . 14 | . 08 | . 09 | . 10 |
| Sales | . 13 | . 06 | . 01 | . 09 | . 04 | . 00 | . 16 | .11 | . 05 |
| other engincers | . 19 | . 20 | . 29 | .21 | - 22 | . 30 | . 34 | . 35 | . 47 |
| Life and physical scientists | . 14 | . 15 | . 17 | . 05 | . 06 | . 06 | . 20 | .21 | - 22 |
| Chemists | . 14 | . 15 | .17 | . 05 | . 06 | . 06 | . 20 | . 20 | . 21 |
| Physicists and astronomers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Mathematical sfecialists | .01 | . 01 | .01 | . 01 | .01 | . 02 | . 01 | . 01 | . 02 |
| Statisticians | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Engineering, science technicians | 1.08 | 1.08 | 1.06 | . 94 | . 89 | . 86 | 1.54 | 1.48 | 1.49 |
| Chemical techricians | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 04 | . 05 | . 08 |
| Drafters | . 52 | . 44 | . 41 | . 64 | . 54 | .47 | . 84 | . 73 | . 77 |
| Electrical and electronic | . 05 | . 06 | . 08 | . 02 | . 03 | . 04 | . 08 | .11 | . 14 |
| Industrial engineering | . 08 | - 13 | . 20 | . 09 | . 13 | . 16 | . 08 | . 10 | . 09 |
| Mechanical engineering | . 05 | . 07 | . 10 | . 02 | . 03 | . 05 | . 02 | . 03 | . 05 |
| Other engineering, science teca | . 36 | . 36 | . 27 | . 17 | . 18 | . 15 | . 48 | .47 | . 36 |
| Medical workers,exc technicians | . 03 | . 03 | . 01 | . 09 | . 07 | . 03 | . 07 | . 05 | . 01 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Registered nurses | . 03 | . 03 | . 01 | . 09 | . 06 | . 02 | .07 | . 05 | . 01 |
| Technicians, except health | .01 | . 02 | . 02 | . 03 | . 04 | . 03 | . 04 | . 05 | . 07 |
| Airplane pilots | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 | . 01 | . 02 | . 02 |
| Tool programers, numerical | . 01 | .01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| other technicians except nealth | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Computer specialists | -19 | - 25 | . 22 | - 18 | . 23 | . 23 | . 20 | - 26 | . 25 |
| Computer programers | . 11 | . 14 | . 12 | . 14 | .17 | . 16 | . 14 | . 17 | . 17 |
| Computer systems analysts | . 07 | - 10 | . 09 | . 03 | . 05 | . 06 | . 05 | . 07 | -07 |
| other computer specialists | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | .01 | . 02 | .01 |
| Social scientists | . 06 | . 11 | . 16 | . 06 | . 09 | .09 | .07 | . 13 | . 15 |
| Economists | . 06 | - 11 | -16 | . 06 | . 09 | . 09 | .07 | .13 | . 15 |
| Teachers | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | . 01 | .01 | .01 |
| adult education | . 02 | . 02 | . 01 | .02 | . 02 | . 02 | . 01 | .01 | . 01 |
| Writers, artists, entertainers | . 18 | . 19 | - 10 | . 20 | . 23 | . 17 | . 32 | . 38 | . 33 |
| Designers | . 11 | . 11 | . 05 | . 15 | . 17 | . 12 | . 16 | . 17 | . 11 |
| Editors and reporters | . 00 | . 00 | . 00 | - 02 | . 02 | . 01 | . 02 | . 02 | .01 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 10 | . 12 |
| Photographers | . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 03 | . 02 | .01 |
| Public relations specialists | . 02 | . 02 | . 01 | . 01 | . 02 | . 01 | .03 | . .04 | . 05 |
| Other writers,artists, entertain | .04 | . 06 | . 05 | . 01 | . 02 | . 02 | . 02 | .03 | . 04 |
| other professicnal and technical | 1.38 | 1.58 | 1.08 | 1.38 | 1.54 | 1.00 | 1.42 | 1.59 | 1.19 |
| Accountants | . 81 | . 87 | .53 | . 88 | .93 | . 53 | . 80 | . 83 | . 48 |
| Lawyers | . 05 | . 06 | .00 | . 01 | . 02 | . 01 | . 01 | . 02 | . 02 |
| Operations and systems researca | . 19 | . 29 | . 30 | - 16 | . 24 | - 24 | . 21 | . 31 | . 31 |
| Personnel, labcr relations ukrs | . 31 | . 33 | . 22 | - 32 | - 34 | . 22 | . 33 | . 37 | . 33 |
| other research workers | . 03 | . 03 | . 04 | . 01 | . 01 | . 00 | . 06 | . 05 | . 05 |
| Managers, officials, proprietors | 6.74 | 7.97 | 8.14 | 5.48 | 5.84 | 4.08 | 6.47 | 6.86 | 5.10 |
| Buyers,sales.ican managers | 1.39 | 1.52 | 2.19 | 1.16 | 1. 13 | 1.26 | 1.18 | 1.26 | 1.79 |
| Bank, financial managers | . 11 | . 12 | .13 | . 10 | . 10 | . 08 | .11 | .11 | . 12 |
| Credit managers | .04 | . 03 | . 04 | . 06 | . 04 | . 03 | . 05 | . 03 | .01 |
| Purchasing agents, buyers,other | . 78 | - 80 | 1.16 | . 62 | . 59 | . 68 | . 49 | .49 | . 70 |
| Sales manager, exc retail trade | . 46 | - 57 | . 87 | - 37 | .41 | . 47 | . 53 | . 64 | . 96 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Screw machine products |  |  | $\begin{gathered} \text { Metal } \\ \text { stamping } \end{gathered}$ |  |  | $\begin{gathered} \text { Misc } \\ \text { fabricated } \\ \text { metal } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 5.35 | 6.45 | 5.95 | 4.32 | 4.71 | 2.82 | 5.29 | 5.60 | 3.31 |
| office managers, other | . 48 | . 55 | . 72 | . 29 | - 32 | . 41 | . 32 | . 36 | . 46 |
| Restaurant, cafe, bar, $\begin{aligned} & \text { anagers }\end{aligned}$ | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other managers, administrators | 4.86 | 5.89 | 5.22 | 4.03 | 4.37 | 2.40 | 4.97 | 5.24 | 2.85 |
| Sales workers | 2.02 | 1.95 | 1.59 | 1.07 | . 82 | . 23 | 1.60 | 1.39 | . 78 |
| Advertising agents,sales worker | . 00 | . 00 | . 00 | . 01 | . 01 | - 01 | . 01 | . 02 | . 02 |
| other sales wrrkers | 2.02 | 1.95 | 1.59 | 1.06 | - 80 | . 22 | 1.59 | 1.37 | . 76 |
| Clerical workers | 14.57 | 14.47 | 14.13 | 9.93 | 9.90 | 9.45 | 12.04 | 11.95 | 12.45 |
| Stenographrs,typists, secretaries | 4.05 | 4.00 | 4.06 | 2.69 | 2.60 | 2.51 | 3.53 | 3.48 | 3.92 |
| Legal secretaries | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other secretaries | 2.89 | 3.02 | 3.29 | 1.97 | 2.02 | 2.07 | 2.63 | 2.74 | 3.24 |
| Stenographers | . 07 | . 03 | . 00 | . 09 | . 04 | -00 | . 10 | . 04 | . 01 |
| Typists | 1.10 | . 95 | . 78 | . 64 | - 55 | . 44 | . 79 | .70 | .66 |
| Office machine operators | . 88 | . 91 | .73 | . 54 | - 72 | . 64 | .66 | . 74 | . 59 |
| Bookkeeping and billing | . 09 | . 06 | . 08 | . 04 | . 02 | . 03 | . 08 | . 05 | . 06 |
| Calculating | . 04 | . 03 | . 05 | . 02 | . 01 | . 01 | . 03 | . 03 | . 03 |
| Computer and feripheral equip | . 17 | - 38 | . 32 | - 18 | . 41 | . 34 | - 17 | . 37 | . 31 |
| Duplicating | . 03 | . 03 | . 05 | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 |
| Keypunch | . 47 | . 36 | . 19 | . 26 | - 23 | -21 | . 32 | . 24 | - 12 |
| Tabulating | . 05 | . 01 | . 00 | . 01 | . 00 | . 00 | . 01 | . 00 | . 01 |
| Other office rachine operators | . 03 | . 04 | . 05 | . 03 | . 03 | . 04 | . 02 | . 02 | . 02 |
| Other clerical workers | 9.64 | 9.57 | 9.34 | 6.70 | 6.58 | 6.29 | 7.85 | 7.73 | 7.95 |
| Billing clerks | . 26 | . 28 | . 32 | . 14 | - 17 | . 24 | . 26 | . 30 | . 46 |
| Bookkeepers | 1.42 | 1.41 | 1.22 | 1.04 | 1.01 | . 83 | 1.35 | 1.32 | 1.27 |
| Cashiers | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 04 | . 05 | . 06 |
| Clerical supervisors, other | - 14 | - 17 | . 20 | . 05 | . 06 | . 05 | - 11 | . 13 | . 14 |
| Counter clerks, exc food | . 25 | - 29 | . 38 | . 12 | . 14 | . 19 | . 20 | . 22 | . 31 |
| Dispatchers, starters, vehicle | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Estimators, investigators, other | - 29 | -37 | . 38 | . 25 | - 32 | . 30 | . 24 | - 30 | -29 |
| Expediters, preduction controlrs | . 99 | 1. 11 | 1.37 | . 73 | . 83 | 1.06 | . 65 | .76 | 1.08 |
| File clerks | . 36 | - 31 | . 31 | . 14 | - 12 | . 11 | . 19 | . 16 | . 14 |
| Library attendants, assistants | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Mail handlers, exc post office | .07 | . 08 | . 12 | .05 | . 05 | . 05 | . 10 | . 10 | .11 |
| Messengers and office helpers | . 02 | . 02 | . 09 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Payroll,timekeeping clerks | . 42 | . 44 | . 26 | . 54 | - 54 | . 32 | . 51 | . 51 | - 33 |
| Receptionists | -26 | . 27 | . 28 | . 24 | . 24 | . 24 | - 20 | . 19 | . 18 |
| shipping and receiving clerks | 2.23 | 1.84 | 1.04 | 1. 50 | 1.21 | . 67 | 1.69 | 1.34 | . 75 |
| statistical clerks | . 20 | . 24 | . 30 | . 19 | - 22 | . 25 | . 22 | . 26 | . 31 |
| Stock clerks and store keepers | 1.28 | 1. 20 | 1.27 | 1.01 | . 98 | 1.17 | 1.00 | . 96 | 1. 17 |
| Telephone operators | -17 | - 10 | . 03 | - 15 | - 08 | . 03 | . 13 | . 07 | .03 |
| Weighers | . 29 | . 33 | -42 | . 03 | . 04 | . 06 | . 08 | . 09 | . 13 |
| Misc clerical workers | 1.00 | 1. 13 | 1.45 | . 50 | - 55 | -68 | . 83 | . 91 | 1. 14 |
| Crafts and kindred workers | 28.60 | 28.53 | . 27.60 | 25.52 | 24.07 | 21.63 | 20.32 | 19.30 | 17.01 |
| Construction crafts workers |  | . 70 |  | 2.15 | 1. 97 | 1.55 | 2-11 | 1.87 | 1. 62 |
| Carpenters and apprentices | . 06 | . 04 | . 01 | . 37 | . 30 | . 09 | . 17 | . 13 | . 04 |
| Brick, stonemasons, apprentices | . 03 | . 02 | . 00 | - 07 | . 07 | . 07 | . 22 | . 22 | . 24 |
| Bulldozer operators | . 05 | . 05 | . 11 | . 04 | . 05 | - 10 | . 09 | - 11 | . 23 |
| Rlectricians and apprentices | -49 | . 43 | . 20 | -93 | . 89 | . 61 | -70 | . 62 | . 34 |
| Excavating.grading mach operatr | . 01 | -01 | . 01 | . 04 | . 04 | . 07 | . 07 | . 07 | . 10 |
| Painters and apprentices | . 08 | - 10 | . 15 | . 33 | - 36 | . 45 | - 35 | . 38 | . 50 |
| Plumbers, pipefitters, aprentices | . 08 | . 04 | - 00 | -29 | . 20 | . 06 | . 39 | . 26 | . 08 |
| Structural metal craft workers | . 02 | . 01 | . 01 | . 08 | . 06 | -09 | - 12 | . 09 | - 10 |
| Tile setters | . 00 | . 00 | . 00 | . 01 | .01 | .01 | .00 | . 00 | . 00 |
| Blue collar worker supervisors | 4.94 | 5.30 | 4.52 | 5.17 | 5.06 | 3.06 | 4.90 | 4.49 | 2.22 |
| Metalworkg craft wrkrs, exc mech | 19.93 | 19. 15 | 18.43 | 13.82 | 11.98 | 10.08 | 7.65 | 6.57 | 4.80 |
| Blacksmiths | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Boilermakers | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 06 | . 05 | . 03 |
| Heat treaters, annealers | . 94 | . 79 | . 34 | . 15 | . 12 | . 04 | . 25 | . 20 | . 09 |
| Forge and hamirer operators | 3.15 | 3. 14 | 2.74 | . 13 | . 13 | - 11 | -12 | . 12 | . 10 |
| Job and die setters, metal | 6.37 | 5.85 | 6.50 | 3.28 | 3.11 | 3.88 | 1.55 | 1.44 | 1.83 |
| Machinists and apprentices | 5.99 | 6.35 | 6.30 | 2.27 | 1.99 | - 95 | 2.82 | 2.40 | 1. 06 |
| Millurights | . 25 | . 24 | .13 | - 50 | - 46 | - 22 | . 39 | - 36 | - 17 |
| Molders, metal and apprentices | - 10 | -09 | . 06 | . 19 | . 16 | .11 | . 60 | - 51 | - 39 |
| Pattern and micldmakers | . 02 | - 02 | . 01 | . 21 | . 15 | - 10 | . 16 | . 11 | . 06 |
| Rollers and finishers,metal | . 24 | - 27 | -37 | . 25 | - 28 | . 38 | - 25 | - 26 | . 32 |
| Sheetmetal workers, apprentices | . 08 | . 05 | . 01 | . 47 | . 34 | -15 | -38 | . 28 | . 13 |
| Tool and diemakers, apprentices | 2.76 | 2.33 | 1.97 | 6.35 | 5.23 | 4. 14 | 1.05 | . 84 | . 63 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Screw machine products |  |  | $\begin{gathered} \text { Metal } \\ \text { stamping } \end{gathered}$ |  |  | Misc fabricated metal |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics,repairers,installers | 2.38 | 2.98 | 3.94 | 3.03 | 3.94 | 6.16 | 3.82 | 4.86 | 7.43 |
| Air cond, heating, refrig meca | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | .10 | .13 | . 13 |
| Aircraft mechanics | . 02 | . 02 | . 01 | . 01 | . 01 | . 04 | .02 | . 02 | .01 |
| Auto body repairers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 04 | . 03 | . 03 |
| Auto mechanics and apprentices | . 08 | . 08 | . 07 | . 27 | . 28 | .37 | . 14 | . 14 | . 16 |
| Farm implement mechanics | . 00 | . 00 | . 00 | -01 | . 02 | . 03 | . 02 | . 03 | . 05 |
| Heavy equip mech, incl diesel | 2.21 | 2.82 | 3.81 | 2.46 | 3.32 | 5.39 | 3.16 | 4.17 | 6.73 |
| Household appliance mechanics | . 00 | - 00 | . 00 | . 01 | -02 | . 03 | . 02 | . 03 | . 03 |
| office machine repairers | . 00 | . 00 | . 00 | . 01 | .01 | . 03 | . 01 | . 01 | . 01 |
| Radio, television repairers | -00 | . 00 | . 00 | . 01 | - 00 | . 00 | . 03 | . 02 | . 00 |
| Other mechanics and apprentices | . 07 | . 08 | . 06 | -21 | . 23 | - 24 | . 28 | . 30 | . 27 |
| Printing trade crafts workers | . 08 | . 07 | . 02 | . 32 | . 31 | . 21 | . 84 | .75 | . 38 |
| Compositors and typesetters | . 04 | - 03 | . 01 | . 07 | . 05 | . 00 | . 14 | . 11 | . 03 |
| Engravers exc photoengravers | . 01 | - 01 | . 01 | . 03 | -03 | . 02 | . 24 | . 21 | . 09 |
| Photoengravers, lithographers | . 00 | . 00 | .00 | .04 | . 04 | .03 | . 18 | . 14 | . 04 |
| press,plate printers, aprentices | .03 | .03 | . 01 | . 18 | - 19 | . 16 | . 27 | . 29 | . 22 |
| Transport, public util craft wkrs | . 00 | . 00 | .00 | . 02 | . 02 | . 01 | .03 | . 03 | . 04 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Pover station operators | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | . 00 | .00 | . 00 |
| Telephone installers, repairers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Other crafts, kindred workers | -46 | . 33 | . 20 | 1.01 | . 80 | . 56 | . 97 | . 74 | . 52 |
| Bakers | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 04 | . 04 | .03 | -02 | . 02 | . 01 |
| Crane, derrick,hoist operator | . 26 | - 18 | . 11 | . 55 | .41 | . 27 | . 58 | . 41 | . 26 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Glaziers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | . 00 |
| Inspectors, other | . 04 | . 03 | .01 | . 09 | . 07 | . 02 | .08 | . 08 | . 03 |
| Jewelers and watchmakers | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 03 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 |
| Stationary engineers | - 10 | . 05 | . 00 | - 15 | . 09 | .01 | . 13 | . 06 | . 01 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Upholsterers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 05 | .03 | . 05 |
| other crafts workers | . 05 | . 06 | . 08 | . 15 | - 17 | . 22 | . 07 | . 07 | . 07 |
| Operatives | 36.86 | 35.53 | 37.23 | 45.80 | 46.90 | 51.87 | 45.18 | 46.08 | 49.82 |
| Operatives, except transport | 35.15 | 33.81 | 35.35 | 42.62 | 43.38 | 47.89 | 41.73 | 42.57 | 46.13 |
| Semiskilled metalworking | 17.85 | 15. 56 | 16.54 | 20.30 | 19.59 | 21.59 | 13.76 | 12.99 | 13.04 |
| Drill press oferatives | 1.84 | 1.52 | 1.44 | . 49 | . 40 | . 37 | . 62 | . 48 | . 40 |
| Furnace tendrs, smeltrs, pourers | . 57 | . 59 | -61 | . 28 | . 28 | . 26 | . 72 | .72 | . 73 |
| Grinding machine operatives | 2.33 | 1.95 | 1.65 | . 67 | . 58 | - 58 | 1.30 | 1.06 | . 92 |
| Heaters, metal | . 06 | . 04 | . 01 | .03 | - 02 | . 02 | . 03 | . 02 | . 01 |
| Lathe,milling mach operatives | 2.45 | 1.96 | 2.25 | . 72 | - 57 | . 65 | 1.38 | 1.07 | 1.23 |
| Metal platers | . 76 | . 85 | . 89 | . 30 | . 33 | . 33 | 2.76 | 2.96 | 2.89 |
| Other precision mach operators | 7.16 | 6.00 | 6.64 | . 32 | . 27 | . 33 | . 46 | . 39 | . 48 |
| Punch,stamping press operatives | 2.08 | 2.04 | 2.55 | 11.95 | 11.57 | 14.22 | 2.78 | 2.66 | 3.32 |
| Solderers | . 03 | . 02 | . 01 | . 10 | . 09 | . 05 | . 17 | . 14 | . 07 |
| Welders and flamecutters | . 59 | - 59 | -51 | 5.45 | 5.47 | 4.79 | 3.54 | 3.48 | 3.00 |
| Semiskilled packing, inspecting |  | 6.02 | 4.27 | 5.62 | 5.04 | 3.62 | 6.05 | 5.33 | 3.85 |
| Checkers, examiners, mfy | 4.77 | 4. 57 | 3.75 | 4.04 | 3.83 | 3.15 | 4.25 | 3.97 | 3.31 |
| Graders and scrters, ufg | . 45 | . 34 | . 08 | . 11 | . 08 | . 02 | . 15 | . 11 | . 03 |
| Packer,wrapper, exc meat, prodce | 1.44 | 1. 12 | . 44 | 1.47 | 1.13 | . 45 | 1.65 | 1.26 | . 52 |


|  | Screw machine products |  |  | Metal <br> stamping |  |  | $\begin{gathered} \text { Misc } \\ \text { fabricated } \\ \text { metal } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther operatives, exc transport | 10.64 | 12. 23 | 14.53 | 16.70 | 18.74 | 22.68 | 21.92 | 24.26 | 29.24 |
| Asbestos,insulation workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Assemblers | 1.64 | 1.82 | 1.99 | 4.13 | 4.53 | 4.93 | 4.97 | 5.38 | 5.94 |
| Cutting operatives, otner | 1.02 | 1.20 | 1.68 | . 96 | 1.11 | 1.49 | 1.29 | 1.41 | 1.75 |
| Drillers, earth | - 22 | - 23 | . 28 | . 07 | . 07 | . 09 | . 00 | . 00 | . 00 |
| Dyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Yiler, polisher, sander, buffer | . 47 | . 53 | . 74 | 1.47 | 1.58 | 2.03 | 1.99 | 2.07 | 2.57 |
| Gatage wrkr,gas station attea | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | -01 | . 01 |
| Meat cutters and butchers | .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mixing oferatives | . 01 | -01 | . 01 | .17 | . 20 | . 29 | . 15 | . 17 | . 25 |
| oilers,greasers,exc automobiles | . 11 | . 07 | -01 | - 17 | - 13 | . 04 | . 10 | . 07 | . 02 |
| Painters, ufy articles | . 19 | . 18 | . 25 | 1.51 | 1.48 | 2.11 | 1.77 | 1.69 | 2.37 |
| photographic frocess workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 05 | . 04 |
| Riveters and tasteners | . 37 | - 42 | -59 | . 16 | -19 | . 26 | . 09 | - 10 | - 15 |
| Sawyers | . 04 | . 03 | . 01 | - 12 | . 09 | . 02 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 04 | . 04 | . 08 | . 00 | . 00 | . 00 | . 08 | . 08 | - 14 |
| rurnace tendr,stokr,exc metal | . 08 | . 04 | . 01 | . 11 | . 06 | . 02 | . 11 | . 06 | . 02 |
| ininding operatives, other | . 09 | . 11 | . 15 | . 22 | . 25 | . 32 | . 33 | . 37 | . 49 |
| Miscellaneous machine operatves | 4.01 | 4.60 | 5.21 | 5.16 | 6.06 | 7.53 | 7.36 | 8.41 | 10.25 |
| other operatives, exc transport | 2.34 | 2. 94 | 3.53 | 2.45 | 3.01 | 3.56 | 3.58 | 4.34 | 5.23 |
| Transport equipment operatives | 1.71 | 1.72 | 1.89 | 3.18 | 3.52 | 3.98 | 3.45 | 3.51 | 3.68 |
| Delivery and route workers | . 18 | . 15 | . 10 | .11 | . 09 | . 06 | . 27 | . 22 | . 15 |
| Fork lift, tow motor operatives | . 91 | 1. 20 | 1.68 | 2.18 | 2.84 | 3.79 | 1.97 | 2.52 | 3.40 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 04 | . 00 |
| rruck drivers | . 63 | . 37 | . 11 | . 89 | . 60 | . 13 | 1.14 | . 73 | . 14 |
| Service workers | 1.74 | 1.60 | 1.14 | 1.94 | 1.86 | 1.67 | 1.93 | 1.81 | 1.54 |
| Cleaning service workers | 1.24 | 1. 20 | -98 | 1. 36 | 1.38 | 1.46 | 1.48 | 1.43 | 1.32 |
| bldg interior cleaners, other | . 26 | . 25 | . 16 | . 22 | . 21 | -12 | . 21 | . 21 | . 17 |
| Janitors and sextons | . 99 | . 95 | . 81 | 1.14 | 1.18 | 1.34 | 1.27 | 1.22 | 1. 15 |
| Food service warkers | . 03 | . 02 | . 01 | . 04 | .03 | . 04 | . 07 | . 06 | . 06 |
| Cooks, exc private households | - 00 | . 00 | - 00 | . 02 | . 02 | . 01 | .03 | . 02 | . 01 |
| Food counter, fountain workers | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 03 | . 03 | . 03 |
| waiters | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other food serv ukrs, exc privt | . 03 | . 02 | . 01 | . 02 | . 02 | . 03 | . 01 | .01 | . 02 |
| Health service workers | . 05 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Nursing aides and orderlies | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Practical nurses | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 04 | . 03 | . 02 | . 06 | . 04 | . 02 | . 02 | . 02 | . 01 |
| Attendants, personal serv,other | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Elevator operators | . 02 | . 02 | . 01 | . 05 | . 03 | . 01 | . 02 | . 02 | . 07 |
| Protective service workers | . 38 | - 31 | . 11 | . 49 | . 40 | . 16 | . 36 | . 30 | . 14 |
| Firefighters | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | -01 | . 01 | . 01 |
| guaras | . 38 | . 31 | . 11 | . 46 | - 39 | . 15 | - 35 | . 29 | . 12 |
| police and detectives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | -01 |
| Laborers, except farm | 4.63 | 4.78 | 5.50 | 5.67 | 5.85 | 6.94 | 6.66 | 6.57 | 7.60 |
| Carpenter helfers | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 05 |
| Constr labrexa carpenter helpr | . 02 | . 01 | . 01 | . 13 | . 12 | - 12 | . 21 | -19 | . 17 |
| Freight and material handlers | -89 | . 98 | 1.32 | 2.22 | 2.42 | 3.22 | 2.27 | 2.43 | 3.28 |
| Gardenrs, groundkeepers, exc farm | . 02 | . 03 | . 05 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Stock handlers | . 64 | . 75 | -80 | . 61 | . 71 | . 75 | .35 | . 40 | . 43 |
| reamsters | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Vehicle washers, equip cleaners | . 45 | . 50 | . 53 | . 30 | . 34 | . 35 | . 36 | .39 | . 40 |
| warehouse labcrers, other | - 10 | . 08 | . 03 | . 06 | . 05 | . 02 | -23 | . 18 | . 08 |
| Other laborers | 2.50 | 2.42 | 2.76 | 2.31 | 2.18 | 2.43 | 3.17 | 2.91 | 3.18 |

Table 1. Fercent distribution of industry employment by occupation, 1970. 1978 and projected 1990
$c$

| Machinery |
| :---: |
| except |
| electrical |

$1970 \quad 1978 \quad 1990$
$\left.\begin{array}{ccc} & \begin{array}{c}\text { Engines } \\ \text { and }\end{array} \\ \text { turbines }\end{array}\right)$

| Farm <br> machinery, <br> equipment |  |
| :---: | :---: |
| $1970 \quad 1978 \quad 1990$ |  |



| 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: |
| 12.54 | 13.43 | 13.46 |
| 4.64 | 4.40 | 4.38 |
| . 01 | . 01 | . 01 |
| .06 | . 05 | . 02 |
| . 05 | . 03 | . 01 |
| . 82 | . 81 | . 87 |
| . 80 | . 86 | . 89 |
| 1.76 | 1.66 | 1.62 |
| . 06 | . 06 | . 07 |
| . 01 | . 01 | .01 |
| . 28 | - 19 | . 12 |
| . 81 | .73 | . 76 |
| . 15 | . 15 | . 15 |
| .00 | . 00 | . 01 |
| .11 | . 11 | . 11 |
| .03 | . 03 | .03 |
| . 03 | . 03 | . 04 |
| . 01 | . 01 | . 01 |
| . 02 | . 02 | . 03 |
| 3.02 | 3.00 | 3.38 |
| . 00 | . 00 | . 01 |
| . 03 | . 04 | . 06 |
| 1.73 | 1.48 | 1.45 |
| . 54 | . 68 | . 99 |
| . 11 | - 15 | . 20 |
| .10 | . 12 | . 15 |
| .00 | . 00 | . 00 |
| . 51 | - 53 | . 52 |
| . 08 | . 06 | . 02 |
| . 01 | . 00 | .00 |
| .07 | . 05 | . 02 |
| . 01 | . 01 | . 01 |
| . 00 | . 00 | . 00 |
| . 10 | . 13 | .19 |
| . 02 | . 02 | . 02 |
| . 05 | . 06 | . 09 |
| . 03 | - 05 | . 08 |
| 1.53 | 2. 11 | 2.20 |
| . 86 | 1.05 | 1.10 |
| . 58 | . 89 | .97 |
| . 09 | . 17 | .13 |
| . 20 | . 34 | . 46 |
| . 19 | . 34 | . 46 |
| . 08 | - 10 | . 11 |
| . 08 | - 10 | .10 |
| . 79 | . 90 | . 69 |
| . 07 | . 08 | . 04 |
| . 42 | . 47 | . 34 |
| . 06 | . 06 | . 05 |
| .01 | . 02 | . 02 |
| . 04 | . 03 | . 01 |
| . 07 | . 09 | . 08 |
| . 12 | . 16 | . 16 |

$100.00 \quad 100.00 \quad 100.00$

| 12.96 | 13. 15 | 11.73 |
| :---: | :---: | :---: |
| 5.65 | 5.22 | 4.57 |
| . 10 | . 09 | . 05 |
| . 05 | . 03 | .00 |
| . 05 | . 03 | . 00 |
| . 62 | . 58 | . 50 |
| 1.01 | 1.07 | 1.00 |
| 2.30 | 2. 13 | 1.87 |
| . 18 | . 20 | . 24 |
| . 00 | . 00 | . 00 |
| .17 | . 06 | . 00 |
| 1.18 | 1.04 | . 90 |
| . 23 | . 24 | . 26 |
| . 00 | . 00 | . 00 |
| . 20 | . 20 | . 21 |
| . 03 | . 03 | . 05 |
| . 03 | . 03 | . 05 |
| . 00 | . 00 | . 00 |
| . 03 | . 03 | . 05 |
| 3.29 | 3. 19 | 3.28 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 |
| 1.89 | 1.60 | 1.50 |
| . 23 | . 30 | . 46 |
| . 13 | . 19 | . 27 |
| - 13 | - 17 | - 23 |
| . 01 | . 01 | .01 |
| . 89 | . 91 | . 80 |
| . 14 | . 11 | . 05 |
| . 01 | .01 | . 00 |
| - 12 | - 10 | . 05 |
| . 01 | . 02 | . 01 |
| . 01 | . 01 | . 01 |
| .15 | . 19 | . 21 |
| . 05 | . 05 | . 04 |
| . 06 | . 07 | . 07 |
| . 04 | . 07 | - 10 |
| . 58 | . 76 | . 72 |
| - 36 | -42 | . 40 |
| . 21 | . 32 | . 30 |
| .01 | . 02 | . 02 |
| .17 | . 29 |  |
| .17 | . 29 | . 35 |
| . 04 | . 05 | . 05 |
| . 04 | . 05 | . 05 |
| . 85 | . 93 | . 60 |
| . 08 | . 08 | . 03 |
| . 41 | . 46 | . 30 |
| . 05 | . 04 | . 01 |
| . 04 | . 06 | . 07 |
| . 06 | . 03 | . 00 |
| . 07 | . 08 | . 06 |
| . 15 | .18 | . 12 |

$100.00 \quad 100.00 \quad 100.00$

| 7.88 | 8.20 | 7.66 |
| :---: | :---: | :---: |
| 3.04 | 2.81 | 2.35 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 04 | . 04 | . 05 |
| . 19 | . 18 | . 19 |
| . 85 | . 82 | . 50 |
| 1.13 | 1.06 | 1.03 |
| . 07 | .07 | . 05 |
| . 00 | . 00 | . 00 |
| . 06 | . 04 | . 04 |
| .70 | . 60 | . 50 |
| . 08 | . 07 | . 06 |
| . 00 | . 00 | . 00 |
| . 08 | . 07 | . 04 |
| . 00 | . 00 | . 01 |
| . 01 | . 01 | . 01 |
| .00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| 1.62 | 1.59 | 1.90 |
| . 01 | . 01 | . 02 |
| . 02 | -02 | . 02 |
| 1.05 | . 99 | 1.30 |
| . 05 | . 05 | . 04 |
| . 12 | . 13 | . 07 |
| . 04 | .05 | . 09 |
| . 00 | .00 | . 00 |
| . 32 | . 34 | . 36 |
| . 10 | - 10 | . 12 |
| . 00 | . 00 | .00 |
| .09 | .10 | . 12 |
| . 01 | . 01 | . 00 |
| . 01 | .01 | . 00 |
| . 04 | . 06 | . 09 |
| . 02 | . 04 | . 08 |
| . 00 | . 00 | . 00 |
| . 01 | .01 | .01 |
| . 50 | -62 | . 51 |
| . 33 | . 38 | . 33 |
| . 15 | -21 | . 17 |
| . 02 | . 03 | . 02 |
| . 18 | . 28 | . 25 |
| . 18 | . 28 | . 25 |
| . 03 | . 03 | . 02 |
| .03 | .03 | . 02 |
| - 52 | . 59 | . 58 |
| .03 | . 05 | .11 |
| . 27 | . 30 | . 20 |
| . 07 | . 07 | . 14 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 |
| . 07 | . 08 | . 07 |
| . 07 | . 07 | . 04 |


|  | $\begin{aligned} & \text { Machinery } \\ & \text { except } \\ & \text { electrical } \end{aligned}$ |  |  | $\begin{gathered} \text { Engines } \\ \text { and } \\ \text { turbines } \end{gathered}$ |  |  | Farm machinery. equipment |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and tecanical | 1.43 | 2.21 | 1.83 | 1.82 | 2. 12 | 1.59 | 1.76 | 2.03 | 1.78 |
| Accountants | 1.05 | 1. 13 | . 91 | . 85 | . 90 | . 56 | . 97 | 1.08 | 1.08 |
| Architects | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 00 |
| Lawyers | . 05 | . 06 | -02 | . 03 | . 04 | . 01 | . 05 | . 10 | . 07 |
| Librarians | . 02 | . 02 | . 01 | . 02 | . 02 | .01 | . 00 | .00 | . 00 |
| Operations and systems researci | . 32 | . 48 | . 49 | . 46 | . 70 | . 69 | . 29 | . 39 | . 29 |
| Persomel, labcr relations wkis | . 41 | .43 | .31 | . 39 | . 41 | . 27 | . 40 | . 43 | . 31 |
| Other research workers | . 08 | . 07 | . 07 | . 07 | . 06 | . 06 | . 04 | .03 | . 02 |
| Managers, officials, proprietors | 7.08 | 7.83 | 7.03 | 4.20 | 4.45 | 3.57 | 5.84 | 6.59 | 6.35 |
| Buyers, sales,lcan managers | 1.60 | 1.65 | 2.16 | 1.17 | 1.20 | 1.56 | 1.59 | 1.43 | 1.14 |
| Bank, financial managers | . 17 | . 17 | . 17 | . 14 | . 14 | . 11 | . 19 | . 18 | . 10 |
| Credit managers | . 06 | . 03 | . 03 | . 03 | . 02 | . 03 | . 12 | . 06 | . 02 |
| Purchasing agents, buyers, other | . 74 | . 71 | . 94 | - 73 | - 72 | . 95 | -62 | . 52 | . 36 |
| Sales manager, exc retail trade | . 64 | . 73 | 1.04 | . 27 | - 32 | . 47 | . 65 | .67 | . 66 |
| Other managers, officials, proprts | 5.48 | 6.18 | 4.87 | 3.03 | 3. 25 | 2.01 | 4.25 | 5.17 | 5.20 |
| Myrs, superintendents, building | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| oftice manayers, other | . 28 | . 31 | . 41 | . 10 | - 11 | - 15 | - 17 | . 18 | - 18 |
| Restaurant, cafe, bar, ranayers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| other managers, administrators | 5.19 | 5.86 | 4.45 | 2.91 | 3. 13 | 1.85 | 4.08 | 4.98 | 5.01 |
| Sales workers | 2.03 | 1.82 | 1.44 | . 74 | . 56 | - 17 | 2.06 | 2.23 | 2.89 |
| Advertising agents, sales worker | . 01 | . 02 | . 03 | . 01 | . 02 | .01 | . 02 | . 03 | . 07 |
| Other sales wcrkers | 2.02 | 1.81 | 1.41 | . 72 | . 55 | . 16 | 2.05 | 2.20 | 2.82 |
| Clerical workers | 13.82 | 13.99 | 14.58 | 12.82 | 13.04 | 13.54 | 13.87 | 13.17 | 11.39 |
| Stenographrs, typists, secretaries | 4.27 | 4.13 | 4.45 | 3.33 | 3.15 | 3. 14 | 3.60 | 3.42 | 3.45 |
| Legal secretaries | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 03 | . 03 | . 06 |
| other secretaries | 3.23 | 3.30 | 3.77 | 2.13 | 2.20 | 2.43 | 2.55 | 2.60 | 2.80 |
| Stenographers | - 12 | . 06 | . 01 | . 22 | - 12 | . 03 | .18 | -10 | . 03 |
| Typists | . 91 | . 76 | . 65 | . 98 | . 84 | . 69 | . 83 | . 68 | . 57 |
| Office machine operators | 1.11 | 1.44 | 1.26 | 1.00 | 1. 16 | . 92 | 1.21 | 1.30 | . 79 |
| Bookkeeping and billing | . 05 | . 03 | . 04 | . 03 | . 02 | . 04 | . 06 | . 02 | . 03 |
| Calculating | . 03 | . 03 | . 03 | . 05 | . 04 | . 04 | . 02 | . 02 | .01 |
| Computer and feripheral equip | . 39 | . 87 | . 82 | . 26 | - 56 | . 44 | . 31 | -65 | -47 |
| Duplicating | . 04 | . 03 | . 04 | . 06 | . 06 | . 10 | . 02 | . 02 | . 01 |
| Keypunch | . 52 | . 42 | . 28 | . 57 | - 45 | . 26 | .74 | . 54 | - 23 |
| Tabulating | . 02 | . 01 | . 00 | . 01 | . 01 | - 00 | . 02 | . 01 | . 00 |
| Other office machine operators | . 06 | . 05 | . 04 | . 04 | . 04 | . 04 | . 04 | . 04 | . 04 |
| other clerical workers | 8.45 | 8.43 | 8.87 | 8.49 | 8.72 | 9.48 | 9.06 | 8.45 | 7. 15 |
| Billing clerks | . 17 | - 19 | . 27 | . 14 | - 17 | . 26 | . 22 | . 23 | . 23 |
| Bookkeepers | 1.28 | 1.23 | 1.08 | . 65 | . 63 | - 57 | 1.32 | 1.35 | 1.43 |
| Cashiers | . 04 | . 04 | . 04 | . 02 | . 02 | . 01 | . 05 | . 04 | . 01 |
| Clerical supervisors, other | . 13 | - 16 | . 19 | . 14 | . 16 | - 18 | . 18 | . 20 | - 16 |
| callectors, bill and account | .01 | -01 | . 01 | -01 | . 01 | . 00 | . 04 | . 03 | .01 |
| Counter clerks,exc food | . 23 | - 26 | . 34 | . 23 | - 26 | - 35 | - 18 | -18 | - 16 |
| Dispatchers,starters, vehicle | . 02 | . 02 | . 02 | - 02 | . 03 | . 07 | . 04 | . 03 | . 01 |
| Estimators, investigators,otner | . 29 | . 36 | . 33 | . 26 | . 32 | . 30 | .21 | - 22 | . 12 |
| Exfediters, prcduction controlrs | 1.08 | 1.22 | 1.66 | 1.55 | 1. 75 | 2. 27 | 1.05 | -97 | . 62 |
| Fileclerks | . 28 | . 24 | . 25 | . 34 | . 29 | . 28 | . 23 | . 20 | . 22 |
| Library attendants, assistants | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Mail handlers, exc post office | . 12 | - 12 | - 14 | - 10 | - 10 | - 10 | - 16 | - 15 | . 14 |
| Messengers and office helpers | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Payroll, timekeeping clerks | . 48 | - 49 | . 35 | . 52 | . 54 | . 36 | . 55 | . 61 | . 58 |
| Receptionists | . 21 | - 20 | - 19 | - 16 | - 16 | - 16 | - 24 | . 19 | . 08 |
| Shipping and receiving clerks | 1.14 | - 95 | -66 | -87 | -71 | . 42 | 1.40 | 1.33 | 1.51 |
| Statistical clerks | .33 | . 38 | .43 | . 47 | . 56 | . 68 | . 31 | . 34 | - 32 |
| Stock clerks and store keepers | 1.45 | 1.34 | 1.48 | 1.64 | 1. 54 | 1.68 | 1.80 | 1.33 | - 55 |
| Telephone operators | -13 | . 08 | . 04 | . 09 | -05 | . 01 | - 10 | .06 | . 06 |
| Meighers | . 02 | . 02 | . 02 | . 01 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Misc clerical workers | 1.02 | 1. 10 | 1.36 | 1.28 | 1.41 | 1.76 | . 95 | . 94 | .92 |
| Crafts and kindred workers | 23.70 | 22.79 | 20.81 | 22.61 | 22.07 | 20.21 | 20.30 | 20.83 | 22.07 |


|  | $\begin{aligned} & \text { Machinery } \\ & \text { except } \\ & \text { electrical } \end{aligned}$ |  |  | $\begin{gathered} \text { Engines } \\ \text { and } \\ \text { turbines } \end{gathered}$ |  |  | Farm machinery. equipment |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 1.73 | 1.56 | 1.19 | 2.40 | 2. 12 | 1.59 | 2.27 | 2.11 | 1.93 |
| Carpenters and apprentices | . 26 | . 22 | -09 | -45 | - 37 | . 13 | . 31 | - 35 | . 44 |
| Brick,stonemasons, apprentices | . 03 | . 03 | . 03 | . 07 | . 06 | . 06 | . 02 | . 01 | . 01 |
| Bulldozer operators | . 04 | . 05 | . 10 | . 02 | . 04 | . 11 | - 20 | . 17 | . 17 |
| Electricians and apprentices | .72 | . 66 | . 39 | . 80 | . 75 | . 53 | . 64 | . 65 | . 66 |
| Excavating, grading mach operatr | . 04 | . 04 | .07 | . 06 | . 06 | .07 | . 02 | . 01 | . 01 |
| Floor layers, exc tile setters | .01 | - 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 28 | . 29 | .35 | . 28 | . 30 | . 39 | . 76 | . 59 | . 22 |
| Plumbers, pipefitters, aprentices | . 29 | . 22 | . 10 | -61 | . 44 | . 17 | . 29 | . 30 | . 43 |
| Roofers and slaters | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Structural metal craft worxers | . 06 | . 05 | . 06 | . 10 | . 08 | . 13 | . 03 | . 02 | .01 |
| Blue collar worker supervisors | 3.47 | 3.49 | 2.51 | 4.39 | 4.31 | 2.71 | 4.72 | 5.25 | 5.60 |
| Metalworkg craft urkes, exc mech | 13.28 | 11.93 | 9.62 | 9.41 | 8.35 | 5.89 | 8.02 | 7.74 | 8.28 |
| Blacksmiths | . 02 | . 02 | . 01 | . 01 | .01 | . 00 | . 07 | . 05 | . 02 |
| Boilermakers | . 03 | . 02 | . 01 | . 06 | . 04 | . 01 | . 01 | . 01 | . 02 |
| Heat treaters, annealers | . 29 | . 25 | . 13 | . 37 | . 31 | . 14 | . 38 | .38 | . 36 |
| Forge and hamrer operators | . 11 | . 11 | . 11 | . 06 | . 06 | . 06 | . 21 | .21 | - 18 |
| Job and die setters, metal | 1.15 | 1.04 | 1.24 | 1.30 | 1.23 | 1.57 | 1.12 | . 86 | - 50 |
| Machinists and apprentices | 6.83 | 6. 50 | 4.71 | 5.10 | 4.63 | 2.61 | 3.59 | 3.90 | 4.69 |
| Millwrights | . 31 | . 29 | .17 | - 39 | - 36 | . 18 | . 36 | -41 | . 48 |
| Molders, metal and apprentices | . 50 | . 44 | .40 | . 20 | . 17 | . 11 | . 45 | . 30 | . 25 |
| Pattern and mcldmakers | . 36 | . 25 | . 18 | - 20 | . 15 | .11 | .26 | . 17 | - 20 |
| Rollers and finishers, metal | . 02 | . 02 | . 03 | . 02 | .03 | . 07 | . 02 | . 02 | . 01 |
| Sheetmetal workers, apprentices | -48 | . 36 | . 20 | . 36 | . 27 | . 14 | . 42 | . 36 | . 36 |
| Tool and diemakers, apprentices | 3.18 | 2.63 | 2.44 | 1.35 | 1.10 | . 88 | 1.14 | 1.07 | 1.22 |
| Mechanics, repairers, installers | 4.09 | 4.88 | 6.78 | 4.53 | 5.73 | 8.68 | 4.26 | 4.82 | 5.24 |
| air cond, heating, refrig mech | . 20 | . 26 | . 23 | . 08 | . 10 | . 10 | . 03 | . 05 | . 05 |
| Aircraft mechanics | . 02 | . 02 | . 02 | . 13 | - 10 | . 05 | . 01 | . 02 | . 08 |
| Auto body repairers | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 23 | . 23 | . 26 | - 35 | - 36 | .47 | . 39 | . 32 | . 17 |
| Data processing mach repairers | -41 | . 53 | . 82 | . 01 | . 01 | . 03 | . 02 | . 02 | . 02 |
| Farm implement mechanics | .03 | . 04 | . 05 | . 00 | . 00 | . 00 | . 30 | . 31 | . 31 |
| Heavy equip mech, incl diesel | 2.52 | 3. 26 | 4.63 | 3.25 | 4.36 | 7.13 | 3.15 | 3.80 | 4.47 |
| Household appliance mechanics | . 03 | . 04 | . 05 | . 02 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Office machine repairers | .33 | . 18 | . 19 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Badio. television repairers | . 03 | . 02 | . 01 | . 04 | . 02 | . 01 | . 04 | . 04 | . 05 |
| Bailroad, car shop repairers | . 00 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 29 | . 30 | .31 | . 65 | . 73 | . 84 | . 31 | . 26 | . 08 |
| Printing trade crafts workers | - 18 | . 15 | . 08 | . 11 | - 11 | . 05 | - 10 | - 12 | . 15 |
| Compositors and typesetters | . 06 | . 05 | . 02 | . 05 | . 03 | . 00 | . 07 | . 09 | - 15 |
| Engravers exc photoengravers | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Photoengravers, lithographers | . 01 | . 01 | .00 | .01 | .01 | .00 | . 01 | . 00 | . 00 |
| Press, plate frinters, aprentices | . 06 | . 06 | . 04 | . 05 | . 06 | . 05 | .03 | . 02 | . 00 |
| Transport, public util craft wxrs | . 02 | . 02 | . 02 | . 01 | .01 | . 01 | . 03 | . 03 | . 02 |
| Power station operators | .01 | . 01 | .01 | . 01 | .01 | . 01 | . 02 | . 02 | . 02 |
| Telephone installers,repairers | . 31 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Other crafts, kindred workers | . 92 | - 76 | . 60 | 1.76 | 1.46 | 1.28 | . 90 | . 78 | . 85 |
| Bakers | . 00 | . 00 | . 00 | . 01 | .01 | . 00 | . 00 | .00 | . 00 |
| Cabinetmakers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Crane,derrick, hoist operator | . 54 | . 42 | . 36 | 1.03 | . 82 | .79 | . 51 | . 44 | . 60 |
| Glaziers | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .02 |
| Inspectors, other | .06 | . 06 | .03 | . 14 | . 12 | . 04 | . 07 | . 09 | . 13 |
| Stationary engineers | . 17 | . 12 | . 04 | . 35 | . 24 | . 07 | . 24 | - 15 | . 03 |
| Other crafts workers | .11 | - 12 | . 16 | . 24 | . 27 | - 38 | . 07 | . 07 | . 05 |
| operatives | 30.52 | 35.88 | 38.39 | 40.56 | 40.63 | 44.37 | 43.74 | 43.51 | 45.79 |
| Cperatives, except transport | 34.91 | 34.21 | 36.72 | 38.53 | 38.56 | 42.26 | 39.91 | 39.26 | 40.63 |
| Semiskilled metalworkiny | 15.40 | 13.50 | 13.44 | 14.12 | 12.44 | 13.09 | 16.78 | 14.85 | 13.68 |
| Drill press oferatives | 1.54 | 1.22 | 1.06 | 2.11 | 1.72 | 1.64 | 1.49 | 1.00 | - 41 |
| Purnace tendrs,smeltrs, pourers | . 26 | . 26 | . 26 | . 26 | . 26 | . 25 | . 42 | . 43 | . 45 |
| Grinding machine operatives | 2.88 | 2.36 | 2.04 | 3.13 | 2.69 | 2.72 | 1.53 | 1.11 | - 56 |
| Heaters, metal | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 | . 03 | . 04 | - 06 |
| Lathe, milling mach operatives | 3.22 | 2.45 | 2.57 | 2.94 | 2.31 | 2.70 | 2.01 | 1.26 | . 60 |
| Metal platers | . 14 | . 14 | . 14 | . 19 | . 22 | . 24 | . 05 | . 03 | . 00 |
| other precision mach operators | 1.74 | 1.43 | 1.66 | 1.65 | 1.41 | 1.76 | . 60 | - 39 | . 17 |
| Punch, stamping press operatives | 1.26 | 1. 13 | 1.25 | . 83 | . 81 | 1.06 | 2.54 | 1.74 | . 54 |
| Solderers | . 20 | . 17 | . 09 | -13 | - 11 | . 05 | . 08 | . 06 | . 05 |
| Welders and flamecutters | 4.14 | 4.34 | 4.35 | 2.86 | 2.89 | 2.67 | 8.04 | 8.78 | 10.84 |


|  | $\begin{aligned} & \text { Machinery } \\ & \text { except } \\ & \text { electrical } \end{aligned}$ |  |  | Engines and turbines |  |  | Farm machinery, equipment |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled packing, inspecting | 4.44 | 4. 15 | 3.72 | 7.21 | 6.84 | 6.05 | 4.08 | 4.23 | 5.06 |
| checkers, exaniners, mfy | 3.64 | 3.51 | 3.35 | 6.25 | 6.08 | 5.71 | 2.95 | 3.09 | 3.65 |
| Graders and scrters, mfg | . 03 | . 02 | . 01 | .01 | . 01 | . 01 | . 05 | . 05 | . 07 |
| Packer,wrapper,exc meat, prodce | .77 | . 62 | . 36 | . 95 | . 75 | . 34 | 1.08 | 1.08 | 1.35 |
| Other operatives, exc transport | 15.08 | 16.56 | 19.57 | 17.20 | 19.29 | 23.12 | 19.06 | 20.18 | 21.88 |
| Asbestos, insulation workers | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Assemblers | 7.33 | 8.10 | 9.70 | 8.82 | 9.78 | 11.27 | 10.34 | 11.96 | 15.62 |
| cutting operatives, other | . 48 | . 53 | . 68 | . 23 | - 26 | - 34 | . 84 | . 83 | . 72 |
| Drillers, earth | . 24 | . 26 | . 32 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | . 57 | . 59 | . 74 | . 81 | . 88 | 1.13 | . 42 | . 34 | . 14 |
| Garage wrkr,gas station atten | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 04 | . 03 | . 01 |
| Mixing operatives | . 05 | . 06 | . 08 | .03 | . 04 | . 07 | . 06 | . 06 | . 05 |
| oilers, greasers,exc automobiles | . 10 | . 07 | . 03 | . 12 | - 10 | . 05 | . 10 | . 11 | .13 |
| painters, mfg articles | . 91 | . 86 | 1.15 | . 81 | . 80 | 1.16 | 2.15 | 1.69 | 1.42 |
| Photographic erocess workers | - 11 | . 11 | . 08 | . 08 | . 07 | . 05 | . 05 | . 05 | . 05 |
| Riveters and fasteners | . 07 | . 07 | . 07 | . 07 | . 09 | . 14 | - 12 | . 12 | - 10 |
| Sauyers | . 20 | - 17 | . 07 | . 14 | . 11 | . 05 | . 23 | . 26 | . 18 |
| Sewers and stitchers | . 04 | . 04 | . 06 | . 01 | . 01 | . 03 | . 05 | . 05 | . 05 |
| Furnace tendr,stokr,exc metal | . 07 | . 05 | . 02 | - 14 | . 09 | . 04 | - 12 | .09 | - 12 |
| winding operatives, other | . 12 | . 14 | -18 | . 21 | - 24 | . 35 | . 08 | . 07 | . 06 |
| Miscellaneous machine operatves | 2.71 | 3.05 | 3.51 | 3.58 | 4.19 | 5.26 | 2.66 | 2.73 | 2.21 |
| Other operatives, exc transport | 2.05 | 2.46 | 2.84 | 2.12 | 2.61 | 3.17 | 1.80 | 1.81 | 1.02 |
| Transport equifment operatives | 1.60 | 1.67 | 1.67 | 2.03 | 2.07 | 2.11 | 3.83 | 4.25 | 5. 16 |
| Delivery and route workers | . 13 | . 11 | . 09 | . 06 | . 05 | . 03 | . 16 | . 16 | . 24 |
| Pork lift,tow motor operatives | . 79 | . 99 | 1.19 | 1.12 | 1.46 | 1.96 | 2.19 | 2.54 | 2.58 |
| zail vehicle cperators, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Eailroad brake operators | .00 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 07 | . 05 | . 00 | . 06 | . 04 | . 00 |
| Truck drivers | . 64 | . 54 | . 37 | .76 | . 50 | .11 | 1.42 | 1.51 | 2.35 |
| Service workers | 1.79 | 1.69 | 1.51 | 2.10 | 1.97 | 1.76 | 1.99 | 1.62 | . 93 |
| cleaning service workers | 1.28 | 1. 25 | 1.25 | 1.43 | 1.42 | 1.39 | 1.36 | 1.06 | . 60 |
| Bldg interior cleaners, other | . 20 | . 21 | . 20 | . 24 | . 25 | . 26 | . 14 | . 11 | . 03 |
| Janitors and sextons | 1.08 | 1. 05 | 1.05 | 1.19 | 1.17 | 1.13 | 1.22 | . 95 | . 56 |
| Food service workers | . 10 | . 08 | . 07 | . 06 | . 05 | . 06 | . 07 | . 07 | . 06 |
| cooks, exc private households | .03 | . 02 | .01 | . 03 | . 02 | .01 | . 02 | . 02 | . 01 |
| Dishwashers | .01 | . 01 | . 01 | .01 | . 01 | .01 | .01 | . 01 | . 01 |
| Food counter,fountain workers | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 | .01 | . 01 | . 02 |
| Waiters | . 02 | . 01 | .01 | .01 | .01 | . 01 | . 02 | . 02 | . 02 |
| Other food serv wkrs, exc privt | . 03 | . 02 | . 03 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | .00 | .00 |
| Health aides, except nursing | . 00 | .00 | . 00 | .01 | . 01 | .01 | .00 | . 00 | .00 |
| Personal service workers | .03 | . 02 | . 02 |  | . 05 | . 13 | . 06 | . 05 | . 03 |
| Attendants, personal serv, other | .01 | . 00 | .00 | . 01 | - 01 | . 01 | . 02 | . 01 | . 01 |
| baggage porters and bellhops | . 00 | . 00 | . 01 | . 02 | . 02 | - 10 | . 00 | . 00 | . 00 |
| Elevator operators | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 05 | . 04 | . 02 |
| Housekeepers, exc private homes | .01 | . 01 | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Protective service workers | . 38 | . 33 | . 16 | . 54 | . 44 | .17 | . 49 | . 44 | . 24 |
| Firefighters | . 01 | . 01 | .01 | . 02 | . 01 | . 01 | .00 | . 00 | . 00 |
| Guards | . 37 | . 32 | . 15 | . 52 | . 42 | . 16 | . 49 | . 44 | . 24 |
| Laborers, except farm | 2.53 | 2. 57 | 2.79 | 4.02 | 4. 12 | 4.65 | 4.32 | 3.85 | 2.92 |
| Carpenter belpers | . 01 | . 01 | . 02 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Constr labr, exc carpenter heipr | .11 | .11 | - 10 | . 25 | - 24 | . 27 | - 12 | . 09 | . 04 |
| Preight and material handlers | . 79 | . 83 | 1.04 | . 78 | . 86 | 1.14 | 1.98 | 1.90 | 1.87 |
| Gardenrs, groundkeepers, exc rarm | . 04 | . 05 | . 06 | . 04 | . 05 | . 06 | - 10 | . 08 | . 04 |
| Stock handlers | . 44 | . 49 | . 50 | . 78 | . 90 | . 97 | . 51 | . 45 | - 16 |
| Vehicle vashers, equip cleaners | . 28 | - 30 | . 29 | . 40 | . 43 | . 41 | .21 | - 19 | - 10 |
| Warehouse labcrers, other | . 08 | . 07 | . 04 | . 06 | . 04 | . 02 | . 25 | . 17 | . 04 |
| Other laborers | . 76 | . 70 | . 73 | 1.68 | 1.58 | 1.78 | 1.14 | .95 | . 68 |

Table 1. Percent distribution of industry emplopment by occupation, 1970. 1978 and projected 1990

| Constructn <br> machines | 1978 | Metal- <br> vorking <br> machinery |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1970 | 1990 | 1970 | 1978 | 1990 |

office,

| accounting |
| :---: |
| machines |

$1970 \quad 1978 \quad 1990$


| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 10.86 | 10.91 | 9.71 | 8.65 | 8.99 | 8.76 |
| 4.33 | 3.97 | 3.57 | 3.42 | 3.29 | 3.16 |
| . 03 | . 03 | . 02 | - 01 | . 01 | . 01 |
| . 12 | . 06 | . 01 | -01 | . 01 | . 01 |
| . 38 | . 36 | . 32 | . 27 | . 26 | .23 |
| . 79 | . 83 | . 76 | . 51 | . 54 | .42 |
| 1.76 | 1.65 | 1.62 | 1.65 | 1.60 | 1.58 |
| . 08 | -09 | . 11 | . 04 | . 05 | . 05 |
| . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| . 25 | - 17 | -08 | . 40 | . 29 | . 17 |
| . 89 | . 76 | . 62 | . 53 | . 53 | . 69 |
| . 10 | - 10 | - 10 | . 11 | . 12 | . 14 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 09 | .09 | .09 | . 11 | . 12 | .14 |
| .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 | . 01 | . 01 | . 02 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| - 02 | . 02 | . 02 | . 01 | .01 | . 02 |
| 2.82 | 2.59 | 2.67 | 2.64 | 2.58 | 2.91 |
| . 03 | . 04 | . 07 | . 02 | . 03 | . 03 |
| 2.20 | 1.86 | 1.77 | 2.03 | 1.79 | 1.83 |
| . 10 | . 13 | . 20 | . 20 | . 27 | . 42 |
| .11 | . 15 | . 19 | . 09 | . 13 | . 19 |
| . 07 | . 08 | . 08 | . 07 | . 08 | . 09 |
| . 31 | - 33 | . 35 | . 25 | . 28 | . 34 |
| . 10 | . 07 | . 02 | . 06 | . 04 | .01 |
| . 01 | .01 | . 00 | .00 | . 00 | . 00 |
| .09 | . 06 | . 02 | . 06 | . 04 | .01 |
| . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 07 | . 11 | . 17 | . 14 | - 21 | - 36 |
| . 02 | . 03 | . 03 | . 01 | . 01 | . 01 |
| .01 | . 01 | .00 | .00 | .00 | . 00 |
| . 03 | . 05 | . 09 | .11 | . 18 | .33 |
| . 01 | . 03 | . 05 | . 01 | . 02 | . 02 |
| . 52 | . 68 | .61 | . 33 | . 44 | . 39 |
| . 29 | - 34 | . 30 | .24 | - 29 | - 27 |
| . 21 | - 31 | . 28 | . 07 | - 11 | . 10 |
| . 02 | . 04 | . 02 | . 02 | . 04 | . 02 |
| . 13 | . 23 | . 28 | . 06 | - 10 | . 12 |
| . 13 | - 23 | . 28 | . 06 | . 10 | . 12 |
| . 04 | . 05 | . 05 | . 02 | . 03 | . 05 |
| . 04 | . 05 | . 05 | . 02 | . 03 | . 05 |
| . 04 | . 72 | . 54 | . 53 | . 63 | . 50 |
| . 06 | . 06 | . 03 | . 03 | . 03 | . 02 |
| . 34 | . 38 | . 27 | . 35 | . 40 | . 29 |
| . 06 | . 06 | . 05 | . 02 | . 02 | . 01 |
| . 00 | . 00 | . 00 | . 04 | . 07 | . 10 |
| . 03 | . 03 | . 01 | . 02 | . 02 | .01 |
| . 07 | . 09 | . 08 | . 04 | . 06 | . 05 |
| . 08 | . 11 | .10 | . 04 | . 05 | . 04 |

$100.00 \quad 100.00 \quad 100.00$

| 16.99 | 18.60 | 17.15 |
| :---: | :---: | :---: |
| 5.15 | 4.82 | 4.72 |
| . 08 | . 09 | . 07 |
| . 00 | . 00 | . 00 |
| 1.63 | 1.39 | . 99 |
| 1.05 | 1.11 | 1.08 |
| 1.36 | 1.32 | 1.56 |
| . 02 | .01 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | .00 |
| . 05 | . 03 | . 00 |
| . 95 | . 87 | 1.02 |
| . 30 | . 29 | . 28 |
| . 01 | . 02 | . 03 |
| .23 | . 21 | . 21 |
| . 06 | . 06 | . 04 |
| . 08 | . 08 | . 07 |
| . 02 | .01 | . 00 |
| . 06 | . 06 | . 07 |
| 3.49 | 3.79 | 4.18 |
| . 07 | . 07 | . 03 |
| 1.07 | . 93 | . 98 |
| 1.27 | 1.55 | 1.71 |
| .13 | . 16 | . 12 |
| . 14 | . 16 | . 13 |
| . 81 | . 94 | 1.20 |
| . 08 | . 09 | . 11 |
| . 01 | -01 | . 00 |
| . 07 | . 08 | . 11 |
| .01 | . 02 | . 02 |
| . 01 | .01 | .01 |
| .01 | .01 | . 01 |
| . 14 | .17 | . 19 |
| . 01 | . 01 | .01 |
| . 01 | .01 | .01 |
| . 02 | . 02 | .01 |
| . 09 | . 13 | . 17 |
| 2.63 | 3.34 | 2.75 |
| 1.43 | 1.60 | 1.33 |
| 1.05 | 1.48 | 1.25 |
| . 15 | . 26 | . 18 |
| . 50 | . 75 | . 63 |
| . 50 | .74 | . 63 |
| . 34 | . 35 | . 13 |
| . 34 | - 35 | . 13 |
| 1.29 | 1.42 | 1.02 |
| . 09 | . 10 | . 07 |
| . 57 | . 58 | . 31 |
| . 14 | . 17 | . 22 |
| . 07 | - 11 | . 13 |
| . 04 | .03 | . 01 |
| . 12 | .14 | . 09 |
| . 26 | . 30 | . 20 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Constructn machines |  |  | Metalworking machinery |  |  | office, accounting machines |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 2.08 | 2. 34 | 1.68 | 1.33 | 1.53 | 1.11 | 2.97 | 3.49 | 3.06 |
| accountants | 1.16 | 1. 23 | . 78 | . 81 | . 89 | . 60 | 1.38 | 1.60 | 1.76 |
| architects | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 03 | . 02 | . 00 |
| Lawyers | . 03 | . 04 | -01 | . 03 | . 03 | . 01 | - 13 | . 27 | - 25 |
| Librarians | . 01 | . 07 | . 01 | . 01 | . 01 | . 01 | . 03 | .03 | . 01 |
| Operaticns and systems research | . 34 | - 50 | -48 | . 18 | . 28 | - 27 | . 56 | . 77 | . 54 |
| Personnel, labor relations wkrs | . 45 | . 48 | . 33 | . 26 | . 28 | . 18 | . 64 | . 66 | . 46 |
| Other research workers | . 08 | . 08 | . 08 | . 04 | . 04 | . 04 | . 16 | . 11 | . 03 |
| Vocation, education counselors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | .03 | . 01 |
| Managers, officials, proprietors | 5.93 | 6.20 | 4.67 | 7.35 | 8.38 | 7.02 | 7.55 | 8.99 | 9.97 |
| Buyers, sales, lcan managers | 1.75 | 1.68 | 1.73 | 1.40 | 1.55 | 2.21 | 1.68 | 1.59 | 1.58 |
| Bank, financial managers | . 17 | . 17 | .15 | . 15 | . 16 | . 15 | . 20 | . 17 | . 08 |
| Credit managers | . 06 | . 03 | . 02 | -. 04 | . 03 | . 03 | . 07 | . 04 | . 05 |
| Purchasing agents, buyers, other | . 88 | . 79 | . 83 | . 65 | . 67 | . 94 | . 58 | . 51 | . 52 |
| Sales manager, exc retail trade | . 65 | . 68 | . 73 | . 57 | . 70 | 1.10 | . 83 | . 86 | . 92 |
| Other managers, officials, proprts | 4.18 | 4.52 | 2.95 | 5.96 | 6.83 | 4.81 | 5.87 | 7.40 | 8.40 |
| office managers, other | . 22 | . 25 | -33 | . 36 | . 42 | . 57 | . 40 | . 42 | . 45 |
| Bestaurant, cafe, bar, manayers | . 01 | . 09 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 3.94 | 4.26 | 2.61 | 5.60 | 6.41 | 4.24 | 5.45 | 6.97 | 7.94 |
| Sales workers | 1.90 | 1.69 | 1.08 | 1.91 | 1.86 | 1.47 | 4.64 | 4.90 | 6.00 |
| Advertising agents, sales worker | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other sales wcrkers | 1.89 | 1.68 | 1.07 | 1.90 | 1.84 | 1.46 | 4.63 | 4.89 | 5.99 |
| Clerical workers | 14.81 | 14.69 | 14.64 | 11.66 | 12.10 | 12.84 | 18.39 | 18.25 | 18.05 |
| Stenographrs, typists, secretaries | 3.81 | 3.66 | 3.76 | 3.73 | 3.73 | 4.03 | 6.15 | 5.93 | 6.52 |
| Legal secretaries | . 02 | . 02 | -02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| other secretaries | 2.72 | 2.78 | 3.07 | 2.84 | 2.98 | 3.42 | 4.47 | 4.58 | 5.32 |
| Stenographers | . 14 | . 07 | . 01 | . 08 | . 04 | . 00 | . 11 | . 04 | . 00 |
| Typists | . 93 | . 79 | . 66 | -81 | .71 | . 60 | 1.55 | 1.29 | 1.18 |
| office machine operators | .97 | 1. 10 | . 87 | . 78 | . 97 | . 83 | 2.16 | 2.59 | 1.94 |
| Bookkeeping and billing | . 05 | . 03 | . 03 | . 06 | . 03 | . 05 | . 10 | . 06 | . 06 |
| Calculating | . 04 | . 03 | . 04 | . 05 | . 04 | . 06 | . 12 | . 08 | . 04 |
| computer and feripheral equip | . 23 | . 49 | .37 | . 22 | - 51 | . 42 | . 68 | 1.46 | 1.23 |
| Duplicating | . 04 | . 04 | . 06 | . 03 | . 03 | . 04 | .11 | . 09 | . 06 |
| Keypunch | . 55 | . 46 | -34 | . 38 | . 32 | . 22 | . 87 | . 66 | . 38 |
| Tabulating | -01 | . 00 | . 00 | -01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | .05 | . 04 | . 03 | . 03 | .03 | . 04 | . 25 | . 24 | . 17 |
| Other clerical workers | 10.03 | 9. 94 | 10.01 | 7.15 | 7.40 | 7.99 | 10.08 | 9.73 | 9.59 |
| Billing clerks | . 15 | . 18 | . 29 | . 15 | -18 | . 27 | . 27 | . 27 | . 30 |
| Bookkeepers | 1.21 | 1. 17 | 1.04 | 1.37 | 1.35 | 1.24 | 1.40 | 1.46 | 1.81 |
| Cashiers | . 04 | . 04 | -03 | . 02 | . 03 | . 03 | . 07 | . 06 | . 03 |
| Clerical supervisors, other | . 21 | . 25 | . 29 | - 11 | - 13 | . 16 | . 15 | . 18 | . 20 |
| collectors, bill and account | . 00 | -00 | . 00 | . 01 | .01 | . 01 | .03 | . 02 | . 00 |
| Counter clerks, exc food | . 32 | . 36 | .49 | . 19 | - 22 | . 30 | .37 | - 37 | . 36 |
| Dispatchers, starters, vehicle | . 01 | . 02 | . 03 | . 00 | - 00 | . 00 | . 06 | . 07 | . 11 |
| Estimators, investigators, other | .33 | . 41 | . 39 | .33 | -43 | . 40 | . 40 | . 45 | . 32 |
| Expediters, production controlrs | 1.39 | 1.48 | 1.64 | . 70 | - 85 | 1.26 | 1.12 | 1.09 | . 97 |
| File clerks | . 40 | . 34 | . 33 | .25 | . 22 | .22 | . 50 | . 44 | . 54 |
| Insurance adjusters, examiners | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Library attendants, assistants | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 04 | . 04 | . 01 |
| Mail handlers, exc fost office | . 14 | - 14 | -15 | . 07 | . 08 | . 09 | .23 | . 20 | . 15 |
| Messengers and office helpers | . 02 | . 02 | .01 | . 02 | . 02 | . 01 | . 04 | . 04 | . 01 |
| Payroll,timekeeping clerks | . 54 | - 55 | . 38 | . 47 | . 51 | . 39 | . 47 | . 45 | . 23 |
| Beceptionists | - 16 | - 16 | -16 | -20 | - 20 | - 20 | - 18 | . 15 | - 13 |
| Shipping and receiving clerks | 1.30 | 1.06 | . 65 | 1.06 | - 90 | . 60 | . 82 | . 79 | . 93 |
| Statistical clerks | . 43 | . 51 | . 63 | .21 | . 26 | . 32 | . 50 | . 55 | . 54 |
| Stock clerks and store keepers | 1.93 | 1. 74 | 1.72 | 1.15 | 1.14 | 1.44 | 1.65 | 1.35 | 1. 20 |
| Telephone operators | .12 | . 07 | . 03 | .11 | . 06 | . 03 | . 21 | . 16 | . 22 |
| Weighers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 08 | . 09 | . 11 |
| Misc clerical workers | 1.30 | 1. 42 | 1.76 | .71 | . 80 | 1.02 | 1.47 | 1.49 | 1.41 |
| Crafts and kindred workers | 21.53 | 21.48 | 20.68 | 33.49 | 32.30 | 30.60 | 19.58 | 18.19 | 19.41 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Constructn machines |  |  | Metalvorking machinery |  |  | office, accounting machines |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 2.46 | 2.22 | 2.00 | 1.42 | 1.32 | 1.00 | . 65 | . 63 | . 58 |
| Carpenters and apprentices | . 34 | . 27 | . 09 | . 21 | - 17 | . 05 | - 10 | - 10 | - 10 |
| Brick, stonemasons, apprentices | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | - 00 |
| Bulldozer operators | . 14 | . 17 | . 38 | . 02 | . 03 | . 10 | .00 | . 00 | . 00 |
| Electricians and apprentices | . 96 | . 85 | -46 | . 80 | . 75 | . 44 | - 31 | .31 | . 31 |
| Excavating, grading mach operatr | . 14 | - 15 | . 25 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Floor layers, exc tile setters | .01 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 | . 00 |
| Painters and apprentices | . 40 | . 43 | . 58 | . 17 | . 18 | . 25 | . 13 | . 12 | . 10 |
| Plumbers, pipefitters, aprentices | . 28 | - 20 | . 08 | . 19 | - 14 | . 06 | - 10 | . 09 | . 07 |
| Structural metal craft workers | . 18 | . 14 | . 16 | - 02 | . 02 | . 03 | . 01 | . 01 | . 00 |
| Tile setters | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Elue collar worker supervisors | 4.30 | 4.55 | 4.08 | 4.30 | 4.29 | 2.64 | 2.66 | 2.89 | 3. 15 |
| Metalworkg craft yrkrs, exc mech | 8.40 | 7.70 | 5.88 | 24.83 | 23.29 | 22.29 | 4.86 | 4.14 | 3.64 |
| Blacksmiths | . 04 | . 02 | . 00 | . 03 | . 03 | .01 | . 00 | . 00 | . 00 |
| Boilermakers | . 08 | . 06 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Heat treaters, annealers | . 41 | . 34 | . 17 | .43 | . 38 | . 18 | . 14 | - 13 | . 09 |
| Forge and hammer operators | . 15 | . 15 | -17 | . 26 | . 26 | . 26 | . 02 | . 02 | . 01 |
| Job and die setters, metal | . 49 | . 46 | .59 | 1.28 | 1.24 | 1.62 | 1.40 | 1.11 | .92 |
| Machinists and apprentices | 5.10 | 4.84 | 3.39 | 7.59 | 8.01 | 7.68 | 1.32 | 1.28 | 1.10 |
| Millwicights | . 41 | - 37 | - 18 | . 26 | . 25 | -13 | . 09 | - 11 | - 14 |
| Molders, metal and apprentices | . 31 | . 28 | - 24 | 1.27 | 1.18 | 1.10 | .13 | -13 | . 17 |
| pattern and ucldmakers | - 22 | . 16 | . 12 | . 35 | . 26 | . 18 | . 39 | - 26 | . 18 |
| Rollers and finishers,inetal | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | . 03 | . 02 | .00 |
| Sheetmetal workers, apprentices | . 38 | . 28 | . 15 | . 18 | . 14 | . 08 | . 16 | . 15 | - 22 |
| tool and diemakers, apprentices | . 82 | . 72 | . 81 | 13.16 | 11.53 | 11.03 | 1.19 | . 93 | . 82 |
| Hechanics, repairers, installers | 4.58 | 5.63 | 7.77 | 1.88 | 2.51 | 3.99 | 10.75 | 9.92 | 11.44 |
| Air cond, heating, refrig mech | . 05 | . 07 | . 07 | . 02 | . 03 | . 02 | . 01 | . 02 | - 01 |
| Aircraft mechanics | .01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Auto body repairers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 40 | . 41 | . 55 | . 05 | . 05 | . 06 | . 04 | . 03 | - 02 |
| Data processing mach repairers | -01 | . 02 | . 03 | . 02 | . 02 | . 03 | 1.24 | 1.45 | 1.54 |
| Parm implement mechanics | . 02 | . 03 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 3.86 | 4.85 | 6.77 | 1.59 | 2. 18 | 3.60 | 2.57 | 2.99 | 3.40 |
| Household appliance mechanics | . 01 | . 02 | .03 | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| office machine repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | 6.33 | 4.93 | 6.24 |
| Radio, television repairers | .01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | .19 | .21 | . 24 | . 15 | . 17 | . 19 | . 57 | . 50 | .24 |
| Printing trade crafts workers | . 07 | . 07 | . 05 | . 16 | - 15 | -08 | . 34 | -34 | . 29 |
| compositors and typesetters | .03 | . 03 | . 00 | . 04 | . 04 | . 02 | . 08 | . 08 | . 04 |
| Engravers exc photoengravers | . 00 | . 00 | . 00 | . 08 | . 07 | . 03 | . 15 | - 16 | . 15 |
| Photoengravers, Iithographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 00 |
| Press, plate printers,aprentices | . 04 | . 04 | . 05 | . 04 | . 04 | . 02 | . 08 | . 09 | - 09 |
| Transport, public util craft wkrs | .01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 02 | . 02 | . 09 |
| Power station operators | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Telephone installers, repairers | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Other crafts, kindred workers | 1.70 | 1. 30 | . 89 | . 90 | . 74 | . 61 | . 31 | . 27 | . 31 |
| Cabinetmakers | . 01 | . 01 | - 00 | . 01 | . 01 | . 01 | .01 | . 01 | . 00 |
| crane, derrick,hoist operator | 1.32 | . 96 | . 66 | . 50 | . 38 | . 28 | . 02 | . 01 | . 02 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 00 |
| Glaziers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 09 | . 08 | . 04 | . 05 | . 05 | . 02 | . 04 | . 06 | - 11 |
| Jewelers and watchmakers | .00 | . 00 | -00 | . 03 | . 03 | . 03 | . 07 | . 09 | . 17 |
| Sign painters and letterers | .01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | - 00 |
| Stationary engineers | . 17 | -13 | . 05 | . 15 | . 09 | . 01 | . 10 | . 05 | . 01 |
| Other crafts workers | . 10 | . 11 | - 14 | . 15 | . 17 | . 25 | . 05 | . 03 | . 01 |
| Operatives | 39.22 | 39.27 | 42.94 | 33.19 | 32.51 | 35.22 | 29.83 | 28.45 | 27.71 |
| Operatives, except transport | 36.75 | 36.65 | 40.16 | 32.15 | 31.50 | 34.33 | 29.18 | 27.73 | 26.69 |
| Semiskilled metalworking | 18.26 | 16.98 | 17.79 | 17.33 | 14.92 | 14.57 | 6.47 | 4.76 | 2.54 |
| Drill press oferatives | 1.86 | 1.51 | 1.43 | 1.64 | 1.34 | 1.14 | 1.31 | . 87 | . 34 |
| Furnace tendrs, smeltrs, pourers | . 26 | . 26 | . 24 | . 27 | . 29 | . 30 | . 08 | . 09 | . 04 |
| Grinding machine operatives | 1.87 | 1.57 | 1.49 | 6.20 | 5.25 | 4.54 | . 82 | . 62 | . 40 |
| Heaters, metal | . 02 | . 02 | . 01 | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Lathe,milling mach operatives | 3.03 | 2.33 | 2.60 | 4.04 | 3. 14 | 3.23 | - 55 | . 34 | . 17 |
| Metal platers | . 05 | . 06 | . 06 | . 11 | . 12 | . 13 | . 35 | - 26 | . 06 |
| other precision mach operators | . 92 | . 77 | . 96 | 2.02 | 1.71 | 1.93 | . 78 | . 53 | . 32 |
| Punch,stamping press operatives | 1.00 | .96 | 1.20 | 1.32 | 1.29 | 1.54 | 1.43 | 1.00 | - 38 |
| Solderers | . 02 | . 02 | . 01 | . 05 | . 04 | . 02 | -43 | - 30 | . 06 |
| Helders and flamecutters | 9.24 | 9.49 | 9.79 | 1.63 | 1.72 | 1.73 | . 71 | . 75 | . 78 |

Table 1. Eercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Constructn machines |  |  | Metalworking machinery |  |  | office, accounting machines |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled packing, inspecting | 3.50 | 3.25 | 2.74 | 2.95 | 2. 82 | 2.43 | 5.38 | 5.22 | 5.78 |
| Checkers, exaniners, mfg | 2.98 | 2. 85 | 2.56 | 2.23 | 2.23 | 2.15 | 4.52 | 4.38 | 4.78 |
| Graders and scrters, mfg | . 02 | . 02 | -01 | . 02 | - 02 | . 01 | . 03 | . 02 | . 00 |
| Packer, wrapper, exc meat, prodice | . 50 | . 39 | . 17 | . 70 | . 57 | . 27 | . 83 | . 81 | 1.00 |
| Other operatives, exc transport | 15.00 | 16.42 | 19.63 | 11.87 | 13.77 | 17.32 | 17.33 | 17.75 | 18.37 |
| Assemblers | 6.18 | 6.83 | 8.01 | 4.25 | 4.93 | 6.17 | 11.29 | 11.91 | 13.71 |
| Blasters | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| cutting operatives, other | . 59 | . 68 | . 93 | -47 | . 55 | . 76 | -23 | . 23 | - 20 |
| Drillers, earth | . 62 | . 66 | . 83 | . 27 | . 30 | . 39 | . 00 | . 00 | . 00 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Dyers | . 00 | . 00 | . 00 | .03 | . 02 | . 01 | . 00 | . 00 | - 00 |
| Filer, polisher, sander, bufier | . 42 | . 45 | . 60 | .91 | 1.01 | 1.38 | .55 | . 46 | - 26 |
| mixing operatives | . 04 | . 05 | . 09 | . 05 | . 06 | . 09 | . 06 | . 07 | . 12 |
| Oilers, greasers,exc automobiles | . 15 | . 10 | . 01 | . 08 | . 06 | . 02 | . 03 | . 03 | . 03 |
| Painters, mfg articles | 1.38 | 1.33 | 1.92 | . 52 | . 52 | . 77 | . 50 | . 41 | . 34 |
| Photographic frocess workers | - 15 | . 14 | . 11 | . 09 | . 09 | . 06 | - 12 | - 14 | -19 |
| Riveters and fasteners | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 54 | . 50 | . 39 |
| Sailors and deckhands | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 41 | . 33 | . 12 | . 18 | . 15 | . 06 | . 06 | . 07 | - 12 |
| Sewers and stitchers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Furnace tendr,stokr,exc metal | . 10 | . 05 | . 02 | . 05 | . 03 | . 02 | . 07 | . 03 | . 01 |
| Winding cperatives, other | . 12 | . 14 | . 18 | . 14 | . 16 | . 20 | . 09 | . 09 | - 11 |
| Miscellaneous machine operatves | 2.45 | 2.78 | 3.33 | 2.96 | 3.54 | 4.54 | 2.19 | 2.19 | 1.81 |
| other oferatives, exc transport | 2.38 | 2. 88 | 3.47 | 1.83 | 2.30 | 2.82 | 1.55 | 1.58 | 1.05 |
| Transport equipment operatives | 2.47 | 2.62 | 2.78 | 1.04 | 1.00 | . 89 | -65 | . 72 | 1.02 |
| Delivery and route workers | . 13 | . 10 | . 07 | . 17 | - 14 | . 11 | . 08 | . 09 | - 14 |
| Fork lift, tow rotor operatives | 1.33 | 1.71 | 2.30 | . 37 | . 49 | . 67 | . 30 | . 35 | . 39 |
| Taxicab drivers, chauffeurs | .00 | . 05 | . 02 | .03 | . 02 | .01 | . 04 | . 04 | . 04 |
| Truck drivers | .95 | .76 | . 39 | . 48 | . 35 | .11 | . 23 | . 25 | . 46 |
| Service workers | 2.01 | 1. 94 | 1.89 | 1.86 | 1.84 | 1.73 | 1.45 | 1.18 | . 58 |
| Cleaning service workers | 1.38 | 1.42 | 1.62 | 1.40 | 1.44 | 1.48 | -89 | . 72 | . 32 |
| bldg interior cleaners, other | . 25 | . 27 | . 30 | . 21 | . 23 | . 24 | .19 | . 16 | . 06 |
| Janitors and sextons | 1.13 | 1. 15 | 1.32 | 1.19 | 1.21 | 1.24 | .70 | . 56 | . 26 |
| Food service wrokers | - 10 | - 08 | . 08 | - 10 | . 08 | . 06 | . 23 | . 19 | - 13 |
| waiters' assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | .03 |
| Cooks, exc private households | . 02 | . 02 | .01 | . 04 | . 02 | .01 | . 06 | . 05 | . 04 |
| Dishwashers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Food counter, fountain workers | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | .03 | . 03 | . 02 |
| waiters | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other food serv wkrs,exc privt | . 02 | . 02 | .03 | . 03 | . 03 | . 02 | .11 | . 07 | . 02 |
| Health service workers | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Personal service workers | . 34 | . 03 | . 02 | . 02 | . 02 | . 02 | . 03 | . 03 | . 02 |
| Attendants, personal serv,other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Elevator operators | .03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Housekeepers, exc private nones | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Protective service workers | . 49 | . 41 | . 18 | .33 | . 30 | . 15 | . 30 | . 24 | . 11 |
| Firerighters | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Guards | . 47 | - 39 | . 17 | . 32 | . 29 | . 15 | . 29 | . 23 | .09 |
| Police and detectives | .01 | . 01 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Laborers, except farm | 3.75 | 3.82 | 4.38 | 1.89 | 2.03 | 2.35 | 1.57 | 1.45 | 1.13 |
| Carpenter helfers | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Constr labr, exc carfenter helpr | . 24 | . 23 | . 23 | . 07 | . 07 | . 07 | .01 | . 01 | . 00 |
| Freight and material handlers | 1.20 | 1.29 | 1.74 | . 41 | . 45 | . 61 | . 62 | - 58 | . 50 |
| Gardencs, groundkeepers, exc farin | . 04 | . 04 | . 06 | . 03 | . 04 | . 06 | . 04 | . 04 | . 04 |
| Stock handlers | . 57 | . 65 | . 71 | . 27 | . 32 | . 34 | . 50 | . 49 | .33 |
| Vehicle washers, equip cleaners | . 37 | . 40 | -40 | . 46 | . 53 | . 55 | . 11 | . 10 | . 05 |
| Warehouse labcrers, other | . 17 | . 14 | . 06 | . 03 | . 03 | . 03 | . 05 | . 06 | . 12 |
| Other laborers | 1.13 | 1.05 | 1.18 | . 61 | . 59 | . 68 | . 22 | . 16 | . 08 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Electronic computing equipment |  |  | other mach, except electrical |  |  | Electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Frofessional and technical | 37.61 | 39.45 | 38.04 | 9.21 | 9.29 | 8.43 | 17.34 | 17.42 | 16.32 |
| Engineers, technical | 10.30 | 9.20 | 9.71 | 4.01 | 3.74 | 3.43 | 7.61 | 6.96 | 6.33 |
| Aeronautical | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 03 | . 02 |
| Chemical | . 14 | . 11 | . 05 | . 07 | . 05 | . 02 | -09 | . 06 | . 02 |
| Civil | . 03 | . 02 | . 00 | . 05 | . 02 | . 00 | . 04 | . 02 | . 01 |
| clectrical | 4.73 | 4. 16 | 4.04 | -35 | - 33 | . 29 | 4.77 | 4.33 | 3.71 |
| Industrial | 1.58 | 1.74 | 2.48 | . 67 | . 70 | . 56 | 1.11 | 1.21 | 1.41 |
| Mechanical | 1.92 | 1.64 | 1.59 | 1.83 | 1. 74 | 1.69 | - 80 | . 65 | . 50 |
| Metallurgical | . 04 | . 04 | . 05 | . 04 | . 05 | . 05 | . 04 | . 05 | . 06 |
| Petroleum | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Sales | . 12 | . 07 | . 06 | . 35 | . 25 | . 17 | - 19 | . 14 | . 11 |
| Other engincers | 1.73 | 1.41 | 1.43 | . 63 | . 58 | . 61 | . 52 | -47 | . 50 |
| Life and fiysical scientists | . 40 | .37 | . 39 | - 10 | - 10 | . 09 | -23 | - 24 | . 21 |
| Atmospheric and space | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 00 | . 01 | . 01 |
| Biological | .00 | .01 | . 02 | . 00 | .01 | . 02 | .01 | . 02 | . 02 |
| Chemists | . 20 | . 18 | . 19 | . 09 | . 09 | . 07 | .13 | .13 | .11 |
| Physicists and astronomers | . 19 | - 17 | . 15 | . 01 | . 01 | . 01 | . 08 | . 08 | . 07 |
| Uther lite, physical scientists | .01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | . 14 | . 14 | . 15 | . 01 | . 02 | . 02 | . 05 | . 05 | . 05 |
| Mathematicians | .07 | . 07 | . 06 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Statisticians | .07 | . 07 | . 09 | . 01 | . 01 | . 02 | . 03 | . 03 | . 04 |
| Engineering, science tecnnicians | 7.20 | 7. 14 | 7.77 | 2.43 | 2.31 | 2.41 | 4.72 | 4.84 | 4.74 |
| Chemical technicians | . 07 | . 07 | . 09 | . 03 | . 04 | . 06 | . 05 | . 06 | . 05 |
| Drafters | 1.41 | 1.05 | . 88 | 1.68 | 1.45 | 1.45 | 1.37 | 1.17 | 1.24 |
| Electrical and electronic | 3.78 | 4.15 | 5.05 | .13 | . 16 | . 18 | 2.64 | 2.92 | 2.79 |
| Industrial engineering | . 15 | . 20 | . 28 | . 10 | . 14 | . 19 | .13 | .16 | . 17 |
| Mechanical engineering | . 24 | . 26 | . 27 | . 09 | - 11 | . 16 | . 06 | .07 | . 09 |
| Other engineering, science teca | 1.56 | 1.42 | 1.20 | . 40 | . 41 | . 36 | . 46 | . 45 | . 40 |
| Medical workers, exc tecanicians | .07 | . 05 | . 02 | . 06 | . 04 | .01 | . 09 | . 07 | . 03 |
| Physicians and osteopaths | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Registered nurses | . 05 | . 04 | . 02 | . 06 | . 04 | . 01 | . 08 | . 06 | . 03 |
| Health technclcgists, technicians | .01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Eadiologic technologists, tecn | .01 | . 01 | . 03 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Technicians, except healti | . 19 | . 25 | . 35 | . 07 | . 09 | . 10 | . 06 | . 08 | - 10 |
| Airplane pilots | . 01 | . 02 | . 03 | . 01 | . 02 | . 01 | . 02 | . 02 | . 03 |
| Radio oferators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Tool programers,numerical | . 03 | - 03 | . 02 | . 04 | . 05 | . 06 | . 02 | . 02 | . 02 |
| Other technicians except nealtn | . 16 | . 21 | . 29 | . 02 | . 02 | . 03 | . 02 | . 04 | . 05 |
| Computer specialists | 11.44 | 13.69 | 11.73 | . 29 | - 38 | . 36 | . 87 | 1.04 | . 88 |
| Computer programers | 6.19 | 6.49 | 5.62 | . 20 | . 24 | . 23 | . 56 | - 58 | . 47 |
| Computer systems analysts | 4.53 | 6.04 | 5.36 | . 08 | . 12 | . 11 | . 26 | . 37 | . 36 |
| other computer specialists | . 72 | 1. 16 | . 74 | . 01 | . 02 | . 02 | . 05 | . 08 | . 06 |
| Social scientists | .83 | 7.33 | 1.72 | - 10 | - 18 | . 23 | -22 | - 36 | .41 |
| Economists | . 81 | 1.31 | 1.71 | . 10 | . 18 | .23 | -21 | . 35 | .41 |
| Psychologists | . 01 | . 03 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 |
| Teachers | -45 | . 52 | . 49 | . 02 | . 02 | . 03 | . 08 | .09 | . 07 |
| Adult educaticn | . 44 | . 50 | . 43 | . 02 | . 02 | . 03 | . 08 | . 09 | . 07 |
| Preschool and kindergarten | .01 | . 01 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | 2.61 | 2.60 | 1.71 | . 53 | . 60 | . 45 | 1.11 | 1.20 | . 92 |
| Authors | . 40 | . 35 | . 14 | . 03 | . 03 | . 01 | - 10 | . 08 | . 05 |
| Designers | 1.25 | 1.21 | . 72 | . 31 | - 35 | . 26 | .49 | . 51 | - 37 |
| Editors and reforters | - 26 | . 22 | - 11 | . 03 | . 03 | . 02 | . 10 | . 09 | . 06 |
| Musicians and composers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 06 | . 08 | . 08 |
| Photographers | . 07 | . 04 | . 01 | . 03 | . 03 | . 01 | . 06 | . 04 | . 02 |
| Public relaticns specialists | . 16 | . 18 | -16 | . 06 | . 07 | . 06 | . 09 | . 11 | . 08 |
| Other writers,artists.entertain | .48 | . 59 | . 57 | . 07 | . 09 | . 09 | . 23 | . 28 | . 24 |


|  | Electronic computing equipment |  |  | Other mach. except electrical |  |  | Electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and tecinical | 3.97 | 4. 16 | 3.99 | 1.58 | 1.81 | 1.32 | 2.30 | 2.49 | 2.56 |
| Accountants | 1.78 | 1.75 | 1.89 | . 94 | 1.01 | . 67 | 1.18 | 1.17 | 1.48 |
| Architects | . 05 | . 04 | . 06 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Lawyers | - 12 | - 15 | . 04 | . 03 | . 04 | . 01 | . 07 | . 09 | . 05 |
| Librarians | . 10 | . 09 | . 07 | . 00 | - 00 | . 00 | . 03 | . 03 | . 02 |
| operations and systems research | . 72 | - 99 | 1.04 | . 24 | . 36 | - 36 | -41 | . 60 | - 58 |
| Personnel, lator relations wkrs | . 96 | -91 | . 70 | .31 | . 32 | . 21 | . 51 | . 51 | . 33 |
| Other research workers | . 20 | . 17 | . 15 | . 06 | . 06 | . 06 | . 10 | . 09 | - 10 |
| Vocation, education counselors | . 05 | . 05 | . 05 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Managers, officials,proprietors | 9.56 | 9.95 | 9.65 | 7.34 | 8.23 | 7.31 | 5.84 | 6.18 | 6.31 |
| Buyers,sales, lcan managers | 1.95 | 1. 94 | 2.92 | 1.60 | 1. 70 | 2.29 | 1.41 | 1.45 | 1.91 |
| Bank, financial managers | . 28 | . 27 | . 28 | . 14 | . 16 | . 16 | - 16 | -17 | . 16 |
| Credit managers | . 02 | . 01 | . 01 | . 06 | . 04 | . 03 | . 05 | . 03 | . 01 |
| Purchasing agents, buyers, other | .92 | . 84 | 1.29 | . 72 | . 71 | . 95 | . 74 | . 72 | - 94 |
| Sales manager, exc retail trade | . 72 | . 81 | 1.34 | .67 | . 79 | 1. 15 | . 46 | . 55 | .79 |
| Other managers, officials, proprts | 7.61 | 8.01 | 6.73 | 5.74 | 6.54 | 5.03 | 4.43 | 4.73 | 4.41 |
| Mgrs, superintendents, building | .01 | - 02 | . 03 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| office managers, other | .21 | . 21 | . 29 | .31 | . 35 | . 48 | . 13 | - 15 | - 19 |
| Hestaurant, cafe, bar, managers | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| otner managers, administrators | 7.38 | 7.77 | 6.41 | 5.42 | 6.18 | 4.54 | 4.28 | 4.57 | 4.21 |
| Sales workers | 2.53 | 2.24 |  | 1.89 | 1.63 | . 87 | 1.13 | . 95 | - 51 |
| Advertising agents,sales worker | . 01 | . 02 | . 04 | . 02 | . 02 | . 04 | . 01 | . 02 | . 03 |
| Other sales wcrkers | 2.52 | 2.23 | 2.46 | 1.87 | 1.60 | . 83 | 1.11 | . 93 | . 48 |
| Clerical workers | 17.45 | 17.81 | 19.14 | 13.12 | 13. 29 | 13.90 | 14.02 | 13.78 | 13.45 |
| Stenografhrs,typists, secretaries | 6.59 | 5.92 | 6.41 | 4.13 | 4.06 | 4.33 | 4.60 | 4.31 | 4.27 |
| Legal secretaries | . 01 | . 01 | . 03 | . 01 | . 01 | . 01 | . 02 | . 02 | . 04 |
| Medical secretaries | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other secretaries | 5.60 | 5.18 | 5.69 | 3.14 | 3.25 | 3.66 | 3.39 | 3.34 | 3.50 |
| Stenographers | . 08 | . 05 | . 03 | .11 | . 05 | . 01 | . 10 | . 07 | . 06 |
| Tyfists | . 90 | . 68 | . 64 | .87 | .76 | . 66 | 1.09 | . 88 | . 67 |
| Office machine operators | 2.80 | 4.20 | 3.49 | . 78 | . 95 | . 82 | 1.16 | 1.33 | 1.04 |
| Bookkeeping and billing | . 05 | . 03 | . 04 | . 05 | . 03 | . 04 | . 05 | . 03 | -04 |
| Calculating | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 | . 04 | .03 | . 03 |
| Computer and peripheral equip | 1.70 | 3.46 | 3.10 | - 21 | -47 | - 38 | . 35 | -71 | . 57 |
| Duplicating | . 03 | . 03 | . 04 | . 03 | . 03 | . 03 | . 05 | . 04 | . 05 |
| Keypunch | . 87 | . 57 | . 22 | .41 | . 36 | . 30 | . 58 | . 45 | -29 |
| Tatulating | . 03 | . 01 | . 00 | .01 | . 00 | . 00 | . 03 | . 01 | . 00 |
| other office machine operators | . 09 | . 08 | .07 | . 05 | . 05 | . 04 | . 07 | .07 | . 05 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Electronic computing equipment |  |  | Other mach. except electrical |  |  | Electrical <br> machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 8.06 | 7.69 | 9.24 | 8.20 | 8.27 | 8.76 | 8.26 | 8.13 | 8.13 |
| Biliing clerks | . 10 | . 11 | -15 | -18 | - 21 | . 31 | . 15 | - 17 | . 24 |
| Booki eepers | . 96 | - 82 | . 67 | 1.41 | 1.36 | 1.17 | 1.06 | . 99 | . 82 |
| Cashiers | .07 | . 06 | . 06 | . 03 | . 03 | .06 | . 05 | - 05 | . 06 |
| Clerical supervisors, other | . 17 | . 19 | .24 | . 10 | . 12 | . 14 | . 15 | . 17 | . 19 |
| collectors, bill and account | .01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Counter clerks,exc food | . 21 | - 22 | . 30 | . 22 | - 25 | . 34 | -28 | . 28 | . 29 |
| Dispatchers,starters, vehicle | . 01 | . 02 | . 03 | -02 | . 02 | . 02 | . 02 | . 02 | . 04 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | - 00 |
| Estimators, investigatcrs, other | . 23 | . 27 | . 28 | - 28 | . 35 | . 34 | . 25 | . 30 | . 28 |
| Expediters, prcduction controlrs | 1.52 | 1. 64 | 2.55 | . 95 | 1. 12 | 1.60 | 1.18 | 1.28 | 1.51 |
| File clerks | .31 | . 24 | . 24 | . 23 | . 20 | . 21 | . 33 | . 27 | . 24 |
| Library attendants, assistants | . 13 | . 13 | . 05 | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 |
| Mail handlers, exc post office | . 19 | - 18 | . 22 | - 10 | - 10 | - 11 | . 13 | . 13 | - 14 |
| Messengers and office nelpers | . 03 | . 02 | . 01 | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Payroll,timekeeping clerks | . 26 | . 24 | . 15 | - 50 | - 52 | .37 | . 36 | . 35 | - 20 |
| Receptionists | . 26 | - 23 | . 25 | . 22 | . 21 | .21 | - 18 | - 17 | . 17 |
| Snipping and receiving clerks | - 54 | - 39 | . 29 | 1.27 | 1.06 | . 70 | . 98 | .85 | . 73 |
| Statistical clerks | . 47 | - 51 | . 65 | . 27 | . 31 | . 30 | . 41 | . 47 | . 53 |
| Stock clerks and store keepers | 1.02 | -91 | 1.18 | 1.38 | 1.34 | 1.64 | 1.26 | 1.16 | 1.32 |
| Telephone operators | - 18 | - 10 | . 03 | -13 | . 08 | . 03 | . 16 | . 08 | . 03 |
| weighers | .00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 03 | . 03 | . 05 |
| Misc clerical vorkers | 1.37 | 1.40 | 1.92 | . 89 | . 96 | 1.14 | 1.23 | 1.29 | 1.28 |
| Crafts and kindred workers | 10.45 | 9.97 | 9.93 | 24.81 | 24.15 | 21.33 | 13.63 | 12.87 | 12.33 |
| Construction crafts workers | . 52 | . 41 | . 26 | 1.82 | 1.62 | 1.18 | 1.47 | 1.34 | 1.13 |
| Carpenters and apprentices | . 11 | . 08 | . 03 | . 27 | . 22 | . 08 | . 17 | . 14 | . 06 |
| Erick,stonemasons, apfrentices | . 00 | . 00 | . 00 | . 05 | - 05 | . 06 | .01 | .01 | .01 |
| Bulldozer operators | . 00 | . 00 | . 00 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| slectricians and apprentices | - 29 | . 23 | . 13 | .75 | . 69 | . 40 | . 86 | .81 | . 67 |
| Excavating, grading mach operatr | .00 | . 00 | . 00 | . 02 | . 02 | . 05 | . 01 | . 01 | .01 |
| Painters and apprentices | . 06 | . 06 | . 08 | . 28 | . 31 | . 42 | .23 | .24 | . 30 |
| Plumbers, pipefitters,aprentices | . 06 | . 04 | . 02 | . 37 | . 27 | . 10 | . 18 | . 12 | . 07 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 06 | . 05 | .06 | . 01 | . 01 | .01 |
| Blue collar vorker supervisors | 2.48 | 2. 15 | 1.22 | 2.88 | 2.84 | 1.84 | 2.71 | 2.62 | 1.99 |
| Metalworkg cratt wrkrs,exc mecn | 2.02 | 1.68 | 1.57 | 15.34 | 14.01 | 10.43 | 4.62 | 4.08 | 3.72 |
| Blacksmiths | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| boilermakers | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | -00 | . 00 | . 01 |
| Heat treaters, annealers | . 01 | .01 | .01 | . 26 | - 22 | . 10 | . 06 | . 05 | . 02 |
| Forye and hammer operators | . 01 | . 01 | . 01 | . 07 | . 07 | . 07 | -02 | . 02 | . 02 |
| job and die setters, metal | . 21 | -18 | .23 | 1.50 | 1.42 | 1.80 | . 99 | . 87 | . 95 |
| Machinists and apprentices | . 98 | . 92 | -92 | 9.74 | 9.17 | 5.98 | 1.47 | 1.50 | 1.45 |
| Millwrights | . 02 | . 02 | . 01 | . 36 | - 34 | - 20 | . 17 | . 14 | . 08 |
| Molders, metal and apprentices | . 03 | . 03 | .03 | -47 | -43 | . 41 | . 35 | . 30 | . 25 |
| Pattern and moldmakers | . 17 | -10 | . 06 | -48 | - 34 | . 24 | - 30 | - 19 | . 13 |
| Rollers and finishers,metal | . 00 | .00 | . 00 | -03 | . 03 | . 06 | . 03 | . 04 | .07 |
| Sheetmetal workers, apprentices | . 15 | . 10 | . 06 | . 77 | . 57 | . 29 | . 30 | . 21 | .11 |
| Tool and diemakers, apprentices | . 44 | - 32 | . 24 | 1.63 | 1.38 | 1.27 | . 94 | . 75 | . 65 |
| Mechanics,repairers,installers | 4.82 | 3.29 | 6.68 | 3.80 | 4.86 | 7.19 | 2.76 | 3.06 | 4.29 |
| Air cond, heating, refrig mech | . 05 | . 06 | . 04 | . 41 | . 53 | . 48 | . 14 | . 17 | . 14 |
| Aircraft mechanics | .00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Auto body repairers | -00 | . 00 | . 00 | . 01 | -01 | . 01 | . 00 | . 00 | .00 |
| Auto mecinanics and apprentices | . 06 | -06 | . 07 | . 25 | - 25 | . 30 | . 08 | . 08 | . 11 |
| Data processing mach repairers | 3.36 | 4.05 | 4.96 | . 02 | . 03 | . 04 | . 07 | . 09 | - 12 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 02 | . 03 | . 06 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | . 62 | . 73 | 1.13 | 2.64 | 3.52 | 5.74 | 1.41 | 1.76 | 2. 39 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 07 | . 07 | . 09 | . 17 | . 19 | . 26 |
| Loom fixers. | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Office machine repairers | . 28 | . 18 | .24 | . 02 | - 02 | . 02 | . 02 | . 02 | . 03 |
| fadio, television repairers | -08 | . 05 | . 01 | . 02 | . 01 | . 01 | . 44 | . 29 | .74 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | -01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 17 | . 17 | . 22 | .31 | - 35 | . 40 | . 40 | . 44 | . 48 |
| Printing trade crafts workers | . 23 | - 18 | . 06 | . 21 | - 18 | . 08 | - 19 | - 16 | . 06 |
| Compositors and typesetters | . 09 | . 06 | . 02 | . 08 | . 06 | . 01 | . 09 | . 06 | .01 |
| Engravers exc fhotoenyravers | . 02 | . 02 | . 00 | . 04 | . 03 | . 02 | . 03 | . 02 | .01 |
| Photoengravers, lithograpners | . 02 | . 01 | . 00 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| press, plate printers,aprentices | - 10 | . 09 | . 04 | . 06 | . 07 | . 04 | .06 | . 06 | . 04 |


|  | Electronic computing eguipment |  |  | Other mach, except electrical |  |  | Electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport, public util craft wkrs | .01 | . 02 | . 02 | . 02 | . 03 | . 03 | 1.38 | 1.13 | . 81 |
| Elec pur line instaler, repairer | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Power station operators | .00 | - 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Telephone installers,repairers | .01 | . 02 | . 02 | . 01 | . 02 | . 02 | 1.32 | 1.07 | . 75 |
| Telephone line instalr, splicers | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 02 |
| Other crafts, kindred morkers | .37 | - 25 | . 12 | . 75 | . 63 | . 57 | . 50 | . 41 | . 33 |
| Cabinetmakers | . 01 | . 01 | .00 | . 04 | . 03 | .01 | . 04 | . 03 | . 00 |
| Crane, derrick,hoist operator | . 01 | - 01 | . 01 | -39 | - 32 | . 33 | . 14 | . 10 | . 06 |
| Inspectors, other | . 02 | . 02 | .01 | . 06 | . 06 | .03 | . 04 | . 04 | . 02 |
| opticians, iens grinder, polisher | . 00 | - 00 | . 00 | . 01 | . 01 | -01 | . 01 | . 01 | . 01 |
| Stationary engineers | . 28 | . 18 | . 06 | .13 | . 09 | . 03 | -17 | . 14 | . 11 |
| other crafts workers | . 05 | . 04 | . 05 | - 11 | - 12 | . 17 | . 08 | . 09 | . 10 |
| Operatives | 20.46 | 18.90 | 19.25 | 39.48 | 39.20 | 43.55 | 43.92 | 44.83 | 46.81 |
| Operatives, except transport | 20.19 | 18.64 | 18.97 | 37.96 | 37.64 | 42.06 | 42.90 | 43.77 | 45.59 |
| Semiskilled metalworking | 2.70 | 2. 16 | 1.72 | 17.40 | 15. 38 | 16.25 | 6.81 | 6.08 | 5.52 |
| Drill press oferatives | . 21 | . 15 | -12 | 1.65 | 1.36 | 1.31 | . 50 | . 40 | . 38 |
| Furnace tendrs, smeltrs, pourers | .03 | . 02 | .03 | . 30 | . 31 | . 32 | . 19 | . 19 | . 18 |
| Grinding machine operatives | - 29 | - 22 | . 19 | 2.96 | 2.48 | 2.27 | -42 | . 36 | . 37 |
| Heaters, metal | .00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Lathe, milling mach operatives | . 32 | - 22 | . 24 | 4.13 | 3.21 | 3.57 | . 64 | . 49 | . 51 |
| Metal platers | . 24 | . 24 | . 26 | . 14 | . 15 | . 15 | . 33 | . 36 | . 37 |
| Other precisicn mach operators | . 08 | - 06 | . 07 | 2.58 | 2. 19 | 2.67 | . 31 | . 26 | . 31 |
| Punch,stamping press operatives | . 27 | - 24 | - 30 | 1.38 | 1. 34 | 1.70 | 1.48 | 1.36 | 1.58 |
| Solderers | . 96 | . 73 | . 31 | . 14 | . 13 | . 07 | 1.27 | 1.07 | . 61 |
| welders and flamecutters | . 32 | . 28 | .21 | 4.10 | 4.21 | 4.18 | 1.67 | 1.58 | 1.20 |
| Semiskilled packing, inspectiny | 4.54 | 3.78 | 3.52 | 4.89 | 4.60 | 4.04 | 8.54 | 7.69 | 6.04 |
| Checkers, examiners, mfg | 4.23 | 3.54 | 3.31 | 3.94 | 3.85 | 3.69 | 7. 19 | 6.62 | 5.47 |
| Graders and scrters, mfg | .03 | . 02 | . 00 | . 03 | . 03 | . 01 | . 06 | . 05 | . 01 |
| Packer,wrapper, exc meat, prodce | . 28 | . 21 | .21 | . 92 | . 73 | . 34 | 1.29 | 1.03 | . 56 |
| Other operatives, exc transport | 12.94 | 12.71 | 13.73 | 15.67 | 17.66 | 21.77 | 27.55 | 29.99 | 34.03 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 |
| Assemblers | 9.43 | 9.18 | 9.76 | 7.35 | 8.32 | 10.31 | 14.50 | 15.33 | 16.25 |
| Cutting operatives, other | . 11 | . 12 | . 16 | . 53 | . 60 | . 81 | . 47 | . 53 | . 70 |
| Drillers, earth | . 00 | . 00 | - 00 | . 25 | . 26 | . 33 | . 05 | . 06 | . 08 |
| Dyers | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Filer, polisher, sander, buffer | . 15 | . 15 | . 18 | - 58 | . 62 | . 83 | . 39 | . 40 | . 51 |
| Mixing operatives | . 00 | - 00 | . 00 | . 06 | . 07 | - 11 | - 10 | - 11 | - 12 |
| -ilers, greasers,exc automobiles | . 01 | . 01 | . 00 | . 10 | . 09 | . 04 | .05 | . 04 | . 02 |
| Painters. mfg articles | . 23 | - 21 | . 31 | . 90 | . 89 | 1.29 | . 88 | . 82 | 1.03 |
| Photographic frocess workers | . 15 | . 12 | . 07 | . 11 | . 11 | . 09 | . 12 | . 10 | . 07 |
| Riveters and fasteners | . 03 | . 03 | . 06 | .06 | . 07 | . 09 | - 14 | . 15 | . 20 |
| Sawyers | .01 | . 01 | . 03 | . 19 | . 16 | . 06 | . 07 | . 06 | . 02 |
| Sewers and stitchers | .01 | . 01 | .01 | . 08 | . 08 | . 13 | . 07 | . 07 | . 12 |
| Purnace tendr,stokr, exc metal | .03 | . 02 | -01 | . 07 | . 04 | . 02 | - 10 | . 05 | . 02 |
| winding operatives, other | .16 | . 16 | . 22 | . 11 | . 13 | - 17 | 1.70 | 1.94 | 2.60 |
| Mascellaneous machine operatves | 1. 14 | 1. 11 | 1.07 | 3.01 | 3. 46 | 4.18 | 4.68 | 5.38 | 6.60 |
| Other operatives, exc transport | 1.48 | 1.60 | 1.84 | 2.23 | 2.73 | 3.29 | 4.21 | 4.92 | 5.67 |
| Transport equifment operatives | . 28 | - 26 | . 28 | 1.52 | 1.56 | 1.50 | 1.02 | 1.07 | 1.22 |
| Delivery and route workers | . 07 | . 05 | . 04 | . 14 | . 12 | . 09 | . 08 | . 07 | . 05 |
| Fork lift,tom motor operatives | . 11 | - 12 | - 16 | .71 | . 88 | 1.08 | - 53 | . 67 | - 93 |
| Railroad brake operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | .01 | . 01 | .01 | .03 | . 02 | . 01 | . 03 | . 02 | . 00 |
| Truck drivers | . 09 | . 08 | . 07 | . 63 | - 52 | . 29 | . 37 | . 31 | . 24 |
| Service vorkers | 1.29 | 1.06 | -80 | 1.76 | 1.71 | 1.65 | 1.82 | 1.66 | 1.49 |
| Cleaning service workers | . 74 | . 65 | . 61 | 1.32 | 1.33 | 1.39 | 1.15 | 1.13 | 1. 15 |
| Bldg interior cleaners, other | . 08 | . 08 | . 08 | . 21 | . 22 | -23 | - 16 | -17 | -19 |
| Janitors and sextons | . 66 | . 57 | . 53 | 1. 12 | 1.12 | 1.17 | . 99 | . 96 | . 97 |
| Food service workers | .22 | . 15 | . 07 | . 06 | .06 | . 08 | . 15 | . 12 | - 12 |
| Cooks, exc private households | . 04 | . 02 | . 01 | . 02 | . 01 | .01 | .04 | . 02 | .01 |
| Dishwashers | . 01 | . 00 | . 00 | .01 | . 01 | . 01 | .01 | . 01 | .01 |
| rood counter, fountain workers | . 09 | . 07 | . 03 | . 01 | . 01 | . 02 | . 04 | . 04 | . 04 |
| Waiters | .03 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Other food serv ukrs,exc privt | . 06 | . 03 | . 02 | . 02 | . 02 | .03 | . 04 | . 04 | .06 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Electronic computing equipment |  |  | Other mach. except electrical |  |  | Electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 04 | . 03 | . 02 |
| Attendants, fersonal serv,other | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Elevator operators | .00 | . 00 | . 00 | . 01 | .01 | . 01 | . 02 | . 01 | . 01 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | .00 |
| Protective service workers | .32 | . 24 | . 11 | . 35 | . 31 | . 15 | .47 | . 37 | . 19 |
| Guards | .31 | . 24 | .11 | . 34 | . 29 | . 14 | . 45 | . 36 | . 19 |
| Laborers, except farm | .66 | . 63 | . 71 | 2.39 | 2. 50 | 2.95 | 2.31 | 2.38 | 2.78 |
| Carpenter helfers | . 00 | - 00 | . 00 | . 02 | . 02 | . 04 | . 01 | . 01 | . 01 |
| Constr labr,exc carpenter helpr | . 04 | . 03 | . 02 | . 09 | . 09 | - 10 | . 07 | . 06 | . 07 |
| Preight and material handlers | . 29 | . 27 | - 34 | . 74 | - 80 | 1.09 | 1.12 | 1.17 | 1.51 |
| gardenrs, groundkeepers, exc farin | . 03 | .03 | . 05 | . 04 | . 05 | . 06 | . 04 | . 05 | . 06 |
| Stock handlers | . 18 | . 19 | . 23 | . 46 | . 53 | . 59 | . 45 | . 50 | . 51 |
| Teamsters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | - 01 | . 01 |
| Vehicle washers,equip cleaners | . 04 | . 03 | . 02 | . 25 | . 28 | . 29 | . 14 | .15 | . 16 |
| Warehouse labcrers, other | . 04 | . 03 | . 02 | . 07 | . 06 | . 03 | .11 | . 08 | . 05 |
| Other laborers | . 05 | .03 | . 02 | .72 | . 67 | .76 | .37 | . 35 | .41 |


| Household appliances |  |  | Radio,ty. communicatn equipment |  |  | other electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 7.06 | 7.32 | 6.51 | 22.72 | 23.53 | 25.20 | 15.99 | 16.00 | 14.02 |
| 2.62 | 2.50 | 2.39 | 10.35 | 9.65 | 9.84 | 6.88 | 6.34 | 5.43 |
| . 00 | . 00 | . 00 | . 09 | . 08 | . 06 | . 02 | . 02 | . 00 |
| . 05 | . 03 | . 00 | . 06 | . 04 | . 03 | . 11 | . 08 | . 02 |
| . 00 | . 00 | . 00 | . 06 | . 03 | . 02 | . 04 | . 02 | . 00 |
| 1.04 | . 95 | . 74 | 6.92 | 6.54 | 6.62 | 4.17 | 3.78 | 2.93 |
| . 75 | . 87 | 1.11 | 1.35 | 1.40 | 1.44 | 1.03 | 1.17 | 1.43 |
| -47 | - 38 | . 20 | 1.07 | . 85 | . 79 | . 70 | . 60 | . 43 |
| . 03 | . 03 | . 04 | . 04 | . 05 | . 06 | . 04 | . 05 | . 06 |
| . 06 | . 03 | . 00 | . 10 | . 04 | . 04 | . 27 | . 19 | . 15 |
| . 22 | - 22 | . 30 | . 65 | . 62 | - 78 | . 50 | . 43 | . 41 |
| . 05 | . 06 | . 09 | . 22 | . 24 | . 27 | . 26 | . 26 | . 21 |
| . 00 | . 00 | . 00 | . 01 | .01 | . 02 | .01 | . 01 | .01 |
| . 00 | . 00 | .00 | . 02 | . 03 | . 02 | . 01 | . 01 | . 02 |
| . 05 | . 06 | . 08 | -09 | - 10 | . 13 | - 16 | - 15 | . 10 |
| . 00 | . 00 | .01 | -10 | . 09 | . 10 | .09 | . 09 | . 07 |
| .00 | . 00 | . 00 | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 03 | . 08 | . 08 | . 09 | . 04 | . 04 | . 04 |
| . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | .01 | . 01 | . 01 |
| . 02 | . 02 | . 03 | . 05 | . 05 | . 07 | .03 | . 03 | . 04 |
| 1.56 | 1.59 | 1.70 | 5.67 | 6.17 | 7.50 | 4.70 | 4.68 | 4.03 |
| . 04 | . 05 | . 06 | . 05 | . 06 | . 08 | . 06 | . 06 | . 04 |
| . 68 | . 55 | . 46 | 1.54 | 1.38 | 1.75 | 1.40 | 1.17 | 1. 13 |
| . 59 | . 66 | . 67 | 3.34 | 3.91 | 4.62 | 2.58 | 2.78 | 2.33 |
| .13 | . 18 | . 25 | . 14 | . 19 | - 27 | . 12 | . 15 | - 12 |
| . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 | . 07 | . 09 | - 12 | . 06 | . 08 | - 10 |
| .11 | . 14 | . 25 | . 53 | . 54 | . 66 | . 48 | -45 | . 32 |
| .10 | . 05 | . 00 | - 10 | . 07 | . 04 | . 08 | . 06 | . 04 |
| . 01 | . 00 | . 00 | . 01 | . 02 | . 01 | .01 | . 00 | . 00 |
| . 09 | . 05 | . 00 | .08 | . 05 | .03 | . 07 | . 06 | . 04 |
| . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 |
| . 03 | . 05 | . 07 | . 08 | . 10 | . 09 | . 06 | . 08 | . 10 |
| . 02 | . 04 | . 06 | . 01 | . 02 | . 02 | . 02 | . 02 | . 03 |
| . 00 | - 00 | . 00 | . 01 | . 02 | . 01 | .01 | . 01 | .01 |
| .01 | . 01 | . 01 | . 02 | . 03 | . 03 | .01 | . 01 | . 01 |
| . 01 | . 00 | . 00 | . 03 | . 04 | . 03 | .03 | . 04 | . 06 |
| .37 | . 48 | . 44 | 1.23 | 1.49 | 1.60 | . 75 | -91 | . 65 |
| .22 | - 25 | . 24 | . 80 | . 86 | . 94 | . 48 | - 50 | . 31 |
| .13 | . 19 | . 16 | . 35 | . 51 | . 55 | .23 | . 34 | . 30 |
| . 02 | . 04 | . 04 | . 08 | . 13 | . 11 | . 04 | . 06 | . 03 |
| . 13 | . 21 | . 25 | - 25 | . 44 | - 52 | - 21 | - 35 | . 39 |
| .13 | . 21 | . 25 | . 25 | . 41 | -49 | . 20 | . 34 | . 39 |
| . 00 | . 00 | .00 | . 01 | . 02 | . 03 | - 00 | . 01 | . 00 |
| . 03 | . 04 | . 04 | . 13 | .16 | . 12 | . 06 | . 07 | . 06 |
| . 03 | . 04 | .04 | . 13 | . 16 | . 12 | . 06 | .07 | . 06 |
| . 55 | . 61 | . 40 | 1.72 | 1.96 | 1.92 | . 87 | . 92 | . 58 |
| . 01 | . 00 | .00 | .18 | - 16 | . 16 | . 06 | . 06 | . 02 |
| . 33 | . 35 | . 20 | . 58 | -61 | . 59 | . 46 | . 49 | .31 |
| . 04 | . 04 | . 04 | . 14 | . 13 | - 12 | . 08 | . 07 | . 03 |
| . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| . 04 | . 06 | . 04 | .15 | . 23 | . 30 | . 00 | . 00 | . 00 |
| . 01 | .01 | .01 | . 08 | . 06 | . 05 | . 06 | . 04 | . 01 |
| . 09 | .11 | . 07 | .13 | . 16 | . 13 | . 07 | . 09 | . 07 |
| . 03 | . 04 | .03 | . 45 | . 58 | . 54 | . 14 | . 17 | - 15 |



|  | Household appliances |  |  | Radio,tve communicatn equipment |  |  | other electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.61 | 1. 72 | 1.09 | 2.89 | 3. 16 | 3.21 | 2.09 | 2.29 | 2. 50 |
| Accountants | . 94 | . 95 | . 53 | 1.43 | 1.43 | 1.54 | 1.07 | 1.08 | 1.59 |
| Architects | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Home management advisors | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Lawyers | .03 | . 04 | . 00 | - 10 | - 10 | - 10 | . 06 | . 09 | . 03 |
| Librarians | .00 | . 00 | . 00 | . 04 | . 04 | . 03 | . 02 | . 02 | .01 |
| operaticns and systems research | . 21 | . 31 | . 29 | . 57 | . 84 | - 84 | . 36 | . 53 | . 52 |
| Personnel, labcr relations wkrs | . 35 | - 36 | . 23 | . 62 | . 64 | . 52 | -47 | . 47 | . 27 |
| Other research workers | . 05 | . 04 | . 04 | . 12 | - 10 | . 16 | . 10 | .09 | . 08 |
| Managers, officials, proprietors | 4.33 | 4.71 | 4.32 | 5.84 | 6.00 | 6.03 | 6.10 | 6.48 | 6.69 |
| Buyers, sales, ican managers | 1.34 | 1.28 | 1.40 | 1.34 | 1.35 | 1.53 | 1.47 | 1.53 | 2.12 |
| Bank, financial managers | . 11 | - 12 | . 13 | . 17 | . 18 | - 18 | . 16 | . 17 | . 16 |
| Credit managers | . 09 | . 05 | . 04 | . 05 | . 02 | -01 | . 05 | .02 | .01 |
| Purchasing agents, buyers, other | . 51 | .46 | . 48 | . 83 | . 81 | . 96 | .73 | .71 | 1.00 |
| Sales manager, exc retail trade | . 62 | . 66 | .76 | - 29 | . 34 | . 38 | . 53 | . 63 | . 96 |
| Other managers, officials, proprts | 2.99 | 3.42 | 2.92 | 4.50 | 4.66 | 4.49 | 4.63 | 4.95 | 4.57 |
| office managers, other | . 15 | . 16 | . 20 | . 09 | - 10 | . 09 | - 16 | . 17 | - 22 |
| Restaurant, cafe, bar, managers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 |
| other managers, administrators | 2.84 | 3.26 | 2.72 | 4.40 | 4.55 | 4.39 | 4.46 | 4.77 | 4.34 |
| Sales workers | 1.80 | 1.34 | -41 | . 69 | . 60 | . 50 | 1.27 | 1.06 | . 53 |
| Advertising agents, sales worker | . 04 | . 05 | . 05 | . 02 | . 03 | . 04 | . 01 | . 01 | . 02 |
| other sales workers | 1.75 | 1.29 | . 36 | . 67 | . 57 | . 46 | 1.26 | 1.04 | . 51 |
| Clerical workers | 11.60 | 11.09 | 10.27 | 16.04 | 15.97 | 14.53 | 13.27 | 13.14 | 13.43 |
| Stenographrs, typists, secretaries | 3.51 | 3. 25 | 3.01 | 5.20 | 4.86 | 4.59 | 4.44 | 4.21 | 4.31 |
| Legal secretaries | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 | . 02 | . 02 | . 04 |
| Other secretaries | 2.60 | 2.51 | 2.42 | 3.70 | 3.65 | 3.65 | 3.34 | 3.31 | 3.58 |
| Stenographers | . 11 | . 08 | . 10 | . 12 | . 08 | . 05 | . 09 | . 07 | . 06 |
| typists | . 80 | . 66 | . 50 | 1.34 | 1.09 | . 85 | . 99 | . 82 | . 63 |
| Office machine operators | . 86 | . 94 | -69 | 1.50 | 1.75 | 1.46 | 1.01 | 1.19 | -92 |
| Bookkeeping and billing | . 06 | . 04 | . 05 | . 06 | . 03 | . 04 | . 05 | . 03 | . 04 |
| Calculating | . 03 | . 03 | . 03 | . 06 | . 05 | . 06 | . 02 | . 02 | . 02 |
| Computer and feripheral equip | . 21 | . 45 | .36 | . 47 | . 93 | .81 | . 30 | . 64 | . 51 |
| Duplicating | . 03 | . 02 | . 03 | . 07 | . 06 | . 07 | . 04 | . 04 | . 05 |
| Keypunch | . 47 | - 36 | - 19 | . 72 | - 58 | .41 | . 52 | . 41 | . 26 |
| Tabulating | . 02 | . 01 | -00 | . 03 | . 01 | .00 | . 03 | . 01 | . 00 |
| other office machine operators | . 04 | . 03 | . 02 | - 10 | . 10 | . 08 | . 05 | . 05 | . 04 |
| Other clerical workers | 7.23 | 6.90 | 6.57 | 9.35 | 9.36 | 8.48 | 7.82 | 7.73 | 8.20 |
| Billing clerks | . 20 | . 22 | -31 | . 14 | . 15 | . 15 | . 15 | . 17 | . 26 |
| Bookk eefers | 1.03 | . 98 | .79 | 1.02 | . 94 | . 79 | 1.09 | 1.02 | . 83 |
| Cashiers | . 05 | . 06 | . 05 | . 07 | . 08 | . 08 | . 04 | . 04 | . 05 |
| Clerical supervisors, other | . 11 | - 12 | . 12 | . 22 | . 25 | . 29 | . 12 | . 14 | . 15 |
| collectors, bill and account | . 01 | . 01 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 |
| Counter clerks, exc food | . 29 | . 30 | . 31 | . 38 | - 39 | . 39 | -22 | .23 | . 25 |
| Dispatchers, starters, vehicle | . 02 | . 03 | . 05 | . 02 | . 02 | . 03 | .02 | . 02 | . 04 |
| Enumerators and interviewers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | - 00 |
| Estimators, investigators, other | . 16 | - 20 | . 17 | . 32 | . 38 | .36 | . 22 | . 27 | . 26 |
| Expediters, prcduction controlrs | . 75 | - 78 | . 89 | 1.42 | 1.62 | 1.79 | 1.11 | 1.20 | 1.47 |
| File clerks | .21 | . 17 | .17 | -45 | . 37 | . 35 | . 28 | . 23 | . 21 |
| Insurance adjusters, examiners | . 00 | .00 | . 00 | . 01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Library attendants, assistants | - 00 | . 00 | . 00 | . 05 | . 05 | . 01 | . 01 | . 01 | . 00 |
| bail handlers, exc post office | - 15 | . 15 | - 18 | . 16 | - 16 | - 16 | -11 | . 11 | . 13 |
| Messengers and office helpers | .01 | . 01 | . 01 | . 03 | . 02 | . 01 | . 02 | . 01 | . 00 |
| Payroll, timekeeping clerks | . 44 | . 42 | . 23 | . 33 | - 32 | . 20 | . 36 | . 35 | . 20 |
| Receptionists | . 18 | - 18 | . 19 | - 14 | - 14 | . 15 | . 20 | . 19 | . 18 |
| Shipping and receiving clerks | 1.07 | - 95 | -85 | . 72 | - 56 | - 40 | 1.11 | .97 | . 85 |
| Statistical clerks | . 26 | . 29 | . 33 | . 59 | . 68 | . 70 | . 34 | . 40 | . 48 |
| Stock clerks and store keepers | 1.35 | 1. 16 | 1.01 | 1.28 | 1. 15 | 1.23 | 1.23 | 1.16 | 1. 40 |
| Telephone operators | - 13 | . 07 | . 02 | - 20 | -11 | . 04 | . 14 | . 08 | . 03 |
| Weighers | . 02 | . 02 | . 05 | . 01 | . 02 | . 04 | -04 | . 04 | . 06 |
| Misc clerical workers | . 80 | . 79 | . 84 | 1.79 | 1.91 | 1.28 | . 99 | 1.07 | 1.34 |
| Crafts and kindred workers | 16.39 | 16.35 | 16.67 | 15.64 | 14.67 | 13.85 | 12.03 | 11.43 | 11. 15 |


|  | Household appliances |  |  | Eadio,tv, communicatn equipment |  |  | Other <br> electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 1.89 | 1. 78 | 1.60 | 1.24 | 1.09 | 1.03 | 1.52 | 1.40 | 1.11 |
| Carpenters and apprentices | . 25 | . 24 | . 20 | . 16 | . 13 | . 08 | . 17 | . 13 | . 04 |
| Brick, stonemasons, apprentices | . 03 | . 04 | . 65 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Electicicians and apprentices | . 78 | . 69 | . 42 | .76 | - 70 | . 71 | . 92 | . 88 | . 68 |
| cxcavating, grading mach operatr | .01 | - 01 | . 00 | . 00 | - 00 | . 00 | -01 | . 01 | . 01 |
| Painters ana apprentices | . 52 | . 54 | . 69 | . 13 | . 14 | - 12 | . 23 | . 24 | . 32 |
| Plumbers, pipefitters, aprentices | . 28 | . 25 | . 23 | . 18 | - 11 | . 11 | . 16 | - 11 | . 03 |
| Structural metal craft workers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Blue collar worker supervisors | 3.86 | 3.48 | 1.71 | 3.77 | 3.94 | 3.77 | 1.92 | 1.88 | 1.31 |
| Metalworkg craft wrkrs, exc mech | 5.26 | 4.71 | 4.93 | 3.33 | 2.85 | 3.09 | 5.24 | 4.58 | 3.82 |
| Boilermakers | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Heat treaters, annealers | . 08 | . 06 | .03 | . 03 | . 02 | . 01 | . 07 | . 06 | . 02 |
| Forge and haurer operators | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 | . 03 | . 03 | . 02 |
| Job and die setters, metal | 1.37 | 1.16 | 1.12 | . 66 | . 58 | . 68 | 1.11 | . 97 | 1.04 |
| Machinists and apprentices | 1.02 | 1. 16 | 1.69 | 1.02 | 1.02 | 1.12 | 1.79 | 1.77 | 1.55 |
| Millwrights | . 27 | . 26 | . 19 | . 14 | . 11 | . 11 | .17 | . 14 | . 06 |
| Molders, metal and apprentices | . 44 | - 39 | . 36 | . 17 | . 13 | . 14 | . 43 | - 36 | . 28 |
| Pattern and mcldmakers | .37 | - 24 | . 14 | . 38 | . 25 | . 22 | . 25 | - 16 | . 09 |
| Rollers and finishers,metal | . 02 | . 03 | . 05 | . 01 | . 01 | . 02 | . 05 | . 06 | . 09 |
| Sheetmetal workers, apprentices | . 43 | . 30 | . 12 | . 24 | - 17 | . 14 | . 31 | . 22 | . 09 |
| Tool and diemakers, apprentices | 1.24 | 1.07 | 1.20 | . 67 | . 53 | . 62 | 1.04 | . 81 | - 59 |
| Mechanics, repairers, installers | 4.72 | 5.82 | 7.99 | 2.40 | 2.34 | 2.51 | 2.65 | 3.00 | 4. 52 |
| Air cond, heating, refrig meca | . 96 | 1.21 | 1.09 | . 06 | . 07 | . 06 | . 05 | . 07 | . 06 |
| Aircraft mechanics | .01 | .01 | .01 | . 05 | . 03 | .01 | . 02 | . 02 | . 01 |
| Auto mechanics and apprentices | . 10 | . 10 | . 10 | . 00 | . 00 | . 00 | - 11 | . 11 | . 15 |
| Data processing mach repairers | .01 | . 01 | . 01 | - 10 | . 13 | . 17 | . 06 | . 08 | . 11 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| deavy equip mech, incl diesei | 1.90 | 2.46 | 3.99 | . 81 | . 98 | 1.29 | 1.68 | 2.03 | 2.62 |
| Household appliance mechanics | 1.36 | 1. 61 | 2.32 | . 03 | .03 | . 05 | . 05 | . 06 | . 08 |
| Office machine repairers | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 | . 03 | . 02 | . 04 |
| Radio, television repairers | .01 | . 01 | . 01 | 1.00 | . 73 | . 54 | - 19 | . 12 | . 91 |
| Other mechanics and apprentices | .38 | .41 | . 46 | . 32 | - 35 | - 38 | -45 | -49 | . 53 |
| Printing trade crafts workers | . 12 | - 11 | . 05 | . 20 | . 16 | .06 | . 20 | . 16 | . 06 |
| Bookbinders | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Compositors and typesetters | .06 | . 04 | . 00 | . 08 | . 05 | .01 | - 10 | .07 | . 01 |
| Engravers exc photoengravers | . 01 | . 01 | . 00 | . 02 | . 02 | . 00 | . 03 | . 03 | . 01 |
| Photoengravers, lithographers | .01 | . 00 | . 00 | . 01 | . 01 | .00 | . 01 | . 01 | . 00 |
| press,plate printers,aprentices | . 04 | . 05 | . 05 | . 08 | . 08 | . 04 | .05 | .05 | . 04 |
| Transport, public util craft wnis | . 02 | . 02 | . 02 | 4.15 | 3.83 | 2.99 | . 03 | .03 | . 04 |
| Elec pwr line instaler, repairer | .01 | . 01 | .01 | . 03 | .03 | . 03 | . 02 | . 02 | . 03 |
| Power station operators | .01 | . 01 | .01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | 4.03 | 3.69 | 2.86 | . 00 | . 00 | . 00 |
| Telephone ling instalr,splicers | . 00 | . 00 | . 00 | . 09 | - 10 | - 08 | . 00 | . 00 | . 00 |
| Other crafts. kindred workers | . 53 | . 45 | . 38 | . 56 | . 46 | . 40 | . 47 | .39 | . 29 |
| Cabinetmakers | -04 | - 04 | -01 | . 09 | . 06 | . 01 | . 01 | -01 | . 00 |
| Crane,derrick,hoist operator | . 17 | - 12 | . 07 | . 05 | . 0.3 | . 01 | . 19 | . 13 | . 08 |
| Decorators, window dressers | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | -. 00 |
| Furniture and wood finishers | . 01 | . 00 | . 00 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| Inspectors, other | . 04 | . 04 | . 02 | . 06 | . 06 | . 02 | .03 | . 03 | . 01 |
| Jewelers and watchmakers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Opticians,lens grinder, polisher | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | .01 | - 01 | . 01 |
| Stationary engineers | . 18 | - 16 | . 15 | . 23 | . 19 | .19 | . 13 | - 11 | . 07 |
| Upholsterers | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Other crafts norkers | . 06 | . 05 | . 05 | . 08 | . 09 | . 11 | . 09 | .09 | - 11 |
| Operatives | 53.39 | 53.73 | 55.44 | 35.66 | 36.07 | 36.93 | 47.04 | 47.67 | 49.67 |
| Operatives, except transport | 50.82 | 50.73 | 51.37 | 35.05 | 35.51 | 36.32 | 46.05 | 46.64 | 48.57 |
| Semiskillea metalworking | 9.72 | 8.92 | 9.07 | 4.65 | 4.14 | 4.03 | 7.55 | 6.59 | 5.65 |
| Drill press cferatives | . 46 | - 36 | . 33 | . 33 | . 26 | . 25 | . 60 | . 47 | . 44 |
| Purnace tendrs, smeltrs, pourers | . 17 | . 15 | . 12 | . 07 | . 07 | . 06 | . 26 | . 25 | - 24 |
| Grinding machine operatives | .71 | . 59 | . 59 | . 21 | . 17 | . 19 | - 50 | . 42 | . 42 |
| Heaters, metal | .01 | . 01 | . 00 | . 00 | .00 | . 00 | .01 | . 01 | . 00 |
| Lathe,milling mach operatives | . 48 | . 36 | . 41 | .31 | . 23 | - 27 | . 86 | . 63 | .61 |
| tetal platers | . 23 | . 25 | . 25 | . 25 | - 27 | - 29 | . 40 | -42 | . 42 |
| Other precision mach operators | . 46 | . 38 | . 47 | . 19 | . 16 | . 16 | . 35 | . 29 | . 36 |
| Punco,stamping press operatives | 3.52 | 3.29 | 3.99 | . 85 | . 76 | . 84 | 1.50 | 1.37 | 1. 56 |
| Solderers | . 32 | -30 | -19 | 1.76 | 1.56 | 1.26 | 1.14 | . 95 | . 41 |
| Welders and flamecutters | 3.36 | 3. 24 | 2.72 | .69 | . 66 | . 71 | 1.94 | 1.78 | 1.20 |


|  | Household appliances |  |  | Radio,tv. communicatn equipment |  |  | other electrical machinery |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled packing, inspecting | 7.18 | 6.41 | 4.90 | 8.34 | 7.72 | 6.97 | 8.89 | 7.86 | 5.82 |
| Checkers, examiners, mfg | 5.42 | 4.96 | 4.01 | 7.43 | 6.90 | 6.19 | 7.35 | 6.72 | 5.37 |
| Graders anà scrters, mfg | . 06 | . 05 | . 01 | . 05 | . 04 | . 01 | . 07 | . 05 | . 01 |
| Packer, wrapper,exc meat, prodce | 1.70 | 1. 40 | -88 | . 86 | . 78 | .77 | 1.47 | 1.10 | . 43 |
| Other operatives, exc transport | 33.93 | 35.41 | 37.41 | 22.07 | 23.65 | 25.32 | 29.62 | 32.19 | 37.11 |
| Asbestos, insulation workers | . 14 | . 18 | . 11 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Assemblers | 21.47 | 22.08 | 21.16 | 11.71 | 12.33 | 13.47 | 14.93 | 15.77 | 16.73 |
| Cutting operatives, other | . 49 | . 54 | .71 | . 27 | . 30 | . 31 | . 58 | . 64 | . 86 |
| Drillers, earth | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 09 | . 09 | . 12 |
| Dyers | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Filer, polisher, sander, bufter | 1.13 | 1. 16 | 1.47 | . 24 | . 26 | . 27 | . 35 | . 37 | . 49 |
| Laundry,dry cleang oprs,other | . 01 | .01 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mixing operatives | . 14 | . 16 | . 25 | . 04 | . 05 | . 05 | . 13 | . 13 | . 13 |
| Oilers.greasers.exc automobiles | . 13 | . 09 | . 03 | . 03 | . 02 | . 00 | . 06 | . 05 | . 02 |
| Painters, mfg articles | 2.45 | 2. 20 | 2.64 | . 48 | . 45 | . 46 | . 86 | . 79 | 1.05 |
| Photographic frocess workers | . 05 | . 04 | . 04 | . 13 | . 11 | .07 | . 12 | . 11 | . 07 |
| Riveters and tasteners | . 20 | . 21 | -29 | . 12 | . 13 | . 16 | . 13 | . 15 | . 20 |
| Sawyers | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | - 10 | . 08 | . 03 |
| Sewers and stitchers | . 33 | . 33 | . 57 | . 02 | . 02 | . 02 | . 06 | . 06 | .11 |
| Furnace tendr,stokr, exc metal | . 13 | . 09 | . 07 | . 06 | . 03 | . 01 | . 11 | . 06 | . 02 |
| Winding operatives, other | . 50 | . 55 | . 73 | . 95 | 3.04 | 1.17 | 2.32 | 2.56 | 3.42 |
| Miscellaneous machine operatyes | 4.08 | 4. 60 | 5.66 | 3.24 | 3.49 | 3.51 | 5.60 | 6.37 | 7.97 |
| other oferatives, exc transport | 2.67 | 3. 14 | 3.66 | 4.74 | 5.39 | 5.80 | 4.17 | 4.95 | 5.88 |
| Transport equipment operatives | 2.56 | 3. 00 | 4.07 | . 61 | . 57 | . 62 | . 99 | 1.03 | 1.10 |
| Delivery and route workers | . 16 | . 13 | . 09 | . 06 | . 05 | . 03 | . 09 | . 07 | . 05 |
| Fork lift, tow motor operatives | 1.67 | 2. 16 | 3.11 | . 28 | - 35 | . 48 | . 48 | . 61 | . 83 |
| kail vehicle cperators, other | -01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 03 | . 02 | . 00 |
| Truck drivers | . 72 | .70 | . 86 | . 24 | . 15 | . 10 | . 39 | .32 | .22 |
| Service workers | 2.03 | 1.92 | 1.93 | 1.69 | 1.48 | 1.29 | 1.85 | 1.70 | 1.52 |
| Cleaning service workers | 1.40 | 1.39 | 1.59 | . 92 | . 87 | . 79 | 1.24 | 1.22 | 1.24 |
| Bldg interior cleaners, other | . 18 | . 19 | . 21 | . 12 | -13 | . 14 | . 18 | . 19 | . 20 |
| Janitors and sextons | 1.22 | 1. 20 | 1.38 | . 80 | .75 | . 66 | 1.06 | 1.03 | 1.04 |
| Food service workers | . 14 | . 13 | . 16 | . 18 | . 13 | . 12 | . 14 | . 11 | . 12 |
| Cooks, exc private households | . 04 | . 03 | . 01 | . 03 | . 02 | . 01 | . 04 | . 02 | .01 |
| Dishwashers | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 04 | . 05 | . 09 | . 04 | . 04 | . 02 | . 04 | . 04 | . 05 |
| waiters | .02 | . 01 | . 01 | . 03 | . 02 | . 01 | . 02 | . 01 | . 01 |
| Other food serv wkrsfexc privt | . 03 | . 03 | . 05 | . 05 | . 05 | . 07 | . 04 | .03 | . 06 |
| Personal service workers | . 02 | . 02 | . 02 | . 04 | . 04 | . 04 | . 04 | .03 | . 02 |
| attendants, personal serv,other | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | .03 | .02 | . 02 |
| Elevator operators | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 02 | . 01 | .00 |
| Housekeepers, exc private homes | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Protective service workers | .47 | . 38 | - 16 | . 55 | . 44 | . 34 | . 43 | . 34 | . 14 |
| Firefighters | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Guards | . 46 | - 37 | . 16 | . 53 | . 42 | - 34 | . 41 | . 33 | . 13 |
| Police and detectives | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .01 | .00 | . 00 |
| Laborers, except farm | 3.42 | 3.55 | 4.45 | 1.72 | 1.69 | 1.67 | 2.46 | 2.53 | 3.00 |
| Carpenter helfers | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Constr labrexc carpenter helpr | . 04 | . 04 | . 04 | . 05 | . 04 | . 04 | . 08 | . 08 | . 08 |
| Freight and material handlers | 1.95 | 2.04 | 2.68 | . 81 | . 78 | . 79 | 1.17 | 1.23 | 1.65 |
| Garāenrs, groundkeepers, exc farm | . 02 | . 03 | . 05 | . 04 | . 05 | . 04 | . 05 | . 06 | . 08 |
| Stock handlers | . 51 | . 57 | . 60 | . 45 | . 49 | . 48 | . 45 | . 49 | . 51 |
| Teamsters | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Vehicle washers, equip cleaners | -18 | - 20 | .21 | . 09 | . 09 | -10 | - 17 | . 18 | .17 |
| Warehouse labcrers, other | . 13 | - 12 | . 14 | . 13 | . 11 | . 07 | . 09 | .06 | . 02 |
| otner laborers | . 56 | . 54 | . 72 | . 14 | . 13 | . 14 | . 46 | . 43 | . 48 |

Transport-
ation
equipment
$1970 \quad 1978 \quad 1990$

## Motor vehicles, equipment

1970

1978
1990

1970
Aircraft and parts
$100.00 \quad 100.00 \quad 100.00$

| 14.36 | 13.45 | 11.45 |
| :---: | :---: | :---: |
| 6.93 | 5.90 | 5.43 |
| 2.47 | 2.08 | 2.00 |
| . 06 | . 05 | . 04 |
| . 16 | . 10 | . 09 |
| 1.03 | . 78 | . 64 |
| . 99 | . 95 | . 88 |
| 1.76 | 1.56 | 1.45 |
| . 11 | - 10 | . 08 |
| . 05 | . 04 | . 03 |
| - 30 | . 25 | -22 |
| . 20 | . 18 | . 15 |
| .01 | .01 | . 01 |
| . 00 | . 01 | . 00 |
| . 14 | - 12 | . 11 |
| .04 | . 04 | . 03 |
| . 01 | . 01 | .01 |
| . 09 | . 08 | . 06 |
| . 02 | - 02 | . 02 |
| .06 | . 05 | . 04 |
| 2.74 | 2.42 | 1.99 |
| . 01 | . 00 | . 00 |
| . 04 | . 04 | . 04 |
| 1.10 | .88 | . 74 |
| . 52 | . 45 | - 34 |
| .17 | . 18 | . 14 |
| .24 | . 26 | - 20 |
| .67 | . 60 | . 52 |
| .09 | . 09 | . 11 |
| . 01 | . 01 | . 03 |
| . 08 | . 08 | . 08 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | .01 |
| . 02 | . 02 | .01 |
| . 17 | . 16 | . 12 |
| . 06 | . 07 | . 05 |
| . 03 | . 02 | . 01 |
| .01 | . 01 | . 00 |
| .03 | . 02 | . 02 |
| . 04 | . 04 | . 04 |
| . 71 | . 80 | . 57 |
| .43 | . 44 | -32 |
| .23 | . 29 | . 21 |
| . 05 | . 07 | . 04 |
| .18 | . 27 | . 23 |
| .17 | . 26 | . 22 |
| . 03 | . 01 | . 01 |
| . 06 | . 05 | . 02 |
| .06 | . 05 | . 02 |
| .87 | . 99 | . 80 |
| . 10 | . 11 | .11 |
| - 30 | .40 | . 37 |
| . 07 | . 07 | . 07 |
| . 08 | . 08 | . 03 |
| . 06 | . 05 | . 06 |
| .07 | . 08 | . 07 |
| . 20 | . 20 | .10 |

$100.00 \quad 100.00 \quad 100.00$
$100.00 \quad 100.00 \quad 100.00$

| 7.86 | 8.23 | 7.45 | 26.04 | 27.11 | 27.30 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2.99 | 2. 84 | 2.73 | 14.15 | 13.85 | 15.77 |
| .01 | - 01 | . 01 | 7.03 | 7.28 | 9.19 |
| . 03 | - 03 | .03 | . 12 | . 12 | . 11 |
| . 04 | - 03 | .04 | -33 | . 25 | . 25 |
| . 17 | -16 | - 15 | 2.23 | 2.03 | 1.95 |
| . 75 | .77 | .75 | 1.61 | 1.64 | 1.74 |
| 1.69 | 1. 58 | 1.50 | 2.08 | 1.88 | 1.96 |
| . 06 | . 06 | .06 | .20 | - 20 | - 18 |
| . 05 | . 04 | . 03 | . 07 | .05 | .04 |
| . 18 | - 16 | . 16 | . 47 | . 40 | . 36 |
| .10 | - 10 | .10 | . 35 | . 38 | .36 |
| .00 | . 00 | .00 | .02 | . 04 | . 04 |
| .00 | - 00 | .00 | .01 | .02 | . 01 |
| .09 | -09 | . 10 | . 22 | - 22 | . 22 |
| . 01 | . 01 | .01 | . 09 | .09 | . 06 |
| . 00 | .00 | .00 | .01 | .01 | . 02 |
| .06 | . 06 | .05 | .17 | .17 | . 16 |
| .01 | .01 | .01 | . 05 | .07 | . 08 |
| .05 | .05 | . 04 | . 12 | - 11 | . 09 |
| 1.68 | 1. 58 | 1.37 | 4.44 | 4.44 | 4. 15 |
| . 00 | . 00 | .00 | .07 | .02 | . 02 |
| .03 | . 03 | . 03 | . 07 | .07 | . 09 |
| - 88 | . 73 | -67 | 1.38 | 1.13 | 1.04 |
| . 06 | . 08 | .09 | 1. 10 | 1.19 | 1.06 |
| .08 | - 10 | - 10 | . 34 | .41 | . 35 |
| . 29 | . 33 | . 29 | . 32 | . 34 | . 25 |
| . 33 | . 31 | . 21 | 1.22 | 1.27 | 1.33 |
| - 11 | - 10 | . 13 | .09 | . 09 | . 13 |
| . 01 | . 01 | - 02 | . 01 | . 01 | . 05 |
| . 10 | . 09 | .11 | .08 | .08 | .09 |
| .00 | . 00 | . 00 | . 02 | .03 | . 03 |
| - 00 | . 00 | . 00 | .01 | .01 | . 02 |
| . 00 | . 00 | .00 | .01 | .01 | . 01 |
| .03 | . 04 | .05 | -39 | .43 | . 36 |
| . 01 | . 02 | .01 | . 16 | . 21 | . 20 |
| .00 | . 00 | .00 | .08 | .06 | . 05 |
| . 00 | - 00 | . 00 | . 01 | . 01 | . 00 |
| .01 | .01 | . 02 | .07 | .06 | . 03 |
| . 01 | .01 | .02 | .07 | .09 | . 08 |
| . 40 | . 52 | . 46 | 1.37 | 1.70 | 1. 25 |
| -25 | - 29 | . 27 | . 82 | . 91 | . 72 |
| . 13 | - 20 | . 18 | . 44 | . 60 | . 42 |
| .02 | . 03 | . 02 | . 12 | . 20 | .11 |
| .19 | -29 | . 26 | . 24 | . 39 | .35 |
| - 19 | - 29 | - 26 | -23 | . 36 | .32 |
| - 00 | . 00 | . 00 | .01 | .03 | .03 |
| . 03 | . 03 | .01 | .07 | .07 | . 02 |
| . 03 | .03 | .01 | .07 | .07 | . 02 |
| . 54 | . 66 | . 56 | 1.36 | 1.56 | 1. 26 |
| . 03 | . 04 | . 04 | . 23 | . 26 | . 24 |
| . 32 | -39 | . 32 | .12 | . 14 | .16 |
| -02 | - 02 | .02 | . 14 | . 17 | - 22 |
| . 00 | . 00 | .00 | . 23 | . 27 | . 15 |
| . 02 | . 02 | .04 | - 12 | - 12 | .16 |
| . 07 | - 08 | .07 | .08 | - 11 | . 08 |
| .09 | - 10 | . 08 | .43 | . 48 | . 25 |


|  | Transportation equipment |  |  | Motor vehicles, equipment |  |  | Aircraft and parts |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 2.31 | 2.49 | 1.96 | 1.74 | 2.01 | 1.72 | 3.41 | 4.01 | 3.46 |
| Accountants | 1.08 | 1.22 | 1.19 | . 99 | 1. 13 | 1.12 | 1.42 | 1.70 | 1.93 |
| Architects | . 06 | . 03 | . 03 | . 01 | . 01 | . 01 | . 02 | .01 | .01 |
| Lawyers | . 06 | . 09 | . 05 | .06 | . 09 | . 05 | . 08 | . 14 | . 11 |
| Librarians | . 03 | . 02 | . 01 | .01 | -01 | . 01 | . 06 | . 04 | .01 |
| operations and systems research | . 53 | . 62 | . 40 | .21 | - 29 | - 22 | 1.07 | 1.40 | 1.04 |
| Personnel, labcr relations wkrs | . 46 | . 45 | . 27 | . 43 | . 45 | . 31 | . 60 | . 59 | . 32 |
| other research workers | . 09 | . 06 | . 02 | . 05 | . 03 | . 02 | . 18 | . 12 | . 03 |
| Vocation, education counselors | .00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Managers, officials, proprietors | 4.32 | 5.07 | 5.34 | 3.12 | 3.70 | 3.86 | 5.61 | 6.87 | 6.79 |
| Buyers,sales,lcan managers | 1.06 | . 97 | 1.11 | . 79 | . 74 | . 76 | 1.38 | 1.21 | 1.04 |
| Bank, financial managers | . 14 | . 12 | . 08 | . 09 | . 08 | . 07 | . 22 | .19 | . 09 |
| credit managers | . 02 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Purchasing agents,buyers,otaer | . 68 | . 58 | . 60 | . 41 | . 36 | . 34 | 1.02 | . 87 | . 78 |
| sales manager, exc retail trade | .23 | . 27 | .41 | .26 | . 29 | . 34 | . 14 | . 15 | .17 |
| Other managers, officials, proprts | 3.27 | 4. 10 | 4.22 | 2.33 | 2.96 | 3.10 | 4.23 | 5.66 | 5.75 |
| Mgrs, superintendents, building | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Oftice managers, other | .11 | . 12 | . 16 | . 10 | - 10 | . 12 | . 09 | . 09 | . 09 |
| officers, pilots, pursers, sinip | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other managers, administrators | 3.13 | 3.95 | 4.03 | 2.22 | 2. 84 | 2.96 | 4.13 | 5.56 | 5.63 |
| Sales workers | . 62 | . 71 | . 95 | . 75 | . 81 | 1.10 | . 39 | .46 | .73 |
| Other sales workers | .62 | .71 | . 95 | .74 | .81 | 1.10 | .39 | . 45 | . 73 |
| Clerical workers | 12.25 | 11.10 | 9.25 | 10.31 | 10.02 | 8.92 | 16.23 | 14.67 | 10.68 |
| Stenoyraphrs, typists, secretaries | 3.27 | 2.92 | 2.71 | 2.46 | 2.39 | 2.28 | 4.82 | 4.43 | 4.31 |
| Legal secretaries | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 |
| other secretaries | 2.21 | 2. 17 | 2.21 | 1.66 | 1.72 | 1.71 | 3.34 | 3.37 | 3.78 |
| Stenographers | . 17 | . 10 | .06 | . 12 | . 10 | .10 | . 24 | . 13 | . 03 |
| Typists | . 88 | . 64 | .43 | . 66 | . 56 | .46 | 1.21 | .92 | . 49 |
| Cffice machine operators | . 98 | 1.04 | -66 | . 92 | 1.01 | . 78 | 1.39 | 1.55 | . 80 |
| Bookkeefing and billing | . 03 | . 01 | . 01 | . 02 | . 01 | .00 | .04 | . 02 | .01 |
| calculating | . 04 | . 02 | . 01 | . 07 | . 04 | .01 | . 02 | . 01 | .01 |
| Computer and feripheral equip | . 30 | . 58 | . 39 | . 24 | . 52 | . 40 | .47 | .93 | . 60 |
| Duplicating | . 06 | . 04 | . 02 | . 03 | . 03 | . 02 | . 11 | . 08 | . 04 |
| Keypunch | . 48 | . 34 | . 20 | . 49 | - 37 | . 31 | . 63 | . 42 | - 13 |
| Tabulating | . 02 | . 01 | . 00 | . 02 | . 01 | . 00 | . 02 | .01 | . 00 |
| Other office machine operators | .06 | . 05 | . 02 | . 05 | . 04 | . 03 | . 09 | . 08 | . 02 |
| Other clerical workers | 8.00 | 7. 13 | 5.88 | 6.94 | 6.62 | 5.87 | 10.02 | 8.69 | 5.56 |
| Billing clerks | . 07 | . 09 | . 10 | - 11 | . 12 | . 11 | . 04 | . 04 | . 05 |
| Bookkeefers | .80 | . 79 | .81 | . 75 | .75 | .76 | . 77 | . 73 | . 63 |
| Cashiers | . 05 | . 05 | . 05 | .06 | . 06 | .07 | .05 | . 05 | . 04 |
| Clerical supervisors, other | . 15 | . 14 | . 11 | .13 | . 15 | . 14 | .17 | . 13 | . 03 |
| collectors, bill and account | . 01 | . 01 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Counter cleiks.exc food | . 12 | . 12 | .11 | . 14 | .14 | . 13 | .11 | . 10 | . 05 |
| Dispatchers, starters, vehicle | . 04 | . 04 | . 05 | . 02 | . 02 | . 02 | .06 | . 07 | . 07 |
| Enumerators and interviewers | . 41 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Estinators, investigators, other | . 40 | . 37 | . 23 | . 21 | . 23 | . 15 | . 44 | .42 | . 14 |
| expediters, prcduction controlrs | 1.46 | 1.31 | 1.08 | . 90 | . 92 | . 91 | 2.50 | 2.36 | 1.76 |
| File clerks | . 31 | . 23 | -22 | . 19 | . 17 | . 18 | -.47 | 2.36 | . 26 |
| Library attendants, assistants | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 07 | . 06 | . 01 |
| Hail handlers, exc fost office | . 10 | - 10 | . 09 | - 10 | - 10 | . 09 | . 10 | . 09 | . 09 |
| Messengers and office intpers | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Payroll, timekeeping clerks | . 37 | - 38 | . 28 | . 36 | . 37 | . 28 | . 33 | . 31 | . 17 |
| Eeceptionists | . 11 | . 10 | . 07 | . 09 | . 08 | . 05 | . 11 | .09 | . 05 |
| Shipping and receiving clerks | . 64 | . 64 | . 74 | . 86 | . 82 | . 98 | -49 | . 44 | -43 |
| Statistical clerks | . 39 | . 37 | . 26 | . 28 | . 31 | . 28 | . 62 | . 58 | . 29 |
| Stock clerks and store keepers | 1.60 | 1.20 | . 79 | 1.55 | 1.21 | . 82 | 1.84 | 1.36 | . 63 |
| Telephone operators | . 11 | . 07 | .05 | . 09 | . 06 | . 05 | . 13 | . 10 | . 10 |
| weighers | . 02 | . 03 | . 02 | . 03 | . 03 | . 03 | . 01 | . 01 | . 02 |
| Misc clerical workers | 1.21 | 1.09 | . 80 | 1.03 | 1.06 | . 82 | 1.65 | 1.35 | . 72 |
| Crafts and kindred workers | 26.73 | 25.82 | 27.63 | 20.78 | 19.60 | 21.11 | 23.73 | 24.43 | 29.74 |


|  | $\begin{aligned} & \text { Transport- } \\ & \text { ation } \\ & \text { equipment } \end{aligned}$ |  |  | Motor vehicles, equipment |  |  | Aircraft and parts |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 6.35 | 6. 38 | 6.58 | 2.84 | 2.87 | 2.92 | 2.72 | 2.71 | 2.87 |
| carpenters and apfrentices | 2.06 | 2.32 | 2.27 | . 27 | . 29 | - 31 | . 28 | . 28 | . 23 |
| Brick, stonemasons, apprentices | . 03 | . 03 | . 02 | . 04 | . 03 | . 01 | . 02 | . 01 | . 00 |
| Bulldozer oferators | . 04 | . 04 | . 05 | . 07 | . 06 | . 07 | . 01 | . 01 | . 03 |
| Electricians and apprentices | 1.93 | 1.88 | 2.10 | 1.24 | 1.33 | 1.56 | 1.59 | 1.62 | 1.71 |
| Excavating.grading mach operatr | . 02 | . 02 | -02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 |
| floor layers, exc tile setters | . 07 | . 05 | . 11 | . 02 | .01 | . 00 | .01 | . 01 | .01 |
| Painters and apprentices | . 90 | . 84 | . 62 | . 51 | . 42 | .24 | . 44 | . 41 | - 36 |
| Plumbers, pipetitters, aprentices | 1.17 | 1.08 | 1.24 | . 67 | . 71 | . 71 | . 31 | . 31 | - 42 |
| koofers and slaters | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Structural metal craft workers | . 11 | -09 | . 08 | . 01 | . 01 | . 01 | . 06 | . 05 | . 09 |
| Tile setters | . 02 | . 01 | . 03 | . 00 | .00 | .00 | .00 | .00 | .00 |
| Blue collar worker supervisors | 3.02 | 3. 12 | 3.11 | 1.26 | 1.26 | .93 | 4.27 | 4.72 | 5.37 |
| Metalworkg craft wrkrs, exc mech | 8.20 | 7.51 | 7.84 | 7.83 | 7.33 | 7.46 | 8.80 | 8.52 | 10.51 |
| Blacksmiths | . 03 | . 02 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 17 | . 13 | .11 | . 01 | . 02 | . 04 | .00 | . 00 | . 00 |
| Heat treaters, annealers | .17 | . 17 | . 15 | . 22 | . 22 | - 20 | . 21 | .21 | . 21 |
| Porge and hammer operators | . 10 | - 10 | . 09 | . 13 | . 13 | - 12 | . 09 | . 09 | - 10 |
| Job and die setters, metal | 1.01 | . 91 | . 76 | 1.96 | 1.61 | 1.28 | . 42 | . 36 | . 35 |
| Machinists and apprentices | 2.70 | 2.57 | 2.73 | 1.32 | 1.45 | 1.61 | 3.49 | 3.62 | 3.97 |
| Millwrights | . 46 | - 58 | . 57 | . 91 | 1.06 | 1.02 | . 15 | . 16 | - 18 |
| Molders, metal and apprentices | . 22 | - 24 | . 34 | . 24 | . 23 | . 27 | . 10 | . 11 | . 17 |
| Pattern and moldmakers | .47 | - 36 | . 40 | . 48 | . 38 | .44 | . 56 | .45 | . 60 |
| Rollers and finishers,metal | . 03 | .03 | . 04 | . 04 | . 04 | . 04 | .01 | . 01 | . 02 |
| Sheetmetal workers, apprentices | 1.24 | . 96 | . 97 | . 37 | . 33 | . 37 | 1.99 | 1.79 | 2.24 |
| Tool and diemakers, apprentices | 1.60 | 1.45 | 1.69 | 2.15 | 1.88 | 2.08 | 1.79 | 1.72 | 2.65 |
| Mechanics, repairers, installers | 6.58 | 6.45 | 7.63 | 7.60 | 7.07 | 8.60 | 7.08 | 7.66 | 10.04 |
| Air cond, heating, refrig mech | . 13 | . 15 | . 18 | . 08 | . 11 | . 10 | . 14 | . 18 | -18 |
| Aircraft mechanics | 1.83 | 1. 62 | 1.77 | . 02 | . 02 | . 03 | 5.19 | 5.61 | 7.95 |
| Auto accessories installers | .03 | . 03 | . 02 | . 08 | . 06 | . 03 | . 00 | . 00 | . 00 |
| Auto body refairers | . 14 | . 11 | . 10 | . 32 | . 23 | . 21 | .00 | . 00 | . 00 |
| Auto mechanics and apprentices | 2.08 | 1.96 | 2.61 | 4.68 | 3.94 | 5.20 | . 14 | - 12 | . 07 |
| Data processing mach repairers | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | . 04 | . 05 | . 07 |
| Farm implement mechanics | . 00 | . 01 | . 01 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 1.52 | 1.83 | 2.17 | 2.10 | 2.41 | 2.79 | . 89 | 1.02 | 1.03 |
| Household appliance mechanics | . 02 | . 03 | . 07 | . 01 | .01 | . 01 | . 01 | . 01 | . 02 |
| Office machine repairers | .01 | . 01 | . 02 | .01 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Radio, television repairers | . 22 | - 14 | . 18 | .04 | . 03 | . 03 | . 20 | . 18 | - 23 |
| Railroad, car shop repairers | . 08 | . 11 | .16 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Other mechanics and apprentices | .49 | . 44 | .33 | .25 | . 24 | . 15 | .45 | .47 | . 45 |
| printing trade crafts workers | - 11 | - 12 | - 10 | . 08 | . 09 | - 10 | - 16 | . 16 | - 14 |
| compositors and typesetters | . 04 | . 04 | . 03 | .03 | . 04 | . 03 | . 04 | . 05 | . 04 |
| Engravers exc photoengravers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 03 | .03 |
| Photoengravers, lithographers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Press, plate printers,aprentices | . 05 | . 06 | . 06 | .04 | . 05 | . 07 | . 08 | . 08 | . 05 |
| Tcansport, public util craft wirs | . 06 | - 05 | . 05 | . 04 | . 04 | . 02 | . 03 | . 04 | . 05 |
| Power station operators | . 02 | . 02 | . 02 | . 03 | . 03 | . 01 | . 02 | -02 | . 04 |
| Telephone installers, repairers | . 02 | . 02 | . 02 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Other crafts, kindred workers | 2.40 | 2.20 | 2.32 | 1.14 | . 94 | 1.08 | . 68 | .63 | . 77 |
| Cabinetmakers | . 28 | . 30 | - 30 | . 01 | . 01 | .01 | . 02 | . 02 | . 01 |
| Carpet installers | . 03 | . 04 | . 10 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| crane, derrick, hoist operator | . 49 | . 44 | -58 | . 49 | . 42 | . 57 | . 18 | . 16 | . 28 |
| Purniture and wood finishers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Glaziers | . 04 | . 05 | . 07 | . 06 | . 07 | . 10 | .01 | .01 | . 02 |
| Inspectors, other | -17 | . 19 | . 23 | .09 | . 11 | - 14 | . 06 | . 08 | . 09 |
| opticians, lens grinder, folisher | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Shipfitters | . 54 | . 49 | .35 | . 00 | . 00 | . 00 | .01 | .01 | . 02 |
| Sign painters and letterers | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | .01 | . 01 | .01 |
| Stationary engineers | . 19 | -13 | . 08 | - 17 | . 08 | . 07 | . 22 | . 20 | - 20 |
| Upholsterers | . 15 | - 11 | - 10 | .22 | - 14 | . 13 | - 10 | . 06 | . 04 |
| Other crafts workers | . 49 | . 43 | .47 | .09 | . 08 | . 05 | .06 | . 07 | . 09 |
| Operatives | 36.09 | 38.56 | 41.15 | 49.79 | 51.00 | 52.63 | 25.15 | 24.09 | 23.43 |
| Operatives,except transport | 33.76 | 35. 88 | 37.93 | 46.05 | 46.91 | 47.83 | 24.43 | 23.36 | 22.73 |


|  | Transportation equipment |  |  | Motor vehicles, equipment |  |  | Aircraft and parts |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled metalworking | 10.05 | 9. 50 | 8.44 | 12.95 | 11.27 | 9.24 | 6.33 | 5.10 | 4. 16 |
| Drill press oferatives | . 53 | - 37 | . 19 | -61 | . 42 | . 20 | . 57 | . 38 | . 17 |
| Furnace tendrs, smeltrs, pourers | . 22 | . 24 | .27 | . 37 | . 39 | . 45 | . 10 | . 10 | . 09 |
| Grinding machine operatives | 1.29 | . 99 | . 62 | 1.77 | 1.35 | . 87 | 1.33 | . 99 | . 62 |
| Heaters, metal | . 03 | .03 | .01 | . 06 | . 05 | . 02 | . 02 | . 02 | . 02 |
| Lathe,milling mach operatives | 1.23 | . 81 | . 53 | 1.13 | . 75 | . 46 | 1.80 | 1.26 | 1.05 |
| Metal platers | . 15 | - 14 | . 08 | . 15 | . 12 | . 04 | . 20 | . 21 | . 18 |
| other precision mach operators | . 48 | . 36 | . 25 | .71 | . 50 | . 30 | . 43 | . 33 | . 32 |
| Punch, stamping press operatives | 1.52 | 1. 31 | 1.00 | 3.02 | 2. 30 | 1.59 | -41 | . 33 | . 24 |
| Solderers | . 14 | . 09 | . 02 | . 14 | . 07 | . 00 | . 19 | . 16 | . 08 |
| Welders and flamecutters | 4.48 | 5. 16 | 5.47 | 5.00 | 5.32 | 5.31 | 1.30 | 1.32 | 1.38 |
| Semiskilled packing, inspecting | 4.73 | 4. 90 | 5.59 | 6.48 | 6.79 | 8.43 | 4.60 | 4.44 | 4.49 |
| Checkers, examiners, mfy | 4.20 | 4.39 | 5.05 | 5.66 | 5.98 | 7.46 | 4.25 | 4.16 | 4.32 |
| Graders and scrters, mfg | . 03 | . 03 | . 04 | . 04 | . 04 | . 05 | . 02 | . 02 | . 04 |
| Packer,wrapper,exc meat, prodce | . 50 | . 49 | . 50 | . 78 | . 77 | . 92 | .33 | . 26 | . 12 |
| Other operatives, exc transport | 18.99 | 21.48 | 23.90 | 26.61 | 28.86 | 30.15 | 13.49 | 13.83 | 14.09 |
| Asbestos, insulation workers | . 10 | . 14 | . 13 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Assemblers | 9.62 | 11.83 | 14.68 | 15.54 | 18.20 | 21.32 | 6.59 | 7.29 | 9.14 |
| Cutting operatives, other | . 46 | . 52 | . 62 | . 57 | . 59 | . 59 | .21 | . 21 | . 18 |
| Drillers, earth | . 05 | . 03 | . 01 | . 00 | . 00 | . 00 | . 14 | . 10 | . 02 |
| Filer, polisher, sander, buffer | . 81 | . 76 | . 58 | 1.20 | 1.06 | . 71 | . 69 | . 65 | . 60 |
| Garage urkr.gas station atten | . 02 | . 01 | . 02 | . 03 | . 02 | . 02 | .00 | . 00 | . 00 |
| Mixing operatives | . 07 | . 07 | . 08 | . 11 | . 11 | . 12 | . 05 | . 05 | . 03 |
| Oilers,greasers,exc automobiles | . 15 | . 17 | . 20 | . 25 | . 27 | . 37 | . 09 | . 08 | . 07 |
| Painters, mfg articles | 1.58 | 1.43 | 1.30 | 2.30 | 1.89 | 1.52 | . 76 | . 59 | . 39 |
| Photographic frocess workers | . 12 | . 11 | . 08 | . 05 | . 05 | . 03 | - 23 | . 22 | . 21 |
| Riveters and fasteners | - 30 | . 28 | . 29 | . 14 | - 14 | . 12 | . 48 | . 45 | . 39 |
| Sailors and deckhands | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 20 | . 21 | . 22 | . 08 | . 09 | . 11 | . 13 | . 12 | . 08 |
| Sewers and stitchers | . 26 | - 20 | . 42 | - 39 | - 35 | . 44 | . 08 | . 07 | . 08 |
| Furnace tendr,stokr,exc metai | - 15 | . 09 | . 07 | . 14 | - 10 | . 08 | .18 | . 12 | . 09 |
| Winding operatives, other | . 09 | . 09 | .06 | . 12 | . 11 | . 07 | . 06 | . 05 | . 03 |
| Miscellaneous machine operatves | 2.50 | 2.70 | 2.42 | 3.26 | 3.40 | 3.01 | 2.05 | 2.08 | 1.74 |
| other oferatives, exc transport | 2.49 | 2.77 | 2.72 | 2.41 | 2.49 | 1.67 | 1.75 | 1.73 | 1.01 |
| Transport equipment operatives | 2.33 | 2.68 | 3.22 | 3.75 | 4.08 | 4.80 | . 73 | . 72 | . 70 |
| Bus drivers | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Delivery and route workers | . 12 | . 13 | . 20 | . 13 | . 13 | . 21 | . 07 | . 07 | .11 |
| Fork lift, tow motor operatives | 1.07 | 1.31 | 1.29 | 1.98 | 2.20 | 1.96 | . 31 | . 32 | . 22 |
| Parking attendants | . 00 | .01 | . 01 | . 01 | .01 | .01 | .00 | .00 | . 00 |
| Railroad brake operators | . 01 | . 01 | . 03 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 01 | . 02 | .03 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Taxicab drivers, chaufieurs | . 19 | . 21 | . 20 | . 40 | . 40 | . 41 | . 03 | . 03 | .01 |
| truck drivers | . 89 | .97 | 1.45 | 1.19 | 1.29 | 2.17 | . 31 | . 30 | -36 |
| Service workers | 2.36 | 2.12 | 1.47 | 2.97 | 2.60 | 1.77 | 1.84 | 1.55 | .91 |
| Cleaning service workers | 1.42 | 1. 27 | .77 | 1.99 | 1.68 | . 86 | . 94 | . 76 | - 34 |
| Bldg interior cleaners, other | . 25 | . 24 | . 16 | . 37 | . 31 | . 13 | . 11 | . 11 | . 06 |
| Janitors and sextons | 1.17 | 1.03 | . 62 | 1.62 | 1.37 | . 73 | .83 | . 66 | . 28 |
| Food service wcrkers | . 14 | - 11 | . 08 | . 14 | . 11 | . 08 | . 17 | . 14 | - 12 |
| Cooks, exc private housenolds | . 04 | . 03 | . 02 | . 04 | . 03 | . 03 | . 04 | . 03 | . 02 |
| Dishwashers | . 01 | . 01 | . 01 | .01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 04 | . 03 | . 03 | . 03 | . 03 | . 01 | . 06 | . 06 | . 07 |
| Waiters | . 02 | . 01 | . 01 | . 02 | . 01 | .01 | . 02 | .01 | .01 |
| Other food serv wirs, exc privt | . 03 | . 02 | . 01 | . 04 | . 03 | .02 | . 04 | . 03 | .01 |
| Personal service vorkers | . 03 | . 03 | . 03 | . 06 | . 05 | . 03 | . 01 | . 01 | .03 |
| Flight attendants | . 00 | . 00 | . 01 | . 00 | .00 | .00 | .01 | .01 | . 03 |
| Attendants, personal serv, other | . 01 | . 01 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Elevator operators | . 01 | .01 | .01 | . 02 | . 02 | .01 | . 00 | .00 | . 00 |
| Housekeepers, exc private hones | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Protective service workers | . 76 | . 70 | . 59 | . 78 | . 76 | . 80 | . 71 | . 64 | . 42 |
| Firefighters | . 05 | . 04 | . 03 | . 02 | . 02 | . 02 | . 05 | . 05 | . 04 |
| Guards | . 69 | . 66 | . 56 | . 75 | .74 | . 77 | . 65 | . 59 | . 38 |
| Police and detectives | . 02 | . 01 | .01 | .01 | . 01 | . 01 | .01 | . 01 | . 00 |

Table 1. Percent distribution of industry employment by occupation,
1970, 1978 and projected 1990


| Transport- <br> ation <br> equipment |  |  |
| :---: | :---: | ---: |
| 1970 | 1978 | 1990 |
|  |  |  |
| 3.28 | 3.17 | 2.77 |
| .11 | .10 | .16 |
| .25 | .20 | .17 |
| 1.00 | 1.04 | 1.08 |
| .04 | .04 | .04 |
| .03 | .04 | .07 |
| .55 | .57 | .31 |
| .01 | .01 | .01 |
| .35 | .32 | .20 |
| .12 | .10 | .10 |
| .81 | .74 | .65 |


| motor vehicles, equipment |  |  | Aircraft and parts |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| 4.41 | 4.06 | 3.16 | 1.01 | . 82 | . 43 |
| . 02 | . 02 | . 05 | . 01 | . 01 | .03 |
| . 07 | . 05 | . 03 | . 09 | . 06 | . 02 |
| 1.67 | 1.60 | 1.48 | . 39 | . 34 | . 23 |
| . 04 | . 04 | . 03 | . 04 | . 04 | .03 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| 1.09 | 1.02 | . 49 | . 16 | . 13 | . 05 |
| .01 | .01 | . 01 | .00 | . 00 | . 00 |
| -48 | . 41 | . 28 | . 11 | . 10 | . 04 |
| . 08 | . 09 | - 14 | . 05 | . 04 | . 01 |
| . 95 | . 81 | . 65 | . 17 | - 10 | . 02 |


|  | ship,boat building and repair |  |  | Railroad equipment |  |  | $\begin{aligned} & \text { Mobile } \\ & \text { dwellings } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 10.65 | 9.70 | 9.74 | 8.50 | 8.69 | 7.52 | 2.20 | 2.38 | 2.60 |
| Engineers, technical | 4.13 | 3.43 | 3.89 | 3.13 | 2. 84 | 2.42 | . 43 | -44 | - 58 |
| Aeronautical | . 04 | . 05 | . 05 | .03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Chemical | .03 | . 02 | . 04 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Civil | . 13 | . 08 | . 08 | . 10 | . 05 | .00 | . 04 | . 02 | . 00 |
| Electrical | 1.14 | . 79 | . 94 | . 40 | - 39 | .39 | .03 | . 04 | . 07 |
| Industrial | . 56 | . 53 | . 53 | . 68 | . 74 | .74 | . 18 | . 21 | . 30 |
| Mechanical | 1.87 | 1. 65 | 1.97 | . 96 | . 80 | . 45 | . 08 | . 07 | . 06 |
| Metallurgical | . 08 | . 06 | . 05 | .07 | . 09 | . 18 | . 00 | . 00 | . 00 |
| Sales | . 02 | . 01 | . 01 | -10 | . 04 | .00 | . 02 | .01 | . 00 |
| other engincers | . 28 | - 22 | -22 | . 79 | . 70 | .65 | . 09 | .09 | . 14 |
| Life and physical scientists | . 21 | - 14 | - 10 | . 10 | - 12 | . 18 | . 01 | . 01 | . 02 |
| -Chemists | .12 | . 07 | . 04 | - 10 | . 12 | . 15 | . 01 | .01 | . 02 |
| Physicists and astronomers | . 07 | . 06 | . 05 | .00 | . 00 | . 03 | . 00 | . 00 | . 00 |
| other life, physical scientists | . 02 | . 01 | .01 | - 00 | . 00 | .00 | .00 | . 00 | .00 |
| Mathematical sfecialists | . 02 | . 01 | . 02 | .03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Mathematicians | .01 | . 01 | . 01 | .01 | .01 | . 01 | .00 | . 00 | . 00 |
| Statisticians | .01 | . 01 | .01 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Engineering, science technicians | 2.71 | 2. 16 | 1.89 | 1.94 | 1.94 | 2.32 | . 52 | . 50 | . 66 |
| Chemical technicians | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Drafters | 1.23 | 1. 00 | . 68 | 1.32 | 1.09 | . 88 | . 44 | . 40 | . 54 |
| Electrical and electronic | . 69 | . 52 | . 44 | . 13 | . 16 | . 20 | . 02 | . 02 | .03 |
| Industrial engineering | . 08 | . 07 | . 07 | .09 | . 15 | . 25 | . 01 | . 02 | . 01 |
| Mechanical engineering | . 04 | . 03 | . 02 | . 01 | . 02 | . 03 | . 00 | .00 | . 00 |
| Surveyors | . 05 | . 03 | . 05 | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 |
| other engineering, science teca | .61 | . 50 | . 61 | .39 | . 53 | .96 | .05 | .06 | . 08 |
| Medical workers, exc technicians | . 07 | . 07 | . 10 | . 13 | . 08 | . 02 | . 05 | .03 | .01 |
| Physicians and osteopaths | .01 | . 01 | . 05 | . 02 | . 01 | . 02 | . 01 | . 00 | . 00 |
| Registered nurses | . 05 | . 06 | . 05 | .11 | . 06 | .01 | . 04 | .03 | .01 |
| Health technolcgists, technicians | . 12 | - 12 | . 09 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Clinical lab technologists, tech | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other health technicians | .11 | .11 | . 07 | . 00 | . 00 | .00 | .01 | .01 | .01 |
| Technicians, except health | . 12 | - 12 | -15 | . 04 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Airplane pilots | . 01 | . 02 | . 04 | . 01 | .01 | . 01 | .00 | . 00 | . 00 |
| Radio operators | . 02 | . 02 | . 01 | .01 | .01 | .01 | . 00 | . 00 | . 00 |
| Tool programers, numerical | . 01 | . 01 | . 01 | . 00 | . 00 | -00 | . 00 | . 00 | . 00 |
| Other technicians except health | . 08 | . 07 | .10 | . 02 | . 02 | . 01 | . 00 | .00 | . 00 |
| Computer specialists | - 33 | - 37 | . 40 | . 31 | . 41 | . 34 | .03 | . 05 | . 07 |
| computer frogramers | .21 | . 21 | . 21 | . 19 | . 20 | . 14 | .01 | .01 | . 02 |
| Computer systems analysts | . 11 | . 14 | -16 | . 10 | - 16 | . 17 | .01 | . 01 | . 02 |
| Other computer specialists | .01 | . 02 | . 02 | .03 | . 05 | . 04 | .01 | . 02 | . 02 |
| Social scientists | . 05 | - 11 | . 09 | . 11 | - 18 | - 18 | . 02 | . 02 | . 01 |
| Economists | .04 | - 10 | . 09 | . 11 | - 18 | - 18 | . 02 | . 02 | . 01 |
| Teachers | .11 | . 08 | . 04 | .03 | . 03 | . 01 | . 02 | . 02 | . 02 |
| Adult educaticn | .11 | . 08 | . 04 | .03 | . 03 | .01 | . 02 | . 02 | .02 |
| Writers, artists, entertainers | . 89 | 1.31 | 1.40 | .53 | . 62 | . 49 | .27 | . 32 | - 29 |
| Athletes and kindred vorkers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Authors | . 07 | - 13 | . 26 | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Designers | . 65 | -99 | . 95 | . 32 | . 38 | . 29 | . 20 | . 23 | . 21 |
| Editors and reforters | . 05 | . 07 | . 08 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Photographers | . 04 | . 03 | . 05 | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Public relations specialists | . 02 | . 02 | . 03 | . 06 | . 07 | . 04 | . 06 | . 08 | . 07 |
| Other writers,artists, entertain | . 04 | . 05 | .03 | . 06 | . 11 | . 14 | . 00 | . 00 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Ship, toat building and repair |  |  | Railroad equipment |  |  | $\begin{aligned} & \text { Mobile } \\ & \text { dvellings } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.88 | 1.78 | 1.57 | 2.16 | 2.41 | 1.53 | . 85 | . 98 | . 94 |
| Accountants | . 68 | . 79 | . 85 | 1.17 | 1.24 | . 74 | . 65 | . 75 | . 73 |
| Architects | . 36 | . 17 | . 15 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Lawyers | . 01 | . 02 | . 01 | . 10 | . 11 | . 01 | . 00 | . 00 | . 00 |
| Librarians | .03 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Operations and systems research | . 37 | . 44 | - 35 | . 41 | . 57 | . 48 | . 02 | . 03 | . 02 |
| Personnel, labcr relations wkrs | - 38 | . 31 | -20 | . 43 | . 45 | . 26 | . 15 | - 16 | - 14 |
| Other research workers | . 03 | . 02 | . 01 | . 04 | . 04 | . 03 | . 02 | . 03 | . 05 |
| kecreation workers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .01 | . 02 | .01 |
| Managers, officials, proprietors | 3.54 | 4.63 | 4.81 | 3.25 | 3.48 | 2.78 | 7.98 | 8.94 | 9.90 |
| Euyers, sales, ican managers | . 67 | . 67 | . 63 | . 95 | . 96 | 1.17 | 2.19 | 2.23 | 2.98 |
| Bank, financial managers | . 09 | . 08 | . 06 | . 06 | . 06 | . 06 | . 16 | . 16 | . 15 |
| Credit ranagers | . 01 | . 01 | . 02 | . 03 | . 01 | . 00 | . 03 | . 02 | . 04 |
| Purchasing agents, buyers, other | . 47 | . 44 | . 42 | . 58 | - 53 | . 57 | 1.27 | 1.17 | 1.43 |
| Sales manager, exc retail trade | . 10 | . 14 | . 14 | . 28 | . 35 | . 54 | . 74 | .87 | 1. 35 |
| Other managers, officials, proprts | 2.87 | 3.96 | 4.18 | 2.29 | 2.52 | 1.61 | 5.79 | 6.71 | 6.93 |
| Mgrs, superintendents, building | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Office managers, other | . 12 | - 14 | . 13 | . 05 | . 06 | . 07 | . 31 | . 35 | . 50 |
| officers, pilots,pursers,ship | . 08 | - 09 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar, managers | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other managers, administratcrs | 2.66 | 3.71 | 3.94 | 2.23 | 2.45 | 1.54 | 5.47 | 6.36 | 6.42 |
| Sales workers | . 29 | . 40 | . 46 | . 50 | . 38 | - 12 | 2.04 | 1.86 | 1.48 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| other sales wrikers | . 29 | . 40 | . 46 | . 49 | . 37 | - 10 | 2.04 | 1.86 | 1.48 |
| clerical workers | 10.48 | 9.33 | 9.15 | 10.74 | 10.77 | 10.79 | 6.28 | 6.28 | 7. 19 |
| Stenographrs, typists, secretaries | 2.36 | 2.03 | 2.12 | 2.92 | 2.70 | 2.50 | 2.07 | 2.02 | 2. 18 |
| Legal secretaries | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other secretaries | 1.20 | 1.36 | 1.64 | 2.08 | 2.07 | 2.03 | 1.88 | 1.88 | 2.06 |
| Stenographers | . 18 | . 08 | . 04 | -19 | . 07 | . 00 | .04 | . 02 | . 01 |
| typists | .96 | - 57 | -42 | . 65 | . 56 | -47 | . 16 | .13 | . 11 |
| ofrice machine operators |  | . 58 | -44 | . 71 | .77 | .61 | . 14 | . 16 | . 19 |
| Bookkeeping and billing | . 03 | . 01 | .01 | . 04 | . 02 | . 02 | . 04 | . 02 | . 05 |
| Calculating | . 01 | -01 | . 01 | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Computer and peripheral efuip | . 18 | . 34 | . 31 | . 15 | . 33 | . 24 | . 03 | . 08 | . 11 |
| Duplicating | . 03 | . 02 | .01 | . 06 | . 07 | . 14 | . 01 | . 01 | . 01 |
| Keypuncb | . 27 | . 18 | .09 | . 42 | . 33 | .17 | . 07 | . 05 | .03 |
| Tabulating | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 |
| other office machine operators | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |


|  | Ship, boat building and repair |  |  | Railroad equipment |  |  | $\begin{aligned} & \text { Mobile } \\ & \text { dwellings } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 7.58 | 6.72 | 6.58 | 7.10 | 7.31 | 7.69 | 4.07 | 4.10 | 4.82 |
| Billing clerks | . 04 | . 04 | . 05 | . 18 | - 22 | . 35 | . 06 | . 06 | . 08 |
| Bookkeefers | . 86 | - 90 | 1.02 | . 65 | . 64 | . 61 | 1.08 | 1.05 | 1.06 |
| Casbiers | . 03 | . 03 | . 02 | .01 | .01 | . 02 | . 01 | . 01 | . 01 |
| Clerical supervisors, other | . 21 | . 18 | . 18 | . 16 | . 18 | . 15 | .00 | . 00 | . 00 |
| counter clerks.exc food | . 09 | . 09 | .11 | . 18 | . 22 | .33 | .06 | . 06 | . 07 |
| Dispatchers, starters, vehicle | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 08 | .09 | . 16 |
| estimators, investigators, other | .98 | . 84 | . 82 | . 37 | . 45 | . 40 | . 04 | . 05 | . 07 |
| Expediters, prcduction controirs | 1.07 | . 99 | . 98 | 1. 12 | 1.26 | 1.57 | . 34 | . 40 | . 59 |
| File clerks | . 37 | . 29 | . 42 | . 15 | . 13 | . 13 | . 03 | . 04 | . 06 |
| Library attendants, assistants | .03 | . 02 | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Mail handlers, exc fost office | . 14 | . 10 | . 09 | . 12 | . 13 | . 14 | . 04 | . 04 | . 07 |
| Messengers and office helpers | . 04 | . 03 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 |
| Payroll, timekeeping clerks | . 46 | . 48 | - 44 | .73 | . 72 | . 39 | - 19 | . 22 | . 22 |
| Receptionists | . 07 | . 08 | . 04 | . 11 | . 12 | . 14 | . 26 | . 25 | . 26 |
| Shipping and receiving clerks | . 25 | . 28 | . 32 | . 58 | . 47 | . 29 | .81 | . 75 | . 80 |
| Statistical clerks | . 27 | - 27 | - 27 | . 33 | . 37 | . 35 | . 07 | . 08 | . 08 |
| Stock clerks and store keepers | 1.49 | . 99 | . 62 | 1.40 | 1.35 | 1.60 | .71 | . 68 | .87 |
| Telephone operators | . 11 | . 06 | . 02 | . 06 | . 03 | .01 | .01 | .01 | . 01 |
| Weighers | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 | .00 | . 00 | . 00 |
| Misc clerical workers | 1.03 | . 98 | 1.11 | . 89 | . 97 | 1.16 | . 27 | . 30 | . 39 |
| Crafts and kindred workers | 48.01 | 46.91 | 48.49 | 27.08 | 26.32 | 25.23 | 39.33 | 37.12 | 30.39 |
| Construction crafts workers | 20.29 | 20.92 | 19.89 | 7.21 | 6.35 | 5.42 | 22.93 | 20.91 | 14.99 |
| Carpenters and apprentices | 7.95 | 9.75 | 8.74 | 1.21 | 1. 14 | . 70 | 14.30 | 13.02 | 7.77 |
| Brick, stonemasons, apprentices | . 04 | . 05 | . 08 | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 03 | . 03 | . 06 | . 04 | . 04 | . 07 | .01 | . 01 | . 02 |
| Cement and concrete finishers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | 4.34 | 3.88 | 4.16 | 1.80 | 1.70 | 1.15 | 3.66 | 3.62 | 3.39 |
| Excavating. grading mach operatr | . 05 | . 05 | . 05 | . 02 | . 02 | . 02 | . 00 | .00 | . 00 |
| Ploor layers, exc tile setters | . 02 | . 01 | . 00 | . 02 | . 01 | . 01 | 1.11 | . 80 | . 89 |
| painters and apprentices | 3.27 | 3. 19 | 2.03 | 1.13 | 1.22 | 1.58 | .45 | . 49 | . 67 |
| Paperhangers | . 00 | . 00 | .00 | . 00 | . 00 | .00 | .01 | .01 | . 00 |
| plasterers and apprentices | .01 | . 01 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| plumbers, fipefitters, aprentices | 4.27 | 3.74 | 4.67 | 1.05 | .71 | . 19 | 2.69 | 2.22 | 1.57 |
| Hoofers and slaters | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 46 | . 55 | .43 |
| Structural metal craft workers | . 26 | . 17 | . 05 | 1.91 | 1.47 | 1.66 | . 03 | . 02 | . 02 |
| Tile setters | . 04 | . 02 | . 02 | . 00 | - 00 | . 00 | .21 | . 17 | . 24 |
| Blue collar worker supervisors | 4.34 | 5. 10 | 6.05 | 4.64 | 4.65 | 3.22 | 4.19 | 4.44 | 4.39 |
| Metalworkg craft wrkrs, exc meca | 10.05 | 8.75 | 10.67 | 6.38 | 5.95 | 5.12 | 3.14 | 2.78 | 2.92 |
| Blacksmiths | . 11 | . 07 | . 03 | . 19 | . 14 | . 03 | .00 | . 00 | . 00 |
| Boilermakers | 1.08 | . 87 | . 65 | . 15 | . 15 | . 19 | . 00 | .00 | . 00 |
| Heat treaters, annealers | . 02 | . 01 | . 01 | . 07 | . 05 | . 01 | . 00 | . 00 | . 00 |
| Forge and hamifer operators | . 03 | . 03 | . 05 | . 26 | . 24 | . 18 | . 02 | . 02 | . 01 |
| Job and die setters, metal | . 03 | . 03 | . 02 | . 42 | - 38 | .43 | . 22 | .21 | . 27 |
| Machinists and apprentices | 5.70 | 5.26 | 7.32 | 2.94 | 2.98 | 2.66 | .17 | . 19 | .23 |
| Millwrights | . 06 | . 10 | . 15 | .41 | . 37 | . 15 | . 06 | . 07 | . 11 |
| Molders, metal and apprentices | . 30 | . 35 | . 45 | . 39 | . 36 | . 37 | .71 | . 69 | . 89 |
| Pattern and meldmakers | . 38 | - 30 | -30 | . 29 | . 20 | . 14 | . 03 | . 02 | . 03 |
| Rollers and finishers,metal | . 03 | . 04 | . 02 | . 05 | . 04 | .01 | . 05 | . 06 | . 09 |
| Sheetmetal workers, apprentices | 2.09 | 1. 50 | 1.28 | . 32 | . 25 | . 14 | 1.73 | 1.40 | 1.11 |
| Tool and diemakers, apprentices | . 24 | . 19 | . 37 | . 91 | . 80 | . 81 | . 15 | . 14 | . 17 |
| Mechanics, $\mathrm{mepairers,installers}$ | 4.48 | 4. 01 | 4.86 | 5.28 | 6.40 | 9.19 | 1.33 | 1.60 | 2.28 |
| Air cond, heating, refriy meca | .25 | . 24 | . 36 | . 12 | .15 | . 14 | . 15 | . 24 | . 34 |
| Aircraft mechanics | .11 | . 14 | . 23 | . 00 | . 00 | .00 | .00 | .00 | . 00 |
| Auto body repairers | . 00 | . 00 | .00 | . 02 | . 01 | .01 | .01 | .01 | . 01 |
| Auto mechanics and apprentices | . 20 | . 13 | . 10 | . 26 | . 29 | . 44 | . 24 | . 23 | . 29 |
| Data processing mach repairers | . 03 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Heavy eguip mech, incl diesel | 1.61 | 1. 94 | 2.59 | 1.71 | 2. 14 | 2.83 | . 39 | . 49 | . 79 |
| Household afpliance mechanics | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 32 | . 37 | . 53 |
| office machine repairers | . 02 | . 02 | . 04 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Radio, television repairers | . 92 | . 49 | . 89 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Failroad, car shop repairers | . 02 | . 03 | . 07 | 2.72 | 3.30 | 5.22 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | 1.31 | 1.00 | . 53 | . 43 | . 48 | . 55 | . 22 | .25 | .31 |
| Printing trade crafts workers | . 11 | . 12 | . 16 | .36 | . 30 | . 09 | . 02 | .01 | . 00 |
| Bookbinders | . 00 | . 00 | . 00 | . 06 | . 04 | . 00 | .00 | .00 | . 00 |
| Compositors and typesetters | . 05 | . 05 | . 07 | . 12 | . 10 | . 00 | .01 | .01 | . 00 |
| Electrotypers and stereotypers | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Engravers exc Ehotoengravers | .01 | . 01 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Photoengravers, lithograpaers | . 00 | . 00 | . 00 | .03 | . 02 | .00 | . 00 | . 00 | .00 |
| press, plate printers, aprentices | . 04 | . 06 | . 09 | . 12 | .13 | .09 | . 00 | .00 | . 00 |


|  | Ship, boat building and repair |  |  | Railroad equipment |  |  | $\begin{aligned} & \text { Mobile } \\ & \text { dyellings } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Iransport, public util craft wxis | . 15 | - 12 | . 12 | . 26 | . 23 | - 31 | . 03 | . 02 | . 02 |
| Blec pur line instaler, repairer | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Locomotive engineers | . 01 | . 01 | .01 | . 12 | . 08 | .01 | . 00 | . 00 | . 00 |
| Locomotive engineers' helpers | . 00 | . 00 | . 00 | . 04 | . 07 | . 29 | . 00 | . 00 | . 00 |
| Power station operators | .01 | . 01 | .01 | . 07 | . 04 | . 00 | . 00 | . 00 | . 00 |
| Telejhone installers,repairers | . 11 | . 08 | . 08 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Telephone line instalr, splicers | .01 | .01 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | 8.59 | 7.89 | 6.74 | 2.94 | 2.44 | 1.89 | 7.69 | 7.35 | 5.79 |
| Bakers | . 01 | . 01 | . 03 | - 00 | . 00 | . 00 | . 02 | . 02 | . 00 |
| Cabinetmakers | . 09 | . 10 | . 04 | . 02 | . 02 | . 01 | 5.46 | 4.86 | 2.47 |
| Carpet installers | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 | -47 | . 60 | . 82 |
| Crane, derrick, hoist operator | 1.16 | 1.04 | 1.50 | 1.87 | 1.46 | 1.26 | . 04 | . 04 | . 06 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 05 | . 06 |
| Furniture and wood finishers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 09 | . 10 | . 16 |
| Glaziers | . 01 | . 01 | .03 | . 00 | . 00 | . 00 | . 14 | . 15 | . 15 |
| Inspectors, other | . 64 | . 68 | -97 | . 65 | . 60 | . 23 | . 03 | .03 | . 02 |
| Jewelers and watchmakers | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| opticians,lens grinder, polisner | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Shipfitters | 3.08 | 3.56 | 2.60 | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Sign painters and letterers | .03 | . 02 | .01 | . 01 | . 01 | . 01 | .01 | . 01 | . 00 |
| Stationary engineers | . 25 | . 16 | . 04 | - 20 | . 17 | . 13 | . 03 | . 02 | . 01 |
| railors | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| UFholsterers | . 13 | . 11 | . 10 | . 03 | . 02 | . 01 | . 05 | . 04 | . 07 |
| Other crafts workers | 2.49 | 2. 11 | 1.33 | . 12 | - 13 | . 19 | 1.32 | 1.44 | 1.98 |
| Operatives | 20.61 | 23.41 | 23.34 | 42.04 | 42.75 | 45.70 | 35.01 | 36.90 | 42.31 |
| Operatives, except transport | 19.29 | 21.99 | 21.29 | 39.99 | 40.52 | 43.15 | 30.47 | 33.02 | 39.46 |
| Semiskilled metalyorking | 10.05 | 11.61 | 12.20 | 20.90 | 20.11 | 19.41 | 3.91 | 3.98 | 4.71 |
| Drill press oferatives | . 16 | . 09 | . 03 | 1.09 | . 90 | . 87 | . 06 | . 05 | . 05 |
| Furnace tenars, smeltrs, pourers | . 08 | . 08 | . 07 | . 38 | . 38 | . 32 | . 05 | . 05 | . 09 |
| Grinding machine operatives | . 17 | - 13 | . 09 | 1.45 | 1.23 | 1.18 | . 06 | . 05 | . 05 |
| Heaters, metal | . 01 | . 01 | .00 | . 08 | . 05 | . 01 | . 00 | . 00 | . 00 |
| Lathe, milling mach operatives | . 43 | . 28 | . 19 | 1.94 | 1.43 | 1.23 | . 11 | .09 | - 12 |
| Metal platers | . 04 | . 03 | . 01 | . 13 | . 15 | . 16 | . 05 | . 05 | . 07 |
| Other precision mach operators | . 05 | . 04 | .01 | . 44 | . 39 | . 53 | . 03 | . 03 | . 06 |
| Punch, stamping press operatives | . 14 | . 11 | . 05 | 1.52 | 1.48 | 1.91 | . 25 | . 24 | . 29 |
| Solderers | . 03 | . 02 | . 0.01 | . 08 | . 07 | . 03 | . 02 | . 01 | . 00 |
| Welders and flamecutters | 8.93 | 10.83 | 11.73 | 13.80 | 14.05 | 13.19 | 3.28 | 3.41 | 3.97 |
| Semiskilled packing, inspecting | 1.13 | 1.12 | 1.44 | 4.03 | 3.84 | 3.47 | 1.42 | 1.41 | 1.58 |
| Checkers, examiners, mifg | . 97 | 1.02 | 1.37 | 3.48 | 3.44 | 3.35 | 1.35 | 1.36 | 1.56 |
| Graders and scrters, mifg | . 02 | . 02 | . 04 | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodice | . 15 | . 08 | . 03 | . 51 | - 38 | . 11 | .07 | . 06 | . 02 |
| Other operatives, exc transport | 8.11 | 9.26 | 7.65 | 15.06 | 16.56 | 20.28 | 25.14 | 27.63 | 33.17 |
| Asbestos, insulation workers | . 62 | . 88 | . 77 | . 00 | . 00 | . 00 | . 19 | . 26 | . 20 |
| Assemblers | . 86 | 1.25 | 1.36 | 3.78 | 4.21 | 4.91 | 8.10 | 9.48 | 13.89 |
| Bottling, canning operatives | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 31 | . 37 | . 34 | . 85 | . 97 | 1.28 | 1.45 | 1.48 | 1.54 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 03 | . 01 |
| Dyers | . 00 | . 00 | .00 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 25 | . 24 | - 10 | . 08 | . 10 | . 19 | . 34 | . 37 | . 52 |
| Garage wrkr,gas station atten | . 02 | . 01 | . 02 | . 02 | . 02 | . 01 | . 04 | . 04 | . 06 |
| Laundry,dry cleang oprs,other | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mixing oferatives | . 01 | . 01 | . 01 | . 04 | . 04 | . 06 | . 03 | . 04 | - 10 |
| 0ilers,greasers,exc automobiles | . 08 | . 06 | .03 | . 17 | . 12 | . 02 | . 01 | . 01 | . 01 |
| Painters, mfg articles | 1.30 | 1.27 | -95 | 2.60 | 2.53 | 3.57 | 1.21 | 1.11 | 1.43 |
| Photographic frocess workers | . 12 | . 12 | - 12 | . 11 | . 13 | . 16 | . 02 | . 02 | . 02 |
| Riveters and fasteners | . 16 | . 19 | . 18 | 1.10 | 1.23 | 1.69 | . 35 | . 40 | . 62 |
| Sailors and deckhands | .06 | . 05 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 08 | . 09 | . 08 | . 18 | . 15 | . 06 | 2.27 | 2.00 | 1.20 |
| Sewers and stitchers | . 10 | . 11 | - 12 | . 16 | - 15 | . 19 | . 87 | . 81 | 1.24 |
| Furnace tendr,stokr, exc metal | . 13 | . 08 | . 09 | . 10 | - 04 | . 01 | . 04 | . 02 | .01 |
| Winding operatives, other | . 02 | . 02 | . 02 | . 43 | . 47 | . 58 | . 01 | . 00 | . 00 |
| Miscellaneous machine operatves | 1.03 | 1.84 | 1.65 | 3.02 | 3.44 | 4.02 | 1.33 | 1.45 | 1.61 |
| Other operatives, exc transport | 2.35 | 2.64 | 1.72 | 2.41 | 2.96 | 3.55 | 8.87 | 10.12 | 10.73 |

Table 1. Eercent distribution of inãostry employment by occupation, 1970, 1978 and projected 1990

|  | Ship, roat building and repair |  |  | Bailroad equipment |  |  | Mobile dwellings |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport equifment operatives | 1.33 | 1.42 | 2.06 | 2.06 | 2.24 | 2.55 | 4.54 | 3.88 | 2.84 |
| Boat operators | . 05 | . 07 | . 07 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Bus drivers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | . 04 | . 00 |
| Delivery and route workers | . 07 | . 08 | . 08 | . 08 | . 08 | - 10 | . 60 | . 52 | . 55 |
| Fork lift, tow motor operatives | . 35 | . 38 | . 45 | 1.08 | 1. 31 | 1.49 | . 72 | . 90 | 1.24 |
| Rail vehicle cperators, other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad brake operators | . 02 | . 03 | . 08 | . 11 | . 14 | . 28 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 15 | . 21 | . 45 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 06 | . 04 | . 00 | . 08 | . 05 | . 01 | . 07 | . 04 | . 00 |
| Truck drivers | . 75 | . 80 | 1.36 | . 56 | . 43 | . 20 | 3.12 | 2.38 | 1.05 |
| Service workers | 1.92 | 1. 68 | 1.01 | 1.78 | 1.71 | 1.41 | 2.60 | 2.37 | 1.81 |
| Cleaning service workers | . 81 | . 75 | . 39 | 1.16 | 1. 11 | . 91 | 1.88 | 1.76 | 1.51 |
| Bldg interior cleaners, other | . 14 | . 14 | . 04 | . 29 | . 30 | . 27 | . 46 | . 48 | . 53 |
| Janitors and sextons | . 67 | . 62 | . 35 | . 87 | . 82 | . 64 | 1.42 | 1.28 | . 98 |
| Food service wcrkers | . 14 | . 11 | .11 | .11 | .09 | .09 | .00 | .00 | . 00 |
| Cooks, exc private households | .05 | . 04 | . 02 | . 01 | . 01 | .01 | .00 | .00 | . 00 |
| food counter, fountain workers | . 02 | . 02 | . 05 | . 04 | . 04 | .03 | . 00 | . 00 | . 00 |
| waiters | . 03 | . 02 | . 02 | . 03 | . 02 | . 01 | . 00 | .00 | . 00 |
| Other food serv wkrs,exc privt | . 03 | . 03 | . 02 | . 03 | . 02 | . 04 | .00 | . 00 | .00 |
| Health service workers | . 02 | . 02 | . 04 | .01 | . 01 | .02 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 01 | . 01 | . 02 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Personal service workers | . 03 | . 03 | . 02 | . 02 | . 02 | . 02 | .01 | . 01 | . 01 |
| Elevator operators | . 01 | . 01 | .01 | . 02 | . 02 | . 02 | .00 | .00 | .00 |
| Housekeepers, exc private homes | . 02 | . 01 | .01 | . 00 | . 00 | - 00 | -01 | .01 | . 01 |
| Protective service workers | . 91 | . 77 | . 45 | .49 | . 48 | . 39 | . 72 | . 60 | . 29 |
| Firefighters | . 17 | . 09 | . 04 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Guards | . 68 | . 65 | . 40 | . 48 | -47 | . 39 | .71 | . 60 | . 29 |
| Police and detectives | .06 | . 03 | . 02 | . 01 | . 01 | . 00 | .01 | .01 | . 00 |
| Laborers, except farm | 4.51 | 3. 93 | 3.01 | 6.11 | 5.90 | 6.44 | 4.56 | 4.16 | 4.33 |
| Carpenter helfers | . 23 | . 24 | . 25 | . 15 | . 14 | . 19 | 1.23 | .93 | . 78 |
| Constr labr,exc carpenter belpr | . 98 | . 72 | . 39 | . 33 | . 30 | - 25 | . 97 | . 89 | . 82 |
| rreight and material handlers | . 44 | - 45 | . 44 | . 93 | . 99 | 1.28 | 1.23 | 1.25 | 1.57 |
| Gardenrs, groundkeepers, exc farm | . 05 | . 04 | . 06 | . 04 | . 04 | . 05 | . 02 | - 02 | . 03 |
| Longshore workers, stevedores | . 20 | . 28 | . 50 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Stock handlers | .09 | . 09 | . 03 | . 29 | . 34 | . 35 | . 19 | . 21 | . 21 |
| Teamsters | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | .01 | . 01 |
| Vehicle washers,equip cleaners | -67 | - 60 | . 24 | . 29 | - 32 | . 34 | . 09 | - 10 | - 12 |
| warehouse labcrers, other | .43 | . 26 | . 16 | . 09 | . 07 | . 02 | . 07 | . 06 | . 05 |
| Other laborers | 1.42 | 1.26 | . 96 | 3.98 | 3.69 | 3.95 | .75 | . 68 | . 74 |

Cycles,
misctrans-
portation
$1970 \quad 1978 \quad 1990$
Professionl
scientific
instruments
$1970 \quad 1978 \quad 1990$

Scientific instruments
$1970 \quad 1978 \quad 1990$

Total all occupations

$100.00 \quad 100.00 \quad 100.00$

| 6.26 | 6.27 | 5.68 |
| :---: | :---: | :---: |
| 2.43 | 2.15 | 1.78 |
| . 08 | . 05 | . 01 |
| . 03 | . 02 | . 01 |
| . 04 | . 02 | . 01 |
| . 24 | . 21 | . 15 |
| . 36 | . 43 | . 64 |
| 1.47 | 1. 23 | . 77 |
| . 08 | . 05 | .01 |
| . 02 | . 01 | .01 |
| . 14 | . 13 | . 19 |
| . 05 | . 06 | .10 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 05 | . 06 | . 07 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .03 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| 1.45 | 1.36 | 1.51 |
| . 00 | - 00 | . 00 |
| . 00 | . 00 | . 00 |
| 1.00 | - 82 | . 75 |
| . 08 | . 09 | . 09 |
| . 02 | . 02 | . 02 |
| . 05 | . 05 | . 07 |
| . 32 | - 38 | . 57 |
| .03 | . 02 | . 01 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 03 | . 02 | . 01 |
| . 02 | . 02 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 00 |
| .00 | . 00 | .00 |
| . 02 | .01 | . 00 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 02 | .01 | . 00 |
| . 17 | . 21 | . 25 |
| . 15 | . 18 | . 22 |
| . 02 | . 03 | .03 |
| .00 | . 00 | . 00 |
| . 10 | - 19 | . 26 |
| . 10 | . 19 | . 26 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 84 | . 99 | . 85 |
| . 58 | . 68 | . 59 |
| . 04 | . 03 | . 01 |
| . 05 | . 03 | . 01 |
| . 09 | . 11 | . 08 |
| . 08 | . 14 | . 17 |

$100.00 \quad 100.00 \quad 100.00$
$16.55 \quad 16.98$
15.56
5.76
5.76
.08
.17
.05
1.42
1.23
1.11
.05
.22
1.41
$100.00 \quad 100.00 \quad 100.00$

| 19.21 | 19.37 | 17.51 |
| :---: | :---: | :---: |
| 7.96 | 7.28 | 6.61 |
| . 19 | - 19 | - 18 |
| . 06 | . 06 | . 05 |
| . 04 | . 03 | . 03 |
| 2.35 | 2.17 | 1.92 |
| 1.50 | 1.54 | 1.43 |
| 1.39 | 1.24 | 1.10 |
| . 10 | . 10 | - 12 |
| . 46 | . 33 | . 27 |
| 1.86 | 1.61 | 1.51 |
| . 46 | . 50 | . 48 |
| . 03 | . 07 | . 09 |
| . 02 | . 03 | . 02 |
| . 20 | . 20 | . 20 |
| . 03 | . 03 | . 04 |
| . 14 | . 13 | . 11 |
| . 04 | . 03 | . 01 |
| . 06 | . 05 | .03 |
| . 04 | . 03 | . 00 |
| . 02 | . 02 | .03 |
| 5.64 | 5.64 | 5.80 |
| . 04 | . 05 | .09 |
| . 08 | . 10 | . 17 |
| 1.95 | 1.60 | 1.52 |
| 1.70 | 1.91 | 2.00 |
| .14 | . 20 | . 29 |
| . 12 | . 15 | . 19 |
| 1.61 | 1.62 | 1.54 |
| . 08 | . 07 | . 03 |
| . 00 | . 00 | . 00 |
| .00 | -00 | . 00 |
| . 00 | . 00 | . 00 |
| . 07 | . 06 | . 03 |
| . 05 | . 07 | . 07 |
| . 02 | . 03 | .03 |
| . 00 | . 00 | . 00 |
| . 02 | . 04 | . 03 |
| . 17 | . 23 | . 28 |
| . 02 | . 03 | . 05 |
| . 05 | . 05 | . 04 |
| - 11 | - 15 | - 19 |
| . 81 | 1.06 | . 99 |
| .46 | - 54 | . 53 |
| . 30 | . 43 | . 39 |
| . 06 | . 10 | . 07 |
| . 24 | . 39 | . 46 |
| . 24 | - 39 | . 46 |
| . 04 | . 04 | . 03 |
| . 04 | . 04 | . 03 |
| 1.13 | 1.22 | . 79 |
| . 66 | . 71 | . 46 |
| - 12 | . 12 | . 07 |
| . 00 | . 00 | . 00 |
| . 10 | . 13 | . 11 |
| . 24 | . 27 | . 15 |


|  | Cycles, misc transportation |  |  | Professionl scientific instruments |  |  | Scientific instruments |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 . | 1978 | 1990 |
| Other professicnal and teconical | 1.14 | 1.27 | .93 | 2.51 | 2.79 | 2.27 | 2.58 | 2.83 | 1.96 |
| Accountants | . 69 | . 77 | .66 | 1.11 | 1. 17 | . 89 | 1.26 | 1.28 | .75 |
| Lawyers | . 04 | . 05 | . 01 | . 09 | . 11 | . 07 | .06 | . 07 | . 00 |
| Librarians | . 00 | . 00 | . 00 | .03 | . 03 | . 01 | . 04 | -04 | . 03 |
| operations and systems research | . 18 | . 22 | - 14 | . 52 | . 73 | . 74 | . 58 | .81 | . 72 |
| personnel, labcr relations wkrs | . 22 | . 22 | .11 | . 46 | . 47 | . 33 | .47 | . 48 | . 34 |
| Other research workers | . 02 | . 01 | .01 | . 32 | . 28 | . 23 | .17 | . 15 | .13 |
| Managers, officials, proprietors | 7.00 | 7.20 | 6.07 | 7.78 | 8.52 | 8.06 | 8.24 | 8.63 | 7. 11 |
| Buyers, sales, loan managers | 1.90 | 1. 90 | 2.43 | 1.78 | 1. 82 | 2.41 | 2.11 | 2.17 | 3.07 |
| Bank, financial managers | . 14 | . 17 | . 24 | - 16 | . 16 | . 15 | . 14 | . 13 | . 11 |
| Credit managers | . 14 | . 09 | . 11 | . 07 | . 04 | . 04 | . 07 | - 03 | . 02 |
| Purchasing agents, buyers,other | . 87 | . 67 | 1.20 | . 83 | . 76 | . 95 | 1.10 | 1.06 | 1.49 |
| Sales manager, exc retail trade | .74 | . 77 | . 89 | . 72 | . 86 | 1.28 | .81 | . 95 | 1.46 |
| Other managers, officials, proprts | 5.10 | 5.29 | 3.64 | 6.00 | 6. 70 | 5.65 | 6.14 | 6.46 | 4.04 |
| Mgrs, superintendents. building | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| office managers. other | . 29 | . 30 | . 40 | - 25 | . 28 | . 36 | . 24 | .27 | - 36 |
| Hestaurant, cafe, bar, managers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| other managers, administrators | 4.80 | 4.97 | 3.23 | 5.74 | 6.41 | 5.29 | 5.88 | 6.17 | 3.66 |
| Sales workers | 1.88 | 1.59 | . 87 | 2.23 | 2.06 | 1.62 | 1.87 | 1.55 | -81 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 03 | . 04 | . 05 | .03 | . 05 | .09 |
| other sales warkers | 1.88 | 1.59 | . 87 | 2.21 | 2.03 | 1.57 | 1.85 | 1.51 | .72 |
| clerical workers | 11.78 | 11.45 | 11.24 | 17.25 | 16.86 | 17.42 | 17.02 | 16.75 | 17.56 |
| Stenografhrs, typists, secretaries | 3.20 | 2. 98 | 2.92 | 6.07 | 5.83 | 6.36 | 6.33 | 6.01 | 6.14 |
| Legal secretaries | . 00 | . 00 | . 00 | .01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Medical secretaries | . 02 | . 01 | . 00 | $\bigcirc 01$ | . 01 | . 02 | . 00 | . 00 | . 00 |
| other secretaries | 2.14 | 2. 16 | 2.31 | 4.62 | 4.66 | 5.37 | 4.78 | 4.77 | 5.16 |
| Stenographers | . 10 | . 04 | . 01 | . 11 | . 05 | . 01 | . 10 | . 04 | . 00 |
| Typists | .93 | .77 | . 60 | 1.32 | 1.09 | - 94 | 1.45 | 1.20 | -98 |
| Office machine operators | . 62 | . 70 | . 56 | 1.29 | 1.43 | 1.09 | 1.20 | 1.34 | 1.04 |
| Bookkeeping and billing | . 00 | . 00 | . 00 | . 07 | . 04 | . 05 | . 06 | . 04 | . 05 |
| Calculating | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 | . 03 | .03 | . 03 |
| Computer and feripheral equip | . 13 | . 30 | . 29 | . 33 | - 70 | . 59 | . 30 | . 64 | . 52 |
| Duplicating | . 02 | . 01 | . 01 | . 05 | . 05 | . 05 | . 08 | . 07 | . 09 |
| Keypunch | . 36 | . 26 | . 12 | . 64 | . 49 | . 28 | . 57 | . 43 | . 25 |
| Tabulating | . 00 | . 00 | .00 | . 03 | . 01 | . 01 | . 03 | . 01 | . 00 |
| Other oftice machine operators | - 12 | . 13 | - 14 | . 14 | . 12 | . 09 | . 13 | . 13 | . 10 |
| Other clerical workers | 7.96 | 7.77 | 7.76 | 9.89 | 9.61 | 9.97 | 9.49 | 9.40 | 10.39 |
| Billing clerks | . 19 | . 20 | .22 | . 26 | . 29 | . 41 | . 22 | . 23 | . 27 |
| Bookkeepers | 1.30 | 1.30 | 1.19 | 1.39 | 1. 36 | 1.34 | 1.26 | 1.19 | 1.04 |
| Cashiers | . 02 | . 03 | . 04 | . 05 | . 05 | . 05 | . 02 | . 02 | . 02 |
| Clerical supervisors, other | - 14 | - 17 | . 23 | . 22 | - 25 | . 27 | . 15 | . 18 | . 20 |
| Counter clerks, exc food | . 20 | . 20 | .17 | . 34 | . 38 | . 51 | . 30 | . 33 | . 47 |
| Dispatchers, starters, vehicle | . 00 | . 00 | -00 | . 03 | . 03 | . 04 | . 02 | . 03 | . 04 |
| Estimators, investigaters, other | . 10 | . 14 | . 20 | . 26 | . 30 | . 24 | . 25 | . 31 | . 29 |
| Expediters, freduction controlrs | . 55 | . 64 | -94 | 1. 14 | 1. 21 | 1.52 | 1.33 | 1.51 | 2.19 |
| File clerks | . 14 | . 13 | . 19 | . 38 | - 32 | . 32 | - 38 | . 32 | . 33 |
| Library attendants, assistants | .00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Mail handlers,exc fost orfice | . 12 | . 13 | . 19 | . 25 | . 25 | . 28 | . 14 | . 14 | - 17 |
| Messengers and office helpers | . 00 | . 00 | - 00 | . 07 | . 06 | . 04 | . 01 | . 01 | . 01 |
| Payroll,timekeeping clerks | . 68 | .72 | . 59 | . 51 | - 50 | . 38 | . 50 | . 49 | . 29 |
| Receptionists | . 10 | . 10 | . 09 | . 35 | . 34 | . 31 | . 28 | . 27 | . 27 |
| Shipping and receiving clerks | 1.67 | 1.40 | . 99 | 1.27 | 1. 12 | . 98 | 1.14 | 1.07 | 1.27 |
| Statistical clerks | . 21 | . 23 | . 24 | . 41 | . 46 | . 49 | . 36 | . 42 | . 49 |
| Stock clerks and store keepers | 1.44 | 1.31 | 1.34 | 1.37 | 1. 15 | 1.04 | 1.47 | 1.28 | 1.20 |
| Telephone operators | . 15 | . 07 | . 01 | . 17 | - 10 | . 06 | . 17 | . 10 | . 04 |
| Weighers | . 06 | . 07 | . 07 | . 06 | . 05 | . 06 | . 05 | . 06 | . 09 |
| Misc clerical workers | . 90 | . 93 | 1.08 | 1.34 | 1.35 | 1.60 | 1.42 | 1.45 | 1.70 |
| Crafts and kindred workers | 19.40 | 18.39 | 15.96 | 16.90 | 16.63 | 16.32 | 15.24 | 14.99 | 14.30 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Cycles. misc transportation |  |  | Professionl scientific instruments |  |  | Scientific <br> instruments |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 4.25 | 3.64 | 2.38 | 1.33 | 1. 19 | 1.11 | 1.29 | 1.16 | - 9 |
| Carpenters and apprentices | 2.11 | 1. 68 | . 58 | . 24 | . 19 | . 10 | . 21 | . 16 | 0 |
| * Electricians and apprentices | . 75 | . 65 | .33 | . 54 | . 52 | - 51 | . 49 | . 48 | 4 |
| Excavating, grading mach operatr | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | 0 |
| Ploor layers, exc tile setters | . 09 | . 08 | . 12 | .00 | . 00 | . 00 | .00 | . 00 | 00 |
| painters and apprentices | . 82 | . 88 | 1.16 | - 20 | - 19 | . 20 | . 23 | . 22 | 24 |
| Plumbers, pipefitters, aprentices | . 44 | . 33 | . 15 | . 35 | . 29 | . 31 | .35 | - 28 | 19 |
| Structural metal craft workers | . 04 | . 03 | .03 | . 00 | . 00 | . 00 | .00 | . 00 | 00 |
| Blue collar morker supervisors | 5.00 | 5.06 | 3.91 | 4.17 | 4.10 | 3.33 | 4.15 | 3.94 | 2.49 |
| Metalworkg craft wrkrs, exc mech | 4.61 | 3.88 | 2.91 | 4.18 | 3.58 | 2.86 | 4.97 | 4.48 | 3.99 |
| Blacksmiths | . 05 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heat treaters, annealers | - 12 | . 06 | . 01 | . 04 | . 03 | . 02 | . 06 | . 06 | .03 |
| Forge and hamner operators | . 06 | . 04 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Job and die setters, metal | .91 | . 82 | . 93 | . 09 | . 07 | . 08 | . 09 | . 08 | - 11 |
| Machinists and apprentices | 1.55 | 1. 39 | .76 | 2.13 | 1.94 | 1.31 | 2.68 | 2.69 | 2.62 |
| Millwrights | . 17 | . 15 | . 06 | . 11 | . 11 | . 07 | .09 | . 08 | . 04 |
| Holders, metal and apprentices | - 21 | - 20 | . 25 | .03 | . 03 | . 03 | .03 | .03 | . 03 |
| Pattern and moldmakers | . 34 | . 24 | . 20 | . 23 | - 15 | . 11 | . 29 | . 18 | . 10 |
| Bollers and finishers,metal | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Sheetmetal workers, apprentices | . 40 | . 31 | . 19 | . 29 | . 22 | . 18 | . 31 | . 23 | . 13 |
| Tool and diemakers, apprentices | . 80 | . 64 | . 52 | 1.25 | 1.02 | 1.05 | 1.42 | 1.13 | . 93 |
| Mechanics, repairers,ïnstallers | 4.00 | 4.51 | 5.62 | 3.24 | 3.66 | 4.63 | 3.45 | 4.10 | 5.80 |
| Air cond, heating, refrig mech | . 04 | . 05 | . 05 | . 08 | . 10 | . 09 | . 11 | . 14 | . 13 |
| Aircraft mechanics | . 02 | . 01 | .01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Auto accessories installers | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Auto mechanics and apprentices | . 74 | . 70 | - 86 | . 04 | . 04 | . 04 | . 05 | . 04 | . 05 |
| Data processing mach repairers | .00 | . 00 | . 00 | . 06 | . 07 | . 09 | . 11 | . 14 | . 18 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 1.77 | 2.21 | 3.12 | 1.91 | 2.35 | 3.38 | 1.77 | 2.29 | 3.80 |
| Household appliance mechanics | . 07 | . 08 | - 10 | . 06 | . 06 | . 07 | . 15 | . 17 | . 24 |
| Office machine repairers | . 00 | . 00 | . 00 | . 05 | . 03 | . 07 | .00 | . 00 | . 00 |
| Radio, television repairers | . 02 | . 02 | . 02 | . 09 | . 06 | . 04 | . 14 | . 08 | . 02 |
| other mechanics and apprentices | 1.31 | 1.40 | 1.45 | .93 | . 92 | . 82 | 1.12 | 1.23 | 1.37 |
| Printing trade crafts workers | .11 | . 09 | . 00 | . 38 | . 34 | . 25 | . 44 | . 39 | . 20 |
| Bookbinders | .00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | . 01 | . 00 |
| compositors and typesetters | .06 | . 05 | . 00 | . 15 | . 13 | . 06 | . 13 | . 10 | . 03 |
| Engravers exc photoengravers | .00 | . 00 | . 00 | . 10 | . 08 | . 05 | .18 | . 15 | . 09 |
| Photoengravers, lithographers | . 02 | . 01 | . 00 | . 02 | . 02 | . 02 | . 02 | . 02 | . 00 |
| Press, plate printers, aprentices | . 03 | . 03 | -00 | . 09 | . 10 | - 10 | .11 | . 12 | .09 |
| Transport, public util craft wkrs | . 03 | . 02 | .01 | .03 | .03 | . 03 | . 02 | . 01 | . 01 |
| Power station operators | .03 | . 02 | . 01 | . 01 | .01 | . 02 | .00 | . 00 | . 00 |
| Telephone installers, repaicers | . 00 | . 00 | . 00 | . 02 | . 02 | .02 | .01 | . 01 | .01 |
| Other crafts, kindred workers |  | 1. 20 | 1.13 | 3.58 | 3.74 | 4.12 | .93 | . 90 | . 89 |
| Cabinetmakers | . 58 | . 47 | . 15 | . 08 | . 06 | . 01 | .09 | . 08 | .03 |
| crane,dercick, hoist operator | . 18 | . 16 | . 25 | . 03 | . 02 | . 03 | . 04 | . 03 | . 05 |
| Dental laboratory technicians | . 00 | . 00 | . 00 | . 40 | . 33 | . 70 | . 00 | . 00 | . 00 |
| Purniture and wood finishers | .00 | . 00 | . 00 | . 02 | . 01 | .01 | .03 | . 03 | . 04 |
| Glaziers | . 02 | . 03 | .03 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 02 | . 02 | . 01 | . 03 | . 02 | . 00 | . 05 | . 04 | . 01 |
| Jewelers and watchmakers | . 00 | . 00 | . 00 | . 60 | . 52 | . 86 | . 02 | . 02 | . 01 |
| Opticians,lens grinder, polisher | . 00 | . 00 | . 00 | 2.00 | 2.43 | 2.18 | . 31 | . 35 | . 37 |
| Shiptitters | . 02 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 17 | . 08 | . 01 | .21 | . 12 | . 04 | . 16 | . 10 | . 02 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Tailors | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Upholsterers | . 12 | . 10 | . 20 | . 02 | . 01 | . 02 | .00 | . 00 | . 00 |
| Other crafts workers | . 30 | . 33 | . 48 | .18 | . 19 | - 24 | . 22 | . 25 | . 35 |
| operatives | 48.63 | 50.16 | 55.34 | 35.64 | 35.56 | 37.93 | 35.63 | 36.01 | 39.91 |
| Operatives, except transport | 45.41 | 46.92 | 52.36 | 34.85 | 34.77 | 37.07 | 35.06 | 35.47 | 39.38 |
| Semiskilled metalworking | 14.40 | 13.96 | 14.65 | 4.47 | 3.64 | 3.20 | 6.17 | 5.32 | 5.16 |
| Drill press oferatives | . 94 | . 75 | . 72 | . 63 | . 46 | . 36 | 1.01 | . 80 | . 76 |
| Furnace tendrs, smeltrs, pourers | . 26 | . 25 | . 21 | .03 | . 03 | . 06 | . 02 | . 02 | . 05 |
| Grinding macbine operatives | . 72 | . 60 | . 54 | . 20 | . 16 | . 15 | .23 | . 19 | . 18 |
| Heaters, metal | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lathe,milling mach oferatives | . 59 | . 45 | . 47 | . 88 | . 63 | . 64 | 1.27 | . 97 | 1.12 |
| Metal platers | . 48 | . 52 | . 51 | . 20 | . 19 | . 16 | . 20 | . 21 | . 24 |
| Other precision mach operators | .28 | . 25 | . 35 | . 37 | . 26 | . 24 | . 48 | . 40 | . 51 |
| Punch,stamping press operatives | 2.78 | 2.61 | 3.11 | . 64 | . 53 | . 53 | . 61 | - 57 | .73 |
| Solderers | . 18 | . 13 | . 03 | .67 | . 53 | . 22 | 1.04 | . 88 | . 41 |
| Welders and flamecutters | 8.16 | 8.38 | 8.71 | .86 | . 84 | . 84 | 1.31 | 1.28 | 1.16 |

© Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Cycles, misc transportation |  |  | Professionl scientific instruments |  |  | Scientific instruments |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled packing, inspecting | 4.01 | 3.62 | 2.94 | 7.66 | 7.03 | 6.27 | 6.65 | 6.16 | 5.74 |
| Checkers, examiners, mfg | 2.60 | 2.51 | 2.42 | 5.47 | 5.11 | 4.83 | 5.46 | 5.25 | 5.33 |
| Graders and scrters, mfy | . 02 | . 01 | . 00 | . 10 | . 09 | . 07 | . 09 | . 08 | . 03 |
| Packer, wrapper, exc meat, prodce | 1.39 | 1. 10 | . 52 | 2. 10 | 1.84 | 1.36 | 1.10 | .84 | . 38 |
| Other operatives, exc transport | 27.00 | 29.35 | 34.77 | 22.73 | 24.10 | 27.61 | 22.25 | 24.00 | 28.49 |
| Assemblers | 13.34 | 15.09 | 18.88 | 10.29 | 10.91 | 13. 16 | 13.21 | 14.45 | 17.90 |
| cutting operatives, other | 1.30 | 1. 35 | 1.41 | .73 | . 80 | 1.00 | .36 | . 40 | . 54 |
| Dyers | - 00 | .00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Filer,polisher, sander, buffer | . 69 | . 72 | . 97 | .79 | . 83 | 1.03 | . 40 | .41 | . 53 |
| Mixing operatives | . 02 | . 01 | . 01 | . 22 | . 24 | . 31 | . 05 | . 06 | . 09 |
| oilers, greasers,exc automobiles | . 02 | . 02 | . 01 | . 06 | . 05 | . 05 | . 07 | .06 | . 02 |
| Painters, mfg articles | 2.82 | 2.63 | 3.37 | . 70 | . 62 | . 76 | . 85 | . 79 | 1.13 |
| Photographic frocess workers | . 05 | . 04 | . 02 | . 68 | . 65 | . 77 | . 11 | . 10 | . 06 |
| Riveters and fasteners | . 23 | . 23 | - 22 | . 10 | . 10 | .13 | . 15 | .16 | . 23 |
| Sawyers | . 41 | . 35 | .18 | . 08 | .06 | . 02 | . 14 | . 10 | . 03 |
| Sewers and stitchers | . 84 | . 76 | . 97 | . 54 | . 61 | 1.03 | . 05 | . 05 | - 10 |
| Fornace tendr,stokr,exc metal | . 12 | . 05 | . 01 | . 07 | . 04 | . 04 | . 06 | . 03 | . 01 |
| Hinding operatives, other | . 06 | . 04 | . 01 | . 38 | . 38 | . 42 | . 27 | . 30 | . 41 |
| Miscellaneous machine operatves | 2.54 | 2.79 | 3.01 | 5.15 | 5.49 | 5.56 | 4.22 | 4.46 | 4.61 |
| Other operatives, exc transport | 4.56 | 5.27 | 5.71 | 2.92 | 3.31 | 3.34 | 2.31 | 2.64 | 2.85 |
| Transport equipment operatives | 3.22 | 3.24 | 2.99 | . 79 | . 78 | . 86 | . 56 | . 53 | . 53 |
| Bus drivers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 26 | . 20 | . 10 | . 15 | . 14 | . 15 | . 06 | . 05 | . 05 |
| Fork lift,tow motor operatives | 1.51 | 1.81 | 1.99 | . 33 | . 40 | . 51 | . 24 | . 31 | - 44 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 | . 02 | . 02 | . 01 |
| Truck drivers | 1.43 | 1. 21 | . 89 | . 26 | . 20 | .17 | .24 | . 16 | . 04 |
| Service workers | 1.68 | 1.60 | 1.41 | 1.93 | 1.69 | 1.31 | 1.45 | 1.32 | 1.15 |
| Cleaning service workers | 1.23 | 1. 20 | 1.15 | 1.26 | 1.14 | .91 | . 95 | . 91 | . 91 |
| Bldg interior cleaners, other | . 25 | . 27 | .27 | . 18 | . 19 | . 18 | . 10 | . 10 | . 10 |
| Janitors and sextons | -98 | . 93 | . 88 | 1.08 | . 95 | .73 | . 86 | .81 | . 80 |
| Food service workers | . 03 | . 02 | . 02 | . 16 | . 13 | . 13 | . 08 | . 07 | . 08 |
| Haiters' assistants | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Cooks.exc private households | . 02 | . 01 | . 01 | . 04 | .03 | . 03 | . 01 | . 01 | . 01 |
| Dishwashers | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 | . 02 | . 02 | .02 |
| Food counter,fountain workers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .00 | . 00 | .00 |
| Waiters | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | .01 | .01 | . 01 |
| Other food serv wkrs,exc privt | . 00 | . 00 | . 00 | . 05 | . 04 | . 05 | . 03 | . 03 | . 05 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | .00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | .00 | . 00 |
| Personal service vorkers | . 08 | . 06 | . 01 | . 03 | . 03 | . 01 | . 02 | . 02 | . 01 |
| attendants, personal serv,other | .00 | . 00 | . 00 | .01 | .01 | .00 | . 00 | . 00 | .00 |
| Elevator operators | . 08 | . 06 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | .01 | .01 | . 00 | . 02 | . 02 | . 01 |
| Protective service workers | . 34 | . 32 | . 23 | . 46 | - 38 | . 24 | . 40 | .33 | . 16 |
| Firefighters | . 03 | . 03 | . 02 | . 02 | . 02 | . 03 | . 02 | . 01 | . 01 |
| Guards | . 31 | . 29 | . 21 | . 43 | . 36 | . 21 | . 38 | . 32 | . 15 |
| Laborers, except farm | 3.38 | 3.34 | 3.44 | 1.72 | 1.69 | 1.77 | 1.34 | 1.38 | 1.64 |
| Carpenter helfers | . 17 | - 16 | . 26 | . 00 | . 00 | .01 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter helpr | . 13 | . 14 | -21 | . 05 | . 04 | . 03 | . 07 | . 06 | . 07 |
| Freight and material handlers | 1.45 | 1.46 | 1.62 | . 66 | . 67 | . 85 | . 47 | . 50 | . 68 |
| Gardenrs, groundkeepers, exc farm | . 00 | . 00 | . 00 | . 06 | . 06 | . 05 | . 04 | . 04 | . 04 |
| Stock handlers | . 76 | . 84 | . 80 | . 44 | . 47 | . 42 | . 37 | . 41 | . 44 |
| Vehicle washers equip cleaners | . 10 | . 11 | . 09 | . 15 | . 16 | . 15 | . 09 | . 10 | . 13 |
| Warehouse labcrers, other | . 25 | . 18 | . 06 | . 10 | . 08 | . 04 | . 09 | .07 | . 03 |
| Other laborers | . 52 | .46 | .40 | . 25 | . 22 | . 23 | . 21 | .20 | . 25 |

Table 1- Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
optical,
health serv
supplies
$1970 \quad 1978 \quad 1990$

## Photo <br> equip and <br> supplies

197019781990

Watches
and clock devices

197019781990


| 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: |
| 12.65 | 13.87 | 12.87 |
| 3.37 | 3.08 | 2.73 |
| . 02 | . 02 | . 02 |
| . 11 | . 11 | .11 |
| . 03 | . 02 | . 02 |
| . 68 | . 63 | . 56 |
| .81 | . 82 | . 70 |
| .72 | . 65 | . 58 |
| . 02 | . 03 | . 05 |
| . 01 | . 01 | . 00 |
| . 09 | . 04 | .01 |
| . 89 | . 76 | . 67 |
| . 63 | . 66 | . 58 |
| . 00 | . 00 | . 00 |
| . 09 | . 14 | . 12 |
| . 36 | - 35 | . 32 |
| .01 | . 01 | . 01 |
| . 17 | . 17 | . 13 |
| . 02 | . 02 | . 04 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 04 |
| 3.41 | 3. 50 | 3.83 |
| . 02 | . 03 | . 06 |
| .16 | . 18 | . 26 |
| .77 | . 63 | . 59 |
| . 44 | . 57 | . 87 |
| . 13 | . 20 | . 29 |
| . 08 | . 10 | . 16 |
| 1.83 | 1. 80 | 1.59 |
| . 21 | . 22 | . 33 |
| .04 | . 04 | . 06 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 04 |
| . 01 | . 01 | . 01 |
| . 03 | . 04 | .11 |
| . 10 | . 09 | . 10 |
| . 01 | .01 | .01 |
| 1.27 | 2.02 | 1.55 |
| . 03 | . 04 | . 06 |
| . 01 | . 01 | . 02 |
| 1.24 | 1.97 | 1.48 |
| . 07 | . 08 | . 09 |
| .01 | . 01 | . 01 |
| . 00 | . 00 | . 00 |
| . 05 | . 07 | . 08 |
| . 49 | . 61 | . 56 |
| . 33 | . 38 | -38 |
| . 13 | . 19 | . 17 |
| .03 | . 04 | . 02 |
| .30 | . 51 | . 63 |
| . 30 | . 51 | .63 |
| . 00 | . 00 | .00 |
| . 02 | . 03 | . 05 |
| . 02 | . 03 | . 05 |

$100.00 \quad 100.00 \quad 100.00$
$100.00 \quad 100.00 \quad 100.00$

| 20.27 | 20.93 | 19.59 | 5.58 | 5.63 | 4.29 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 6.27 | 5.76 | 5.35 | 1.90 | 1.71 | 1.32 |
| . 01 | .01 | . 00 | . 00 | . 00 | . 00 |
| . 48 | . 46 | . 44 | . 02 | . 02 | . 02 |
| . 12 | . 09 | . 11 | . 00 | .00 | . 00 |
| 1.13 | 1.06 | 1.05 | . 38 | . 37 | . 37 |
| 1.52 | 1.48 | 1.13 | -58 | . 55 | .33 |
| 1.36 | 1.26 | 1.36 | . 29 | . 25 | . 19 |
| . 02 | . 02 | . 02 | . 04 | . 04 | . 03 |
| . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| . 03 | . 02 | . 02 | . 07 | . 06 | .09 |
| 1.60 | 1.35 | 1.22 | . 53 | . 43 | . 30 |
| 1.58 | 1.55 | 1.35 | . 16 | . 14 | . 05 |
| . 01 | . 01 | . 00 | . 03 | . 04 | . 00 |
| . 03 | . 04 | . 04 | . 00 | .00 | . 00 |
| 1.30 | 1.26 | 1.11 | .13 | . 10 | . 05 |
| . 00 | . 00 | .00 | .00 | .00 | . 00 |
| . 25 | . 24 | . 20 | . 00 | . 00 | . 00 |
| . 12 | . 12 | . 11 | . 04 | . 02 | . 00 |
| . 02 | . 03 | . 04 | . 00 | . 00 | .00 |
| . 10 | . 09 | . 07 | . 04 | . 02 | . 00 |
| 5.62 | 5.51 | 5.21 | 1.35 | 1.21 | . 87 |
| . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| . 52 | . 52 | . 45 | . 08 | . 08 | . 07 |
| 1.20 | 1. 10 | 1.59 | . 52 | . 40 | . 28 |
| . 73 | . 81 | . 86 | . 24 | . 20 | . 07 |
| - 36 | . 38 | . 18 | . 06 | . 07 | . 04 |
| . 08 | . 09 | . 08 | . 00 | . 00 | . 00 |
| 2.74 | 2.62 | 2.05 | . 46 | .47 | . 42 |
| .11 | . 10 | . 17 | . 03 | . 02 | . 01 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 03 | . 05 | . 15 | . 00 | . 00 | . 00 |
| . 07 | . 04 | . 01 | .03 | . 02 | . 01 |
| . 00 | .00 | .00 | . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 00 | .00 | .00 | . 00 | . 00 | .00 |
| . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| . 07 | . 09 | . 11 | . 02 | . 02 | . 01 |
| . 01 | . 01 | .01 | .00 | .00 | . 00 |
| . 01 | .00 | .00 | . 02 | . 02 | .01 |
| . 06 | . 07 | . 10 | . 00 | . 00 | . 00 |
| 1.20 | 1.53 | 1.39 | .29 | . 34 | . 27 |
| . 69 | . 79 | . 76 | . 22 | . 24 | . 20 |
| . 45 | . 65 | . 58 | . 07 | . 09 | . 07 |
| . 05 | . 09 | . 05 | . 00 | . 00 | . 00 |
| . 58 | . 87 | .74 | . 07 | . 06 | . 01 |
| . 56 | . 83 | . 73 | . 07 | . 06 | .01 |
| . 02 | . 04 | .01 | .00 | .00 | . 00 |
| . 10 | . 10 | . 03 | . 04 | . 04 | . 01 |
| .10 | . 10 | . 03 | . 04 | . 04 | .01 |

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Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
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|  | optical. health serv supplies |  |  | Photo equip and supplies |  |  | Watches and clock devices |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | .73 | . 80 | . 58 | 1.43 | 1.67 | 1.89 | . 24 | . 26 | . 09 |
| Designers | . 40 | . 43 | . 29 | . 59 | . 72 | . 80 | - 14 | - 11 | . 01 |
| Editors and reforters | . 08 | . 08 | . 04 | - 33 | - 37 | -43 | . 03 | . 03 | . 04 |
| Photographers | . 03 | . 02 | .01 | . 26 | . 27 | . 37 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 13 | . 10 | . 14 | . 08 | . 11 | . 12 | . 07 | . 13 | . 04 |
| Other writers,artists, entertain | . 08 | . 11 | .11 | .17 | . 21 | . 16 | . 00 | - 00 | . 00 |
| Other professional and technical | 2.14 | 2.35 | 1.91 | 3.18 | 3.65 | 3.23 | 1.45 | 1.81 | 1.66 |
| Accountants | 1.05 | 1. 10 | .75 | 1.01 | 1. 17 | 1.22 | . 79 | . 93 | . 96 |
| Lawyers | . 09 | . 10 | -11 | - 12 | - 17 | . 05 | - 11 | . 24 | - 26 |
| Litrarians | . 02 | . 02 | .01 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 |
| Operaticns and systems research | . 28 | -46 | . 55 | . 78 | 1. 12 | 1.11 | . 26 | . 37 | . 32 |
| Personnel, labcr relations wkrs | . 37 | . 38 | . 24 | . 60 | . 63 | . 47 | -26 | . 24 | . 12 |
| Other research workers | .32 | . 29 | . 25 | . 63 | . 53 | .37 | . 04 | .03 | . 00 |
| Managers, officials, proprietors | 0.91 | 9.36 | 8.08 | 6.43 | 7.74 | 9.79 | 4.96 | 5.45 | 4.31 |
| Buyers,sales, lcan managers | 1.81 | 1.93 | 2.85 | 1.34 | 1. 26 | 1.37 | 1.34 | 1.22 | . 85 |
| Bank, financial managers | . 17 | . 18 | . 20 | . 14 | . 14 | . 10 | . 28 | . 28 | . 20 |
| Credit managers | . 08 | . 04 | . 02 | . 08 | . 06 | . 10 | . 09 | . 05 | . 02 |
| Purchasing agents, buyers, other | .71 | - 70 | 1.03 | . 65 | - 53 | .41 | . 43 | . 31 | . 14 |
| Sales manager, exc retail trade | .85 | 1.01 | 1.60 | . 48 | - 54 | . 76 | . 54 | . 58 | . 49 |
| Other managers,officials, proprts | 7.09 | 7.43 | 5.23 | 5.09 | 6.48 | 8.42 | 3.62 | 4.23 | 3.47 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Office managers, other | . 33 | . 35 | -46 | . 24 | . 24 | . 26 | . 03 | . 03 | . 03 |
| Restaurant, cafe, bar,managers | . 00 | .00. | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other managers, administrators | 6.77 | 7.08 | 4.77 | 4.83 | 6.23 | 8.15 | 3.58 | 4.19 | 3.42 |
| Sales workers | 3.22 | 2.76 | 1.70 | 1.76 | 1.84 | 2.39 | 1.58 | 1.58 | 1.60 |
| Advertising agents, sales worker | . 03 | . 03 | . 01 | . 03 | . 04 | . 08 | . 04 | . 04 | . 01 |
| Other sales workers | 3.20 | 2.73 | 1.69 | 1.74 | 1.79 | 2.30 | 1.54 | 1.54 | 1.59 |
| Clerical workers | 16.90 | 16.42 | 17.41 | 19.11 | 18.69 | 18.59 | 13.66 | 12.72 | 10.81 |
| Stenographrs,typists, secretaries | 5.97 | 5.66 | 6.10 | 6.45 | 6.34 | 7.62 | 3.73 | 3.53 | 3.13 |
| Legal secretaries | . 02 | . 02 | . 05 | . 03 | . 02 | . 03 | . 00 | .00 | .00 |
| Meaical secretaries | . 02 | . 02 | . 05 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Other secretaries | 4.58 | 4. 54 | 5.13 | 4.99 | 5.16 | 6.50 | 2.63 | 2.65 | 2.49 |
| Stenographers | . 07 | . 03 | . 01 | . 18 | . 10 | . 03 | . 06 | . 03 | . 01 |
| Typists | 1.28 | 1.05 | . 87 | 1.23 | 1.06 | 1.06 | 1.04 | .85 | .63 |
| Office machine operators | 1.12 | 1. 20 | . 99 | 1.78 | 2.07 | 1.43 | . 85 | . 75 | . 47 |
| Bookkeeping and billing | . 11 | . 07 | .09 | . 06 | . 03 | . 02 | . 04 | . 01 | . 01 |
| Calculating | . 02 | . 02 | . 04 | .02 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Computer and teripheral eyuip | . 25 | . 53 | . 44 | .57 | 1.18 | . 93 | - 10 | . 25 | .31 |
| Duplicating | . 03 | . 03 | . 04 | . 05 | . 04 | . 04 | . 01 | . 01 | .01 |
| Keypunch | . 62 | -49 | . 32 | . 80 | - 58 | . 29 | . 59 | . 40 | . 14 |
| Tabulating | . 02 | . 01 | . 00 | . 06 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other office machine operators | . 07 | . 07 | . 06 | . 23 | .21 | . 13 | . 10 | . 06 | .00 |

Table 1. Percent distribution of industry emplopment by cccupation, 1970, 1978 and projected 1990

|  | Optical. health serv supplies |  |  | Photo equip and supplies |  |  | Watches and clock devices |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 9.82 | 9.56 | 10.33 | 10.88 | 10.27 | 9.54 | 9.08 | 8.45 | 7.22 |
| Billing clerks | .33 | . 38 | . 58 | . 28 | . 29 | . 36 | . 16 | . 17 | - 17 |
| Bookkeepers | 1.76 | 1.64 | 1.46 | 1.14 | 1.19 | 1.51 | 1.41 | 1.35 | 1.20 |
| Cashiers | .06 | . 06 | . 06 | . 08 | . 09 | . 07 | . 04 | . 04 | . 01 |
| Clerical supervisors, otner | . 18 | . 21 | . 25 | .38 | . 41 | . 39 | . 23 | . 24 | . 20 |
| Collectors, bill and account | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Counter clerks,exc food | .46 | - 51 | . 73 | - 32 | . 31 | . 32 | . 14 | . 14 | . 12 |
| Dispatchers, starters, vehicle | . 03 | . 04 | . 05 | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 |
| Estimators, investigators,otner | . 20 | . 25 | . 25 | . 34 | - 36 | . 20 | . 27 | . 28 | . 15 |
| Expediters, frcduction controlrs | . 80 | . 91 | 1.37 | 1.37 | 1. 35 | 1.25 | .81 | . 70 | - 34 |
| Pile clerks | . 38 | . 32 | .31 | . 32 | - 28 | . 34 | . 54 | . 43 | . 32 |
| Library attendants, assistants | . 03 | . 04 | . 04 | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Mail handlers,exc post office | . 32 | . 32 | . 38 | . 33 | - 31 | . 28 | . 26 | . 22 | . 16 |
| Messengers and office helpers | - 12 | . 09 | . 03 | . 09 | - 08 | . 04 | - 10 | -11 | - 16 |
| Payroll, timekeeping clerks | . 34 | . 33 | . 20 | . 66 | -71 | . 67 | . 78 | . 87 | . 83 |
| Receptionists | . 48 | . 46 | . 46 | . 31 | - 27 | - 18 | . 26 | . 23 | -17 |
| Shipping and receiving clerks | 1.61 | 1.29 | -83 | 1.05 | -89 | . 72 | 1.36 | 1.35 | 1.71 |
| Statistical clerks. | . 35 | . 41 | . 50 | . 59 | - 62 | . 53 | . 32 | - 32 | . 20 |
| Stock clerks and store keepers | 1.17 | 1. 11 | 1.37 | 1.49 | 1. 10 | . 52 | 1.16 | . 87 | - 39 |
| Telephone operators | . 18 | . 11 | . 05 | .17 | . 12 | - 12 | . 10 | . 04 | . 01 |
| Meighers | . 02 | . 03 | . 06 | -11 | . 09 | . 05 | . 02 | . 02 | . 01 |
| Misc clerical workers | . 97 | 1.04 | 1.35 | 1.76 | 1.75 | 1.96 | 1.07 | 1.05 | 1.06 |
| Crafts and kindred workers | 18.54 | 17.69 | 16.22 | 16.69 | 16.51 | 16.75 | 19.92 | 20.59 | 25.70 |
| Construction crafts workers | . 75 | . 66 | . 50 | 2.25 | 2.15 | 2.24 | . 90 | . 88 | . 79 |
| Carpenters and apprentices | . 18 | . 13 | . 03 | . 36 | . 32 | . 20 | .27 | . 30 | - 35 |
| Electricians and apprentices | . 31 | - 28 | . 17 | . 99 | 1.01 | 1.12 | . 24 | . 23 | - 21 |
| Painters and apprentices | . 18 | -19 | . 27 | . 14 | . 11 | . 05 | . 33 | . 29 | - 19 |
| Plumbers, pipefitters, aprentices | .09 | . 07 | . 04 | . 76 | . 72 | . 88 | . 07 | .06 | . 04 |
| Blue collar worker supervisors | 3.84 | 3.66 | 2.36 | 4.66 | 5.00 | 5.44 | 4.01 | 4.28 | 4.30 |
| Metalworkg craft urkrs, exc meca | 3.47 | 2.88 | 1.84 | 3.90 | 3.40 | 3.12 | 3.75 | 3.23 | 2.95 |
| Heat treaters, annealers | . 02 | . 02 | . 01 | . 01 | .01 | . 02 | . 09 | . 08 | . 07 |
| Porge and hamrer operatcrs | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Job and die setters, metal | . 09 | . 08 | . 08 | . 06 | . 05 | . 05 | . 16 | - 10 | . 03 |
| Machinists and apprentices | 1.83 | 3. 58 | . 82 | 1.92 | 1.60 | . 75 | . 96 | . 88 | - 54 |
| Millwrights | . 09 | . 09 | . 05 | . 20 | - 19 | . 12 | . 05 | . 06 | . 09 |
| Molders, metal and apprentices | . 05 | . 05 | . 06 | . 00 | . 00 | . 00 | . 05 | . 05 | . 08 |
| Pattern and moldmakers | . 14 | . 08 | . 04 | -24 | . 18 | . 22 | . 28 | .21 | . 22 |
| Rollers and finishers,metal | -01 | . 01 | .01 | . 00 | . 00 | . 00 | . 06 | . 04 | - 01 |
| Sheetmetal workers, apprentices | . 17 | . 13 | . 08 | . 47 | -40 | . 40 | . 04 | . 03 | . 01 |
| Tool and diemakers, apprentices | 1.05 | . 83 | . 68 | 1.00 | . 96 | 1.55 | 2.04 | 1.76 | 1.91 |
| Mechanics,repairers.installers | 2.48 | 3.01 | 4.26 | 4.01 | 4.19 | 4.26. | 2.66 | 2.94 | 2.82 |
| Air cond, heating, refrig mech | . 03 | . 04 | . 04 | .11 | . 14 | . 14 | . 02 | . 02 | . 01 |
| Aircraft mechanics | . 03 | - 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | .01 | . 01 | . 01 | . 09 | . 08 | . 07 | . 00 | . 00 | -00 |
| Data processing mach repairers | .03 | . 04 | . 06 | . 04 | . 05 | . 07 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy eguip mech, incl diesel | 1.73 | 2. 18 | 3.29 | 2.32 | 2.69 | 3.20 | 2.14 | 2.48 | 2.60 |
| office machine repairers | . 00 | . 00 | . 00 | -19 | - 15 | - 27 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 02 | . 01 | . 01 | -11 | -09 | -11 | . 06 | . 06 | . 06 |
| Other mechanics and apprentices | . 60 | . 67 | . 79 | 1.16 | . 99 | . 41 | . 44 | . 38 | . 15 |
| Printing trade crafts workers | . 21 | - 18 | - 10 | . 48 | -49 | - 48 | - 36 | .37 | . 41 |
| Bookbinders | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 | . 00 | . 00 | .00 |
| Compositors and typesetters | . 12 | . 09 | .03 | . 25 | . 22 | . 12 | . 13 | - 15 | . 22 |
| Electrotypers and stereotypers | . 00 | . 00 | . 00 | . 01 | - 00 | - 00 | . 00 | . 00 | - 00 |
| tngravers exc photoengravers | . 05 | . 05 | . 04 | . 00 | . 00 | . 00 | - 21 | - 20 | - 18 |
| Photoengravers, lithographers | . 00 | . 00 | . 00 | . 06 | . 06 | . 08 | . 00 | . 00 | . 00 |
| Press.plate printers, aprentices | . 04 | . 04 | . 03 | . 15 | . 18 | . 23 | . 03 | . 02 | .01 |
| Transport, public util craft wkrs | . 01 | . 01 | . 01 | . 08 | . 08 | . 10 | . 00 | . 00 | . 00 |
| Pover station operators | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | .01 | . 01 | .01 | . 05 | . 05 | . 04 | .00 | . 00 | . 00 |


|  | optical. health sery supplies |  |  | Photo equip and supplies |  |  | 耳atches and clock devices |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 7.78 | 7. 29 | 7.16 | 1.30 | 1.21 | 1.12 | 8.24 | 8.90 | 14.42 |
| Cabinetmakers | . 08 | . 06 | . 00 | . 05 | . 04 | . 00 | - 10 | . 08 | . 04 |
| Crane,derrick,hoist oferator | . 00 | . 00 | . 00 | . 06 | . 05 | . 06 | . 02 | . 01 | . 02 |
| Dental laboratory technicians | 1.32 | . 89 | 1.80 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 00 |
| Glaziers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 01 | . 01 | .00 | .03 | . 02 | . 00 | . 04 | . 03 | . 00 |
| Jewelers and watchmakers | . 01 | . 01 | . 02 | . 20 | . 20 | . 32 | 7.81 | 8.61 | 14. 35 |
| Opticians,lens grinder, polisher | 5.90 | 5.96 | 4.91 | . 46 | - 53 | . 58 | . 00 | . 00 | .00 |
| Shoe refairers | . 01 | . 00 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Stationary engineers | . 14 | . 06 | . 00 | . 39 | - 28 | . 11 | . 12 | . 06 | . 00 |
| Tailors | .03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Upholsterers | . 06 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other crafts workers | . 21 | . 21 | . 32 | . 10 | . 09 | . 04 | -10 | . 06 | .01 |
| Operatives | 36.23 | 36.40 | 40.09 | 30.82 | 30.16 | 30.16 | 49.89 | 50.21 | 50.92 |
| Operatives, except transport | 35.43 | 35.66 | 39.40 | 29.60 | 28.87 | 28.64 | 49.42 | 49.74 | 50.32 |
| Semiskilled metalworking | 3.53 | 3. 10 | 3.17 | 2.59 | 1.94 | 1.49 | 5.47 | 3.83 | 1.53 |
| Drill press oferatives | . 41 | .33 | .33 | . 29 | .18 | . 05 | . 58 | . 35 | . 10 |
| Furnace tendrs, smeltrs, pourers | .03 | . 04 | . 06 | . 04 | . 05 | .07 | . 02 | . 02 | . 04 |
| Grinding machine operatives | .23 | - 19 | - 20 | . 15 | - 11 | . 06 | . 10 | . 06 | . 02 |
| Lathe.milling mach operatives | . 76 | - 59 | .70 | . 47 | . 28 | . 13 | . 59 | .33 | . 11 |
| Metal platers | . 16 | . 17 | . 20 | .15 | . 11 | . 03 | . 56 | . 42 | . 10 |
| Other precision mach operators | . 16 | - 13 | . 15 | . 18 | - 12 | . 07 | 1.36 | . 87 | . 37 |
| Punchestamping press operatives | . 55 | . 51 | . 67 | . 58 | - 40 | . 15 | 1.35 | 1.01 | . 45 |
| Solderers | . 56 | . 48 | . 24 | . 21 | . 11 | . 01 | . 59 | . 47 | . 15 |
| felders and flamecutters | . 67 | . 66 | . 62 | . 50 | . 58 | . 93 | . 33 | .30 | . 20 |
| Semiskilled packing, inspectiny | 8.73 | 7. 58 | 5.76 | 7.30 | 6.75 | 6.43 | 10.00 | 10.19 | 11.99 |
| Checkers, examiners, mfy | 4.95 | 4.66 | 4.36 | 5.42 | 4.91 | 4.09 | 7.91 | 8.08 | 9.31 |
| Graders and scrters, mfy | . 12 | . 10 | . 04 | . 07 | . 09 | . 14 | . 13 | . 16 | . 25 |
| Packer,wrapper,exc meat, prodce | 3.66 | 2.83 | 1.36 | 1.81 | 1.75 | 2.20 | 1.96 | 1.95 | 2.43 |
| Other operatives, exc transport | 23.17 | 24.98 | 30.48 | 19.72 | 20.18 | 20.72 | 33.96 | $35.73$ | 36.80 |
| Assemblers | 7.72 | 8.39 | 10.14 | 6.76 | 7.48 | 9.77 | 17.31 | $20.11$ | 27.03 |
| Cutting operatives, other | . 98 | 1.08 | 1.50 | 1.11 | 1.07 | . 92 | . 44 | . 38 | . 17 |
| Dyers | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | .00 |
| Filer, polisher, sander, buffer | 1.50 | 1. 56 | 2.12 | . 20 | . 14 | . 04 | 2.04 | 1.60 | . 68 |
| Mixing operatives | . 23 | . 26 | . 40 | - 55 | . 53 | . 46 | . 00 | . 00 | - 00 |
| Oilers,greasers,exc automobiles | . 02 | . 02 | . 02 | . 06 | . 06 | . 06 | . 13 | . 16 | . 26 |
| Painters, mfg articles | . 64 | . 61 | . 89 | . 47 | - 36 | . 24 | . 87 | . 67 | . 46 |
| Photographic frocess workers | . 08 | . 07 | . 04 | 2.54 | 2.56 | 2.72 | - 02 | - 03 | . 03 |
| Biveters and tasteners | .07 | . 08 | .11 | . 05 | . 05 | . 07 | - 17 | . 11 | . 02 |
| Sauyers | . 08 | . 07 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sewers and stitchers | 1.65 | 1.56 | 2.53 | . 07 | . 06 | . 06 | . 09 | . 07 | . 07 |
| Furnace tendr,stokr,exc metal | . 07 | . 03 | . 01 | . 10 | . 08 | - 12 | . 05 | . 02 | . 01 |
| Winding operatives, other | . 40 | . 44 | . 62 | . 45 | +.38 | . 19 | . 62 | . 49 | .14 |
| Hiscellaneous machine operatves | 5.92 | 6. 38 | 6.92 | 5.31 | 5.37 | 4.76 | 6.58 | 6.54 | 4.82 |
| Other operatives, exc transport | 3.81 | 4.42 | 5.14 | 2.03 | 2.03 | 1.29 | 5.65 | 5.56 | 3.12 |
| Transport equifment operatives | . 80 | . 74 | . 68 | 1.22 | 1.29 | 1.52 | -47 | . 47 | . 60 |
| Bus drivers | . 00 | .00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 26 | . 21 | . 16 | . 18 | . 17 | . 23 | . 09 | . 09 | . 14 |
| Fork lift, tou motor operatives | . 28 | . 35 | -47 | . 61 | . 69 | .75 | . 07 | . 07 | . 04 |
| Taxicab drivers. chauffeurs | . 04 | . 03 | -01 | . 07 | . 08 | . 12 | .11 | . 09 | . 01 |
| Truck drivers | .23 | . 16 | . 05 | . 35 | . 33 | . 43 | - 20 | . 22 | .40 |
| Service workers | 1.77 | 1.63 | 1.42 | 2.94 | 2.40 | 1.42 | 1.75 | 1.45 | .79 |
| Cleaning service workers | 1.31 | 1.24 | 1.15 | 1.74 | 1.38 | . 66 | 1.18 | . 94 | .43 |
| Bldg interior cleaners, other | . 24 | . 25 | .27 | . 22 | . 20 | - 15 | . 28 | . 25 | .17 |
| Janitors and sextons | 1.07 | . 99 | . 88 | 1.52 | 1.17 | . 51 | . 90 | . 69 | .27 |
| Pood service wcrkers | . 10 | . 09 | . 13 | . 38 | . 28 | . 19 | . 15 | . 12 | . 09 |
| Waiters' assistants | . 01 | . 01 | . 03 | . 01 | . 01 | . 03 | . 02 | . 02 | .03 |
| Cooks, exc private households | . 02 | . 02 | . 01 | . 09 | . 07 | . 07 | . 04 | . 04 | . 03 |
| Dishwashers | . 01 | . 01 | . 01 | . 04 | . 02 | . 01 | . 04 | . 02 | . 01 |
| Pood counter, fountain workers | .01 | . 01 | . 02 | . 07 | . 06 | . 03 | . 00 | . 00 | . 00 |
| Haiters | . 02 | . 01 | . 01 | . 05 | . 03 | . 01 | . 03 | . 03 | . 03 |
| Other food serv wkrs,exc privt | .03 | . 03 | . 06 | . 12 | . 08 | . 05 | .03 | . 02 | . 01 |

Iable 1. Percent distribution of industry employment by cccupation, 1970, 1978 and projected 1990

|  | Optical. health serv supplies |  |  | Photo equip and supplies |  |  | Datches and clock devices |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Health service workers | . 04 | . 05 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 04 | . 05 | . 05 | .00 | . 00 | .00 | .00 | . 00 | . 00 |
| Personal service workers | . 03 | . 02 | .01 | . 06 | . 04 | . 02 | . 02 | . 02 | . 03 |
| Attendants, personal serv, other | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| Elevator operators | . 03 | . 02 | .01 | .01 | .01 | . 01 | . 02 | . 02 | .03 |
| Protective service workers | . 29 | . 23 | . 10 | .77 | . 70 | . 55 | . 40 | . 37 | . 24 |
| Firefighters | . 01 | . 01 | . 01 | . 07 | . 07 | . 10 | . 00 | . 00 | . 00 |
| Guards | . 28 | . 23 | .09 | .70 | . 63 | . 45 | .40 | .37 | . 24 |
| Laborers, except farm | 1.77 | 1.85 | 2.22 | 1.99 | 1. 74 | 1.32 | 2.66 | 2.37 | 1.57 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 02 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Constr labr exc carpenter beipr | . 00 | . 00 | . 00 | . 09 | . 07 | . 04 | . 03 | . 02 | . 01 |
| Freight and material handiers | . 69 | . 73 | 1.01 | . 80 | . 77 | . 80 | 1.14 | 1.05 | . 85 |
| Gardenrs, groundkeepers, exc farm | . 03 | . 03 | . 05 | - 10 | . 08 | . 04 | . 21 | . 22 | . 15 |
| Stock handlers | . 54 | . 60 | -66 | . 38 | . 32 | . 11 | .62 | . 51 | . 13 |
| Vehicle washers,equip cleaners | . 22 | - 23 | - 26 | . 17 | . 13 | . 04 | . 13 | . 11 | . 03 |
| Harehouse labcrers, other | . 10 | . 08 | . 04 | -13 | . 10 | . 05 | . 00 | . 00 | . 00 |
| Other laborers | . 20 | . 18 | . 20 | . 31 | . 25 | . 21 | . 54 | . 47 | . 41 |


|  | $\begin{gathered} \text { Misc } \\ \text { manufactur- } \\ \text { ing } \end{gathered}$ |  |  | Nondurable goods |  |  | Pood and kindred products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 5.34 | 5.85 | 5.64 | 7.22 | 8.18 | 8.29 | 3.66 | 4.18 | 4. 26 |
| Engineers, technical | 1.21 | 1. 16 | 1.18 | 1.13 | 1.11 | 1.16 | . 56 | . 54 | . 49 |
| Aeronautical | . 04 | . 06 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemical | . 03 | . 04 | . 04 | . 39 | . 40 | . 46 | . 04 | . 04 | . 05 |
| Civil | . 02 | . 02 | . 04 | . 04 | . 03 | . 03 | . 03 | . 02 | . 03 |
| Electrical | . 19 | . 17 | -14 | . 08 | . 07 | . 08 | . 04 | . 05 | . 06 |
| Industrial | .33 | . 33 | . 25 | . 27 | . 28 | . 25 | . 24 | . 24 | . 16 |
| Mechanical | . 25 | . 25 | . 34 | . 19 | . 18 | . 20 | . 12 | . 11 | . 12 |
| Metallurgical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Petroleum | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | .00 | .00 |
| Sales | . 05 | . 04 | . 04 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other engineers | . 28 | . 24 | . 23 | . 12 | . 11 | . 10 | .09 | . 08 | . 07 |
| Life and physical scientists | . 17 | - 16 | -09 | . 68 | . 73 | .72 | . 36 | - 40 | . 38 |
| Agricultural | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 02 | . 02 |
| Biological | .01 | . 02 | . 03 | . 05 | . 09 | . 10 | . 04 | . 07 | . 07 |
| Chemists | . 15 | - 12 | . 05 | - 59 | . 60 | . 59 | .30 | .31 | . 29 |
| Geologists | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Physicists and astronomers | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | . 01 | . 01 | .01 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 |
| Statisticians | . 01 | .01 | . 01 | . 02 | . 02 | .02 | . 01 | .01 | .01 |
| Engineering, science technicians | .96 | . 98 | 1.16 | 1.58 | 1.69 | 1.92 | -98 | 1.13 | 1.35 |
| agricultural, tiolgcl, exc health | . 02 | . 02 | . 02 | . 24 | . 27 | .30 | . 75 | . 87 | 1.05 |
| Chemical technicians | .03 | . 03 | . 02 | . 63 | . 67 | . 76 | . 04 | . 04 | . 03 |
| Drafters | . 40 | . 39 | . 60 | . 16 | . 15 | - 18 | . 06 | . 06 | . 09 |
| Electrical and electronic | . 10 | - 10 | . 06 | . 03 | . 03 | .03 | .01 | . 01 | .01 |
| Industrial engineering | . 05 | . 06 | . 05 | . 06 | . 08 | . 09 | . 06 | . 08 | . 08 |
| Mechanical engineering | .01 | . 02 | . 04 | .01 | . 01 | . 01 | . 00 | . 00 | . 01 |
| Other engineering, science teca | . 36 | . 37 | .38 | . 46 | . 48 | . 54 | . 06 | . 06 | . 07 |
| Medical workers,exc technicians | . 05 | . 05 | . 06 | . 07 | . 08 | - 10 | . 06 | . 08 | . 11 |
| Dietitians | .00 | .00 | . 00 | - 00 | . 00 | . 00 | .01 | .01 | . 02 |
| Pnarmacists | . 00 | . 00 | . 00 | .01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Registered nurses | . 04 | . 05 | . 06 | . 05 | . 04 | . 05 | . 05 | . 05 | . 06 |
| Veterinarians | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Health technolcyists, technicians | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .01 | . 01 | .00 |
| Other health technicians | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Tecanicians, except healta | . 03 | . 04 | . 04 | . 03 | . 04 | . 05 | . 02 | . 02 | . 02 |
| Airplane pilots | . 02 | . 02 | . 03 | . 01 | .01 | . 02 | .01 | . 01 | .01 |
| Other technicians except healtn | . 01 | . 02 | . 02 | . 02 | . 02 | .03 | . 00 | .01 | . 01 |
| Computer specialists | . 20 | . 25 | . 21 | . 24 | - 32 | . 32 | . 16 | - 20 | - 19 |
| Computer programers | . 13 | . 15 | -13 | . 16 | - 19 | . 19 | . 11 | . 13 | . 12 |
| Computer systems analysts | .06 | . 09 | . 08 | . 07 | . 11 | . 11 | . 04 | . 06 | .06 |
| other computer specialists | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 01 | .01 |
| social scientists | . 06 | - 10 | . 09 | . 10 | . 15 | . 13 | . 07 | .11 | . 09 |
| Economists | . 06 | - 10 | . 09 | . 10 | . 15 | .12 | . 07 | . 11 | .09 |
| Teachers | . 02 | . 02 | . 01 | . 04 | . 04 | . 02 | . 01 | . 01 | . 01 |
| Adult education | . 02 | . 02 | . 01 | .03 | . 03 | . 01 | . 01 | . 01 | . 01 |
| Other teachers | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | .00 | .00 | . 00 |
| Writers,artists, entertainers | 1.36 | 1.65 | 1.56 | 1.91 | 2.36 | 2.51 | . 18 | . 23 | . 23 |
| Authors | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Designers | .77 | . 94 | 1.01 | . 28 | . 34 | . 30 | . 02 | . 02 | .03 |
| Editors and reforters | . 05 | . 07 | . 09 | 1.07 | 1.33 | 1.55 | . 01 | . 01 | . 02 |
| Painters and sculftors | . 36 | . 43 | . 24 | . 23 | . 31 | . 22 | . 02 | . 03 | .01 |
| Photographers | . 05 | . 05 | . 07 | . 17 | . 18 | . 24 | . 00 | . 00 | . 00 |
| Puilic relations specialists | . 10 | . 13 | - 12 | . 10 | . 13 | . 12 | . 12 | . 16 | . 16 |
| Other writers,artists, entertain | . 02 | . 03 | .03 | . 04 | . 04 | .03 | . 01 | . 01 | . 01 |

Table 1. Percent distribution of industry employment ty occupation, 1970, 1978 and projected 1990

|  | Miscmanufactur-ing |  |  | Nondurable goods |  |  | Food and kindred products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 3.26 | 1.45 | 1.23 | 1.40 | 1.61 | 1.36 | 1.25 | 1.46 | 1.38 |
| Accountants | . 74 | . 84 | . 80 | .73 | . 86 | . 81 | . 77 | .91 | - 95 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | .00 | . 00 | . 00 |
| Home management advisors | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Lawyers | . 05 | . 09 | . 08 | . 05 | . 09 | . 07 | . 04 | . 06 | . 04 |
| Librarians | .01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Operations and systems research | . 13 | . 18 | . 15 | . 13 | - 18 | . 15 | . 08 | .11 | . 10 |
| Personnel, labcr relations wkrs | .26 | . 27 | .18 | .31 | .33 | . 25 | . 27 | . 30 | . 27 |
| Other research workers | .07 | . 05 | .01 | . 13 | . 11 | .06 | .07 | . 05 | . 02 |
| Managers, officials, proprietors | 8.71 | 10.28 | 11.40 | 6.20 | 7.35 | 7.77 | 7.25 | 8.41 | 8.77 |
| Buyers, sales, lcan managers | 1.41 | 1. 31 | 1.32 | 1.30 | 1.25 | 1.22 | 1.68 | 1.55 | 1.52 |
| Bank, financial managers | . 13 | - 12 | . 07 | .11 | . 11 | . 08 | . 11 | . 10 | . 06 |
| Credit managers | .11 | . 07 | . 07 | . 07 | . 04 | . 04 | . 09 | . 05 | . 05 |
| Buyers, shippers,farm products | .00 | . 00 | .00 | . 05 | . 04 | . 05 | . 23 | . 19 | . 27 |
| Purchasing agents, buyers, other | . 48 | . 40 | . 32 | . 36 | . 31 | . 27 | . 41 | . 34 | . 25 |
| Sales manager, exc retail trade | . 69 | . 73 | . 86 | .71 | . 75 | . 78 | . 84 | . 87 | . 90 |
| Other managers, officials, proprts | 7.31 | 8.96 | 10.08 | 4.90 | 6.10 | 6.55 | 5.57 | 6.86 | 7.24 |
| office managers, other | . 41 | . 43 | . 50 | .33 | . 34 | . 36 | . 43 | . 44 | . 47 |
| Restaurant, cafe, bar,managers | .01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Other managers, administrators | 6.89 | 8.53 | 9.57 | 4.56 | 5.75 | 6.18 | 5.11 | 6.39 | 6.75 |
| Sales vorkers | 3.64 | 3.65 | 3.97 | 3.69 | 3.82 | 4.38 | 3.60 | 3.43 | 3. 13 |
| Advertising agents, sales worker | . 07 | . 10 | . 14 | . 23 | . 35 | . 44 | .03 | . 04 | . 05 |
| Newspaper carriers and vendors | . 00 | . 00 | . 00 | . 69 | . 61 | . 73 | . 00 | . 00 | . 00 |
| Other sales wcrkers | 3.57 | 3.55 | 3.83 | 2.77 | 2.86 | 3.22 | 3.57 | 3.39 | 3.09 |
| Clerical vorkers | 13.30 | 13.12 | 14.41 | 12.31 | 12.17 | 12.08 | 9.92 | 9.68 | 9.83 |
| Stenographrs,typists, secretaries | 4.20 | 4.37 | 5.89 | 3.47 | 3. 50 | 4.06 | 2.40 | 2.48 | 3.20 |
| Legal secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| other secretaries | 3.11 | 3.40 | 4.83 | 2.44 | 2.61 | 3.22 | 1.91 | 2.07 | 2.79 |
| Stenographers | . 06 | . 03 | . 00 | . 09 | . 05 | . 02 | . 06 | . 03 | . 01 |
| Typists | 1.03 | . 94 | 1.06 | .93 | . 83 | . 81 | . 42 | . 37 | . 39 |
| office machine operators | . 83 | . 85 | . 62 | . 86 | . 89 | . 54 | . 73 | . 74 | -49 |
| Bookkeeping and billing | . 09 | . 04 | . 02 | . 07 | .03 | . 01 | . 06 | .02 | . 01 |
| Calculating | . 04 | . 02 | . 01 | . 07 | . 04 | . 02 | . 15 | . 08 | . 03 |
| Computer and feripheral equip | . 16 | . 38 | . 38 | . 19 | . 41 | . 32 | . 16 | . 36 | . 32 |
| Duplicating | . 02 | . 02 | . 01 | .03 | . 02 | . 01 | .01 | . 01 | . 01 |
| Keypunch | . 45 | . 33 | . 16 | . 40 | . 29 | . 12 | . 31 | . 23 | . 11 |
| Tabulating | .01 | . 00 | . 00 | . 02 | . 01 | . 00 | .01 | . 00 | . 00 |
| Other office nachine operators | .06 | . 06 | .03 | . 10 | . 09 | . 05 | . 04 | .03 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Misc manufacturing |  |  | Nondurable goods |  |  | Food and kindred products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 8.27 | 7.90 | 7.90 | 7.97 | 7.79 | 7.48 | 6.80 | 6.46 | 6.14 |
| Billing clerks | . 26 | . 28 | . 38 | . 21 | . 23 | . 27 | . 17 | . 18 | . 22 |
| Bookkeepers | 2.01 | 2.04 | 2.39 | 1.56 | 1.54 | 1.54 | 1.95 | 1.92 | 2.05 |
| Cashiers | . 04 | . 05 | . 09 | . 09 | . 09 | . 10 | -19 | . 18 | . 17 |
| Clerical supervisors, other | . 12 | . 13 | . 12 | . 13 | . 15 | .13 | . 11 | . 12 | . 11 |
| Collectors, bill and account | .01 | . 01 | . 01 | . 02 | . 02 | .01 | .01 | .01 | . 01 |
| Counter clerks, exc food | . 28 | . 29 | . 30 | - 32 | - 32 | . 33 | - 19 | -18 | . 16 |
| Dispatchers, starters, vehicle | . 02 | . 02 | -02 | . 03 | . 03 | .03 | . 05 | . 05 | . 05 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Estimators, investigators, other | . 18 | . 19 | -10 | . 18 | - 19 | . 11 | . 08 | . 09 | . 05 |
| Exfediters, prcduction controlrs | .47 | . 48 | . 47 | .40 | - 40 | - 37 | -20 | -18 | - 12 |
| Pile clerks | . 29 | - 26 | . 33 | . 24 | - 20 | - 20 | - 11 | . 09 | . 11 |
| Library attendants, assistants | . 01 | . 01 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | - 15 | . 14 | -11 | . 29 | . 27 | . 20 | . 08 | . 07 | . 06 |
| Messengers and office helpers | . 07 | . 07 | . 07 | . 09 | . 09 | . 06 | . 03 | . 03 | - 03 |
| Payroll, timekeeping clerks | . 36 | . 37 | . 27 | . 38 | - 42 | .41 | - 34 | . 39 | . 44 |
| Proofreaders | . 00 | . 00 | . 00 | . 33 | . 39 | . 49 | .00 | . 00 | . 00 |
| Receptionists | . 23 | . 19 | . 10 | . 22 | . 19 | .11 | .18 | . 14 | . 07 |
| Shipping and receiving clerks | 1.73 | 1. 57 | 1.65 | 1.37 | 1.29 | 1.47 | 1.19 | 1.12 | 1.29 |
| Statistical clerks | . 25 | . 28 | - 26 | .26 | . 28 | . 24 | - 18 | . 19 | . 17 |
| Stock clerks and store keepers | . 80 | . 60 | . 28 | . 61 | . 48 | .33 | . 56 | . 40 | . 16 |
| Telephone operators | . 14 | . 10 | . 08 | . 16 | . 11 | . 09 | . 13 | . 09 | - 08 |
| Weighers | . 09 | . 08 | . 05 | . 24 | . 22 | . 15 | - 66 | . 61 | . 34 |
| Misc clerical workers | .77 | .77 | . 82 | . 84 | . 86 | . 84 | -42 | . 43 | . 46 |
| Crafts and kindred workers | 17.65 | 17.59 | 19.38 | 16.07 | 16.92 | 17.82 | 14.62 | 15.28 | 16.72 |
| Construction crafts vockers | 1.66 | 1. 65 | 1.73 | 1.31 | 1.29 | 1.45 | 1.13 | 1.15 | 1.29 |
| Carpenters and apprentices | . 57 | . 64 | . 81 | . 22 | - 23 | . 22 | . 22 | . 24 | . 26 |
| Brick,stonemasons, apprentices | . 02 | . 02 | -03 | . 02 | - 02 | . 01 | . 02 | . 02 | . 01 |
| Bulldozer operators | . 02 | .01 | . 01 | . 07 | . 06 | . 08 | . 13 | . 10 | .07 |
| Electricians and apprentices | . 43 | . 45 | . 53 | . 49 | . 51 | . 61 | -45 | . 51 | . 67 |
| Excavating, grading mach operatr | . 02 | . 01 | . 01 | .03 | . 03 | . 04 | .03 | . 02 | .02 |
| Floor layers, exc tile setters | . 02 | . 01 | . 00 | .01 | . 01 | . 00 | .01 | .01 | . 00 |
| Painters and apprentices | .46 | . 37 | . 18 | . 12 | . 10 | . 08 | . 12 | .09 | . 04 |
| Plumbers, pipefitters,aprentices | . 11 | - 11 | . 14 | .33 | . 32 | . 40 | . 16 | . 17 | - 24 |
| Structural metal craft workers | . 01 | .01 | .01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Blue collar worker supervisors | 4.28 | 4.70 | 5.19 | 4.11 | 4.60 | 5.15 | 4.21 | 4.81 | 5.81 |
| Setalworkg craft wrkrs, exc mech | 3.89 | 3. 50 | 4.10 | 1. 17 | 1.30 | 1.78 | . 83 | 1.01 | 1.64 |
| Blacksmiths | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | .01 | .01 | . 03 | . 04 | . 04 | . 05 | . 03 | .03 | . 05 |
| Heat treaters, annealers | . 02 | . 02 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Forge and hammer operators | . 05 | . 05 | . 04 | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| Job and die setters, metal | . 14 | . 11 | . 08 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Machinists and apprentices | 1.06 | 1. 19 | 1.69 | . 70 | . 82 | 1.19 | . 56 | .71 | 1.26 |
| Millwrights | . 08 | -09 | . 11 | . 22 | . 23 | . 28 | - 15 | . 18 | . 22 |
| Molders, metal and apprentices | . 08 | . 07 | . 07 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Pattern and mcldmakers | 1.35 | . 98 | . 87 | . 03 | - 0.3 | . 04 | . 00 | - 00 | . 00 |
| gollers and finishers,metal | .01 | . 01 | - 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 24 | . 18 | . 10 | . 06 | . 05 | . 07 | . 07 | . 06 | . 09 |
| Tool and diemakers, apprentices | . 85 | . 79 | 1.07 | . 09 | - 10 | . 13 | . 01 | . 01 | . 02 |
| Mechanics, repairers,installers | 2.67 | 2. 85 | 2.74 | 3.26 | 3.63 | 4.08 | 3.90 | 4.25 | 4.46 |
| Air cond, heating, refrig mech | .01 | . 02 | . 04 | . 08 | . 10 | . 11 | . 18 | -24 | . 25 |
| Aircraft mechanics | . 04 | . 05 | . 12 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Auto body repairers | .01 | . 01 | . 01 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 13 | . 11 | . 06 | . 24 | - 19 | . 12 | . 79 | . 61 | . 35 |
| Data processing mach repairers | . 01 | . 01 | . 03 | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Heavy equip mech, incl diesel | 1.71 | 1.96 | 2.09 | 2.37 | 2.81 | 3.39 | 2.59 | 3.11 | 3.69 |
| Household appliance mechanics | . 38 | . 35 | . 23 | . 03 | . 03 | . 02 | . 01 | . 01 | .01 |
| Loom fixers | . 00 | . 00 | . 00 | . 22 | - 18 | . 15 | . 00 | . 00 | - 00 |
| office machine repairers | . 00 | . 00 | . 00 | . 01 | -01 | . 01 | -00 | . 00 | . 00 |
| Radio, television repairers | . 04 | . 04 | . 06 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Other mechanics and apprentices | . 34 | . 29 | .11 | . 29 | . 27 | . 22 | -27 | . 23 | - 10 |
| Printing trade crafts workers | . 87 | . 93 | 1.01 | 3.95 | 4.21 | 3.82 | . 09 | - 10 | - 15 |
| Bookbinders | . 01 | . 01 | . 00 | . 36 | +.30 | . 33 | -00 | . 00 | - 00 |
| Compositors and typesetters | . 34 | . 38 | . 43 | 1.74 | 1.80 | 1.32 | . 05 | . 06 | . 08 |
| Electrotypers and sterectypers | . 00 | . 00 | . 00 | . 08 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Engravers exc photoengravers | . 36 | . 35 | .33 | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Photoengravers, lithographers | . 02 | . 02 | . 02 | . 34 | . 39 | . 54 | . 00 | . 00 | .01 |
| Press,plate printers,aprentices | . 14 | - 17 | . 23 | 1.40 | 1.65 | 1.60 | . 03 | . 04 | . 07 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { manufactur- } \\ \text { ing } \end{gathered}$ |  |  | Nondurable goods |  |  | Food and kindred products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport, public util craft ukrs | . 03 | . 03 | . 03 | . 04 | . 04 | . 03 | . 01 | .02 | . 02 |
| Pover station operators | .00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 |
| Telephone installers,repairers | .03 | . 03 | . 03 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Other crafts, kindred workers | 4.24 | 3.93 | 4.58 | 2.24 | 1.85 | 1.52 | 4.45 | 3.94 | 3. 35 |
| Bakers | . 04 | . 04 | .07 | . 64 | . 52 | . 38 | 2.93 | 2.49 | 1.96 |
| Cabinetmakers | .21 | . 19 | . 10 | . 01 | .01 | .00 | . 00 | . 00 | . 00 |
| carpet installers | . 01 | . 01 | . 02 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 09 | . 08 | . 15 | . 11 | . 09 | . 10 | . 07 | .06 | . 10 |
| Decorators, windoy dressers | . 16 | . 28 | -41 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 |
| Purniture and wood finishers | . 07 | - 06 | . 03 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Inspectors, $\operatorname{lcg}$ and lumber | .01 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 03 | . 03 | . 04 | . 04 | . 05 | . 06 | . 04 | . 06 | . 08 |
| Jewelers and watchmakers | 2.02 | 2.06 | 3.01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Millers, grain, flour, feed | .00 | . 00 | . 00 | - 10 | . 12 | . 14 | . 47 | . 56 | . 73 |
| Opticians, lens grinder, folisher | .01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Piano,organ tuners, repairers | . 15 | . 13 | . 18 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Shipfitters | .01 | . 01 | .01 | .00 | . 00 | .00 | . 00 | .00 | . 00 |
| Shoe repairers | . 03 | . 01 | .01 | . 10 | . 03 | . 03 | . 00 | . 00 | .00 |
| Sign painters and letterers | .37 | - 23 | . 02 | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Stationary engineers | . 12 | . 08 | . 02 | - 35 | . 27 | . 17 | . 51 | . 41 | .31 |
| Stone cutters, stone carvers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Tailors | .03 | . 04 | . 06 | -44 | . 40 | . 41 | . 00 | .00 | . 00 |
| Upholsterers | . 40 | . 24 | . 16 | . 02 | . 01 | .01 | .00 | . 00 | . 00 |
| Other crafts workers | . 46 | . 38 | . 22 | . 40 | . 32 | .19 | . 40 | . 34 | .15 |
| Operatives | 46.82 | 45.52 | 42.39 | 47.75 | 45.62 | 45.22 | 49.24 | 48.71 | 49.98 |
| operatives, except transport | 45.24 | 43.86 | 40.17 | 43.54 | 41.69 | 40.87 | 37.32 | 37.97 | 38.76 |
| Semiskilled metalworking | 3.94 | 3. 02 | 2.08 | . 61 | . 56 | . 54 | - 39 | . 41 | - 54 |
| Drill press oferatives | . 30 | - 18 | . 05 | . 03 | . 02 | . 01 | . 01 | . 00 | . 00 |
| Purnace tendrs,smeltrs, pourers | . 05 | . 06 | . 07 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Grinding machine operatives | . 19 | . 14 | . 08 | . 03 | . 03 | . 02 | . 04 | . 03 | . 02 |
| Lathe, milling mach operatives | . 39 | - 25 | . 14 | . 08 | . 06 | . 04 | . 04 | . 02 | . 01 |
| Metal platers | . 34 | . 26 | . 06 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other precision mach operators | . 17 | - 12 | . 06 | . 04 | . 03 | . 02 | . 01 | . 01 | . 01 |
| Punch,stamping press operatives | . 92 | . 64 | . 23 | - 11 | . 09 | . 05 | . 02 | . 01 | . 01 |
| Solderers | . 64 | . 35 | . 03 | . 01 | . 01 | . 00 | . 01 | .01 | . 00 |
| Welders and flamecutters | .93 | 1.02 | 1.35 | . 28 | . 30 | - 38 | . 26 | . 32 | . 49 |
| Semiskilled textile operatives | .00 | . 00 | .00 | 5.33 | 4.63 | 3.90 | . 00 | .00 | . 00 |
| Carding, lapping combing oprs | . 00 | . 00 | . 00 | . 22 | - 16 | . 07 | . 00 | . 00 | . 00 |
| Knitters, loopers, and toppers | .00 | . 00 | . 00 | . 42 | - 36 | . 30 | . 00 | . 00 | . 00 |
| Spinners, twisters, winders | . 00 | . 00 | .00 | 1.82 | 1.62 | 1.48 | . 00 | . 00 | . 00 |
| Weavers | . 00 | . 00 | . 00 | . 56 | . 46 | . 31 | . 00 | . 00 | . 00 |
| Other textile operatives | . 00 | . 00 | .00 | 2.31 | 2.03 | 1.74 | .00 | . 00 | . 00 |
| Semiskilled packing, insfecting | 7.18 | 7.00 | 7.80 | 7.35 | 7.55 | 9.16 | 12.17 | 12.68 | 16.72 |
| Checkers, exariners, mfy | 2.84 | 2.89 | 3.35 | 2.72 | 2.93 | 3.60 | 1.59 | 1.80 | 2.57 |
| Graders and scrters, mfy | -27 | . 24 | . 14 | . 40 | . 41 | . 45 | . 93 | 1.05 | 1.43 |
| Packer,wrapper,exc meat.prodce | 4.07 | 3.87 | 4.31 | 4.23 | 4.20 | 5.11 | 9.65 | 9.84 | 12.72 |


|  | $\begin{gathered} \text { Misc } \\ \text { manufactur- } \\ \text { ing } \end{gathered}$ |  |  | Nondurable goods |  |  | Pood and kindred products |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 34.12 | 33.85 | 30.29 | 30.26 | 28.95 | 27.27 | 24.75 | 24.88 | 21.50 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 03 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Assemblers | 7.96 | 8.88 | 11.33 | .91 | 1. 14 | 1.59 | . 68 | . 88 | 1.42 |
| Bottling, carning operatives | . 10 | - 10 | .11 | -69 | . 68 | . 65 | 2.94 | 3.01 | 3.06 |
| Clothing ironers and pressers | . 02 | . 01 | . 00 | . 78 | . 57 | . 52 | . 00 | . 00 | . 00 |
| Cutting operatives, other | 1.09 | 1.09 | 1.06 | 1.38 | 1.38 | 1.32 | . 32 | . 32 | . 27 |
| orillers, earth | .07 | . 05 | .01 | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 |
| Dry wall installers, lathers | . 01 | -01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 09 | . 09 | . 08 | . 32 | . 31 | . 37 | . 00 | . 00 | . 00 |
| Filer,polisher, sander, bufier | 2.13 | 1.57 | . 52 | . 07 | . 06 | . 04 | .03 | . 02 | . 01 |
| Garaye wrkr.gas station atten | . 00 | . 00 | . 00 | .03 | . 02 | . 01 | . 05 | . 03 | .01 |
| Laundry, dry cleang oprs, other | .01 | . 01 | . 02 | . 03 | . 02 | . 02 | . 04 | . 03 | . 02 |
| Meat cutters and butchers | . 00 | . 00 | . 00 | 1.07 | 1.01 | 1.07 | 4.89 | 4.83 | 5.55 |
| Mixing operatives | . 32 | . 32 | - 29 | . 63 | . 62 | . 58 | . 72 | . 70 | . 52 |
| Oilers.greasers,exc automobiles | . 05 | . 05 | . 07 | . 15 | . 14 | . 14 | . 19 | . 20 | . 25 |
| Painters, mfg articles | 1.91 | 1.51 | 1.12 | . 23 | . 20 | . 18 | . 14 | . 11 | . 06 |
| Photographic frocess workers | . 04 | . 04 | . 06 | - 12 | . 14 | - 19 | . 00 | . 00 | . 00 |
| kiveters and fasteners | . 22 | . 21 | . 19 | . 08 | . 08 | . 06 | . 02 | . 02 | . 02 |
| Sawyers | . 36 | . 39 | . 49 | . 08 | . 09 | . 11 | . 03 | . 04 | . 05 |
| Sewers and stitchers | 1.94 | 1.69 | 2.04 | 10.40 | 9.08 | 10.38 | . 10 | . 09 | . 10 |
| Shoemaking machine operatives | . 02 | . 02 | . 01 | . 81 | . 58 | . 32 | . 01 | . 01 | . 00 |
| Furnace tendr, stokr, exc metal | . 12 | . 08 | . 07 | - 30 | . 21 | . 23 | . 26 | . 18 | . 17 |
| winding operatives, other | . 35 | . 31 | -18 | -17 | - 14 | . 08 | . 01 | .01 | . 01 |
| Miscellaneous machine operatves | 8.76 | 8.84 | 7.29 | 7.83 | 8.17 | 6.65 | 8.21 | 8.27 | 6.58 |
| other operatives, exc transport | 8.56 | 8.58 | 5.33 | 4.15 | 4.26 | 2.71 | 6.11 | 6.14 | 3.38 |
| Transport equifment operatives | 1.57 | 1.66 | 2.22 | 4.21 | 3.94 | 4.34 | 11.92 | 10.73 | 11.22 |
| Delivery and route workers | - 38 | . 36 | . 51 | 1.62 | 1.26 | 1.16 | 6.37 | 5.01 | 4.63 |
| Fork lift,tow motor operatives | . 51 | . 59 | . 67 | . 98 | 1.11 | 1.13 | 1.67 | 1.99 | 2.21 |
| dail vehicle cperators, other | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 | . 01 |
| «ailroad switch operators | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Taxicab drivers, chautfeurs | . 05 | . 04 | . 01 | . 05 | . 04 | . 02 | . 06 | . 05 | . 02 |
| Truck drivers | . 64 | . 66 | 1.03 | 1.54 | 1.50 | 2.00 | 3.80 | 3.65 | 4.33 |
| Service workers | 1.76 | 1.49 | . 89 | 2.28 | 1.95 | 1.38 | 3.49 | 2.93 | 1.97 |
| Cleaning service workers | 1.25 | 1.04 | . 54 | 1.52 | 1.27 | .72 | 2.20 | 1.83 | . 89 |
| Bldg interior cleaners, other | . 20 | - 19 | . 14 | . 28 | . 24 | - 14 | -41 | . 38 | . 24 |
| Janitors and sextons | 1.05 | - 85 | . 40 | 1.24 | 1.03 | . 59 | 1.80 | 1.45 | . 65 |
| Food service warkers | . 10 | . 07 | . 06 | . 24 | - 18 | . 18 | . 70 | . 54 | . 56 |
| Cooks, exc private housenolds | . 02 | . 01 | . 01 | . 11 | - 09 | . 11 | . 36 | . 32 | . 44 |
| Dishwashers | . 01 | . 01 | . 01 | . 02 | . 01 | .01 | . 05 | . 03 | . 01 |
| Food counter, fountain workers | .01 | . 01 | .00 | . 03 | . 03 | . 03 | . 05 | . 05 | . 04 |
| waiters | .03 | . 02 | . 02 | . 03 | . 02 | . 01 | . 08 | . 04 | . 02 |
| Othec food serv ukrs,exc privt | . 03 | . 02 | . 02 | . 05 | . 04 | . 02 | . 15 | . 09 | . 04 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 01 | . 01 | .03 |
| Nursing aides and orderlies | . 00 | . 00 | .00 | .01 | . 01 | .03 | . 01 | .01 | .03 |
| Personal service workers | . 07 | . 06 | . 03 | . 09 | . 08 | . 05 | . 15 | .13 | . 09 |
| Attendants, personal serv,other | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 04 | . 02 | . 01 |
| Elevator operators | . 04 | . 03 | . 02 | . 05 | . 04 | . 03 | . 08 | . 08 | . 07 |
| Hairdressers and cosmetologists | . 02 | - 02 | . 01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Housekeepers, exc private hines | . 02 | . 01 | .01 | . 01 | . 01 | .01 | . 02 | . 02 | .01 |
| Protective service workers | . 34 | - 32 | .27 | -42 | . 41 | . 39 | . 42 | . 43 | . 40 |
| Firefighters | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | .01 | .01 |
| Guards | . 32 | . 30 | .23 | . 41 | . 40 | . 39 | .41 | -42 | . 39 |
| Police and detectives | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Laborers, except farm | 2.78 | 2.51 | 1.93 | 4.48 | 4.00 | 3.06 | 8.23 | 7.40 | 5.35 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 09 | . 11 | . 09 |
| Carpenter helfers | . 05 | . 05 | . 07 | . 03 | . 02 | . 03 | . 03 | . 03 | . 05 |
| Constr labr, exc carpenter helpr | .07 | . 06 | .03 | . 09 | . 08 | . 06 | . 08 | .06 | . 02 |
| Fishers,hunters, trappers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Freight and material handlers | 1.09 | 1.05 | 1.02 | 2.23 | 2.06 | 1.81 | 4.42 | 4.15 | 3.52 |
| Garbage collectors | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 02 |
| Gardenrs, groundkeepers, exc larm | . 05 | . 05 | . 03 | . 04 | . 05 | . 04 | . 06 | .07 | . 05 |
| Stock handlers | . 60 | . 54 | . 23 | . 62 | -57 | - 29 | . 65 | . 56 | - 20 |
| Teamsters | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Vehicle vashers, equip cleaners | . 16 | - 14 | . 06 | . 42 | - 34 | .13 | . 97 | . 76 | .23 |
| Warehouse labcrers, other | . 15 | . 13 | . 10 | . 25 | . 24 | . 24 | . 49 | . 44 | .34 |
| Other laborers | . 59 | . 49 | . 38 | . 75 | . 59 | .41 | 1.39 | 1.17 | .81 |


|  | Meat products |  |  | $\begin{gathered} \text { Dairy } \\ \text { products } \end{gathered}$ |  |  | $\begin{gathered} \text { Canning } \\ \text { and } \\ \text { preserving } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.88 | 2. 12 | 1.91 | 4.08 | 5.07 | 6.59 | 4.16 | 4.39 | 3.98 |
| Engineers, technical | .37 | . 37 | . 32 | . 48 | . 45 | . 40 | . 68 | . 60 | . 47 |
| Chemical | . 01 | . 01 | . 01 | . 02 | . 02 | . 05 | . 00 | .00 | . 00 |
| Civil | . 02 | . 02 | . 02 | . 02 | . 02 | . 04 | .02 | . 01 | . 01 |
| Electrical | . 02 | . 02 | . 02 | . 03 | . 03 | . 04 | . 08 | . 08 | . 09 |
| Industrial | . 20 | . 21 | . 17 | . 26 | . 25 | . 17 | . 28 | . 25 | . 12 |
| Mechanical | . 09 | . 08 | . 06 | . 12 | . 10 | . 08 | . 18 | . 18 | . 20 |
| Other engineers | . 04 | . 04 | . 04 | . 03 | . 03 | . 02 | . 12 | . 09 | . 06 |
| Life and physical scientists | . 10 | - 12 | . 10 | . 13 | . 16 | . 18 | . 48 | . 53 | . 50 |
| Agricultural | . 00 | .00 | . 00 | . 01 | . 02 | . 03 | . 06 | .07 | . 07 |
| Biological | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 | . 08 | . 13 | . 15 |
| Chemists | . 08 | . 08 | . 07 | . 09 | . 09 | . 11 | . 35 | .33 | . 28 |
| Mathematical sfecialists | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Engineering, science technicians | .26 | . 28 | . 29 | 1.83 | 2.42 | 3.87 | 1.16 | 1.25 | 1.34 |
| Agricultural, biolycl, exc health | . 16 | . 18 | . 17 | 1.72 | 2.30 | 3.76 | . 85 | . 92 | . 96 |
| Chemical tecbricians | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 |
| טrafters | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 13 | . 12 | . 18 |
| Electrical and electronic | .01 | . 01 | .01 | . 01 | . 01 | -01 | . 02 | . 02 | . 02 |
| Industrial engineering | . 04 | . 05 | . 06 | . 04 | . 05 | . 04 | . 06 | . 07 | . 08 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Other engineering, science tech | .01 | . 01 | . 01 | . 04 | - 05 | . 05 | . 07 | .06 | . 07 |
| Medical workers,exc technicians | . 07 | . 08 | . 12 | . 02 | . 04 | . 06 | . 08 | . 09 | . 12 |
| Dietitians | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | .01 | . 01 |
| Registered nurses | . 05 | . 05 | . 05 | . 01 | . 02 | . 04 | . 07 | .08 | . 11 |
| Veter inarians | .02 | . 03 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Computer specialists | . 10 | - 12 | .09 | . 16 | - 22 | . 23 | . 19 | .23 | . 21 |
| computer frogramers | . 08 | . 09 | . 07 | . 10 | . 12 | . 13 | . 14 | . 16 | . 16 |
| Computer systemis analysts | . 02 | . 03 | . 02 | . 05 | . 08 | . 08 | . 05 | . 06 | . 05 |
| Other compater specialists | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 00 | .01 | .00 |
| Social scientists | . 04 | . 06 | . 05 | . 05 | . 08 | . 06 | . 00 | . 00 | . 00 |
| Economists | . 04 | . 06 | . 05 | . 05 | . 08 | .06 | . 00 | .00 | . 00 |
| Teachers | .00 | . 00 | . 00 | .01 | . 01 | . 01 | .00 | .00 | .00 |
| Adult education | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Writers,artists, entertainers | . 08 | - 11 | . 13 | . 17 | . 23 | . 24 | - 12 | . 14 | . 10 |
| Designers | . 01 | . 01 | . 01 | . 02 | . 03 | . 06 | . 01 | . 01 | . 01 |
| Editors and reforters | . 01 | . 01 | . 03 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Public relations specialists | . 05 | . 07 | . 08 | . 14 | - 18 | . 18 | . 08 | . 09 | . 08 |
| Other writers,artists, entertain | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 00 |
| Other professicnal and technical | . 84 | . 97 | . 81 | 1.22 | 1. 47 | 1.52 | 1.43 | 1.54 | 1.23 |
| Accountants | . 57 | . 66 | . 58 | . 91 | 1.09 | 1.21 | . 79 | . 87 | . 75 |
| Home management advisors | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 04 | - 02 | . 01 |
| Lawyers | . 02 | . 04 | .03 | . 05 | - 10 | . 08 | . 03 | . 05 | .03 |
| operations and systems research | .03 | . 04 | . 04 | . 05 | . 06 | . 06 | . 08 | .11 | - 10 |
| Personnel, labcr relations wirs | . 18 | - 20 | . 15 | - 17 | - 19 | . 16 | - 37 | . 40 | . 32 |
| Other research workers | .03 | . 02 | .01 | . 03 | . 02 | . 01 | -13 | . 09 | . 03 |
| Managers, officials, proprietors | 5.16 | 5.56 | 4.90 | 8.75 | 10.29 | 9.65 | 6.13 | 7.06 | 7.82 |
| Buyers, sales,lcan managers | 1.69 | 1. 51 | 1.71 | 1.65 | 1. 50 | 1.63 | 1.33 | 1.12 | . 94 |
| Bank, financial managers | . 08 | . 07 | . 04 | .14 | . 13 | . 08 | - 11 | . 09 | . 04 |
| Credit managers | . 07 | . 04 | . 02 | . 18 | . 11 | . 12 | . 05 | . 03 | . 05 |
| Buyers, shippers,farm products | . 69 | - 57 | . 87 | . 33 | . 27 | . 41 | . 25 | . 19 | . 22 |
| Purchasing agents, buyers, other | . 44 | - 37 | . 28 | . 25 | - 21 | . 17 | . 50 | . 39 | . 24 |
| Sales manager, exc retail trade | . 42 | . 46 | . 50 | . 75 | . 79 | . 85 | . 43 | . 42 | . 39 |
| Other managers,officials, profrts | 3.46 | 4.05 | 3.19 | 7.10 | 8.71 | 8.02 | 4.79 | 5.94 | 6.88 |
| Office managers, other | . 27 | . 29 | . 32 | . 64 | . 67 | . 74 | . 37 | . 37 | . 38 |
| officers, pilots, pursers,snip | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 |
| restaurant, cafe, bar,managers | . 03 | . 03 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Other managers, administrators | 3.16 | 3.74 | 2.86 | 6.46 | 8.04 | 7.28 | 4.36 | 5.51 | 6.46 |


|  | Meat products |  |  | Dairy products |  |  | $\begin{gathered} \text { Canning } \\ \text { and } \\ \text { preserving } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | 2.59 | 2.38 | 1.60 | 2.93 | 2.47 | 1.24 | 1.24 | 1.13 | . 84 |
| Advertising agents, sales worker | . 01 | . 01 | . 01 | . 03 | . 05 | . 09 | . 01 | . 01 | . 01 |
| Other sales workers | 2.58 | 2.36 | 1.59 | 2.90 | 2.42 | 1.15 | 1.23 | 1.12 | . 83 |
| Clerical workers | 7.94 | 7.71 | 6.92 | 10.70 | 10.59 | 11.62 | 9.45 | 9.02 | 9.08 |
| Stenographrs,typists, secretaries | 1.28 | 1.28 | 1.43 | 2.33 | 2.49 | 3.51 | 2.59 | 2.62 | 3.38 |
| Legal secretaries | . 01 | . 00 | . 00 | - 02 | . 02 | . 02 | . 01 | .01 | . 01 |
| Other secretaries | 1.05 | 1. 10 | 1.30 | 3.94 | 2.15 | 3.16 | 2.05 | 2.20 | 3.01 |
| Stenographers | .03 | . 02 | . 01 | . 02 | . 01 | . 01 | . 09 | . 04 | . 00 |
| Typists | . 20 | . 16 | - 12 | . 36 | . 31 | . 32 | .43 | . 37 | - 35 |
| Office machine operators. | . 59 | . 62 | -42 | -97 | - 90 | . 62 | . 60 | . 62 | . 39 |
| Boakkeeping and billing | . 04 | . 02 | . 01 | . 08 | . 04 | . 03 | . 07 | . 03 | . 01 |
| Calculating | . 09 | . 05 | . 01 | .31 | . 18 | . 06 | . 03 | . 02 | . 00 |
| computer and geripheral equip | . 13 | - 30 | . 27 | . 16 | . 36 | . 33 | . 16 | . 34 | . 25 |
| Duplicating | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 |
| Keypuncin | .31 | . 23 | .11 | .35 | . 27 | .17 | . 26 | . 19 | . 10 |
| Tabulating | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | .01 | . 00 |
| Other office machine operators | . 02 | . 02 | . 02 | . 05 | . 05 | . 03 | . 04 | .03 | .01 |
| Other clerical workers | 6.08 | 5. 81 | 5.08 | 7.40 | 7. 20 | 7.48 | 6.26 | 5.78 | 5.32 |
| Billing clerks | . 15 | . 16 | . 21 | . 23 | . 24 | . 33 | . 13 | . 14 | . 17 |
| Bookieepers | 1.39 | 1. 36 | 1.29 | 3.15 | 3. 17 | 3.50 | 1.31 | 1.30 | 1.41 |
| Cashiers | .13 | . 14 | . 16 | . 28 | . 29 | . 30 | . 08 | . 09 | . 15 |
| Clerical supervisors, other | .03 | . 04 | . 05 | . 10 | . 12 | . 12 | . 12 | . 13 | . 10 |
| collectors, bill and account | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Counter clerks,exc food | . 11 | - 12 | - 14 | . 28 | . 28 | . 26 | . 07 | .07 | . 07 |
| Dispatchers, starters, vehicle | . 05 | . 05 | . 05 | . 07 | . 07 | . 05 | . 05 | . 04 | . 02 |
| Estimators, investigators, other | . 04 | . 05 | . 04 | . 09 | . 09 | . 04 | . 07 | . 07 | . 04 |
| Expediters, frcduction controlrs | . 12 | - 12 | - 10 | - 17 | - 16 | - 10 | . 18 | . 16 | . 09 |
| File clerks | . 07 | . 06 | . 06 | - 10 | . 08 | . 10 | .11 | . 09 | . 10 |
| Mail handlers, exc post office | . 06 | - 06 | . 04 | . 05 | . 04 | . 05 | . 10 | .09 | . 06 |
| Messengers and office helpers | . 03 | . 03 | . 02 | . 00 | . 00 | .00 | . 02 | . 02 | . 01 |
| Payroll,timekeeping clerks | . 27 | - 31 | . 33 | . 27 | . 29 | . 29 | . 52 | . 58 | . 60 |
| Receptionists | . 10 | . 09 | . 06 | . 21 | . 18 | . 10 | . 16 | . 13 | . 05 |
| Shipping and receiving clerks | 1.15 | 1. 04 | -98 | 1.02 | . 99 | 1.26 | . 98 | . 95 | 1.26 |
| Statistical clerks | . 13 | - 14 | -13 | . 14 | . 15 | . 15 | - 17 | . 17 | . 14 |
| Stock clerks and store keepers | .31 | . 24 | . 10 | . 50 | - 37 | . 16 | . 65 | .43 | . 13 |
| Telephone oferators | . 09 | . 06 | . 05 | . 15 | . 11 | . 12 | . 11 | . 08 | - 10 |
| Neighers | 1.56 | 1.43 | . 88 | . 22 | . 20 | .13 | . 98 | .81 | . 36 |
| Misc clerical workers | . 29 | . 32 | . 38 | . 37 | . 37 | . 42 | .47 | . 46 | . 46 |
| Crafts and kindred workers | 7.11 | 7.97 | 9.10 | 10.21 | 10.76 | 11.43 | 12.56 | 14.03 | 17.14 |
| Construction crafts workers |  | . 86 | . 88 | . 49 | . 48 | . 51 | 1.28 | 1.27 | 1.43 |
| Carpenters and apprentices | . 23 | . 27 | . 35 | . 11 | . 11 | . 09 | . 26 | -28 | . 31 |
| Brick,stonemasons, apprentices | . 02 | . 02 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Bulldozer operators | . 10 | . 08 | . 07 | . 02 | . 02 | . 01 | . 15 | . 11 | . 07 |
| Electricians and apprentices | - 27 | - 30 | . 34 | . 18 | . 21 | . 31 | . 57 | .62 | . 79 |
| Excavating, grading mach operatr | . 02 | . 02 | . 01 | . 01 | . 00 | .00 | . 01 | .01 | . 01 |
| Painters and apprentices | . 06 | . 05 | . 02 | - 14 | - 10 | . 03 | .13 | . 10 | . 04 |
| Plumbers, pipefitters, aprentices | . 14 | . 12 | . 09 | .03 | . 03 | . 06 | . 14 | . 14 | . 20 |
| Blue collar worker supervisors | 3.31 | 3.84 | 4.51 | 4. 17 | 4.57 | 5.03 | 4.84 | 5.49 | 6.79 |
| Metalworkg craft wrkrs,exc meca | . 39 | - 48 | . 76 | . 38 | - 49 | . 96 | - 79 | . 94 | 1.62 |
| Boilermakers | . 00 | . 00 | . 00 | . 03 | . 04 | . 07 | . 03 | . 04 | . 05 |
| Forge and hammer operators | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Machinists and apprentices | . 24 | . 31 | . 57 | - 30 | -40 | . 82 | . 61 | . 76 | 1.37 |
| Millurights | - 12 | - 14 | - 17 | . 01 | . 01 | . 01 | . 08 | . 09 | . 14 |
| Rollers and finishers,metal | .00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | -00 | . 00 |
| Sheetmetal workers. apprentices | . 03 | . 03 | . 02 | . 01 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Tool and diemakers, apprentices | .00 | . 00 | . 00 | .01 | .01 | .01 | .01 | .01 | .01 |

Table 1. Percent distribution of industry employment by cccupation, 1970 , 1978 and projected 1990

|  | Meat products |  |  | $\begin{gathered} \text { Dairy } \\ \text { products } \end{gathered}$ |  |  | $\begin{gathered} \text { Canning } \\ \text { and } \\ \text { preserving } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 2.01 | 2.31 | 2.54 | 4.15 | 4. 26 | 3.94 | 4.69 | 5.35 | 5.94 |
| Air cond, heating, refrig mech | . 16 | . 25 | . 32 | . 51 | . 70 | . 72 | . 16 | . 25 | . 32 |
| Auto body repairers | .01 | . 01 | . 01 | . 05 | . 03 | . 02 | . 00 | . 00 | - 00 |
| Auto mechanics and apprentices | . 44 | . 36 | . 19 | 1.76 | 1.39 | .73 | - 25 | - 19 | . 07 |
| Data processing mach repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 04 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 06 | . 06 | . 07 | . 03 | . 03 | . 03 |
| Heavy equip mech, incl diesel | 1.26 | 1.56 | 1.96 | 1.70 | 2.02 | 2.38 | 4.02 | 4.68 | 5.38 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Radio, television repairers | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 | -04 |
| Other meghanics and apprentices | . 13 | - 12 | . 06 | . 05 | . 05 | .01 | . 19 | - 15 | . 06 |
| Printing trade crafts workers | . 03 | . 04 | . 06 | . 08 | . 09 | . 08 | . 18 | . 22 | . 32 |
| Compositors and typesetters | . 02 | . 02 | . 02 | . 05 | . 05 | . 04 | . 12 | - 14 | - 20 |
| Photoengravers, lithographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 04 |
| Press, plate printers,aprentices | . 01 | . 02 | . 04 | . 03 | . 04 | . 03 | . 05 | . 06 | . 08 |
| Transport, public util craft wkrs | . 02 | . 02 | . 02 | .00 | . 00 | .00 | .01 | .01 | . 01 |
| Elec pur line instaler, repairer | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Power station operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | .49 | . 44 | . 34 | . 93 | .87 | .91 | .77 | . 75 | 1.04 |
| Bakers | . 01 | . 01 | . 00 | . 05 | . 05 | . 08 | . 20 | . 22 | . 37 |
| Cabinetmakers | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Crane.derrick,hoist operator | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | . 10 | . 09 | . 13 |
| vecorators, window dressers | .00 | . 00 | -00 | . 01 | . 02 | . 02 | . 00 | .00 | . 00 |
| Inspectors, other | . 06 | . 09 | . 12 | . 05 | . 07 | . 13 | . 03 | . 04 | . 06 |
| Millers, grain, flour, feed | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 03 | . 03 | . 07 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Stationary engineers | . 36 | . 29 | .17 | .78 | -68 | . 63 | . 38 | . 35 | . 41 |
| Other crafts workers | . 03 | . 03 | . 02 | . 01 | .01 | . 01 | . 04 | . 03 | -01 |
| operatives | 63.17 | 63.21 | 67.29 | 52.23 | 51.09 | 52.16 | 54.88 | 54.59 | 54.29 |
| Operatives, except transport | 57.92 | 57.97 | 61.16 | 26.11 | 27.24 | 28.95 | 48.36 | 47.53 | 45.80 |
| Semiskilled metalworking | . 35 | . 33 | . 37 | . 15 | . 18 | . 31 | . 54 | . 55 | . 75 |
| Grinding machine operatives | . 13 | - 10 | . 05 | . 00 | . 00 | .00 | . 04 | . 03 | . 02 |
| Lathe, milling mach operatives | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 07 | . 04 | .01 |
| Metal platers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | . 00 |
| Other precision mach operators | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Punch, stamping press operatives | . 00 | . 00 | .00 | . 01 | . 01 | . 00 | .03 | . 02 | . 01 |
| Solderers | . 00 | . 00 | . 00 | . 01 | -01 | . 00 | . 01 | . 01 | . 01 |
| Welders and flamecutters | . 18 | . 22 | .31 | - 12 | . 16 | . 31 | . 36 | . 43 | .71 |
| Semiskilled packing, inspecting | 14.02 | 14. 59 | 19.08 | 6.23 | 6.78 | 10.41 | 16.60 | 16.94 | 22.19 |
| Checkers, examiners, mfg | 1.55 | 1.67 | 2.07 | 1.14 | 1.32 | 2.05 | 2.51 | 2.80 | 4.05 |
| Graders and scrters, mfg | . 87 | . 94 | 1.15 | . 73 | . 82 | 1.16 | 3.21 | 3.40 | 4.32 |
| Packer,wrapper,exc meat, prodce | 11.61 | 17.98 | 15.86 | 4.36 | 4.63 | 7.19 | 10.88 | 10.74 | 13.82 |


|  | Meat products |  |  | $\begin{gathered} \text { Dairy } \\ \text { products } \end{gathered}$ |  |  | $\begin{gathered} \text { Canning } \\ \text { and } \\ \text { preserving } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther operatives, exc transport | 43.56 | 43.04 | 41.71 | 19.74 | 20.28 | 18.23 | 31.22 | 30.04 | 22.86 |
| Assemblers | . 51 | . 67 | 1.15 | . 33 | . 44 | . 84 | 1.14 | 1.39 | 2.22 |
| Bottling, Canning operatives | . 86 | . 92 | .98 | 2.92 | 3.03 | 3.29 | 5.61 | 5.50 | 4.94 |
| surveyors ' helpers | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 54 | . 55 | . 52 | - 12 | - 12 | - 12 | . 42 | . 39 | . 29 |
| Filer, polisher, sander, buffer | . 01 | . 01 | -01 | . 02 | - 02 | .01 | . 02 | . 01 | .07 |
| Garage wrkr,gas station atten | .03 | . 02 | . 02 | . 06 | . 03 | .01 | -06 | . 03 | . 01 |
| Laundry,dry cleang oprs,other | . 14 | . 10 | . 05 | -01 | . 01 | .01 | . 05 | . 03 | . 01 |
| Meat cutters and butchers | 22.77 | 21.30 | 24.76 | . 12 | - 11 | -14 | 2.66 | 2.24 | 2.00 |
| Mixing operatives | . 16 | . 17 | . 15 | . 56 | . 54 | . 47 | . 59 | -54 | . 34 |
| oilers,greasers,exc automodiles | . 08 | . 08 | . 10 | . 03 | . 04 | . 06 | . 11 | .13 | - 22 |
| Painters, mfg articles | . 06 | . 04 | . 02 | .11 | . 09 | . 06 | . 19 | . 14 | . 08 |
| Riveters and fasteners | .03 | . 03 | . 02 | . 01 | . 01 | . 01 | . 04 | . 04 | . 03 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Sawyers | . 08 | . 09 | - 12 | . 00 | - 00 | . 00 | . 05 | . 06 | - 10 |
| Sewers and stitchers | . 12 | .11 | . 15 | . 03 | . 03 | . 04 | . 07 | . 06 | . 05 |
| Furnace tendr,stokr,exc metal | . 11 | . 06 | . 01 | . 26 | . 16 | . 09 | . 37 | . 26 | . 29 |
| Winding operatives, other | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| Miscellaneous machine operatves | 7.00 | 7.42 | 6.52 | 13.27 | 13.77 | 11.95 | 9.74 | 9.62 | 7.38 |
| other operatives, exc transport | 11.07 | 11.46 | 7.11 | 1.86 | 1.84 | 1.07 | 10.10 | 9.59 | 4.84 |
| transport equifment operatives | 5.25 | 5.24 | 6.13 | 26.12 | 23.85 | 23.21 | 6.51 | 7.05 | 8.49 |
| Boat operators | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 |
| Bus drivers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| Delivery and route workers | 1.48 | 1. 44 | 1.93 | 19.66 | 17. 39 | 15.76 | . 53 | . 50 | . 69 |
| Fork lift, tow motor operatives | . 46 | . 56 | . 63 | . 56 | . 65 | . 71 | 3.75 | 4.24 | 4.29 |
| Bail vehicle cperators, other | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | -01 | - 01 |
| Parking attendants | . 02 | . 02 | -01 | . 00 | -00 | .00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chautfeurs | . 04 | . 03 | . 01 | . 04 | . 03 | . 01 | . 05 | . 04 | . 02 |
| Truck drivers | 3.24 | 3. 18 | 3.55 | 5.85 | 5.77 | 6.73 | 2.14 | 2.21 | 3.45 |
| Service workers | 3.28 | 2. 89 | 1.96 | 2.34 | 1.84 | 1.04 | 4.37 | 3.59 | 2.76 |
| Cleaning service workers | 2.25 | 1.99 | 1.18 | 1.54 | 1. 23 | . 54 | 2.40 | 1.89 | . 80 |
| bldg interior cleaners, other | . 36 | . 37 | . 30 | . 21 | . 18 | . 09 | . 30 | . 27 | - 15 |
| Janitors and sextons | 1.89 | 1.62 | . 88 | 1.33 | 1.05 | . 45 | 2.10 | 1.62 | . 65 |
| Yood service workers | . 45 | . 35 | . 31 | . 60 | . 41 | - 30 | 1.19 | -97 | 1.22 |
| Naiters' assistants | . 00 | . 00 | . 00 | . 01 | . 02 | .03 | . 00 | .00 | . 00 |
| Cooks, exc private households | . 24 | . 20 | . 22 | . 13 | .11 | . 12 | . 87 | . 76 | 1. 10 |
| Dishwashers | . 02 | . 01 | . 01 | . 05 | . 02 | . 01 | . 05 | . 03 | . 02 |
| Food counter, fountain workers | .03 | . 03 | . 04 | . 15 | . 13 | - 10 | . 05 | . 05 | . 05 |
| waiters | .01 | . 01 | .01 | . 22 | . 11 | . 04 | . 02 | . 01 | . 07 |
| Other food serv wkrs, exc privt | . 14 | .09 | . 04 | . 04 | . 02 | . 01 | - 20 | . 12 | . 04 |
| Health service workers | . 01 | . 02 | . 05 | . 00 | . 00 | . 00 | . 04 | . 03 | . 08 |
| Nursing aides and orderlies | . 01 | . 01 | . 05 | . 00 | - 00 | . 00 | . 03 | . 03 | . 07 |
| Practical nurses | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Personal service workers | . 16 | - 13 | . 05 | . 04 | . 04 | . 03 | . 15 | - 12 | . 11 |
| Attendants, fersonal serv,other | .03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | .07 |
| Child care workers. exc private | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| Elevator operators | . 12 | . 10 | .03 | . 01 | . 01 | . 01 | . 06 | . 07 | . 08 |
| Housekeepers, exc private hames | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 |
| Protective service workers |  | .41 |  | .17 | . 17 | . 17 | . 59 | - 58 | . 56 |
| Firefighters | . 01 | . 01 | .01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Guards | . 40 | . 40 | . 37 | . 16 | - 15 | . 15 | . 57 | . 56 | . 54 |
| Police and detectives | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Laborers, except farm | 8.88 | 8.17 | 6.31 | 8.77 | 7.97 | 6.29 | 7.23 | 6.20 | 4. 10 |
| Animal caretakers, exc farm | . 30 | . 35 | . 31 | . 06 | . 07 | . 05 | . 02 | . 02 | . 02 |
| Carpenter helfers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 06 | . 06 | .11 |
| Constr labr,exc carpenter helpr | .11 | . 08 | . 03 | . 05 | . 04 | . 02 | . 06 | . 04 | -02 |
| Fishers, hunters,trappers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 06 | . 01 |
| Preight and material handlers | 3.94 | 3.86 | 3.61 | 4.81 | 4.57 | 4.33 | 3.74 | 3.37 | 2.61 |
| Garbage collectors | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 01 | . 02 | . 03 |
| Gardenrs, groundkeepers, exc farm | . 04 | . 04 | . 05 | . 02 | . 03 | . 02 | . 07 | . 05 | . 02 |
| Longshore workers, stevedores | .00 | .00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Timbercutting, logging workers | . 01 | . 01 | . 01 | . 00 | - 00 | - 00 | . 01 | . 01 | . 01 |
| Stock handlers | . 59 | . 53 | . 20 | . 66 | . 59 | . 24 | . 44 | . 36 | . 10 |
| Teamsters | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Vehicle dashers, equip cleaners | . 79 | . 67 | -23 | 1.59 | 1. 31 | - 46 | . 89 | - 70 | - 20 |
| Warehouse labcrers, other | . 08 | . 07 | . 05 | . 27 | . 28 | . 38 | -90 | .76 | . 47 |
| Other laborers | 2.99 | 2.53 | 1.79 | 1.31 | 1.08 | . 77 | . 93 | . 74 | . 49 |


$1970 \quad 1978 \quad 1990$
$100.00 \quad 100.00 \quad 100.00$

| 5.58 | 6.02 | 5.82 |
| :---: | :---: | :---: |
| . 73 | . 65 | . 50 |
| - 10 | . 10 | . 09 |
| . 05 | . 04 | . 05 |
| . 03 | . 03 | . 04 |
| . 30 | - 27 | . 14 |
| . 11 | .09 | . 06 |
| . 14 | . 12 | . 12 |
| .77 | . 79 | . 66 |
| . 02 | . 03 | . 03 |
| . 08 | . 12 | . 10 |
| . 67 | . 64 | .52 |
| .00 | . 00 | . 01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| 1.67 | 1.83 | 2.04 |
| 1.22 | 1.39 | 1.60 |
| . 10 | . 09 | . 06 |
| . 12 | . 11 | .16 |
| . 01 | . 01 | . 01 |
| . 06 | .07 | . 06 |
| . 01 | . 01 | . 01 |
| . 15 | - 15 | . 14 |
| . 18 | . 23 | . 39 |
| . 10 | . 11 | . 21 |
| . 04 | . 04 | . 07 |
| . 04 | . 05 | . 09 |
| . 01 | . 04 | . 02 |
| .01 | . 02 | . 01 |
| .01 | . 02 | . 01 |
| . 01 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 17 | . 22 | . 20 |
| . 11 | . 13 | . 13 |
| .04 | . 07 | . 07 |
| . 01 | . 02 | .01 |
| . 09 | - 14 | .13 |
| . 09 | . 14 | .13 |
| .01 | . 01 | . 01 |
| . 01 | .01 | . 01 |
| . 18 | . 21 | . 18 |
| . 00 | . 00 | . 00 |
| .01 | . 01 | .01 |
| . 04 | . 04 | . 01 |
| . 02 | . 02 | . 02 |
| . 11 | . 14 | . 13 |
| 1.76 | 1. 94 | 1.71 |
| 1.08 | 1. 25 | 1.28 |
| . 04 | . 02 | . 01 |
| . 03 | . 05 | . 02 |
| . 02 | . 02 | .01 |
| . 12 | - 16 | . 15 |
| . 33 | . 34 | . 22 |
| . 15 | . 09 | . 02 |
| 10.43 | 12.00 | 12.52 |
| 1.96 | 1.75 | 1.57 |
| .11 | . 10 | . 06 |
| . 13 | . 06 | . 02 |
| . 12 | - 09 | . 11 |
| . 61 | - 52 | -42 |
| . 99 | -99 | . 96 |

$100.00 \quad 100.00 \quad 100.00$

| 1.60 | 2.03 | 2.78 | 3.09 | 3.35 | 3. 18 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| .43 | . 50 | . 78 | .53 | . 47 | . 37 |
| . 01 | - 00 | . 00 | . 02 | . 02 | . 02 |
| . 04 | . 04 | . 07 | . 00 | .00 | . 00 |
| . 04 | . 05 | . 07 | . 00 | .00 | . 00 |
| . 18 | . 23 | .33 | . 26 | . 21 | . 06 |
| . 09 | . 11 | . 20 | . 14 | . 15 | . 20 |
| . 07 | . 08 | . 11 | . 11 | . 09 | . 08 |
| . 07 | . 10 | .17 | . 32 | .30 | .21 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 | . 03 | .04 | . 06 |
| . 07 | - 10 | .17 | . 29 | . 26 | . 15 |
| . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 00 | - 00 | . 00 | . 02 | . 02 | . 01 |
| . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| - 20 | . 28 | . 46 | . 63 | . 68 | . 65 |
| . 13 | . 16 | . 20 | . 52 | . 57 | . 55 |
| . 02 | . 03 | . 06 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 03 | . 03 | . 03 | . 03 |
| . 00 | - 00 | . 00 | . 03 | .03 | . 03 |
| . 02 | . 03 | . 06 | . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 02 | . 04 | . 11 | . 03 | .03 | . 03 |
| . 03 | . 03 | . 04 | . 09 | - 10 | . 11 |
| . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| . 03 | . 03 | . 04 | . 09 | . 10 | . 11 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 00 | - 00 | .00 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 | - 00 | .00 | .00 |
| . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| . 02 | . 03 | . 05 | . 00 | .00 | . 00 |
| . 07 | . 09 | . 13 | .19 | . 24 | . 22 |
| . 06 | . 07 | . 08 | . 13 | . 15 | . 14 |
| . 01 | . 02 | - 05 | . 05 | . 06 | . 05 |
| . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| .00 | . 00 | . 00 | . 06 | . 11 | . 10 |
| . 00 | . 00 | - 00 | . 06 | . 11 | . 10 |
| . 01 | . 01 | . 01 | . 04 | .03 | . 01 |
| . 01 | . 01 | . 01 | . 04 | . 03 | . 01 |
| . 06 | . 08 | . 09 | . 12 | . 15 | . 18 |
| . 00 | . 00 | . 00 | . 05 | . 07 | - 12 |
| . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 | . 04 | . 04 | .01 |
| .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 05 | . 07 | . 09 | . 03 | . 04 | . 04 |
| . 72 | - 90 | 1.06 | 1.09 | 1.27 | 1.33 |
| - 39 | . 51 | . 68 | . 57 | . 71 | . 89 |
| . 02 | .01 | . 01 | . 01 | . 01 | . 01 |
| .01 | . 01 | . 00 | -01 | . 02 | . 04 |
| . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| . 05 | . 09 | . 10 | . 14 | . 20 | . 17 |
| . 19 | - 24 | . 27 | .27 | - 28 | . 20 |
| . 05 | . 04 | . 02 | .09 | . 06 | . 02 |
| 5.72 | 7. 33 | 8.81 | 5.72 | 6.59 | 5.94 |
| 1.44 | 1. 52 | 1.76 | 1.28 | 1.13 | . 87 |
| . 10 | - 10 | . 07 | . 06 | . 05 | . 03 |
| . 04 | . 03 | . 05 | . 09 | . 06 | . 06 |
| .01 | . 00 | - 00 | .00 | . 00 | . 00 |
| . 25 | . 23 | . 20 | . 41 | - 32 | . 17 |
| 1.04 | 1. 17 | 1.44 | . 72 | . 71 | . 61 |

Life and physical scientists
Agricultural
Biological
chemists
physicists and astronomers
Mathematical sfecialists Statisticians

Engineering, science technicians
Agricultural, biolgcl, exc health
chemical technicians
Drafters
Electrical and electronic
Industrial engineering
Hechanical engineering
Other engineering,science tech
Medical workers,exc technicians Dietitians
Registered nurses
Veterinarians
Other medical and health tech
Health technolcgists,technicians other health technicians

Technicians, except bealth
Airplane pilots
Computer specialists
Computer programers
Computer systems analysts other computer specialists

Social scientists
Economists
Teachers
Adult educaticn
Writers,artists, entertainers Designers
Editors and reforters
Painters and sculptors
Photographers
public relations specialists
Other professional and technical accountants
Home management advisors
Lauyers
Librarians
Operations and systems research
Personnel, labor relations uks Other research workers

Managers, officials, proprietors
Buyers,sales,lcan managers
Bank, financial managers
Credit managers
Buyers,shippers,farm products Purchasing agents, buyers, other sales manager, exc retail trade
Professional and te
Engineers, technica
Chemical
Civil

## Civil

Electrical
Industrial
Mechanical
other engineers
Tótal all occupations

Bakery
products
$1970 \quad 19781990$

Confection-
ery
products
1970
1978
1990

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Grain mill products |  |  | Bakery products |  |  | $\begin{aligned} & \text { Confection- } \\ & \text { ery } \\ & \text { products } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers,officials, proprts | 8.47 | 10.25 | 10.95 | 4.28 | 5.80 | 7.05 | 4.45 | 5.46 | 5.07 |
| office managers, other | . 53 | . 52 | . 59 | . 44 | . 48 | . 56 | . 26 | . 27 | - 28 |
| Restaurant, cafe, bar, managers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other managers, administrators | 7.93 | 9.72 | 10.36 | 3.84 | 5.32 | 6.49 | 4.17 | 5.17 | 4.78 |
| Sales workers | 4.30 | 4. 16 | 4.03 | 5.80 | 6.01 | 6.46 | 3.76 | 3.36 | 2.12 |
| Advertising agents, sales worker | . 03 | . 04 | . 05 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 |
| other sales warkers | 4.28 | 4. 12 | 3.97 | 5.78 | 5.99 | 6.45 | 3.75 | 3.35 | 2.11 |
| Clerical workers | 11.56 | 10.75 | 9.64 | 8.88 | 9.10 | 10.43 | 10.83 | 10.13 | 9.85 |
| Stenographrs, typists, secretaries | 3.40 | 3.21 | 3.43 | 1.37 | 1.55 | 2.34 | 2.67 | 2.64 | 3.24 |
| legal secretaries | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other secretaries | 2.69 | 2.67 | 3.03 | 1.04 | 1.24 | 1.93 | 1.84 | 1.96 | 2.58 |
| Stenographers | . 12 | . 06 | . 02 | . 04 | . 02 | . 01 | . 07 | . 03 | -00 |
| Typists | . 59 | . 48 | . 37 | . 29 | . 29 | . 41 | .76 | -66 | . 65 |
| Offioe machine operators | . 66 | . 74 | . 49 | . 83 | . 76 | . 52 | . 81 | . 74 | . 42 |
| Bookkeeping and billing | . 03 | . 01 | . 00 | . 04 | . 01 | . 00 | .10 | . 03 | - 01 |
| Calculating | . 05 | . 03 | . 01 | -45 | . 29 | . 13 | . 02 | . 01 | .01 |
| Computer and feripheral equip | . 20 | . 44 | . 35 | - 10 | . 26 | . 27 | .17 | . 36 | . 29 |
| Duplicating | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .03 | . 02 | . 01 |
| Keypunch | . 29 | . 20 | . 08 | - 20 | . 16 | . 09 | -42 | . 28 | . 09 |
| Tabulating | .03 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | -01 | . 00 |
| Other office rachine operators | . 05 | . 04 | . 03 | . 04 | . 04 | . 02 | . 05 | . 04 | . 01 |
| Other clerical workers | 7.51 | 6.80 | 5.73 | 6.68 | 6.79 | 7.57 | 7.35 | 6.74 | 6.20 |
| Billing clerks | - 16 | . 17 | . 20 | . 13 | . 14 | . 17 | . 26 | . 27 | . 32 |
| Bookkeepers | 2.81 | 2.54 | 2.18 | 1.42 | 1.61 | 2.25 | 1.51 | 1.55 | 1.85 |
| Cashiers | .06 | . 05 | . 02 | . 38 | . 35 | .21 | . 12 | - 12 | . 14 |
| Clerical supervisors, other | - 12 | - 13 | . 13 | . 13 | - 15 | - 16 | .11 | - 12 | - 10 |
| Collectors, bill and account | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Counter clerks, exc food | . 19 | . 18 | . 18 | . 34 | . 33 | . 28 | . 21 | . 21 | . 19 |
| Dispatchers, starters, vehicle | .10 | . 09 | . 06 | . 03 | . 03 | . 04 | . 02 | . 01 | . 01 |
| Estimators, investigators, other | . 14 | . 16 | - 10 | . 04 | . 05 | . 03 | . 13 | . 13 | . 08 |
| Expediters, preduction controlrs | - 28 | . 26 | .17 | - 16 | - 17 | . 16 | . 26 | - 20 | . 08 |
| File clerks | . 09 | . 08 | . 12 | . 07 | . 07 | .11 | . 23 | . 21 | . 28 |
| Mail handlers, exc post office | .11 | . 10 | . 08 | . 05 | . 04 | .03 | . 11 | - 10 | . 09 |
| Messengers and office helpers | . 07 | . 06 | . 06 | . 03 | . 03 | . 04 | . 04 | -05 | . 09 |
| Payroll, timekeeping clerks | . 24 | . 26 | . 25 | . 31 | - 40 | - 56 | . 43 | . 49 | - 55 |
| Receptionists | .17 | . 13 | . 06 | . 16 | . 14 | . 09 | . 23 | . 17 | . 07 |
| Shipping and receiving clerks | . 70 | . 66 | .76 | 1.95 | 1.93 | 2.40 | 1.63 | 1.44 | 1.32 |
| Statistical clerks | . 23 | . 24 | .19 | . 15 | - 17 | - 18 | . 22 | . 24 | . 23 |
| Stock clerks and store keepers | . 53 | . 37 | - 14 | . 71 | . 57 | . 31 | . 84 | . 56 | . 17 |
| Telephone operators | . 15 | - 10 | . 09 | - 10 | . 08 | -09 | -18 | - 11 | . 06 |
| Heighers | . 61 | . 51 | . 25 | . 28 | . 26 | . 18 | . 43 | - 35 | - 16 |
| Misc .clerical workers | . 74 | . 71 | . 71 | . 26 | . 27 | -28 | . 42 | . 41 | . 44 |
| Crafts and kindred workers | 18.35 | 19.67 | 22.88 | 28.27 | 28.99 | 30.39 | 9.46 | 10.59 | 12.52 |
| Construction crafts workers | 1.75 | 1.71 | 1.88 | . 53 | . 56 | . 69 | . 87 | . 92 | 1. 17 |
| Carpenters and apprentices | . 24 | . 25 | . 26 | . 08 | . 08 | . 08 | . 22 | . 25 | . 33 |
| Brick, stonemasons, apprentices | . 04 | . 03 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Bulldozer operators | -21 | - 15 | . 07 | . 05 | . 04 | . 02 | . 00 | - 00 | .00 |
| Cement and concrete finishers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 75 | . 80 | . 99 | . 25 | . 30 | . 45 | . 46 | . 52 | . 72 |
| Excavating. grading mach operatr | . 06 | . 06 | . 08 | . 00 | - 00 | -00 | . 00 | -00 | . 00 |
| Ploor layers, exc tile setters | . 00 | .00 | . 00 | . 01 | . 01 | . 00 | . 02 | . 01 | .01 |
| Painters and apprentices | -13 | - 10 | . 05 | . 09 | . 07 | . 03 | . 05 | . 04 | .01 |
| Plumbers, pipefitters, aprentices | . 31 | . 31 | . 40 | . 04 | . 05 | . 09 | .13 | .11 | - 10 |
| Blue collar worker supervisors | 4.63 | 5. 13 | 5.98 | 4.03 | 5.01 | 6.98 | 3.66 | 4.12 | 4.82 |
| Hetalworkg craft urkrs,exc mech | 1.82 | 1. 98 | 2.62 | . 62 | . 87 | 1.83 | 1.06 | 1.21 | 1.81 |
| Boilermakers | . 04 | . 05 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 60 | . 70 | 1.10 | . 54 | . 79 | 1.72 | .75 | . 84 | 1. 16 |
| Gillwrights | . 87 | . 94 | 1.01 | . 02 | . 02 | . 01 | . 17 | . 22 | . 35 |
| Rollers and finishers,metal | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 29 | - 27 | . 37 | . 03 | . 03 | . 05 | - 10 | . 09 | . 14 |
| Tool and diemakers, apprentices | . 02 | . 02 | . 05 | . 02 | .03 | . 05 | . 04 | . 05 | . 15 |


|  | Grain mill products |  |  | Bakery products |  |  | $\begin{aligned} & \text { Confection- } \\ & \text { ery } \\ & \text { products } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 3.32 | 3.62 | 3.77 | 4.01 | 4.49 | 5.02 | 3.13 | 3.65 | 4. 10 |
| Air cond, heating, refrig meca | . 02 | . 03 | . 05 | . 04 | . 06 | . 07 | . 09 | . 11 | . 12 |
| Auto accessories installers | . 00 | . 00 | .00 | . 06 | . 04 | . 01 | . 00 | .00 | . 00 |
| Auto body repairers | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | -39 | . 29 | . 11 | 1.33 | 1.28 | 1.31 | . 00 | . 00 | . 00 |
| rarm implement mechanics | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 2.68 | 3.10 | 3.49 | 2.45 | 2.98 | 3.49 | 2.95 | 3.48 | 3.98 |
| Household afpliance mechanics | .00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Office machine repairers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Radio, television repairers | .01 | .01 | . 03 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Railroad, car shop repairers | .01 | .01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 19 | . 16 | . 07 | . 06 | . 07 | . 08 | . 10 | . 07 | . 01 |
| Printing trade crafts workers | . 20 | . 23 | . 32 | . 02 | . 02 | . 00 | - 14 | . 15 | - 15 |
| Compositors and typesetters | . 09 | - 10 | .13 | .01 | . 01 | .00 | . 06 | . 05 | . 02 |
| press,plate frinters,aprentices | . 10 | . 13 | . 19 | . 01 | . 01 | . 00 | . 08 | . 10 | . 13 |
| Other crafts, kindred workers | 6.64 | 7.00 | 8.32 | 19.05 | 18.04 | 15.87 | .61 | . 54 | . 46 |
| Bakers | . 14 | . 15 | . 21 | 18.52 | 17.55 | 15.36 | . 17 | . 18 | . 22 |
| Crane, derrick,hoist operator | .06 | . 05 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Decorators, window dressers | .00 | . 00 | .00 | . 00 | . 00 | .00 | .01 | .01 | . 02 |
| Inspectors, other | . 11 | . 13 | . 16 | . 01 | . 01 | . 01 | . 04 | . 05 | . 06 |
| millers, grain, flour, feed | 5.90 | 6.32 | 7.65 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 32 | . 25 | . 15 | . 39 | . 37 | . 43 | . 38 | . 29 | . 16 |
| Other crafts workers | . 13 | . 11 | . 05 | - 12 | - 10 | . 07 | . 01 | .01 | . 01 |
| operatives | 35.32 | 34.58 | 35.90 | 40.80 | 38.83 | 36.48 | 58.05 | 58.51 | 61.96 |
| Operatives, except transport | 25.14 | 24.21 | 21.90 | 27. 14 | 27. 16 | 25.28 | 56.01 | 56.37 | 59.36 |
| Semiskilled metalvorking | .70 | . 60 | . 82 | . 11 | . 08 | . 06 | . 24 | .21 | . 27 |
| Drill press oferatives | .01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Grinding machine operatives | . 05 | . 03 | . 01 | . 01 | . 00 | . 00 | . 05 | . 03 | . 02 |
| Lathe, milling mach operatives | . 15 | . 08 | . 04 | . 03 | . 02 | . 00 | . 04 | . 02 | . 00 |
| other precisicn mach operators | . 03 | . 02 | . 01 | . 02 | . 01 | . 00 | .01 | . 01 | .01 |
| Punch,stamping press operatives | .07 | . 05 | . 02 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| welders and flamecutters | - 40 | . 47 | .73 | . 04 | . 04 | . 05 | . 12 | . 14 | . 24 |
| Semiskilled packing, inspectiny | 7.84 | 7.73 | 9.48 | 14.44 | 15.10 | 18.34 | 29.51 | 29.84 | 38.94 |
| Cneckers, exariners, mfy | 1.29 | 1.46 | 2.18 | -66 | . 82 | 1.31 | 1.74 | 2.01 | 3.03 |
| Graders and scrters, mifg | . 19 | . 20 | . 26 | . 05 | . 05 | . 04 | . 77 | . 62 | . 25 |
| Packer,wrapper, exc meat,prodce | 6.36 | 6.07 | 7.04 | 13.73 | 14.24 | 17.00 | 27.00 | 27.22 | 35.66 |
| Cther operatives, exc transport | 16.59 | 15.81 | 11.60 | 12.60 | 11.97 | 6.88 | 26.27 | 26.31 | 20.14 |
| Assemblers | . 40 | . 44 | . 52 | . 63 | - 92 | 1.05 | 1.02 | 1.35 | 2.49 |
| Bottling, canning operatives | . 23 | . 23 | . 23 | - 18 | . 18 | . 16 | . 08 | . 09 | - 12 |
| Cutting operatives, other | . 17 | - 16 | - 13 | . 43 | -42 | - 30 | . 46 | . 43 | . 30 |
| Filer, polisher, sander, butier | . 03 | . 02 | . 01 | - 02 | . 01 | . 00 | . 08 | . 05 | .01 |
| Garage urkr,gas station atten | .01 | . 01 | .01 | . 05 | . 03 | . 01 | .00 | . 00 | . 00 |
| Laundry, dry cleang oprs,other | .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 02 | .01 | .01 |
| Meat cutters and butchers | . 20 | -17 | . 15 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Mixing operatives | 3.21 | 2.98 | 2.14 | . 38 | . 38 | - 32 | . 85 | .77 | . 47 |
| Oilers, yreasers,exc automobiles | . 50 | . 47 | . 40 | . 14 | - 16 | . 24 | . 18 | . 19 | . 24 |
| painters, mfg articles | . 17 | - 12 | . 06 | - 12 | .09 | . 04 | - 13 | - 11 | . 14 |
| Photographic process workers | .00 | . 00 | . 00 | -01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Riveters and fasteners | . 02 | . 02 | .01 | . 01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| Sawyers | . 01 | . 01 | .01 | .01 | . 01 | . 00 | . 00 | .00 | . 00 |
| Severs and stitchers | . 52 | . 42 | .39 | . 02 | - 02 | . 02 | .03 | . 02 | .01 |
| Furnace tendr, stokr, exc metal | . 25 | . 16 | . 11 | . 07 | . 05 | . 09 | - 14 | . 11 | . 19 |
| winding operatives, other | . 03 | . 02 | . 01 | . 04 | - 05 | . 04 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | 7.95 | 7.83 | 5.99 | 3.95 | 4.04 | 3.02 | 19.34 | 19.30 | 14.06 |
| other oferatives, exc transfort | 2.89 | 2.75 | 1.43 | 6.50 | 5.58 | 1.57 | 3.92 | 3.84 | 2. 10 |
| Transport equiprent operatives | 10.18 | 10.38 | 14.01 | 13.66 | 11.67 | 11.20 | 2.05 | 2.14 | 2.60 |
| Bus drivers | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Delivery and route workers | 1.58 | 1.39 | 1.52 | 10.40 | 8.24 | 6.87 | . 33 | . 25 | . 14 |
| Pork lift,tow motor operatives | 1.90 | 2.15 | 2.17 | - 60 | . 73 | . 80 | . 78 | . 91 | - 98 |
| Railcoad switch operators | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 03 | . 02 | . 01 | . 02 | . 02 | . 01 | . 09 | . 10 | . 10 |
| Truck drivers | 6.64 | 6.78 | 10.25 | 2.64 | 2.69 | 3.53 | . 85 | . 89 | 1.38 |
| Service workers | 3.59 | 3.23 | 2.47 | 3.69 | 3.05 | 1.80 | 4.52 | 3.54 | 2.01 |
| Cleaning service workers | 2.57 | 2.24 | 1.45 | 2.63 | 2.29 | 1.24 | 2.48 | 1.85 | - 58 |
| Bldg interior cleaners, other | . 73 | . 71 | . 56 | . 61 | . 59 | . 41 | . 50 | . 42 | . 17 |
| Janitors and sextons | 1.83 | 1.53 | . 89 | 2.02 | 1.70 | . 84 | 1.98 | 1.43 | . 41 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Confection-
ery
products

|  | Beverages |  |  | Misc food preparation |  |  | robacco manufacturg |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.57 | 5.24 | 5.08 | 6.37 | 7.08 | 7.07 | 4.81 | 5.21 | 4.89 |
| Engineers, technical | - 48 | . 43 | . 33 | 1.07 | -98 | . 81 | . 60 | . 56 | - 58 |
| Chemical | . 06 | . 06 | . 06 | . 16 | . 17 | . 22 | . 06 | . 06 | . 06 |
| Civil | . 04 | . 03 | . 03 | . 04 | .03 | . 04 | .03 | .03 | . 04 |
| Electrical | .07 | . 07 | . 06 | . 07 | . 07 | . 09 | . 00 | - 00 | . 00 |
| Industrial | . 22 | .21 | . 12 | . 33 | - 30 | . 15 | -21 | -18 | .09 |
| Mechanical | . 00 | . 00 | . 00 | . 26 | . 23 | - 21 | .18 | . 18 | . 28 |
| Sales | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 |
| Other engineers | . 08 | . 07 | . 06 | . 19 | . 16 | . 11 | .13 | .11 | . 11 |
| Life and physical scientists | . 61 | . 64 | . 58 | .77 | . 78 | . 67 | . 58 | - 57 | . 51 |
| atmospheric and space | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .00 | . 00 | . 00 |
| Biological | . 06 | . 10 | - 11 | . 05 | . 08 | . 06 | . 04 | . 06 | . 06 |
| Chemists | . 55 | . 54 | . 47 | .71 | . 69 | . 60 | . 55 | - 51 | . 40 |
| Physicists and astronomers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 05 |
| Mathematical specialists | . 04 | . 03 | . 02 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Statisticians | . 04 | . 03 | . 02 | .03 | .03 | . 04 | . 00 | . 00 | . 00 |
| Engineering, science technicians | . 89 | 1.00 | 1.15 | 1.85 | 2.07 | 2.38 | 1.19 | 1.12 | . 97 |
| Agricultural, biolgcl, exc nealth | . 58 | . 67 | . 81 | 1.29 | 1.51 | 1.85 | .06 | . 05 | . 03 |
| Chemical technicians | .07 | . 07 | . 04 | . 13 | . 11 | . 05 | . 11 | - 10 | . 07 |
| Drafters | . 08 | . 07 | . 10 | . 12 | .11 | . 14 | .14 | . 14 | . 23 |
| clectrical and electronic | .02 | . 01 | .01 | . 00 | . 00 | . 00 | . 08 | . 06 | . 02 |
| Industrial engineering | - 10 | - 13 | . 16 | - 14 | - 16 | . 14 | . 06 | . 06 | . 05 |
| Mechanical engineering | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Surveyors | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Other engineering, science tech | . 05 | . 05 | . 04 | . 15 | . 16 | . 16 | .73 | .70 | . 57 |
| Medical workers, exc technicians | .04 | . 04 | . 04 | . 05 | . 05 | . 07 | . 11 | . 10 | . 12 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 04 |
| Registered nurses | . 04 | . 04 | . 04 | . 04 | . 04 | . 05 | . 10 | . 09 | . 09 |
| Health technolcgists, technicians | .00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 02 | . 03 | . 01 |
| Clinical lab technologists, tecn | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other health technicians | .00 | . 00 | . 00 | .01 | . 01 | .01 | . 02 | . 03 | .01 |
| Technicians, except health | . 06 | . 06 | . 05 | . 01 | . 02 | . 05 | .05 | . 07 | -13 |
| Airplane pilots | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 | . 03 | . 05 | . 07 |
| Radio oferators | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other technicians except nealch | .01 | . 02 | . 04 | .01 | . 02 | . 05 | . 01 | . 03 | . 06 |
| Computer specialists | . 17 | . 20 | .17 | . 31 | . 40 | . 38 | .33 | . 42 | . 39 |
| Computer programers | . 12 | . 13 | .11 | . 18 | . 21 | . 20 | . 25 | . 29 | . 27 |
| Computer systems analysts | . 05 | . 07 | . 06 | . 11 | . 16 | - 16 | . 06 | . 09 | . 10 |
| other computer specialists | .00 | . 00 | .00 | . 02 | . 03 | . 02 | . 02 | . 04 | . 02 |
| Social scientists | . 20 | - 30 | .25 | . 18 | - 27 | . 21 | .23 | . 34 | . 28 |
| Economists | . 20 | . 30 | . 25 | . 18 | . 27 | .21 | .23 | . 34 | . 28 |
| Teachers | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 04 | . 03 | . 01 |
| Adult education | .01 | . 01 | -01 | . 01 | . 01 | . 01 | . 04 | - 03 | . 01 |
| Writers, artists, entertainers | . 51 | . 66 | . 66 | . 24 | . 30 | .31 | . 27 | . 35 | . 37 |
| Ataletes and kindred vorkers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Designers | . 02 | . 03 | . 04 | . 05 | . 07 | . 11 | . 04 | . 06 | . 07 |
| Editors and reforters | . 02 | . 03 | .05 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Painters and sculptors | . 05 | . 06 | . 04 | . 03 | . 04 | . 02 | .01 | . 01 | . 00 |
| photographers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Public relations specialists | .37 | . 48 | . 49 | . 12 | . 16 | . 16 | .19 | . 25 | . 28 |
| Other writers,artists, entertaln | . 02 | . 03 | .03 | . 01 | . 01 | .01 | . 02 | . 02 | .01 |


|  | Beverages |  |  | Misc food preparation |  |  | Tobacco manufacturg |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and cechnical | 1.56 | 1.86 | 1.82 | 1.85 | 2. 15 | 2.13 | 1.39 | 1.62 | 1.52 |
| Accountants | . 92 | 1.09 | 1.20 | 1.18 | 1.40 | 1.52 | .74 | . 85 | . 89 |
| Architects | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Home management advisors | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | .00 | . 00 | . 00 |
| Lawyers | . 08 | . 13 | .09 | . 05 | . 09 | . 06 | . 10 | . 19 | . 16 |
| operations and systems researca | . 14 | . 19 | . 14 | . 12 | . 16 | . 14 | . 08 | .11 | . 11 |
| Personnel, labor relations wirs | . 35 | . 40 | . 37 | . 34 | . 40 | . 39 | . 32 | . 33 | . 26 |
| Other research workers | . 06 | . 04 | . 01 | . 12 | . 07 | . 02 | .15 | .13 | . $09{ }^{\circ}$ |
| Managers, officials, froprietors | 9.25 | 10.76 | 11.35 | 8.94 | 10.57 | 11.81 | 4.87 | 5.38 | 5.89 |
| Buyers, sales,loan managers | 2.21 | 2. 17 | 2.16 | 1.89 | 1.70 | 1.42 | 1.76 | 1.50 | 1.15 |
| Bank, financial managers | . 16 | . 13 | . 06 | . 14 | . 13 | . 07 | . 05 | . 05 | . 04 |
| Credit managers | . 08 | . 06 | .08 | .13 | . 08 | . 08 | . 05 | . 02 | .01 |
| Buyers, shippers,farm products | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 08 | . 05 | . 06 |
| Purchasing agents, buyers, uther | . 27 | - 22 | . 15 | .66 | . 52 | . 35 | . 89 | . 68 | . 37 |
| Sales manager, exc retail trade | 1.70 | 1.76 | 1.86 | . 97 | . 97 | . 93 | .70 | .70 | . 66 |
| Other managers, officials, profrts | 7.04 | 8.59 | 9.20 | 7.04 | 8.87 | 10.39 | 3.11 | 3.88 | 4.74 |
| *grs, superintendents, building | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Office managers, other | - 50 | . 53 | . 58 | . 47 | . 48 | . 51 | .31 | . 32 | . 35 |
| Officers, pilots, pursers, shif | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | - 00 | . 00 |
| Restaurant, cafe, bar,managers | . 02 | . 02 | . 01 | . 02 | . 02 | .01 | .01 | . 01 | . 01 |
| Other managers, administrators | 6.51 | 8.04 | 8.60 | 6.54 | 8.35 | 9.86 | 2.77 | 3.54 | 4.37 |
| Sales workers | 5.66 | 5.59 | 5.62 | 3.54 | 3.71 | 4.64 | 3.60 | 3.89 | 5.40 |
| Advertising agents, sales worker | . 12 | . 16 | . 18 | . 01 | . 01 | . 01 | . 09 | . 13 | . 18 |
| Other sales workers | 5.54 | 5.43 | 5.44 | 3.53 | 3.69 | 4.63 | 3.51 | 3.76 | 5.22 |
| Clerical workers | 10.82 | 10.84 | 11.94 | 12.15 | 11.79 | 12.12 | 10.11 | 10.01 | 10.81 |
| Stenographrs,typists, secretaries | 3.46 | 3. 55 | 4.58 | 3.60 | 3.70 | 4.88 | 2.67 | 2.65 | 3.32 |
| Legal secretaries | . 02 | . 02 | . 04 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other secretaries | 2.83 | 3.03 | 4.03 | 2.81 | 3.02 | 4.11 | 2.06 | 2.16 | 2.90 |
| Stenographers | . 08 | . 04 | . 00 | . 09 | . 04 | . 00 | . 06 | .03 | . 00 |
| Typists | . 53 | . 47 | . 51 | . 68 | . 63 | .75 | . 55 | .46 | . 42 |
| Office machine operators | . 62 | .73 | . 52 | .87 | . 95 | .67 | .79 | . 90 | - 58 |
| Bookkeeping and billing | . 06 | . 03 | . 02 | . 05 | . 02 | . 01 | .02 | . 01 | . 01 |
| calculating | . 03 | . 01 | . 01 | . 09 | . 04 | . 01 | . 06 | . 03 | .01 |
| Computer and feripheral equip | . 20 | . 44 | -40 | . 22 | . 50 | . 46 | . 26 | . 53 | . 40 |
| Duplicating | . 00 | . 00 | .00 | .03 | . 02 | . 01 | .01 | . 01 | .01 |
| Keypunch | . 30 | . 21 | . 08 | -45 | . 33 | . 15 | . 38 | . 27 | . 13 |
| Tabulating | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | . 03 | . 03 | .03 | .03 | .03 | .03 | .05 | .04 | .03 |


|  | Beverages |  |  | Misc food preparation |  |  | Tobacco manufacturg |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 6.74 | 6.57 | 6.84 | 7.68 | 7.14 | 6.57 | 6.65 | 6.46 | 6.90 |
| Billing clerks | . 14 | . 15 | . 19 | . 26 | . 27 | . 31 | . 17 | - 18 | . 23 |
| Bookkeepers | 2.41 | 2.44 | 2.83 | 2.13 | 2. 12 | 2.40 | 1.25 | 1.29 | 1.62 |
| Cashiers | . 24 | . 26 | . 31 | . 16 | . 13 | . 05 | . 08 | . 10 | . 19 |
| Clerical supervisors, other | - 15 | . 17 | -18 | - 12 | - 12 | . 09 | . 27 | . 29 | - 25 |
| Collectors, bill and account | . 01 | - 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Counter clerks,exc food | . 17 | - 18 | . 19 | . 18 | . 17 | . 13 | .13 | - 12 | . 12 |
| Dispatchers, starters, venicle | . 08 | . 08 | . 08 | -03 | . 04 | . 05 | . 02 | . 02 | . 02 |
| Estimators, investigators, other | . 09 | - 10 | . 06 | . 15 | - 15 | - 07 | . 12 | . 11 | . 05 |
| Expediters, prcduction controlrs | . 27 | . 25 | . 17 | . 27 | . 24 | -13 | -09 | . 08 | . 05 |
| File clerks | . 15 | . 13 | .17 | - 14 | . 10 | .07 | -25 | . 21 | . 28 |
| Library attendants, assistants | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Mail handlers, exc post office | . 08 | - 07 | . 07 | - 12 | - 10 | . 08 | . 13 | . 11 | . 11 |
| Messengers and office helpers | .05 | . 05 | . 03 | . 04 | . 03 | . 01 | . 03 | . 02 | . 01 |
| payroll,timekeeping clerks | . 31 | . 36 | . 41 | . 37 | . 42 | . 43 | . 46 | . 52 | . 58 |
| Receptionists | . 23 | . 18 | . 08 | . 24 | . 20 | . 11 | . 16 | . 14 | . 11 |
| Shipping and receiving clerks | -91 | - 88 | 1.12 | 1.24 | 1. 17 | 1.39 | . 88 | . 86 | 1. 16 |
| Statistical clerks | . 23 | - 24 | -20 | . 26 | - 27 | . 21 | - 22 | . 22 | - 15 |
| Stock clerks and store keepers | . 55 | . 40 | . 16 | .67 | . 47 | - 17 | . 75 | - 62 | . 49 |
| Teleptone oferators | . 13 | . 08 | . 05 | . 17 | . 12 | . 12 | .13 | . 09 | - 10 |
| Weighers | . 07 | - 06 | . 04 | . 50 | . 46 | - 20 | .43 | . 38 | . 23 |
| Misc clerical workers | . 50 | . 50 | . 52 | . 56 | - 56 | . 56 | 1.09 | 1.07 | 1.16 |
| crafts and kindred workers | 15.48 | 15.69 | 15.62 | 15.86 | 16.46 | 17.27 | 14.48 | 16.02 | 19.21 |
| Construction crafts workers | 1.45 | 1.48 | 1.82 | 2.39 | 2. 17 | 1.91 | 1.24 | 1.25 | 1.47 |
| Carpenters and apprentices | . 26 | . 26 | . 24 | . 40 | . 38 | . 28 | . 37 | - 38 | . 41 |
| Brick,stonemasons, apprentices | . 00 | . 00 | . 00 | . 06 | -04 | . 01 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 04 | . 03 | . 04 | - 50 | . 39 | -23 | . 03 | . 03 | - 02 |
| Electricians and apprentices | . 61 | . 68 | . 92 | . 79 | - 82 | . 91 | . 54 | - 58 | . 73 |
| Excavating,grading mach operatr | . 02 | . 01 | . 01 | . 13 | . 09 | . 04 | . 00 | . 00 | . 00 |
| Floor layers, exc tile setters | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Painters and apprentices | . 22 | - 17 | . 06 | - 16 | - 12 | . 03 | . 07 | . 06 | . 03 |
| Plumbers, pifefitters, aprentices | . 30 | . 33 | . 56 | . 33 | - 32 | . 42 | .21 | . 20 | . 27 |
| Blue collar worker supervisors | 4.35 | 4.86 | 5.69 | 5.04 | 5.53 | 6.06 | 4.57 | 5.19 | 6.60 |
| Metalworkg craft wrkrs,exc mech | 1.09 | 1.26 | 1.95 | 1.46 | 1.62 | 2.31 | 1.64 | 1.93 | 3.33 |
| Blacksmiths | . 00 | . 00 | . 00 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 04 | . 04 | . 05 | . 09 | . 09 | - 12 | . 00 | . 00 | . 00 |
| Forge and hamier operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 86 | 1.02 | 1.63 | 1.01 | 1.18 | 1.82 | 1.26 | 1.55 | 2.74 |
| Millwrights | . 13 | . 16 | . 23 | . 19 | - 18 | . 11 | - 14 | - 16 | . 18 |
| Pattern and mclomakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Sheetmetal workers, apprentices | . 06 | . 04 | . 04 | . 15 | - 15 | . 24 | . 16 | - 17 | . 32 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 07 |
| Mechanics, repairers, installers | 4.91 | 5.00 | 4.45 | 5.21 | 5.68 | 5.62 | 6.03 | 6.62 | 6.83 |
| Air cond, heating, reirig neca | . 23 | . 29 | . 27 | . 07 | . 09 | . 09 | . 13 | . 19 | . 24 |
| Auto body repairers | . 02 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 94 | . 72 | . 33 | . 66 | . 51 | - 24 | . 00 | . 00 | . 00 |
| Data processing mach repairers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Farm implement mechanics | .00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 02 | . 02 | . 01 |
| Heavy equip mech, incl diesel | 2.47 | 2.91 | 3.41 | 4.18 | 4.82 | 5.14 | 4.95 | 5.69 | 6.28 |
| Household appliance mechanics | . 07 | . 06 | . 03 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 05 | . 05 | . 07 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 04 | . 04 | . 06 |
| Other mechanics and apprentices | 1.16 | . 97 | .36 | . 24 | - 19 | . 07 | . 84 | . 65 | . 18 |
| Printing trade crafts workers | . 05 | . 06 | . 09 | . 09 | . 11 | . 16 | . 12 | . 14 | . 18 |
| Comfositors and typesetters | . 03 | . 03 | . 04 | . 05 | . 06 | .09 | . 07 | . 08 | . 11 |
| press,plate printers,aprentices | . 02 | . 03 | . 05 | . 04 | . 05 | . 07 | . 05. | . 06 | . 07 |
| rransport, public util craft wkrs | . 02 | . 03 | . 04 | . 04 | . 06 | - 10 | . 00 | . 00 | . 00 |
| Locomotive engineers | . 00 | . 00 | . 00 | . 02 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Power station operators | . 02 | . 02 | . 04 | . 02 | . 02 | . 04 | .00 | . 00 | . 00 |


|  | Beverages |  |  | Misc food preparation |  |  | Tobacco manufacturg |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970. | 1978 | 1990 |
| Other crafts, kindred workers | 3.62 | 3.00 | 1.58 | 1.63 | 1. 30 | 1.11 | . 89 | . 89 | .81 |
| Bakers | . 04 | . 04 | . 04 | . 22 | . 22 | . 26 | . 00 | . 00 | . 00 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Crane, derrick,hoist operator | . 02 | . 02 | . 02 | . 36 | . 31 | . 43 | . 00 | .00 | .00 |
| Decorators, window dressers | . 05 | . 09 | . 16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Inspectors, other | .02 | . 02 | .01 | . 07 | . 08 | . 11 | . 55 | . 58 | . 48 |
| Millers, grain, flour, feed | . 03 | - 03 | . 02 | . 07 | . 08 | . 14 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 12 | . 08 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 00 |
| Stationary engineers | . 67 | . 54 | . 35 | . 86 | . 56 | . 15 | . 19 | . 19 | . 28 |
| Other crafts workers | 2.68 | 2. 20 | .97 | . 06 | . 05 | . 03 | . 12 | .09 | .03 |
| Operatives | 40.85 | 40.05 | 41.43 | 40.11 | 39.47 | 40.13 | 51.80 | 50.60 | 47.57 |
| operatives,except transport | 22.88 | 23.28 | 24.29 | 30.92 | 30.32 | 28.78 | 49.10 | 47.59 | 43.55 |
| Semiskilled metalworking | . 25 | . 26 | . 33 | 1.04 | 1.04 | 1.20 | .31 | . 29 | . 35 |
| Drill press oferatives | . 01 | . 01 | . 01 | . 02 | .01 | . 01 | . 04 | . 02 | . 00 |
| Grinding machine operatives | . 00 | . 00 | . 00 | . 06 | . 05 | . 03 | . 02 | . 01 | . 01 |
| Lathe, milling mach operatives | . 02 | . 01 | . 02 | . 06 | . 03 | . 01 | . 04 | . 02 | . 01 |
| other precisicn mach operators | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | .01 | . 01 | .01 |
| Punch,stamping press operatives | . 02 | . 02 | .01 | . 03 | . 02 | . 01 | . 06 | . 04 | . 01 |
| Solderers | . 01 | . 01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 18 | - 20 | . 29 | . 85 | - 92 | 1.15 | . 16 | . 18 | - 30 |
| Semiskilled packing, inspecting | 4.86 | 5. 15 | 6.98 | 11.25 | 11.09 | 13.49 | 22.03 | 21.41 | 24.66 |
| Checkers, examiners, mfg | 2.66 | 2.81 | 3.56 | 1.02 | 1.09 | 1.40 | 9.07 | 8.85 | 9.48 |
| Graders and scrters, mfy | . 46 | . 52 | . 75 | -37 | . 39 | -46 | . 84 | . 79 | . 61 |
| Packer, wrapper, exc meat, prodce | 1.74 | 1.82 | 2.67 | 9.86 | 9.62 | 11.63 | 12.13 | 11.77 | 14.57 |
| Other operatives, exc transport | 17.78 | 17.88 | 16.98 | 18.63 | 18.19 | 14.10 | 26.75 | 25.90 | 18.54 |
| assemblers | . 82 | . 98 | 1.51 | . 67 | . 85 | 1.44 | . 55 | . 73 | 1. 34 |
| Bottling, canning operatives | 10.02 | 10.21 | 10.41 | 1.06 | 1.06 | . 98 | . 04 | . 05 | . 05 |
| Surveyors' helpers | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 01 | . 00 |
| Cutting operatives, other | . 04 | - 04 | . 04 | -29 | -27 | -19 | . 59 | - 55 | . 42 |
| Drillers, earth | . 02 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 00 | . 00 | . 00 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | .01 | . 01 | .00 | . 07 | . 05 | . 01 | . 02 | . 01 | . 00 |
| Garage wrkr,gas station atten | . 06 | . 03 | . 01 | . 07 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Laundry,dry cleang oprs,other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Meat cutters and butchers | . 04 | . 03 | . 05 | . 29 | . 25 | . 23 | .00 | . 00 | . 00 |
| Mixing operatives | . 66 | . 63 | . 51 | . 84 | - 77 | - 52 | . 61 | . 56 | - 37 |
| oilers, greasers,exc automobiles | . 38 | . 40 | . 51 | - 34 | - 31 | . 26 | . 55 | . 56 | . 69 |
| Painters, mfg articles | . 20 | . 15 | . 08 | - 19 | - 15 | . 09 | . 16 | . 14 | . 17 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 04 | . 03 | . 02 |
| Riveters and fasteners | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Sawyers | . 01 | . 01 | . 01 | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 05 | . 04 | . 04 | - 13 | - 11 | . 11 | . 09 | . 07 | . 06 |
| Shoemaking machine operatives | . 05 | . 04 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | . 32 | - 20 | . 14 | . 63 | -45 | . 48 | -29 | . 21 | . 27 |
| Winding operatives, other | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | .11 | . 09 | . 04 |
| Miscellaneous machine operatves | 3.11 | 3. 14 | 2.56 | 9.50 | 9.46 | 7.36 | 14.64 | 14.35 | 10.86 |
| Other operatives, exc transport | 1.96 | 1.91 | 1.04 | 4.46 | 4.33 | 2.34 | 9.05 | 8.54 | 4.28 |
| Transport equipment operatives | 17.97 | 16.78 | 17.14 | 9.20 | 9. 15 | 11.35 | 2.70 | 3.01 | 4.02 |
| Delivery and route workers | 9.60 | 8.77 | 10.63 | 2.95 | 2.81 | 3.87 | . 16 | . 15 | . 19 |
| Pork lift, tow motor operatives | 3.57 | 4.11 | 4.32 | 1.53 | 1.75 | 1.79 | 1.64 | 1.85 | 1.90 |
| Rail vehicle cperators, other | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 | . 00 | . 00 | . 00 |
| Parking attendants | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 | . 00 | . 00 | . 00 |
| Taxicab drivers. chauffeurs | . 18 | . 14 | . 03 | . 06 | . 04 | . 01 | -11 | . 12 | . 13 |
| Truck drivers | 4.62 | 3.75 | 2.14 | 4.58 | 4.46 | 5.55 | .79 | . 90 | 1.80 |
| Service workers | 2.81 | 2.26 | 1.26 | 4.09 | 3. 18 | 1.77 | 3.48 | 2.88 | 1.96 |
| Cleaning service workers | 1.80 | 1.38 | . 50 | 2.18 | 1.65 | . 59 | 2.10 | 1.57 | . 52 |
| bldg interior cleaners, other | . 31 | . 25 | . 09 | . 44 | -.37 | . 17 | . 79 | . 61 | . 21 |
| Janitors and sextons | 1.49 | 1.13 | . 41 | 1.74 | 1. 28 | .42 | 1.30 | .96 | . 31 |
| Food service workers | . 22 | .18 | .19 | 1.09 | . 82 | . 77 | . 26 | -22 | - 23 |
| Bartenders | . 03 | . 03 | .03 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Waiters assistants | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | .00 |
| Cooks, exc private households | . 07 | . 05 | . 05 | . 56 | . 48 | . 60 | . 09 | . 07 | . 06 |
| Dishwashers | .01 | . 01 | . 01 | . 06 | . 03 | . 01 | . 03 | . 02 | . 01 |
| food counter, fountain workers | . 02 | . 02 | . 04 | . 02 | . 02 | . 02 | . 06 | . 08 | . 12 |
| Waiters | . 02 | . 02 | . 02 | . 06 | . 04 | . 04 | . 04 | . 03 | . 04 |
| Other food serv wkrs,exc privt | . 07 | . 05 | . 04 | . 38 | . 22 | . 07 | . 04 | . 03 | 01 |


|  | Beverages |  |  | Misc food preparation |  |  | Tobacco manufacturg |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | . 01 | - 02 | . 01 | . 01 | .01 |
| Health aides, except nursing | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .01 | .01 | . 01 |
| Nursing aides and orderlies | . 00 | . 00 | .00 | .01 | .01 | . 02 | .00 | .00 | . 00 |
| Personal service workers | .17 | . 10 | . 03 | . 19 | . 14 | . 05 | . 31 | . 24 | . 12 |
| Attendants, personal serv, other | .10 | . 05 | . 00 | . 03 | . 02 | . 01 | .06 | . 04 | .01 |
| Child care workers. exc private | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Elevator operators | . 01 | . 01 | .01 | . 12 | - 10 | . 03 | . 24 | - 20 | - 10 |
| Housekeepers, exc private homes | .05 | .03 | .01 | .03 | . 02 | . 01 | . 02 | .01 | .01 |
| Protective service vorkers | . 63 | -61 | . 54 | . 63 | . 56 | . 34 | . 80 | . 84 | 1.08 |
| Firefighters | . 0.1 | . 01 | .01 | . 02 | . 01 | .02 | .00 | . 00 | . 00 |
| Guards | .61 | . 60 | . 54 | .61 | . 54 | . 32 | . 80 | . 84 | 1.08 |
| Laborers, except farm | 10.57 | 9.57 | 7.70 | 8.94 | 7.75 | 5.19 | 6.87 | 6.02 | 4.27 |
| Animal caretakers, exc farm | . 01 | . 01 | . 01 | .02 | . 03 | . 02 | .01 | . 02 | . 01 |
| Carpenter helfers | . 04 | . 04 | . 05 | .03 | . 03 | . 05 | .00 | . 00 | . 00 |
| Constr labrexc carpenter helpr | . 11 | . 08 | . 02 | . 15 | - 10 | . 03 | .04 | . 03 | . 01 |
| Freight and material handlers | 6.94 | 6.51 | 5.84 | 3.93 | 3.60 | 2.88 | 4.55 | 4.11 | 3.25 |
| Garbage collectors | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Gardenrs,groundkeepers, exc tarm | . 10 | . 11 | . 07 | . 18 | - 19 | . 14 | .03 | . 02 | - 02 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Stock handlers | . 25 | - 22 | -08 | 1.03 | . 88 | . 31 | . 50 | -37 | . 07 |
| Teamsters | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Vehicle washers, equip cleaners | .86 | -69 | . 22 | . 84 | . 68 | . 21 | .67 | . 60 | . 33 |
| Warehouse labcrers, other | . 87 | . 77 | . 59 | . 68 | . 60 | . 45 | .18 | . 16 | . 13 |
| other laborers | 1.39 | 1. 14 | . 81 | 1.99 | 1.59 | 1.05 | . 89 | .70 | . 45 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Textil } \\ \text { mill } \\ \text { product } \end{gathered}$ |  | Knitting mills |  |  |  | Dyeing, finishing textiles |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |

Total all occupations
Professional and technical
Engineers, technical
Chemical
Civil
Electrical
Industrial
Mechanical
Other engineers
Life and physical scientists
Chemists

Engineering, science technicians Agricultural, Eiolgcl, exc health Chemical techricians Drafters
Electrical and electronic
Industrial engineering Mechanical engineering Other engineering, science tech

Medical workers, exc technicians Registered nurses

Health technolcgists, technicians Clinical lab technologists, tech

Technicians, except health Airplane pilots Other technicians except health

Computer specialists Computer programers Computer systems analysts other computer specialists

Social scientists Economists

Teachers
Adult educaticn
Yriters, artists, entertainers Designers
Editors and reforters painters and sculptors Public relaticns specialists other writers,artists, entertain
other professional and technical accountants Lawyers
Operations and systems research Personnel, labcr relations wkrs Other research workers Recreation workers

Managers, officials, proprietors
Buyers, sales,ican managers Bank, financial managers Credit managers
Purchasing agents, buyers,other Sales manager. exc retail trade

Other managers, officials,proprts office managers, other other managers, administrators
$100.00 \quad 100.00 \quad 100.00$

| 2.99 | 3.39 | 3.42 |
| :---: | :---: | :---: |
| . 52 | . 53 | . 52 |
| . 03 | . 03 | . 03 |
| . 01 | . 01 | . 01 |
| . 02 | . 02 | . 02 |
| . 29 | - 30 | -25 |
| .11 | . 11 | -14 |
| . 07 | . 06 | . 07 |
| . 16 | - 17 | - 18 |
| . 15 | . 16 | - 17 |
| .84 | . 93 | 1.07 |
| . 00 | . 00 | . 00 |
| . 05 | . 05 | . 04 |
| . 06 | . 06 | - 10 |
| .01 | . 01 | . 01 |
| . 05 | . 07 | . 08 |
| . 01 | . 01 | . 02 |
| . 66 | . 72 | . 82 |
| . 04 | . 04 | . 05 |
| . 04 | . 04 | . 05 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 03 | . 05 |
| . 01 | .01 | . 02 |
| .01 | . 02 | . 03 |
| . 17 | . 22 | . 22 |
| . 12 | . 14 | . 14 |
| . 05 | . 07 | . 07 |
| . 01 | . 01 | .01 |
| . 01 | . 02 | . 02 |
| . 01 | . 02 | . 02 |
| . 08 | . 08 | . 03 |
| . 08 | . 08 | . 03 |
| . 31 | . 38 | - 37 |
| . 24 | . 29 | -28 |
| . 01 | . 01 | . 01 |
| . 03 | . 04 | . 03 |
| . 02 | . 03 | . 04 |
| . 01 | . 01 | . 01 |
| . 84 | . 99 | . 92 |
| . 39 | . 47 | . 50 |
| . 01 | - 01 | .01 |
| . 10 | . 15 | . 14 |
| . 28 | . 31 | .25 |
| . 06 | . 04 | . 02 |
| . 00 | . 01 | . 01 |
| 3.37 | 4. 27 | 5.08 |
| . 52 | . 51 | . 55 |
| . 08 | . 08 | . 07 |
| . 03 | . 02 | . 02 |
| . 19 | - 17 | . 17 |
| . 22 | . 24 | . 29 |
| 2.85 | 3.76 | 4.53 |
| . 20 | . 22 | . 26 |
| 2.64 | 3.53 | 4.26 |

$100.00 \quad 100.00 \quad 100.00$

| 1.43 | 1.71 | 1.72 |
| :---: | :---: | :---: |
| . 22 | . 23 | . 22 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| .00 | . 00 | . 00 |
| . 18 | - 19 | - 18 |
| . 03 | . 03 | . 03 |
| . 01 | . 01 | . 02 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| .23 | . 27 | . 36 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 03 | . 03 | . 06 |
| . 02 | . 01 | . 01 |
| . 03 | . 04 | .03 |
| . 00 | . 00 | . 00 |
| . 15 | . 19 | . 26 |
| . 02 | . 02 | . 04 |
| . 02 | . 02 | . 04 |
| . 01 | . 01 | . 01 |
| . 01 | . 01 | .01 |
| .00 | . 01 | .01 |
| . 00 | .00 | . 00 |
| . 00 | .01 | . 01 |
| . 11 | . 14 | .13 |
| . 08 | . 10 | - 10 |
| . 03 | . 04 | .03 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 10 | . 10 | . 05 |
| - 10 | . 10 | . 05 |
| . 22 | . 30 | . 34 |
| .21 | . 27 | . 30 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 03 | . 04 |
| .00 | . 00 | . 00 |
| . 52 | . 62 | . 57 |
| .25 | . 30 | .29 |
| . 00 | . 00 | . 00 |
| . 06 | . 09 | . 07 |
| . 19 | . 21 | . 19 |
| .03 | . 03 | . 02 |
| . 00 | .00 | . 00 |
| 3. 18 | 4.06 | 4.57 |
| . 38 | . 37 | . 39 |
| . 07 | .07 | . 07 |
| . 02 | . 02 | . 02 |
| - 14 | . 12 | . 11 |
| .15 | . 16 | . 19 |
| 2.80 | 3.69 | 4.18 |
| . 16 | . 18 | . 20 |
| 2.64 | 3.51 | 3.98 |

$100.00 \quad 100.00 \quad 100.00$

| 4.34 | 4. 62 | 4. 35 |
| :---: | :---: | :---: |
| . 76 | . 75 | .71 |
| . 07 | .08 | . 11 |
| . 00 | . 00 | . 00 |
| . 10 | .09 | . 08 |
| . 37 | . 36 | . 24 |
| . 12 | . 13 | . 20 |
| .10 | . 09 | . 08 |
| . 50 | . 54 | . 68 |
| . 50 | . 54 | . 68 |
| 1.53 | 1.54 | 1.34 |
| . 01 | . 01 | . 01 |
| .13 | . 13 | . 12 |
| . 00 | . 00 | . 00 |
| . 03 | . 02 | .01 |
| . 08 | - 10 | . 09 |
| . 03 | . 03 | . 02 |
| 1.25 | 1.24 | 1.09 |
| . 03 | . 03 | .01 |
| . 03 | .03 | . 01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| -00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 20 | . 26 | . 28 |
| . 14 | .17 | . 16 |
| .05 | . 08 | . 11 |
| .01 | . 02 | .01 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 07 | . 06 | .01 |
| . 07 | .06 | . 01 |
| .38 | . 47 | . 51 |
| . 22 | . 30 | .42 |
| . 00 | . 00 | . 00 |
| . 12 | . 14 | . 06 |
| . 00 | . 00 | . 00 |
| .03 | .03 | .03 |
| . 87 | . 98 | . 83 |
| . 46 | . 53 | . 47 |
| . 00 | . 00 | .00 |
| - 10 | . 15 | . 16 |
| . 24 | . 25 | . 18 |
| - 06 | . 04 | . 01 |
| . 00 | . 00 | . 00 |
| 3.67 | 4.75 | 6.37 |
| . 44 | . 42 | . 40 |
| . 10 | . 11 | . 11 |
| .00 | .00 | .00 |
| .13 | .11 | . 08 |
| . 21 | . 21 | .21 |
| 3.23 | 4.33 | 5.97 |
| . 36 | . 38 | . 43 |
| 2.88 | 3.95 | 5.54 |

Table 1. Percent distribution or̈ industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Textile } \\ \text { mill } \\ \text { products } \end{gathered}$ |  |  | $\begin{aligned} & \text { Knitting } \\ & \text { mills } \end{aligned}$ |  |  | Dyeing, finishing textiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | 1.05 | 1. 16 | 1.56 | . 94 | 1.04 | 1.29 | . 66 | .71 | . 98 |
| Advertising agents, sales worker | . 00 | . 01 | . 01 | . 01 | . 01 | . 03 | . 00 | . 00 | .00 |
| Other sales wcrkers | 1.05 | 1. 15 | 1.55 | . 94 | 1.02 | 1.26 | . 66 | .71 | .98 |
| Clerical workers | 8.43 | 8.57 | 9.51 | 8.17 | 8.34 | 8.96 | 10.91 | 10.47 | 10.29 |
| Stenographrs,typists, secretaries | 2.11 | 2. 22 | 2.93 | 1.73 | 1. 82 | 2.25 | 2.65 | 2.57 | 2.91 |
| Other secretaries | 1.56 | 1.74 | 2.46 | 1.30 | 1.45 | 1.89 | 1.62 | 1.72 | 2.25 |
| Stenographers | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Typists | . 52 | . 46 | . 46 | -41 | - 37 | . 34 | 1.01 | . 84 | . 66 |
| Office machine operators | . 61 | . 65 | . 46 | . 61 | . 60 | . 39 | . 81 | . 87 | . 55 |
| Bookkeeping and billing | . 05 | . 02 | .01 | . 07 | . 03 | . 02 | . 07 | . 03 | .01 |
| calculating | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 04 | . 02 | . 01 |
| Computer and feripheral equip | . 13 | . 30 | . 26 | .09 | . 21 | .17 | . 22 | . 47 | . 39 |
| Duflicating former | . 01 | . 01 | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Keypunch | . 35 | - 27 | . 15 | . 39 | - 31 | . 18 | . 36 | - 25 | - 10 |
| Tabulating | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Other office machine operators | . 05 | . 04 | . 03 | . 04 | . 03 | . 02 | . 11 | - 10 | . 06 |
| Other clerical workers | 5.71 | 5.70 | 6.13 | 5.83 | 5.92 | 6.33 | 7.45 | 7.03 | 6.82 |
| Billing clerks | . 23 | . 25 | . 32 | . 18 | . 20 | . 24 | . 60 | -62 | . 73 |
| Bookkeepers | .81 | . 83 | . 91 | . 90 | .91 | . 85 | .98 | -91 | . 73 |
| Casbiers | . 03 | . 04 | . 06 | . 04 | . 05 | - 10 | . 01 | . 01 | . 01 |
| Clerical supervisors, other | . 08 | . 09 | . 10 | . 05 | . 06 | .07 | .09 | - 10 | . 11 |
| Counter clerks, exc food | . 21 | . 23 | . 28 | . 34 | . 37 | . 41 | . 11 | . 11 | . 09 |
| Dispatchers, starters, vehicle | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 08 | - 10 | . 07 | . 05 | . 05 | . 02 | . 08 | . 09 | . 05 |
| Expediters, production controlrs | . 40 | . 40 | . 37 | . 38 | . 40 | .36 | . 53 | . 50 | - 38 |
| File clerks | . 15 | . 13 | . 16 | . 16 | . 14 | .17 | . 19 | . 16 | . 19 |
| Library attendants, assistants | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 01 |
| Mail nandlers, exc fost office | .07 | .07 | . 07 | . 05 | . 05 | . 06 | . 14 | . 13 | . 09 |
| Messengers and office helpers | .03 | . 02 | . 02 | . 02 | . 02 | . 03 | . 05 | . 05 | . 07 |
| Payroll, timekeeping clerks | . 41 | . 46 | . 45 | . 45 | . 53 | . 57 | . 28 | - 28 | - 17 |
| Beceptionists | . 14 | . 12 | . 07 | . 15 | . 13 | . 07 | . 15 | .13 | . 08 |
| Shipping and receiving clerks | 1.47 | 1. 47 | 1.93 | 1.75 | 1.78 | 2.32 | 2.24 | 2.22 | 2.92 |
| Statistical clerks | . 20 | . 23 | .23 | . 16 | - 17 | . 16 | . 22 | .23 | . 22 |
| Stock clerks and store keepers | . 63 | . 50 | . 29 | . 55 | . 45 | . 26 | . 88 | . 66 | - 32 |
| Telephone operators | . 09 | . 06 | . 06 | . 08 | . 06 | . 06 | . 19 | . 12 | . 06 |
| weighers | . 21 | . 20 | . 15 | . 12 | . 12 | . 09 | . 33 | -29 | . 18 |
| Misc clerical workers | . 46 | . 49 | . 59 | . 40 | . 42 | . 48 | - 36 | . 37 | . 42 |
| crafts and kindred workers | 13.05 | 14.46 | 16.52 | 10.89 | 12.62 | 13.81 | 13.64 | 15.56 | 19.79 |
| Construction crafts workers | . 89 | . 93 | 1.07 | - 30 | . 32 | . 37 | 1.44 | 1.46 | 1.59 |
| Carpenters and apprentices | . 23 | . 24 | . 23 | . 06 | . 06 | .07 | . 40 | . 44 | . 54 |
| Brick, stonemasons, apprentices | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 |
| Bulldozer oferators | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Electricians and apprentices | .45 | . 50 | -64 | . 17 | . 20 | . 25 | . 65 | . 67 | . 74 |
| Excavating, grading mach operatr | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Ploor layers, exc tile setters | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | .07 | . 06 | . 03 | . 03 | . 02 | .01 | . 18 | . 15 | . 09 |
| plumbers, pipefitters, aprentices | .11 | . 10 | . 12 | . 03 | . 03 | . 03 | . 18 | . 17 | .21 |
| Blue collar worker supervisors | 4.44 | 5.00 | 5.67 | 3.73 | 4.25 | 4.55 | 4.98 | 5.67 | 6.80 |
| Metalworkg craft wrkrs.exc mech | . 85 | . 93 | 1.19 | . 54 | . 52 | . 35 | 1.10 | 1.42 | 2.71 |
| Boilermakers | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Machinists and apprentices | .71 | . 79 | 1.01 | . 52 | . 50 | . 33 | . 90 | 1.22 | 2.52 |
| Millurights | . 08 | . 09 | - 11 | .01 | . 01 | . 01 | - 15 | - 15 | - 13 |
| Pattern and moldmakers | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | .03 | . 02 | . 02 |
| Tool and diemakers, apprentices | .01 | . 02 | . 03 | .00 | .00 | .00 | . 04 | . 03 | . 05 |
| Mechanics, repairers, installers | 5.90 | 6. 56 | 7.39 | 5.62 | 6.87 | 7.98 | 3.12 | 3.59 | 4.11 |
| Air cond, heating, refrig mech | .09 | . 12 | . 13 | . 01 | . 02 | . 03 | . 02 | . 03 | . 03 |
| Auto mechanics and apprentices | .06 | . 05 | .03 | . 00 | . 00 | . 00 | . 10 | . 08 | .03 |
| Data processing mach repairers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| farm implement mechanics | . 01 | . 02 | . 02 | . 02 | . 03 | . 04 | .03 | . 02 | . 01 |
| Heavy equip mech, incl diesel | 3.77 | 4. 64 | E. 90 | 5.30 | 6.53 | 7.58 | 2.59 | 3.11. | 3.76 |
| Household appliance mechanics | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Loom tixers | 1.76 | 1. 54 | 1.19 | . 22 | . 22 | . 26 | . 28 | . 25 | . 20 |
| Other mechanics and apprentices | . 20 | - 18 | . 10 | . 07 | . 07 | . 06 | . 10 | . 10 | .05 |

Table 1. Percent distribution or industry employment by occupation, 1970. 1978 and projected 1990

|  | $\begin{aligned} & \text { Textile } \\ & \text { mill } \\ & \text { froducts } \end{aligned}$ |  |  | Knitting mills |  |  | Dyeing, finishing textiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Printing trade crafts workers | . 41 | . 50 | . 67 | . 24 | . 29 | . 42 | 2.46 | 2.95 | 4.20 |
| Compositors and typesetters | .34 | . 42 | . 60 | . 20 | . 27 | . 41 | 2.10 | 2.57 | 3.73 |
| Engravers exc faotoengravers | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 15 | . 10 | . 02 |
| Press, plate printers,aprentices | . 05 | . 06 | . 05 | . 03 | . 03 | . 01 | . 21 | . 29 | .45 |
| Transport, public util craft wkrs | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | . 01 | .01 |
| Power station operators | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | . 01 | . 01 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Other craits. kindred workers | . 55 | . 51 | . 51 | . 45 | . 36 | . 14 | . 52 | . 45 | . 38 |
| carpet installers | . 05 | . 07 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Crane, derrick,hoist operator | . 04 | . 04 | . 08 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| Inspectors, other | .03 | . 04 | . 06 | . 02 | . 03 | .03 | . 01 | . 01 | . 02 |
| Stationary engineers | . 13 | . 11 | . 08 | . 04 | . 02 | . 01 | . 29 | .27 | . 29 |
| Tailors | . 20 | . 19 | . 15 | . 36 | . 28 | . 10 | .19 | .14 | . 05 |
| Upholsterers | . 07 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts morkers | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 03 | . 03 | . 02 |
| operatives | 64.08 | 61.67 | 58.90 | 70.69 | 67.69 | 66.08 | 59.84 | 57.79 | 54.26 |
| Operatives, except transfort | 02.60 | 59.92 | 56.26 | 70.13 | 67.05 | 65.06 | 57.66 | 55.29 | 51.47 |
| Semiskilled metalworking | . 34 | . 29 | .31 | .13 | . 12 | . 15 | . 37 | . 31 | . 30 |
| Drill press oferatives | .01 | . 01 | . 01 | .01 | . 01 | .01 | . 00 | .00 | . 00 |
| Grinding machine operatives | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | .01 |
| Lathe, milling mach operatives | . 06 | . 04 | . 02 | . 00 | . 00 | . 00 | . 05 | . 03 | . 01 |
| Metal platers | .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Other precision mach operators | . 11 | . 08 | . 05 | . 07 | . 05 | . 05 | . 05 | . 03 | .01 |
| Punch, stamping fress operatives | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | . 04 | . 03 | . 01 |
| Solderers | .01 | . 01 | -00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Welders and flamecutters | . 11 | - 13 | . 20 | . 03 | . 05 | .09 | . 11 | . 14 | . 26 |
| Semiskilled textile operatives | 41.45 | 38. 83 | 29.42 | 33.66 | 31.68 | 22.50 | 33.08 | 30.34 | 21.91 |
| carding, lapping combing oprs | 1.72 | 1.40 | . 61 | .21 | . 16 | . 05 | . 20 | .16 | . 07 |
| Knitters, loopers, and toppers | 3.35 | 3.06 | 2.24 | 11.73 | 10.12 | 5.84 | . 30 | . 31 | . 27 |
| Spinners, twisters, winders | 13.51 | 12.83 | 10.13 | 2.01 | 2.20 | 1.67 | 7.08 | 7.25 | 7.99 |
| meavers | 4.62 | 4. 10 | 2.50 | . 38 | . 42 | . 26 | . 82 | . 8.87 | . 74 |
| Other textile operatives | 18.25 | 17.45 | 13.94 | 19.33 | 18.79 | 14.68 | 24.68 | 21.75 | 12.84 |
| Semiskilled facking, inspecting | 7.06 | 7.52 | 9.64 | 10.25 | 10.82 | 13.01 | 7.69 | 8.28 | 11.24 |
| Checkers, examiners, mity | 4.68 | 5.09 | 6.45 | 6.84 | 7.26 | 8.37 | 5.15 | 5.67 | 7.72 |
| Graders and scrters, mfy | . 38 | . 34 | -20 | . 18 | . 16 | . 09 | . 24 | . 25 | . 33 |
| Packer,wrapper, exc meat, prodce | 2.00 | 2.09 | 2.99 | 3.23 | 3.40 | 4.55 | 2.30 | 2.35 | 3.19 |
| Otiner operatives, exc transport | 13.75 | 13. 28 | 16.89 | 26.10 | 24.43 | 29.40 | 16.52 | 16.37 | 18.02 |
| Assemblers | . 22 | . 27 | -42 | . 19 | . 26 | . 48 | . 21 | . 26 | . 42 |
| Bottling, canning operatives | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Clothing ironers and pressers | .27 | . 22 | .17 | . 80 | . 62 | . 40 | . 05 | .03 | .01 |
| Cutting operatives, other | 1.47 | 1.57 | 1.76 | 2.33 | 2.47 | 2.48 | . 78 | . 78 | . 74 |
| Drillers, earth | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | 2.33 | 2.48 | 2.75 | 1.49 | 1.60 | 1.82 | 11.60 | 11.99 | 13.60 |
| Filer, polisher, sander, buffer | . 04 | . 03 | . 01 | . 02 | . 01 | .01 | . 03 | . 02 | . 01 |
| Laundry, dry cleang ofrs,other | . 05 | . 04 | . 03 | . 04 | . 04 | . 02 | . 08 | . 07 | . 04 |
| Meat cutters and putchers | . 02 | - 01 | . 00 | . 05 | . 03 | . 00 | . 00 | . 00 | . 00 |
| Mixing operatives | . 26 | . 27 | . 25 | . 06 | . 06 | . 07 | .77 | . 74 | . 61 |
| Oilers,greasers, exc automobiles | . 28 | . 25 | - 17 | . 04 | . 04 | . 03 | . 14 | . 13 | . 10 |
| Painters, mfg articles | .11 | . 09 | . 07 | . 02 | . 02 | . 01 | .19 | . 15 | . 11 |
| photographic frocess workers | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 | .00 | .00 |
| Riveters and fasteners | . 03 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Sawyers | . 03 | . 04 | . 06 | . 04 | . 05 | . 08 | . 00 | .00 | . 00 |
| sewers and stitchers | 8.16 | 7.61 | 10.85 | 20.79 | 19.03 | 23.75 | 1.76 | 1.49 | 1.58 |
| Shoemaking machine operatives | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Furnace tendr, stokr, exc metal | . 26 | . 18 | .19 | . 18 | . 14 | .21 | .72 | . 54 | . 74 |
| winding operatives, other | . 19 | . 17 | - 10 | . 03 | . 03 | . 02 | . 14 | . 12 | . 05 |
| Transport equifment operatives | 1.48 | 1.75 | 2.65 | . 56 | . 64 | 1.02 | 2.18 | 2.51 | 2.79 |
| Bus drivers | . 02 | . 03 | . 01 | . 00 | . 00 | . 00 | . 19 | . 33 | . 18 |
| Delivery and route workers | . 09 | . 10 | . 17 | . 09 | . 09 | - 14 | .16 | . 16 | . 29 |
| Fork lift, tow rotor operatives | . 68 | . 84 | 1.02 | . 14 | . 17 | . 17 | 1.03 | 1.22 | 1.35 |
| Rail vehicle cperators, other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 04 | . 04 | . 04 | . 02 | .01 | .01 | . 10 | . 11 | . 11 |
| Truck drivers | . 05 | .74 | 1.40 | .31 | . 37 | .71 | . 70 | .69 | . 86 |
| Service workers | 2.24 | 2.02 | 1.45 | 1.50 | 1.41 | 1.13 | 2.45 | 2.04 | 1.04 |
| Cleaning service yorkers | 1.56 | 1. 36 | . 77 | . 97 | . 85 | . 46 | 1.68 | 1.34 | . 54 |
| Bldg interior cleaners, other | . 44 | . 40 | . 22 | . 17 | . 15 | . 06 | . 43 | . 37 | . 16 |
| Janitors and sextons | 1.13 | . 96 | . 55 | . 80 | .70 | . 40 | 1.26 | . 97 | . 38 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Textile } \\ & \text { mill } \\ & \text { products } \end{aligned}$ |  |  | Knitting mills |  |  | Dyeing, finishing tertiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 07 | . 06 | .06 | . 07 | . 07 | . 09 | . 06 | . 05 | .03 |
| Cooks, exc private households | . 03 | . 02 | . 03 | . 04 | . 03 | . 05 | . 04 | .03 | . 02 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Food counter, fountain workers | .01 | . 01 | .01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| waiters | . 02 | . 01 | . 01 | . 01 | . 07 | . 01 | . 00 | . 00 | . 00 |
| Other food serv wirs,exc privt | . 02 | . 01 | .01 | .01 | . 01 | .01 | . 02 | . 02 | . 01 |
| Health service workers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Nursing aides and crderlies | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 08 | . 08 | . 08 | . 02 | . 03 | . 05 | . 03 | . 02 | . 01 |
| Elevator operators | . 07 | . 07 | . 06 | . 01 | . 02 | . 04 | . 03 | . 02 | . 01 |
| Housekeepers, exc private homes | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | .00 |
| Protective service workers | . 52 | . 52 | . 51 | . 43 | . 46 | . 52 | . 68 | . 63 | . 46 |
| guards | . 52 | . 52 | .51 | -43 | . 46 | . 52 | . 68 | . 63 | . 46 |
| Laborers, except farm | 4.80 | 4.47 | 3.56 | 3.21 | 3.14 | 2.44 | 4.49 | 4.05 | 2.93 |
| Carpenter helfers | . 02 | - 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter nelpr | . 07 | . 05 | . 03 | . 02 | . 01 | . 01 | . 09 | . 07 | .03 |
| Freight and material handlers | 2.28 | 2. 20 | 2.08 | 1.22 | 1.23 | 1.25 | 2.45 | 2.34 | 2.10 |
| Gardenrs.groundkeepers, exc farm | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | . 72 | - 70 | . 40 | 1.34 | 1.31 | . 68 | .61 | - 54 | . 21 |
| Teamsters | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | . 70 | . 60 | . 24 | . 15 | - 13 | . 05 | . 53 | - 43 | . 14 |
| Warehouse labcrers, other | -13 | - 13 | -15 | . 09 | . 11 | . 19 | . 16 | . 14 | . 10 |
| Other laborers | . 82 | . 70 | . 55 | . 39 | . 34 | . 27 | . 66 | . 53 | . 35 |

Table 1. percent distribution oŕ industry employment by occupation, 1970, 1978 and projected 1990


| Total ali occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Professional and technical | 3.64 | 3.96 | 3.55 | 3.26 | 3.76 | 4.12 | 4.29 | 4.71 | 5.38 |
| Engineers, technical | . 58 | . 54 | . 40 | - 59 | . 60 | . 65 | . 78 | .77 | : 96 |
| Chemical | . 03 | . 03 | . 02 | . 03 | . 03 | . 04 | . 07 | . 05 | . 01 |
| Civil | . 03 | . 01 | . 01 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Electrical | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Industrial | . 36 | - 34 | .21 | . 32 | - 34 | . 31 | . 28 | . 28 | . 24 |
| Mechanical | . 10 | - 10 | . 13 | . 13 | . 12 | . 15 | . 24 | . 27 | . 50 |
| Sales | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 01 | .00 |
| other engineers | . 06 | . 05 | . 04 | . 07 | . 06 | . 08 | . 18 | . 17 | . 21 |
| Life and physical scientists | .17 | . 16 | . 15 | . 15 | . 17 | . 20 | . 30 | .30 | . 33 |
| Chemists | . 14 | . 13 | .11 | . 15 | . 16 | . 20 | . 30 | . 30 | .33 |
| Physicists and astronomers | . 00 | . 00 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Other life, fhysical scientists | .03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Engineering, science technicians | . 77 | . 81 | .87 | . 94 | 1.08 | 1.41 | 1.42 | 1.57 | 2.12 |
| Chemical technicians | . 05 | . 05 | . 05 | . 06 | . 06 | . 04 | . 07 | .07 | .06 |
| Drafters | . 05 | . 04 | . 04 | . 07 | . 07 | . 12 | . 16 | . 17 | . 32 |
| Electrical and electronic | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 01 | . 01 | .01 |
| Industrial engineering | . 06 | . 07 | -06 | . 06 | . 09 | . 14 | . 05 | . 06 | . 04 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 | . 04 | . 04 | . 04 |
| other engineering, science tech | .61 | . 65 | . 72 | . 74 | . 83 | 1.06 | 1.10 | 1.22 | 1.64 |
| Medical workers.exc technicians | .00 | . 00 | . 00 | . 05 | . 05 | . 06 | . 07 | . 08 | . 13 |
| Registered nurses | . 00 | . 00 | . 00 | . 05 | . 05 | . 06 | . 07 | . 08 | . 13 |
| Technicians, except health | . 01 | . 01 | . 02 | . 03 | . 05 | . 08 | . 03 | . 06 | . 11 |
| Airplane pilots | . 00 | . 00 | . 00 | . 01 | . 02 | . 05 | . 00 | . 00 | .00 |
| other technicians except aealti | . 01 | . 01 | . 02 | . 02 | . 03 | . 03 | .03 | . 06 | .11 |
| Computer specialists | . 38 | - 47 | . 39 | . 16 | . 22 | . 23 | . 20 | -26 | - 29 |
| Computer programers | -26 | - 30 | - 26 | . 11 | . 13 | . 14 | . 14 | . 16 | . 15 |
| Computer systers analysts | . 12 | . 17 | . 13 | . 05 | . 07 | . 07 | . 06 | - 10 | . 14 |
| Other computer specialists | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Social scientists | . 00 | .00 | . 00 | . 02 | . 04 | . 04 | . 00 | .00 | . 00 |
| Economists | .00 | . 00 | . 00 | . 02 | . 04 | . 04 | . 00 | .00 | . 00 |
| Teachers | . 07 | . 06 | . 01 | . 09 | . 09 | . 03 | . 02 | . 02 | . 01 |
| Adult educaticn | . 07 | . 06 | . 01 | . 09 | . 09 | . 03 | . 02 | . 02 | .01 |
| Writers,artists, entertainers |  | . 46 | .29 | . 33 | . 41 | .41 | . 25 | . 28 | . 19 |
| Designers | . 34 | . 35 | . 22 | . 26 | . 31 | . 29 | . 18 | . 18 | . 09 |
| Editors and reforters | .01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Painters and sculftors | .03 | . 03 | . 02 | . 03 | . 04 | . 04 | . 05 | . 06 | . 03 |
| Public relaticns specialists | . 06 | . 07 | . 05 | . 03 | .03 | . 04 | . 03 | . 05 | . 07 |
| other writers,artists, entertala | . 00 | . 00 | .00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Other professicnal and technical | 1.22 | 1.45 | 1.43 | . 90 | 1.06 | 1.01 | 1.22 | 1.37 | 1.24 |
| Accountants | . 71 | . 86 | . 96 | . 38 | . 46 | . 51 | . 62 | . 72 | . 75 |
| Lawyers | .00 | . 00 | . 00 | .01 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Operations and systems researca | . 18 | . 24 | . 20 | . 10 | . 14 | . 14 | . 21 | . 29 | .29 |
| Personnel, labcr relations uirs | . 28 | . 30 | . 26 | . 32 | - 36 | . 31 | .34 | . 33 | . 20 |
| other research workers | . 06 | . 04 | . 01 | . 07 | . 05 | . 02 | . 06 | . 03 | .01 |
| Recreation workers | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 4.75 | 5.60 | 5.77 | 2.97 | 3.77 | 4.71 | 5.36 | 6.43 | 7.10 |
| Buyers, sales, lcan managers | . 96 | . 88 | . 86 | . 49 | . 47 | . 52 | . 98 | . 97 | 1. 13 |
| Eank, tinancial managers | - 13 | . 14 | .14 | . 07 | . 07 | . 05 | . 10 | . 11 | . 13 |
| credit managers | . 14 | . 08 | . 07 | . 04 | . 02 | . 03 | . 02 | . 01 | . 00 |
| Purchasing agents, buyers, otmer | . 26 | . 23 | . 24 | - 18 | . 17 | . 17 | . 38 | . 33 | . 32 |
| Sales manager, exc retail trade | . 43 | . 43 | .41 | . 20 | . 22 | . 27 | . 48 | . 52 | . 67 |
| Other managers, officials, proprts | 3.78 | 4.72 | 4.91 | 2.48 | 3.30 | 4.20 | 4.38 | 5.46 | 5.97 |
| Mgrs, superintendents, buildiny | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| office managers, other | .24 | . 24 | .26 | . 18 | . 20 | . 26 | . 24 | . 26 | .36 |
| Bestaurant, cafe, bar,managers | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other managers, administrators | 3.52 | 4.45 | 4.65 | 2.30 | 3.09 | 3.93 | 4.12 | 5.18 | 5.59 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Ploor } \\ & \text { coverings } \end{aligned}$ |  |  | Yarn and fabric mills |  |  | $\begin{aligned} & \text { Misc } \\ & \text { textile } \\ & \text { mills } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales vorkers | 2.54 | 2. 88 | 4.15 | . 92 | . 99 | 1.20 | 1.59 | 1.68 | 1. 94 |
| Advertising agents, sales vorker | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 06 |
| Other sales workers | 2.54 | 2.88 | 4.15 | . 92 | . 99 | 1.20 | 1.58 | 1.65 | 1.88 |
| Clerical workers | 13.36 | 13. 23 | 13.47 | 7.33 | 7.51 | 8.60 | 10.31 | 9.99 | 11.15 |
| Stenographrs,typists, secretaries | 3.51 | 3.58 | 4.54 | 1.95 | 2.08 | 2.91 | 2.81 | 2.86 | 3.84 |
| Legal secretaries | . 03 | . 02 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Other secretaries | 2.46 | 2.68 | 3.66 | 1.50 | 1.69 | 2.53 | 2.06 | 2.19 | 3.01 |
| Stenographers | . 06 | . 03 | . 00 | . 03 | . 01 | . 01 | . 06 | .03 | . 00 |
| Typists | -96 | - 85 | . 87 | -42 | - 36 | . 35 | . 69 | . 64 | . 82 |
| office machine operators | 1.24 | 1.44 | . 92 | . 51 | . 55 | . 40 | .63 | - 54 | - 36 |
| Bookkeeping and billing | . 06 | . 02 | . 01 | . 03 | . 02 | . 01 | . 03 | .01 | - 00 |
| Calculating | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 |
| computer and feripheral equip | -4 | - 89 | .70 | - 12 | - 26 | . 23 | . 04 | . 09 | . 08 |
| Duplicating | . 00 | . 00 | .00 | . 01 | . 01 | . 02 | . 02 | . 01 | .01 |
| Keypunch | .71 | -49 | . 19 | . 29 | . 22 | . 12 | . 40 | . 30 | . 20 |
| Tabulating | . 03 | . 01 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 |
| other office machine operators | . 02 | . 02 | . 02 | . 03 | . 03 | . 02 | .11 | .11 | . 07 |
| other clerical workers | 8.61 | 8. 22 | 8.01 | 4.88 | 4.87 | 5.29 | 6.87 | 6.59 | 6.95 |
| Billing clerks | . 25 | . 26 | . 33 | -18 | . 20 | . 29 | . 30 | . 32 | . 45 |
| Bookkeepers | 1.23 | 1.32 | 1.71 | . 66 | . 68 | . 81 | 1.03 | . 99 | . 94 |
| Cashiers | . 03 | . 03 | . 06 | . 03 | . 04 | . 05 | .03 | . 03 | . 01 |
| Clerical supervisors, other | . 15 | - 17 | . 17 | . 08 | . 09 | . 09 | - 10 | . 12 | . 13 |
| Counter clerks,exc food | . 64 | . 64 | .63 | - 13 | . 14 | - 15 | . 17 | . 18 | . 25 |
| Dispatchers, starters, vehicle | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Estimators, investigators,other | .31 | - 32 | . 18 | . 07 | . 08 | . 07 | . 12 | - 13 | . 09 |
| Expediters, preduction controlrs | . 40 | - 37 | . 25 | . 37 | . 38 | . 41 | . 47 | . 44 | - 35 |
| File clerks | . 23 | . 20 | .23 | . 14 | . 12 | . 15 | . 08 | . 05 | . 03 |
| Mail handlers, exc post office | . 13 | - 12 | . 11 | . 07 | . 06 | . 06 | . 06 | . 06 | . 07 |
| Messengers and office helpers | . 00 | . 00 | .00 | .03 | . 03 | .01 | . 02 | . 02 | . 01 |
| Payroll,timekeeping clerks | - 29 | - 26 | - 10 | -42 | . 47 | . 47 | .46 | - 51 | . 52 |
| Receptionists | . 24 | . 19 | - 10 | . 11 | . 10 | . 07 | . 20 | . 17 | . 09 |
| Shipping and receiving clerks | 2.21 | 2. 10 | 2.46 | 1.08 | 1.04 | 1.27 | 1.83 | 1.79 | 2.41 |
| Statistical clerks | . 33 | - 34 | . 28 | . 21 | . 24 | . 26 | . 20 | . 23 | . 29 |
| Stock clerks and store xeepers | . 58 | . 41 | - 16 | . 60 | . 49 | . 33 | . 78 | . 60 | . 31 |
| relephone operators | . 15 | . 09 | . 05 | . 07 | . 05 | - 06 | . 12 | . 05 | . 01 |
| Weighers | . 48 | - 41 | . 23 | - 20 | . 20 | . 17 | . 17 | . 16 | - 11 |
| Misc clerical workers | -96 | . 95 | . 96 | . 41 | . 45 | . 56 | .72 | . 74 | . 89 |
| crafts and kindred workers | 11.81 | 13.33 | 16.30 | 14.07 | 15.25 | 17.34 | 13.51 | 15. 30 | 20. 15 |
| Construction crafts workers | 1.12 | 1. 24 | 1.74 | 1.03 | 1.08 | 1.30 | 1.10 | 1.11 | 1.27 |
| Carpenters and apprentices | . 32 | . 35 | . 44 | .26 | . 25 | -19 | .33 | . 37 | . 54 |
| Brick,stonemasons, apprentices | . 05 | . 04 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 04 | . 04 | .03 | . 02 | . 02 | . 03 | .01 | . 01 | . 02 |
| Electricians and apprentices | - 59 | . 70 | 1.10 | - 52 | . 59 | . 82 | . 50 | . 51 | . 58 |
| Excavating, grading mach operatr | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | - 00 |
| Floor layers, exc tile setters | . 01 | . 01 | . 00 | . 02 | . 01 | -00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 03 | . 02 | . 01 | . 07 | . 06 | - 05 | . 07 | . 05 | . 01 |
| Plumbers, pipefitters, aprentices | . 09 | -09 | . 15 | . 12 | . 12 | . 16 | . 20 | . 17 | - 12 |
| Blue collar worker supervisors | 4.63 | 5.36 | 6.65 | 4.51 | 5.02 | 5.59 | 5.51 | 6.38 | 8.41 |
| Metalworkg craft vrkrs,exc meca | 1.18 | 1. 37 | 2.26 | . 84 | . 93 | 1.28 | 1.43 | 1.42 | 1.37 |
| Boilermakers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| machinists and apprentices | -99 | 1. 22 | 2.12 | . 68 | - 76 | 1.02 | 1.10 | 1.05 | . 84 |
| Millwrights | . 07 | . 09 | . 12 | . 08 | . 09 | . 13 | . 23 | . 27 | . 35 |
| Pattern and mcldmakers | . 07 | . 03 | . 01 | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 04 | . 02 | .01 | . 03 | . 03 | . 06 | . 04 | . 03 | . 02 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 06 | . 07 | . 17 |
| Mechanics, repairers,installers | 3.55 | 3.89 | 3.93 | 6.94 | 7.47 | 8.26 | 4.47 | 5.33 | 7.62 |
| Air cond, heating, refrig mech | . 04 | . 06 | . 08 | - 15 | . 22 | . 25 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 09 | . 07 | . 02 | . 06 | . 05 | . 04 | . 10 | . 09 | . 06 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Heavy equip mech. incl diesel | 2.57 | 3.05 | 3.41 | 3.40 | 4.19 | 5.57 | 3.54 | 4.32 | 6.03 |
| Household afpliance mechanics | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Loom fixers | . 69 | . 59 | . 36 | 3.00 | 2.70 | 2.18 | . 75 | . 85 | 1.48 |
| office machine repairers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| mailroad, car shop repairers | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 12 | . 10 | .03 | . 30 | . 29 | . 17 | . 06 | . 05 | . 02 |


|  | Floor coverings |  |  | Yarn and fabric mills |  |  | ```Misc textile mills``` |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Printing trade crafts workers | . 15 | - 21 | -40 | . 19 | - 22 | .30 | . 43 | . 53 | . 80 |
| Compositors and typesetters | . 13 | . 18 | . 36 | . 14 | . 17 | . 26 | .33 | . 39 | . 61 |
| Engravers exc photoengravers | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 | . 01 | . 02 | . 02 |
| press,plate printers,aprentices | .03 | . 03 | . 03 | . 03 | . 03 | . 01 | .10 | . 12 | . 17 |
| Transport, public util craft wkrs | . 00 | . 00 | .00 | . 03 | . 03 | . 04 | .00 | . 00 | . 00 |
| pover station operators | . 00 | . 00 | . 00 | -02 | . 02 | . 04 | .00 | .00 | . 00 |
| Other crafts, kindred workers | 1.19 | 1. 25 | 1.33 | . 53 | . 50 | . 58 | . 56 | . 54 | . 68 |
| Carpet installers | . 84 | - 94 | . 81 | . 01 | . 01 | . 02 | . 02 | . 02 | .01 |
| Crane, derrick,hoist operator | - 17 | . 17 | . 35 | -04 | . 04 | . 07 | . 07 | . 08 | . 16 |
| Purniture and wood finishers | - 01 | . 01 | -01 | - 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Inspectors, other | -05 | . 08 | . 16 | . 03 | . 04 | . 06 | . 04 | . 07 | . 14 |
| Stationary engineers | - 12 | . 06 | . 00 | - 14 | - 12 | . 11 | . 23 | . 17 | . 09 |
| Tailors | . 00 | . 00 | . 00 | . 17 | . 18 | . 22 | . 09 | . 12 | . 25 |
| Upholsterers | -00 | . 00 | .00 | - 12 | . 08 | . 09 | . 06 | . 04 | . 03 |
| Other crafts morkers | . 00 | . 00 | .00 | . 02 | . 02 | .01 | .03 | . 03 | . 01 |
| operatives | 58.38 | 55.93 | 52.71 | 63.17 | 60.97 | 57.60 | 57.55 | 55.32 | 49.16 |
| operatives, except transport | 53.58 | 50.27 | 44.54 | 61.89 | 59.46 | 55.17 | 54.94 | 52.50 | 45.81 |
| Semiskilled metalvorking | . 54 | . 53 | .77 | . 40 | . 33 | . 29 | . 48 | . 42 | -48 |
| Drill press oferatives | .01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Grinding machine oferatives | . 02 | . 01 | . 00 | . 01 | . 01 | -01 | .03 | . 02 | . 02 |
| Lathe,milling mach operatives | -10 | . 05 | . 01 | . 07 | . 05 | . 03 | . 12 | . 09 | . 09 |
| Metal platers | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Uther precisicn mach operators | - 10 | . 07 | . 04 | - 14 | - 10 | . 07 | . 10 | . 06 | . 03 |
| Punch,stamping press operatives | . 02 | . 02 | .01 | . 02 | . 02 | . 02 | . 06 | . 04 | . 01 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| welders and flamecutters | . 29 | . 38 | .71 | . 12 | - 13 | . 14 | - 16 | . 18 | . 32 |
| Semiskilled textile operatives | 30.43 | 27. 17 | 18.73 | 48.24 | 46.05 | 38.70 | 38.09 | 36.00 | 26.22 |
| Carding, lapping combing oprs | . 39 | . 31 | .11 | 2.90 | 2.48 | 1.28 | 1.29 | . 94 | - 26 |
| Knitters, loopers, and toppers | . 39 | . 42 | . 43 | . 58 | . 63 | . 67 | . 41 | . 43 | . 47 |
| Spinners, twisters, winders | 7.81 | 7.71 | 7.23 | 21.26 | 20.48 | 17.71 | 9.54 | 9.83 | 7.87 |
| weavers | 4.28 | 3.22 | 1.97 | 7.48 | 6.77 | 4.46 | 3.41 | 3.64 | 3.01 |
| Other textile operatives | 17.57 | 15. 52 | 8.99 | 16.02 | 15.69 | 14.59 | 23.44 | 21.17 | 14.62 |
| Semiskilled packing, inspecting | 7.30 | 8.08 | 9.41 | 5.55 | 5.77 | 7.17 | 6.03 | 6.31 | 8.52 |
| Checkers, examiners. mfy | 5.66 | 6.32 | 6.75 | 3.67 | 3.93 | 5.06 | 3.26 | 3.51 | 4.83 |
| Graders and scrters, mfy | . 10 | . 08 | . 03 | . 50 | . 45 | . 27 | . 61 | . 54 | . 34 |
| Packer,wrapper,exc meat, prodce | 1.55 | 1.68 | 2.64 | 1.39 | 1.40 | 1.84 | 2.16 | 2.25 | 3. 35 |
| Other operatives, exc transport | 15.32 | 14.49 | 15.62 | 7.70 | 7.31 | 9.01 | 10.34 | 9.77 | 10.58 |
| Assemblers | . 37 | - 51 | . 99 | . 14 | . 17 | . 24 | . 73 | . 71 | . 50 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| clothing irontrs and pressers | . 00 | . 00 | . 00 | . 12 | . 09 | . 08 | . 06 | . 04 | .03 |
| Cuttiny operatives, other | 3.75 | 3.76 | 3.40 | . 76 | . 80 | . 89 | 2.52 | 2.55 | 2.64 |
| Drillers, earth | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Dyers | 2.86 | 3.04 | 3.69 | 1.33 | 1.37 | 1.52 | 1.28 | 1.40 | 2.00 |
| Filer, polisher, sander, buffer | . 00 | . 00 | .00 | . 04 | . 03 | . 01 | . 13 | . 10 | . 05 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Laundry,dry cleang ofrs, other | . 21 | . 17 | . 09 | . 03 | . 02 | . 01 | . 04 | . 02 | . 01 |
| Meat cutters and butchers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 06 | . 05 | . 00 |
| Mixing operatives | - 51 | - 49 | . 41 | . 18 | . 19 | -21 | .71 | . 69 | . 63 |
| oilers,greasers,exc automobiles | . 08 | . 07 | . 04 | - 44 | . 39 | . 26 | . 37 | . 36 | . 41 |
| Painters, mfg articles | . 13 | - 11 | . 09 | -12 | - 10 | . 08 | -19 | - 16 | - 15 |
| Photographic frocess workers | . 00 | . 00 | - 00 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| kiveters and fasteners | . 04 | . 03 | . 02 | . 04 | . 04 | . 04 | . 03 | . 03 | . 02 |
| Sawyers | . 07 | . 09 | .17 | . 03 | . 03 | . 04 | . 04 | . 04 | . 03 |
| Sewers and stitchers | 6.86 | 5.90 | 6.43 | 4.01 | 3.70 | 5.31 | 3.21 | 2.81 | 3.56 |
| Shoemaking machine operatives | . 00 | . 00 | . 00 | .01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr, exc metal | . 38 | . 27 | . 26 | . 20 | . 12 | . 05 | . 29 | - 20 | - 24 |
| winding operatives, other | . 06 | . 05 | . 02 | . 22 | - 20 | . 16 | .70 | . 60 | . 31 |
| Transport equipment operatives | 4.80 | 5.66 | 8.16 | 1.28 | 1.51 | 2.43 | 2.61 | 2.82 | 3. 35 |
| Delivery and route workers | . 20 | . 22 | .39 | . 06 | .07 | . 11 | . 15 | . 15 | . 20 |
| Fork lift, tow motor operatives | 2.86 | 3.36 | 3.60 | . 53 | . 66 | . 82 | 1.41 | 1.67 | 2.00 |
| Rail yehicle cperators, other | . 00 | - 00 | . 00 | - 01 | . 01 | -02 | . 00 | -00 | . 00 |
| Taxicab drivers, chauffeurs | . 16 | . 18 | . 13 | . 02 | . 02 | . 01 | . 10 | - 11 | . 12 |
| Truck drivers | 1.58 | 1.90 | 4.05 | . 66 | . 76 | 1.47 | . 94 | . 89 | 1.04 |
| Service workers | 2.36 | 2. 13 | 1.72 | 2.52 | 2.30 | 1.68 | 2.47 | 2.17 | 1.55 |
| Cleaning service workers | 1.48 | 1.20 | . 54 | 1.81 | 1.64 | 1.10 | 1.74 | 1.45 | .77 |
| Bldg interior cleaners, other | . 23 | -20 | . 09 | . 61 | . 57 | . 38 | . 35 | . 31 | -18 |
| Janitors and sextons | 1.25 | 1.01 | . 45 | 1.21 | 1.07 | .71 | 1.39 | 1.14 | .59 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Misc
textile
mills

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

$1970 \quad 1978 \quad 1990$
Professional and technical
Engineers,technical
Industrial
Mechanical
Other engineers
Life and physical scientists

Chemists
Engineering, science tecanicians
Chemical technicians Drafters
Electrical and electronic
Industrial engineering
other engineering, science tecn
Medical workers, exc technicians Registered nurses

Technicians, except healti other technicians except aealth

Computer specialists
Computer programers
Computer systems analysts
other computer specialists
Social scientists
Economists
Teachers
Adult educaticn
other teachers
Nriters, artists, entertainers
Designers
Editors and reforters
painters and sculptors
public relaticns specialists other writers,artists,entertain

Other professional and technical Accountants
Home managerent advisors Lawyers
Operations and systems researca Personnel, labcr relations wkrs other research workers

Managers, officials, proprietors
Buyers,sales, lcan managers
Bank, financial managers
Credit managers
purchasing agents, buyers, other
Sales manager, exc retail trade
Other managers, officials, proprts Office managers, other Other managers, administrators

Sales workers other sales workers

Clerical workers
Stenographrs, typists, secretaries other secretaries
Stenographers
Typists
$100.00 \quad 100.00 \quad 100.00$

| 2.02 | 2.39 | 1.98 |
| :---: | :---: | :---: |
| .19 | . 22 | .26 |
| - 15 | . 18 | .23 |
| .02 | . 02 | .02 |
| . 02 | . 02 | .01 |
| .01 | . 01 | .01 |
| . 01 | .01 | .01 |
| - 14 | - 15 | . 16 |
| . 00 | . 01 | . 00 |
| .08 | . 07 | .08 |
| .00 | . 00 | .00 |
| .02 | . 03 | . 04 |
| .04 | .05 | .04 |
| . 01 | .01 | . 01 |
| .01 | .01 | .01 |
| . 00 | .00 | .01 |
| .00 | . 00 | .01 |
| .09 | - 12 | . 10 |
| .06 | . 08 | .07 |
| . 02 | - 03 | .02 |
| .01 | .01 | . 01 |
| .01 | .01 | . 00 |
| .01 | . 01 | .00 |
| .13 | - 10 | .03 |
| .03 | . 04 | . 01 |
| . 10 | . 06 | .01 |
| .95 | 1. 15 | .84 |
| .86 | 1.03 | . 74 |
| .01 | . 02 | .03 |
| .04 | . 05 | .01 |
| .03 | . 04 | .04 |
| .01 | . 01 | .01 |
| .47 | .60 | . 56 |
| -25 | .33 | . 36 |
| .00 | - 00 | .00 |
| .01 | .01 | .00 |
| .04 | . 06 | . 04 |
| . 17 | . 20 | . 15 |
| .01 | .01 | .01 |
| 4.15 | 5. 21 | 5.57 |
| .60 | .58 | .47 |
| .08 | . 08 | .04 |
| .05 | .03 | . 02 |
| .23 | . 21 | .17 |
| . 24 | .26 | . 25 |
| 3. 55 | 4. 63 | 5.09 |
| . 24 | . 27 | . 25 |
| 3.31 | 4. 35 | 4.83 |
| 2.03 | 2. 26 | 2.49 |
| 2.02 | 2. 25 | 2.49 |
| 7.98 | 8. 29 | 7.86 |
| 1.63 | 1.76 | 1.94 |
| 1.20 | 1. 36 | 1.58 |
| .02 | . 01 | .00 |
| .41 | . 39 | .36 |

$100.00 \quad 100.00100 .00$

| 2.00 | 2.40 | 1.98 | 2.19 | 2.34 | 1.94 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| .17 | - 20 | . 24 | .33 | . 32 | . 36 |
| .14 | . 18 | - 23 | . 19 | - 20 | . 25 |
| . 01 | . 01 | .00 | .06 | .07 | . 08 |
| .01 | .01 | .00 | .06 | .05 | .03 |
| . 01 | .01 | .01 | .03 | . 03 | . 01 |
| .01 | .01 | .01 | .03 | .03 | .01 |
| - 12 | - 13 | .16 | . 28 | - 26 | . 20 |
| . 00 | .00 | . 00 | .03 | .03 | .03 |
| . 08 | . 08 | . 09 | . 08 | .05 | . 02 |
| .00 | . 00 | .00 | .02 | .02 | .01 |
| . 02 | . 03 | . 04 | .02 | . 02 | . 03 |
| .03 | .03 | .03 | .14 | . 14 | . 12 |
| .01 | . 01 | .01 | . 02 | . 02 | . 05 |
| .01 | .01 | .01 | .02 | .02 | .05 |
| .00 | .00 | .00 | . 01 | .02 | . 04 |
| .00 | .00 | .00 | .01 | .02 | . 04 |
| .09 | . 13 | - 10 | .08 | . 10 | . 07 |
| .07 | . 08 | .07 | .05 | .06 | . 04 |
| .02 | .03 | .03 | .01 | .02 | . 02 |
| .01 | .01 | .01 | .01 | .02 | .01 |
| .01 | . 02 | .01 | . 00 | .00 | . 00 |
| .01 | .02 | . 01 | .00 | .00 | .00 |
| .15 | . 11 | . 03 | .01 | .01 | .01 |
| . 04 | .04 | .01 | .01 | .01 | .01 |
| . 11 | .07 | .02 | .00 | .00 | . 00 |
| .99 | 1. 22 | .91 | .70 | .74 | .47 |
| .92 | 1. 13 | .81 | .46 | .47 | . 35 |
| .01 | . 02 | .04 | . 01 | . 01 | . 01 |
| . 02 | .02 | .00 | . 19 | .21 | .07 |
| .03 | .04 | .04 | .03 | .04 | . 04 |
| .01 | .01 | .01 | .01 | .01 | .01 |
| .44 | . 57 | .53 | .73 | . 83 | . 72 |
| . 23 | . 31 | . 34 | .39 | .45 | .47 |
| .00 | - 00 | .00 | .01 | .01 | .01 |
| .01 | .01 | .00 | .01 | .02 | . 01 |
| .04 | .06 | . 04 | .06 | . 08 | . 06 |
| - 16 | . 19 | . 14 | . 24 | - 26 | - 17 |
| . 01 | .01 | .01 | .02 | .01 | . 00 |
| 3.82 | 4.81 | 5.21 | 6.60 | 7.57 | 7. 58 |
| . 58 | . 57 | .47 | . 73 | .66 | .49 |
| . 08 | . 08 | . 05 | .10 | .08 | .03 |
| .05 | . 03 | .01 | .05 | .03 | . 02 |
| .23 | - 21 | . 16 | . 26 | . 24 | . 21 |
| . 23 | - 26 | . 25 | . 32 | .31 | .24 |
| 3.24 | 4. 24 | 4.74 | 5.87 | 6.91 | 7.09 |
| -21 | - 23 | .21 | . 51 | . 53 | . 50 |
| 3.02 | 4.00 | 4.52 | 5.36 | 6.38 | 6.58 |
| 1.99 | 2. 24 | 2.53 | 2. 32 | 2.34 | 2. 27 |
| 1.98 | 2. 24 | 2.53 | 2.32 | 2.34 | 2. 27 |
| 7.65 | 7.99 | 7. 54 | 10.46 | 10.05 | 9.65 |
| 1.47 | 1.59 | 1.79 | 2.82 | 2.76 | 2.79 |
| 1.08 | 1.24 | 1.47 | 2.01 | 2.06 | 2. 19 |
| . 02 | .01 | . 00 | . 02 | . 02 | . 01 |
| .36 | - 34 | -31 | .78 | . 69 | . 59 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Apparel and textile products |  |  | $\begin{gathered} \text { Apparel } \\ \text { and } \\ \text { accessories } \end{gathered}$ |  |  | $\begin{gathered} \text { Misc } \\ \text { fabricated } \\ \text { textiles } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Office machine operators | . 52 | . 51 | . 28 | . 51 | . 52 | . 28 | . 56 | . 48 | . 25 |
| Bookkeeping and billing | . 07 | . 03 | . 01 | . 06 | . 03 | . 01 | . 09 | . 04 | . 02 |
| Calculating | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 | . 04 | . 02 | . 01 |
| Computer and peripheral equip | . 08 | - 20 | - 15 | . 08 | - 20 | - 15 | . 08 | . 17 | - 15 |
| Duplicating for | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 02 | .01 | . 01 |
| Keypunch | . 27 | . 21 | . 08 | .27 | . 22 | . 09 | . 27 | . 18 | . 05 |
| other office machine operators | . 05 | . 04 | . 02 | . 05 | . 04 | . 02 | .06 | . 05 | . 02 |
| Other clerical workers | 5.83 | 6.01 | 5.64 | 5.66 | 5.88 | 5.47 | 7.07 | 6.80 | 6.61 |
| Billing clerks | . 16 | . 18 | . 21 | . 15 | . 18 | .21 | .21 | . 21 | . 21 |
| Bookkeefers | 1.36 | 1.45 | 1.42 | 1.32 | 1.41 | 1.40 | 1.72 | 1.68 | 1.53 |
| Cashiers | . 04 | . 05 | . 06 | . 05 | . 06 | . 07 | . 00 | . 00 | . 00 |
| Clerical supervisors, other | . 07 | . 08 | . 07 | . 07 | . 09 | . 07 | .07 | . 08 | . 08 |
| collectors, bill and account | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Counter clerks, exc food | . 18 | . 20 | . 19 | .17 | - 18 | . 17 | - 25 | . 27 | . 28 |
| Estimators, investigators, other | . 06 | . 07 | . 04 | . 06 | . 07 | . 04 | . 08 | . 08 | -03 |
| Expediters, preduction controlrs | . 25 | - 25 | . 16 | . 23 | . 24 | - 17 | . 34 | . 30 | . 13 |
| File clerks | . 19 | . 18 | . 19 | . 18 | . 17 | . 19 | . 25 | . 22 | . 23 |
| Mail handlers, exc post office | . 06 | . 07 | . 05 | . 06 | . 06 | . 05 | . 08 | . 08 | . 07 |
| Messengers and office helpers | . 04 | . 03 | . 01 | . 03 | . 03 | . 01 | . 05 | . 05 | . 04 |
| Payroll, timekeeping clerks | . 47 | . 58 | .61 | . 49 | . 62 | . 65 | . 29 | . 34 | . 34 |
| Heceptionists | . 14 | . 13 | . 06 | . 14 | - 12 | . 06 | . 16 | . 13 | . 06 |
| Shipping and receiving clerks | 1.63 | 1.63 | 1.69 | 1.56 | 1. 54 | 1.51 | 2.13 | 2.12 | 2.68 |
| Statistical clerks | . 12 | . 14 | . 11 | . 13 | . 15 | . 12 | - 12 | . 12 | . 08 |
| Stock clerks and store keepers | . 46 | . 37 | . 15 | . 45 | - 36 | . 16 | . 58 | . 39 | . 11 |
| Telephone operators | . 09 | . 07 | . 07 | . 09 | . 07 | . 07 | . 11 | . 08 | . 07 |
| weighers | . 02 | . 02 | .01 | . 01 | . 01 | . 01 | . 06 | . 05 | . 04 |
| Misc clerical workers | . 48 | . 52 | . 54 | -47 | . 59 | . 52 | . 57 | . 59 | . 64 |
| Crafts and kindred workers | 7.03 | 7.82 | 7.87 | 6.64 | 7.22 | 6.99 | 9.88 | 11.32 | 12.82 |
| Construction crafts workers | . 17 | . 20 | .25 | . 12 | .13 | . 14 | . 52 | . 60 | . 83 |
| Carpenters and apprentices | .06 | . 07 | . 10 | . 04 | . 05 | . 07 | . 19 | . 22 | . 27 |
| Bulidozer operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Electricians and apprentices | . 05 | . 07 | . 10 | . 03 | . 04 | . 05 | .19 | . 24 | . 39 |
| Excavating. grading mach operatr | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Floor layers, exc tile setters | .01 | . 01 | . 01 | . 09 | . 01 | . 01 | .01 | . 01 | . 00 |
| painters and apprentices | . 02 | . 02 | . 01 | - 02 | . 02 | . 00 | .06 | . 06 | . 04 |
| plumbers, pipefitters, aprentices | .01 | . 02 | .03 | . 01 | . 01 | . 01 | . 03 | . 04 | - 10 |
| Tile setters | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | .01 | . 01 | . 01 |
| Blue collar worker supervisors | 2.64 | 3. 17 | 3.15 | 2.44 | 2. 85 | 2.69 | 4.05 | 5.01 | 5.70 |
| Metalworkg craft wrkrs, exc mecn | . 25 | . 26 | . 27 | . 18 | - 16 | . 10 | .75 | . 81 | 1.19 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Machinists and apprentices | . 16 | . 17 | . 15 | . 14 | . 12 | . 05 | . 37 | . 46 | . 72 |
| Millurights | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 06 | . 08 | . 12 |
| Pattern and moldmakers | . 05 | . 04 | . 05 | . 03 | .03 | . 05 | .13 | . 10 | . 08 |
| Sheetmetal workers, apprentices | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 04 | .05 | - 10 |
| Tool and diemakers, apprentices | . 02 | . 02 | . 02 | . 01 | - 00 | . 00 | . 12 | . 11 | . 15 |
| Mechanics, repairers, installers | 1.07 | 1.38 | 1.56 | . 86 | 1.11 | 1.29 | 2.64 | 2.92 | 3.09 |
| air cond, heating, refrig mecn | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Aircraft mechanics | .01 | . 01 | . 03 | . 00 | - 00 | . 00 | . 06 | . 09 | . 21 |
| Auto accessories installers | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 07 | . 04 | . 00 |
| Auto body repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 01 | .01 | . 0.1 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | . 90 | 1. 18 | 1.40 | . 81 | 1. 06 | 1.24 | 1.51 | 1.87 | 2.28 |
| Household apfliance mechanics | . 09 | . 10 | . 05 | . 00 | . 00 | . 00 | .72 | -66 | - 35 |
| Loom fixers | .03 | . 03 | . 04 | .01 | . 02 | . 02 | - 13 | . 13 | - 14 |
| Radio, television repairers | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Other mechanics and apprentices | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | .07 | . 06 | . 03 |
| Printing trade crafts workers | . 14 | . 19 | . 26 | . 07 | - 10 | - 12 | . 59 | . 73 | 1.00 |
| compositors and typesetters | . 09 | - 12 | - 16 | . 06 | . 08 | - 10 | .31 | . 37 | . 48 |
| Engravers exc fhotoengravers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 07 | . 07 | . 08 |
| Press,plate printers,aprentices | . 04 | . 06 | .09 | . 01 | . 02 | . 03 | .21 | . 28 | . 44 |
| Transport, public util craft wirs | . 02 | . 01 | .00 | . 02 | . 01 | . 00 | . 02 | . 01 | . 01 |
| Telephone installers, repairers | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 | .01 | . 01 | .01 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Apparel and textile products |  |  | $\begin{gathered} \text { Apparel } \\ \text { and } \\ \text { accessories } \end{gathered}$ |  |  | Misc fabricated textiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, inindred workers | 2.76 | 2.62 | 2.39 | 2.96 | 2.85 | 2.64 | 1.31 | 1.23 | 1.01 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Decorators, window dressers | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Furriers | . 05 | . 05 | . 02 | . 06 | . 05 | -02 | .00 | . 00 | . 00 |
| Inspectors, other | . 02 | . 03 | . 04 | . 03 | . 03 | . 04 | .01 | . 02 | . 05 |
| sign painters and letterers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Stationary engineers | . 03 | . 02 | . 00 | . 02 | . 02 | . 00 | . 04 | . 02 | . 01 |
| Tailors | 2.45 | 2.34 | 2.24 | 2.73 | 2.65 | 2.54 | . 42 | . 53 | . 59 |
| Upholsterers | .05 | . 04 | . 03 | . 01 | . 00 | . 00 | . 40 | . 26 | . 18 |
| Other crafts workers | . 14 | . 13 | . 06 | . 10 | . 09 | . 04 | . 40 | . 35 | . 16 |
| operatives | 73.70 | 71.05 | 72.16 | 75.03 | 72.55 | 73.83 | 63.99 | 62.24 | 62.89 |
| Operatives, except transport | 73.21 | 70.46 | 71.32 | 74.66 | 72.11 | 73.13 | 62.67 | 60.82 | 61.21 |
| Semiskilled metalworking | . 12 | - 11 | . 09 | . 07 | . 06 | . 05 | . 49 | . 40 | . 29 |
| Drill press oferatives | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 |
| Lathe, milling mach oferatives | .01 | .01 | . 00 | .00 | . 00 | .00 | . 05 | . 04 | . 03 |
| Metal platers | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Other precisicn mach operators | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 06 | . 04 | . 02 |
| Punch, starping press operatives | . 04 | . 03 | . 01 | .03 | . 02 | .01 | . 14 | -09 | . 02 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | . 01 |
| welders and flamecutters | .03 | . 04 | . 05 | . 01 | . 02 | . 03 | . 16 | . 17 | . 19 |
| Semiskilled textile operatives | . 40 | . 48 | . 56 | - 22 | . 27 | - 33 | 1.66 | 1.72 | 1.84 |
| Cardiny, lapping combing oprs | .01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 05 | . 03 | . 01 |
| Knitters, loopers, and toppers | - 12 | . 15 | . 19 | - 12 | - 15 | - 19 | . 12 | . 15 | . 21 |
| Spinners, twisters, winders | - 10 | . 14 | . 23 | . 04 | . 05 | -08 | . 54 | . 66 | 1.08 |
| weavers | . 03 | . 04 | . 04 | . 01 | . 01 | . 02 | . 23 | . 23 | - 17 |
| Other textile operatives | . 14 | . 14 | . 09 | . 06 | . 06 | . 04 | . 72 | . 65 | . 38 |
| Semiskilled packing, inspecting | 6.55 | 7. 46 | 8.00 | 6.50 | 7.38 | 7.81 | 6.96 | 7.93 | 9.06 |
| Checkers, examiners, mfy | 3.89 | 4.54 | 4.43 | 3.95 | 4.59 | 4.43 | 3.43 | 4.22 | 4.41 |
| Graders and scrters, mfg | . 32 | . 34 | . 33 | . 33 | . 36 | . 37 | . 23 | . 21 | . 11 |
| Packer,wrapper, exc meat, prodce | 2.35 | 2.58 | 3.24 | 2.23 | 2.42 | 3.00 | 3.29 | 3.50 | 4.54 |
| Other operatives, exc transport | 66.14 | 62.42 | 62.68 | 67.87 | 64.40 | 64.95 | 53.56 | 50.77 | 50.01 |
| Assemblers | . 38 | . 53 | . 61 | . 21 | . 27 | . 34 | 1.57 | 2.07 | 2.11 |
| clotning ironers and pressers | 4.36 | 3. 30 | 2.87 | 4.85 | 3.77 | 3.35 | . 74 | . 52 | . 24 |
| Cutting operatives, other | 2.06 | 2.29 | 2.52 | 1.66 | 1.80 | 2.07 | 4.95 | 5.15 | 4.98 |
| Dyers | .09 | . 11 | . 15 | . 05 | . 06 | . 08 | . 32 | . 38 | . 54 |
| Filer, polisher, sanaer, buffer | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 07 | . 06 | . 03 |
| Garage wrkr,gas station atten | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 00 |
| Laundry,dry cleang oprs, other | . 05 | . 04 | .03 | . 05 | . 04 | . 03 | . 04 | . 04 | . 04 |
| Meat cutters and butchers | . 01 | . 01 | . 01 | . 00 | . 00 | -00 | - 10 | . 09 | . 09 |
| Milleners | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Mixing operatives | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 08 | . 07 | . 04 |
| Oilers, greasers, exc automobiles | .01 | . 01 | . 02 | . 01 | . 01 | . 02 | -01 | . 01 | . 01 |
| painters, mfg articles | . 08 | . 07 | . 04 | . 05 | . 04 | . 03 | . 26 | . 21 | .13 |
| Photographic frocess workers | . 04 | . 04 | -06 | . 04 | . 05 | . 07 | . 02 | . 02 | . 02 |
| giveters and fasteners | . 08 | . 07 | . 04 | . 07 | . 06 | . 04 | . 15 | .13 | . 07 |
| Sawyers | . 10 | . 12 | . 17 | . 09 | . 11 | . 16 | . 16 | . 18 | . 25 |
| Sewers and stitchers | 51.07 | 47.08 | 49.63 | 53.70 | 50.31 | 52.92 | 31.89 | 28.16 | 31.29 |
| Shoemaking machine operatives | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | . 22 | . 20 | . 36 | . 23 | - 21 | . 38 | . 14 | . 12 | . 24 |
| winding operatives, other | . 05 | . 06 | . 04 | . 02 | . 02 | . 02 | . 30 | -27 | . 15 |
| Miscellaneous machine operatves | 3.40 | 3.88 | 3.24 | 2.78 | 3. 11 | 2.56 | 7.96 | 8.39 | 7.02 |
| Other oferatives, exc transport | 4.08 | 4.52 | 2.84 | 3.99 | 4.46 | 2.86 | 4.77 | 4.88 | 2.78 |
| Transport equipment operatives |  | . 58 | . 85 | - 37 | . 44 | . 70 | 1.32 | 1.42 | 1.69 |
| Delivery and route workers | . 11 | . 11 | - 12 | - 10 | . 09 | . 10 | . 22 | . 20 | . 21 |
| Fork lift,tow motor operatives | .09 | . 13 | . 14 | . 04 | . 06 | . 05 | . 45 | . 55 | . 62 |
| Taxicab drivers, chauffeurs | .01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 04 | . 05 | . 04 |
| truck drivers | . 27 | . 33 | . 57 | . 22 | . 28 | . 53 | . 61 | . 62 | . 82 |
| Service workers | 1.23 | 1. 12 | . 80 | 1.22 | 1. 12 | . 81 | 1.31 | 1.13 | .73 |
| Cleaning service workers | . 79 | . 69 | . 35 | . 77 | . 67 | . 36 | . 97 | . 77 | - 28 |
| Bldg interior cleaners, other | .19 | . 17 | . 06 | . 18 | - 16 | - 06 | . 27 | . 22 | . 07 |
| Janitors and sextons | .60 | . 52 | .29 | . 58 | . 51 | - 31 | .70 | . 55 | . 21 |
| Food service warkers | .07 | . 06 | . 07 | . 08 | . 07 | . 08 | . 02 | . 02 | . 02 |
| Waiters' assistants | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Cooks, exc private households | . 03 | . 02 | . 03 | . 03 | . 03 | . 04 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Maiters | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Other food serv wrs, exc privt | . 02 | . 01 | .01 | . 02 | .01 | .00 | . 01 | . 01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Apparel and textile products |  |  | Apparel and accessories |  |  | Misc fabricated textiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Health service workers | .01 | . 01 | . 04 | . 01 | . 01 | . 03 | . 01 | . 02 | . 08 |
| Nursing aides and orderlies | .01 | . 01 | . 04 | . 01 | . 01 | . 03 | . 01 | . 02 | . 08 |
| Personal service workers | - 10 | . 08 | . 03 | . 11 | . 09 | . 04 | .03 | . 02 | . 01 |
| Attendants, personal serv,other | . 06 | . 04 | . 01 | . 07 | . 05 | . 01 | . 00 | - 00 | . 00 |
| elevator operators | . 03 | . 03 | . 01 | . 03 | . 03 | . 01 | .03 | . 02 | . 01 |
| Housekeepers, exc private homes | . 01 | .01 | . 02 | .01 | . 01 | . 02 | . 00 | . 00 | - 00 |
| Protective service workers | $.26$ | . 29 | . 31 | . 25 | . 29 | . 30 | . 28 | . 30 | - 34 |
| Guards | $.26$ | . 29 | .31 | . 25 | - 29 | -30 | . 28 | . 30 | . 34 |
| Laborers, except farm | 1.86 | 1. 88 | 1.27 | 1.67 | 1.68 | 1.12 | 3.27 | 3.03 | 2.12 |
| Carpenter belfers | . 01 | . 01 | . 02 | .01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Constr labr,exc carpenter helpr | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Freight and material handlers | . 70 | . 73 | . 66 | .61 | . 64 | - 56 | 1.33 | 1.30 | 1.18 |
| Gardenrs, groundkeepers, exc farin | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Stock handlers | . 89 | . 86 | - 35 | . 86 | . 84 | -34 | 1.09 | -99 | . 38 |
| Vehicle washers,equip cleaners | . 03 | . 03 | . 01 | . 02 | . 02 | . 01 | .11 | . 09 | . 03 |
| Warehouse latcrers, other | . 08 | .09 | . 12 | . 07 | . 08 | . 11 | . 14 | . 15 | . 20 |
| Other laborers | .15 | . 14 | . 10 | . 09 | . 08 | . 05 | . 59 | . 49 | . 33 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Paper and allied products |  |  | pulp.paper. paperboard mills |  |  | Paperboard containers. boxes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 6.23 | 6.66 | 6.52 | 8.40 | 9.00 | 9.78 | 3.88 | 4.20 | 3.86 |
| Engineers, technical | 1.30 | 1. 20 | 1.18 | 1.72 | 1.60 | 1.68 | . 80 | .73 | . 66 |
| Chemical | . 18 | . 18 | . 21 | . 30 | - 30 | . 32 | . 08 | . 09 | - 13 |
| Civil | . 06 | . 05 | . 06 | - 11 | . 09 | . 13 | . 02 | . 02 | . 02 |
| Electrical | . 12 | . 12 | . 13 | . 18 | . 18 | . 21 | . 04 | . 04 | . 05 |
| Industrial | . 36 | - 35 | . 25 | .38 | . 35 | . 22 | . 28 | .27 | . 22 |
| Mechanical | . 28 | - 27 | . 31 | -38 | . 37 | . 43 | . 16 | . 14 | . 12 |
| Sales | . 03 | . 02 | . 01 | . 02 | . 02 | . 02 | . 03 | . 02 | . 02 |
| other engineers | . 27 | . 23 | . 20 | . 34 | . 30 | . 36 | . 18 | . 15 | -11 |
| Life and physical scientists | - 30 | . 29 | . 25 | - 46 | . 47 | -48 | . 05 | . 05 | . 04 |
| Biological | . 01 | . 01 | . 02 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Chemists | . 29 | - 28 | . 24 | . 45 | . 44 | . 43 | . 05 | . 05 | . 04 |
| Mathematical sfecialists | . 03 | . 02 | . 02 | . 04 | . 03 | . 02 | . 01 | .01 | . 00 |
| Statisticians | . 03 | . 02 | . 02 | . 04 | . 03 | . 02 | . 01 | . 01 | . 00 |
| Engineering, science technicians | 1.66 | 1. 72 | 1.89 | 2.94 | 3. 17 | 3.99 | . 43 | .41 | - 39 |
| Chemical technicians | . 14 | - 12 | . 07 | . 25 | . 22 | . 11 | . 04 | . 04 | . 03 |
| Drafters | . 18 | . 16 | - 20 | - 22 | - 19 | . 23 | - 14 | . 12 | . 13 |
| Electrical and electronic | .03 | . 03 | . 02 | . 04 | . 04 | . 04 | . 02 | . 02 | . 01 |
| Industrial engineering | . 06 | . 08 | . 09 | . 06 | . 09 | . 14 | . 04 | . 05 | . 04 |
| Mechanical engineering | . 02 | . 02 | . 02 | . 03 | . 03 | . 02 | . 01 | . 01 | .01 |
| Surveyors | . 01 | . 01 | . 01 | . 03 | . 03 | . 04 | .00 | . 00 | . 00 |
| Other engineering, science tecn | 1.20 | 1.29 | 1.48 | 2.30 | 2.56 | 3.41 | . 18 | . 18 | . 17 |
| Medical yorkers, exc technicians | . 07 | . 07 | . 09 | . 11 | - 12 | . 17 | . 03 | . 02 | . 01 |
| Physicians and osteopaths | . 01 | . 01 | . 06 | . 01 | . 02 | . 08 | . 00 | . 00 | . 00 |
| Registered nurses | . 07 | . 05 | . 03 | . 10 | - 10 | .09 | . 03 | -02 | .01 |
| Health technolcgists, technicians | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Technicians, except health | . 05 | . 07 | . 09 | . 09 | - 12 | . 16 | . 03 | . 04 | . 07 |
| Airplane pilots | . 03 | . 03 | . 04 | . 04 | . 06 | . 08 | . 02 | . 02 | . 04 |
| Other technicians except nealta | . 03 | . 04 | . 04 | . 05 | . 06 | . 08 | . 01 | .01 | . 03 |
| Computer specialists | . 24 | - 31 | . 31 | . 32 | . 41 | - 44 | . 11 | . 14 | . 15 |
| Computer frogramers | . 15 | . 17 | .17 | . 20 | . 23 | . 27 | . 08 | . 09 | . 08 |
| Computer systeris analysts | . 08 | - 12 | . 12 | -11 | . 16 | - 16 | . 03 | . 05 | . 07 |
| Other computer specialists | .01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 00 | .00 | . 00 |
| Social scientists | - 12 | - 17 | . 13 | - 12 | - 17 | -13 | . 08 | - 12 | -09 |
| Economists | . 12 | . 17 | . 13 | . 12 | - 17 | . 13 | . 08 | - 12 | . 09 |
| Teachers | . 02 | . 02 | . 00 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 |
| Adult education | . 02 | . 02 | .00 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 |
| writers, artists, entertainers | . 53 | . 65 | . 64 | . 29 | . 36 | . 38 | . 74 | . 87 | . 79 |
| Designers | . 24 | - 30 | . 34 | . 08 | . 11 | . 13 | . 47 | . 55 | . 53 |
| Editors and reforters | . 02 | . 03 | . 04 | .03 | . 04 | . 08 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 17 | . 21 | . 14 | . 0 ó | . 08 | . 05 | . 19 | . 24 | . 18 |
| Photographers | . 02 | . 03 | . 05 | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 |
| Public relaticns specialists | . 06 | . 07 | . 06 | . 08 | - 10 | . 09 | . 03 | . 04 | . 03 |
| Other uriters,artists, entertain | . 02 | . 02 | . 02 | . 02 | . 02 | .03 | . 02 | . 03 | . 02 |
| Other professional and technical | 1.91 | 2.13 | 1.91 | 2.29 | 2.53 | 2.32 | 1.59 | 1.81 | 1.66 |
| Accountants | . 96 | 1.09 | 1.09 | 1.01 | 1. 16 | 1.20 | . 88 | .99 | . 99 |
| Architects | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Poresters and conservationists | .21 | - 19 | . 16 | . 48 | . 47 | . 42 | . 03 | .03 | . 07 |
| Lavyers | .04 | . 08 | . 09 | . 06 | - 12 | . 13 | . 02 | . 04 | . 04 |
| operations and systems researci | . 22 | . 29 | .24 | . 17 | . 23 | .18 | . 26 | . 34 | . 27 |
| Personnel,latcr relations ukrs | . 38 | . 39 | . 30 | . 38 | . 40 | . 29 | . 36 | . 37 | . 27 |
| Other research workers | . 10 | . 08 | . 04 | . 18 | - 15 | . 11 | . 04 | . 03 | . 01 |
| vocation, education counselors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Managers, officials, profrietors | 5.76 | 6.82 | 8.10 | 4.63 | 5.44 | 6.48 | 6.26 | 7.38 | 8.79 |
| Buyers,sales, lcan managers | 1.35 | 1.26 | 1.21 | 1.14 | 1.05 | 1.04 | 1.39 | 1.28 | 1. 16 |
| Bank,financial managers | . 13 | . 11 | . 06 | . 12 | - 10 | . 05 | . 14 | . 13 | . 07 |
| Credit managers | . 06 | . 03 | .03 | . 04 | . 03 | . 03 | . 06 | .03 | . 01 |
| purchasing agents, buyers, other | . 44 | . 39 | . 42 | -48 | . 42 | . 44 | . 33 | - 30 | . 34 |
| Sales manager, exc retail trade | . 73 | . 73 | . 69 | . 50 | . 50 | . 52 | . 86 | . 83 | .73 |

Table 1- Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Paper and allied products |  |  | Pulp, paper, paperbaard mills |  |  | Paperboard containers. boxes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials,proprts | 4.41 | 5.56 | 6.90 | 3.49 | 4.39 | 5.44 | 4.87 | 6.10 | 7.64 |
| office managers, other | . 25 | . 25 | . 27 | . 17 | . 17 | . 17 | . 33 | . 32 | . 33 |
| Other managers, administrators | 4.15 | 5.29 | 6.62 | 3.31 | 4.21 | 5.26 | 4.53 | 5.76 | 7.30 |
| Sales workers | 2.59 | 2.76 | 3.76 | 1.45 | 1. 53 | 2.04 | 3.37 | 3.49 | 4.58 |
| Advertising agents, sales worker | . 01 | . 02 | . 04 | . 02 | . 03 | . 05 | . 01 | . 01 | . 01 |
| Other sales warkers | 2.58 | 2.74 | 3.72 | 1.43 | 1.50 | 2.00 | 3.36 | 3.48 | 4.57 |
| Clerical workers | 12.21 | 11.79 | 12.25 | 11.30 | 11.08 | 11.66 | 11.69 | 10.96 | 10.85 |
| Stenographrs,typists, secretaries | 3.49 | 3.47 | 4.35 | 3.36 | 3.32 | 4.12 | 3.13 | 3.08 | 3.89 |
| Legal secretaries | . 02 | . 01 | . 02 | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Other secretaries | 2.60 | 2.71 | 3.56 | 2.61 | 2.71 | 3.57 | 2.35 | 2.42 | 3.21 |
| Stenographers | . 09 | . 05 | . 02 | - 12 | . 07 | . 04 | . 05 | .03 | . 02 |
| Typists | . 79 | . 70 | . 76 | . 62 | - 52 | . 50 | .71 | . 61 | . 65 |
| Office machine operators | . 84 | . 84 | . 48 | . 87 | . 97 | . 62 | . 53 | . 46 | . 25 |
| Bookkeeping and billing | . 06 | . 03 | -01 | . 04 | . 01 | . 00 | . 06 | . 03 | . 01 |
| calculating | .03 | . 02 | . 01 | . 02 | . 01 | . 01 | -04 | . 02 | . 00 |
| computer and peripheral equip | . 19 | . 39 | . 29 | . 26 | . 54 | . 42 | . 09 | . 18 | . 14 |
| Duplicating | .03 | . 03 | . 02 | . 03 | - 02 | . 02 | -04 | . 03 | . 02 |
| Keypunch | .38 | . 26 | - 10 | -42 | - 30 | . 13 | . 26 | . 17 | . 05 |
| Tabulating | .03 | .01 | . 00 | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | .11 | . 10 | . 05 | . 09 | . 08 | . 03 | . 03 | .03 | . 02 |
| Other clerical morkers | 7.88 | 7.49 | 7.43 | 7.07 | 6.79 | 6.92 | 8.03 | 7.43 | 6.71 |
| Eilling clerks | . 33 | . 35 | . 43 | . 21 | . 21 | . 26 | . 44 | . 44 | . 53 |
| Bookkeepers | 1.16 | 1. 17 | 1.21 | . 91 | - 92 | . 83 | 1.36 | 1.34 | 1.32 |
| Cashiers | . 04 | . 04 | . 06 | . 05 | . 06 | . 09 | .03 | . 03 | . 04 |
| Clerical supervisors, other | . 15 | - 16 | - 14 | - 16 | - 17 | - 15 | -16 | . 17 | . 13 |
| counter clerks,exc food | . 27 | . 26 | . 24 | . 20 | . 20 | . 20 | . 29 | . 27 | . 22 |
| dispatchers, starters, vehicle | . 03 | . 03 | . 04 | . 02 | . 02 | . 04 | . 06 | . 06 | . 06 |
| Estimators, investigators, other | . 29 | . 29 | . 16 | . 17 | . 17 | . 16 | . 46 | . 46 | . 20 |
| Expediters, prcduction controlrs | . 59 | -61 | . 73 | . 54 | - 57 | . 68 | . 60 | - 55 | . 43 |
| File clerks | . 20 | . 18 | . 22 | . 15 | . 14 | . 17 | .17 | . 14 | . 17 |
| Mail handlers, exc fost office | . 13 | . 12 | . 09 | - 14 | - 13 | . 10 | . 09 | . 07 | . 04 |
| Messengers and office nelpers | . 03 | . 03 | -03 | . 03 | . 03 | . 03 | . 02 | . 02 | . 03 |
| Payroll, timekeeping clerks | . 45 | . 48 | . 47 | . 39 | . 41 | . 35 | . 55 | - 58 | . 56 |
| Beceptionists | . 27 | - 22 | . 11 | . 15 | - 12 | . 07 | . 34 | . 26 | . 11 |
| Shipping and receiving clerks | 1.56 | 1.46 | 1.74 | 1.24 | 1. 17 | 1.49 | 1.57 | 1.37 | 1.37 |
| Statistical clerks | . 29 | . 29 | -22 | . 38 | . 39 | . 32 | . 15 | - 15 | . 12 |
| Stock clerks and store keepers | . 87 | . 70 | . 49 | . 91 | . 78 | . 73 | -68 | . 55 | . 42 |
| Telephone operators | . 19 | - 12 | . 08 | -18 | - 12 | . 11 | . 21 | .13 | . 09 |
| Weighers | . 18 | - 16 | . 09 | . 37 | - 33 | . 22 | . 05 | . 04 | . 03 |
| Misc clerical workers | . 86 | . 84 | . 90 | . 87 | . 85 | . 92 | -81 | . 78 | . 84 |
| crafts and kindred workers | 18.17 | 19.31 | 22.03 | 19.98 | 20.91 | 24.78 | 16.51 | 17.95 | 20.67 |
| Construction crafts workers |  | 2. 17 |  | 4.22 | 4.13 | 4.81 | . 89 | . 92 | 1.19 |
| Carpenters and apprentices | . 29 | . 28 | . 24 | -49 | . 49 | . 47 | .17 | . 18 | .21 |
| Brick,stonemasons, apprentices | . 04 | . 03 | . 02 | . 08 | . 07 | . 06 | . 00 | . 00 | . 00 |
| bulldozer operators | . 19 | . 15 | . 13 | . 35 | . 30 | . 28 | . 05 | . 05 | . 08 |
| Electricians and apprentices | . 99 | . 99 | 1.12 | 1.72 | 1.81 | 2.21 | . 45 | . 48 | . 63 |
| Excavating.grading mach operatr | . 05 | . 03 | . 01 | . 09 | . 06 | . 02 | . 01 | . 01 | . 00 |
| painters and apprentices | . 12 | . 09 | . 04 | . 19 | . 15 | . 08 | . 07 | . 05 | . 02 |
| plumbers, pipefitters, aprentices | . 63 | . 58 | . 72 | 1.27 | 1.23 | 1.68 | . 13 | . 14 | . 25 |
| Structural metal craft workers | .01 | . 01 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 4.92 | 5.36 | 6.26 | 4.98 | 5.40 | 6.16 | 4.93 | 5.39 | 6.45 |
| Metalworkg craft wrkrs, exc mech | 2.69 | 2. 87 | 3.91 | 3. 62 | 3.97 | 5.70 | 1.97 | 2.07 | 3.03 |
| Blacksmiths | .01 | . 01 | . 00 | . 02 | .01 | . 00 | . 00 | .00 | . 00 |
| Doilermakers | . 05 | -04 | . 05 | - 10 | . 10 | . 15 | . 00 | . 00 | . 00 |
| Forge and hammer operators | .01 | . 01 | . 03 | -02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 09 | . 07 | . 05 | . 02 | . 02 | . 03 | . 15 | . 11 | . 06 |
| Machinists and apprentices | 1.22 | 1.43 | 2.23 | 1.26 | 1.54 | 2.77 | 1.13 | 1.30 | 2.08 |
| Millwrights | 1.00 | 1.02 | 1.11 | 1.99 | 2.08 | 2.43 | -17 | -19 | . 24 |
| Pattern and mcldmakers | . 02 | . 02 | . 02 | . 02 | . 01 | .01 | . 01 | .01 | . 01 |
| Hollers and finishers,metal | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 07 | . 07 | .09 | .13 | . 12 | .13 | . 01 | .01 | . 01 |
| Tool and diemakers, apprentices | . 23 | . 21 | . 34 | . 06 | . 07 | . 12 | . 50 | . 45 | .63 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Paper } \\ \text { and allied } \\ \text { products } \end{gathered}$ |  |  | Pulp, paper. paperboard mills |  |  | Paperboard containers. boxes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers,installers | 4.43 | 5.04 | 5.84 | 4.05 | 4.50 | 5.17 | 4.14 | 4.61 | 5.11 |
| Air cond, heating, refrig mecn | . 02 | . 04 | . 05 | . 03 | . 04 | . 06 | .01 | . 02 | . 03 |
| Aircraft mechanics | . 00 | . 00 | . 00 | .01 | . 01 | .01 | .00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 13 | . 09 | . 04 | - 17 | . 12 | . 06 | .15 | . 11 | . 05 |
| Data processing mach repairers | . 02 | . 03 | . 04 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Heavy equip mech, incl diesel | 3.83 | 4. 52 | 5.48 | 3.10 | 3.64 | 4.58 | 3.85 | 4.38 | 4.96 |
| Household afpliance mechanics | . 02 | . 02 | .01 | . 04 | . 04 | . 03 | . 01 | .01 | .01 |
| Office machine repairers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hadio. television cepairecs | . 02 | . 02 | . 04 | . 03 | . 03 | . 07 | . 00 | . 00 | . 00 |
| Railroad, car shop repairers | .01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 35 | . 30 | . 15 | . 65 | . 59 | . 36 | . 12 | . 09 | . 04 |
| Printing trade crafts workers | 2.59 | 2.85 | 2.87 | . 81 | . 87 | . 92 | 4.14 | 4.61 | 4.63 |
| Bookbinders | . 05 | . 05 | .08 | . 02 | . 02 | . 06 | . 01 | . 01 | . 00 |
| Compositors and typesetters | . 87 | . 87 | . 57 | . 36 | . 34 | . 24 | 1.06 | .99 | . 57 |
| Engravers exc photoengravers | . 05 | . 05 | . 03 | . 03 | . 03 | . 03 | . 02 | . 02 | .01 |
| Photoengravers, lithographers | . 05 | . 06 | . 10 | . 02 | . 02 | . 04 | . 09 | . 10 | . 15 |
| Press, plate printers, aprentices | 1.56 | 1.83 | 2.08 | -39 | . 45 | . 54 | 2.95 | 3.49 | 3.91 |
| Transport, public util craft wkrs | .11 | . 11 | - 11 | . 21 | . 23 | . 29 | . 01 | . 01 | . 02 |
| Elec pur line instaler, repairer | . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Locomotive engineers | .01 | . 01 | .02 | . 02 | . 03 | . 06 | .00 | . 00 | . 00 |
| Power station operators | . 08 | . 08 | . 08 . | .17 | . 18 | -22 | .01 | . 01 | .01 |
| Telephone installers, repairers | . 02 | . 02 | $.01{ }^{\prime}$ | . 02 | . 02 | . 07 | . 01 | .01 | . 01 |
| Other crafts, kindred workers | 1.12 | . 90 | .76 | 2.10 | 1.80 | 1.74 | . 43 | . 34 | . 24 |
| Cabinetmakers | . 01 | . 01 | .01 | . 02 | . 02 | . 04 | .00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 40 | . 32 | . 35 | . 82 | . 69 | . 80 | .10 | . 07 | . 05 |
| Inspectors, lcg and lumber | . 07 | . 06 | .03 | . 18 | . 15 | . 08 | . 00 | . 00 | . 00 |
| Inspectors, other | . 03 | . 03 | . 03 | . 03 | . 03 | . 03 | .03 | . 04 | . 07 |
| Sign painters and letterers | . 01 | . 01 | . 00 | -01 | . 01 | . 00 | . 02 | .01 | . 00 |
| stationary engineers | - 52 | . 42 | . 32 | . 95 | . 82 | . 76 | . 22 | . 17 | . 11 |
| Other crafts workers | . 08 | . 06 | . 02 | . 09 | . 07 | . 02 | . .06 | .04 | . 01 |
| Operatives | 47.15 | 46.00 | 42.73 | 44.96 | 44.09 | 39.59 | 50.84 | 49.56 | 46.48 |
| Operatives, except transport | 42.28 | 40.91 | 36.23 | 39.89 | 38.65 | 32.71 | 44.70 | 43.00 | 37.71 |
| Semiskilled metalworking | . 96 | . 81 | . 71 | 1.26 | 1. 17 | 1.28 | . 67 | . 51 | . 42 |
| Drill press oferatives | . 05 | . 03 | . 01 | . 06 | . 04 | . 02 | . 04 | . 02 | . 00 |
| Purnace tendrs,smeltrs, pourers | . 02 | . 02 | .03 | .05 | . 05 | . 08 | . 00 | .00 | .00 |
| Grinding machine operatives | . 07 | . 05 | . 02 | - 10 | . 07 | . 03 | . 03 | . 02 | . 00 |
| Lathe, milling mach operatives | . 11 | . 07 | . 03 | . 12 | . 07 | . 04 | . 11 | . 07 | . 03 |
| Metal platers | . 01 | . 01 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 |
| Other precisicn mach operdtors | .03 | . 02 | .01 | . 02 | .01 | . 00 | . 03 | .02 | . 02 |
| Punch, stamping press operatives | . 22 | - 15 | . 06 | -10 | . 07 | . 02 | . 28 | . 20 | . 07 |
| Welders and flamecutters | . 44 | . 46 | . 56 | -80 | . 84 | 1.09 | .16 | . 18 | . 29 |
| Semiskilled textile operatives | . 03 | . 03 | . 04 | . 07 | . 08 | - 12 | . 00 | .00 | . 00 |
| Spinners, twisters, winders | . 03 | . 03 | . 04 | . 07 | . 08 | . 12 | . 00 | . 00 | . 00 |
| Semiskilled packing, inspecting | 8.05 | 8.14 | 10.08 | 5.57 | 5.54 | 5.46 | 8.84 | 8.74 | 11.33 |
| Checkers, examiners, mfg | 2.43 | 2.57 | 3.40 | 1.99 | 2.06 | 2.67 | 2.43 | 2.61 | 3. 71 |
| Graders and scrters, mfy | -40 | . 36 | . 26 | . 65 | . 56 | -33 | . 15 | . 15 | . 16 |
| Packer,wrapper,exc meat, prodce | 5.22 | 5.21 | 6.42 | 2.94 | 2.92 | 2.46 | 6.26 | 5.99 | 7.47 |


|  | $\begin{gathered} \text { Paper } \\ \text { andallied } \\ \text { products } \end{gathered}$ |  |  | pulp, paper, paperboard milis |  |  | Paperboard containers, boxes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 33.24 | 31.93 | 25.41 | 32.99 | 31.87 | 25.86 | 35.19 | 33.74 | 25.95 |
| Asbestos, insulation workers | . 02 | . 03 | -03 | . 04 | . 07 | . 10 | . 01 | . 01 | . 00 |
| Assemblers | 1.23 | 1.46 | 2.30 | . 45 | . 57 | 1.08 | 1.99 | 2.07 | 2.33 |
| Bottling, canning operatives | . 03 | . 03 | . 05 | . 02 | . 02 | . 04 | . 05 | . 05 | . 06 |
| Clothing ircners and pressers | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Cutting operatives, other | 3.88 | 3. 65 | 2.92 | 3.42 | 3.25 | 2.73 | 4.23 | 3.89 | 2.93 |
| Drillers, earth | .01 | . 01 | .00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Dyers | . 11 | - 11 | - 13 | . 15 | - 16 | .21 | . 07 | . 06 | . 02 |
| Piler, polisher, sander, buffer | . 05 | . 04 | . 01 | . 06 | . 05 | . 03 | . 03 | . 02 | . 00 |
| Garage wrkrgas station atten | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Mixing operatives | . 39 | . 36 | - 24 | -43 | - 40 | . 30 | . 12 | . 10 | . 05 |
| Uilers, greasers,exc automobiles | . 38 | - 38 | . 43 | -67 | - 68 | . 82 | - 13 | . 13 | - 16 |
| Painters, mfg articles | . 29 | . 21 | . 13 | . 40 | - 30 | . 20 | . 19 | . 14 | . 09 |
| Photographic frocess workers | . 04 | . 04 | . 05 | . 03 | . 03 | . 03 | . 04 | . 04 | . 06 |
| Hiveters ana fasteners | . 14 | - 12 | . 10 | . 04 | . 04 | . 03 | . 27 | . 25 | . 20 |
| Sawyers | . 31 | - 32 | -41 | -34 | . 35 | .43 | -46 | . 50 | . 72 |
| Seyers and stitchers | -44 | . 37 | . 34 | - 15 | . 12 | . 10 | . 37 | . 30 | . 27 |
| Shoemaking machine operatives | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr.exc metal | . 65 | . 44 | . 49 | 1.20 | . 88 | 1.16 | . 28 | . 20 | . 27 |
| Winding operatives, other | 1.15 | . 93 | -42 | 1.82 | 1.48 | . 66 | . 35 | . 30 | - 18 |
| Miscellaneous machine operatves | 18.95 | 18.45 | 14.46 | 19.08 | 18.79 | 14.93 | 20.36 | 19.83 | 15.55 |
| Other operatives, exc transport | 5.16 | 4.97 | 2.90 | 4.66 | 4.65 | 3.03 | 6.22 | 5.84 | 3.05 |
| Transport equifment operatives | 4.87 | 5.10 | 6.49 | 5.07 | 5.44 | 6.87 | 6. 14 | 6.56 | 8.77 |
| Boat operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 30 | . 29 | . 46 | -16 | . 16 | . 26 | .52 | . 49 | . 72 |
| Pork lift, tow motor operatives | 2.57 | 2.81 | 2.83 | 2.69 | 2.99 | 2.97 | 3.02 | 3.34 | 3.36 |
| Rail vebicle cperators, other | .01 | - 01 | . 01 | . 02 | . 02 | . 04 | .00 | .00 | . 00 |
| Railroad brake operators | . 01 | . 01 | . 02 | . 02 | . 03 | . 06 | . 00 | .00 | . 00 |
| kailroad switch operators | .01 | . 01 | . 01 | . 03 | . 03 | . 04 | . 00 | . 00 | .00 |
| Taxicab drivers, chauffeurs | . 07 | . 07 | . 04 | . 05 | . 05 | . 02 | - 12 | - 11 | . 07 |
| Truck drivers | 1.89 | 1.90 | 3.11 | 2.07 | 2. 14 | 3.49 | 2.47 | 2.61 | 4.62 |
| Service workers | 2. 19 | 1.77 | .99 | 2.75 | 2. 26 | 1.31 | 1.73 | 1.46 | 1.02 |
| Cleaning service workers | 1.54 | 1. 20 | . 53 | 1.84 | 1.48 | . 71 | 1.30 | 1.03 | . 50 |
| Bldg interior cleaners, other | . 20 | . 16 | . 07 | . 22 | . 18 | . 08 | . 19 | . 16 | . 08 |
| Janitors and sextons | 1.35 | 1.04 | . 46 | 1.62 | 1.30 | .63 | 1.11 | .87 | . 43 |
| Food service workers | . 11 | . 09 | . 10 | . 15 | . 11 | . 07 | . 09 | . 09 | - 15 |
| Cooks, exc private households | . 06 | . 04 | . 03 | .09 | . 06 | . 03 | . 03 | .03 | . 04 |
| Dishwashers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Food counter, fountain workers | . 02 | . 02 | . 03 | . 01 | . 01 | . 02 | . 02 | . 03 | . 06 |
| Waiters | .01 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 04 |
| Other food serv wkrs, exc privt | . 02 | . 02 | .01 | . 03 | . 02 | . 01 | . 02 | . 01 | . 01 |
| Health service workers | . 01 | . 01 | . 03 | . 01 | . 02 | . 07 | . 00 | . 00 | .00 |
| Nursing aides and orderlies | .01 | .01 | . 03 | .01 | . 02 | . 07 | .00 | .00 | . 00 |
| Personal service vorkers | . 05 | . 03 | . 02 | . 07 | . 05 | . 02 | . 02 | . 02 | . 02 |
| Attendants, personal serv,other | . 01 | -01 | . 00 | -03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Elevator operators | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Housekeepers, exc private homes | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Protective service vorkers | . 48 | - 43 | - 32 | . 68 | . 61 | . 45 | -32 | . 32 | . 35 |
| Firefighters | . 02 | . 02 | . 01 | . 03 | . 03 | . 02 | .01 | . 01 | . 01 |
| Guards | . 46 | .41 | . 31 | . 63 | . 58 | .43 | . 31 | . 31 | . 34 |
| Police and detectives | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Laborers, except farm | 5.70 | 4.89 | 3.62 | 6.52 | 5.69 | 4.37 | 5.73 | 5.00 | 3.76 |
| carpenter helfers | . 05 | . 04 | . 04 | . 09 | . 07 | . 07 | . 00 | . 00 | . 00 |
| Constr labr, exc carfenter helpr | . 21 | . 16 | . 08 | . 33 | . 27 | . 16 | . 16 | . 12 | . 06 |
| Freight and material handers | 3.22 | 2. 86 | 2.36 | 3.24 | 2.99 | 2.67 | 3.87 | 3.43 | 2.74 |
| Gardenrs, groundkeepers, exc farm | . 08 | . 07 | . 06 | -11 | - 11 | . 09 | . 03 | . 03 | .03 |
| Timbercutting, logging workers | . 06 | . 04 | . 02 | . 13 | - 11 | . 05 | . 00 | . 00 | . 00 |
| Stock handlers | . 53 | . 46 | - 17 | . 35 | - 30 | . 10 | . 51 | . 45 | . 18 |
| reamsters | . 03 | . 03 | . 03 | . 02 | -02 | . 02 | -03 | . 02 | . 03 |
| Vehicle washers, equip cleaners | .27 | - 20 | . 06 | . 41 | . 33 | . 11 | .19 | . 16 | . 07 |
| Warehouse labcrers, other | . 22 | . 21 | . 25 | . 16 | . 13 | . 09 | . 24 | . 23 | . 26 |
| Other laborers | 1.05 | . 81 | . 55 | 1.68 | 1.37 | 1.01 | . 69 | . 56 | . 41 |



Newspaper publishing. printing
$1970 \quad 1978 \quad 1990$

Total all occupations

| Professional and tectanical |
| :---: |
| Engineers, technicalChemical |
|  |  |
|  |
| slectrical |
| Industrial |
| Mechanical |
| Sales |
| Other engineers |
| Life and physical scientists Cnemists |
| Mathematical sfecialists |
| Actuaries |
| Statisticians |
| Engineering, science technicians |
| Chemical technicians |
| Drafters |
| Electrical and electronic |
| Industrial engineering |
| Mechanical engineering |
| other engincering, science teca |
| Medical workers, exc technicians Physicians and osteopaths Registered nurses |
|  |  |
|  |
|  |
| Technicians, except health |
| Airplane pilots |
| Other technicians except nealth |
| Computer specialists |
| Computer programers |
| Computer systems analysts |
| Other computer specialists |
| Social scientists Economists |
|  |  |
|  |
| adult educaticn |
| Writers,artists, entertainers |
| Authors |
| Designers |
| Rditors and reforters |
| Musicians and composers |
| Painters and sculptors |
| Photographers |
| Public relaticns specialists |
| Radio and tv announcers |
| Other writers,artists, entertain |
| Other professional and technical |
| Accountants |
| Heligious workers, except cleryy |
| Foresters and conservationists |
| Lawyers |
| Librarians |
| Operations and systems research |
| Personnel, labcr relations wkrs |
| Other research workers |
| Vocation, education counselors |

Managers, officials, proprietors
edical workers, exc technicians
physicians and osteopaths

Health technolcgists, technicians
Therapy assistants
Technicians, except health
rplane pilots

Computer specialists
Computer frogramers
computer systems analysts

Social scientists

Teachers
Adult educaticn

Authors
Designers
Bditors and reforters usicians and composers

Photographers
Public relations specialists
Radio and tv announcers
other witers, artists, entertain
Other professional and technical Accountants
keligious workers, except cleryy Lawyers
Librarians
Operations and systems research
都
Vocation, education counselors
$100.00 \quad 100.00 \quad 100.00$ $5.68 \quad 6.20 \quad 6.05$
1.26
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$100.00 \quad 100.00 \quad 100.00$

$$
12
$$

| .20 | .19 | .18 |
| :--- | :--- | :--- |
| .01 | .01 | .02 |
| .00 | .00 | .01 |
| .03 | .03 | .04 |
| .08 | .08 | .05 |
| .04 | .04 | .07 |
| .01 | .00 | .00 |
| .03 | .02 | .01 |
| .02 | .02 | .02 |
| .02 | .02 | .01 |
| .04 | .03 | .02 |
| .00 | .00 | .00 |
| .03 | .03 | .02 |
|  |  |  |
| .05 | 23 | .25 |

$100.00 \quad 10$

$$
17.48
$$

$$
19.82
$$

$$
21.00
$$

| .06 | .06 | . 08 |
| :---: | :---: | :---: |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 03 | .03 | . 04 |
| .01 | .01 | . 00 |
| .02 | .02 | . 04 |
| .00 | .00 | . 00 |
| .01 | .00 | . 00 |
| .00 | .00 | .00 |
| .00 | . 00 | .00 |
| . 03 | . 02 | . 01 |
| .00 | .00 | . 00 |
| .03 | . 02 | . 01 |
| .07 | .07 | . 07 |
| . 01 | .01 | . 02 |
| . 01 | -01 | . 01 |
| .04 | .04 | . 02 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .01 | .02 | . 02 |
| .01 | .01 | . 02 |
| .00 | . 00 | . 00 |
| .01 | .01 | .02 |
| .01 | . 01 | .00 |
| .01 | .01 | . 00 |
| .01 | .01 | . 02 |
| .00 | . 00 | . 00 |
| . 01 | .01 | . 02 |
| .13 | .15 | . 14 |
| - 11 | . 12 | - 12 |
| .03 | .03 | . 02 |
| .00 | .00 | .00 |
| . 04 | . 07 | . 08 |
| .04 | .06 | . 08 |
| .01 | . 01 | .00 |
| .00 | .00 | .00 |
| 16.47 | 18.75 | 20.01 |
| .05 | .05 | . 02 |
| .11 | . 15 | . 23 |
| 14.05 | 16.07 | 17.32 |
| . 01 | .01 | . 00 |
| . 80 | .97 | . 64 |
| 1.18 | 1. 16 | 1. 46 |
| . 22 | .28 | . 27 |
| . 01 | .01 | .03 |
| .05 | . 06 | .04 |
| . 64 | . 64 | . 57 |
| . 34 | . 35 | .36 |
| .00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| .02 | . 02 | . 00 |
| . 06 | . 04 | . 01 |
| . 02 | .03 | .03 |
| .13 | . 15 | . 15 |
| .05 | .03 | .01 |
| .01 | .01 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { paper and } \\ \text { pulp } \end{gathered}$ |  |  | $\begin{gathered} \text { Printing } \\ \text { and } \\ \text { publishing } \end{gathered}$ |  |  | Newspaper publishing, printing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Buyers, sales, lcan managers | 1.63 | 1.50 | 1.42 | 1.81 | 1.71 | 1.54 | 2.56 | 2. 57 | 2.45 |
| Bank, financial managers | . 12 | . 10 | . 06 | . 11 | . 09 | . 04 | . 06 | . 05 | . 04 |
| Credit managers | . 08 | - 05 | . 05 | . 06 | . 03 | . 03 | . 07 | . 03 | . 01 |
| Purchasing agents, buyers, other | . 51 | . 45 | -49 | . 22 | . 17 | . 11 | . 06 | . 05 | . 03 |
| Sales manager, exc retail trade | . 92 | . 90 | -83 | 1.42 | 1.42 | 1.36 | 2.38 | 2.44 | 2.37 |
| Other managers; officials, proprts | 5.27 | 6.45 | 7.55 | 6.87 | 8.04 | 8.35 | 4.92 | 5.37 | 5.12 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| office managers, other | . 31 | . 29 | . 30 | . 44 | . 43 | . 44 | . 33 | . 33 | .36 |
| Other managers, administrators | 4.97 | 6.15 | 7.25 | 6.41 | 7.60 | 7.89 | 4.58 | 5.03 | 4.75 |
| Sales workers | 3.43 | 3. 55 | 4.57 | 10.01 | 9.74 | 11.76 | 18.23 | 17.05 | 20.02 |
| advertising agents, sales worker | . 01 | . 02 | . 05 | 1.56 | 2.16 | 2.81 | 3.20 | 4.37 | 5.36 |
| Neuspaper carriers and vendors | . 00 | - 00 | . 00 | 4.86 | 4.02 | 4.90 | 13.33 | 10.89 | 12.33 |
| other sales wrrkers | 3.42 | 3.53 | 4.51 | 3.59 | 3.56 | 4.05 | 1.71 | 1.79 | 2.33 |
| Clerical workers | 14.22 | 13.47 | 14.22 | 22.63 | 21.26 | 20.74 | 24.51 | 23.83 | 22.72 |
| Stenographrs, typists, secretaries | 4.13 | 4.04 | 5.03 | 6.66 | 6.21 | 7.19 | 5.07 | 4.67 | 5.18 |
| Legal secretaries | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | -01 | . 01 | . 02 |
| Other secretaries | 2.89 | 2.99 | 3.88 | 3.69 | 3.72 | 4.71 | 2.32 | 2.33 | 2.83 |
| Stenographers | . 08 | . 03 | . 00 | . 13 | . 07 | . 02 | . 17 | . 09 | . 03 |
| Typists | 1.14 | 1.00 | 1.11 | 2.83 | 2.41 | 2.45 | 2.58 | 2.24 | 2.30 |
| office machine operators | 1. 15 | 1.05 | . 57 | 1.44 | 1.33 | .71 | . 89 | . 93 | - 58 |
| Bookkeeping and billing | - 10 | . 04 | . 01 | - 12 | . 04 | . 01 | . 06 | . 02 | . 01 |
| Calculating | . 04 | . 02 | .00 | - 04 | . 02 | . 01 | . 03 | . 01 | . 01 |
| Computer and feripheral equip | . 20 | -41 | . 32 | - 26 | - 54 | -41 | - 19 | . 39 | . 30 |
| Duplicating | .04 | . 03 | . 02 | - 09 | -06 | . 02 | . 02 | . 01 | . 02 |
| Keypunch | . 47 | . 32 | - 11 | - 52 | - 34 | . 11 | - 22 | . 15 | . 05 |
| Tabulating | . 07 | . 02 | . 00 | . 03 | -01 | . 01 | . 01 | -00 | . 01 |
| Other office machine operators | . 25 | . 21 | . 10 | . 38 | - 32 | . 15 | -38 | . 34 | . 19 |
| Other clerical workers | 8.94 | 8.39 | 8.62 | 14.54 | 13.73 | 12.84 | 18.54 | 18.23 | 16.96 |
| Billing clerks | . 40 | . 41 | . 49 | -27 | - 27 | . 30 | -16 | . 16 | . 19 |
| Bookkeepers | 1.32 | 1.31 | 1.46 | 2.38 | 2. 22 | 2.29 | 2.21 | 2.06 | 1.77 |
| Cashiers | . 03 | . 04 | . 05 | . 12 | - 13 | - 15 | - 18 | -19 | - 22 |
| Clerical supervisors, other | -14 | - 15 | . 13 | . 19 | - 19 | . 14 | - 12 | -13 | . 09 |
| collectors, bill and account | . 01 | . 01 | .00 | . 09 | . 07 | . 04 | . 19 | . 16 | . 09 |
| Counter clerks, exc food | . 35 | . 33 | . 30 | . 93 | . 92 | . 94 | 1.80 | 1.79 | 1.85 |
| Dispatchers, starters, vehicle | .01 | . 01 | . 01 | . 03 | . 03 | . 04 | . 07 | . 07 | . 09 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 08 | . 06 | . 05 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 26 | . 26 | .13 | . 44 | - 42 | .17 | - 20 | . 21 | . 12 |
| Expediters, frcduction controlrs | . 64 | - 73 | 1.08 | . 45 | - 38 | . 22 | . 26 | . 25 | - 20 |
| File clerks | -31 | - 27 | - 32 | -64 | . 48 | -40 | - 37 | . 19 | . 03 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 07 | . 05 | . 01 | . 09 | . 08 | . 02 |
| Mail handlers,exc post office | .18 | . 16 | . 13 | 1.34 | 1. 18 | .85 | 2.08 | 1.87 | 1.39 |
| Messengers and office helpers | . 03 | . 03 | . 02 | . 44 | . 39 | . 25 | . 63 | . 59 | . 42 |
| Payroll, timekeeping clerks | -42 | - 46 | . 48 | -24 | - 27 | - 29 | . 15 | . 17 | . 17 |
| proofreaders | . 00 | . 00 | . 00 | 2.33 | 2. 57 | 3.28 | 6.47 | 7.05 | 8.29 |
| Receptionists | . 36 | -29 | -14 | -44 | . 34 | - 16 | . 44 | . 36 | . 19 |
| Shipping and receiving clerks | 2.03 | 1.90 | 2.33 | . 96 | - 86 | . 94 | . 10 | . 10 | . 12 |
| Statistical clerks | . 30 | - 30 | . 24 | . 42 | -43 | . 32 | . 23 | . 24 | . 22 |
| Stock clerks and store keepers | 1.02 | . 73 | . 32 | . 36 | - 30 | . 25 | . 07 | . 05 | .03 |
| Telephone operators | .17 | - 10 | . 06 | . 32 | . 21 | . 20 | . 54 | . 36 | . 34 |
| Heighers | . 06 | . 05 | . 03 | . 02 | . 02 | . 02 | -01 | . 01 | -03 |
| Misc clerical workers | . 90 | . 88 | . 92 | 2.00 | 1.94 | 1.56 | 2.17 | 2.15 | 1. 12 |
| Crafts and kindred workers | 17.37 | 18.69 | 20.77 | 30.49 | 30.27 | 29.15 | 22.92 | 22.51 | 20.45 |
| Construction crafts workers | 1.10 | 1.01 | -97 | . 38 | . 38 | . 46 | . 32 | . 33 | . 43 |
| Carpenters and apprentices | . 14 | - 12 | . 05 | . 07 | . 07 | . 08 | . 05 | . 06 | . 07 |
| Brick, stonemasons, apprentices | . 01 | . 01 | - 00 | -01 | . 01 | .01 | . 01 | . 02 | . 02 |
| Bulldozer operators | - 10 | . 08 | . 04 | . 01 | . 01 | . 01 | - 00 | . 00 | - 00 |
| Electricians and apprentices | - 50 | - 51 | - 57 | . 17 | - 18 | . 24 | - 17 | . 18 | . 25 |
| Excavating, grading mach operatr | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 08 | . 06 | -03 | . 08 | . 07 | . 07 | . 05 | . 04 | . 02 |
| Plumbers, pipefitters, aprentices | . 24 | - 22 | -28 | . 04 | . 03 | . 04 | . 03 | .03 | . 04 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 03 |
| Blue collar worker supervisors | 4.84 | 5.29 | 6.17 | 2.65 | 2.97 | 3.74 | 1.92 | 2.15 | 2.68 |


|  | $\begin{gathered} \text { Misc } \\ \text { paper and } \\ \text { pulp } \end{gathered}$ |  |  | $\begin{gathered} \text { Printing } \\ \text { and } \\ \text { publishing } \end{gathered}$ |  |  | Newspaper publishing, printing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Metaluorkg craft wrkrs, exc meca | 2.11 | 2. 32 | 3.09 | . 34 | .37 | . 57 | . 23 | . 27 | . 45 |
| Eoilermakers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Forge and hammer operators | . 01 | . 02 | . 04 | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Job and die setters, metal | .11 | . 08 | . 05 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Machinists and apprentices | 1.27 | 1.43 | 1.85 | . 22 | . 24 | . 38 | . 22 | . 26 | .44 |
| Aillurights | . 48 | . 54 | . 72 | . 01 | . 02 | . 02 | . 01 | .01 | . 01 |
| Pattern and moldmakers | .03 | . 03 | . 04 | . 02 | . 02 | . 03 | .00 | .00 | . 00 |
| Sheetmetal workers, apprentices | . 05 | . 06 | . 12 | . 02 | . 02 | . 03 | . 00 | . 00 | .00 |
| Tool and diemakers, apprentices | . 14 | . 14 | . 26 | .03 | .03 | . 05 | .00 | . 00 | . 00 |
| Mechanics, repairers, installers | 5.35 | 6.11 | 7.20 | 1.03 | 1.16 | 1.42 | . 98 | 1.15 | 1.61 |
| Air cond, heating, refrig meca | . 03 | . 04 | . 06 | . 01 | . 02 | . 03 | .01 | . 02 | . 02 |
| Auto mechanics and apprentices | . 05 | . 03 | . 01 | . 06 | . 05 | .03 | . 13 | . 10 | . 06 |
| Data processing mach repairers | . 08 | . 10 | - 12 | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 |
| Farm implement mechanics | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 4.93 | 5.72 | 6.85 | . 89 | 1.03 | 1.28 | . 80 | . 98 | 1.44 |
| office machine repairers | .05 | . 03 | . 06 | . 02 | . 02 | . 03 | . 01 | . 01 | . 02 |
| Radio, television repairers | . 03 | . 03 | . 05 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 17 | . 14 | . 04 | . 03 | . 03 | . 02 | . 02 | . 02 | .03 |
| Printing trade crafts borkers | 3.48 | 3.55 | 2.98 | 25.36 | 24.85 | 22.64 | 18.84 | 18.12 | 14.98 |
| Bookbinders | . 14 | . 12 | -18 | 2.51 | 1.93 | 2.20 | . 06 | . 04 | . 02 |
| Compositors and typesetters | 1.44 | 1.40 | . 90 | 11.05 | 10.56 | 7.55 | 12.63 | 12.22 | 8.76 |
| Electrotypers and stereotypers | - 00 | . 00 | -00 | . 55 | . 14 | . 06 | 1.10 | . 29 | . 11 |
| Engravers exc photoengravers | . 12 | - 10 | . 05 | . 19 | . 17 | . 13 | . 04 | . 04 | .03 |
| Photoengravers, lithographers | . 06 | . 07 | . 11 | 2.37 | 2.54 | 3.56 | . 84 | . 95 | 1.60 |
| Press, plate grinters,aprentices | 1.72 | 1.87 | 1.75 | 8.69 | 9.50 | 9.15 | 4.18 | 4.59 | 4.46 |
| Transport, public util craft wxrs | . 05 | . 05 | . 03 | . 05 | . 04 | . 04 | . 09 | .09 | . 07 |
| Elec pur line instaler, repairec | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | .01 |
| Power station operators | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | . 03 | . 02 | . 02 | . 03 | . 03 | . 03 | . 07 | . 07 | . 06 |
| releptone line instalr,splicers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | .01 | .01 |
| Other crafts, kindred workers | . 44 | . 37 | . 35 | . 69 | . 50 | - 29 | . 53 | - 40 | . 24 |
| Bakers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 12 | . 11 | . 21 | . 03 | . 03 | . 04 | . 01 | . 01 | . 00 |
| Inspectors, other | .02 | - 02 | -01 | . 01 | . 01 | . 01 | . 01 | .00 | .00 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 00 | . 00 |
| Stationary engineers | . 22 | - 17 | . 11 | . 06 | . 05 | . 02 | . 06 | . 05 | . 03 |
| Other crafts workers | . 08 | . 06 | . 02 | . 55 | .38 | . 18 | . 45 | - 34 | . 20 |
| Operatives | 46.12 | 44.86 | 42.00 | 12.21 | 11.55 | 10.25 | 6.48 | 6.37 | 6.43 |
| operatives, except transport | 43.07 | 41.60 | 3E. 13 | 10.54 | 9.99 | 8.39 | 4.16 | 4.26 | 4.13 |
| semiskilled metalworkiny | . 84 | . 65 | -47 | . 24 | - 18 | . 11 | .13 | . 11 | . 11 |
| Drill press oferatives | . 06 | . 04 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 04 | . 05 | . 08 |
| Grinding machine operatives | . 07 | . 04 | . 02 | .01 | .01 | . 00 | . 00 | .00 | . 00 |
| Lathe,milling mach operatives | . 11 | . 06 | . 02 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Metal platers | . 02 | . 02 | . 00 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Other precision mach operators | . 03 | . 02 | . 00 | . 01 | . 01 | . 00 | . 00 | - 00 | . 00 |
| Punch, stamping press operatives | .32 | . 22 | . 09 | . 12 | . 08 | . 02 | . 07 | . 04 | . 01 |
| Welders and flamecutters | . 24 | . 25 | . 33 | . 02 | . 03 | . 04 | . 01 | .01 | .01 |
| Semiskilled packing, inspecting | 10.93 | 10.70 | 13.23 | 2.01 | 1.96 | 2.37 | . 34 | . 34 | . 41 |
| Checkers, examiners, mfg | 3.13 | 3. 15 | 3.80 | . 77 | .77 | . 91 | . 07 | . 07 | . 08 |
| Graders and scrters, mfg | . 32 | - 30 | . 28 | . 12 | . 12 | . 16 | . 08 | . 09 | . 12 |
| Packer,wrapper,exc meat,prodce | 7.49 | 7.24 | 9.15 | 1.12 | 1.07 | 1.30 | .19 | -18 | . 21 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { paper and } \\ \text { pulp } \end{gathered}$ |  |  | $\begin{gathered} \text { Printing } \\ \text { and } \\ \text { publishing } \end{gathered}$ |  |  | Newspaper publishing. printing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 31.29 | 30.25 | 24.43 | 8.29 | 7.85 | 5.92 | 3.69 | 3.82 | 3.61 |
| Assemblers | 1.54 | 1.94 | 3.44 | . 39 | . 44 | . 63 | . 10 | - 12 | . 18 |
| Bottling, canning operatives | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Cutting operatives, other | 4.17 | 3.91 | 3.10 | . 88 | . 78 | . 50 | .08 | . 08 | . 06 |
| Dyers | . 09 | - 10 | . 16 | . 00 | . 01 | . 01 | .00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | . 05 | . 04 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | . 01 | . 01 | .01 |
| Laundry,dry cleang oprs,other | .01 | . 01 | . 01 | . 00 | . 00 | . 01 | .00 | . 00 | . 00 |
| Mixing operatives | . 64 | . 57 | . 37 | . 06 | . 05 | . 04 | .01 | . 01 | .03 |
| Oilers,greasers, exc automobiles | . 24 | . 25 | . 31 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| painters, mfg articles | . 22 | . 17 | . 11 | . 07 | . 06 | . 05 | . 02 | . 02 | . 03 |
| Photographic frocess workers | . 05 | . 05 | . 07 | . 73 | . 81 | 1.12 | . 48 | . 58 | . 93 |
| Biveters and fasteners | . 12 | . 11 | . 06 | . 04 | . 03 | . 02 | . 01 | . 01 | . 00 |
| Sawyers | . 10 | . 09 | . 06 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Sewers and stitchers | . 95 | . 74 | . 63 | . 21 | . 16 | . 11 | .01 | . 01 | . 01 |
| Purnace tendr, stokr,exc metal | . 24 | - 14 | . 08 | . 02 | . 02 | . 03 | .01 | . 00 | . 00 |
| Winding operatives, other | 1.07 | . 88 | . 42 | . 04 | . 03 | . 01 | . 02 | . 01 | . 00 |
| Miscellaneous machine operatves | 17.09 | 16.69 | 12.94 | 3.08 | 2.91 | 2.04 | 1.53 | 1.54 | 1.38 |
| other oferatives, exc transport | 4.65 | 4.51 | 2.63 | 2.71 | 2.53 | 1.35 | 1.42 | 1.43 | . 98 |
| transport equipment operatives | 3.05 | 3. 26 | 3.87 | 1.66 | 1.56 | 1.85 | 2.32 | 2.10 | 2.30 |
| Delivery and route workers | . 25 | . 25 | . 40 | . 80 | . 71 | . 83 | 1.36 | 1.22 | 1.41 |
| Fork lift, tow motor operatives | 1.83 | 2.07 | 2.17 | . 21 | . 23 | . 20 | . 05 | . 06 | . 05 |
| Parking attendants | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 03 |
| Taxicab drivers, chauffeurs | . 04 | . 04 | . 03 | . 04 | . 03 | . 01 | . 04 | . 03 | . 01 |
| Truck drivers | .93 | . 91 | 1.27 | .61 | . 59 | . 80 | . 86 | .79 | . 81 |
| Service workers | 1.87 | 1.47 | . 65 | 1.34 | 1.08 | . 62 | 1.38 | 1.11 | . 64 |
| Cleaning service workers | 1.38 | 1. 04 | . 40 | 1.01 | . 79 | . 35 | 1.04 | . 81 | . 35 |
| Bldg interior cleaners, other | . 18 | . 15 | . 07 | . 19 | . 16 | . 07 | . 19 | . 14 | . 05 |
| Janitors and sextons | 1.21 | . 89 | . 33 | .81 | . 63 | . 28 | . 86 | . 67 | . 30 |
| Pood service workers | . 08 | . 07 | . 07 | . 09 | . 08 | . 08 | . 10 | .09 | . 11 |
| Cooks,exc private househoids | . 03 | . 03 | . 03 | .03 | . 02 | . 03 | .03 | . 02 | . 03 |
| Dishwashers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 | . 02 | . 02 | . 05 |
| Waiters | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other food sery wrs, exc privt | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 | . 03 | . 02 | . 02 |
| Health service workers | .01 | . 01 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Personal service workers | . 03 | . 02 | .01 | . 05 | . 04 | . 02 | . 06 | . 04 | . 02 |
| Attendants, personal sery,other | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Elevator operators | . 03 | . 02 | .01 | . 04 | . 02 | . 01 | . 03 | . 02 | . 01 |
| protective service workers | $.38^{\circ}$ | - 32 | . 17 | . 19 | . 18 | . 17 | . 18 | - 17 |  |
| Guards | . 38 | . 32 | - 17 | . 18 | . 18 | . 17 | . 17 | . 17 | . 15 |
| Laborers, except farm |  | 3.83 | 2.77 | 1.78 | 1.57 | 1.16 | 1.53 | 1.38 | 1.19 |
| carpenter helfers | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter helpr | . 08 | . 06 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Freight and material handlers | 2.41 | 2.15 | 1.70 | . 98 | . 88 | . 72 | 1.07 | 1.00 | . 94 |
| Garbage collectors | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc rarm | . 08 | . 08 | . 05 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Timbercutting, logging workers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | - 83 | . 68 | - 22 | . 37 | . 32 | - 15 | . 05 | . 04 | . 01 |
| Teamsters | . 04 | . 04 | . 03 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Vehicle washers,equip cleaners | -14 | - 10 | . 02 | .12 | - 10 | . 04 | . 09 | . 07 | . 03 |
| warehouse labcrers, other | . 29 | - 29 | . 40 | . 10 | . 10 | . 13 | . 02 | . 02 | . 03 |
| Other laborers | .49 | . 39 | . 26 | . 19 | . 15 | . 10 | . 29 | . 23 | . 17 |

Other
printg exc
newspapers
$1970 \quad 1978 \quad 1990$

Chemical
and allied products

Industrial chemicals
$970 \quad 1978$
1990

Total alı occupations
Professional and technical
Engineers, technical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
Mining
Petroleum
Sales
Other engineers

Life and physical scientists
Ayricultural
Atmospheric ard space
Biological
Chemists
Physicists and astronomers Other life. Fhysical scientists

Mathenatical sfecialists Actuaries
Mathematicians
Statisticians
Engineering, science technicians Agricultucal, tiolycl, exc health Chemical technicians Drafters
Electrical and electronic Industrial engineering Mechanical engineering Surveyors
Other engineering, science tecn
Medical workers,exc technicians Pharmacists
Physicians and osteopaths Registered nurses
Veterinarians
Other medical and health tech
Health technolcgists, technicians Clinical lab technologists, teca other health technicians

Technicians, except health Airplane pilots other technicians except health

Computer specialists
Computer programers
Computer systems analysts Other computer specialists

Social scientists
sconomists
Teachers
Adult educaticn
Writers, artists, entertainers Authors Designers editors and reforters Musicians and composers Painters and sculptors Photographers
Public relations specialists other witers,artists, entertain
$100.00 \quad 100.00 \quad 100.00$
$10.28 \quad 11.88 \quad 13.46$

| . 27 | . 26 | - 25 |
| :---: | :---: | :---: |
| . 01 | . 01 | . 02 |
| .01 | . 01 | . 01 |
| . 03 | . 03 | . 04 |
| . 12 | . 11 | . 08 |
| . 05 | . 05 | . 08 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| . 05 | . 04 | . 02 |
| . 04 | . 03 | -03 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .01 | . 02 |
| . 03 | . 03 | .01 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 04 | .03 | . 02 |
| . 00 | - 00 | - 00 |
| . 00 | . 00 | . 00 |
| . 04 | . 03 | . 02 |
| . 35 | - 32 | . 36 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .21 | . 19 | . 27 |
| . 04 | .03 | . 01 |
| . 02 | . 02 | .01 |
| . 00 | . 00 | . 00 |
| .00 | .00 | . 00 |
| . 09 | . 08 | . 07 |
| . 03 | . 02 | . 02 |
| .00 | . 00 | . 00 |
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| . 02 | . 02 | . 02 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| .01 | . 01 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| . 01 | . 02 | . 02 |
| . 35 | . 51 | . 77 |
| . 24 | . 32 | . 48 |
| . 09 | . 17 | .28 |
| . 02 | . 02 | . 01 |
| . 11 | . 16 | . 12 |
| . 10 | . 15 | . 12 |
| .01 | .01 | . 01 |
| . 01 | .01 | . 01 |
| 7.50 | 8.78 | 10.28 |
| . 24 | . 32 | . 45 |
| . 38 | . 47 | . 54 |
| 3.70 | 4.28 | 5.60 |
| . 03 | . 02 | . 02 |
| 1.61 | 2.04 | 1.61 |
| 1.08 | 1. 10 | 1.59 |
| . 24 | . 31 | . 32 |
| .21 | . 24 | . 15 |

$100.00 \quad 100.00 \quad 100.00$
$100.00 \quad 300.00 \quad 100.00$

|  |  |  |
| ---: | ---: | ---: |
| 3.99 | 3.69 | 4.01 |
| 2.25 | 2.16 | 2.44 |
| .13 | .09 | .09 |
| .29 | .25 | .29 |
| .49 | .47 | .46 |
| .55 | .48 | .50 |
| .02 | .02 | .02 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .08 | .06 | .06 |
| .19 | .15 | .16 |


| 23.45 | 23.85 | 24 |
| ---: | ---: | ---: |
| 6.54 | 6.09 | 6 |
| 4.03 | 3.88 |  |
| .22 | .16 | .51 |
| .58 | .51 |  |
| .53 | .51 |  |
| .79 | .71 |  |
| .05 | .05 |  |
| .01 | .01 |  |
| .01 | .01 |  |
| .10 | .08 |  |
| .21 | .17 |  |


| 4.30 | 4.23 |
| ---: | ---: |
| .02 | .03 |
| .01 | .01 |
| .05 | .21 |
| 3.81 | 3.69 |
| .28 | .26 |
| .04 | .03 |
|  |  |
| .08 | .08 |
| .01 | .01 |
| .03 | .03 |
| .05 | .05 |


| 7.69 | 7.97 | 9.44 |
| ---: | ---: | ---: |
| .03 | .04 | .06 |
| 5.30 | 5.65 | 6.38 |
| .63 | .52 | .59 |
| .17 | .19 | .22 |
| .12 | .17 | .24 |
| .03 | .03 | .04 |
| .01 | .01 | .01 |

1


|  | other printg, exc newspapers |  |  | Chemical and allied products |  |  | Industrial chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.57 | 1. 72 | 1.59 | 2.80 | 3.06 | 2.29 | 3.18 | 3.40 | 2.46 |
| accountants | . 82 | . 95 | 1.02 | 1. 24 | 1.35 | 1.08 | 1.46 | 1.55 | 1.13 |
| Architects | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Religious workers, except cleryy | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | . 05 | . 08 | . 06 | . 14 | . 27 | . 20 | . 16 | . 27 | . 14 |
| Librarians | . 04 | . 03 | .01 | . 05 | . 05 | .03 | . 07 | .07 | . 06 |
| Operations and systems research | . 17 | - 22 | -18 | - 27 | . 38 | - 33 | . 28 | . 41 | . 39 |
| Personnel, labor relations wkrs | . 27 | . 29 | . 24 | . 56 | . 56 | . 34 | . 64 | . 62 | . 36 |
| Other research workers | . 16 | . 10 | . 02 | - 52 | . 45 | .29 | .53 | .46 | . 38 |
| Vocation, education counselors | . 04 | . 03 | . 02 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 9.34 | 10.79 | 11.40 | 7.88 | 9.03 | 9.65 | 6.85 | 7.96 | 8.88 |
| Buyers, sales, ican managers | 1.38 | 1.22 | . 94 | 1.83 | 1.81 | 2.03 | 1.61 | 1.61 | 1.99 |
| Bank, financial managers | . 13 | . 11 | . 05 | . 18 | - 18 | . 15 | . 21 | - 20 | . 18 |
| Credit managers | . 06 | . 04 | . 04 | . 12 | . 07 | . 05 | . 08 | . 04 | . 04 |
| Purchasing agents, buyers, other | . 31 | . 24 | . 17 | . 57 | . 51 | . 54 | . 64 | . 58 | . 71 |
| Sales manager, exc retail trade | . 88 | . 83 | . 69 | .96 | 1.05 | 1.28 | . 70 | . 78 | 1.06 |
| Other managers, officials, proprts | 7.96 | 9.57 | 10.46 | 6.05 | 7.22 | 7.62 | 5.24 | 6.35 | 6.89 |
| Mgrs, superintendents, building | .01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 03 |
| office managers, other | . 50 | .49 | . 50 | . 33 | . 35 | . 40 | . 31 | . 34 | . 43 |
| officers, pilots, pursers, ship | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Restaurant, cafe, bar,managers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| other managers, administrators | 7.44 | 9.07 | 9.94 | 5.69 | 6.85 | 7.19 | 4.90 | 5.98 | 6.41 |
| Sales workers | 5.40 | 5.54 | 6.35 | 4.23 | 4.58 | 5.29 | 2.22 | 2.29 | 2.46 |
| Advertising agents, sales worker | . 65 | . 89 | 1.14 | . 02 | . 03 | . 04 | . 01 | . 01 | .01 |
| Newspaper carriers and vendors | . 11 | . 08 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales wrrkers | 4.64 | 4.57 | 5.17 | 4.21 | 4.55 | 5.26 | 2.21 | 2.27 | 2.45 |
| Clerical workers | 21.58 | 19.78 | 19.44 | 14.95 | 14.56 | 14.45 | 13.07 | 12.66 | 12.64 |
| Stenographrs,typists, secretaries | 7.55 | 7.10 | 8.50 | 5.56 | 5.39 | 5.72 | 4.88 | 4.54 | 4.85 |
| Legal secretaries | . 01 | . 01 | .01 | . 04 | . 03 | . 04 | . 03 | . 03 | . 05 |
| Medical secretaries | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 | . 01 | .01 | . 01 |
| other stcretaries | 4.46 | 4.52 | 5.94 | 4. 19 | 4.31 | 4.78 | 3.66 | 3.62 | 4.09 |
| Stenographers | . 11 | . 05 | .01 | . 19 | . 09 | . 03 | .23 | . 09 | .01 |
| Typists | 2.97 | 2. 51 | 2.54 | 1.11 | . 94 | . 83 | . 96 | . 79 | . 68 |
| Office machine operators | 1.74 | 1.55 | . 80 | 1.03 | 1. 16 | . 81 | . 89 | 1.02 | . 74 |
| Bookkeeping and billing | . 15 | . 05 | . 01 | . 06 | . 03 | . 03 | . 05 | . 02 | . 01 |
| Calculating | . 05 | . 03 | .01 | . 04 | . 03 | . 02 | . 02 | . 02 | . 02 |
| Computer and feripheral eguip | . 30 | . 62 | . 49 | . 30 | . 63 | . 50 | - 30 | . 59 | . 47 |
| Duplicating for | - 13 | -08 | . 02 | . 04 | . 03 | . 04 | . 03 | .03 | . 05 |
| Keypunch | . 68 | . 45 | - 14 | - 52 | - 39 | - 19 | . 44 | . 32 | . 15 |
| Tabulating | . 05 | . 01 | . 01 | . 02 | . 01 | . 00 | . 02 | .01 | . 00 |
| Other office machine operators | . 38 | .31 | .13 | . 05 | . 05 | . 03 | . 04 | . 04 | . 03 |


|  | other printg, exc newspapers |  |  | Chemical and allied products |  |  | Industrial chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 12.29 | 11. 14 | 10.14 | 8.36 | 8.01 | 7.92 | 7.30 | 7.10 | 7.06 |
| Billing clerks | . 34 | . 33 | . 37 | . 21 | . 22 | . 25 | . 13 | . 13 | .13 |
| Bookkeepers | 2.47 | 2. 31 | 2.63 | 1.48 | 1.41 | 1.31 | 1.10 | 1.01 | . 84 |
| Cashiers | . 08 | . 09 | . 11 | . 07 | . 08 | . 10 | . 06 | . 07 | . 12 |
| Clerical supervisors, other | . 22 | . 23 | . 17 | . 22 | . 25 | . 27 | .21 | . 24 | . 27 |
| collectors, bill and account | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 03 |
| Counter clerks, exc food | . 44 | . 41 | . 35 | . 28 | . 29 | . 33 | . 22 | . 24 | . 32 |
| Dispatchers, starters, vehicle | . 01 | . 01 | . 01 | . 02 | . 03 | . 04 | . 04 | . 04 | . 06 |
| Enumerators and interviewers | . 12 | . 10 | . 09 | . 00 | - 00 | .00 | . 00 | . 00 | . 00 |
| Estimators, investigators,other | . 58 | . 54 | . 20 | . 21 | . 24 | . 20 | . 21 | - 25 | - 25 |
| Expediters, prcduction controlss | . 55 | . 46 | . 23 | - 58 | . 62 | . 76 | . 67 | . 74 | -. 03 |
| File clerks | . 80 | . 65 | . 64 | - 23 | - 20 | - 20 | . 17 | . 13 | . 10 |
| Library attendants, assistants | . 05 | - 04 | - 00 | . 05 | . 05 | . 02 | .07 | . 07 | . 03 |
| Mail handlers, exc post office | . 92 | . 79 | . 49 | . 23 | . 22 | . 19 | .21 | . 19 | . 17 |
| Messengers and of fice aelpers | . 34 | . 28 | . 13 | . 04 | . 04 | . 02 | . 03 | -03 | . 02 |
| Payroll,timekeeping clerks | . 29 | . 32 | . 36 | . 33 | . 33 | - 26 | . 35 | . 35 | . 26 |
| Receptionists | . 43 | . 32 | . 13 | . 25 | . 23 | . 19 | . 19 | . 19 | . 19 |
| Shipping and receiving clerks | 1.44 | 1.30 | 1.47 | 1.42 | 1.22 | 1. 16 | 1.02 | - 90 | . 86 |
| Statistical clerks | . 53 | . 53 | . 39 | -38 | . 43 | .41 | .34 | . 37 | . 38 |
| Stock clerks and store keepers | . 52 | . 44 | . 39 | . 82 | . 69 | . 67 | . 75 | . 66 | . 70 |
| Telephone operators | -19 | - 13 | - 11 | - 22 | - 13 | . 07 | . 22 | . 13 | . 06 |
| Weighers | . 03 | . 03 | . 02 | -28 | . 28 | . 32 | . 25 | . 28 | . 38 |
| Misc clerical workers | 1.91 | 1.82 | 1.85 | 1.03 | 1.07 | 1.15 | 1.06 | 1.08 | . 86 |
| crafts and kindred workers | 34.73 | 34.73 | 34.85 | 17.06 | 17.07 | 18.45 | 23.85 | 24.02 | 25.60 |
| Construction crafts workers | . 41 | .41 | . 49 | 3.38 | 3.20 | 3.66 | 5.58 | 5.56 | 6.84 |
| Carpenters and apprentices | . 07 | . 08 | . 09 | . 50 | . 46 | . 37 | . 83 | . 83 | . 77 |
| Brick, stonemasons, apprentices | . 01 | . 01 | . 00 | . 06 | . 05 | -04 | .14 | . 13 | . 11 |
| Bulldozer operators | .01 | . 01 | . 02 | - 15 | . 16 | . 29 | . 14 | . 16 | . 33 |
| Cement and concrete finishers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 06 | . 04 | . 02 |
| Electricians and afprentices | . 17 | . 18 | . 24 | 1.11 | 1. 10 | 1.24 | 1.77 | 1.85 | 2.26 |
| Excavating. grading mach operatr | . 00 | . 00 | - 00 | . 13 | . 13 | . 17 | . 19 | . 19 | . 32 |
| Floor layers, exc tile setters | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| painters and apprentices | . 10 | . 10 | .11 | . 27 | . 26 | . 29 | . 33 | . 35 | . 47 |
| Plumbers, pipefitters, aprentices | . 04 | . 03 | . 03 | 1.10 | 1.01 | 1.22 | 2.04 | 1.95 | 2.47 |
| Structural metal craft workers | . 01 | . 01 | . 00 | . 03 | . 02 | . 03 | . 08 | . 06 | . 09 |
| Blue collar worker supervisors | 3.06 | 3.43 | 4.44 | 5.66 | 5.74 | 5.46 | 6.68 | 6.79 | 5.89 |
| Hetalworkg craft wrkrs, exc mecn | . 40 | . 43 | . 65 | 2.03 | 2.05 | 2.76 | 3.00 | 3.11 | 4.21 |
| Blacksmiths | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 02 | . 01 | . 00 |
| Boilermakers | . 00 | . 00 | . 00 | . 13 | . 12 | . 14 | . 29 | .27 | .34 |
| Heat treaters, annealers | . 00 | . 00 | . 00 | . 01 | . 01 | -00 | . 01 | . 01 | . 01 |
| Forge and hammer operators | . 05 | - 06 | . 10 | . 00 | -00 | . 00 | . 01 | . 01 | . 01 |
| Job and die setters, metal | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Machinists and apprentices | .21 | - 23 | . 34 | 1.06 | 1.11 | 1.59 | 1.53 | 1.64 | 2.46 |
| Millwrights | . 01 | . 02 | . 03 | -51 | . 55 | . 67 | . 79 | -88 | 1.06 |
| Pattern and moldmakers | .03 | . 03 | . 05 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Rollers and finishers,metal | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Sheetmetal workers, apprentices | .03 | . 03 | . 05 | . 16 | . 14 | .17 | . 22 | . 18 | - 19 |
| tool and diemakers, apprentices | . 05 | . 05 | . 08 | . 12 | - 10 | .15 | .11 | . 09 | . 09 |
| Mechanics, repairers,installers | 1.06 | 1.17 | 1.29 | 4.35 | 4.78 | 5.64 | 5.96 | 6.51 | 7.36 |
| air cond, heating, refrig mecn | . 01 | . 02 | . 03 | . 13 | . 16 | . 16 | . 10 | . 13 | . 14 |
| Aircraft mechanics | . 00 | .00 | . 00 | . 01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| auto mechanics and apprentices | . 02 | . 02 | . 01 | . 17 | . 14 | . 15 | . 25 | . 24 | . 31 |
| Data processing mach repairers | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 03 | . 07 |
| Heavy equip mech, incl diesel | . 94 | 1.06 | 1.18 | 3.07 | 3.47 | 4.24 | 3.58 | 4.02 | 4.59 |
| Household appliance mechanics | . 01 | . 01 | .01 | . 02 | . 03 | . 03 | . 05 | . 06 | . 08 |
| Loom fixers. | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| office machinc repairers | .03 | . 02 | . 04 | . 01 | . 01 | . 02 | . 02 | . 01 | . 02 |
| Radio, television repairers | . 01 | . 01 | . 01 | .03 | . 02 | . 02 | . 05 | . 02 | . 01 |
| Railroad, car shop repairers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 05 | . 06 | . 10 |
| other mechanics and apprentices | . 04 | . 03 | . 01 | . 88 | . 89 | -92 | 1.82 | 1.92 | 2.02 |
| Printing trade crafts workers | 29.01 | 28.71 | 27.64 | .21 | - 22 | . 20 | . 10 | - 10 | . 09 |
| Bookbinders | 3.88 | 3.02 | 3.62 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Compositors and typesetters | 10.17 | 9.61 | 6.75 | . 12 | - 12 | . 08 | . 06 | . 05 | . 02 |
| Electrotypers and stereotypers | . 24 | . 06 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Engravers exc photcengravers | . 28 | . 25 | . 19 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Photoengravers, lithographers | 3.23 | 3.46 | 4.84 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| press, plate printers, aprentices | 11.21 | 12.32 | 12.22 | . 08 | . 10 | . 12 | . 05 | . 05 | . 06 |


|  | Other printg, exc newspapers |  |  | Chemical and allied products |  |  | Industrial chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport, puilic util craft wncs | . 02 | . 02 | . 02 | -11 | . 09 | . 05 | . 15 | . 12 | . 06 |
| Elec pur line instaler, repairer | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Locomotive engineers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Power station operators | .00 | . 00 | . 00 | . 08 | . 06 | .03 | . 11 | . 08 | . 01 |
| telephone installers, repairers | .01 | . 01 | .01 | . 01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Other crafts. kindred workers | .77 | . 56 | .32 | 1.32 | . 99 | . 69 | 2.38 | 1.81 | 1. 16 |
| Bakers | .01 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 05 | . 04 | . 02 |
| Crane, derrick, hoist operator | . 05 | . 04 | . 06 | . 25 | . 17 | . 13 | . 49 | . 35 | . 24 |
| Inspectors, other | .01 | .01 | .01 | - 10 | . 10 | . 09 | .17 | . 18 | . 16 |
| Opticians,lens grinder, folisher | . 00 | . 00 | .00 | . 01 | . 00 | .00 | . 01 | .01 | . 01 |
| Shipfitters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| sign painters and letterers | . 03 | .03 | . 04 | . 01 | . 01 | . 00 | . 01 | . 01 | .01 |
| Stationary engineers | .07 | . 04 | . 01 | - 74 | . 49 | . 22 | 1.26 | . 81 | . 21 |
| Other crafts workers | . 60 | . 41 | .17 | . 19 | . 19 | . 22 . | . 39 | . 41 | . 51 |
| operatives | 15.42 | 14.53 | 12.74 | 30.54 | 29.24 | 27.51 | 23.89 | 22.94 | 19. 14 |
| Operatives, except transport | 14.13 | 13. 28 | 11.18 | 27.46 | 26.27 | 24.36 | 20.76 | 19.85 | 15.64 |
| Semiskilled metalworking | . 31 | . 21 | . 10 | 1.21 | 1.09 | 1.14 | 2.02 | 1.95 | 2.12 |
| Drill press oferatives | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 | . 05 | . 03 | . 01 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 | . 12 | . 11 | . 11 |
| Grinding machine operatives | . 01 | . 01 | . 01 | . 04 | . 03 | .03 | . 07 | . 05 | . 03 |
| Lathe,milling mach operatives | .04 | . 02 | .01 | . 12 | . 08 | -06 | . 16 | . 11 | . 09 |
| Metal platers | . 04 | . 03 | .01 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Other precision mach operators | . 01 | . 01 | . 00 | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 |
| Punch,stamping press operatives. | . 15 | . 09 | . 02 | - 10 | . 08 | . 06 | -13 | . 11 | . 09 |
| Solderers | .01 | . 00 | . 00 | . 01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| Welders and flamecutters | .03 | .03 | . 05 | .79 | . 78 | . 87 | 1.44 | 1.47 | 1.72 |
| Semiskilled textile operatives | . 00 | . 00 | . 00 | 2.63 | 2.50 | 2.58 | . 00 | . 00 | . 00 |
| Carding, lappirg combing oprs | . 00 | . 00 | . 00 | . 08 | . 06 | . 01 | . 00 | . 00 | . 00 |
| Knitters, loopers, and toppers | . 00 | .00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Spinners, twisters, winders | . 00 | . 00 | . 00 | 1.58 | 1.54 | 1.75 | . 00 | . 00 | . 00 |
| deavers | . 00 | .00 | .00 | . 03 | . 04 | . 07 | . 00 | . 00 | .00 |
| Other textile operatives | . 00 | . 00 | . 00 | . 92 | . 84 | .71 | . 00 | . 00 | . 00 |
| Semiskilled packing, inspectiny | 2.95 | 2. 90 | 3.65 | 5.25 | 5.00 | 5.27 | 2.24 | 1.9'3 | 1.49 |
| Checkers, examiners, mfy | 1.16 | 1. 17 | 1.45 | 2.01 | 2.03 | 2.52 | 1.28 | 1.20 | 1.16 |
| Graders and scrters, mfg | . 14 | . 15 | . 18 | . 07 | . 07 | . 07 | . 02 | . 02 | . 00 |
| Packer, wrapper, exc meat, prodce | 1.65 | 1.58 | 2.02 | 3.18 | 2.91 | 2.69 | . 94 | . 71 | .32 |
| Other operatives, exc transport | 10.87 | 10.17 | 7.43 | 18.37 | 17.69 | 15.38 | 16.50 | 15.98 | 12.04 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 15 | . 21 | . 22 | . 27 | . 40 | . 38 |
| Assemblers | . 55 | . 63 | .93 | 1.55 | 1.65 | 1.98 | .47 | . 51 | . 60 |
| Blasters | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 01 | . 01 | . 00 |
| Bottling, canning oferatives | . 00 | . 00 | . 00 | - 32 | . 34 | . 35 | . 12 | . 12 | . 14 |
| Surveyors' belpers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Clothing ironers and pressers | . 01 | . 01 | .01 | . 00 | -00 | . 00 | . 01 | . 01 | . 01 |
| Cutting operatives, other | 1.32 | 1.18 | . 78 | . 34 | - 32 | . 33 | - 14 | . 14 | . 14 |
| Drillers, earth | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 05 | . 05 | . 10 |
| Dyers | .01 | . 01 | . 01 | . 04 | . 04 | . 04 | . 05 | . 03 | . 01 |
| Filer, polisher, sander, buffer | . 02 | . 02 | .01 | -09 | . 07 | . 04 | . 06 | . 05 | . 02 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 02 | . 01 | . 02 |
| Laundry,dry cleang oprs,other | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 03 | . 03 | . 05 |
| Meat cutters and butchers | . 00 | .00 | .00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Mixing operatives | . 09 | . 07 | . 05 | 2.21 | 2.16 | 2.17 | 1.28 | 1.29 | 1.33 |
| Oilers,greasers,exc a utomobiles: | . 03 | . 02 | . 02 | . 12 | . 09 | . 04 | .17 | . 12 | . 04 |
| Painters, mfg articles | . 11 | . 08 | . 06 | -44 | - 37 | . 39 | . 50 | . 45 | - 54 |
| Photographic frocess morkers | . 88 | . 94 | 1.24 | .03 | . 03 | . 03 | . 05 | . 05 | . 05 |
| Riveters and fasteners | . 06 | . 05 | . 03 | . 07 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Sawyers | . 01 | . 01 | . 01 | . 05 | . 04 | . 03 | . 07 | . 05 | . 02 |
| Sewers and stitchers | . 32 | - 24 | - 17 | . 15 | - 13 | .17 | . 05 | . 05 | . 10 |
| Purnace tendr,stokr, exc metal | . 03 | . 03 | . 05 | . 61 | - 35 | . 22 | 1.06 | . 64 | . 37 |
| winding operatives, cther | . 05 | . 04 | . 02 | . 07 | . 07 | . 07 | . 04 | . 04 | . 06 |
| Miscellaneous machine operatves | 3.95 | 3. 69 | 2.47 | 8.49 | 8.04 | 6.18 | 8.75 | 8.22 | 5.17 |
| other operatives, exc transport | 3.43 | 3. 16 | 1.59 | 3.51 | 3.62 | 2.94 | 3.31 | 3.69 | 2.89 |

Table 1. Percent distribution of industry employment by cccupation, 1970, 1978 and projected 1990

|  | Other printg, exc newspapers |  |  | Chemical and allied products |  |  | Industrial chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Iransport equifment operatives | 1.29 | 1. 25 | 1.56 | 3.09 | 2.97 | 3.15 | 3.12 | 3.08 | 3.50 |
| Bus drivers | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 01 | . 01 | . 01 |
| Delivery and route workers | . 49 | . 42 | . 45 | - 30 | . 25 | . 23 | .31 | . 26 | .21 |
| Fork lift, tow motor operatives | . 30 | . 32 | . 30 | 1. 14 | 1.18 | . 97 | . 83 | . 86 | . 60 |
| Rail venicle cperators, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Railroad brake operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 03 | . 04 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | .03 | . 03 | . 08 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 06 | . 05 | . 02 | . 05 | . 04 | . 02 |
| Truck drivers | . 46 | . 48 | . 79 | 1.54 | 1.45 | 1.87 | 1.87 | 1.84 | 2. 53 |
| Service workers | 1.32 | 1.07 | .61 | 2.94 | 2.58 | 2.16 | 3.35 | 3.07 | 2.94 |
| Cleaning service workers | . 98 | . 77 | . 35 | 1.89 | 1.64 | 1.25 | 2.15 | 2.02 | 2.03 |
| Bldg interior cleaners, other | - 20 | . 17 | . 09 | . 23 | . 22 | . 19 | . 19 | . 20 | . 21 |
| Janitoss and sextons | . 79 | . 60 | . 26 | 1.67 | 1.42 | 1.07 | 1.95 | 1.83 | 1.82 |
| Food service wcrkers | . 09 | . 07 | . 06 | . 21 | . 16 | . 13 | - 19 | - 14 | . 15 |
| Cooks, exc private households | . 03 | . 02 | . 03 | . 07 | . 05 | .03 | . 06 | . 04 | . 03 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Food counter, fountain workers | . 02 | . 02 | .02 | . 04 | . 04 | . 03 | . 02 | . 02 | . 02 |
| waiters | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Other food serv wkrs, exc privt | .02 | . 01 | . 01 | . 06 | . 05 | . 05 | . 07 | . 06 | . 09 |
| Health service workers | . 00 | . 00 | .00 | . 02 | . 02 | . 06 | . 02 | . 02 | . 06 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 01 | . 01 | . 05 | . 02 | . 02 | . 06 |
| Personal service workers | . 05 | . 04 | . 02 | . 07 | . 08 | . 08 | . 03 | . 02 | . 02 |
| Attendants, personal serv,other | . 02 | . 01 | . 01 | . 02 | . 02 | . 02 | .01 | . 01 | .01 |
| Elevator operators | . 04 | .03 | .01 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Protective service workers | . 19 | - 18 | .19 | . 76 | . 68 | . 64 | .97 | . 87 | . 68 |
| Firefighters | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 05 | . 04 | . 04 |
| guards | . 19 | - 18 | . 19 | .71 | . 65 | . 61 | . 89 | .81 | . 64 |
| Police and detectives | . 00 | . 00 | .00 | . 01 | . 01 | . 00 | . 03 | . 02 | . 00 |
| Laborers, except farm | 1.93 | 1.68 | 1.14 | 3.92 | 3. 64 | 3.44 | 3.34 | 3.22 | 3. 69 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 07 | . 10 | . 08 | . 02 | . 03 | . 02 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 05 | . 03 | . 03 | . 09 | . 06 | . 06 |
| Constr labr,exc carpenter helpr | . 01 | . 01 | . 02 | . 21 | . 18 | . 16 | . 34 | . 32 | . 33 |
| preight and material handlers | .94 | . 81 | . 58 | 1.79 | 1.67 | 1.74 | 1.50 | 1.52 | 1.93 |
| Gardenrs,groundkeepers, exc farn | . 02 | . 02 | . 02 | . 08 | . 08 | . 10 | . 09 | . 10 | - 14 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 01 | . 01 | .00 | . 02 | . 02 | - 00 |
| Stock handlers | - 35 | . 49 | . 23 | . 59 | - 59 | - 44 | . 22 | . 25 | . 28 |
| Vehicle washers,equip cleaners | . 14 | . 11 | . 04 | . 29 | . 28 | . 22 | - 25 | . 27 | . 29 |
| Warehouse labcrers, other | . 15 | . 15 | . 19 | . 39 | - 34 | . 28 | . 29 | . 23 | . 11 |
| Other laborers | .13 | . 10 | . 06 | . 45 | . 36 | . 37 | . 51 | . 43 | . 52 |

Plastics
and
synthetics
$1970 \quad 1978 \quad 1990$

|  | Synthetic <br> fibers |  |
| :---: | :---: | :---: |
| $1970 \quad 1978$ | 1990 |  |

Drugs
and
medicines
$1970 \quad 1978 \quad 1990$

Total all cccupations
Professional and technical
Engineers, technical
Chemical
Civil
Klectrical
Industrial
Mechanical
Metallurgical
Sales
Other engineers

Life and physical scientists
Agricultural
Biological
Chemists
Geologists
Marine
Physicists and astronomers
Other life, physical scientists
Mathematical sfecialists
Mathematicians
Statisticians

Enyineering, science technicians
Agricultural, tiolgcl, exc health
Chemical techricians
Drafters
Electrical and electronic
Industrial engineering
Mechanical engineering
Other engineering, science tech
Medical vorkers, exc technicians Pharmacists
Physicians and osteopaths
Registered nurses
Veterinarians
other medical and health tecn
Health technologists, technicians clinical lab technologists, tech Other health technicians

Technicians, except health Airplane pilots
Tool programers, numerical
Other technicians except health

Computer specialists
Computer programers
Computer systems analysts
other computer specialists
Social scientists
Economists
Teachers
Adult educaticn
Writers, artists, entertainers
Authors
Designers
Editors and reforters
Painters and sculptors
Photographers
Public relaticns specialists Other writers,artists, entertain
$100.00 \quad 100.00 \quad 100.00$

| 17.80 | 18.29 | 19.04 |
| ---: | ---: | ---: |
| 4.72 | 4.59 | 5.05 |
| 2.78 | 2.76 | 3.05 |
| .14 | .08 | .04 |
| .25 | .23 | .21 |
| .53 | .54 | .52 |
| .61 | .59 | .74 |
| .03 | .03 | .04 |
| .13 | .10 | .09 |
| .27 | .26 | .36 |
| 2.59 | 2.57 | 2.62 |
| .01 | .01 | .02 |
| .03 | .05 | .03 |
| 2.44 | 2.41 | 2.50 |
| .02 | .01 | .01 |
| .00 | .00 | .00 |
| .05 | .05 | .05 |
| .04 | .04 | .01 |
| .04 | .04 | .05 |
| .01 | .01 | .00 |
| .03 | .04 | .05 |

6.91
4.

| .43 | .40 | .62 |
| :--- | ---: | ---: |
| .05 | .06 | .09 |
| .21 | .29 | .40 |
| .03 | .04 | .07 |
| . .98 | 2.04 | 2.27 |


| .13 | .07 | .00 |
| :---: | :---: | :---: |
| 00 | .00 | .00 |

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$\begin{array}{lll}.01 & .01 & -01 \\ .01 & 01 & .01\end{array}$ .

|  |  |  |
| :---: | :---: | :---: |
| .06 | .09 | .13 |
| .01 | .01 | .01 |
| .00 | .00 | .00 |
| .05 | .07 | .12 |
| .40 | .55 | .65 |
| .27 | .31 | .34 |
| .10 | .16 | .23 |
| .04 | .08 | .08 |
| .16 | .26 | .33 |
| .16 | .26 | .33 |
| .02 | .02 | .02 |
| .02 | .02 | .02 |
| .44 | .49 | .38 |
| .03 | .02 | .00 |
| .23 | .24 | .18 |
| .02 | .02 | .01 |
| .07 | .09 | .08 |
| .00 | .00 | .00 |
| .06 | .07 | .06 |
| .04 | .05 | .05 |

$100.00 \quad 100.00 \quad 100.00$
$100.00 \quad 100.00 \quad 100.00$
$15.0915 .72 \quad 16.27$

| 23.18 | 24.89 | 23.89 |
| ---: | ---: | ---: |
| 1.81 | 1.75 | 2.14 |
| .80 | .87 | 1.26 |
| .06 | .04 | .04 |
| .07 | .07 | .09 |
| .50 | .47 | .52 |
| .24 | .18 | .17 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .14 | .11 | .07 |
| 6.53 | 7.32 | 6.99 |
| .02 | .02 | .01 |
| 1.69 | 2.68 | 2.68 |
| 4.75 | 4.55 | 4.24 |
| .01 | .01 | .01 |
| .00 | .00 | .00 |
| .02 | .03 | .04 |
| .05 | .04 | .01 |
| .17 | .15 | .11 |
| .02 | .03 | .02 |
| .15 | .13 | .09 |

$6.73 \quad 6.43 \quad 6.1$

| 4.13 | 6.43 | 6.1 |
| :--- | :--- | :--- |
| 1.14 | 1.93 | 3.7 |
|  | 1.16 | 1.1 |


|  | Plastics and synthetics |  |  | Synthetic fibers |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other frofessional and tecanical | 2.31 | 2.44 | 1.80 | 2.06 | 2-13 | 1.56 | 3.99 | 4.33 | 3.66 |
| Accountants | 1.10 | 1.10 | .70 | . 63 | . 70 | . 63 | 1.36 | 1.54 | 1.60 |
| Lawyers | . 07 | - 12 | . 08 | . 03 | . 04 | . 01 | . 32 | . 68 | . 75 |
| Licrarians | .02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 12 | - 10 | . 03 |
| Operations and systems researca | . 22 | . 34 | . 39 | . 28 | . 38 | . 33 | . 36 | . 48 | . 42 |
| Personnel, labor relations wirs | . 51 | . 51 | . 34 | . 66 | . 62 | - 30 | . 65 | . 64 | . 40 |
| Other research yorkers | . 39 | . 34 | . 28 | .47 | . 39 | . 29 | 1.19 | . 90 | . 46 |
| Managers, officials, proprietors | 7.55 | 8.88 | 10.29 | 2.39 | 2.90 | 3.63 | 8.95 | 9.95 | 10.92 |
| Buyers, sales, loan managers | 1.38 | 1.44 | 2.12 | . 44 | - 39 | . 34 | 2.44 | 2.28 | 2.37 |
| Bank, financial managers | . 13 | . 16 | . 24 | . 07 | . 07 | . 08 | . 27 | . 23 | . 12 |
| Credit managers | . 05 | . 03 | . 02 | . 00 | . 00 | . 00 | . 16 | . 09 | . 07 |
| Purchasing agents, buyers,other | . 53 | . 50 | . 71 | . 22 | . 17 | . 11 | . 54 | . 43 | .31 |
| Sales manager, exc retail trade | . 66 | . 75 | 1.15 | . 15 | - 15 | . 15 | 1.47 | 1.53 | 1.86 |
| Other managers, officials,proprts | 6.18 | 7. 44 | 8.17 | 1.95 | 2.51 | 3.30 | 6.51 | 7.67 | 8.55 |
| office managers, other | . 27 | . 29 | . 39 | . 06 | . 06 | . 07 | . 19 | . 19 | . 21 |
| Restaurant, cate, bar, managers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Other managers, adininistrators | 5.91 | 7. 15 | 7.79 | 1.87 | 2.43 | 3.22 | 6.29 | 7.45 | 8.33 |
| Sales workers | 1.71 | 1.76 | 2.15 | . 39 | . 40 | . 50 | 9.75 | 10.22 | 12.86 |
| Advertising agents, sales worker | .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 04 | . 06 | . 07 |
| other sales ucrkers | 1.70 | 1.75 | 2.14 | -39 | . 40 | . 50 | 9.70 | 10.17 | 12.79 |
| Clerical workers | 12.14 | 11.51 | 11.58 | 7.48 | 7.23 | 7.48 | 20.11 | 19.08 | 18.60 |
| Stenoyraphrs, typists, secretaries | 4.47 | 4.09 | 4.30 | 2.24 | 2.12 | 2.40 | 9.05 | 8.80 | 9.41 |
| Legal stcretaries | . 03 | . 02 | . 03 | . 02 | . 02 | . 02 | . 11 | . 09 | . 09 |
| Medical secretaries | . 00 | . 00 | . 00 | - 01 | . 01 | . 01 | .21 | . 13 | . 18 |
| Other stcretaries | 3.44 | 3.37 | 3.79 | 1.67 | 1.71 | 2.13 | 6.93 | 7.07 | 7.53 |
| Stenographers | . 24 | . 09 | . 01 | . 15 | . 09 | . 04 | . 14 | . 06 | . 01 |
| Typists | . 76 | . 61 | . 48 | -39 | .30 | . 20 | 1.67 | 1.45 | 1.61 |
| Office machine cperators | . 74 | . 95 | . 72 | . 76 | . 80 | - 52 | 1.43 | 1.49 | . 99 |
| Bookkeeping and billing | . 06 | . 03 | . 04 | . 01 | . 00 | . 01 | . 09 | . 04 | . 02 |
| Calculating | .01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 05 | . 02 | . 00 |
| computer and feripheral equip | . 31 | . 63 | . 51 | . 19 | . 41 | . 34 | . 38 | -80 | . 67 |
| Duplicating | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | -07 | . 05 | .03 |
| Keypunch | . 31 | . 22 | .11 | . 49 | . 35 | .16 | . 71 | . 49 | . 21 |
| Tabulating | .01 | . 00 | . 00 | . 02 | . 01 | . 00 | . 04 | . 01 | . 00 |
| Other office anchine operators | . 05 | . 05 | . 04 | . 03 | . 02 | .00 | . 09 | . 08 | . 06 |
| Otner clerical workers | 6.93 | 6.47 | 6.56 | 4.48 | 4.31 | 4.56 | 9.63 | 8.79 | 8.19 |
| Billing clerks | . 10 | . 10 | . 15 | . 03 | . 04 | . 08 | -21 | . 21 | . 27 |
| Bookkeepers | 1.24 | 1. 14 | . 99 | . 51 | . 49 | . 50 | 1.58 | 1.56 | 1.90 |
| Cashiers | . 04 | . 05 | . 10 | . 12 | . 12 | . 08 | . 12 | .13 | . 15 |
| Clerical supervisors, other | . 11 | - 12 | . 14 | . 12 | - 13 | . 15 | . 24 | . 26 | -25 |
| Collectors, bill and account | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| counter clerks, exc food | . 14 | . 15 | . 20 | . 05 | . 06 | . 07 | . 30 | . 29 | - 28 |
| Dispatchers, starters, vehicle | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Estimators, investigators, other | . 15 | . 18 | . 17 | . 04 | . 04 | . 03 | . 27 | . 28 | . 16 |
| Expediters, prcduction controlfs | . 72 | . 81 | 1.22 | . 48 | . 49 | . 54 | . 54 | . 50 | . 38 |
| File clerks | . 15 | . 12 | - 10 | - 11 | - 10 | - 13 | .41 | - 35 | . 39 |
| Library attendants, assistants | . 03 | . 03 | . 01 | . 00 | . 00 | . 00 | . 14 | . 12 | . 02 |
| Mail handlers, exc post office | -11 | . 11 | .11 | .04 | . 04 | . 05 | . 37 | - 33 | . 27 |
| Messengers and office helpers | .03 | . 02 | .01 | . 01 | -01 | . 02 | . 06 | . 04 | . 01 |
| Payroll, timekeeping clerks | . 27 | . 26 | . 17 | - 20 | - 20 | . 12 | . 29 | . 31 | . 30 |
| Receptionists | . 13 | . 13 | . 13 | . 09 | . 08 | . 06 | . 33 | . 27 | -14 |
| Shipping and receiving clerks | 1.49 | 1. 14 | . 64 | . 92 | . 93 | 1.38 | 1.34 | 1.01 | . 57 |
| Statistical clerks | . 24 | . 25 | . 21 | -26 | - 28 | . 23 | . 74 | . 77 | .70 |
| Stock clerks and store keepers | . 74 | - 68 | . 84 | .45 | - 34 | . 19 | . 82 | . 57 | - 41 |
| Telephone operators | . 23 | . 11 | . 03 | . 11 | . 07 | . 04 | . 18 | . 12 | . 10 |
| Weighers | . 21 | . 22 | . 30 | . 27 | . 23 | - 12 | : 20 | .17 | . 08 |
| Misc clerical workers | . 80 | . 83 | 1.04 | .65 | . 66 | .75 | 1.49 | 1.51 | 1.82 |
| Crafts and kindred workers | 19.72 | 20.21 | 22.03 | 20.36 | 21.97 | 26.17 | 8.92 | 9.04 | 9.31 |


|  | $\begin{gathered} \text { Plastics } \\ \text { and } \\ \text { synthetics } \end{gathered}$ |  |  | Synthetic fibers |  |  | Drugs and medicines |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 3.29 | 3. 02 | 3.07 | 3.21 | 3. 18 | 3.71 | 1.44 | 1.32 | 1. 17 |
| carpenters and apprentices | . 47 | . 35 | . 09 | . 42 | - 40 | . 34 | . 25 | . 27 | . 23 |
| Brick, stonemasons, apprentices | .02 | . 02 | . 01 | . 00 | - 00 | . 00 | . 03 | . 02 | .01 |
| Bulldozer oferators | .03 | . 04 | . 07 | . 07 | . 07 | . 13 | . 01 | . 01 | . 01 |
| Cement and concrete finisners | . 02 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | 1.26 | 1. 18 | 1.02 | 1.43 | 1.50 | 1.79 | . 53 | . 47 | . 46 |
| Excavating, grading mach operatr | . 03 | . 04 | . 09 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Floor layers, exc tile setters | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 01 | .00 | . 00 |
| painters and apprentices | . 28 | . 29 | . 37 | . 16 | - 12 | . 06 | . 14 | -10 | . 04 |
| Plumbers, pipefitters, aprentices | 1.12 | 1.06 | 1.37 | 1.13 | 1.08 | 1.39 | . 46 | . 43 | . 40 |
| structural metal craft vorkers | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Tile setters | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Blue collar worker supervisors | 6.99 | 7.08 | 6.47 | 7.30 | 7.96 | 9.01 | 3.61 | 3.68 | 3.55 |
| Metalworkg craft wrkrs, exc meca | 2.75 | 2.86 | 3.99 | 2.80 | 3.06 | 4.23 | . 78 | . 82 | 1.16 |
| Blacksmiths | . 00 | - 00 | . 00 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 14 | . 11 | . 06 | . 10 | . 11 | . 19 | . 00 | . 00 | . 00 |
| Job and die setters, metal | .06 | .05 | . 06 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Machinists and apprentices | 1.40 | 1.61 | 2.59 | 1.19 | 1.32 | 1.92 | . 52 | . 57 | .83 |
| Millwriyhts | . 48 | . 48 | . 41 | 1.12 | 1.24 | 1.52 | . 08 | - 10 | - 15 |
| pattern and meldmakers | . 06 | . 05 | . 08 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Rollers and finishers,metal | . 03 | . 02 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 18 | - 16 | . 23 | . 31 | . 29 | . 40 | . 10 | . 07 | . 04 |
| tool and diemakers, apprentices | . 42 | . 39 | . 55 | . 07 | . 08 | . 20 | . 07 | . 07 | . 13 |
| Mechanics, repairers, installers | 5.22 | 6.02 | 7.67 | 5.77 | 6.73 | 8.43 | 2.21 | 2.44 | 2.83 |
| Air cond, heating, refrig meca | . 12 | - 16 | - 18 | . 34 | -45 | . 45 | . 18 | -21 | - 17 |
| Aircraft mechanics | . 03 | . 02 | . 01 | . 00 | - 00 | -00 | . 00 | -00 | . 00 |
| Auto mecnanics and apprentices | . 07 | . 07 | . 10 | . 06 | . 04 | . 01 | . 05 | . 04 | . 03 |
| data processing mach repalrers | .01 | . 01 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Farm implement mechanics | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Heavy equip mech, incl diesel | 4.04 | 4. 76 | 6.24 | 4.28 | 5.15 | 6.89 | 1.74 | 2.01 | 2.54 |
| Household affliance mechanics | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Loom fixers | .00 | . 00 | . 00 | . 13 | - 13 | . 16 | . 00 | . 00 | . 00 |
| Office machine repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 05 |
| Radio, television repairers | . 04 | . 02 | . 01 | . 08 | . 09 | . 15 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 89 | . 96 | 1.11 | . 88 | . 88 | .78 | -22 | . 16 | . 03 |
| Printing trade crafts workers | . 25 | . 21 | . 08 | . 08 | - 11 | - 24 | .41 | . 41 | . 37 |
| Compositors and typesetters | . 12 | . 09 | . 00 | . 05 | . 07 | . 13 | . 24 | . 21 | - 11 |
| Engravers exc photoengravers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| press, plate printers, aprentices | . 11 | . 11 | .06 | .03 | . 05 | . 10 | . 18 | .21 | .26 |
| Transport, fublic util craft wiss | . 11 | . 10 | . 07 | . 19 | - 15 | . 05 | . 04 | .05 | . 08 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| power station operators | . 07 | . 05 | . 01 | . 18 | . 14 | . 05 | . 04 | . 05 | . 08 |
| Telephone installers, repairers | . 03 | . 04 | . 05 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | 1.11 | . 91 | . 68 | 1.01 | . 77 | . 50 | .41 | . 31 | . 15 |
| crane, derrick, hoist operator | . 18 | . 11 | . 05 | . 09 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Inspectors, other | . 14 | . 15 | . 15 | . 09 | . 11 | . 16 | . 02 | . 02 | . 02 |
| opticians,iens grinder, polisher | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 64 | - 50 | . 31 | . 56 | . 35 | . 08 | . 33 | . 24 | - 10 |
| Tailors | . 00 | . 00 | . 00 | . 03 | . 04 | . 07 | . 00 | . 00 | . 00 |
| other crafts morkers | . 13 | - 13 | . 16 | . 23 | . 20 | . 12 | . 07 | . 06 | . 03 |
| operatives | 35.32 | 34.03 | 30.02 | 48.74 | 47.01 | 42.32 | 23.14 | 21.88 | 21.00 |
| Operatives, except transport | 33.01 | 31.72 | 27.74 | 46.55 | 44.70 | 39.56 | 22.13 | 20.91 | 20. 11 |
| Semiskilled metalworking | 1.43 | 1. 23 | 1.08 | . 86 | . 78 | . 81 | . 25 | .21 | . 21 |
| Drill press oferatives | . 07 | . 06 | . 04 | . 05 | . 03 | . 01 | . 00 | .00 | . 00 |
| Furnace tendrs, smeltrs, pourers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine operatives | . 08 | . 06 | . 04 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Lathe,milling mach operatives | . 19 | - 12 | . 09 | . 13 | . 08 | . 04 | . 05 | -03 | . 02 |
| Metal platers | .06 | . 06 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other precision mach operators | . 06 | . 05 | . 06 | . 07 | . 05 | . 06 | . 03 | . 02 | . 01 |
| Punch,stamping press operatives | . 20 | - 16 | . 11 | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Solderers | . 02 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Helders and flamecutters | .74 | .71 | .65 | . 56 | . 58 | . 69 | . 15 | . 15 | - 18 |
| Semiskilled textile operatives | . 02 | . 02 | . 02 | 24.85 | 22.93 | 18.87 | .00 | .00 | . 00 |
| Carding, lapping combing oprs | . 02 | . 02 | . 02 | . 77 | - 50 | . 08 | . 00 | . 00 | . 00 |
| Knitters, loopers, and toppers | . 00 | . 00 | . 00 | . 14 | - 16 | . 22 | . 00 | . 00 | . 00 |
| Spinners, twisters, winders | . 00 | . 00 | . 00 | 14.94 | 14.21 | 12.83 | . 00 | . 00 | . 00 |
| weavers | . 00 | . 00 | . 00 | . 31 | . 35 | . 55 | . 00 | . 00 | . 00 |
| Other textile operatives | .00 | . 00 | . 00 | 8.69 | 7.71 | 5.19 | . 00 | .00 | . 00 |


|  | $\begin{gathered} \text { Plastics } \\ \text { and } \\ \text { synthetics } \end{gathered}$ |  |  | Synthetic fibers |  |  | Drugs and medicines |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled packing, inspectiay | 4.88 | 4.05 | 2.92 | 4.84 | 5.15 | 7.11 | 9.35 | 8.82 | 10.28 |
| Checkers, exariners, mfy | 2.26 | 2. 12 | 2.12 | 3.49 | 3.88 | 5.74 | 3.09 | 3.09 | 3.89 |
| graders and scrters, mfg | . 07 | . 05 | . 00 | - 12 | . 13 | .17 | .16 | . 16 | . 23 |
| Packer, wrapfer,exc meat,prodce | 2.55 | 1.87 | . 80 | 1.24 | 1.14 | 1.20 | 6.10 | 5.58 | 6.16 |
| Other operatives, exc transport | 26.68 | 26.43 | 23.72 | 16.00 | 15.84 | 12.77 | 12.53 | 11.88 | 9.63 |
| Asbestos, insulation workers | . 08 | . 07 | . 02 | . 33 | . 54 | . 67 | . 03 | . 03 | . 01 |
| Assemblers | 1.40 | 1.45 | 1.58 | . 38 | . 40 | . 47 | 1.86 | 1.93 | 2.18 |
| Bottling, canning operatives | .02 | . 03 | . 03 | . 02 | . 02 | . 01 | . 64 | . 65 | . 70 |
| Surveyors ${ }^{\text {delpers }}$ | .01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | .00 |
| Cutting operatives, other | 1.39 | 1. 34 | 1.25 | . 81 | . 80 | . 77 | - 10 | . 10 | . 11 |
| Dyers | . 09 | . 05 | . 00 | . 16 | . 18 | . 25 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, butfer | . 23 | . 21 | . 18 | . 09 | . 06 | . 00 | . 06 | . 03 | .01 |
| Garage wrkr.gas station atten | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 07 | . 04 | . 02 |
| Laundry,dry cleang oprs,other | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 02 | .01 | .01 |
| Mixing oferatives | 1.60 | 1.58 | 1.65 | . 75 | . 73 | . 68 | 1.03 | . 91 | . 61 |
| oilers,yreasers,exc automobiles | . 10 | . 09 | . 07 | . 11 | . 10 | .07 | . 06 | . 05 | . 04 |
| painters, mfg articles | . 38 | . 36 | . 54 | . 25 | . 20 | . 17 | . 23 | . 17 | . 11 |
| Photographic frocess workers | . 06 | . 06 | . 06 | . 03 | . 03 | . 02 | . 02 | . 02 | . 02 |
| Riveters and fasteners | . 08 | . 10 | . 16 | . 48 | . 44 | . 36 | . 02 | . 02 | .01 |
| Savyers | . 11 | . 09 | . 05 | . 03 | . 04 | . 10 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 16 | . 14 | -15 | - 28 | . 25 | . 35 | . 05 | . 04 | . 06 |
| Furnace tendr,stokr,exc metal | . 54 | - 28 | . 08 | . 37 | - 22 | . 11 | . 25 | . 18 | . 27 |
| winding operatives, other | . 17 | . 18 | . 20 | . 18 | . 14 | . 06 | . 04 | . 03 | . 01 |
| Miscellaneous machine operatves | 16.21 | 15.99 | 13.29 | 6.69 | 6.67 | 5.44 | 5.65 | 5.52 | 4.55 |
| Other operatives, exc transport | 4.05 | 4.41 | 4.38 | 4.99 | 4.99 | 3.22 | 2.43 | 2.16 | . 92 |
| Transport equipment operatives | 2.31 | 2. 31 | 2.28 | 2.19 | 2.32 | 2.77 | 1.01 | . 96 | . 89 |
| Bus drivers | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Delivery and rcute workers | . 11 | .09 | . 06 | . 06 | . 06 | . 10 | . 14 | . 12 | . 14 |
| Fork lift,tow motcr operatives | 1.28 | 1. 32 | 1.02 | 1.32 | 1.34 | . 90 | . 45 | . 50 | .53 |
| Taxicab drivers, chauffeurs | . 02 | . 02 | . 01 | . 05 | . 06 | . 07 | . 06 | . 04 | .01 |
| Truck drivers | . 89 | . 87 | 1.19 | . 76 | . 85 | 1.70 | . 37 | - 30 | .21 |
| Service workers | 2.36 | 2. 12 | 1.76 | 2.68 | 2.24 | 1.57 | 2.99 | 2.28 | 1.47 |
| Cleaning service workers | 1.64 | 1.46 | 1.19 | 1.69 | 1.32 | . 58 | 1.87 | 1.35 | . 46 |
| Bldg interior cleaners, other | . 09 | . 10 | . 12 | . 19 | . 15 | . 06 | . 33 | . 27 | .11 |
| Janitors and sextons | 1.55 | 1. 36 | 1.06 | 1.50 | 1.17 | . 52 | 1.55 | 1.09 | . 35 |
| food service warkers | . 09 | . 07 | . 05 | . 27 | . 20 | . 12 | . 43 | . 31 | . 21 |
| Cooks, exc private households | . 04 | . 02 | . 01 | - 13 | - 10 | . 09 | . 10 | . 07 | . 06 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Food counter, fountain workers | . 01 | . 02 | . 02 | . 08 | . 05 | . 01 | . 11 | - 10 | -09 |
| waiters | . 02 | . 01 | .01 | . 02 | . 02 | .01 | . 04 | . 03 | . 02 |
| other food serv wkrs,exc privt | . 02 | . 02 | . 02 | . 04 | . 02 | . 01 | . 16 | . 10 | . 04 |
| Health service workers | . 01 | . 01 | . 02 | . 02 | . 02 | . 05 | . 06 | . 07 | . 15 |
| Health aides, except nursiny | -00 | - 00 | -00 | . 00 | - 00 | . 00 | . 04 | . 05 | . 05 |
| Nursing aides and orderlies | .01 | . 01 | . 02 | . 02 | . 02 | . 05 | . 02 | . 02 | - 10 |
| Personal service workers | .01 | . 01 | . 01 | . 05 | . 05 | . 07 | .11 | . 09 | . 07 |
| Attendants, personal serv, other | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 04 | . 03 | .01 |
| Child care workers, exc private | . 00 | .00 | . 00 | . 02 | . 01 | . 02 | .00 | . 00 | . 00 |
| Elevator operators | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 04 | . 04 | . 06 |
| housekeepers, exc private homes | . 00 | .00 | . 00 | . 02 | . 02 | . 01 | -02 | . 02 | . 01 |
| Protective service workers | - 01 | - 57 | . 50 | . 65 | . 65 | . 75 | . 53 | - 45 | . 58 |
| Firefighters | . 01 | . 01 | . 01 | . 05 | . 05 | . 06 | . 00 | .00 | . 00 |
| guards | - 58 | . 55 | . 49 | . 59 | - 60 | . 68 | . 53 | . 45 | . 58 |
| police and detectives | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Laborers. except farm | 3.41 | 3.22 | 3.13 | 2.87 | 2. 54 | 2.05 | 2.96 | 2.67 | 1.95 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 46 | . 50 | . 39 |
| Carpenter helfers | . 06 | . 05 | . 04 | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 |
| constr labr,exc carpenter helpr | . 18 | . 16 | . 19 | - 30 | - 23 | .10 | . 05 | . 04 | . 01 |
| freight and material handlers | 1.67 | 1.55 | 1.48 | 1.31 | 1.22 | 1.15 | . 88 | . 82 | .81 |
| Garbage collectors | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 01 | . 01 | -01 |
| Gardenrs, groundkeepers, exc farm | . 10 | . 11 | . 14 | . 07 | . 07 | . 07 | . 06 | . 06 | . 05 |
| Stock handlers | -44 | . 48 | . 52 | . 17 | . 14 | . 05 | . 58 | . 48 | .17 |
| Teamsters | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . .00 | .00 |
| Vehicle washers, equip cleaners | . 33 | . 34 | - 34 | . 39 | . 31 | . 10 | . 38 | . 30 | - 11 |
| Warehouse labcrers, other | . 33 | . 25 | .11 | - 19 | . 19 | . 26 | . 32 | . 29 | .27 |
| Other laborers | . 29 | . 25 | . 29 | .41 | . 34 | . 27 | .23 | . 18 | $\bigcirc 14$ |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Soaps and cosmetics |  |  | $\begin{gathered} \text { Paints } \\ \text { and } \\ \text { varnishes } \end{gathered}$ |  |  | Agriculturl chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 11.75 | 12. 28 | 10.70 | 15.18 | 15.66 | 14.70 | 12.28 | 12.78 | 12.50 |
| Engineers, technical | 2.06 | 1. 88 | 1.60 | 1.29 | 1. 19 | 1.05 | 2.32 | 2.11 | 1.94 |
| Chemical | . 84 | . 79 | .71 | . 70 | . 67 | . 62 | 1.33 | 1.28 | 1.27 |
| Civil | . 08 | . 06 | . 05 | . 01 | . 01 | - 00 | - 12 | -08 | . 07 |
| electrical | . 06 | . 05 | . 05 | . 05 | . 04 | . 04 | - 10 | . 08 | . 06 |
| Industrial | . 50 | . 49 | . 38 | . 26 | . 25 | . 22 | - 20 | . 19 | - 14 |
| Mechanical | .38 | . 32 | . 26 | . 08 | . 06 | . 03 | . 42 | . 36 | . 31 |
| Sales | . 04 | . 03 | . 04 | . 10 | . 08 | . 09 | -03 | . 02 | . 01 |
| Other engineers | - 16 | - 13 | . 11 | .09 | . 08 | . 07 | . 13 | . 11 | . 09 |
| Life and physical scientists | 2.31 | 2.31 | 2.10 | 4.39 | 4.22 | 3.57 | 3.06 | 3.03 | 2.52 |
| Agricultural | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 29 | . 32 | . 18 |
| Biological | .13 | . 19 | . 14 | . 02 | . 03 | . 05 | . 16 | . 24 | . 20 |
| Chemists | 2.18 | 2.11 | 1.94 | 4.35 | 4.16 | 3.48 | 2.56 | 2.44 | 2.13 |
| Geologists | . 00 | .00 | . 00 | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Physicists and astronomers | . 00 | . 00 | .01 | . 01 | . 01 | . 02 | . 04 | . 03 | .01 |
| Mathematical sfecialists | . 05 | . 05 | . 04 | . 05 | . 03 | . 00 | . 04 | . 03 | . 01 |
| Mathematicians | .00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 |
| Statisticians | . 05 | . 05 | . 04 | . 03 | . 02 | . 00 | . 04 | . 03 | . 01 |
| Kngineering, science technicians | 2.97 | 3. 08 | 3.23 | 6.47 | 6.88 | 7.38 | 3.71 | 4.04 | 4.89 |
| Agricultural, tiolgcl , exc nealth | . 05 | . 06 | . 06 | . 01 | . 01 | . 01 | .11 | . 13 | . 17 |
| Chemical technicians | 2.04 | 2. 10 | 2.08 | 5.27 | 5.56 | 5.84 | 2.82 | 3.12 | 3.77 |
| Drafters | . 14 | . 13 | . 20 | . 11 | . 09 | . 09 | . 20 | . 15 | . 10 |
| Electrical and electronic | . 06 | . 09 | . 16 | . 00 | . 00 | . 00 | . 05 | . 05 | .07 |
| Industrial engineering | . 11 | . 14 | .17 | . 24 | . 31 | . 35 | . 02 | . 03 | .03 |
| Mechanical engineering | .03 | . 05 | - 10 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Surveyors | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other engineering, science tech | . 52 | - 51 | . 46 | . 84 | . 89 | 1.07 | . 50 | . 55 | .73 |
| Medical workers, exc technicians | . 10 | . 06 | . 01 | . 03 | . 02 | .01 | . 05 | . 05 | . 07 |
| Pharmacists | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Physicians and osteopaths | . 01 | . 00 | -00 | . 00 | . 00 | -00 | . 01 | -01 | . 00 |
| Registered nurses | . 08 | . 05 | . 01 | .03 | . 02 | .01 | .03 | . 03 | . 05 |
| Veterinarians | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Health technologists, technicians | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | .00 | . 00 | . 00 |
| Clinical lab technologists, tech | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other health technicians | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| Technicians, except health | . 06 | . 07 | . 06 | . 01 | .01 | . 00 | . 06 | . 06 | . 03 |
| Airplane pilots | . 05 | . 06 | . 06 | . 00 | . 00 | . 00 | .03 | . 03 | . 03 |
| Other technicians except health | .01 | . 00 | . 00 | . 01 | .01 | .00 | . 04 | . 03 | . 00 |
| Computer specialists | . 45 | . 55 | -47 | .31 | . 42 | - 42 | . 32 | . 39 | . 37 |
| Computer frogramers | . 28 | . 31 | .28 | . 19 | . 22 | . 26 | .23 | . 26 | . 24 |
| Computer systems analysts | . 16 | . 22 | . 17 | . 09 | . 13 | - 12 | . 09 | . 13 | . 13 |
| Other computer specialists | . 01 | . 02 | . 02 | . 04 | . 06 | . 04 | . 00 | . 00 | . 00 |
| Social scientists | . 32 | - 46 | . 37 | . 18 | . 27 | . 24 | . 14 | . 21 | - 17 |
| Economists | . 32 | . 46 | .37 | . 18 | . 27 | . 24 | . 14 | - 21 | - 17 |
| Teachers | . 02 | . 02 | . 02 | . 03 | .03 | . 01 | .01 | .01 | . 01 |
| adult education | . 02 | . 02 | . 02 | . 03 | . 03 | . 01 | . 01 | . 01 | . 01 |
| Writers,artists, entertainers | . 77 | . 94 | - 88 | . 27 | - 32 | . 30 | .18 | - 20 | . 18 |
| Designers | . 20 | . 23 | . 20 | . 05 | . 06 | . 07 | .00 | . 00 | . 00 |
| Editors and reforters | .07 | . 08 | . 11 | . 05 | . 06 | . 07 | .00 | . 00 | . 00 |
| painters and sculptors | . 20 | - 28 | . 31 | . 04 | . 05 | . 02 | . 00 | . 00 | . 00 |
| Photographers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | .03 | . 02 | . 01 |
| Public relaticns specialists | . 24 | - 28 | . 22 | . 10 | . 13 | . 12 | . 10 | . 14 | . 18 |
| Other writers,artists, entertain | . 05 | . 06 | . 04 | . 03 | . 02 | .01 | . 04 | .03 | . 00 |


|  | Soaps and cosmetics |  |  | $\begin{gathered} \text { Paints } \\ \text { and } \\ \text { varnishes } \end{gathered}$ |  |  | Agriculturi chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 2.63 | 2. 85 | 1.93 | 2.14 | 2.25 | 1.73 | 2.40 | 2.66 | 2.32 |
| accountants | 1.27 | 1. 32 | . 92 | 1.26 | 1.38 | 1.19 | 1.48 | 1.67 | 1.57 |
| Lawyers | . 19 | . 32 | . 20 | . 05 | . 08 | . 03 | . 06 | . 09 | . 04 |
| Librarians | . 03 | . 03 | . 03 | . 03 | . 02 | . 01 | . 02 | . 02 | .01 |
| Operations and systems research | . 33 | . 41 | - 28 | - 20 | . 25 | - 16 | . 15 | . 21 | . 18 |
| personnel,labcr relations wkrs | . 55 | - 56 | .37 | . 34 | - 36 | . 31 | . 34 | . 36 | . 29 |
| Other research workers | . 26 | . 21 | . 13 | . 27 | . 17 | . 04 | . 35 | . 31 | . 24 |
| Manayers, officials, proprietors | 10.41 | 11.68 | 12.45 | 10.68 | 11.82 | 12.09 | 11.19 | 12.73 | 13.69 |
| Buyers, sales, loan managers | 2.71 | 2.62 | 2.91 | 2.69 | 2.47 | 2.54 | 2.24 | 2.19 | 2.66 |
| Bank, financial managers | . 19 | . 19 | . 18 | . 18 | . 17 | .11 | . 21 | . 20 | . 15 |
| Credit managers | . 12 | . 07 | . 05 | . 40 | - 22 | . 17 | -29 | - 17 | . 15 |
| Purchasing agents, buyers,other | . 80 | . 70 | . 73 | . 67 | - 58 | . 52 | . 51 | . 43 | . 42 |
| Sales manager, exc retail trade | 1.61 | 1.67 | 1.95 | 1.44 | 1.51 | 1.74 | 1.23 | 1.39 | 1.94 |
| Other managers, officials, proprts | 7.70 | 9.06 | 9.54 | 7.98 | 9.35 | 9.55 | 8.95 | 10.53 | 11.03 |
| Mgrs, superintendents, building | .01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 04 | . 04 | . 06 |
| office ranagers, other | . 42 | . 44 | . 56 | . 59 | . 61 | . 70 | . 73 | . 72 | . 66 |
| Other managers, administrators | 7.27 | 8.60 | 8.97 | 7.40 | 8.74 | 8.85 | 8.18 | 9.77 | 10.31 |
| Sales workers | 6.65 | 6.74 | 8.29 | 7.35 | 7.32 | 8.11 | 4.72 | 4.59 | 4.78 |
| Advertising agents, sales worker | . 07 | . 08 | -07 | . 04 | . 08 | . 20 | . 00 | . 00 | . 00 |
| other sales wrikers | 0.59 | 6.66 | 8.22 | 7.31 | 7.23 | 7.91 | 4.72 | 4.59 | 4.78 |
| Clerical workers | 20.24 | 19.36 | 19.81 | 19.70 | 18.53 | 18.45 | 16.46 | 15.99 | 16.54 |
| Stenoyraphrs, typists, secretaries | 6.92 | 6.48 | 7.00 | 5.76 | 5.54 | 6.56 | 6.11 | 5.78 | 6.19 |
| Legal secretaries | . 01 | . 01 | . 00 | . 04 | -03 | . 03 | . 04 | . 04 | . 06 |
| Medical secretaries | . 00 | . 00 | . 00 | . 00 | -00 | . 00 | . 02 | . 01 | . 00 |
| Other secretaries | 5.16 | 5.10 | 5.87 | 4.20 | 4.33 | 5.62 | 4.75 | 4.68 | 5. 16 |
| Stenographers | . 16 | . 07 | . 01 | . 15 | . 06 | . 01 | . 25 | . 19 | . 27 |
| Typists | 1.58 | 1.30 | 1.12 | 1.37 | 1.12 | - 90 | 1.05 | .86 | . 70 |
| otfice machine operators | 1.49 | 1.57 | 1.10 | 1.59 | 1.58 | - 99 | . 89 | 1.00 | . 72 |
| Bookkeeping and billing | .07 | . 04 | . 03 | . 13 | . 04 | . 01 | . 07 | . 05 | . 11 |
| Calculating | . 11 | . 07 | . 03 | . 10 | . 05 | . 01 | -03 | . 02 | . 03 |
| Computer and feripheral eguip | . 36 | . 75 | . 58 | - 36 | - 77 | . 62 | -29 | . 60 | -46 |
| Duplicating | . 06 | . 05 | . 06 | - 10 | . 09 | . 09 | . 04 | . 02 | . 00 |
| Keypunch | . 82 | . 62 | - 36 | . 82 | . 59 | . 26 | . 40 | . 28 | . 11 |
| Tabulating | . 03 | . 01 | . 00 | . 03 | . 01 | . 00 | . 01 | . 00 | . 00 |
| Other office machine operators | . 05 | . 04 | . 04 | . 06 | . 03 | . 00 | . 06 | . 03 | .00 |
| Other clerical workers | 11.83 | 11.31 | 11.70 | 12.36 | 11.42 | 10.90 | 9.46 | 9.21 | 9.64 |
| Billing clerks | . 32 | -31 | -28 | . 43 | . 48 | . 67 | . 54 | . 56 | . 66 |
| Bookkeepers | 2.07 | 1. 94 | 1.76 | 2.98 | 2.78 | 2.59 | 2.80 | 2.65 | 2.42 |
| Cashiers | . 09 | . 11 | . 17 | . 06 | . 04 | . 01 | . 05 | . 03 | .01 |
| Clerical supervisors, other | .41 | . 47 | . 55 | . 21 | - 24 | . 25 | . 28 | . 32 | . 32 |
| collectors, bill and account | . 02 | . 02 | . 03 | . 03 | . 02 | . 00 | . 01 | . 01 | . 00 |
| counter clerks,exc food | . 62 | . 63 | -73 | . 65 | . 59 | . 40 | . 16 | -20 | - 34 |
| Dispatchers,starters, vehicle | . 01 | . 02 | -02 | . 03 | . 03 | . 06 | . 05 | . 05 | -08 |
| Estimators, investigators, other | . 28 | . 32 | . 31 | . 27 | - 28 | . 18 | . 30 | . 38 | . 43 |
| Expediters, frcduction controlrs | . 61 | . 65 | . 85 | . 50 | . 47 | - 36 | . 52 | . 56 | . 72 |
| File clerks | . 45 | . 37 | -39 | . 22 | . 19 | . 20 | . 12 | . 11 | -14 |
| Library attendants, assistants | . 04 | . 04 | . 01 | . 07 | . 06 | . 01 | . 04 | . 03 | .01 |
| Mail handlers, exc post of fice | . 45 | . 40 | -31 | . 20 | - 19 | .21 | -24 | . 24 | -28 |
| Messengers and office helpers | . 12 | . 10 | . 04 | . 04 | . 04 | . 03 | . 04 | . 04 | .03 |
| Payroll, timekeeping clerks | . 38 | . 38 | . 25 | . 34 | -41 | . 53 | . 32 | . 34 | . 31 |
| Receptionists | . 34 | . 32 | . 31 | . 49 | . 41 | . 29 | . 28 | . 27 | . 28 |
| Shipping and receiving clerks | 2.13 | 1. 86 | 1.81 | 3.05 | 2.77 | 3.00 | 1.02 | -93 | 1.07 |
| Statistical clerks | . 48 | . 52 | -51 | . 41 | . 43 | . 40 | . 30 | . 33 | . 36 |
| Stock clerks and store keepers | 1.25 | 1. 11 | 1.20 | 1.05 | . 79 | - 39 | . 71 | - 66 | . 82 |
| Telephone operators | . 23 | . 13 | . 06 | . 21 | . 07 | .00 | . 31 | - 22 | . 22 |
| Weighers | . 23 | . 24 | . 33 | . 11 | . 11 | . 13 | . 55 | . 57 | . 69 |
| Misc clerical workers | 1.33 | 1.39 | 1.79 | 1.02 | 1.04 | 1.19 | . 83 | .71 | . 47 |
| Crafts and kindred workers | 9.86 | 9.97 | 9.76 | 9.23 | 9.95 | 11.92 | 16.82 | 17.62 | 20.58 |


|  | soaps and cosmetics |  |  |  |  |  | Agriculturl chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 1.56 | 1.45 | 1.55 | 1.70 | 1.71 | 2.08 | 3.80 | 3.67 | 4.61 |
| Carpenters and apprentices | . 23 | . 20 | . 11 | . 07 | . 04 | . 01 | . 48 | . 48 | -49 |
| Brick, stonemasons, apprentices | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| Bulldozer operators | . 27 | - 30 | . 64 | . 03 | . 03 | . 02 | . 88 | - 86 | 1.36 |
| Electricians and apprentices | . 57 | . 54 | -46 | . 28 | . 31 | . 41 | - 77 | -78 | . 86 |
| Excavating, grading mach operatr | . 02 | . 02 | -02 | . 05 | . 04 | . 02 | . 97 | . 90 | 1.21 |
| Floor layers, exc tile setters | .01 | - 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Painters and apprentices | .07 | . 06 | . 06 | . 99 | - 99 | 1.05 | . 16 | - 16 | . 17 |
| plumbers, pipefitters, aprentices | - 39 | . 32 | . 24 | . 25 | . 29 | . 55 | . 49 | -44 | -49 |
| structural metal craft workers | .01 | .01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Tile setters | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 3.69 | 3.62 | 2.75 | 4.26 | 4.56 | 4.89 | 5.68 | 6.34 | 7.72 |
| Metalworkg craft wrkrs, exc mech | 1.14 | 1. 14 | 1.35 | . 73 | . 78 | 1.07 | 1.13 | 1.26 | 1.86 |
| Boilermakers | . 04 | .03 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Job and die setters, metal | . 01 | . 01 | . 02 | . 05 | . 04 | . 02 | .01 | -01 | . 00 |
| Machinists and apprentices | . 80 | . 85 | 1.11 | . 29 | - 31 | - 39 | . 68 | . 78 | 1.24 |
| Millwrights | . 13 | . 12 | . 08 | . 27 | . 29 | . 34 | . 32 | . 36 | . 45 |
| Pattern and moldmakers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 07 | . 06 | . 06 | . 04 | . 06 | - 15 | . 09 | . 09 | . 15 |
| tool and diemakers, apprentices | . 08 | . 06 | . 06 | . 07 | . 08 | . 17 | . 01 | . 09 | . 01 |
| Mechanics, repairers,installers | 2.72 | 3. 11 | 3.58 | 1.67 | 2.00 | 2.71 | 4.34 | 4.69 | 4.46 |
| Air cond, heating, refrig mecn | . 02 | . 03 | . 02 | . 01 | . 02 | . 02 | . 08 | . 10 | . 10 |
| Auto mechanics and apprentices | . 09 | . 08 | . 06 | . 06 | . 04 | . 01 | . 37 | . 33 | - 28 |
| Data processing mach repairers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Parm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | . 02 | . 02 | . 02 |
| Heavy equip mech, incl diesel | 2.40 | 2.77 | 3.20 | 1.48 | 1.79 | 2.39 | 3.21 | 3.56 | 3.33 |
| Household appliance mechanics | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 05 | . 06 |
| Radio, television repairers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Hailroad, car shop repairers | . 00 | - 00 | . 00 | . 00 | . 00 | -00 | . 01 | . 01 | . 00 |
| Other mechanics and apprentices | . 18 | . 21 | . 27 | . 10 | - 14 | . 29 | . 57 | . 61 | . 65 |
| Printing trade crafts workers | . 22 | - 20 | . 11 | - 40 | -47 | . 66 | - 22 | . 22 | - 17 |
| Compositors and typesetters | . 14 | . 11 | . 05 | - 26 | - 28 | . 33 | - 20 | - 20 | .17 |
| Press, plate frinters, aprentices | . 08 | . 08 | .06 | . 14 | - 19 | . 34 | . 02 | . 01 | . 00 |
| Transport, public util craft wkrs | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 16 | $-10$ | . 01 |
| Elec pwr line instaler, repairer | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 06 | . 04 | . 00 |
| Locomotive engineers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Locomotive engineers* belpers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Power station operators | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 08 | . 05 | . 00 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | -01 |
| Other crafts, kindred workers | . 50 | . 43 | . 39 | . 47 | . 44 | - 51 | 1.49 | 1.35 | 1.75 |
| Crane, derrick, hoist operator | . 03 | . 02 | .00 | . 08 | . 07 | .16 | . 55 | . 44 | . 53 |
| Decorators, indow dressers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dental laboratory technicians | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purniture and wood finishers | . 00 | . 00 | . 00 | . 03 | . 02 | - 00 | . 00 | . 00 | . 00 |
| Glaziers | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 00 | . 00 | .00 |
| Inspectors, other | . 03 | . 03 | -01 | . 02 | . 02 | . 02 | . 10 | . 09 | . 04 |
| Jewelers and watchmakers | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | . 00 | .00 | . 00 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 39 | . 33 | - 32 | . 25 | - 22 | . 23 | . 72 | . 69 | . 99 |
| other crafts workers | . 03 | . 03 | . 05 | . 03 | . 03 | . 05 | . 12 | . 13 | - 18 |
| Operatives | 33.69 | 32. 94 | 32.55 | 31.93 | 31.56 | 31.37 | 27.52 | 26.12 | 23.07 |
| Operatives, except transport | 30.88 | 30.25 | 30.44 | 28.20 | 27.51 | 25.41 | 19.07 | 18.06 | 14.51 |
| Semiskilled metalworking | -51 | . 47 | -45 | . 44 | - 39 | . 45 | 1.37 | 1.35 | 1.49 |
| Furnace tendrs, smeltrs, pourers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 06 | . 06 | . 09 |
| Grinding machine operatives | . 01 | . 01 | -01 | -08 | . 07 | . 09 | . 03 | . 02 | .03 |
| Lathe,milling mach operatives | . 07 | . 05 | . 04 | . 09 | . 05 | . 03 | . 05 | . 03 | .03 |
| Metal platers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other precisicn mach operators | . 04 | . 04 | . 05 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Punch, stamping press operatives | . 08 | . 06 | . 05 | . 09 | . 06 | . 02 | . 06 | . 05 | . 07 |
| Solderers | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 29 | . 29 | . 28 | . 17 | - 20 | . 31 | 1.17 | 1.18 | 1.28 |
| Semiskilled packing, inspectiny | 12.03 | 10.98 | 10.96 | 3.22 | 3. 12 | 3.59 | 1.83 | 1.69 | 1.58 |
| checkers, exaniners, mfy | 2.22 | 2. 15 | 2.33 | 1.05 | 1.10 | 1.40 | . 51 | . 52 | - 58 |
| Graders and scrters, mig | . 06 | . 04 | . 00 | . 05 | . 05 | . 07 | . 04 | . 04 | . 03 |
| Packer,wrapfer, exc meat, prodce | 9.75 | 8.79 | 8.64 | 2.12 | 1.97 | 2.13 | 1.28 | 1.14 | . 98 |


|  | Soaps and cosmetics |  |  | ```Paints and varnishes``` |  |  | Agriculturl chemicals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 18.33 | 18.81 | 19.03 | 24.55 | 24.00 | 21.37 | 15.87 | 15.02 | 11.44 |
| Asbestos, insulation workers | . 02 | . 02 | . 00 | . 01 | . 01 | . 00 | . 06 | . 06 | . 00 |
| Assemblers | 5.22 | 5.62 | 6.93 | . 79 | . 86 | 1.05 | . 25 | . 26 | . 24 |
| Blasters | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 00 |
| Bottling, canning operatives | . 69 | . 66 | . 59 | 1.10 | 1.08 | 1.02 | . 08 | . 10 | . 18 |
| Cutting operatives, other | . 16 | . 15 | . 11 | . 12 | . 12 | . 11 | . 06 | . 07 | . 08 |
| Drillers, earth | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | .01 |
| Dyers | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | . 12 | - 10 | . 05 | . 11 | . 08 | . 03 | .03 | . 03 | . 05 |
| Garage wrkr,gas station atten | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Laundry,dry cleang oprs,otier | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | - 00 | . 00 | . 00 |
| Meat cutters and butchers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 03 | . 00 |
| Mixing operatives | 2.23 | 2.22 | 2.26 | 10.04 | 10.04 | 10.28 | 3.48 | 3.44 | 3.39 |
| Oilers,greasers,exc automobiles | . 09 | . 07 | . 00 | . 06 | . 05 | . 02 | . 24 | . 21 | . 16 |
| Painters, mifg articles | . 21 | . 18 | . 23 | 1.63 | 1.30 | 1.00 | . 22 | . 18 | - 20 |
| Photographic frocess workers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Riveters and fasteners | . 03 | . 04 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Severs and stitchers | .11 | . 08 | . 06 | . 07 | . 08 | . 16 | . 73 | . 62 | . 73 |
| Purnace tendr,stokr,exc metal | - 22 | - 12 | . 04 | . 26 | . 16 | . 10 | . 42 | . 29 | . 31 |
| Winding operatives, other | . 02 | . 03 | . 08 | . 03 | . 02 | . 00 | . 03 | . 02 | . 00 |
| Miscellaneous machine operatves | 5.67 | 5.68 | 4.97 | 7.95 | 7.78 | 5.95 | 7.33 | 6.97 | 4.74 |
| Other operatives, exc transport | 3.46 | 3.78 | 3.61 | 2.36 | 2.40 | 1.65 | 2.82 | 2.68 | 1.34 |
| Transport equipment operatives | 2.81 | 2.69 | 2.11 | 3.73 | 4.05 | 5.97 | 8.46 | 8.06 | 8.56 |
| Delivery and route morkers | . 23 | . 18 | .13 | . 52 | . 53 | . 87 | 1.09 | . 86 | . 62 |
| Fork lift, tow motor operatives | 1.62 | 1.72 | 1.41 | 1.50 | 1.62 | 1.44 | 1.81 | 1.84 | 1.27 |
| Rail vehicle cperators, other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Parking attendants | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | . 00 |
| Bailroad switch operators | . 04 | . 04 | . 08 | . 00 | . 00 | - 00 | .00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 08 | . 05 | . 00 | . 07 | . 07 | . 04 | . 00 | . 00 | .00 |
| Truck drivers | . 84 | . 70 | . 48 | 1.64 | 1.84 | 3.62 | 5.53 | 5.33 | 6.66 |
| Service workers | 2.77 | 2.60 | 2.31 | 2.18 | 1.79 | . 94 | 2.84 | 2.64 | 2.32 |
| Cleaning service workers | 1.75 | 1.60 | 1.34 | 1.53 | 1. 24 | . 58 | 2.00 | 1.83 | 1.58 |
| bldg interior cleaners, other | . 36 | -38 | .41 | . 22 | . 19 | . 08 | . 25 | . 27 | . 28 |
| Janitors and sextons | 1.39 | 1.22 | . 93 | 1.31 | 1.05 | . 50 | 1.75 | 1.57 | 1.30 |
| Food service warkers | . 18 | - 13 | . 08 | . 15 | - 13 | . 09 | . 08 | . 08 | . 08 |
| Cooks, exc private households | . 05 | - 03 | . 01 | . 05 | . 03 | . 01 | . 02 | . 02 | . 01 |
| Dishwashers | .01 | . 01 | .01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Food counter, fountain workers | . 04 | - 04 | .01 | . 05 | . 05 | . 06 | . 02 | . 02 | .01 |
| Waiters | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other food serv wkrs,exc privt | . 04 | . 04 | . 05 | . 05 | . 03 | . 01 | . 03 | . 03 | . 05 |
| Health service workers | . 01 | . 00 | . 00 | . 01 | . 01 | . 04 | . 02 | . 02 | . 04 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | .01 | . 01 | . 04 | . 02 | . 02 | .04 |
| Fersonal service yorkers | - 30 | - 36 | . 38 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Attendants, fersonal serv,other | . 04 | . 04 | . 07 | . 00 | .00 | . 00 | .00 | .00 | . 00 |
| Elevator operators | . 03 | . 02 | . 02 | . 01 | .01 | .01 | . 01 | . 01 | . 01 |
| Hairdressers and cosmetologists | . 23 | . 29 | . 29 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Protective service workers | . 53 | -52 | -51 | . 48 | . 41 | - 22 | . 73 | . 70 | . 62 |
| Guards | . 53 | - 52 | . 51 | . 48 | .41 | . 22 | .73 | .70 | .62 |
| Laborers, except farm | 4.62 | 4.43 | 4.14 | 3.76 | 3.38 | 2.43 | 8.18 | 7.55 | 6.52 |
| Animal caretakers, exc farm | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Carpenter helfers | . 03 | . 02 | .01 | . 00 | . 00 | . 00 | . 06 | . 02 | . 01 |
| Constr labr, exc carpenter helpr | . 04 | . 04 | . 06 | . 14 | . 10 | . 04 | . 42 | . 39 | . 45 |
| Freight and material handlers | 2.41 | 2.24 | 2.06 | 1.19 | 1.15 | 1.22 | 4.67 | 4.29 | 3.75 |
| Gardenrs, groundkeepers, exc farm | . 03 | . 04 | . 06 | . 03 | . 03 | . 03 | . 11 | . 12 | . 17 |
| Stock handlers | . 96 | -99 | . 81 | 1.25 | 1.15 | - 58 | 1.58 | 1.60 | 1. 17 |
| Vehicle washers, equip cleaners | . 31 | . 32 | . 30 | . 33 | - 27 | . 09 | .11 | . 12 | . 18 |
| Warehouse labcrers, other | . 59 | . 55 | . 57 | . 60 | . 51 | . 37 | .73 | . 68 | . 69 |
| Other laborers | . 23 | . 21 | . 25 | . 22 | . 17 | . 10 | .51 | .33 | .11 |

Misc
chemicals

197019781990
10

| 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: |
| 14.63 | 14.92 | 13.84 |
| 3.26 | 3.00 | 2.54 |
| . 03 | . 02 | . 00 |
| 1.04 | 1.58 | 1.43 |
| .07 | . 05 | . 05 |
| . 16 | . 15 | . 12 |
| . 53 | - 52 | . 39 |
| . 40 | - 34 | . 29 |
| . 01 | . 01 | . 00 |
| . 01 | . 01 | . 00 |
| - 20 | . 15 | . 12 |
| . 22 | - 18 | . 14 |
| 2.68 | 2.64 | 2.32 |
| . 01 | . 01 | .00 |
| . 03 | . 05 | . 05 |
| 2.62 | 2.56 | 2.25 |
| . 00 | . 00 | . 00 |
| . 03 | . 03 | . 02 |
| . 00 | . 00 | . 00 |
| . 05 | . 05 | . 06 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 01 |
| . 03 | . 03 | . 05 |
| 5.53 | 5.78 | 6.14 |
| . 01 | . 01 | . 01 |
| 4.06 | 4.29 | 4.54 |
| . 35 | -29 | - 31 |
| - 12 | . 14 | . 21 |
| . 16 | - 21 | . 24 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 84 | . 84 | . 84 |
| . 11 | . 06 | . 01 |
| .01 | . 00 | .00 |
| .10 | . 06 | .01 |
| . 04 | . 05 | . 08 |
| . 03 | . 05 | . 07 |
| . 01 | . 01 | . 01 |
| . 08 | . 11 | . 12 |
| . 02 | . 02 | . 02 |
| . 03 | . 03 | . 02 |
| . 01 | . 01 | . 01 |
| . 02 | . 04 | . 07 |
| . 24 | . 29 | . 26 |
| . 15 | -17 | - 16 |
| . 06 | . 08 | . 09 |
| . 02 | . 04 | . 02 |
| .17 | - 28 | . 28 |
| .17 | - 28 | . 28 |
| . 00 | - 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 03 | . 03 | . 02 |
| . 03 | . 03 | . 02 |
| . 27 | . 34 | . 35 |
| . 00 | . 00 | . 00 |
| . 05 | . 07 | -08 |
| . 03 | . 02 | . 01 |
| . 04 | . 07 | .11 |
| . 03 | . 02 | . 01 |
| . 07 | . 09 | . 08 |
| . 04 | . 06 | . 07 |

Petroleum
and coal
products
197019781990
petroleum refining

19701978 1990

| Professional and technical |  |
| :---: | :---: |
| Engineers, technical |  |
| aeronautical |  |
| Chemical |  |
| Civil |  |
| Electrical |  |
| Industrial |  |
| Mechanical |  |
| Metaliurgical |  |
| Petroleur |  |
| Sales |  |
| other engineers |  |
| Life and physical scientists Agricultural Biological Chemists Geologists Physicists and astronomers Other life,physical scientists |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| ```Mathematical sfecialists Actuaries Mathematicians Statisticians``` |  |
|  |  |
|  |  |
|  |  |
| Engineering, science tecanicians Agricultural, biolycl, exc health |  |
|  |  |
| Chemical technicians |  |
| Drafters |  |
| Electrical and electronic <br> Industrial engineering <br> Mechanical engineering <br> surveyors <br> Other engineering, science tech |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Medical workers,exc technicians Physicians and osteopaths Registered nurses |  |
|  |  |
|  |  |
| Health technolcgists,technicians Clinical lab technologists,tech other health technicians |  |
|  |  |
|  |  |
| ```Technicians, except health Airplane pilots Badio operators Tool programers,numerical Other technicians except health``` |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Computer specialists |  |
| Computer programers Computer systems analysts other computer specialists |  |
|  |  |
|  |  |
| social scientists |  |
| Economists |  |
| Psychologists |  |
| Orban and regional planners |  |
| Teachers |  |
| Adult education |  |
| Writers, artists, entertainers |  |
| Authors |  |
| Designers |  |
| Editors and reforters |  |
| Painters and sculptors |  |
| Photographers |  |
| Public relaticns specialists |  |
|  | Other writers,artists, entertain |

$100.00 \quad 100.00 \quad 100.00$ 20.36
20.67
18.26

| 5. 17 | 4.73 | 4.52 | 5.90 | 5.49 | 5.81 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| 2.50 | 2.40 | 2. 22 | 3.00 | 2.95 | 3. 15 |
| . 38 | . 27 | . 20 | . 44 | . 32 | - 30 |
| . 27 | - 24 | . 22 | - 31 | .27 | . 22 |
| . 36 | . 36 | . 35 | . 31 | . 30 | .31 |
| . 69 | . 62 | . 64 | . 77 | . 69 | . 72 |
| . 05 | . 05 | . 05 | . 04 | .05 | . 08 |
| . 55 | - 49 | . 52 | . 67 | . 61 | . 77 |
| . 11 | . 08 | . 08 | . 08 | . 06 | . 04 |
| .26 | - 22 | . 23 | . 28 | .24 | .23 |
| 2.20 | 2. 05 | 1.96 | 2.34 | 2.20 | 2.33 |
| . 01 | .01 | . 00 | . 01 | .01 | . 00 |
| . 01 | . 01 | . 01 | . 01 | . 02 | . 01 |
| 1.66 | 1.60 | 1.50 | 1.69 | 1.64 | 1.67 |
| . 44 | - 36 | . 41 | . 53 | . 44 | - 58 |
| . 05 | . 05 | .03 | . 06 | . 06 | . 05 |
| . 02 | . 02 | .01 | . 03 | . 03 | . 02 |
| . 10 | . 10 | . 07 | . 13 | . 13 | . 10 |
| . 00 | -01 | . 01 | .01 | . 01 | .01 |
| . 04 | . 04 | . 03 | . 05 | . 06 | . 05 |
| .06 | . 05 | .03 | . 07 | .06 | . 04 |
| 5.62 | 5.44 | 5.31 | 6.36 | 6.23 | 6.76 |
| . 01 | . 01 | . 00 | . 01 | . 07 | . 01 |
| 4.04 | 3.99 | 4.03 | 4.59 | 4.59 | 5. 21 |
| -57 | . 47 | . 47 | . 65 | . 54 | . 60 |
| . 12 | - 11 | . 05 | -13 | . 12 | . 07 |
| . 08 | - 10 | - 10 | . 05 | . 06 | . 05 |
| . 02 | . 02 | . 01 | . 02 | . 03 | . 02 |
| . 05 | . 05 | .07 | . 06 | . 06 | . 10 |
| . 74 | .70 | . 57 | . 85 | . 82 | .71 |
| . 11 | . 09 | . 04 | - 13 | . 10 | . 06 |
| . 01 | .01 | . 00 | . 02 | .01 | . 00 |
| - 10 | . 08 | . 04 | . 11 | . 09 | .06 |
| . 04 | .05 | . 02 | . 04 | .05 | .02 |
| .01 | . 01 | .01 | . 01 | . 01 | .01 |
| . 02 | . 03 | . 01 | . 03 | . 04 | . 02 |
| . 12 | . 16 | . 16 | . 15 | . 19 | .23 |
| . 05 | . 06 | . 06 | . 06 | . 08 | . 09 |
| . 02 | . 02 | .01 | . 02 | . 02 | . 02 |
| .01 | . 01 | . 01 | .01 | . 01 | .01 |
| . 05 | . 07 | . 08 | . 06 | . 08 | . 12 |
| 1.16 | 1.38 | 1.29 | 1.39 | 1. 69 | 1. 80 |
| . 67 | . 72 | . 70 | . 81 | -89 | .98 |
| . 44 | . 58 | - 55 | - 52 | . 71 | . 77 |
| . 05 | . 08 | . 04 | . 05 | .09 | . 05 |
| . 68 | -93 | . 63 | -80 | 1.12 | . 77 |
| -66 | . 91 | . 61 | . 78 | 1.09 | . 75 |
| . 00 | . 01 | .01 | . 01 | . 02 | . 02 |
| .01 | - 01 | . 00 | . 02 | . 01 | . 00 |
| . 02 | . 02 | . 01 | . 02 | .02 | . 01 |
| . 02 | . 02 | . 01 | . 02 | . 02 | . 01 |
| . 46 | . 52 | . 46 | . 51 | -58 | . 54 |
| . 01 | -01 | . 00 | .01 | . 01 | . 00 |
| . 10 | 11 | - 10 | . 10 | . 13 | . 14 |
| . 06 | . 06 | . 05 | . 08 | . 08 | . 07 |
| . 04 | . 03 | . 00 | . 05 | . 04 | . 00 |
| . 04 | . 04 | . 05 | . 05 | . 05 | . 07 |
| -17 | - 22 | . 23 | .18 | . 22 | . 21 |
| . 04 | . 05 | . 04 | . 05 | . 06 | . 05 |


|  | ```Misc chemicals``` |  |  | Petroleum and coal products |  |  | Petroleum refining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 2.18 | 2. 29 | 1.65 | 4.69 | 5.21 | 3.82 | 5.30 | 5.98 | 4.72 |
| Accountants | 1.03 | 1. 13 | . 96 | 2.73 | 2.96 | 2.43 | 3.03 | 3.33 | 2.95 |
| Home management advisors | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | . 09 | . 09 | . 00 | .43 | . 74 | . 48 | . 52 | . 92 | . 65 |
| Librarians | . 04 | . 05 | . 07 | . 06 | . 04 | . 01 | . 07 | . 05 | . 01 |
| Operations and systems research | . 20 | . 25 | . 15 | . 38 | - 50 | . 38 | . 43 | . 57 | . 46 |
| Personnel, labcr relations wiss | - 44 | . 45 | . 27 | . 69 | . 69 | . 43 | . 80 | . 82 | - 56 |
| other research workers | . 36 | . 29 | . 16 | . 40 | . 28 | - 10 | . 44 | - 30 | . 09 |
| Recreation workers | . 01 | . 02 | . 03 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 8.89 | 10.42 | 10.68 | 7.53 | 8.50 | 9.62 | 6.65 | 7.27 | 7.15 |
| Buyers, sales,lcan managers | 1.71 | 1.74 | 2.12 | 1.60 | 1.38 | 1.24 | 1.50 | 1.28 | 1.08 |
| Sank, financial managers | . 14 | . 15 | . 17 | . 19 | . 17 | - 10 | .21 | . 19 | - 12 |
| Credit managers | . 08 | . 05 | . 04 | . 21 | . 11 | . 08 | - 20 | - 10 | . 06 |
| Purchasing agents, buyers, other | . 53 | . 51 | . 71 | . 65 | . 53 | . 38 | . 64 | . 51 | . 38 |
| Sales manager, exc retail trade | - 96 | 1.03 | 1.19 | . 56 | . 58 | . 68 | . 46 | -47 | - 52 |
| Other managers, officials, proprts | 7.18 | 8.68 | 8.57 | 5.93 | 7. 12 | 8.38 | 5.15 | 6.00 | 6.07 |
| Mgrs, superintendents, building | . 03 | . 05 | . 10 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| office managers, other | . 46 | - 51 | . 62 | . 39 | - 39 | . 46 | . 27 | . 26 | . 25 |
| officers, pilots, pursers,shlp | . 01 | . 01 | . 00 | . 05 | . 05 | . 04 | . 06 | . 05 | . 06 |
| Restaurant, cafe,bar,managers | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 6.67 | 8.10 | 7.84 | 5.47 | 6.66 | 7.86 | 4.79 | 5.65 | 5.74 |
| Sales workers | 4.10 | 4.21 | 4.66 | 2.01 | 1.95 | 2.27 | 1.45 | 1.31 | 1.03 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 |
| other sales workers | 4.10 | 4.21 | 4.66 | 1.99 | 1.93 | 2.27 | 1.44 | 1.29 | 1.02 |
| Clerical workers | 13.95 | 13.52 | 14.36 | 17.77 | 16.82 | 15.08 | 18.09 | 17.22 | 15.39 |
| Stenographrs,typists, secretaries | 5.35 | 5.07 | 5.38 | 5.85 | 5.38 | 5.56 | 5.84 | 5.33 | 5.45 |
| Legal secretaries | . 02 | . 02 | . 04 | . 10 | . 08 | . 08 | . 13 | . 11 | . 12 |
| Medical secretaries | . 02 | . 01 | . 00 | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Other secretaries | 3.97 | 4.01 | 4.52 | 4.35 | 4.26 | 4.71 | 4.27 | 4.17 | 4.54 |
| Stenographers | .17 | . 09 | . 04 | . 39 | . 20 | . 05 | . 44 | -23 | . 07 |
| typists | 1.17 | - 94 | . 78 | 1.01 | . 83 | . 72 | 1.00 | . 83 | . 72 |
| office machine operators | . 67 | . 77 | .73 | 1.98 | 2.17 | 1.31 | 2.24 | 2.52 | 1.67 |
| Bookkeeping and billing | . 04 | . 03 | . 06 | . 11 | . 05 | . 03 | - 12 | . 06 | . 04 |
| Calculating | . 05 | . 04 | . 07 | . 17 | . 09 | . 03 | . 19 | . 11 | . 04 |
| Computer and keripheral eyuip | - 19 | . 37 | . 32 | -60 | 1.25 | . 90 | .71 | 1.49 | 1.16 |
| Duplicating | .03 | . 04 | . 07 | . 04 | . 02 | . 00 | . 04 | . 02 | . 00 |
| Keypunch | . 28 | . 23 | . 16 | . 94 | . 67 | . 30 | 1.02 | .73 | - 35 |
| Tabulating | . 02 | . 01 | . 00 | -03 | . 01 | -00 | . 04 | . 01 | . 00 |
| other office rachine operators | . 05 | . 05 | . 06 | . 09 | . 09 | . 06 | . 12 | . 11 | . 08 |

Table 1. Percent distribution of industry employment by cocupation, 1970, 1978 and projected 1990


| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 199 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7.93 | 7.68 | 8.24 | 9.94 | 9.28 | 8.22 | 10.01 | 9.37 | 8.27 |
| . 26 | . 30 | . 45 | . 27 | . 28 | . 36 | . 23 | . 24 | . 29 |
| 1.35 | 1.28 | 1.16 | 2.06 | 1.96 | 1.90 | 2.05 | 1.94 | 1.88 |
| . 02 | . 02 | . 00 | . 08 | . 08 | . 06 | . 10 | . 10 | . 08 |
| . 20 | . 24 | .25 | .38 | . 41 | . 36 | .43 | . 46 | . 3 |
| . 02 | .01 | . 00 | . 07 | . 05 | . 00 | . 07 | . 05 | . |
| . 22 | . 25 | . 33 | .24 | .23 | .23 | . 17 | . 16 | - |
| . 04 | . 05 | .09 | . 16 | - 16 | . 18 | .13 | . 13 | . 1 |
| . 18 | . 22 | . 21 | . 41 | . 43 | . 23 | .46 | - 50 |  |
| . 42 | . 45 | . 65 | . 69 | - 65 | . 51 | . 69 | . 65 | - |
| . 19 | . 15 | .13 | . 39 | . 30 | . 23 | . 42 | . 33 | . 26 |
| . 00 | . 00 | .00 | . 04 | . 04 | .01 | . 05 | . 05 | . 01 |
| . 13 | . 13 | . 15 | .36 | - 32 | .23 | . 39 | . 35 | . 27 |
| . 02 | .01 | .01 | . 05 | . 05 | . 05 | . 06 | . 06 | .07 |
| . 43 | . 42 | . 28 | . 42 | . 44 | . 37 | . 38 | . 39 | . 32 |
| . 00 | .00 | . 00 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| . 29 | . 28 | . 29 | . 23 | . 18 | . 08 | . 25 | . 20 | 1 |
| 1.52 | 1.33 | 1.13 | . 63 | . 61 | .81 | -42 | . 41 | . 5 |
| . 21 | . 24 | . 29 | . 54 | . 53 | . 36 | . 61 | . 60 | . 4 |
| . 85 | . 78 | . 98 | . 61 | . 44 | . 19 | . 58 | .43 | 2 |
| . 32 | . 18 | . 09 | . 24 | . 15 | . 11 | . 25 | . 15 | . 08 |
| . 57 | . 62 | . 83 | . 05 | . 05 | .03 | . 04 | . 04 | . 03 |
| . 70 | . 75 | . 94 | 2.00 | 1.93 | 1.92 | 2.20 | 2.13 | 2.22 |
| 15.47 | 14.64 | 12.63 | 20.24 | 20.27 | 21.78 | 21.31 | 21.33 | 23.69 |
| 2.65 | 2.24 | 1.83 | 4.88 | 4.53 | 4.59 | 5.36 | 5.03 | 5. 54 |
| . 54 | . 40 | . 12 | . 74 | . 70 | . 58 | . 82 | . 78 | . 59 |
| . 06 | . 06 | . 07 | . 08 | . 06 | . 02 | . 08 | . 06 | . 03 |
| . 13 | .14 | . 29 | . 10 | . 08 | . 14 | . 06 | . 04 | . 01 |
| . 01 | . 01 | . 00 | . 02 | . 03 | . 06 | . 03 | . 04 | . 0 |
| . 81 | . 72 | . 55 | 1.05 | 1.03 | . 97 | 1.13 | 1.14 | 1.22 |
| . 10 | . 08 | . 09 | . 24 | . 20 | . 20 | . 11 | . 09 | . 07 |
| . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 18 | - 19 | . 28 | . 23 | . 19 | . 10 | . 25 | . 21 | . 12 |
| . 78 | . 62 | . 43 | 2.35 | 2.18 | 2.48 | 2.81 | 2.66 | 3.40 |
| . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 0 |
| . 02 | .01 | .01 | . 05 | . 02 | . 00 | . 06 | .03 | . 00 |
| . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| 5.63 | 5.55 | 4.36 | 5.44 | 5.89 | 6.68 | 5.36 | 5.77 | 6.46 |
| 1.69 | 1. 51 | 1.22 | 2.33 | 2.39 | 3.00 | 2.40 | 2.49 | 3.38 |
| .01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 01 | .01 | . 0 |
| . 11 | - 10 | .09 | . 68 | . 60 | . 53 | . 83 | .75 | - |
| .05 | - 04 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| .03 | . 03 | . 04 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| . 90 | . 77 | . 44 | 1.30 | 1.43 | 1.95 | 1.35 | 1.52 | 2.33 |
| . 35 | .39 | . 45 | . 20 | . 22 | . 27 | . 09 | . 09 | . 09 |
| . 11 | . 09 | . 09 | . 07 | . 07 | . 15 | . 07 | . 06 | . 08 |
| . 12 | . 10 | . 10 | . 06 | . 06 | . 10 | . 04 | . 05 | - |
| 3.81 | 4. 19 | 4.68 | 4.22 | 4.71 | 5.50 | 4.31 | 4.80 | 5.74 |
| . 12 | . 14 | . 14 | . 17 | . 24 | . 29 | . 19 | . 27 | . 3 |
| .01 | . 01 | . 01 | . 01 | . 01 | .01 | .01 | .01 | . 01 |
| . 01 | . 01 | .01 | .00 | . 00 | . 00 | . 00 | . 00 | . 0 |
| . 31 | . 28 | . 27 | . 47 | - 46 | . 57 | . 47 | . 45 | - 5 |
| . 00 | . 00 | .00 | . 01 | . 01 | . 02 | . 01 | . 01 | - |
| . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| 2.87 | 3.26 | 3.05 | 2.26 | 2.66 | 3.39 | 2.09 | 2.45 | 3.11 |
| . 02 | . 03 | . 04 | . 08 | . 08 | . 05 | . 08 | . 08 | . 06 |
| . 01 | . 01 | . 01 | . 02 | . 02 | . 05 | . 02 | . 02 | . 07 |
| . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 03 | . 02 | . 02 |
| .02 | . 02 | .03 | . 02 | . 02 | . 03 | . 02 | . 02 | . 04 |
| . 45 | . 45 | . 52 | 1.15 | 1.18 | 1.07 | 1.39 | 1.46 | 1.51 |
| . 25 | .21 | . 07 | . 12 | . 13 | .11 | .13 | -14 | - 16 |
| .12 | .09 | . 00 | . 06 | . 06 | . 06 | . 06 | . 06 | - 0 |
| . 05 | . 04 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| . 08 | . 09 | .07 | . 05 | . 06 | . 06 | . 07 | . 07 | . 08 |
| . 14 | . 11 | . 04 , | . 11 | . 10 | . 05 | . 14 | . 13 | . 08 |
| .01 | . 01 | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| . 03 | . 04 | . 02 | . 01 | . 01 | . 01 | .01 | . 02 | . 0 |
| . 08 | . 05 | . 00 | . 08 | . 07 | . 04 | . 09 | . 09 | . 0 |
| . 01 | . 01 | . 01 | . 02 | . 01 | . 00 | .02 | . 01 | . 00 |

Petroleum
and coal
products

Petroleum refining

90

Other clerical workers
Billing clerks
Bookkeepers
Cashiers
Clerical superviscrs, other
collectors, bili and account
Counter clerks,exc food
Dispatchers,starters, vebicle
estimators, investigators,other
Expediters, prcduction controlrs File clerks
Library attendants, assistants
Mail handlers, exc post office
Messengers and office helpers
Payroll,timekeeping clerks
Beal estate affraisers
Receptionists
shipping and receiving clerks
Statistical clerks
Stock clerks and store keepers Telephone operators
weighers
Misc clerical workers
Crafts and kindred workers
Construction crafts workers
Carpenters and apprentices
Brick,stonemasons, apprentices
Bulldozer oferators
cement and concrete finishers
Electricians and apprentices
Excavating.grading mach operatr
Floor layers, exc tile setters painters and apprentices
plumbers, pipefitters, aprentices Roofers and slaters
Structural metal craft workers Tile setters

Blue collar worker sugervisors
Metalworkg craft wrkrs,exc meca Blacksmiths
Boilermakers
Heat treaters, annealers
Job and die setters, metal
Machinists and apprentices
Millwrights
sheetmetal workers, apprentices
rool and diemakers, apprentices
Mechanics, repairers,installers
air cond, heating, refrig mech
Aircraft mechanics
Auto Lody refairers
auto mechanics and apprentices
Data processing mach repairers
Farm implement mechanics
Heavy equip mech, incl diesel
Household afpliance mechanics
office machine repairers
Radio, television repairers
Railroad, car shop repairers
other mechanics and apprentices
Printing trade crafts workers
Compositars and typesetters
photoengravers, lithographers
Press,plate frinters,aprentices
Transport, public util craft wiss slec pur line instaler, repairer Locomotive enginetrs
power station operators Telephone installers,repairers

|  | $\begin{aligned} & \text { Misc } \\ & \text { chemicals } \end{aligned}$ |  |  | Petroleum and coal products |  |  | Petroleum refining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.31 | . 83 | . 44 | 3.13 | 2.53 | 1.84 | 3.61 | 2.98 | 2.35 |
| Bakers | .02 | . 02 | . 00 | . 01 | . 01 | . 00 | . 07 | . 01 | . 00 |
| Cabinetmakers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| crane,derrick, hoist operator | . 33 | . 22 | . 15 | . 48 | - 40 | . 57 | .47 | . 39 | . 56 |
| Inspectors, other | . 12 | . 11 | . 07 | . 15 | . 16 | .15 | . 18 | . 20 | . 21 |
| Sign painters and letterers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Stationary engineers | .71 | . 35 | . 03 | 2.17 | 1.71 | 1.01 | 2.55 | 2.05 | 1.40 |
| other crafts workers | . 10 | . 11 | . 19 | . 32 | . 26 | . 12 | . 39 | . 33 | . 17 |
| Operatives | 34.13 | 33.90 | 34.88 | 25.74 | 26. 17 | 28.27 | 23.82 | 24.21 | 25.75 |
| Operatives, exceft transport | 29.03 | 29.53 | 30.57 | 21.03 | 21.49 | 21.87 | 20.31 | 21.04 | 22.65 |
| Semiskillea metalworking | 1.40 | 1.35 | 1.49 | 1.55 | 1.52 | 1.66 | 1.67 | 1.64 | 1.85 |
| Drill press oferatives | . 06 | . 05 | . 06 | . 04 | . 02 | .01 | . 04 | . 03 | . 01 |
| Furnace tendrs, smeltrs, pourers | . 06 | . 07 | . 09 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine operatives | .04 | . 04 | . 07 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Lathe,milling mach operatives | . 15 | . 11 | . 12 | . 09 | . 06 | . 04 | . 09 | . 06 | . 05 |
| Metal platers | . 08 | . 09 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other precisicn mach operators | . 06 | . 05 | . 07 | . 02 | . 01 | . 00 | . 02 | .01 | . 00 |
| Punch,stamping press operatives | . 11 | . 11 | . 17 | .03 | . 02 | .01 | . 02 | . 02 | .01 |
| Solderers | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Welders and flamecutters | .80 | . 80 | . 83 | 1.36 | 1.40 | 1.60 | 1.49 | 1.52 | 1.78 |
| Semiskilled textile operatives | .09 | . 10 | - 18 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Spinners, twisters, winders | .03 | . 04 | -08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other textile operatives | . 05 | . 06 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Semiskilled packing, inspecting | 4.06 | 3.88 | 2.84 | 2.01 | 2. 13 | 3.02 | 1.76 | 1.90 | 2.75 |
| Checkers, examiners, mig | 2.11 | 1. 93 | 1.95 | 1.38 | 1.46 | 1.85 | 1.46 | 1.59 | 2.31 |
| Graders and scrters, mfg | . 06 | . 05 | . 00 | . 03 | . 04 | . 06 | . 02 | . 02 | .03 |
| Packer,wrapper, exc meat, prodce | 2.49 | 1.90 | . 89 | . 60 | . 64 | 1.11 | . 28 | . 29 | .41 |
| Other operatives, exc transport | 23.49 | 24. 20 | 26.07 | 17.47 | 17.85 | 17.20 | 16.88 | 17.49 | 18.05 |
| Asbestos, insulation workers | . 11 | . 15 | . 11 | . 44 | . 56 | . 37 | . 52 | . 68 | .46 |
| Assemblers | 2.51 | 2.71 | 3.57 | . 23 | . 31 | . 67 | . 13 | . 18 | . 38 |
| Blasters | . 32 | . 26 | -15 | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 |
| Bottling, canning operatives | . 24 | . 27 | . 37 | .13 | . 13 | . 13 | . 10 | .09 | . 07 |
| Surveyors' helpers | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | .00 | . 00 |
| Cutting operatives, otaer | .31 | . 34 | . 48 | . 21 | . 21 | . 20 | . 09 | . 09 | .07 |
| Drillers, earth | .04 | . 03 | .01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Dry wall installers, lathers | .01 | .01 | . 01 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| Dyers | .01 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | .00 |
| Filer, polisher, sander, buffer | . 06 | . 06 | . 09 | . 03 | . 02 | . 01 | . 01 | .01 | . 00 |
| Garage wrkr,gas station atten | . 03 | . 02 | . 02 | . 06 | . 04 | . 02 | . 06 | . 04 | . 02 |
| Laundry,dry cleang oprs,other | . 06 | . 06 | . 07 | . 00 | . 00 | .00 | .00 | .00 | . 00 |
| Meat cutters and butchers | . 19 | . 19 | . 29 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Mixing oferatives | 2.97 | 3.12 | 3.67 | 1.02 | 1.01 | . 97 | . 56 | . 55 | . 55 |
| Oilcrs,greasers, exc automobiles | - 10 | . 07 | . 01 | . 23 | . 20 | . 22 | .19 | . 14 | . 05 |
| Painters, mfg articles | . 39 | . 36 | . 55 | . 41 | . 32 | . 25 | . 40 | .31 | . 23 |
| Photographic process workers | . 04 | . 04 | . 02 | . 05 | . 05 | . 05 | . 06 | .06 | . 07 |
| Riveters and fasteners | . 04 | . 05 | . 10 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 |
| Sailors and deckhands | . 01 | . 01 | . 01 | . 14 | . 09 | . 05 | . 17 | .11 | . 07 |
| Sawyers | - 12 | . 12 | . 08 | . 02 | .03 | . 10 | .00 | . 00 | . 00 |
| Sewers and stitchers | . 21 | - 17 | . 18 | . 02 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | . 85 | . 46 | . 16 | . 92 | . 63 | . 63 | . 87 | . 59 | . 59 |
| Hinding operatives, other | .12 | . 13 | . 20 | . 07 | . 07 | . 08 | . 01 | . 01 | . 00 |
| Miscellaneous machine operatyes | 10.18 | 10.43 | 9.86 | 10.14 | 10.49 | 10.00 | 10.40 | 10.89 | 11.35 |
| other operatives, exc transport | 4.60 | 5. 16 | 6.04 | 3.31 | 3.63 | 3.41 | 3.29 | 3.72 | 4.14 |
| mransport equipment operatives | 4.50 | 4.37 | 4.31 | 4.71 | 4.68 | 6.40 | 3.51 | 3.18 | 3. 10 |
| Boat operators | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 |
| Delivery and route workers | . 45 | . 38 | . 30 | . 61 | . 58 | . 84 | . 59 | . 55 | .75 |
| Fork lift, tow motor operatives | 1.55 | 1. 80 | 1.97 | 1.04 | 1.24 | 1.62 | .36 | . 41 | . 46 |
| Rail vehicle cperators, other | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| nailroad brake operators | .01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Bailroad switch operators | . 02 | . 02 | . 04 | . 04 | . 05 | . 07 | . 05 | . 06 | - 10 |
| Taxicab drivers, chauffeurs | . 17 | . 10 | . 01 | . 09 | . 05 | . 00 | . 10 | . 06 | . 00 |
| Truck drivers | 2.26 | 2.03 | 1.94 | 2.91 | 2.75 | 3.86 | 2.39 | 2.09 | 1.79 |
| Service workers | 3.24 | 2.95 | 2.75 | 2.36 | 1.95 | 1.18 | 2.38 | 1.97 | 1.26 |
| Cleaning service workers | 1.94 | 1. 75 | 1.50 | 1.44 | 1. 16 | . 55 | 1.41 | 1.12 | . 55 |
| Bldg interior cleaners, other | . 19 | . 20 | . 22 | . 16 | . 15 | . 08 | . 16 | .15 | . 09 |
| Janitors and sextons | 1.75 | 1. 55 | 1.28 | 1.28 | 1.01 | . 47 | 1.25 | . 98 | . 46 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { chemicals } \end{gathered}$ |  |  | Petroleum and coal products |  |  | Petroleum refining |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 14 | . 11 | . 13 | . 21 | . 18 | . 23 | . 24 | . 20 | . 27 |
| Waiters ${ }^{\text {dssistants }}$ | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Cooks, exc private households | .07 | . 04 | . 01 | . 08 | . 06 | . 06 | . 09 | . 08 | . 09 |
| Dishwashers | . 00 | . 00 | . 00 | . 02 | .01 | . 00 | .02 | .01 | . 01 |
| Food counter, fountain workers | . 00 | - 00 | . 00 | . 04 | . 05 | - 12 | . 03 | . 05 | . 11 |
| Waiters | . 01 | . 01 | . 01 | . 05 | . 04 | . 04 | . 06 | . 04 | . 06 |
| Other food serv wkrs,exc privt | . 05 | . 05 | . 09 | . 04 | . 02 | . 01 | . 04 | . 02 | . 01 |
| Health service workers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Health aides, except nursing | .01 | . 01 | . 01 | .00 | .00 | . 00 | .00 | . 00 | . 00 |
| Personal service workers | .05 | . 05 | . 04 | . 06 | . 04 | . 02 | .07 | . 05 | . 02 |
| Attenuants, personal serviother | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Elevator operators | .01 | . 01 | .01 | . 03 | . 02 | . 00 | . 04 | . 02 | . 01 |
| Housekeepers, exc private homes | . 02 | .01 | . 01 | . 02 | .01 | . 01 | .03 | . 02 | . 01 |
| Protective service workers | 1.11 | 1. 04 | 1.07 | . 64 | . 57 | . 38 | . 66 | - 59 | - 42 |
| Pirefighters | . 07 | . 06 | . 05 | . 04 | . 03 | . 02 | . 04 | . 04 | . 03 |
| Guards | 1.04 | . 98 | 1.02 | - 59 | . 53 | . 36 | -60 | . 55 | . 39 |
| Police and detectives | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Laborers, except farm | 3.58 | 5.44 | 6.22 | 4.00 | 3.66 | 3. 53 | 3.22 | 2.90 | 2. 58 |
| Carpenter helfers | . 02 | . 02 | . 01 | - 12 | . 11 | . 22 | . 08 | . 08 | . 13 |
| Constr labr, exc carpenter helpr | . 11 | . 09 | . 07 | . 65 | . 57 | . 49 | . 63 | . 59 | . 65 |
| freight and material handlers | 2.61 | 2. 56 | 3.08 | 1.82 | 1.72 | 1.68 | 1.29 | 1.18 | 1.08 |
| Garbage collectors | . 00 | . 00 | . 00 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc tarm | . 13 | - 14 | -17 | - 13 | . 14 | . 13 | . 14 | . 14 | . 15 |
| Longshore workers, stevedores | . 01 | . 00 | . 00 | . 05 | . 05 | . 07 | . 06 | . 06 | - 10 |
| Timbercutting, logging workers | .04 | - 06 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | . 87 | . 97 | 1.05 | . 17 | . 17 | . 09 | . 10 | . 10 | . 05 |
| Teamsters | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | - 19 | - 21 | . 28 | . 28 | . 23 | . 08 | . 33 | - 27 | - 10 |
| Warehouse labcrers, other | . 45 | - 40 | -34 | . 41 | - 37 | .46 | . 32 | . 25 | . 12 |
| Other laborers | 1.13 | - 98 | 1.12 | . 35 | . 30 | - 29 | .28 | . 23 | . 20 |


|  | Misc petroleum, coal products |  |  | Rubber and misc plastics |  |  | Rubber |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 8.97 | 9.01 | 7.70 | 6.86 | 6.65 | 5.72 | 7.78 | 8.02 | 7.37 |
| Engineers, techrical | 2.08 | 1.89 | 1.74 | 2.00 | 1.78 | 1.61 | 2.21 | 2.09 | 2. 11 |
| Chemical | . 39 | . 34 | .21 | . 34 | . 30 | . 25 | . 40 | . 40 | . 41 |
| Civil | . 12 | . 07 | .00 | . 04 | . 03 | . 04 | . 05 | . 04 | . 04 |
| Electrical | . 10 | . 13 | . 24 | . 10 | -08 | . 06 | . 12 | . 11 | . 09 |
| Industrial | . 56 | . 55 | . 43 | . 59 | . 57 | . 50 | . 69 | . 71 | . 66 |
| Mechanical | . 39 | - 38 | . 47 | -40 | - 36 | . 37 | .41 | . 38 | . 41 |
| Metallurgical | . 08 | . 06 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 | .00 |
| Petroleum | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sales | . 25 | . 18 | .17 | . 11 | . 09 | . 09 | . 09 | . 07 | . 08 |
| other engineers | . 17 | . 16 | . 23 | .41 | - 34 | . 31 | .44 | . 39 | . 41 |
| Life and physical scientists | 1.59 | 1.47 | 1.15 | . 51 | . 42 | - 31 | . 74 | . 72 | . 64 |
| Biological | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 02 | .03 |
| Chemists | 1.54 | 1.43 | 1.11 | . 49 | - 39 | . 29 | .70 | . 68 | . 60 |
| Geologists | . 06 | . 04 | . 04 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other Life, physical scientists | . 00 | . 00 | .00 | .01 | . 00 | . 00 | . 01 | .01 | .01 |
| Mathematical sfecialists | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Statisticians | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 02 | .02 | . 02 |
| Engineering, science technicians | 2.50 | 2.48 | 2.17 | 1.86 | 1.77 | 1.67 | 2.01 | 2.02 | 2.04 |
| Chemical technicians | 1.73 | 1.73 | 1.50 | - 29 | - 29 | . 28 | . 29 | .31 | .33 |
| Drafters | . 23 | . 19 | . 19 | . 34 | - 30 | . 33 | .30 | . 26 | . 30 |
| Electrical and electronic | . 07 | . 05 | .01 | . 03 | . 03 | . 02 | . 02 | . 02 | . 03 |
| Industrial engineering | . 21 | . 24 | . 19 | . 11 | . 12 | . 10 | . 13 | . 17 | . 18 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 02 | - 02 | . 02 | .01 | . 01 | . 01 |
| Surveyors | .03 | . 02 | .02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| other engineering, science tech | . 24 | -24 | . 26 | 1.06 | 1.01 | .92 | 1.25 | 1.25 | 1. 18 |
| Medical workers,exc technicians | . 05 | . 03 | . 01 | . 07 | . 06 | . 08 | . 09 | . 09 | . 10 |
| Registered nurses | . 05 | .03 | .01 | . 06 | . 06 | .08 | .09 | . 09 | . 10 |
| Health technolcgists, technicians | . 02 | . 02 | .00 | . 01 | . 01 | . 01 | .01 | . 01 | . 00 |
| Clinical lab technologists, tech | . 00 | . 00 | .00 | . 00 | .01 | . 01 | . 00 | .00 | . 00 |
| Radiologic technologists, teca | . 02 | . 02 | . 00 | . 00 | - 00 | .00 | . 00 | .00 | . 00 |
| Techaicians, except health | .03 | . 02 | . 00 | . 07 | . 08 | . 09 | . 11 | . 13 | . 12 |
| Airplane pilots | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 | . 03 | . 03 |
| Tool programers, numerical | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other technicians except health | . 03 | . 02 | . 00 | . 06 | . 06 | .07 | . 07 | . 09 | . 08 |
| Computer specialists | - 18 | . 23 | .18 | . 24 | - 26 | . 20 | . 36 | . 41 | . 28 |
| computer programers | . 08 | . 09 | . 08 | . 17 | .17 | . 12 | . 26 | . 28 | .18 |
| Computer systems analysts | . 07 | - 10 | . 08 | . 06 | . 07 | . 06 | . 08 | . 11 | . 07 |
| other computer specialists | . 02 | . 04 | . 02 | .01 | . 02 | . 02 | . 02 | . 03 | .02 |
| Social scientists | . 15 | . 24 | . 31 | - 10 | . 14 | . 10 | . 10 | . 13 | . 10 |
| Economists | . 15 | . 24 | .31 | . 10 | . 14 | .10 | - 10 | .13 | .10 |
| Teachers | . 03 | . 03 | . 01 | . 02 | . 02 | .01 | . 03 | . 03 | . 00 |
| Adult educaticn | . 03 | . 03 | . 01 | . 02 | . 02 | .01 | . 03 | . 03 | . 00 |
| Writers, artists, entertainers | . 25 | . 29 | . 27 | .35 | - 39 | . 29 | .33 | . 37 | . 33 |
| Authors | .00 | . 00 | .00 | . 00 | .00 | . 01 | . 01 | . 01 | .01 |
| Designers | . 08 | . 07 | . 00 | -19 | - 22 | . 15 | . 14 | . 16 | . 15 |
| Editors and reforters | . 00 | - 00 | . 00 | . 02 | . 02 | . 03 | . 04 | .05 | . 05 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 06 | . 07 | . 03 | . 03 | . 04 | . 02 |
| Photographers | . 00 | . 00 | . 00 | -02 | . 01 | . 02 | . 03 | . 02 | . 02 |
| Public relaticns specialists | . 17 | . 23 | .27 | . 04 | . 05 | . 04 | . 06 | . 07 | . 06 |
| Other writers,artists, entertain | .00 | . 00 | . 00 | . 02 | . 02 | .01 | . 02 | . 02 | .01 |


|  | Misc petrcleum, coal products |  |  | Rubber and misc plastics |  |  | Rubber |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and teconical | 2.11 | 2. 30 | 1.87 | 1.62 | 1.72 | 1.35 | 1.79 | 2.00 | 1.64 |
| Accountants | 1.46 | 1.60 | 1.32 | . 92 | 1.01 | . 94 | 1.00 | 1.14 | 1.11 |
| Lawyers | . 03 | . 08 | - 10 | . 03 | . 04 | . 02 | . 05 | . 08 | . 05 |
| operations and systems research | . 16 | - 22 | - 20 | - 20 | - 23 | . 13 | - 27 | . 33 | - 20 |
| Personnel, labcr relations wkrs | - 20 | . 21 | . 15 | . 39 | . 39 | -23 | . 37 | . 37 | . 24 |
| other research workers | . 25 | - 20 | . 11 | . 08 | . 06 | . 03 | .10 | . 08 | . 05 |
| Managers, officials, proprietors | 11.23 | 13.12 | 14.96 | 6.29 | 7. 26 | 7.00 | 4.76 | 5.27 | 5.21 |
| Buyers, sales, lcan managers | 2.01 | 1. 78 | 1.60 | 1.25 | 1. 16 | 1.09 | 1.16 | 1.08 | 1. 14 |
| Bank, financial managers | . 07 | . 07 | . 05 | . 15 | - 16 | . 15 | . 14 | . 15 | . 17 |
| Credit managers | . 25 | - 14 | . 13 | . 08 | . 04 | . 03 | . 12 | . 06 | . 04 |
| Purchasing agents, buyers, other | . 71 | . 57 | . 39 | . 40 | - 34 | - 30 | - 37 | . 32 | -31 |
| Sales manager, exc retail trade | .99 | 1.00 | 1.04 | . 62 | . 63 | . 62 | . 53 | . 55 | . 67 |
| Other managers, officials, proprts | 9.22 | 11.35 | 13.36 | 5.04 | 6. 10 | 5.91 | 3.61 | 4.20 | 4.08 |
| office ranagers, other | . 89 | . 88 | -92 | . 27 | . 28 | . 26 | . 19 | . 17 | . 11 |
| officers, pilots, pursers,ship | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Hesta urant, cafe, barsmanagers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| other managers, administrators | 8.31 | 10.45 | 12.44 | 4.75 | 5.81 | 5.64 | 3.40 | 4.01 | 3.96 |
| Sales workers | 4.33 | 4. 34 | 4.96 | 1.71 | 1.75 | 2.16 | 1.66 | 1.69 | 2.04 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 |
| other sales warkers | 4.33 | 4.34 | 4.96 | 1.70 | 1.74 | 2.15 | 1.65 | 1.68 | 2.03 |
| Clerical workers | 16.44 | 15.33 | 14.41 | 11.74 | 10.84 | 10.18 | 12.02 | 11.40 | 10.90 |
| Stenographrs, typists, secretaries | 5.91 | 5.55 | 5.78 | 3.58 | 3.42 | 3.61 | 3.34 | 3.21 | 3.64 |
| other secretaries | 4.70 | 4.63 | 5.05 | 2.78 | 2. 77 | 3.04 | 2.52 | 2.53 | 3.03 |
| Stenographers | . 19 | . 08 | . 01 | . 06 | . 04 | . 04 | . 07 | . 05 | . 09 |
| Typists | 1.02 | . 84 | .72 | .73 | . 60 | . 53 | .76 | . 62 | . 53 |
| Office machine operators | . 89 | . 82 | . 54 | . 87 | . 79 | . 42 | 1.14 | 1.14 | . 58 |
| Bookkeeping and billing | . 09 | . 03 | . 01 | . 07 | . 03 | . 01 | . 06 | . 02 | . 01 |
| calculating | . 07 | . 03 | . 00 | . 05 | . 03 | . 03 | . 09 | . 07 | . 07 |
| Computer and feripheral equip | . 15 | . 35 | .35 | . 22 | . 38 | . 23 | . 30 | . 56 | . 29 |
| Duplicating Frimer | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 |
| Keypuncb | . 59 | . 42 | .18 | . 46 | . 29 | . 11 | .61 | .43 | . 18 |
| Tabulating | .00 | . 00 | .00 | . 02 | . 01 | . 00 | . 01. | . 00 | . 00 |
| other office machine operators | . 00 | . 00 | . 00 | . 05 | . 05 | . 03 | . 05 | . 05 | . 03 |
| other clerical workers | 9.64 | 8. 96 | $8.09{ }^{\text {² }}$ | 7.28 | 6.63 | 6.15 | 7.54 | 7.05 | 6.68 |
| Billing clerks | . 42 | . 44 | . 52 | . 20 | . 20 | . 24 | . 23 | . 24 | . 30 |
| Bockkeepers | 2.11 | 2.03 | 1.94 | 1.17 | 1.13 | 1.01 | 1.01 | . 95 | . 85 |
| Cashiers | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 | . 05 | . 04 | . 03 |
| Clerical supervisors, other | . 17 | . 21 | -28 | . 10 | . 09 | . 07 | - 12 | . 11 | . 04 |
| Collectors, bill and account | . 05 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Counter clerks, exc food | . 54 | . 52 | . 46 | - 18 | - 17 | . 17 | . 24 | . 24 | . 25 |
| Dispatchers, starters, vehicle | . 25 | . 24 | . 27 | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 |
| Estimators, investigators, other | - 17 | . 17 | . 09 | .18 | . 18 | . 08 | . 20 | . 20 | . 10 |
| Expediters, frcduction controliss | - 66 | . 63 | . 47 | . 64 | - 59 | - 55 | . 77 | . 78 | . 87 |
| File clerks | . 26 | - 20 | - 16 | . 16 | . 13 | . 13 | . 16 | . 14 | - 16 |
| Mail handlers,exc fost office | . 24 | - 21 | -17 | . 11 | . 09 | . 07 | . 13 | - 12 | - 10 |
| Messengers and office helpers | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Payroll,timekeeping clerks | . 62 | . 63 | -46 | . 40 | . 38 | . 31 | . 49 | . 52 | . 46 |
| Receptionists | . 16 | - 10 | . 03 | . 22 | - 18 | . 08 | . 14 | . 12 | . 07 |
| Shipping and receiving clerks | 1.52 | 1. 35 | 1.35 | 1.78 | 1.68 | 1.94 | 1.55 | 1.42 | 1.65 |
| Statistical clerks | - 24 | - 27 | . 29 | . 26 | . 26 | . 24 | . 38 | .41 | . 39 |
| Stock clerks and store keepers | . 72 | . 47 | . 13 | . 87 | . 67 | . 48 | 1.03 | . 87 | - 74 |
| Telephone operators | . 23 | . 17 | .19 | . 12 | . 07 | . 05 | .11 | . 07 | . 07 |
| Weighers | . 10 | . 09 | . 04 | . 15 | - 13 | . 07 | . 16 | . 14 | . 08 |
| Misc clerical workers | 1.18 | 1. 18 | 1.27 | . 67 | . 61 | . 56 | .75 | . 66 | . 51 |
| Crafts and kindred workers | 15.74 | 16.31 | 17.66 | 14.64 | 15.67 | 17.45 | 12.78 | 13.72 | 17.07 |


|  | Misc petroleum, coal products |  |  | Rubber and misc plastics |  |  | Rubber |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 2.87 | 2.63 | 2.54 | 1.60 | 1.41 | 1.37 | 1.93 | 1.89 | 2.20 |
| Carpenters and apprentices | . 36 | . 41 | . 54 | . 23 | . 24 | . 24 | .18 | . 19 | . 23 |
| Brick, stonemasons, apprentices | . 07 | . 05 | . 00 | . 02 | .01 | .01 | . 02 | . 02 | .01 |
| Bulldozer operators | . 27 | . 26 | . 43 | . 06 | . 05 | . 07 | .12 | .11 | . 17 |
| cement and concrete finisners | . 00 | . 00 | -00 | . 01 | . 01 | . 01 | .01 | . 02 | .03 |
| Electricians and apprentices | .70 | . 65 | . 44 | . 66 | . 60 | . 54 | .79 | . 82 | . 97 |
| Excavating. grading mach operatr | . 80 | . 64 | . 49 | .01 | .01 | . 01 | .01 | .01 | . 00 |
| Floor layers, exc tile setters | . 00 | . 00 | . 00 | .01 | .01 | . 01 | .01 | . 01 | . 02 |
| Painters and apprentices | . 14 | . 11 | . 05 | . 20 | . 17 | . 09 | .16 | .14 | . 12 |
| Plumbers, pipefitters, aprentices | -43 | . 41 | . 51 | . 39 | . 31 | . 37 | .61 | . 56 | . 65 |
| Roofers and slaters | . 07 | . 08 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Tile setters | . 03 | . 03 | . 04 | . 01 | .01 | .00 | .01 | . 01 | .01 |
| Blue collar vorker supervisors | 5.78 | 6.34 | 7.18 | 5.53 | 6.23 | 7.28 | 4.79 | 5.32 | 6.48 |
| Metalworkg craft wrkrs, exc mech | 2.02 | 2.03 | 2.19 | 2.97 | 3. 14 | 3.87 | 2.03 | 2.26 | 3.60 |
| Boilermakers | . 08 | . 05 | . 00 | . 01 | .01 | . 01 | . 02 | . 02 | . 02 |
| Forge and hammer operators | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Job and die setters, metal | . 03 | . 02 | . 00 | . 13 | . 10 | . 06 | . 05 | . 04 | . 04 |
| Machinists and apprentices | 1.06 | 1.07 | 1.12 | 1.87 | 2.13 | 2.79 | 1.28 | 1.53 | 2.66 |
| Millwrights | . 66 | . 68 | . 64 | . 18 | . 18 | - 19 | . 23 | - 25 | . 25 |
| Pattern and moldmakers | . 00 | . 00 | . 00 | .11 | . 09 | . 15 | .07 | . 07 | . 12 |
| Sheetmetal workers, apprentices | . 09 | - 12 | .31 | . 07 | . 05 | . 07 | . 11 | . 09 | . 10 |
| Tool and diemakers, apprentices | .11 | . 09 | . 11 | . 60 | . 57 | . 60 | . 26 | . 25 | .40 |
| Mechanics, repairers,instailers | 3.84 | 4.37 | 5.00 | 3.61 | 4.08 | 4.08 | 3.12 | 3.48 | 3.81 |
| Air cond, heating, cefrig mech | . 09 | . 15 | .23 | . 02 | . 03 | . 03 | . 03 | . 04 | . 04 |
| Aircraft mechanics | . 00 | . 00 | . 00 | -01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Auto mechanics and apprentices | . 50 | . 48 | . 56 | . 13 | - 10 | - 10 | .21 | - 19 | . 19 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | 2.96 | 3.45 | 3.99 | 3. 15 | 3.66 | 3.69 | 2.53 | 2.91 | 3.31 |
| Household appliance mechanics | . 09 | . 07 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| office machine repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 |
| Radio, television repairers | . 04 | . 03 | . 03 | . 02 | . 02 | . 03 | . 01 | .01 | . 02 |
| Railroad, car shop repairers | . 03 | . 03 | . 03 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 13 | - 14 | . 14 | . 24 | . 23 | . 20 | . 31 | . 29 | - 21 |
| Printing trade crafts workers | - 10 | . 08 | . 00 | . 40 | .41 | . 37 | . 20 | . 22 | . 28 |
| Compositors and typesetters | .07 | . 05 | . 00 | . 22 | . 26 | . 28 | . 12 | . 13 | . 13 |
| Enyravers exc photoengravers | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 | .01 | . 01 | . 01 |
| Photoengravers, lithographers | . 03 | . 03 | -00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Press, plate frinters,aprentices | . 00 | . 00 | . 00 | .13 | . 10 | . 06 | .07 | .09 | . 14 |
| Transport, public util craft ukrs | . 00 | . 00 | . 00 | . 02 | .01 | . 01 | . 04 | . 03 | . 02 |
| Power station operators | .00 | . 00 | . 00 | .02 | . 01 | .01 | .03 | . 03 | . 02 |
| Other crafts, kindred worhers | 1.13 | . 87 | .75 | . 51 | . 39 | . 47 | .67 | . 51 | .68 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 51 | -43 | . 57 | . 07 | . 05 | . 08 | . 09. | . 08 | - 12 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | .00 | .00 | . 00 |
| Inspectors, other | . 00 | . 00 | -00 | . 03 | . 03 | . 03 | . 04 | . 05 | . 06 |
| Millers, grain, flour, feed | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Shot repairers. | . 00 | - 00 | . 00 | . 10 | . 03 | . 05 | . 20 | . 07 | . 11 |
| Stationary engineers | . 59 | . 42 | .17 | - 20 | . 17 | . 20 | .21 | . 20 | . 27 |
| Upholsterers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 02 | .01 | .02 |
| Other crafts workers | . 03 | . 02 | . 01 | . 06 | . 05 | . 05 | . 08 | . 07 | . 06 |
| Operatives | 33.78 | 33.51 | 33.71 | 52.22 | 52.32 | 53.05 | 52.96 | 53.01 | 52.29 |
| Operatives,except transfort | 24.04 | 23. 21 | 20.20 | 49.92 | 49.99 | 50.09 | 50.21 | 50.11 | 48.78 |
| Semiskilled metalworking | 1.05 | 1.05 | 1.24 | 1.84 | 1.47 | 1.11 | 1.56 | 1.29 | 1.21 |
| Drill press oferatives | . 03 | . 02 | . 00 | .21 | . 14 | . 06 | . 13 | . 10 | . 08 |
| Grinding machine operatives | . 04 | . 03 | . 02 | . 12 | . 08 | . 05 | . 12 | .09 | . 06 |
| Lathe, milling mach operatives | . 09 | . 05 | .01 | . 43 | . 28 | - 20 | .44 | - 30 | . 25 |
| Metal platers | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 | . 02 | .01 | .00 |
| Other precision mach operators | . 00 | . 00 | . 00 | - 10 | . 07 | . 05 | . 08 | . 05 | . 03 |
| Punch,stamping press operatives | . 05 | . 03 | . 01 | . 55 | . 45 | . 32 | . 43 | . 37 | . 38 |
| Solderers | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 86 | .93 | 1.20 | . 37 | . 38 | . 43 | .35 | .36 | . 42 |
| Semiskilled packing, inspecting | 3.05 | 3.00 | 3.59 | 8.99 | 9.31 | 12.11 | 8.14 | 8.43 | 11. 14 |
| Checkers, examiners, mfg | 1.04 | . 97 | . 86 | 5.18 | 5.27 | 6.93 | 5.84 | 6.13 | 8.10 |
| Graders and scrters, mfg | . 08 | . 09 | . 12 | . 24 | . 24 | . 33 | . 34 | . 37 | . 50 |
| Packer,wrapper,exc meat, prodce | 1.94 | 1. 94 | 2.61 | 3.57 | 3.81 | 4.85 | 1.96 | 1.93 | 2.54 |


|  | Misc petroleum, coal products |  |  | Rubber and misc plastics |  |  | Rubber |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 19.94 | 19. 17 | 15.37 | 39.10 | 39.21 | 36.87 | 40.51 | 40.39 | 36.42 |
| asbestos, insulation workers | . 07 | - 12 | . 16 | . 02 | . 03 | . 02 | . 01 | .01 | . 00 |
| Assemblers | .65 | . 80 | 1.31 | 2.99 | 3.65 | 4.98 | 1.83 | 1.97 | 2.39 |
| Blasters | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bottling, canning operatives | . 24 | - 25 | -27 | . 05 | . 06 | . 06 | . 03 | . 03 | . 02 |
| Surveyors' helpers | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Clothing ircners and pressers | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Cutting operatives, other | . 73 | . 67 | . 48 | 2.45 | 2.25 | 2.02 | 3.01 | 2.94 | 2.73 |
| Drillers, earth | . 05 | . 03 | . 00 | . 04 | . 03 | . 01 | . 04 | . 03 | . 02 |
| Dyers | . 05 | . 03 | -01 | . 04 | . 05 | . 06 | . 03 | . 03 | .03 |
| Piler, polisher, sander, buffer | . 11 | . 08 | . 02 | - 36 | . 32 | . 23 | . 29 | . 28 | . 32 |
| Garage wrkr.gas station atten | .07 | . 04 | . 02 | . 13 | . 06 | . 04 | . 26 | . 15 | . 07 |
| Laundry, dry cleang oprs,other | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Mixing operatives | 2.94 | 2.71 | 1.89 | 1.19 | 1.04 | . 87 | 1.65 | 1.60 | 1.46 |
| Oilers.greasers, exc automoniles | . 39 | . 42 | . 60 | . 14 | - 13 | . 18 | . 23 | . 24 | . 34 |
| Painters, mfg articles | . 46 | . 37 | . 28 | . 82 | . 72 | . 66 | . 60 | . 48 | . 38 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | . 03 | . 03 | . 03 |
| Riveters and fasteners | . 03 | .03 | . 00 | . 05 | . 05 | . 03 | . 04 | . 03 | . 02 |
| Sawyers | . 12 | - 16 | - 33 | . 21 | - 22 | . 20 | . 12 | . 13 | . 17 |
| Severs and stitchers | . 08 | . 07 | . 09 | . 95 | . 73 | . 91 | 1.36 | 1.20 | 1.65 |
| Shoemaking rachine operatives | . 00 | . 00 | . 00 | . 25 | - 19 | . 18 | . 37 | . 35 | . 41 |
| Furnace tendr,stokr,exc metal | 1.10 | . 75 | . 71 | . 19 | - 12 | . 14 | . 26 | - 19 | . 25 |
| Winding operatives, other | . 32 | - 30 | . 26 | . 24 | . 20 | . 12 | . 26 | . 21 | - 10 |
| Miscellaneous machine operatves | 9.06 | 8.98 | 7.09 | 23.09 | 23.21 | 21.32 | 24.50 | 24.90 | 22.46 |
| Other operatives, exc transport | 3.43 | 3.31 | 1.83 | 5.86 | 6.13 | 4.78 | 5.61 | 5.59 | 3.59 |
| Transport equifment operatives | 9.73 | 10. 30 | 13.51 | 2.30 | 2. 34 | 2.96 | 2.75 | 2.90 | 3.51 |
| Delivery and route workers | . 69 | . 68 | 1.04 | . 16 | . 14 | . 20 | . 17 | - 16 | . 25 |
| Pork lift, tow motor operatives | 3.91 | 4.35 | 4.14 | 1.16 | 1.20 | 1.09 | 1.41 | 1.49 | 1.19 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 08 | . 06 | . 05 | . 14 | . 14 | . 10 |
| Truck drivers | 5.09 | 5.24 | 8.33 | .91 | . 93 | 1.62 | 1.03 | 1.10 | 1.97 |
| Service workers | 2.25 | 1.88 | 1.00 | 2.16 | 1.88 | 1.55 | 2.43 | 2.20 | 1.83 |
| Cleaning service vorkers | 1.60 | 1. 29 | . 55 | 1.64 | 1.41 | 1.01 | 1.75 | 1.58 | 1.24 |
| Bldg interior cleaners, other | . 18 | -15 | . 06 | . 20 | . 15 | . 07 | . 24 | . 21 | - 10 |
| Janitors and sextons | 1.43 | 1. 14 | -49 | 1.44 | 1.26 | .95 | 1.51 | 1.37 | 1.15 |
| Food service workers | . 08 | . 09 | -15 | . 07 | . 06 | . 06 | . 09 | . 07 | . 04 |
| Cooks, exc private households | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 | . 02 | . 02 | . 01 |
| Food counter, fountain workers | . 05 | . 07 | - 14 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Waiters | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 09 |
| Other food serv ukrs, exc privt | . 04 | . 02 | .01 | . 03 | .01 | . 01 | . 04 | . 02 | . 01 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Personal service workers | . 00 | .00 | . 00 | . 07 | . 05 | . 04 | . 11 | . 09 | . 06 |
| Attendants, personal sery, other | . 00 | - 00 | . 00 | . 02 | . 01 | . 01 | . 03 | . 02 | . 01 |
| Elevator operators | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 | . 07 | . 06 | . 04 |
| Housekeepers, erc private homes | . 00 | . 00 | .00 | .01 | .01 | .01 | . 01 | . 01 | . 01 |
| Protective service workers | . 56 | . 50 | . 30 | . 38 | . 36 | . 41 | . 48 | . 47 | . 49 |
| Firefighters | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Guards | . 54 | . 48 | . 28 | . 37 | . 36 | .41 | . 47 | .46 | . 49 |
| Police and detectives | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Laborers, except farm | 7.28 | 6. 51 | 5.59 | 4.39 | 3.62 | 2.90 | 5.62 | 4.69 | 3.29 |
| Carpenter helpers | . 25 | . 23 | . 39 | . 01 | . 01 | . 03 | . 03 | . 03 | . 06 |
| Constr labr,exc carpenter helpr | . 75 | - 52 | . 15 | . 07 | . 06 | . 04 | . 06 | . 05 | . 04 |
| Freight and material handlers | 4.07 | 3. 70 | 2.99 | 1.73 | 1.62 | 1.51 | 1.72 | 1.63 | 1.58 |
| Garbage collectors | .09 | . 09 | . 11 | . 00 | . 01 | .01 | . 00 | . 00 | . 00 |
| Gardenrs, ground keepers, exc farm | - 11 | - 10 | . 09 | . 03 | . 03 | . 03 | . 04 | . 04 | . 05 |
| Stock handlers | . 48 | . 43 | . 18 | . 54 | . 50 | - 32 | . 60 | . 60 | .44 |
| Vehicle washers, equip cleaners | . 09 | . 08 | . 03 | . 36 | . 28 | - 12 | . 52 | . 43 | . 16 |
| Warehouse laborers, other | . 77 | . 81 | 1.19 | . 33 | - 33 | . 45 | . 38 | . 37 | . 44 |
| Other laborers | . 66 | - 56 | . 48 | 1.31 | . 79 | . 39 | 2.27 | 1.54 | . 52 |

Table 1. Percent distribution of industry employment by occupation, 1970 . 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { plastics } \end{gathered}$ |  |  | Leather products |  |  | Leather tanning and finishing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 5.95 | 5.75 | 4.52 | 1.69 | 1.93 | 1.68 | 2.04 | 2.04 | 2.07 |
| Engineers, technical | 1.79 | 1. 57 | 1.25 | . 26 | - 26 | . 23 | . 41 | . 41 | . 43 |
| Chemical | . 28 | . 24 | - 13 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Civil | . 04 | . 03 | . 04 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Electrical | . 07 | . 06 | . 04 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Industrial | . 49 | . 48 | . 38 | . 18 | . 19 | . 16 | . 35 | . 37 | .40 |
| Mechanical | . 39 | - 35 | - 34 | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 |
| sales | . 14 | - 10 | . 10 | . 01 | . 01 | .00 | .00 | . 00 | . 00 |
| other engineers | .39 | . 32 | . 24 | . 03 | . 02 | . 02 | .05 | . 04 | . 04 |
| Life and physical scientists | . 29 | . 22 | . 07 | . 05 | . 06 | . 06 | . 38 | . 36 | . 40 |
| Chemists | . 28 | . 21 | . 06 | . 05 | . 06 | . 06 | .38 | . 36 | . 40 |
| Physicists and astronomers | .01 | . 01 | . 01 | . 00 | . 00 | .01 | . 00 | .00 | . 00 |
| Mathematical sfecialists | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Statisticians | . 01 | . 01 | . 02 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Engineering, science technicians | 1.71 | 1.61 | 1.39 | - 16 | - 17 | . 18 | . 50 | . 49 | . 51 |
| Chemical technicians | . 29 | . 28 | . 24 | . 01 | .01 | . 03 | . 05 | . 05 | . 04 |
| Drafters | . 39 | . 32 | . 35 | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Electrical and electronic | . 04 | . 03 | . 02 | . 01 | . 01 | . 00 | . 00 | - 00 | - 00 |
| Industrial engineering | . 09 | . 09 | . 03 | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Mechanical engineering | . 02 | . 02 | . 02 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other engintering, science tecn | . 88 | . 85 | . 72 | . 09 | . 10 | . 08 | . 43 | . 42 | . 45 |
| Medical workers, exc technicians | . 04 | . 04 | . 06 | .03 | . 03 | . 04 | . 02 | .01 | . 00 |
| Registered nurses | . 04 | . 04 | . 06 | . 03 | . 03 | . 04 | . 02 | . 01 | . 00 |
| Health technolcgists, technicians | .01 | . 01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Clinical lai technologists, tecn | .01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Technicians, except health | . 04 | . 05 | . 06 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 |
| Other technicians except health | . 04 | . 05 | . 06 | .00 | .00 | . 00 | .00 | . 00 | . 00 |
| Computer specialists | . 13 | - 16 | . 14 | . 13 | - 17 | - 17 | . 03 | . 03 | . 03 |
| Computer programers | . 08 | . 09 | . 07 | . 09 | . 11 | . 10 | . 03 | . 03 | . 03 |
| computer systems analysts | . 03 | . 05 | . 05 | . 03 | . 05 | . 05 | . 00 | . 00 | . 00 |
| Other computer specialists | .01 | . 02 | . 02 | . 01 | .01 | . 02 | .00 | . 00 | . 00 |
| Social scientists | .10 | . 14 | . 10 | . 02 | . 03 | . 02 | . 00 | .00 | . 00 |
| Economists | . 10 | . 14 | . 10 | . 02 | . 03 | . 02 | . 00 | .00 | .00 |
| Teachers | .01 | . 01 | . 02 | . 05 | . 05 | - 02 | . 02 | .01 | . 01 |
| Adult educaticn | .01 | . 01 | . 02 | . 05 | . 05 | . 02 | . 02 | . 01 | . 01 |
| Writers, artists, entertainers | . 38 | - 40 | . 25 | . 38 | . 47 | -43 | . 06 | . 06 | . 04 |
| Designers | . 25 | . 25 | . 15 | . 35 | . 44 | . 41 | . 00 | . 00 | . 00 |
| Editors and reforters | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 08 | . 09 | . 03 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Photographers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 | . 03 | . 04 | . 04 |
| Other writers,artists, entertain | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | .03 | . 02 | . 00 |
| Other professional and technicai | 1.46 | 1. 54 | 1.14 | . 60 | . 68 | . 53 | . 64 | . 65 | . 65 |
| Accountants | . 84 | . 93 | . 82 | . 31 | . 36 | . 32 | . 40 | . 45 | . 56 |
| Lawyers | . 01 | . 02 | . 00 | . 02 | . 03 | . 02 | . 03 | . 03 | . 01 |
| operations and systems research | . 13 | - 16 | -09 | . 06 | . 07 | . 04 | . 02 | - 02 | .01 |
| personnel, labcr relations ykrs | -41 | . 40 | . 23 | . 18 | . 20 | - 14 | . 11 | . 11 | . 07 |
| Other research workers | .07 | . 04 | . 01 | . 02 | . 02 | . 01 | .09 | . 04 | . 01 |
| Managers, officials, froprietors | 7.30 | 8.56 | 8.30 | 3.98 | 4.84 | 4.64 | 4.28 | 5.03 | 5.77 |
| Buyers, sales,loan managers | 1.34 | 1.22 | 1.06 | .77 | . 77 | . 83 | . 60 | . 57 | . 56 |
| Bank, financial managers | . 16 | . 16 | . 14 | . 07 | . 08 | . 08 | . 05 | . 04 | . 01 |
| Credit managers | . 05 | . 03 | . 02 | . 05 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Purchasing agents, buyers, other | . 42 | - 35 | . 28 | . 35 | - 33 | . 35 | . 27 | . 23 | . 20 |
| Sales manager, exc retail trade | .71 | . 69 | . 62 | . 30 | . 33 | . 37 | . 27 | . 30 | . 35 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Misc } \\ \text { plastics } \end{gathered}$ |  |  | Leather products |  |  | Leather tanning and finishing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 6.46 | 7.34 | 7.24 | 3.21 | 4.07 | 3.81 | 3.69 | 4.46 | 5.22 |
| office managers, other | . 35 | - 35 | .37 | . 29 | - 31 | . 33 | . 34 | - 35 | . 43 |
| Hestaurant, cafe, bar, managers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other managers, administrators | 6.10 | 6.99 | 6.86 | 2.90 | 3.74 | 3.47 | 3.35 | 4.11 | 4.78 |
| Sales workers | 1.77 | 1. 80 | 2.26 | 1.81 | 1.99 | 2.36 | 1.08 | 1.11 | 1.43 |
| Advertising agents, sales worker | .01 | . 02 | . 03 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Other sales workers | 1.76 | 1. 78 | 2.23 | 1.80 | 1.97 | 2.34 | 1.08 | 1.11 | 1.43 |
| Clerical workers | 11.46 | 10.47 | 9.65 | 8.83 | 8.88 | 9.11 | 7.74 | 7.44 | 8.31 |
| Stenographrs, typists, secretaries | 3.83 | 3.55 | 3.58 | 1.86 | 1.80 | 1.85 | 1.36 | 1.30 | 1.59 |
| Other secretaries | 3.05 | 2.93 | 3.04 | 1.26 | 1.30 | 1.41 | . 99 | . 99 | 1.22 |
| stenographers | . 06 | . 03 | .01 | . 06 | . 03 | . 00 | . 05 | .03 | . 01 |
| Typists | .71 | . 59 | . 53 | . 54 | . 47 | . 43 | .32 | . 28 | . 36 |
| Office machine operators | . 61 | . 56 | -30 | . 69 | . 70 | - 47 | 1.06 | . 96 | - 56 |
| Sookkeeping and billing | . 07 | . 03 | . 01 | . 05 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Calculating | .01 | . 01 | .01 | . 06 | . 03 | . 02 | . 14 | . 05 | . 01 |
| Computer and feripheral equip | . 13 | . 27 | - 19 | - 12 | - 27 | - 23 | . 11 | . 25 | . 23 |
| Duplicating fer | . 02 | . 01 | . 01 | . 02 | . 01 | .01 | .00 | . 00 | . 00 |
| Keypunch | . 30 | . 19 | . 05 | . 34 | . 26 | . 13 | . 28 | . 19 | . 06 |
| Tabulating | . 02 | .01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other office machine operators | . 05 | . 04 | . 03 | - 10 | - 10 | .07 | . 53 | . 46 | . 26 |
| Other clerical workers | 7.03 | 6.36 | 5.77 | 6.28 | 6.38 | 6.80 | 5.31 | 5.19 | 6.17 |
| Billing clerks | . 17 | . 17 | -20 | . 21 | . 23 | . 24 | . 23 | . 24 | . 29 |
| Bookkeepers | 1.33 | 1. 24 | 1.12 | 1.09 | 1.13 | 1.17 | 1.09 | 1.09 | 1.35 |
| Cashiers | . 02 | . 03 | . 05 | . 05 | . 06 | . 05 | . 14 | . 17 | - 26 |
| Clerical supervisors, other | . 07 | . 08 | .09 | . 09 | . 10 | . 09 | .05 | . 06 | . 07 |
| Counter clerks,exc food | . 13 | . 12 | . 11 | . 25 | . 26 | . 26 | . 12 | . 12 | . 13 |
| Dispatchers, starters, vehicle | . 00 | . 00 | -00 | . 00 | . 00 | - 00 | . 02 | . 03 | - 03 |
| Enumerators and interviewers | . 01 | . 01 | -00 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| estimators, investigators, other | . 16 | - 16 | . 07 | . 07 | . 08 | . 06 | . 03 | . 03 | . 01 |
| Expediters, preduction controirs | . 51 | . 47 | .32 | . 42 | . 43 | . 43 | - 15 | . 13 | - 12 |
| File clerks | . 15 | . 12 | . 11 | - 20 | . 17 | . 23 | . 11 | . 07 | . 02 |
| Mail handlers, exc post office | . 08 | . 07 | -05 | . 10 | . 09 | . 09 | .07 | . 06 | . 07 |
| Messengers and office helpers | . 05 | . 05 | . 07 | . 02 | . 02 | . 02 | . 02 | . 03 | . 04 |
| Paproll,timekeeping clerks | . 30 | . 30 | . 20 | . 60 | . 68 | . 63 | . 66 | . 73 | . 81 |
| Heceptionists | . 29 | . 23 | . 09 | . 18 | . 18 | . 16 | - 14 | . 13 | . 12 |
| Shipping and receiving clerks | 2.00 | 1.84 | 2.16 | 1.59 | 1.61 | 2.09 | 1.49 | 1.49 | 2.19 |
| Statistical clerks | . 15 | . 16 | .13 | . 14 | . 16 | . 16 | . 06 | . 04 | -00 |
| Stock clerks and store keepers | . 72 | . 54 | .29 | . 59 | . 51 | . 42 | . 21 | . 12 | . 02 |
| Telephone operators | . 13 | . 08 | . 04 | . 10 | . 06 | . 05 | - 14 | . 05 | . 01 |
| weighers | . 14 | - 12 | . 06 | . 03 | .03 | . 02 | .23 | -21 | - 15 |
| Misc clerical workers | . 59 | . 57 | .60 | . 55 | . 57 | . 62 | . 37 | . 39 | . 48 |
| Crafts and kindred workers | 16.48 | 16.95 | 17.73 | 13. 19 | 12.48 | 12.78 | 11.68 | 12.07 | 13.48 |
| Construction crafts workers | 1.27 | 1. 10 | . 77 | . 29 | . 28 | . 23 | . 61 | . 63 | . 76 |
| Carpenters and apprentices | . 28 | . 27 | . 26 | . 12 | . 13 | . 12 | . 32 | . 34 | . 42 |
| Erick, stonemasons, apprentices | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| tlectricians and apprentices | . 53 | . 45 | - 22 | .11 | . 09 | . 06 | . 25 | . 27 | . 34 |
| Excavating, grading mach operatr | .01 | . 01 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Floor layers, exc tile setters | .01 | .01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 24 | . 18 | . 07 | . 05 | . 05 | . 05 | . 00 | . 00 | . 00 |
| Plasterers and apprentices | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | - 17 | . 15 | -18 | . 01 | . 01 | . 01 | . 04 | . 03 | . 01 |
| Tile setters | . 01 | .01 | .00 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 6.27 | 6.83 | 7.87 | 4.02 | 4.58 | 4.90 | 5.42 | 5.92 | 7.02 |
| Metaluorkg craft wrkrs, exc mecn | 3.90 | 3.71 | 4.06 | . 84 | . 85 | 1.02 | . 95 | . 95 | 1.20 |
| boilermakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Job and die setters, metal | . 20 | . 14 | . 07 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Machinists and apprentices | 2.46 | 2. 52 | 2.89 | . 53 | . 59 | . 69 | . 68 | . 72 | . 95 |
| Millwrights | . 13 | . 14 | . 14 | . 02 | . 03 | . 02 | . 12 | . 08 | . 02 |
| Pattern and meldmakers | . 14 | . 11 | . 17 | . 17 | . 14 | . 21 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| tool and diemakers, apprentices | . 95 | . 77 | .74 | .08 | . 07 | .09 | . 12 | .13 | . 23 |


|  | $\begin{gathered} \text { Misc } \\ \text { plastics } \end{gathered}$ |  |  | Leather products |  |  | Leather tanning and finishing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | 4.10 | 4.48 | 4.28 | 1.14 | 1.39 | 1.58 | 2.09 | 2.34 | 2. 55 |
| Air cond, heating, refrig mech | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 06 | . 05 | . 03 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| rarm implement mechanics | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 3.76 | 4.15 | 3.97 | 1.08 | 1.32 | 1.53 | 2.00 | 2.27 | 2.53 |
| Household appliance mechanics | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Fadio television repairers | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 18 | . 19 | . 20 | . 06 | . 06 | . 04 | .09 | . 07 | . 02 |
| Printing trade crafts workers | . 59 | . 53 | . 44 | . 08 | . 10 | .15 | . 15 | . 14 | . 31 |
| Bookbinders | . 00 | . 00 | -00 | . 01 | .01 | . 02 | . 15 | . 14 | . 31 |
| Compositors and typesetters | . 32 | . 34 | . 38 | . 04 | . 05 | .06 | . 00 | . 00 | . 00 |
| Engravers exc photoengravers | . 07 | . 07 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Press, plate frinters,aprentices | . 20 | . 12 | . 01 | .03 | . 04 | .07 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | . 35 | .31 | . 32 | 6.81 | 5.27 | 4.90 | 2.47 | 2.09 | 1.65 |
| Cabinetmakers | . 05 | . 04 | . 04 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| crane,derrick, hoist operator | . 04 | . 04 | . 05 | .01 | . 01 | . 01 | . 12 | . 09 | .11 |
| Furniture and hood finishers | .01 | . 01 | . 02 | - 00 | . 00 | . 00 | . 04 | . 03 | . 00 |
| Inspectors, other | .01 | . 01 | . 01 | . 02 | . 03 | . 04 | . 07 | . 09 | . 17 |
| Shoe repairers | . 00 | . 00 | . 00 | 2.41 | . 85 | 1.08 | . 04 | . 01 | . 01 |
| Sign painters and letterers | . 01 | . 01 | .00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 18 | . 16 | . 14 | .09 | . 08 | . 10 | . 24 | . 10 | . 00 |
| Tailors | . 00 | . 00 | . 00 | . 04 | . 05 | . 06 | . 04 | . 05 | . 07 |
| Upholsterers | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 | . 12 | . 07 | . 05 |
| Other crafts workers | .03 | . 03 | . 04 | 4.21 | 4.24 | 3.61 | 1.81 | 1.65 | 1.24 |
| Operatives | 51.49 | 51.88 | 53.61 | 66.25 | 65.74 | 65.91 | 58.42 | 59.32 | 56.92 |
| Operatives, except transport | 49.64 | 49.90 | 51.05 | 65.60 | 65.00 | 64.94 | 56.09 | 56.81 | 53.26 |
| Semiskilled metalworking | 2.11 | 1. 59 | 1.04 | . 58 | - 49 | . 37 | . 74 | . 60 | . 42 |
| Drill press oferatives | . 28 | . 17 | . 05 | . 03 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Grinding machine operatives | . 11 | . 08 | . 04 | . 01 | . 01 | . 00 | . 02 | . 01 | . 01 |
| Lathe, milling mach operatives | . 42 | . 27 | .17 | . 06 | . 04 | . 03 | - 10 | . 05 | . 01 |
| Metal platers | . 06 | . 06 | . 03 | . 05 | . 04 | .01 | . 28 | .21 | . 06 |
| other precisicn mach operators | .13 | . 09 | . 06 | . 02 | . 01 | . 00 | . 03 | . 02 | . 00 |
| Punch, stamping press operatives | . 68 | - 50 | . 27 | -28 | - 23 | - 15 | . 03 | . 02 | . 01 |
| solderers | . 04 | . 03 | . 00 | . 05 | . 04 | . 02 | . 04 | . 04 | .00 |
| Welders and flamecutters | . 39 | . 39 | . 43 | . 09 | - 10 | . 14 | . 22 | .23 | . 33 |
| Semiskilled packing, inspectiny | 9.83 | 9.89 | 12.82 | 5.74 | 6.02 | 7.36 | 3.63 | 3.65 | 4. 18 |
| Checkers, exariners, mfg | 4.53 | 4.70 | 6.07 | 2.58 | 2.78 | 3.45 | . 82 | . 87 | 1. 14 |
| Graders and scrters, mfg | . 14 | . 15 | . 21 | . 46 | . 48 | . 41 | 2.30 | 2.31 | 2.53 |
| Packer, wrapper, exc meat, prodce | 5.16 | 5.04 | 6.55 | 2.71 | 2.76 | 3.51 | . 51 | . 48 | . 51 |
| Other operatives, exc transport | 37.70 | 38.43 | 37.19 | 59.27 | 58.49 | 57.22 | 51.72 | 52.56 | 48.67 |
| Asbestos, insulation workers | . 03 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Assemblers | 4.13 | 4.74 | 6.88 | 2.41 | 2.99 | 4.71 | . 56 | . 68 | 1.14 |
| Bottling, canning operatives | . 07 | . 07 | . 08 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Clothing ironers and pressers | . 01 | . 01 | . 02 | . 12 | . 09 | . 07 | . 09 | . 05 | . 02 |
| Cutting operatives, other | 1.90 | 1. 80 | 1.50 | 2.51 | 2.70 | 2.83 | 3.43 | 3.39 | 3.50 |
| Drillers, earth | . 05 | . 04 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 05 | . 06 | . 08 | . 23 | . 25 | . 26 | 1.66 | 1.71 | 2.07 |
| Filer, polisher, sander, buffer | . 43 | . 34 | . 16 | . 35 | - 31 | -21 | . 49 | . 31 | . 06 |
| Garage wrkr,gas station attea | . 01 | - 01 | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 | - 00 |
| Laundry, dry cleang oprs,other | . 01 | . 01 | . 02 | .01 | . 01 | . 00 | . 02 | . 02 | . 01 |
| Meat cutters and putchers | . 00 | . 00 | . 00 | . 06 | . 05 | . 07 | . 00 | . 00 | . 00 |
| Mixing operatives | .74 | . 67 | . 44 | . 12 | . 13 | . 11 | . 76 | . 81 | 1.04 |
| oilers.greasers, exc aut onobiles | . 05 | . 05 | . 06 | . 03 | . 03 | . 05 | . 10 | . 09 | . 07 |
| Painters, mfg articles | 1.04 | . 87 | . 87 | . 36 | -33 | . 38 | . 26 | -17 | - 00 |
| Photographic frocess vorkers | . 02 | . 03 | . 04 | . 01 | . 01 | . 01 | . 09 | .11 | .19 |
| diveters and fasteners | . 07 | . 06 | .03 | . 85 | . 88 | .90 | . 04 | . 03 | .00 |
| Sawyers | - 30 | - 28 | . 21 | . 09 | . 09 | - 10 | . 05 | . 06 | - 10 |
| Sewers and stitchers | - 54 | . 42 | . 37 | 15.58 | 14.21 | 17.84 | 1.66 | 1.50 | 2.25 |
| Shoemaking machine operatives | . 13 | . 08 | . 02 | 20.16 | 18.02 | 12.93 | . 04 | . 04 | . 00 |
| Furnace tendr,stokr,exc metal | . 12 | . 08 | . 06 | . 21 | - 15 | . 16 | . 65 | . 44 | . 42 |
| winding operatives, other | . 22 | . 20 | . 14 | . 03 | . 03 | . 01 | . 04 | . 04 | . 00 |
| Miscellaneous machine operatves | 21.68 | 22. 10 | 20.49 | 8.83 | 9.71 | 9.07 | 18.50 | 18.62 | 16.78 |
| other oferatives, exc transport | 6.11 | 6.49 | 5.66 | 7.33 | 8.49 | 7.48 | 23.28 | 24.51 | 21.04 |

$\left.\begin{array}{lllllllll}\text { Leather } \\ \text { tanning } \\ \text { and }\end{array}\right]$

|  | Footvear. except rubber |  |  | All other leather products |  |  | Transportation, other public util |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.36 | 1.57 | 1.26 | 2.62 | 2.86 | 2.40 | 6.73 | 7.44 | 8.35 |
| Engineers, technical | -21 | . 21 | - 18 | . 36 | . 33 | . 29 | 1.76 | 1.72 | 2. 15 |
| Aeronautical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Chemical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Civil | . 00 | . 00 | -00 | . 00 | .00 | . 00 | . 22 | . 18 | . 21 |
| Electrical | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.15 | 1.17 | 1.57 |
| Industrial | . 16 | - 16 | - 13 | .18 | . 18 | . 16 | . 08 | . 08 | . 07 |
| Mechanical | . 02 | . 02 | . 03 | . 10 | . 10 | . 12 | . 15 | .15 | . 15 |
| Sales | . 00 | - 00 | . 00 | . 04 | . 02 | . 01 | . 02 | . 01 | .01 |
| Other engineers | . 02 | . 02 | . 02 | . 04 | . 03 | . 01 | . 10 | .09 | . 09 |
| Life and physical scientists | . 02 | . 02 | . 03 | . 06 | . 06 | . 07 | . 07 | . 08 | . 08 |
| Atmospheric and space | . 00 | . 00 | . 00 | .00 | .00 | . 00 | .01 | . 02 | . 02 |
| Biological | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Chemists | . 02 | . 02 | . 02 | . 06 | . 06 | . 07 | . 04 | . 04 | . 03 |
| Geologists | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Physicists and astronomers | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Mathematical sfecialists | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 04 | .03 | . 03 |
| Statisticians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | .03 | . 02 |
| Engineering, science technicians | . 08 | . 08 | . 12 | .30 | . 28 | . 23 | . 93 | 1.00 | 1.14 |
| Chemical technicians | . 01 | . 01 | .04 | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Drafters | . 03 | . 02 | . 03 | . 09 | . 08 | . 08 | -29 | . 26 | . 29 |
| Electrical and electronic | .00 | -00 | - 00 | . 02 | . 02 | . 01 | . 39 | . 46 | . 52 |
| Industrial engineering | . 01 | . 01 | . 01 | . 05 | . 06 | . 04 | . 01 | . 01 | . 01 |
| Surveyors | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 08 | . 08 | . 08 |
| Other engineering, science tech | . 04 | . 04 | . 04 | - 14 | . 13 | .10 | . 74 | . 16 | - 19 |
| Medical workers,exc technicians | . 03 | . 03 | . 03 | . 03 | . 04 | . 06 | .03 | . 03 | . 03 |
| Registered nurses | . 03 | . 03 | . 03 | . 03 | . 04 | . 06 | . 02 | . 02 | . 02 |
| Health technolcgists, technicians | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | .01 |
| Other health technicians | .01 | . 01 | .01 | . 00 | .00 | .00 | .01 | . 02 | .01 |
| Technicians, except health | .01 | . 01 | . 00 | . 03 | . 02 | . 01 | 1.08 | 1.26 | 1.39 |
| Airplane pilots | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 72 | . 88 | 1.05 |
| Flight engineers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .13 | . 08 | . 10 |
| Radio operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 19 | . 13 |
| Tool programers,numerical | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | .00 | .00 | . 00 |
| Other technicians except health | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 07 | . 10 | . 12 |
| Computer specialists | - 13 | - 16 | . 15 | . 18 | - 24 | .23 | . 28 | . 36 | . 45 |
| Computer programers | - 10 | . 12 | .12 | . 09 | - 10 | . 08 | -19 | . 22 | . 26 |
| Computer systems analysts | . 02 | . 04 | . 03 | . 07 | - 10 | . 10 | . 08 | . 12 | . 17 |
| other computer specialists | . 00 | . 00 | . 00 | . 02 | . 04 | . 05 | .01 | . 02 | . 02 |
| Social scientists | . 02 | . 03 | . 02 | . 04 | . 04 | . 02 | . 07 | . 11 | . 11 |
| Economists | . 02 | .03 | . 02 | . 04 | . 04 | .02 | . 07 | - 11 | .11 |
| Teachers | . 08 | - 08 | . 02 | . 00 | . 00 | . 00 | . 07 | . 04 | . 02 |
| Adult educaticn | -08 | . 08 | . 02 | -00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Other teachers | . 00 | . 00 | .00 | . 00 | .00 | . 00 | . 06 | . 03 | . 02 |
| Writers, artists, entertainers | . 27 | - 34 | . 27 | . 84 | . 98 | . 82 | 1.06 | 1.27 | 1.50 |
| Actors | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Authors | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Designers | - 26 | . 32 | . 25 | . 79 | . 92 | . 79 | . 05 | . 07 | . 08 |
| Editors and reforters | -00 | - 00 | - 00 | . 00 | . 00 | . 00 | . 20 | . 26 | . 38 |
| Musicians and composers | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| Painters and sculptors | .00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 03 | . 03 | . 02 |
| Photoyraphers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 |
| Public relaticns specialists | . 01 | . 02 | . 02 | . 03 | . 03 | . 02 | . 18 | . 23 | . 26 |
| Radio and ty announcers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 40 | . 45 | . 50 |
| Other writers,artists, entertain | .01 | .00 | . 00 | .00 | .00 | .00 | . 10 | .13 | . 13 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Footwear, } \\ & \text { except } \\ & \text { rubber } \end{aligned}$ |  |  | All other leather products |  |  | Transportation, other public util |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | . 53 | . 61 | . 43 | - 79 | . 87 | . 69 | 1.35 | 1.52 | 1.44 |
| Accountants | . 30 | . 35 | . 29 | . 31 | . 35 | . 34 | . 77 | - 86 | . 88 |
| Architects | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| foresters and conservationists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Home management advisors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Lawyers | .01 | . 02 | . 02 | . 04 | . 07 | . 03 | . 06 | . 11 | . 08 |
| Operations and systems research | . 05 | .07 | . 04 | . 10 | . 11 | . 06 | . 07 | . 09 | . 09 |
| Personnel, labcr relations wkrs | . 16 | - 16 | . 09 | . 30 | . 32 | . 25 | - 36 | . 39 | . 32 |
| Other research workers | .01 | . 01 | . 00 | . 04 | . 02 | .01 | . 02 | . 02 | . 01 |
| Managers, officials, proprietors | 2.90 | 3.46 | 3.02 | 7.38 | 8.45 | 7.51 | 7.99 | 9.34 | 9. 15 |
| Buyers, sales,lcan managers | . 60 | . 58 | - 57 | 1.40 | 1. 32 | 1.38 | . 52 | -49 | . 49 |
| Bank, financial managers | . 06 | . 06 | . 05 | .13 | . 14 | $\therefore 15$ | . 08 | . 07 | . 05 |
| Credit managers | . 05 | . 03 | . 02 | - 10 | . 06 | . 06 | . 03 | . 02 | .01 |
| Purchasing agents, buyers, other | . 30 | - 28 | . 28 | - 54 | . 49 | . 51 | .19 | . 16 | . 15 |
| Sales manager, exc retail trade | . 20 | . 22 | . 22 | . 63 | . 64 | . 65 | . 22 | . 24 | . 27 |
| other managers,officials, proprts | 2.30 | 2.88 | 2.45 | 5.98 | 7.13 | 6.13 | 7.47 | 8.85 | 8.66 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Office managers, other | . 25 | . 27 | . 25 | . 41 | . 42 | . 46 | . 46 | . 47 | . 50 |
| Officers, pilots, pursers,ship | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 49 | . 41 | . 32 |
| Railroad conductors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 80 | .63 | . 61 |
| Restaurant, cafe,bar,managers | . 02 | . 02 | . 01 | . 00 | .00 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 2.03 | 2.59 | 2.18 | 5.57 | 6.70 | 5.68 | 5.70 | 7.32 | 7.20 |
| Sales workers | 1.60 | 1.76 | 1.93 | 2.78 | 2.91 | 3.38 | . 95 | 1.02 | 1. 34 |
| Advertising agents, sales worker | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 23 | . 35 | . 55 |
| Demonstrators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Other sales workers | 1.59 | 1.74 | 1.90 | 2.78 | 2.91 | 3.38 | .71 | . 67 | . 76 |
| Clerical workers | 8.23 | 8.42 | 8.24 | 11.18 | 10.63 | 10.95 | 23.00 | 21.25 | 20.21 |
| Stenographrs, typists, secretaries | 1.71 | 1. 66 | 1.60 | 2.55 | 2. 36 | 2.38 | 3.54 | 3.45 | 3.97 |
| Legal secretaries | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| other secretaries | 1.11 | 1. 15 | 1.16 | 1.88 | 1.81 | 1.91 | 2.07 | 2.21 | 2.72 |
| Stenographers | . 06 | . 03 | . 00 | . 04 | . 02 | . 00 | . 22 | . 11 | . 05 |
| Typists | . 54 | . 48 | . 42 | .63 | - 53 | . 46 | 1.23 | 1.11 | 1.19 |
| Office machine operators | . 64 | . 68 | -48 | . 69 | . 68 | . 43 | . 86 | . 88 | . 74 |
| Bookkeeping and billing | . 05 | - 03 | . 02 | . 04 | . 02 | . 00 | . 07 | . 03 | .03 |
| Calculating | . 05 | . 04 | . 03 | . 04 | . 02 | . 00 | . 05 | . 03 | . 02 |
| Computer and eeripheral equip | . 11 | - 27 | .23 | - 14 | . 28 | . 23 | . 22 | -45 | . 50 |
| Duplicating | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | - 01 |
| Keypunch | . 35 | . 28 | . 16 | . 36 | . 25 | . 10 | .46 | . 31 | . 16 |
| Tabulating | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 00 | . 00 |
| Other office machine operators | . 05 | . 05 | . 03 | .10 | - 10 | .09 | . 04 | . 03 | . 02 |


|  | Footwear. except rubber |  |  | All other leather products |  |  | Transportation, other public util |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 5.88 | 6.08 | 6.16 | 7.94 | 7.59 | 8.14 | 18.60 | 16.93 | 15. 50 |
| Billing clerks | . 20 | . 21 | . 22 | . 25 | . 26 | . 28 | .36 | . 39 | . 40 |
| Bookkeepers | . 85 | . 87 | -80 | 1.90 | 1.81 | 1.85 | 1.63 | 1.60 | 1.66 |
| Cashiers | . 05 | . 05 | . 05 | .03 | . 02 | . 01 | . 44 | . 47 | .51 |
| Clerical supervisors, other | . 09 | - 10 | . 09 | . 09 | . 10 | . 11 | . 46 | . 49 | . 50 |
| collectors, bill and account | . 00 | . 00 | . 00 | . 01 | .01 | . 00 | . 12 | .11 | . 09 |
| Counter clerks, exc food | . 23 | . 25 | . 24 | . 36 | . 36 | . 33 | . 24 | . 24 | . 26 |
| Dispatchers, starters, vehicle | -00 | -00 | -00 | . 00 | . 00 | . 00 | . 60 | . 63 | . 59 |
| Estimators, investigators, otner | . 07 | . 09 | . 07 | . 07 | . 07 | . 04 | .75 | . 77 | .53 |
| Expediters, prcduction controirs | . 49 | - 54 | . 63 | . 29 | . 24 | .11 | . 19 | -18 | . 18 |
| File clerks | . 18 | . 16 | .17 | . 26 | .24 | . 38 | . 34 | .29 | . 32 |
| Mail handlers, exc gost office | . 09 | . 09 | . 08 | .11 | . 11 | . 10 | . 19 | . 18 | - 16 |
| Messengers and office helpers | . 01 | . 01 | . 01 | . 05 | . 05 | . 04 | . 07 | . 07 | . 04 |
| Meter readers,utilities | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 74 | . 69 | . 68 |
| Payroll, timekeeping clerks | -63 | . 71 | . 62 | . 50 | . 57 | . 61 | . 32 | . 35 | . 32 |
| Heceptionists | . 16 | . 15 | . 12 | . 28 | . 25 | . 24 | . 21 | . 19 | . 17 |
| Shipping and receiving clerks | 1.32 | 1.33 | 1.59 | 2.48 | 2.39 | 3.03 | . 66 | . 70 | . 76 |
| Statistical clerks | . 16 | - 18 | - 19 | . 12 | - 13 | . 15 | . 85 | . 87 | . 79 |
| Stock clerks and store keepers | . 62 | . 56 | .47 | . 64 | . 53 | .41 | . 53 | . 38 | . 25 |
| Teleyraph messengers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 01 |
| Telegraph operators | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 23 | . 18 | . 09 |
| Telephone opelators | - 10 | - 07 | . 07 | . 08 | . 03 | . 00 | 4.43 | 2.96 | 2.21 |
| Ticket,station, express agents | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | 1.87 | 1.87 | 1.88 |
| weighers | . 01 | . 01 | . 01 | . 04 | . 04 | . 03 | . 04 | .03 | . 03 |
| Misc clerical workers | .62 | . 67 | .74 | . 38 | . 38 | . 44 | 3.27 | 3.24 | 3.07 |
| Crafts and kindred workers | 13.76 | 12.61 | 13.09 | 11.90 | 12.26 | 12.05 | 21.72 | 21.18 | 21.11 |
| Construction crafts workers | . 23 | . 21 | . 16 | . 37 | - 34 | . 25 | 2.12 | 2.03 | 2.02 |
| Carpenters and apprentices. | . 09 | - 10 | . 09 | . 14 | . 13 | - 12 | . 29 | . 29 | . 24 |
| Brick, stonemasons, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Bulldozer oferators | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 14 | . 14 |
| Electicians and apprentices | - 10 | . 07 | . 02 | . 09 | . 09 | . 09 | . 81 | . 83 | .81 |
| Excavating. grading mach operatr | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 20 | . 17 | . 17 |
| Painters and apprentices | . 03 | . 03 | . 05 | - 14 | . 11 | . 05 | -17 | . 14 | -11 |
| Plumbers, pi pefitters, aprentices | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 45 | . 42 | . 53 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Blue collar worker supervisors | 3.59 | 4. 14 | 4.32 | 4.90 | 5.31 | 5.59 | 2.70 | 2.84 | 2.83 |
| Metalworkg craft wrkrs,exc meca | . 78 | - 80 | .91 | . 98 | . 96 | 1.20 | .51 | . 50 | .60 |
| Blacksmiths | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 01 | . 01 |
| Boilermakers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 13 | . 21 |
| Job and die setters, metal | . 02 | . 01 | . 01 | . 07 | . 05 | . 02 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 49 | . 53 | . 55 | . 64 | . 69 | . 89 | . 30 | . 26 | - 30 |
| Millwrights | . 02 | - 03 | . 04 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Pattern and moldmakers | . 21 | - 19 | . 26 | . 10 | . 08 | . 14 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 06 | . 04 |
| Tool and diemakers, apprentices | . 05 | . 04 | . 05 | . 17 | . 14 | . 15 | . 01 | . 01 | . 01 |
| Mechanics, repairers,installers | 1.02 | 1.27 | 1.46 | 1.19 | 1.36 | 1.61 | 5.54 | 5.38 | 5.42 |
| Air cond, heating, refrig mech | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 11 | . 15 | . 16 |
| Aircraft mechanics | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 88 | . 97 | 1. 14 |
| Auto body repairers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 02 | . 02 |
| Auto mechanics and apprentices | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | 1.56 | 1.48 | 1.49 |
| Data processing mach repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Heavy equip mech, incl diesel | . 98 | 1. 23 | 1.41 | 1.03 | 1.23 | 1.55 | .57 | . 69 | . 86 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 81 | .78 | . 68 |
| office machine repairers | . 00 | - 00 | -00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Radio, television repairers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 17 | .14 | . 17 |
| Railroad, car shop repairers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 99 | .73 | . 57 |
| Other mechanics and apprentices | . 03 | . 03 | . 04 | . 16 | . 12 | . 04 | . 42 | . 39 | . 29 |
| Printing trade crafts workers | . 07 | . 08 | . 11 | . 12 | . 13 | . 18 | . 04 | . 04 | . 06 |
| Compositors and typesetters | . 04 | . 05 | . 08 | . 05 | . 04 | . 04 | . 02 | . 02 | . 03 |
| press,plate printers, aprentices | . 02 | .03 | . 03 | .07 | .09 | . 14 | .01 | . 02 | . 03 |
| Transport, public util craft wkrs | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | 8.53 | 8.24 | 7. 77 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.63 | 1.75 | 1. 66 |
| Loconotive engineers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 68 | . 78 | . 77 |
| Locomotive engineers' helpers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | - 35 | . 17 | . 06 |
| Power station operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 25 | .28 | . 18 |
| Telephone installers, repairers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | 4.64 | 4. 30 | 4.21 |
| Telephone line instalr,splicers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | . 98 | . 97 | .91 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Footwear, } \\ & \text { except } \\ & \text { rubber } \end{aligned}$ |  |  | All other leather products |  |  | Transportation, other public util |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 8.07 | 6. 10 | 6.12 | 4.34 | 4. 17 | 3.22 | 2.29 | 2.17 | 2.40 |
| Cabinetmakers | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Crane,derrick, hoist operator | . 01 | . 00 | . 00 | . 00 | . 00 | -00 | - 20 | - 16 | . 19 |
| Inspectors, other | . 02 | . 02 | . 03 | . 02 | . 03 | . 03 | . 85 | .79 | . 69 |
| Shoe repairers | 3.42 | 1.28 | 1.75 | - 00 | - 00 | . 00 | . 00 | . 00 | .00 |
| Sign painters and letterers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 08 | . 08 | . 11 | . 08 | . 07 | - 11 | 1.06 | 1.05 | 1.39 |
| Tailors | . 02 | . 02 | . 01 | . 11 | - 11 | . 14 | . 00 | . 00 | - 00 |
| Upholsterers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other crafts workers | 4.51 | 4.68 | 4.21 | 4. 13 | 3.95 | 2.94 | . 16 | . 14 | . 11 |
| Operatives | 68.77 | 68.72 | 69.16 | 61.00 | 60.01 | 61.47 | 26.80 | 28.30 | 28.45 |
| Operatives, except transport | 68.34 | 68.24 | 68.52 | 60.23 | 59.20 | 60.41 | 3.11 | 2.81 | 2.38 |
| Semiskilled metalworking | . 45 | - 38 | . 28 | -95 | - 75 | -53 | -46 | -43 | - 44 |
| Drill press oferatives | .03 | . 02 | . 01 | .06 | . 03 | . 01 | . 00 | . 00 | - 00 |
| Grinding machine operatives | . 01 | . 01 | .01 | -00 | -00 | . 00 | . 01 | . 00 | . 00 |
| Lathe,milling mach operatives | . 05 | . 03 | . 03 | . 08 | . 05 | . 03 | .01 | .01 | . 01 |
| Metal platers | . 01 | . 01 | . 01 | . 08 | . 06 | . 01 | . 00 | . 00 | . 00 |
| Other precisicn mach operators | . 01 | . 01 | -00 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Punch,stamping press operatives | . 24 | . 20 | . 13 | -48 | - 37 | . 21 | . 01 | .01 | - 01 |
| Solderers | . 05 | . 05 | . 04 | . 04 | . 03 | . 00 | .00 | .00 | . 00 |
| Welders and flamecutters | . 05 | . 06 | . 06 | . 17 | - 19 | - 26 | . 42 | . 40 | . 42 |
| Semiskilled packing, inspecting | 5.34 | 5. 65 | 6.52 | 7.86 | 7.86 | 9.61 | . 18 | . 18 | . 17 |
| Checkers, examiners, mEg | 2.55 | 2.79 | 3.28 | 3.32 | 3.44 | 4.24 | . 00 | . 00 | . 00 |
| Graders and scrters, mfg | . 29 | . 30 | . 25 | . 32 | . 32 | -29 | . 00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodce | 2.50 | 2.56 | 2.99 | 4.22 | 4.11 | 5.08 | . 17 | -17 | . 16 |
| Produce grdr, fkrs,exc fact,farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 01 |
| Other operatives, exc transport | 62.55 | 62.21 | 61.73 | 51.43 | 50.59 | 50.27 | 2.47 | 2.19 | 1.77 |
| Assemblers | 1.64 | 1.91 | 2.28 | 5.64 | 6.71 | 10.09 | . 00 | - 00 | . 00 |
| Bottling.canning operatives | . 02 | . 02 | . 02 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Clothing ironers and pressers | . 12 | . 10 | . 10 | . 13 | . 08 | . 02 | . 00 | . 00 | . 00 |
| Cutting operatives, other | 1.90 | 2.08 | 2.21 | 4.16 | 4.13 | 3.86 | .01 | . 00 | . 01 |
| Drillers, earth | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Dyers | - 10 | . 11 | . 14 | . 11 | .11 | - 12 | . 00 | - 00 | . 00 |
| Filer, polisher, sander, buffer | - 34 | - 32 | . 24 | . 32 | . 27 | - 18 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 09 | . 06 | . 05 |
| Laundry, dry cleang oprs, other | . 00 | - 00 | -00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Meat cutters, tutchers, exc mfy | . 00 | . 00 | . 00 | - 00 | - 00 | . 00 | . 04 | - 02 | . 01 |
| Meat cutters and butchers | . 06 | . 06 | . 08 | . 06 | . 05 | . 05 | -00 | . 00 | . 00 |
| mixing operatives | . 05 | . 05 | . 04 | . 10 | -09 | . 06 | . 00 | - 00 | . 00 |
| oilers, greasers,exc automobiles | .01 | . 01 | . 02 | . 05 | . 06 | . 09 | . 13 | -10 | . 05 |
| Painters, mfg articles | . 27 | - 25 | . 26 | . 70 | . 61 | . 70 | . 01 | - 01 | . 01 |
| Photographic frocess workers | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 02 | . 02 | - 02 |
| Riveters and fasteners | . 65 | . 70 | . 75 | 1.79 | 1.67 | 1.37 | . 00 | . 00 | . 00 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 60 | . 47 | . 36 |
| Sauyers | . 05 | . 06 | . 06 | . 21 | - 19 | - 16 | .01 | . 01 | . 01 |
| Severs and stitchers | 17.11 | 16. 32 | 22.02 | 15.83 | 13.03 | 12.93 | . 00 | . 00 | . 00 |
| Shoemaking machine operatives | 28.65 | 27.07 | 21.01 | -07 | . 05 | . 02 | . 00 | . 00 | - 00 |
| Purnace tendr,stokr,exc metal | . 19 | . 15 | . 17 | . 08 | . 06 | . 10 | . 22 | . 14 | - 12 |
| Winding operatives, other | . 02 | . 01 | . 00 | . 08 | . 06 | . 03 | . 01 | . 01 | . 01 |
| Miscellaneous machine operatves | 7.08 | 8.03 | 8.09 | 10.89 | 11.08 | 9.42 | .19 | . 20 | . 17 |
| other operatives, exc transport | 4.30 | 4.97 | 4.22 | 11.20 | 12.31 | 11.04 | 1.12 | 1.12 | . 94 |
| Transport equipment operatives | -43 |  | . 64 | .77 | . 81 | 1.06 | 23.70 | 25.49 | 26.07 |
| Boat operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 06 | . 03 |
| Bus drivers | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | 3.83 | 4.54 | 4. 31 |
| Conductors, operators, urban rail | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | - 17 | - 15 | . 17 |
| Delivery and route workers | . 06 | . 06 | . 07 | . 13 | . 11 | - 14 | . 68 | . 70 | . 64 |
| Fork lift, toy motor operatives | . 11 | . 13 | . 14 | . 34 | . 38 | . 35 | - 32 | . 36 | . 33 |
| Railroad brake operators | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 92 | . 76 | . 71 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 95 | . 70 | . 55 |
| Taxicab drivers, chauffeurs | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 | 1.92 | 1.94 | 1.75 |
| Truck drivers | . 25 | . 28 | . 43 | -27 | - 29 | . 54 | 14.82 | 16.27 | 17.58 |
| Service workers | 1.54 | 1.53 | 1.38 | 1.22 | 1.03 | .69 | 2.89 | 2.53 | 2.74 |
| Cleaning service workers | . 89 | . 87 | . 70 | .93 | - 80 | . 48 | 1.13 | . 94 | .77 |
| Bldg interior cleaners, other | . 11 | - 12 | . 10 | . 22 | . 21 | . 15 | . 24 | -20 | . 17 |
| Janitors and sextons | . 78 | .76 | .60 | .71 | . 59 | . 33 | . 88 | . 74 | . 60 |


|  | $\begin{aligned} & \text { Footwear, } \\ & \text { except } \\ & \text { rubber } \end{aligned}$ |  |  | All other leather products |  |  | Transportation, other public util |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 05 | . 05 | . 04 | . 11 | .09 | . 05 | . 36 | .24 | . 18 |
| Waiters' assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| cooks, exc private households | .03 | .03 | . 03 | .03 | . 03 | . 02 | . 16 | . 11 | . 07 |
| Dishwasbers | . 00 | . 00 | . 00 | .03 | . 02 | . 01 | . 02 | .01 | . 01 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 02 | . 02 | . 02 |
| Waiters | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | .09 | . 05 | . 03 |
| other food serv wkrs,exc privt | .01 | . 01 | . 01 | . 03 | . 02 | .01 | . 05 | . 04 | . 03 |
| Health service workers | .07 | . 06 | - 12 | . 03 | . 03 | .09 | . 01 | . 01 | . 01 |
| Nursing aides and orderlies | .06 | . 06 | . 12 | . 03 | . 03 | . 09 | . 00 | . 00 | . 00 |
| Personal service workers | . 12 | . 12 | . 10 | . 05 | . 05 | . 07 | . 97 | . 96 | 1.37 |
| Flight attendants | . 00 | . 00 | . 00 | .00 | . 00 | .00 | .67 | . 76 | 1.17 |
| Attendants, recreation, amusement | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Attendants, personal sery,other | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 07 | . 06 | . 07 |
| Baggage forters and bellhops | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 05 | . 06 |
| Elevator operators | . 10 | . 10 | . 09 | . 05 | . 05 | .07 | . 02 | . 02 | . 01 |
| Housekeepers, exc private homes | .00 | . 00 | . 00 | . 00 | . 00 | .00 | .08 | . 05 | . 03 |
| Protective service workers | . 41 | .43 | . 42 | . 10 | . 06 | . 00 | . 42 | . 38 | . 41 |
| Crossing guards,bridgetenders | .00 | . 00 | . 00 | .00 | . 00 | .00 | . 07 | . 06 | . 04 |
| Firefighters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Guards | . 41 | . 43 | . 42 | . 10 | . 06 | . 00 | . 27 | .26 | . 31 |
| Police and detectives | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 07 | . 05 | . 04 |
| Laborers, except farm | 1.84 | 1.94 | 1.93 | 1.93 | 1.85 | 1.55 | 9.92 | 8.95 | 8.67 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 04 | . 04 |
| Carpenter helfers | . 03 | . 03 | . 05 | . 04 | . 03 | . 02 | . 04 | . 03 | . 04 |
| Constr labr, exc carpenter helpr | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 70 | . 60 | . 44 |
| Preight and material handlers | . 70 | . 74 | . 82 | . 75 | . 69 | . 60 | 2.36 | 2.28 | 1.88 |
| Garbage collectors | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.65 | 1.73 | 2. 56 |
| Gardenrs, grcundkeepers, exc farm | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 13 | . 15 | . 14 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.07 | .96 | . 78 |
| rimbercutting, logging vorkers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Stock handlers | . 62 | . 69 | . 60 | . 75 | . 78 | . 59 | -13 | . 12 | . 06 |
| Teamsters | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 00 |
| Vehicle washers,equip cleaners | . 12 | . 12 | . 07 | . 05 | . 04 | . 01 | . 35 | - 28 | . 24 |
| warehouse labcrers, other | . 08 | . 08 | . 09 | . 10 | .11 | .17 | .22 | .21 | +18 |
| Other laborers | . 27 | . 26 | . 27 | .21 | . 18 | . 15 | 3.24 | 2.55 | 2.31 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Transportation, total |  |  | Railroads and railway express |  |  | Local and interurban transit |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 3.65 | 3.93 | 4.25 | 2.39 | 2.44 | 2.08 | 1.00 | - 99 | 1.26 |
| Engineers, technical | . 38 | . 33 | .33 | . 56 | . 45 | . 37 | . 23 | - 17 | .31 |
| Aeronautical | . 03 | . 03 | . 04 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Civil | . 10 | . 07 | . 08 | . 28 | . 21 | . 20 | . 09 | . 07 | . 11 |
| Electrical | . 07 | . 06 | . 06 | . 10 | . 09 | . 08 | -07 | . 06 | .09 |
| Industrial | . 05 | . 05 | . 04 | . 07 | . 06 | . 03 | . 02 | . 01 | . 02 |
| Mechanical | . 08 | . 09 | . 08 | . 07 | . 06 | . 03 | . 02 | . 02 | . 05 |
| Other engineers | .03 | . 03 | .03 | . 04 | . 03 | . 02 | . 02 | .01 | . 05 |
| Life and physical scientists | . 02 | . 02 | . 02 | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Atmospieric and space | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | .01 | . 01 | . 00 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Mathenatical sfecialists | . 02 | . 02 | .01 | . 05 | . 04 | . 04 | . 01 | . 00 | . 00 |
| Statisticians | . 02 | . 02 | .01 | . 05 | . 03 | . 04 | . 00 | .00 | . 00 |
| Engineering, science technicians | .21 | . 19 | . 20 | . 29 | . 25 | .21 | . 05 | . 05 | . 11 |
| Drafters | . 05 | . 04 | . 04 | . 11 | . 09 | . 05 | . 03 | .03 | . 06 |
| Electrical and electronic | . 05 | . 05 | . 05 | . 07 | . 06 | . 04 | . 00 | . 00 | . 00 |
| Surveyors | . 05 | . 04 | . 03 | . 05 | . 05 | . 07 | .01 | .01 | . 01 |
| Other engineering, science tech | . 05 | . 05 | . 06 | . 06 | . 05 | . 03 | . 01 | .01 | . 05 |
| Medical workers,exc technicians | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | .01 | .01 | . 02 |
| Begistered nurses | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | .01 | . 01 | . 02 |
| Health technolcgists, technicians | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 02 | . 01 | . 02 |
| Clinical lab technologists, tech | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Hechnicians, except health | 1.58 | 1. 80 | 2.13 | . 02 | . 02 | . 02 | . 22 | - 26 | - 16 |
| Airplane pilots | 1.24 | 1.53 | 1.86 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Flight engineers | . 23 | . 14 | . 18 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Radio operators | . 09 | - 10 | . 06 | . 01 | . 01 | . 00 | . 20 | - 24 | . 13 |
| Other technicians except health | . 02 | . 03 | .03 | .01 | .01 | . 02 | .01 | . 02 | .03 |
| Computer specialists | . 16 | - 20 | . 21 | -20 | - 25 | - 26 | . 03 | . 03 | - 05 |
| Computer frogramers | . 11 | - 12 | . 13 | . 13 | - 14 | . 14 | . 02 | . 02 | . 03 |
| Computer systems analysts | . 05 | . 07 | . 08 | . 07 | - 10 | . 09 | . 01 | . 01 | . 02 |
| Other computer specialists | . 01 | . 01 | .01 | . 01 | . 02 | . 02 | -00 | . 00 | - 00 |
| Social scientists | . 03 | . 04 | . 05 | . 03 | . 04 | . 03 | .01 | . 01 | . 02 |
| Economists | . 03 | . 04 | . 05 | . 03 | . 04 | . 03 | . 01 | . 01 | . 02 |
| Teachers | . 10 | . 06 | . 03 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other teachers | - 10 | . 05 | . 03 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | - 16 | - 20 | . 20 | . 09 | . 10 | . 08 | . 06 | . 06 | . 08 |
| Athletes and kindred workers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Designers | . 01 | . 01 | . 02 | . 02 | . 03 | . 02 | . 01 | . 01 | . 02 |
| Editors and reforters | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Photographers | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Public relations specialists | . 09 | . 11 | - 12 | . 05 | . 06 | . 05 | . 04 | . 04 | . 04 |
| Dther writers,artists, entertain | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other professional and technical | . 96 | 1.07 | 1.05 | 1.08 | 1. 21 | 1.03 | . 38 | - 39 | - 50 |
| Accountants | .63 | . 69 | . 74 | . 71 | . 78 | . 73 | . 21 | . 20 | . 25 |
| Architects | . 01 | - 01 | . 01 | . 01 | . 01 | . 00 | . 01 | -01 | - 02 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Lawyers | . 04 | . 07 | . 06 | . 08 | . 12 | . 11 | . 04 | . 06 | . 07 |
| Operations and systems research | . 04 | . 05 | . 05 | . 05 | . 07 | . 04 | .00 | . 01 | .03 |
| Personnel, labcr relations wnrs | . 22 | - 23 | . 18 | . 19 | . 19 | - 11 | - 12 | . 11 | - 12 |
| Other research workers | - 02 | . 01 | . 01 | . 02 | . 02 | . 01 | .01 | . 01 | . 01 |
| Managers, officials, proprietors | 8.90 | 9. 99 | 10.55 | 11.87 | 13.40 | 15.50 | 2.43 | 2.45 | 2.89 |
| Buyers,sales, Ican managers | . 44 | . 40 | . 42 | . 35 | . 30 | . 27 | .09 | . 06 | . 14 |
| Bank, financial managers | . 07 | . 07 | . 05 | . 03 | . 03 | . 02 | . 02 | . 01 | . 05 |
| Credit managers | .01 | - 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | . 01 |
| Purchasing agents, buyers, other | . 15 | - 12 | . 12 | . 13 | - 10 | . 10 | . 04 | . 02 | . 04 |
| Sales manager, exc retail trade | . 20 | . 21 | . 23 | . 18 | - 17 | - 15 | . 02 | . 02 | . 04 |

Table 1. Percent distribution of industry employment by occupation, 1970 . 1978 and projected 1990

|  | Transportatione total |  |  | Railroads and railway express |  |  | Local and interurban transit |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 8.47 | 9.58 | 10.14 | 11.52 | 13.10 | 15.22 | 2.34 | 2.40 | 2.75 |
| Mgrs, superintendents, building | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| office managers, other | .47 | .46 | . 46 | . 55 | . 52 | . 49 | .11 | . 09 | . 20 |
| officers, pilots, pursers, ship | . 86 | .71 | . 58 | . 03 | . 03 | . 02 | .00 | . 00 | . 00 |
| Railroad conductors | 1.40 | 1.11 | 1.10 | 6.50 | 7. 11 | 8.99 | .00 | . 00 | . 00 |
| Bestaurant, cafe, bar, managers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 02 |
| Other managers, administrators | 5.72 | 7.29 | 7.99 | 4.41 | 5.43 | 5.71 | 2.22 | 2.30 | 2.53 |
| Sales workers | .73 | . 67 | . 77 | .22 | .17 | . 17 | . 17 | . 12 | . 32 |
| Advertising agents, sales worker | .01 | . 01 | . 02 | .00 | . 00 | .00 | . 01 | . 01 | . 02 |
| other sales workers | .72 | . 66 | . 76 | . 22 | . 17 | .17 | .17 | .11 | . 30 |
| Clerical workers | 15.92 | 15. 26 | 14.36 | 17.29 | 15.28 | 10.30 | 8.44 | 7.13 | 9.35 |
| Stenographrs,typists, secretaries | 2.82 | 2.73 | 2.72 | 2.39 | 2.10 | 1.75 | .87 | . 66 | . 94 |
| Legal secretaries | .01 | . 01 | . 01 | . 03 | . 02 | . 02 | . 00 | .00 | . 00 |
| Other secretaries | 1.76 | 1.86 | 1.98 | . 98 | . 99 | . 85 | . 58 | . 47 | . 68 |
| Stenographers | . 16 | . 08 | . 03 | . 47 | . 31 | . 19 | . 04 | . 01 | . 01 |
| Typists | . 88 | . 78 | . 70 | . 92 | . 79 | .70 | . 24 | .17 | . 26 |
| Office machine operators | .67 | . 60 | . 49 | 1.29 | 1. 20 | . 76 | . 15 | . 12 | . 19 |
| Bookkeeping and billing | . 06 | . 03 | . 02 | . 03 | . 01 | . 00 | . 01 | . 00 | .01 |
| calculating | . 04 | . 02 | .01 | . 08 | . 05 | . 02 | . 02 | . 01 | .02 |
| computer and feripheral equip | . 15 | . 28 | - 30 | - 26 | . 51 | . 53 | .03 | . 06 | . 10 |
| Duplicating | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Keypunch | . 39 | . 25 | . 14 | . 86 | . 59 | . 19 | . 08 | . 04 | .03 |
| Tabulating | .01 | . 00 | .00 | .01 | . 00 | . 00 | . 01 | . 00 | . 01 |
| Other office machine operators | . 02 | . 02 | .01 | .03 | . 02 | .01 | . 01 | . 00 | . 02 |
| Other clerical workers | 12.44 | 11.93 | 11.15 | 13.61 | 11.98 | 7.79 | 7.42 | 6.35 | 8.21 |
| Billing clerks | . 34 | . 35 | . 32 | . 36 | . 33 | . 24 | . 04 | . 03 | . 09 |
| Bookkeepers | 1.42 | 1. 38 | 1.34 | 1.01 | . 96 | . 83 | . 70 | . 58 | . 83 |
| Cashiers | . 35 | . 40 | . 49 | . 21 | . 18 | . 08 | . 53 | . 45 | . 64 |
| Clerical supervisors, other | . 22 | . 21 | . 22 | . 33 | - 31 | . 26 | . 13 | - 11 | . 32 |
| Collectors, bill and account | . 02 | . 02 | . 02 | . 01 | . 01 | .00 | . 02 | . 02 | . 06 |
| Counter clerks, exc food | . 08 | . 08 | . 09 | . 08 | . 07 | . 04 | . 04 | . 04 | . 06 |
| Dispatchers, starters, vebicle | . 92 | . 96 | . 90 | . 09 | . 08 | . 06 | 1.96 | 1.88 | 1.91 |
| Enumerators and interviewers | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 03 |
| Estimators, investigators, other | .41 | . 39 | . 34 | . 68 | - 60 | . 52 | .13 | . 10 | . 15 |
| Expediters. production controlrs | . 18 | . 16 | - 16 | - 16 | - 13 | - 10 | . 11 | . 07 | . 15 |
| File clerks | . 23 | - 19 | . 18 | - 30 | - 22 | -19 | . 07 | . 05 | . 08 |
| Insurance adjusters, examiners | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | .01 | .01 | . 03 |
| Library attendants, assistants | . 00 | . 00 | -00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Mail handlers, exc post office | . 18 | - 16 | . 13 | . 25 | - 22 | . 18 | . 02 | . 02 | . 06 |
| Messengers and office helpers | . 08 | . 06 | . 04 | - 16 | - 14 | . 06 | . 01 | . 01 | . 02 |
| Fayroll, timekeeping clerks | . 28 | . 29 | . 26 | . 42 | . 40 | . 33 | . 16 | . 15 | . 19 |
| Receptionists | -17 | - 14 | . 14 | . 06 | . 04 | . 04 | . 23 | . 15 | . 24 |
| Shipping and receiving clerks | 1.09 | 1. 16 | 1.25 | . 59 | . 49 | . 33 | . 09 | . 07 | -10 |
| Statistical clerks | . 43 | . 41 | . 36 | . 88 | . 86 | . 72 | . 13 | . 11 | - 17 |
| Stock clerks and store keepers | . 54 | . 36 | . 22 | . 96 | . 65 | . 49 | . 15 | . 08 | . 10 |
| Telegraph operators | . 27 | - 17 | . 06 | 1.24 | 1.08 | . 45 | . 00 | . 00 | . 00 |
| Telephone operators | . 20 | . 13 | . 11 | -21 | . 12 | . 06 | .21 | . 14 | . 23 |
| Ticket,station, express agents | 3.28 | 3.27 | 3.37 | 2.41 | 2. 17 | 1.27 | 1.91 | 1.67 | 2.17 |
| Weighers | . 05 | . 05 | . 05 | . 05 | . 04 | . 02 | .00 | . 00 | . 00 |
| Misc clerical workers | 1.70 | 1. 58 | 1.12 | 3.14 | 2.87 | 1.50 | .75 | . 62 | .61 |
| Crafts and kindred workers | 13.85 | 12.60 | 12.13 | 30.70 | 32.29 | 32.16 | 7.22 | 5.56 | 8.22 |
| Construction crafts workers | 1.37 | 1.09 | . 91 | 3.41 | 3. 13 | 2.47 | . 69 | . 55 | . 88 |
| Carpenters and apprentices | - 35 | . 30 | .23 | . 84 | . 80 | . 56 | . 10 | . 08 | . 11 |
| Brick, stonemasons, apprentices | . 01 | . 01 | .00 | . 02 | . 02 | . 02 | . 02 | . 01 | .01 |
| Bulldozer operators | .07 | . 05 | . 04 | . 10 | . 08 | . 06 | . 00 | . 00 | . 00 |
| Cement and concrete finishers | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Electricians and apprentices | . 50 | . 42 | .41 | 1.43 | 1.41 | 1.30 | . 35 | . 32 | . 51 |
| Excavating, grading mach operatr | . 07 | . 05 | . 04 | . 13 | - 10 | . 06 | .01 | . 01 | . 04 |
| painters and apprentices | . 20 | . 15 | . 10 | . 38 | . 28 | . 18 | . 15 | . 09 | . 14 |
| Plumbers, pipefitters, aprentices | . 14 | . 09 | . 07 | . 48 | .41 | . 30 | . 04 | . 04 | . 04 |
| Structural metal craft workers | . 02 | .01 | .01 | . 02 | . 01 | . 00 | . 02 | . 01 | . 04 |
| Blue collar worker supervisors | 2.14 | 2. 13 | 1.91 | 3.82 | 3.70 | 3.08 | . 58 | . 54 | . 67 |

Table 1. Percent distribution of industry employment by occupation, 1970. 1978 and projected 1990

|  | transportation, total |  |  | Railroads and railway express |  |  | Local and interurban transit |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Metalworkg cratt urkrs, exc mech | . 62 | . 46 | . 43 | 2.04 | 1.79 | 1.89 | . 14 | . 09 | . 17 |
| Blacksmiths | . 03 | . 02 | . 01 | . 12 | . 09 | . 05 | . 01 | . 01 | . 01 |
| Boilermakers | . 04 | - 02 | . 02 | . 15 | . 10 | . 08 | . 00 | . 00 | . 02 |
| Forge and hammer operators | . 01 | . 01 | . 00 | . 04 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Machinists and apprentices | - 40 | . 29 | . 31 | 1.44 | 1.29 | 1.52 | . 09 | . 05 | . 11 |
| Millwrights | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 12 | . 09 | . 07 | -27 | - 24 | - 21 | . 03 | . 02 | .03 |
| Tool and diemakers, apprentices | . 01 | - 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Mechanics,repairers,installers | 6.31 | 5.95 | 6.22 | 8.50 | 8.45 | 8.35 | 5.27 | 4.01 | 5.68 |
| Air cond, heating, refrig mech | . 06 | . 09 | . 09 | . 05 | . 07 | . 07 | . 02 | . 02 | . 04 |
| Aircraft mechanics | 1.55 | 1.70 | 2.04 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 |
| Auto body repairers | . 04 | .03 | . 03 | . 00 | . 00 | - 00 | . 13 | . 07 | . 09 |
| Auto mechanics and apprentices | 2.27 | 2. 19 | 2.32 | . 08 | . 06 | . 04 | 4.82 | 3.67 | 5.17 |
| Data processing mach repairers | . 00 | . 00 | . 01 | . 01 | -01 | . 01 | . 00 | . 00 | . 00 |
| Heavy equip mech. incl diesel | - 37 | . 43 | .53 | . 21 | . 24 | . 22 | . 09 | . 08 | - 14 |
| Household apfliance mechanics | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | .01 | . 01 | . 00 |
| Radio, television refairers | .11 | - 08 | . 07 | - 12 | -11 | - 12 | -02 | . 02 | . 02 |
| Railroad, car shop repairers | 1.73 | 1.27 | 1.03 | 7.86 | 7.83 | 7.80 | . 16 | . 12 | - 17 |
| Other mechanics and apprentices | .17 | . 14 | .10 | . 14 | . 11 | . 08 | . 02 | . 02 | .03 |
| Printing trade crafts workers | . 01 | . 01 | .01 | . 03 | .03 | . 03 | . 00 | . 00 | . 00 |
| Compositors and typesetters | . 01 | . 01 | .01 | .01 | . 01 | . 00 | . 00 | . 00 | .00 |
| press, plate printers, aprentices | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 | . 00 | .00 | . 00 |
| Transport, public util craft wiks | 1.89 | 1. 70 | 1.54 | 8.72 | 10.83 | 12.38 | - 13 | . 09 | - 15 |
| Elec pwr line instaler, repairer | . 05 | . 03 | . 01 | - 20 | . 13 | . 07 | . 04 | . 02 | . 02 |
| Locomotive engineers | 1.19 | 1. 36 | 1.38 | 5.52 | 8.69 | 11.31 | . 02 | . 02 | . 02 |
| Loconotive engineers' helpers | .62 | . 30 | .11 | 2.87 | 1.89 | . 92 | . 00 | . 00 | . 00 |
| Power station operators | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | . 05 | . 04 | . 06 |
| Telephone installers, repairers | . 03 | . 02 | . 02 | - 10 | . 08 | . 06 | . 02 | . 02 | . 04 |
| Telephone line instalr, splicers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | 1.51 | 1. 26 | 1.12 | 4.18 | 4.37 | 3.95 | . 41 | . 29 | . 66 |
| Bakers | . 01 | . 01 | - 01 | . 00 | - 00 | . 00 | -00 | - 00 | .00 |
| Crane, derrick, hoist operator | . 24 | - 18 | . 22 | . 39 | - 33 | . 41 | . 02 | . 01 | . 07 |
| Glaziers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Inspectors, 1 cg and 1 umber | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 93 | . 79 | . 65 | 3.51 | 3.81 | 3.39 | -29 | . 22 | . 49 |
| Sign painters and letterers | . 01 | . 00 | . 00 | .01 | . 01 | . 00 | . 01 | .07 | . 02 |
| Stationary engineers | . 19 | - 16 | . 15 | - 16 | - 14 | . 11 | . 06 | .03 | . 04 |
| Upholsterers | . 02 | . 01 | . 01 | . 04 | . 02 | . 00 | . 03 | . 01 | . 04 |
| Other crafts workers | . 10 | . 09 | . 07 | .03 | . 03 | . 01 | . 00 | . 00 | . 00 |
| operatives | 42.97 | 45.46 | 46.20 | 19.45 | 20.13 | 21.59 | 76.45 | 81.18 | 73.93 |
| Cperatives, except transport | 3.60 | 3. 12 | 2.63 | 3.02 | 2.89 | 2.54 | . 57 | . 38 | .76 |
| Semiskilled metalworking | .47 | . 40 | . 40 | 1.40 | 1.44 | 1.50 | . 09 | . 06 | - 17 |
| Drill press oferatives | . 00 | - 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Grinding machine operatives | -01 | . 01 | . 00 | . 03 | . 02 | .01 | . 00 | . 00 | . 00 |
| Lathe,milling mach operatives | . 02 | . 01 | . 01 | . 05 | . 03 | . 01 | . 01 | . 01 | .01 |
| Other precision mach operators | .01 | - 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Punch, stamping press operatives | . 01 | . 00 | . 00 | . 02 | . 01 | . 01 | -01 | . 00 | . 02 |
| Welders and flamecutters | -42 | . 37 | .38 | 1.25 | 1.34 | 1.46 | . 07 | . 05 | . 14 |
| Semiskilled packing, inspecting | . 31 | . 30 | . 30 | . 01 | . 01 | . 00 | . 01 | . 00 | . 01 |
| Packer,wrapper, exc meat.prodce | . 28 | . 28 | . 28 | .01 | . 01 | .00 | . 01 | .00 | . 01 |
| produce grdr, fkrs, exc fact,farm | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |


|  | Transportation, total |  |  | Railroads and railway express |  |  | Local and interurban transit |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 2.82 | 2.41 | 1.93 | 1.62 | 1.45 | 1.04 | . 48 | .31 | . 58 |
| Blasters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 02 |
| Surveyors helpers | .01 | . 00 | . 00 | - 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 00 | . 00 | - 00 | . 02 | . 02 | . 02 | . 00 | .00 | .00 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 00 | .00 | . 00 |
| Garage wrkr,gas station atten | . 11 | . 08 | . 06 | . 02 | .01 | . 01 | . 14 | . 07 | . 10 |
| Heat cutters, $\mathrm{L}^{\text {cutchers, exc miy }}$ | . 07 | . 04 | . 02 | . 00 | - 00 | . 00 | . 00 | -00 | . 00 |
| oilers, greasers,exc autcmobiles | .16 | . 13 | . 06 | . 12 | .09 | .07 | . 02 | . 02 | . 02 |
| Painters, mfg articles | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 02 | . 01 | . 02 |
| Riveters and fasteners | . 01 | . 00 | -00 | . 01 | . 01 | . 00 | -00 | . 00 | . 00 |
| Sailors and deckhands | 1.05 | . 82 | . 64 | . 04 | . 02 | . 00 | . 00 | .00 | . 00 |
| Sawyers | . 01 | .01 | - 01 | .01 | . 01 | .01 | . 00 | .00 | . 00 |
| Severs and stitchers | . 01 | . 01 | . 01 | . 02 | . 02 | .03 | .00 | .00 | . 00 |
| Furnace tendr, stokr, exc metal | . 09 | . 05 | . 03 | . 09 | . 05 | .01 | . 02 | . 01 | . 02 |
| Winding operatives, other | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | -00 | . 00 |
| Miscellaneous machine operatves | . 13 | . 13 | .11 | . 13 | . 13 | . 08 | . 02 | . 02 | . 06 |
| Other operatives, exc transport | 1.16 | 1. 12 | -97 | 1.08 | 1.01 | .76 | .23 | . 17 | . 35 |
| Transport equifment operatives | 39.37 | 42.35 | 43.57 | 16.43 | 17.24 | 19.05 | 75.87 | 80.81 | 73. 17 |
| Boat operators | . 12 | . 09 | . 05 | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Bus drivers | 6.69 | 7. 92 | 7.73 | . 06 | . 07 | . 03 | 49.32 | 55.28 | 50.04 |
| Conductors, operators, urban rail | . 29 | . 26 | . 30 | .00 | . 00 | . 00 | 2.16 | 1.81 | 1.94 |
| Delivery and route workers | 1.08 | 1. 13 | 1.00 | - 12 | . 11 | . 12 | - 18 | . 15 | . 21 |
| Fork lift, tow motor operatives | . 54 | .61 | . 56 | . 22 | . 23 | . 17 | . 03 | . 02 | . 06 |
| Rail vehicle cferators, other | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Parking attendants | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Railroad brake operators | 1.61 | 1. 32 | 1.27 | 7.48 | 8.50 | 10.42 | . 00 | . 00 | . 00 |
| Hailroad switch operators | 1.65 | 1.21 | . 97 | 7.48 | 7.43 | 7.46 | . 25 | . 24 | . 30 |
| Taxicab drivers, chauffeurs | 3.32 | 3.35 | 3.14 | . 08 | . 05 | . 00 | 23.57 | 22.89 | 20.05 |
| Truck drivers | 24.05 | 26.44 | 28.55 | . 95 | . 81 | . 80 | . 31 | . 37 | . 50 |
| Service yorkers | 3.62 | 3.15 | 3.90 | 2.69 | 2.04 | 1.79 | 2.24 | 1.26 | 2.20 |
| Cleaning service workers | . 87 | . 68 | . 71 | . 86 | . 72 | . 61 | 1.05 | . 58 | 1.15 |
| Lodging qtrs cleaners, exc privt | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Bldg interior cleaners, other | . 26 | . 20 | -20 | . 38 | . 36 | . 26 | . 45 | . 25 | .45 |
| Janitors and sextons | . 60 | .47 | -51 | . 46 | -35 | . 34 | . 60 | . 33 | .70 |
| Pood service workers | . 55 | . 37 | . 29 | . 56 | . 35 | . 32 | . 26 | . 20 | . 28 |
| Bartenders | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 | . 00 | .00 | . 00 |
| Maiters' assistants | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 | . 02 | .02 | . 04 |
| Cooks, exc private households | . 26 | . 18 | - 12 | . 23 | . 15 | . 12 | . 07 | .03 | . 05 |
| Dishwashers | . 02 | . 01 | . 01 | . 03 | . 01 | . 01 | . 02 | .01 | . 02 |
| Food counter, fountain workers | . 02 | . 03 | . 03 | . 01 | . 02 | . 05 | .05 | . 10 | . 09 |
| Waiters | . 15 | . 08 | . 06 | . 24 | . 12 | . 10 | . 10 | . 04 | . 06 |
| Other food serv wkrs, exc privt | . 09 | . 06 | . 05 | . 02 | . 01 | . 00 | .01 | .01 | . 02 |
| Health service yorkers | .01 | . 01 | .01 | . 01 | .01 | . 00 | . 03 | . 02 | . 02 |
| Nursing aides and orderlies | . 01 | . 00 | .00 | . 00 | .00 | .00 | . 03 | . 02 | . 02 |
| Personal service workers | 1.64 | 1. 62 | 2.43 | . 38 | - 24 | . 19 | . 54 | .21 | . 35 |
| Flight attendants | 1. 18 | 1.33 | 2.10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| At tendants, recreation, amusement | . 02 | . 02 | . 03 | . 00 | . 00 | .00 | . 07 | . 03 | . 03 |
| Attendants, personal serv,other | . 10 | . 08 | .11 | . 09 | . 06 | . 03 | - 10 | . 04 | . 03 |
| Baggage porters and bellhops | . 17 | . 08 | . 11 | . 19 | . 11 | .11 | - 29 | . 10 | .21 |
| Child care workers, exc private | . 01 | . 01 | . 02 | . 02 | . 01 | .02 | . 05 | . 02 | . 06 |
| Elevator operators | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | .13 | . 08 | . 05 | . 05 | . 04 | . 02 | . 02 | . 01 | . 02 |
| Protective service workers | . 55 | . 48 | . 47 | . 89 | . 73 | . 67 | . 35 | . 26 | . 40 |
| Crossing guards,bridgetenders | . 12 | . 10 | . 06 | . 24 | . 17 | .10 | . 03 | . 02 | . 06 |
| Firefighters | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Guards | . 30 | - 28 | .31 | . 39 | . 36 | . 40 | .19 | .14 | . 22 |
| Police and detectives | . 10 | . 07 | . 07 | - 25 | . 18 | . 16 | . 14 | . 10 | .13 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Transportation, total |  |  | Railroads and railuay express |  |  | Local and interurban transit |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | 10.37 | 8.96 | 7.83 | 15.40 | 14.26 | 16.44 | 2.06 | 1. 30 | 1.83 |
| Animal caretakers, exc farm | . 04 | . 06 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 03 | . 03 | . 04 | . 09 | . 06 | . 04 | . 02 | . 01 | . 07 |
| Constr labr,exc carpenter heipr | . 18 | . 13 | . 08 | . 40 | . 33 | . 17 | . 06 | . 04 | - 10 |
| Freight and material nandlers | 3.94 | 3.78 | 3.15 | 1.79 | 1.52 | 1.18 | . 12 | . 08 | - 12 |
| Garbage collectors | .19 | . 21 | -21 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 06 | .07 | . 07 | . 02 | . 02 | . 02 | . 01 | . 01 | - 07 |
| Lonyshore workers, stevedores | 1.87 | 1. 68 | 1.41 | .03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Timbercutting, logging workers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| stock handlers | . 19 | . 16 | . 07 | . 08 | .06 | . 04 | . 06 | . 03 | . 03 |
| Teamsters | . 02 | . 01 | . 00 | . 01 | .01 | . 01 | - 00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | . 54 | . 42 | - 38 | . 52 | . 40 | . 29 | .93 | . 55 | . 61 |
| warehouse laborers, other | . 31 | . 29 | . 25 | . 03 | . 02 | . 01 | . 01 | . 01 | . 02 |
| Otier laborers | 3.00 | 2.12 | 2.08 | 12.44 | 11.82 | 14.67 | . 85 | . 56 | .80 |

Table 1. Peccent distribution of inaustry employment by occupation, 1970, 1978 and projected 1990

Total all occupations

| Professional and technical |
| :---: |
| Sngineers, technical |
| Civil |
| Electrical |
| Industrial |
| Mechanical |
| other engineers |
| Engineering, science technicians |
| Drafters |
| Surveyors |
| Other engineering, science tecn |
| Medical workers,exc technicians Registered nurses |
| Health technolcgists, technicians |
| Clinical lab technologists, tech |
| Technicians, except healta |
| Airplane pilots |
| Radio operators |
| Otner technicians except nealta |
| Computer specialists |
| Computer programers |
| Computer systems analysts |
| Social scientists |
| tconomists |
| Writers, artists, entertainers |
| Designers |
| Editors and reforters |
| Photographers |
| Public relaticns specialists |
| Other professional and teconical |
| Accountants |
| Architects |
| Lawyers |
| Operations and systems research |
| Personnel, latcr relations ukrs |
| Other research workers |
| Managers, officials, proprietors |
| Buyers,sales, lcan managers |
| Bank, financial managers |
| Credit ranagers |
| Purchasing agents, buyers,other |
| sales manager exc retail trade |
| Other managers, officials,proprts |
| Mgrs, superintendents, building |
| office managers, other |
| Restaurant, cafe, bar, managers |
| other managers, administrators |
| Sales workers |
| Advertising agents, sales worker |
| other sales mcrkers |
| Clerical workers |
| Stenographrs,typists,secretaries other secretaries Stenographers Typists |
|  |  |
|  |  |
|  |  |

$100.00 \quad 100.00 \quad 100.00$

| 1.06 | . 96 | 1.48 |
| :---: | :---: | :---: |
| . 30 | .23 | .39 |
| . 12 | . 09 | . 14 |
| . 09 | -09 | .11 |
| . 02 | . 02 | . 02 |
| . 03 | . 02 | . 06 |
| .03 | .02 | .06 |
| .06 | .06 | . 15 |
| .04 | .04 | . 07 |
| .01 | . 01 | . 02 |
| .01 | . 02 | .06 |
| . 01 | .01 | .03 |
| .01 | .01 | .03 |
| .02 | .02 | . 02 |
| . 01 | .01 | . 02 |
| . 06 | .05 | .10 |
| . 00 | . 00 | .00 |
| . 05 | . 04 | . 06 |
| .01 | . 01 | .04 |
| .03 | -03 | . 06 |
| . 02 | .02 | . 03 |
| . 01 | .01 | .03 |
| . 01 | . 01 | . 03 |
| .01 | . 01 | . 03 |
| . 08 | . 08 | . 10 |
| .01 | . 01 | . 02 |
| -01 | . 01 | . 02 |
| . 01 | . 01 | . 02 |
| . 04 | . 04 | . 05 |
| -47 | . 46 | . 60 |
| . 26 | . 25 | . 32 |
| -01 | . 01 | . 02 |
| . 05 | .07 | . 09 |
| . 01 | .01 | . 03 |
| - 13 | -11 | - 13 |
| .01 | -01 | .01 |
| 2.56 | 2.09 | 2.76 |
| . 12 | .07 | . 18 |
| .03 | . 02 | . 06 |
| .01 | - 00 | .01 |
| . 05 | . 03 | . 05 |
| .03 | .02 | . 05 |
| 2.44 | 2.02 | 2.58 |
| .00 | . 00 | .00 |
| - 10 | .07 | . 21 |
| .01 | . 01 | . 02 |
| 2.33 | 1.95 | 2.34 |
| .22 | . 15 | . 40 |
| . 01 | . 01 | . 02 |
| . 22 | - 14 | . 38 |
| 8.88 | 6.88 | 9.63 |
| 1.05 | . 74 | 1.05 |
| . 69 | - 51 | . 74 |
| . 05 | . 02 | . 01 |
| . 30 | . 21 | -30 |

$100.00 \quad 100.00 \quad 100.00$

| .83 | 1. 06 | . 52 |
| :---: | :---: | :---: |
| .01 | . 01 | . 02 |
| . 00 | - 00 | .00 |
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| . 01 | . 01 | . 02 |
| .00 | .00 | . 00 |
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| .00 | .00 | .00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | .00 |
| . 68 | . 84 | . 36 |
| -00 | . 00 | . 00 |
| . 67 | . 82 | . 36 |
| .01 | . 02 | . 01 |
| .01 | .01 | .00 |
| .00 | .01 | . 00 |
| .00 | . 01 | . 00 |
| . 00 | . 00 | .00 |
| -00 | . 00 | . 00 |
| .01 | . 01 | . 02 |
| . 00 | .00 | .00 |
| . 00 | - 00 | .00 |
| . 00 | . 00 | . 00 |
| .01 | .01 | .02 |
| . 12 | . 18 | - 13 |
| . 04 | . 05 | .01 |
| . 00 | . 00 | . 00 |
| . 01 | . 02 | . 01 |
| . 00 | . 00 | . 00 |
| .07 | . 11 | .11 |
| . 00 | . 00 | .00 |
| 2.02 | 3.49 | 3.34 |
| .01 | . 01 | .01 |
| -00 | . 00 | . 00 |
| - 00 | . 00 | . 00 |
| - 01 | . 01 | .01 |
| - 00 | .00 | .00 |
| 2.01 | 3.48 | 3.33 |
| . 00 | .01 | .00 |
| . 12 | . 16 | . 14 |
| .00 | .00 | . 80 |
| 1.89 | 3.32 | 3.18 |
| .02 | . 02 | . 01 |
| .00 | . 00 | .00 |
| .02 | . 02 | . 01 |
| 7.11 | 7.87 | 8. 37 |
| - 31 | .43 | . 57 |
| - 26 | - 36 | .45 |
| . 00 | . 00 | . 00 |
| .05 | .07 | . 11 |

$100.00 \quad 100.00 \quad 100.00$

| . 88 | 1.00 | . 87 |
| :---: | :---: | :---: |
| . 08 | . 07 | . 05 |
| . 01 | .01 | .01 |
| . 01 | . 01 | . 01 |
| . 03 | . 02 | .01 |
| . 02 | . 02 | . 02 |
| . 01 | . 01 | . 00 |
| . 02 | . 02 | . 02 |
| . 01 | . 01 | .01 |
| .00 | . 00 | . 00 |
| . 01 | .01 | . 01 |
| . 00 | .00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 06 | . 08 | . 07 |
| . 02 | . 04 | . 04 |
| . 03 | . 04 | . 02 |
| . 00 | . 01 | .01 |
| . 07 | . 08 | . 08 |
| . 05 | . 06 | . 06 |
| . 02 | . 02 | .02 |
| . 01 | . 02 | .01 |
| .01 | . 02 | . 01 |
| . 06 | . 07 | .06 |
| . 00 | .00 | . 00 |
| . 01 | . 01 | . 01 |
| . 00 | . 00 | . 00 |
| . 04 | . 05 | . 04 |
| . 57 | . 66 | . 57 |
| . 40 | . 45 | . 42 |
| . 00 | . 00 | . 00 |
| . 02 | . 04 | . 03 |
| .01 | . 01 | . 01 |
| $.14$ | $.15$ | . 11 |
| . 01 | . 01 | .01 |
| 6.11 | 7.42 | 7.35 |
| . 34 | . 31 | . 26 |
| . 05 | . 05 | . 03 |
| . 02 | . 01 | . 01 |
| . 08 | . 07 | . 06 |
| . 18 | . 18 | . 15 |
| 5.77 | 7.11 | 7.09 |
| . 01 | . 01 | . 02 |
| . 52 | . 51 | . 44 |
| . 00 | . 01 | . 00 |
| 5.23 | 6.58 | 6.62 |
| . 96 | . 73 | . 57 |
| . 00 | . 00 | . 00 |
| . 96 | . 73 | . 57 |
| 11.80 | 11.50 | 9.67 |
| 2.59 | 2. 52 | 2.28 |
| 1.70 | 1.74 | 1.64 |
| . 05 | . 02 | . 00 |
| . 84 | . 75 | . 64 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Street. railway,and bus lines |  |  | Taxicab service |  |  | Trucking and warehousing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Office machine operators | . 19 | . 15 | . 23 | . 04 | . 04 | . 05 | . 45 | . 38 | .33 |
| Bookkeeping and billing | . 01 | - 00 | . 02 | . 01 | . 00 | . 01 | . 09 | . 04 | . 02 |
| Calculating | . 02 | .01 | . 02 | . 01 | . 00 | .01 | . 03 | . 01 | . 00 |
| Computer and feripheral equip | . 05 | . 08 | - 13 | - 00 | . 00 | . 00 | . 07 | . 15 | . 15 |
| Duplicating forin | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Keypunch | .10 | . 05 | . 04 | . 02 | . 02 | .01 | . 24 | . 16 | .15 |
| Other office machine operators | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other clerical workers | 7.63 | 5.99 | 8.35 | 6.77 | 7.40 | 7.75 | 8.76 | 8.60 | 7.06 |
| Billing clerks | . 05 | . 03 | .11 | .01 | . 01 | . 01 | . 51 | . 53 | . 45 |
| Bookkeepers | . 73 | . 52 | . 70 | . 60 | . 74 | 1.28 | 1.73 | 1.61 | 1.39 |
| Cashiers | . 65 | . 55 | .76 | . 15 | - 18 | . 21 | . 24 | . 25 | . 21 |
| clerical supervisors, other | . 17 | . 14 | . 40 | . 02 | . 03 | .03 | . 11 | .11 | . 09 |
| Collectors, bill and account | . 03 | . 02 | . 07 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Counter clerks, exc food | . 04 | . 02 | . 06 | . 07 | . 09 | . 10 | . 08 | . 08 | . 07 |
| Dispatchers,starters, vehicle | 1.25 | . 98 | 1.28 | 4.12 | 4.46 | 4.08 | 1.48 | 1.45 | 1. 24 |
| Enumerators and interviewers | . 02 | . 01 | . 04 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Estimators, investigators, otier | . 15 | - 11 | . 20 | . 05 | . 04 | .01 | . 38 | . 38 | . 29 |
| Expediters, prcduction controirs | . 12 | . 08 | . 19 | . 08 | . 06 | . 01 | . 12 | . 11 | . 09 |
| File clerks | . 09 | . 06 | . 10 | . 02 | . 02 | .01 | .21 | .18 | . 16 |
| Insurance adjusters, examiners | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | .01 | . 02 | . 01 |
| Mail handlers, exc post office | . 03 | . 03 | . 08 | . 00 | . 00 | . 00 | . 18 | . 17 | . 12 |
| Messengers and office helpers | . 01 | . 01 | . 03 | . 01 | . 01 | . 01 | . 04 | . 04 | . 02 |
| Payroll, timekeeping clerks | . 19 | . 17 | . 21 | . 07 | - 10 | - 10 | . 23 | . 28 | . 26 |
| zeceptionists | .27 | . 15 | . 27 | . 13 | . 12 | . 15 | . 11 | . 08 | . 05 |
| Shipping and receiving clerks | . 11 | . 10 | - 12 | . 01 | . 01 | . 02 | 1.39 | 1.51 | 1.57 |
| Statistical clerks | . 17 | - 14 | - 22 | . 01 | . 01 | . 02 | . 19 | - 20 | - 15 |
| Stock clerks and store keepers | - 20 | . 10 | . 12 | . 01 | . 01 | . 01 | . 30 | .21 | . 10 |
| Telephone operators | . 13 | . 06 | . 21 | . 46 | - 38 | - 32 | . 17 | . 12 | . 08 |
| Ticket, station, express agents | 2.48 | 2. 15 | 2.65 | . 18 | . 28 | . 51 | . 17 | . 18 | . 14 |
| Weighers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 |
| Misc clerical workers | .74 | . 55 | .53 | .78 | . 84 | . 87 | 1.03 | 1.05 | . 54 |
| Crafts and kindred workers | 8.93 | 6. 62 | 9.69 | 2.04 | 2.52 | 3.13 | 7.11 | 7.15 | 6.60 |
| Construction crafts morkers | .91 | . 73 | 1.14 | . 02 | . 02 | . 01 | . 31 | . 27 | - 22 |
| Carpenters and apprentices | . 13 | - 10 | . 14 | . 00 | . 00 | . 00 | . 07 | . 08 | . 07 |
| Brick, stonemasons, apprentices | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 05 | .03 |
| Electricians and apprentices | . 46 | . 43 | . 66 | .00 | . 00 | . 00 | . 03 | . 04 | . 05 |
| Excavating.grading mach operatr | .01 | . 01 | . 05 | . 00 | . 00 | . 00 | . 05 | . 04 | . 01 |
| Painters and apprentices | . 19 | . 11 | . 18 | . 02 | . 02 | . 01 | . 05 | . 04 | . 02 |
| plumbers, pipefitters, aprentices | . 06 | . 05 | . 05 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Structural metal craft workers | . 03 | . 01 | . 05 | .00 | . 00 | . 00 | . 02 | . 01 | . 02 |
| Blue collar worker supervisors | . 73 | . 67 | . 81 | . 13 | . 19 | . 19 | 2.04 | 2.26 | 2.02 |
| Metalworkg craft wrkrs,exc mech | . 18 | - 12 | . 22 | . 00 | . 00 | . 00 | . 09 | . 10 | - 10 |
| Blacksmiths | . 02 | . 01 | . 01 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Boilermakers | .01 | .01 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Machinists and apprentices | - 12 | . 07 | . 14 | . 00 | . 00 | . 00 | .03 | . 04 | . 03 |
| uillwrights | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 06 | . 06 |
| Sheetmetal workers, apprentices | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | 6.40 | 4.61 | 6.49 | 1.86 | 2.26 | 2.89 | 4.19 | 4.06 | 3.83 |
| Air cond, heating, refrig mech | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 | . 05 | . 07 | . 05 |
| Aircraft mechanics | . 01 | . 01 | . 02 | . 00 | .00 | . 00 | . 02 | . 03 | . 03 |
| Auto body repairers | . 14 | . 07 | . 11 | - 10 | . 08 | . 03 | . 05 | . 03 | . 03 |
| Auto mechanics and apprentices | 5.85 | 4. 22 | 5.86 | 1.70 | 2.09 | 2.80 | 3.73 | 3.56 | 3. 30 |
| Heavy equip mech, incl diesel | . 11 | . 09 | . 18 | . 03 | . 05 | . 03 | -27 | . 32 | - 37 |
| Household afpliance mechanics | . 00 | . 00 | .00 | . 02 | . 02 | . 01 | . 01 | . 01 | - 00 |
| Radio, television repairers | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 | -00 | . 00 | . 00 |
| Railroad, car shop repairers | .21 | . 16 | . 22 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Other mechanics and apprentices | . 03 | - 02 | . 04 | . 00 | . 01 | . 00 | .03 | . 03 | . 03 |
| Transport, public util craft wkrs | . 18 | - 12 | . 20 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| glec pur line instaler, repairer | . 05 | - 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Locomotive engineers | . 03 | . 02 | .03 | .00 | . 00 | .00 | .00 | .00 | .00 |
| Poyer station operators | . 07 | . 06 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone installers,repairers | . 03 | . 02 | . 06 | . 00 | . 00 | . 00 | .00 | - 00 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Street. railway, and bus lines |  |  | Taxicab service |  |  | Trucking and warehousing |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 53 | . 37 | .84 | .03 | . 05 | . 04 | . 49 | .46 | . 42 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Crane,derrick,hoist operator | . 02 | . 02 | . 09 | . 00 | . 00 | . 00 | .06 | . 05 | . 08 |
| Inspectors, other | . 38 | . 28 | . 62 | . 02 | . 03 | . 03 | .18 | .21 | . 18 |
| sign painters and letterers | . 01 | . 01 | . 03 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 07 | . 04 | . 05 | . 00 | . 00 | . 00 | . 05 | . 04 | .03 |
| Upholsterers | . 03 | . 02 | . 05 | -01 | . 01 | .01 | . 00 | . 00 | . 00 |
| other crafts workers | .00 | . 00 | .00 | . 00 | .00 | . 00 | . 17 | . 14 | .12 |
| Operatives | 72.76 | 80.06 | 71.03 | 87.61 | 84.42 | 84.00 | 63.18 | 63.26 | 67.70 |
| Operatives, except transport | .67 | . 43 | -96 | . 27 | . 23 | . 10 | 1.74 | 1.49 | 1.20 |
| Semiskilled metalworking | . 12 | . 08 | . 22 | . 02 | . 02 | . 01 | . 14 | . 15 | . 16 |
| Lathe,milling mach operatives | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Punch, stamping press operatives | .01 | . 01 | . 03 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Welders and flamecutters | . 09 | . 06 | . 18 | . 02 | . 02 | . 01 | . 13 | . 14 | . 15 |
| Semiskilled facking, inspecting | - 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 64 | . 56 | . 55 |
| Packer,wrapper, exc meat, prodice | .01 | . 01 | . 01 | . 00 | .00 | .00 | . 58 | . 52 | . 51 |
| Produce grdr, Fkrs, exc fact, farin | .00 | .00 | .00 | . 00 | . 00 | . 00 | . 06 | . 05 | . 04 |
| Otier operatives, exc transport | . 55 | . 34 | . 73 | . 26 | - 22 | . 09 | . 95 | . 78 | . 49 |
| Blasters | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Garage wrkr,gas station atten | . 14 | . 06 | . 11 | . 13 | - 10 | . 06 | . 18 | .13 | . 09 |
| Heat cutters, butchers, exc mifg | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 09 | . 03 |
| Oilers,greasers, exc automobiles | . 02 | . 01 | . 02 | . 04 | . 03 | . 01 | . 04 | . 04 | . 01 |
| painters, mfg articles | . 02 | . 01 | . 03 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Furnace tendr,stokr,exc metal | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Miscellaneous machine operatves | . 02 | . 02 | . 07 | . 01 | . 01 | . 01 | . 15 | . 14 | . 11 |
| other operatives, exc transport | . 28 | . 20 | -46 | . 09 | . 07 | . 01 | . 37 | .34 | . 22 |
| transport equipment operatives | 72.09 | 79.63 | 70.07 | 87.34 | 84.19 | 83.90 | 61.44 | 61.77 | 66.50 |
| Boat operators | . 02 | . 01 | . 02 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bus drivers | 65.60 | 74.48 | 64.49 | . 00 | . 00 | . 00 | . 07 | . 10 | . 07 |
| Conductors, operators, urban rall | 2.87 | 2.44 | 2.50 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 24 | . 20 | . 27 | . 00 | . 00 | . 00 | 2.41 | 2.34 | 2.02 |
| Fork lift,tow motor operatives | . 04 | . 03 | . 08 | . 00 | . 00 | . 00 | . 73 | . 78 | . 76 |
| Rail vehicle cperators, other | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Parking attendants | . 01 | . 01 | . 03 | . 03 | . 03 | . 01 | . 02 | . 02 | . 00 |
| Railroad switch operators | . 33 | . 32 | . 38 | . 00 | . 00 | . 00 | . 03 | .03 | . 03 |
| Taxicab drivers, chauffeurs | 2.67 | 1.89 | 1.96 | 86.87 | 83.32 | 82.71 | -.17 | . 11 | . 08 |
| Truck drivers | . 27 | . 21 | .30 | . 45 | . 83 | 1.18 | 58.01 | 58.40 | 63.54 |
| Service workers | 2.89 | 1.54 | 2.67 | . 26 | -48 | . 57 | . 70 | . 57 | . 50 |
| Cleaning service workers | 1.36 | .74 | 1.47 | . 11 | . 12 | . 05 | -44 | . 33 | - 24 |
| Bldg interior cleaners, other | . 59 | . 33 | . 57 | . 04 | . 04 | . 02 | . 10 | . 08 | . 05 |
| Janitors and sextons | .77 | . 41 | -90 | . 07 | -08 | . 03 | . 35 | . 25 | . 18 |
| Food service workers | . 30 | . 15 | . 26 | . 14 | .35 | . 36 | . 03 | . 03 | . 03 |
| waiters' assistants | .03 | . 02 | . 06 | . 00 | .00 | .00 | . 00 | .00 | . 00 |
| cooks, exc private households | . 08 | . 04 | . 05 | . 01 | . 01 | . 02 | . 02 | . 07 | . 02 |
| Dishwashers | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Food counter, fountain workers | . 02 | . 02 | . 02 | . 12 | . 32 | . 32 | . 00 | . 00 | . 00 |
| Haiters | . 13 | . 05 | . 08 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Other food sery wkrs,exc privt | .01 | . 01 | . 03 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Health service workers | . 04 | .02 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Nursing aiaes and orderlies | . 0.3 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Personal service vorkers | . 72 | . 28 | -41 | . 01 | . 01 | - 16 | . 07 | . 06 | . 06 |
| Attendants, recreation, amusement | .09 | . 04 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Attendants, personal serv, other | . 13 | . 06 | . 04 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Baggage porters and bellhops | . 39 | . 14 | . 22 | . 01 | . 01 | . 16 | . 01 | . 01 | . 01 |
| Child care workers. exc private | . 07 | . 03 | . 08 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Elevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 |
| Housekeepers, exc private homes | .03 | . 01 | . 02 | . 00 | . 00 | .00 | . 01 | . 01 | .01 |
| Protective service workers | . 47 | . 35 | - 52 | . 00 | . 00 | . 00 | . 16 | . 15 | . 18 |
| Crossing guards,bridgetenders | . 04 | . 03 | . 07 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Guards | .25 | . 19 | . 28 | . 00 | .00 | . 00 | . 16 | . 14 | . 18 |
| Police and detectives | . 18 | . 13 | .17 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Trucking
and

|  | Trucking service |  |  | Warehousing and storage |  |  | water transportation |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| professional and technical | . 84 | . 97 | . 84 | 1.41 | 1.52 | 1.25 | 3.80 | 4.29 | 4.07 |
| Engineers, technical | . 08 | . 07 | . 04 | - 17 | . 14 | . 16 | . 78 | .95 | . 92 |
| Chemical | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | . 00 |
| Civil | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | - 14 | . 10 | . 11 |
| Electrical | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 07 | . 09 | - 10 |
| Industrial | .03 | . 02 | .01 | . 05 | . 03 | . 04 | .07 | . 06 | . 06 |
| Mechanical | .02 | . 02 | .01 | . 06 | . 07 | . 10 | .44 | .64 | . 60 |
| Other engincers | . 01 | . 01 | . 00 | . 02 | . 02 | .01 | .06 | .04 | . 05 |
| Life and physical scientists | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 01 |
| Agricultural | . 00 | . 00 | .00 | . 01 | .01 | . 02 | . 00 | . 00 | .00 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 01 |
| Mathematical sfecialists | . 01 | . 01 | .01 | . 01 | .01 | . 01 | . 02 | . 02 | . 00 |
| Statisticians | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 | . 02 | . 00 |
| Engineering, science technicians | .01 | . 02 | . 02 | . 04 | . 04 | . 04 | . 64 | .61 | . 65 |
| Drafters | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 06 | . 06 | . 08 |
| Electrical and electronic | . 00 | - 00 | .00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 04 |
| Industrial engineering | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Mathematical technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Surveyors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 37 | . 31 | . 25 |
| Other engineering, science tecn | .01 | . 01 | . 01 | . 02 | . 02 | . 03 | - 17 | . 18 | -27 |
| Medical workers, exc technicians | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Eegistered nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Technicians, except health | . 06 | . 08 | . 07 | . 03 | . 03 | . 02 | . 37 | . 43 | . 32 |
| Airplane pilots | . 02 | . 04 | . 04 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Radio operators | . 04 | . 04 | . 03 | . 02 | . 02 | . 01 | . 36 | . 42 | . 31 |
| Computer specialists | . 06 | . 08 | . 08 | - 10 | - 12 | . 09 | . 16 | . 24 | . 14 |
| Computer frogramers | . 05 | . 05 | . 06 | . 07 | . 09 | . 08 | . 11 | . 15 | . 10 |
| Computer systems analysts | . 01 | . 02 | . 02 | . 03 | . 03 | .01 | . 04 | . 07 | . 03 |
| other computer specialists | .00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Social scientists | . 01 | . 01 | . 01 | . 04 | . 03 | . 03 | . 03 | . 04 | . 04 |
| Economists | . 01 | . 01 | . 01 | . 04 | . 03 | . 03 | . 03 | . 04 | . 04 |
| writers,artists, entertainers | . 06 | . 07 | . 06 | . 05 | . 05 | . 03 | . 36 | -40 | . 40 |
| Athletes and kinared workers | . 00 | . 00 | .00 | . 00 | . 00 | - 00 | - 15 | . 16 | - 12 |
| Designers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 02 | . 02 | . 05 |
| Editors and reforters | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Musicians and composers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 04 | . 03 | - 00 |
| painters and sculptors | . 00 | . 00 | . 00 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 04 | . 05 | . 04 | . 03 | . 03 | . 01 | . 14 | . 17 | - 22 |
| other professicnal and techaical | . 54 | . 63 | . 55 | . 95 | 1.08 | . 85 | 1.41 | 1.57 | 1.57 |
| Accountants | . 37 | . 42 | . 39 | . 74 | . 86 | .73 | 1.05 | 1.20 | 1.35 |
| Architects | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 04 | . 02 |
| Lanyers | . 02 | . 04 | . 03 | . 03 | . 03 | . 01 | . 02 | . 03 | . 00 |
| operations and systems research | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| Personnel, labor relations wkrs | . 14 | . 15 | . 11 | - 18 | - 18 | - 11 | -24 | -27 | . 16 |
| other research workers | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Managers, officials, proprietors | 5.40 | 6.78 | 6.50 | 14.80 | 16.74 | 19.18 | 18.18 | 19.52 | 21.97 |
| Buyers, sales, ican managers | .31 | . 29 | . 24 | . 72 | . 65 | . 53 | . 61 | . 56 | -43 |
| Bank, financial managers | . 05 | . 05 | . 03 | . 08 | . 07 | . 02 | . 09 | . 08 | . 02 |
| Credit managers | . 02 | .01 | .01 | . 02 | . 01 | .00 | .01 | .01 | . 02 |
| Buyers, shippers,farm products | . 00 | . 00 | . 00 | . 09 | . 07 | . 10 | . 00 | . 00 | . 00 |
| Purchasing agents, buyers, other | . 08 | . 06 | . 06 | - 17 | . 15 | - 13 | - 28 | . 24 | . 17 |
| sales manager, exc retail trade | .17 | - 17 | . 14 | . 35 | . 35 | . 28 | -23 | .23 | - 21 |
| Other managers, officials, proprts | 5.09 | 6.49 | 6.26 | 14.08 | 16.09 | 18.64 | 17.57 | 18.96 | 21.54 |
| Mgrs, superintendents, buildiag | . 00 | . 01 | . 01 | . 12 | . 11 | . 09 | . 01 | . 01 | . 01 |
| Otfice managers, other | .45 | . 46 | -38 | 1.38 | 1.37 | 1.30 | . 43 | . 44 | . 35 |
| Officers, pilots, pursers,smip | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | 10.30 | 9.40 | 9.39 |
| Other managers, administrators | 4.63 | 6.02 | 5.86 | 12.56 | 14.60 | 17.24 | 6.83 | 9.11 | 11.79 |


|  | Trucking service |  |  | warehousing and storage |  |  | vater transportation |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | .91 | . 68 | . 53 | 1.60 | 1.45 | 1.13 | . 58 | . 46 | . 18 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 05 |
| other sales ycrkers | . 90 | . 68 | . 53 | 1.60 | 1.44 | 1.13 | . 57 | -44 | . 14 |
| Clerical workers | 11.03 | 10.94 | 9.13 | 21.05 | 19.74 | 17.27 | 14.67 | 15.15 | 16. 11 |
| Stenographrs, typists, secretaries | 2.36 | 2.35 | 2.10 | 5.36 | 5.06 | 4.88 | 3.64 | 3.77 | 4.53 |
| Legal secretaries | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other secretaries | 1.52 | 1. 60 | 1.46 | 3.91 | 3.87 | 4.04 | 2.62 | 2.88 | 3.82 |
| Stenographers | . 05 | . 02 | . 00 | . 07 | . 03 | . 00 | -13 | . 07 | . 02 |
| Typists | . 80 | . 72 | -62 | 1.37 | 1.15 | - 82 | . 89 | -81 | . 69 |
| Office machine operators | . 43 | . 36 | . 33 | .67 | . 62 | .34 | . 41 | . 35 | .21 |
| Bookkeeping and billing | . 09 | . 04 | -03 | - 10 | . 04 | . 01 | . 05 | . 02 | . 01 |
| Calculating | . 03 | . 01 | -00 | . 04 | . 02 | . 01 | . 02 | . 02 | .00 |
| computer and feripheral equip | . 06 | - 14 | . 14 | - 13 | . 30 | . 25 | . 06 | - 12 | . 10 |
| Duplicating | . 00 | .00 | . 00 | . 01 | . 01 | . 01 | .01 | . 01 | .01 |
| Keypunch | .23 | . 16 | . 16 | . 35 | . 23 | . 06 | . 25 | . 17 | . 08 |
| Other office machine operators | . 02 | . 02 | .01 | . 04 | . 02 | .00 | . 01 | . 01 | .01 |
| Other clerical workers | 8.24 | 8.22 | 6.70 | 15.03 | 14.06 | 12.06 | 10.62 | 11.03 | 11.38 |
| Billing clerks | . 52 | . 54 | . 45 | . 45 | . 46 | . 42 | . 27 | . 29 | . 33 |
| Bookkeepers | 1.55 | 1.48 | 1.26 | 3.90 | 3.54 | 3.16 | 1.46 | 1.50 | 1.51 |
| Cashiers | .25 | . 26 | . 22 | . 13 | . 14 | . 12 | . 18 | . 20 | . 24 |
| clerical supervisors, other | . 10 | . 11 | . 08 | -19 | . 21 | . 19 | . 29 | - 33 | . 22 |
| collectors, bill and account | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| counter clerks, exc food | . 05 | . 05 | . 05 | . 50 | . 51 | .44 | . 05 | . 04 | . 04 |
| Dispatchers,starters, vehicle | 1.56 | 1. 52 | 1.29 | . 56 | . 55 | . 49 | . 08 | . 08 | . 07 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 00 |
| Estimators, investigators, other | . 37 | - 38 | . 30 | . 43 | . 42 | . 19 | . 29 | . 31 | - 29 |
| Expediters, prcduction controirs | . 12 | . 11 | . 09 | - 16 | - 14 | . 09 | . 17 | . 16 | . 09 |
| File clerks | .21 | . 18 | . 16 | - 30 | . 25 | . 26 | . 27 | . 26 | - 23 |
| Insurance adjusters, examiners | . 01 | . 02 | .01 | . 01 | . 01 | . 01. | . 02 | . 03 | . 02 |
| Mail handlers, exc post office | . 19 | . 18 | - 12 | - 13 | . 12 | . 07 | . 17 | . 15 | . 11 |
| Messengers and office helpers | . 04 | . 04 | .02 | . 04 | . 04 | . 01 | . 06 | . 05 | . 03 |
| Payroll, timekeeping clerks | . 23 | - 28 | . 26 | . 21 | - 26 | . 24 | . 54 | . 64 | . 71 |
| Receptionists | . 10 | . 07 | . 05 | . 23 | . 17 | . 09 | .21 | . 15 | . 08 |
| Shipping and receiving clerks | 1.22 | 1.38 | 1.42 | 3.40 | 3.29 | 3.58 | 3.14 | 3.35 | 4.64 |
| Statistical clerks | . 18 | . 19 | . 13 | . 32 | . 35 | - 32 | . 40 | . 44 | . 34 |
| Stock clerks and store keepers | . 16 | . 11 | . 04 | 2.09 | 1.71 | -98 | . 46 | . 38 | - 16 |
| Telephone oferators | . 17 | - 12 | .09 | . 16 | . 11 | . 06 | - 29 | . 22 | - 17 |
| Ticket, station, express agents | -18 | - 19 | . 14 | . 10 | . 11 | - 10 | . 92 | 1.02 | . 86 |
| Weighers | . 02 | . 01 | .01 | . 35 | . 32 | - 16 | . 08 | . 07 | . 03 |
| Misc clerical workers | 1.00 | 1.03 | . 50 | 1.36 | 1.36 | 1.09 | 1.28 | 1.32 | 1.22 |
| Crafts and kindred workers | 7.07 | 7. 10 | 6.53 | 7.62 | 7.87 | 7.50 | 9.77 | 10.59 | 12. 14 |
| Construction crafts morkers | . 25 | . 23 | .19 | . 95 | . 82 | .61 | 2.75 | 2.86 | 2.66 |
| Carpenters and apprentices | . 06 | . 06 | .07 | . 26 | . 24 | . 15 | 1.29 | 1.36 | 1. 19 |
| Brick, stonemasons, apprentices | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Bulldozer operators | . 06 | . 05 | . 03 | . 11 | - 10 | -08 | . 16 | - 14 | . 09 |
| klectricians and apprentices | .03 | . 03 | . 04 | . 15 | . 16 | . 21 | . 62 | . 76 | . 90 |
| Excavating, grading mach operatr | . 05 | . 04 | . 01 | . 04 | . 02 | . 00 | . 15 | . 11 | - 74 |
| Painters and apprentices | . 04 | . 04 | . 02 | . 15 | . 14 | . 09 | . 42 | .41 | . 26 |
| Plumbers, pipefitters, aprentices | .01 | - 01 | .01 | . 05 | . 04 | . 02 | . 07 | . 06 | . 08 |
| Structural metal craft workers | .01 | .01 | . 01 | . 19 | . 12 | . 06 | . 01 | - 00 | . 00 |
| blue collar worker supervisors | 1.91 | 2. 14 | 1.88 | 3.67 | 4.08 | 4.06 | 1.56 | 1.91 | 2.45 |
| Metalworkg craft urkrs, exc meca | . 09 | - 10 | . 10 | . 08 | - 11 | - 10 | . 26 | - 34 | . 50 |
| Boilermakers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 05 | - 06 | - 10 |
| Machinists and apprentices | .03 | . 03 | . 03 | . 06 | . 09 | . 10 | . 19 | . 26 | . 38 |
| Millurights | . 04 | . 06 | .07 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 02 | . 02 |


|  | Trucking service |  |  | Harehousing and storage |  |  | Water transportation |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers,installers | 4.38 | 4. 20 | 3.97 | 1.83 | 1.96 | 1.89 | 2.51 | 2.84 | 3. 25 |
| Air cond, heating, refrig mech | . 04 | . 06 | . 04 | - 18 | - 25 | - 25 | . 07 | . 10 | . 13 |
| Aircraft mechanics | - 02 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto accessories installers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| auto body repairers | . 06 | . 04 | . 04 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Auto mechanics and apprentices | 3.97 | 3.75 | 3.49 | . 84 | . 75 | . 62 | . 24 | . 18 | . 06 |
| Data processirg mach repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | . 24 | . 28 | . 33 | . 67 | . 84 | . 97 | 1.58 | 1.97 | 2.75 |
| Household appliance mechanics | . 01 | - 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 06 | . 06 | . 07 |
| Railroad, car shop repairers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | .03 | . 03 | . 03 | . 09 | . 07 | . 02 | . 58 | .53 | . 24 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Compositors and typesetters | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Other crafts, kindred workers | . 44 | -43 | -39 | 1.08 | - 90 | . 83 | 2.67 | 2.63 | 3.26 |
| Bakers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 08 | . 08 | . 09 |
| Cabinetmakers | . 00 | . 01 | .01 | . 04 | .03 | . 01 | .00 | . 00 | . 00 |
| Carpet installers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 06 | . 05 | . 06 | . 14 | . 13 | . 24 | 1.43 | 1.30 | 1.78 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | - 06 | . 04 | . 01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 18 | . 20 | . 17 | . 29 | . 33 | .31 | . 29 | - 36 | . 48 |
| Shipfitters | . 00 | . 00 | - 00 | . 00 | - 00 | . 00 | . 03 | - 03 | . 00 |
| Stationary engineers | . 02 | . 02 | . 01 | . 45 | . 28 | . 21 | . 60 | . 64 | . 84 |
| Other crafts workers | . 17 | - 15 | . 13 | - 10 | . 07 | . 05 | . 25 | . 22 | . 07 |
| Operatives | 66.04 | 65.61 | 70.06 | 28.35 | 29.16 | 34.92 | 20.75 | 19.46 | 18.22 |
| Operatives, except transport | 1.03 | . 96 | .73 | 10.38 | 9.21 | 7.67 | 15.77 | 14.05 | 12. 80 |
| Semiskilled metalworking | . 14 | . 15 | . 15 | . 16 | - 18 | . 23 | . 54 | . 63 | . 85 |
| welders and flamecutters | . 13 | . 13 | . 14 | - 16 | .18 | . 23 | . 54 | . 63 | . 85 |
| Semiskilled packing, inspecting | . 27 | - 27 | - 22 | 5.25 | 4.86 | 5.18 | . 08 | . 09 | . 13 |
| Packer, wrapper,exc meat, prodce | . 26 | . 27 | . 22 | 4.46 | 4.15 | 4.65 | . 08 | . 09 | -13 |
| Produce grdrefkrs,exc fact, farm | . 00 | . 00 | . 00 | . 79 | .71 | . 53 | .01 | . 00 | . 00 |
| Other operatives, exc transport | . 62 | . 54 | . 37 | 4.97 | 4.17 | 2.26 | 15.15 | 13.33 | 11.82 |
| Surveyors" helpers | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Garage wrkr,gas station atten | . 20 | . 14 | . 09 | . 02 | . 01 | . 01 | -09 | . 05 | . 02 |
| Meat cutters, butchers, exc mfy | . 00 | . 00 | . 00 | 2.13 | 1. 39 | - 50 | . 00 | . 00 | . 00 |
| Oilers,greasers,exc automobiles | . 04 | . 04 | . 01 | . 04 | . 04 | .03 | 1.27 | 1.26 | .75 |
| Painters, mfg articles | . 00 | . 00 | . 00 | .03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Riveters and fasteners | . 00 | . 00 | . 00 | -01 | . 01 | . 01 | .01 | . 01 | . 00 |
| Sailors and deckhands | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | 12.46 | 10.87 | 10.35 |
| Sawyers | . 01 | . 02 | . 02 | -03 | . 02 | . 01 | . 03 | . 04 | . 05 |
| Severs and stitchers | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Purnace tendr,stokr,exc metal | . 01 | . 01 | . 00 | . 12 | . 09 | . 10 | . 64 | . 42 | . 27 |
| Winding operatives, other | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Miscellaneous machine operatves | . 07 | . 07 | . 05 | 1.12 | 1.15 | . 89 | . 22 | . 24 | -18 |
| Other operatives, exc transport | . 28 | . 27 | . 19 | 1.44 | 1.41 | . 69 | -39 | . 43 | - 19 |
| Transport equifment operatives | 65.02 | 64. 65 | 69.32 | 17.97 | 19.96 | 27.25 | 4.98 | 5.41 | 5.43 |
| Boat operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.42 | 1.18 | . 77 |
| Bus drivers | . 07 | . 09 | . 07 | . 15 | . 20 | . 04 | . 00 | . 00 | . 00 |
| Delivery and route workers | 2.50 | 2.41 | 2.03 | 1.31 | 1. 32 | 1.95 | -13 | . 13 | . 20 |
| Fork lift, tow motor operatives | . 34 | . 40 | . 37 | 5.45 | 6.44 | 6.19 | 2.14 | 2.55 | 2.24 |
| Parking attendants | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 03 | .03 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 17 | . 11 | . 08 | . 14 | . 14 | . 08 | . 15 | . 17 | . 17 |
| Truck drivers | 61.89 | 61.60 | 66.74 | 10.92 | 11.86 | 18.97 | 1.15 | 1.38 | 2.05 |
| Service workers | . 53 | . 44 | . 40 | 2.74 | 2.40 | 1.99 | 6.41 | 5.33 | 3.02 |
| Cleaning service yorkers | . 35 | - 27 | . 20 | 1.51 | 1. 17 | . 69 | . 95 | .72 | . 26 |
| Lodging qtrs cleaners, exc privt | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 01 | . 01 |
| Bldg interior cleaners, other | . 08 | . 07 | . 05 | -25 | . 22 | - 09 | . 26 | - 20 | . 06 |
| Janitors and sextons | .27 | - 20 | - 15 | 1.26 | . 94 | . 60 | . 66 | .51 | . 19 |
| Food service workers | .03 | . 03 | . 03 | . 05 | . 05 | . 04 | 2.76 | 2.14 | 1.37 |
| Bartenders | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Waiters' assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Cooks, exc private households | . 02 | . 01 | . 02 | . 02 | . 02 | . 01 | 1.82 | 1.53 | 1.11 |
| Dishwashers | . 00 | . 00 | - 00 | . 01 | . 00 | . 00 | . 04 | . 03 | - 01 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Waiters | .01 | .01 | . 01 | .00 | . 00 | . 00 | . 66 | . 41 | . 19 |
| other food sery wkrs,exc privt | . 00 | . 00 | . 00 | . 02 | .01 | .01 | . 18 | .11 | . 02 |


|  | Trucking service |  |  | Darehousing and storage |  |  | pater transportation |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 04 | . 03 | . 04 | . 46 | . 46 | . 36 | . 98 | . 70 | . 27 |
| Flight attendants | . 01 | . 01 | . 01 | - 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Attendants, recreation, amusement | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 |
| Attendants, personal serv,other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 11 | . 07 | . 02 |
| Baggage porters and bellhops | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Elevator operators | . 00 | . 00 | . 00 | - 46 | . 46 | . 36 | . 01 | . 01 | .01 |
| Housekeepers, exc private homes | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .77 | . 54 | . 18 |
| Protective service workers | . 12 | - 11 | . 13 | .72 | . 73 | . 90 | 1.71 | 1.77 | 1. 12 |
| Crossing guards, bridgetenders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -60 | . 76 | . 34 |
| Firefighters | . 00 | . 00 | .00 | . 01 | . 01 | . 02 | . 05 | . 05 | . 07 |
| Guards | .11 | . 11 | . 13 | .71 | .71 | . 88 | . 92 | . 84 | . 59 |
| Police and detectives | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 14 | - 12 | . 12 |
| Laborers, except farm | 8.18 | 7. 50 | 6.03 | 22.43 | 21.12 | 16.76 | 25.85 | 25.22 | 24.29 |
| Carpenter helfers | . 01 | . 01 | . 01 | . 04 | . 05 | . 08 | . 07 | . 08 | . 14 |
| Constr labr, exc carpenter helpr | . 05 | . 04 | . 02 | . 08 | . 07 | . 04 | . 11 | - 11 | - 10 |
| Freight and material handlers | 6.72 | 6.14 | 4.95 | 12.90 | 12.29 | 10.09 | 2.43 | 2.38 | 1.70 |
| Garbage collectors | . 50 | - 50 | .51 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 06 | . 06 | . 03 | . 07 | . 08 | - 11 | . 09 | . 08 | . 08 |
| Longshore workers, stevedores | . 09 | - 11 | .11 | - 22 | . 22 | . 29 | 21.68 | 21.24 | 21.42 |
| Timbercutting, logging workers | . 02 | . 01 | . 00 | . 01 | . 00 | . 00 | - 10 | . 08 | . 03 |
| Stock handlers | . 05 | . 05 | . 02 | 2.57 | 2.23 | .70 | . 04 | . 04 | -01 |
| Teamsters | . 04 | . 02 | .00 | . 03 | . 02 | .01 | .00 | . 00 | . 00 |
| Vehicle washers,equip cleaners | . 21 | - 18 | . 12 | . 08 | . 07 | . 02 | . 27 | . 25 | . 08 |
| Warehouse labcrers, other | . 24 | . 21 | .15 | 5.82 | 5.58 | 5.09 | .23 | . 24 | - 25 |
| Other laborers | . 19 | - 16 | . 10 | . 63 | . 51 | . 34 | . 84 | . 72 | . 49 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990


Total all occupations

$100.00 \quad 100.00 \quad 100.00$

| 17.47 | 18.37 | 18.97 |
| :---: | :---: | :---: |
| .73 | . 69 | . 80 |
| . 23 | - 23 | . 29 |
| . 00 | . 00 | . 00 |
| . 08 | - 08 | .12 |
| . 14 | . 12 | . 13 |
| . 14 | . 13 | .13 |
| . 08 | . 07 | . 07 |
| . 01 | . 01 | .01 |
| . 00 | . 00 | . 00 |
| . 06 | . 05 | . 05 |
| . 08 | .11 | . 12 |
| . 06 | . 10 | -11 |
| .01 | . 01 | .01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 06 | . 05 | . 03 |
| . 06 | . 05 | . 03 |
| . 45 | .47 | . 54 |
| . 01 | . 01 | . 03 |
| . 05 | . 05 | . 06 |
| . 22 | . 21 | . 23 |
| . 03 | . 04 | . 03 |
| . 00 | - 00 | . 00 |
| . 02 | . 03 | . 03 |
| . 12 | - 13 | . 17 |
| . 04 | . 04 | . 03 |
| . 01 | . 01 | . 02 |
| . 03 | . 03 | . 02 |
| . 01 | . 02 | . 02 |
| . 01 | . 01 | . 02 |
| 12.29 | 13.13 | 13.59 |
| 10.20 | 11.82 | 12.23 |
| 1.89 | 1.08 | 1.17 |
| . 10 | - 10 | . 08 |
| . 09 | . 13 | - 12 |
| . 51 | . 60 | . 68 |
| .34 | . 36 | -41 |
| . 16 | . 21 | . 26 |
| . 02 | . 03. | . 01 |
| . 11 | . 15 | . 16 |
| . 10 | . 15 | . 16 |
| . 80 | . 42 | .21 |
| . 03 | . 03 | -01 |
| .77 | - 39 | . 20 |
| . 50 | . 58 | . 54 |
| .00 | . 00 | . 00 |
| . 05 | . 04 | . 02 |
| . 03 | . 03 | . 04 |
| . 04 | . 03 | . 01 |
| . 02 | . 03 | . 02 |
| . 02 | . 01 | .01 |
| . 27 | - 33 | . 34 |
| . 08 | . 10 | . 10 |

$100.00 \quad 100.00 \quad 100.00$ 15.

| 15.77 | 16.95 | 18.08 |
| :---: | :---: | :---: |
| 4.24 | 3.72 | 3.56 |
| . 00 | . 00 | . 00 |
| . 30 | . 27 | . 19 |
| . 70 | . 53 | . 53 |
| 1.04 | 1.00 | 1.07 |
| .27 | . 25 | . 23 |
| . 86 | . 74 | . 58 |
| . 00 | . 00 | . 00 |
| - 50 | . 46 | . 55 |
| . 57 | . 48 | . 42 |
| . 21 | - 19 | . 23 |
| . 00 | . 00 | . 00 |
| . 12 | - 12 | . 09 |
| . 08 | . 07 | . 14 |
| .00 | . 00 | . 00 |
| . 08 | . 08 | . 11 |
| . 08 | . 08 | . 11 |
| 3.11 | 3.02 | 3.33 |
| .11 | . 10 | . 09 |
| 1.31 | 1. 16 | 1.52 |
| . 75 | . 82 | . 84 |
| . 07 | . 08 | . 08 |
| . 08 | . 08 | . 07 |
| . 27 | . 24 | .21 |
| . 54 | . 54 | . 53 |
| . 07 | . 08 | . 13 |
| . 00 | .00 | .00 |
| . 07 | . 08 | . 13 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | .00 |
| 1.27 | 1.54 | 1.49 |
| . 66 | . 84 | . 88 |
| . 03 | . 02 | . 01 |
| . 05 | . 06 | . 03 |
| . 53 | . 62 | . 57 |
| . 90 | 1.08 | . 96 |
| . 67 | . 77 | . 71 |
| . 23 | .31 | . 25 |
| . 00 | . 00 | .00 |
| . 24 | . 34 | . 29 |
| .24 | .34 | . 29 |
| . 04 | . 04 | . 00 |
| . 04 | . 04 | .00 |
| . 00 | .00 | . 00 |
| . 30 | . 29 | . 24 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | - 00 | . 00 |
| . 07 | . 08 | . 13 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 09 | .11 | .11 |
| . 14 | .11 | . 00 |

$100.00 \quad 100.00 \quad 100.00$

| 3.77 | 4.08 | 3.53 |
| :---: | :---: | :---: |
| . 44 | . 39 | . 39 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 11 | . 07 | . 05 |
| . 07 | .06 | . 06 |
| . 05 | . 06 | . 08 |
| .13 | . 13 | . 14 |
| . 00 | . 00 | . 00 |
| .01 | . 00 | .00 |
| . 07 | . 07 | . 06 |
| . 00 | .00 | . 01 |
| . 00 | .00 | .00 |
| . 00 | .00 | . 00 |
| . 00 | .00 | . 00 |
| . 00 | .00 | .01 |
| . 02 | . 02 | . 02 |
| . 02 | .02 | . 02 |
| . 25 | . 23 | . 20 |
| . 00 | . 00 | .00 |
| . 08 | . 06 | . 05 |
| . 04 | . 05 | . 05 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 08 | . 06 | . 05 |
| . 05 | . 06 | . 05 |
| . 02 | . 02 | . 01 |
| . 00 | .00 | . 00 |
| . 02 | . 02 | .01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 19 | . 20 | . 12 |
| . 09 | . 09 | . 09 |
| .01 | .00 | . 00 |
| . 09 | .10 | . 04 |
| .07 | .01 | . 00 |
| . 30 | .38 | . 29 |
| . 18 | . 19 | . 12 |
| . 12 | . 18 | - 16 |
| .01 | . 01 | . 01 |
| . 06 | . 08 | . 08 |
| .06 | . 08 | .08 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| . 00 | .00 | .00 |
| . 63 | . 67 | . 62 |
| . 03 | . 02 | .00 |
| . 00 | . 00 | . 00 |
| . 04 | . 05 | . 03 |
| . 05 | . 05 | . 06 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 35 | . 41 | . 39 |
| . 16 | . 15 | . 14 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Air } \\ \text { transporta- } \\ \text { tion } \end{gathered}$ |  |  | Pipelines |  |  | Transportation services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 1.90 | 2. 12 | 2.25 | 5.32 | 6.58 | 7.75 | 1.86 | 2.10 | 1.80 |
| Accountants | 1.04 | 1.18 | 1.44 | 3.37 | 4.32 | 6.23 | 1.39 | 1.56 | 1.44 |
| Architects | . 03 | - 02 | -01 | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Lawyers | . 06 | . 09 | . 09 | . 38 | . 63 | . 36 | . 08 | . 12 | . 08 |
| operations and systems researca | . 16 | - 22 | . 19 | -28 | . 35 | . 26 | . 08 | . 09 | . 05 |
| Personnel, labor relations wkrs | . 55 | . 57 | . 50 | 1. 14 | 1. 17 | . 83 | - 25 | .27 | . 19 |
| other research workers | . 05 | - 03 | . 01 | . 15 | . 11 | . 06 | . 06 | . 05 | . 03 |
| Vocation, education counselors | . 01 | . 01 | . 02 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 5.94 | 6.48 | 6.34 | 8.97 | 9.94 | 10.60 | 34.54 | 37.45 | 37.09 |
| Buyers, sales,lcan managers | . 88 | . 80 | .71 | 1.93 | 1.73 | 1.83 | 1.14 | 1.14 | 1.44 |
| Bank, financial managers | . 19 | . 16 | .09 | . 24 | . 25 | . 31 | . 18 | . 19 | . 15 |
| Credit managers | . 02 | . 01 | . 01 | . 00 | - 00 | . 00 | . 04 | - 02 | . 01 |
| Purchasing agents, buyers, other | -29 | - 23 | - 18 | 1.63 | 1.42 | 1.43 | . 35 | . 30 | -41 |
| Sales manager, exc retail trade | - 39 | . 39 | .43 | . 07 | . 07 | . 09 | . 57 | . 64 | . 87 |
| Other managers, officials, proprts | 5.06 | 5. 68 | 5.63 | 7.05 | 8.21 | 8.77 | 33.40 | 36.31 | 35.65 |
| Mgrs, superintendents, building | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| office managers, other | . 24 | - 23 | . 24 | . 75 | .71 | . 64 | 1.48 | 1.49 | 1.55 |
| Officers, pilots,pursers,ship | . 00 | . 00 | . 00 | . 04 | .03 | . 00 | . 15 | . 14 | . 17 |
| Bestaurant, cafe, bar, managers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| other managers, administrators | 4.79 | 5.42 | 5.38 | 6.26 | 7.48 | 8.14 | 31.74 | 34.65 | 33.91 |
| Sales workers | . 78 | . 72 | . 70 | . 36 | . 35 |  | 3.31 | 3.35 | 4.68 |
| Advertising agents, sales worker | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 |
| other sales warkers | . 76 | . 69 | . 64 | . 36 | . 35 | .41 | 3.28 | 3.31 | 4.64 |
| Clerical workers | 30.45 | 30. 10 | 27.49 | 18.11 | 18.17 | 19.33 | 35.46 | 33.07 | 31.27 |
| Stenographrs,typists, secretaries | 3.63 | 3.17 | 2.62 | 4.37 | 3.94 | 4.62 | 10.03 | 9.33 | 9.38 |
| Legal secretaries | . 02 | . 02 | -01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Medical secretaries | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Other secretaries | 2.53 | 2.37 | 2.18 | 3.20 | 3. 26 | 4. 13 | 6.63 | 6.49 | 6.69 |
| Stenographers | . 06 | . 03 | . 00 | - 53 | - 15 | . 00 | . 33 | - 17 | . 04 |
| Typists | 1.00 | . 75 | .42 | . 64 | . 53 | -49 | 3.03 | 2.65 | 2.62 |
| Office machine operators | -90 | 1.09 | . 97 | 1.47 | 1.82 | 1.25 | 1.00 | 1.04 | . 78 |
| Bookkeeping and billing | . 04 | . 02 | . 01 | . 00 | . 00 | . 00 | .11 | . 06 | . 04 |
| calculating | . 02 | . 01 | . 01 | . 15 | . 08 | . 00 | . 08 | . 06 | . 07 |
| computer and feripheral equip | . 36 | . 71 | .77 | . 56 | 1.16 | . 89 | . 20 | . 43 | . 36 |
| Duplicating feripler | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Keypunch | . 43 | . 31 | - 15 | . 67 | - 52 | . 35 | - 50 | . 40 | . 25 |
| Tabulating | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | . 04 | . 03 | .02 | .10 | . 06 | .01 | . 08 | .08 | . 05 |


|  | $\begin{gathered} \text { Air } \\ \text { transporta- } \\ \text { tion } \end{gathered}$ |  |  | Pipelines |  |  | Transportation services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 25.92 | 25.84 | 23.90 | 12.27 | 12.41 | 13.47 | 24.44 | 22.70 | 21.11 |
| Billing clerks | . 08 | . 08 | . 05 | . 26 | . 25 | . 27 | . 45 | . 52 | . 76 |
| Bookkeepers | 1.07 | -96 | . 82 | 1.54 | 1.61 | 2. 11 | 4.03 | 3.81 | 3.79 |
| Cashiers | . 18 | . 19 | . 20 | . 08 | . 07 | . 01 | 2.71 | 2.94 | 3.38 |
| Clerical supervisors, other | . 34 | . 36 | . 34 | .91 | . 94 | . 67 | -41 | . 47 | .47 |
| collectors, bill and account | . 02 | . 02 | . 02 | .00 | . 00 | . 00 | .01 | .01 | . 00 |
| counter clerks,exc food | . 09 | . 09 | . 10 | - 20 | . 20 | . 19 | . 20 | . 20 | . 28 |
| Dispatchers, starters, vehicle | .13 | . 12 | .13 | . 17 | . 17 | . 23 | . 31 | .33 | . 39 |
| Estimators, investigators, other | . 35 | - 38 | . 38 | . 50 | . 61 | . 61 | . 66 | . 77 | . 63 |
| Expediters, freduction controlrs | . 47 | -41 | . 34 | . 89 | . 84 | . 71 | . 22 | . 24 | . 30 |
| Pile clerks | . 20 | . 16 | . 15 | -27 | - 12 | .01 | . 67 | . 55 | . 49 |
| Mail handlers, exc post office | . 15 | -13 | . 12 | -00 | - 00 | -00 | . 38 | . 36 | - 32 |
| Messengers and office helpers | . 03 | . 02 | .01 | .11 | . 11 | . 12 | . 38 | . 33 | . 17 |
| Payroll, timekeeping clerks | . 14 | . 14 | .10 | . 17 | . 16 | . 08 | . 23 | . 26 | . 22 |
| Receptionists | . 28 | . 23 | . 14 | - 28 | . 24 | . 22 | . 75 | . 72 | . 68 |
| Shipping and receiving clerks | . 42 | - 41 | . 46 | . 33 | . 33 | . 52 | 2.19 | 2.03 | 2.25 |
| Statistical clerks | . 67 | - 69 | . 62 | 2.68 | 3.06 | 3.72 | .60 | . 68 | . 71 |
| stock clerks and store keepers | 1.19 | . 86 | . 54 | . 34 | . 24 | . 09 | . 22 | . 20 | -19 |
| Telephone oferators | . 13 | . 06 | . 03 | . 36 | . 26 | . 34 | -35 | . 22 | . 14 |
| Ticket, station, express agents | 18.13 | 18.74 | 18.26 | . 42 | . 48 | . 64 | 4.78 | 3.07 | . 40 |
| Weighers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 37 | . 38 | . 52 |
| Misc clerical workers | 1.83 | 1.77 | 1.09 | 2.77 | 2.72 | 2.93 | 4.51 | 4.62 | 5.02 |
| Crafts and kindred workers | 18.88 | 18.91 | 18.79 | 27.51 | 27. 20 | 30.60 | 4.90 | 5.04 | 5.28 |
| Construction crafts workers | 1.15 | 1. 00 | . 83 | 3.96 | 3.64 | 3.87 | . 89 | . 89 | . 99 |
| Carpenters and apprentices | . 11 | - 12 | .11 | . 13 | . 10 | . 05 | . 31 | . 30 | . 31 |
| Bulldozer oferators | . 05 | . 04 | . 05 | . 15 | . 15 | . 20 | . 03 | .03 | . 04 |
| cement and concrete finisners | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 56 | . 48 | . 49 | 1.39 | 1.26 | -93 | -24 | - 24 | . 25 |
| Excayating.grading mach operatr | . 05 | - 04 | . 02 | . 59 | . 56 | . 80 | . 06 | . 06 | . 09 |
| Painters and apprentices | . 31 | . 25 | . 11 | . 26 | . 22 | . 14 | . 18 | . 19 | . 22 |
| Plumbers, pipefitters, aprentices | . 05 | . 05 | . 05 | 1.43 | 1.36 | 1.76 | . 07 | . 07 | . 08 |
| Structural metal craft workers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Blue collar worker supervisors | 1.68 | 1.79 | 1.81 | 5.21 | 5.60 | 6.23 | 1.32 | 1.38 | 1.31 |
| Metalworkg craft urkrs, exc meca | . 85 | -67 | .60 | . 57 | .63 | -83 | - 10 | . 11 | . 13 |
| Machinists and apprentices | - 33 | - 30 | .35 | . 57 | . 63 | .83 | . 10 | -11 | . 13 |
| Sheetmetal workers, apprentices | . 50 | - 35 | . 22 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| Tool and diemakers, apprentices | . 02 | . 02 | . 02 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| Mechanics, repairers, installers | 14.90 | 15. 19 | 15.28 | 5.21 | 5.65 | 7.02 | 1.58 | 1.68 | 1.95 |
| Air cond, heating, refrig mech | . 12 | - 19 | . 21 | .07 | . 10 | . 13 | .17 | . 21 | . 16 |
| Aircraft mechanics | 12.80 | 13. 25 | 13.50 | . 19 | -09 | . 01 | .06 | . 04 | . 00 |
| Auto body repairers | . 03 | . 02 | . 02 | .00 | . 00 | . 00 | . 02 | .01 | .01 |
| Auto mechanics and apprentices | . 43 | . 35 | . 27 | . 58 | - 62 | 1.02 | . 38 | . 36 | . 41 |
| Data processing mach repairers | . 02 | - 02 | . 02 | . 04 | . 04 | . 05 | -00 | . 00 | - 00 |
| Heavy equip mech, incl diesel | . 34 | - 43 | . 59 | 3.19 | 3.75 | 4.78 | . 33 | . 42 | . 59 |
| Household afpliance mechanics | . 00 | . 00 | . 00 | . 49 | . 56 | . 78 | . 03 | . 03 | . 01 |
| Radio, television repairers | . 57 | . 43 | . 29 | . 23 | - 19 | .21 | . 02 | . 01 | . 02 |
| Railroad, car shop repairers | . 01 | - 01 | . 01 | . 00 | -00 | - 00 | . 44 | . 48 | . 65 |
| Other mechanics and apprentices | . 58 | - 50 | . 38 | . 43 | . 29 | . 06 | . 12 | . 11 | . 07 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 07 | . 06 | . 00 | . 09 | . 09 | . 08 |
| Compositors and typesetters | . 00 | . 00 | . 00 | .00 | -00 | . 00 | . 08 | . 08 | . 07 |
| press, plate printers,aprentices | . 00 | . 00 | .00 | . 07 | . 06 | . 00 | . 01 | . 01 | . 01 |
| transport, public util craft wkrs | . 01 | . 01 | - 00 | .40 | . 35 | .21 | . 05 | . 05 | . 05 |
| Elec pur line instaler, repairer | . 01 | . 01 | . 00 | . 08 | . 05 | .01 | .01 | . 01 | .01 |
| Locomotive engineers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Locomotive engineers' helpers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Power station operators | . 00 | - 00 | . 00 | -21 | . 20 | . 17 | . 01 | .01 | . 01 |
| Telephone line instalr,splicers | . 00 | . 00 | . 00 | . 11 | . 09 | . 03 | .00 | .00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Air transportation |  |  | Pipelines |  |  | $\begin{gathered} \text { Transporta- } \\ \text { tion } \\ \text { services } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther crafts, kindred workers | . 29 | - 26 | . 27 | 12.11 | 11.29 | 12.44 | -88 | . 83 | .77 |
| Bakers | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Crane, dercick, hoist operator | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | - 14 | - 12 | . 18 |
| Inspectors, other | . 06 | . 06 | . 06 | 2.09 | 2.45 | 3.00 | - 50 | . 51 | . 44 |
| Stationary engineers | . 10 | . 09 | . 11 | 9.89 | 8.76 | 9.42 | . 17 | . 13 | . 07 |
| Upholsterers | . 07 | . 05 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other crafts workers | . 02 | . 01 | . 01 | - 12 | . 08 | . 03 | . 08 | -08 | . 08 |
| Operatives | 6.92 | 6.77 | 6.18 | 19.22 | 18.99 | 15.14 | 6.63 | 6.38 | 6.81 |
| operatives, except transport | 5.82 | 5.67 | 4.76 | 16.55 | 16.65 | 13.06 | 1.88 | 1.77 | 1.89 |
| Semiskilled metalworking | . 30 | . 27 | . 27 | 1.64 | 1.77 | 2.36 | . 21 | . 22 | - 28 |
| Lathe,milling mach operatives | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Metal platers | . 05 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| velders and flamecutters | .21 | . 20 | . 22 | 1.64 | 1.77 | 2.36 | -21 | . 22 | . 28 |
| Semiskilled packing, inspecting | -11 | - 11 | . 10 | . 15 | . 11 | . 00 | - 58 | - 52 | . 46 |
| Packer,wrapper, exc meat, prodce | .11 | . 11 | . 10 | . 15 | .11 | . 00 | . 57 | - 51 | . 46 |
| Produce grdr,fkrs,exc fact, farm | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | .00 |
| Other operatives, exc transport | 5.41 | 5.29 | 4.40 | 14.75 | 14.77 | 10.71 | 1.10 | 1.03 | 1.15 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 13 | . 13 | . 14 | . 00 | . 00 | . 00 |
| drillers, earth | - 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Filer,polisher, sander, buffer | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 |
| Garage wrkr,gas station atten | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Mixing operatives | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 00 | . 00 | - 00 |
| Oilers,greasers,exc automobiles | . 00 | - 00 | . 00 | . 40 | . 27 | . 06 | . 05 | . 04 | . 01 |
| Painters, mfg articles | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 07 | . 05 | . 04 |
| Photographic process workers | . 00 | . 00 | . 00 | . 09 | . 11 | - 16 | . 02 | . 02 | . 02 |
| kiveters and fasteners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | - 00 |
| Sailors and deckhands | .00 | . 00 | . 00 | .00 | .00 | . 00 | . 30 | . 24 | . 29 |
| Sewers and stitchers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purnace tendr,stokr,exc metal | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | . 08 | . 03 | . 00 |
| Miscellaneous machine operatves | . 05 | . 05 | . 04 | 1.00 | 1.07 | 1.14 | . 19 | . 22 | . 27 |
| Other operatives, exc transport | 5.27 | 5.16 | 4.29 | 13.05 | 13.13 | 9.19 | . 31 | . 37 | . 46 |
| Transport equifment operatives | 1.11 | 1. 11 | 1.42 | 2.67 | 2.34 | 2.07 | 4.75 | 4. 60 | 4.92 |
| Boat operators | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 03 | . 03 | . 03 |
| Bus drivers | . 00 | . 08 | . 07 | . 04 | . 06 | . 05 | . 37 | - 55 | - 14 |
| Delivery and route workers | . 20 | . 19 | . 18 | . 62 | . 50 | . 41 | . 35 | - 31 | - 35 |
| Fork lift,tow motor operatives | . 05 | . 06 | . 04 | . 00 | . 00 | . 00 | .43 | . 54 | . 70 |
| Bail vehicle cperators, other | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Parking attenoants | . 00 | - 00 | .00 | . 00 | . 00 | . 00 | . 02 | -01 | .00 |
| Bailroad brake operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| dailroad switch operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 |
| Taxicab drivers, chauffeurs | . 14 | . 08 | . 07 | . 04 | . 04 | . 07 | . 92 | . 57 | . 12 |
| Truck drivers | . 65 | . 70 | 1.06 | 1.97 | 1.74 | 1.55 | 2.59 | 2.55 | 3.51 |
| Service workers | 14.71 | 14. 28 | 17.90 | 1.99 | 1.78 | 1.37 | 4.00 | 3.46 | 3.57 |
| Cleaning service workers | 2.04 | 1.83 | 1.81 | 1.30 | 1. 10 | . 63 | - 90 | . 89 | . 88 |
| Bldg interior cleaners, other | . 41 | . 34 | . 31 | . 23 | . 19 | . 10 | . 30 | . 32 | - 34 |
| Janitors and sextons | 1.63 | 1. 49 | 1.51 | 1.07 | . 91 | . 53 | . 59 | . 57 | . 55 |
| Food service workers | 1.18 | . 78 | . 67 | . 31 | - 33 | .46 | .40 | . 25 | - 13 |
| Bartenders | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Waiters' assistants | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 | . 01 | .01 | . 03 |
| Cooks, exc private households | . 28 | - 20 | - 15 | . 04 | . 03 | . 01 | -22 | - 12 | . 03 |
| Dishwashers | . 08 | . 04 | . 01 | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 |
| Pood counter, fountain workers | .03 | . 03 | . 04 | . 19 | . 24 | . 43 | . 01 | . 02 | . 02 |
| Haiters | . 20 | -13 | . 13 | . 00 | . 00 | . 00 | . 08 | . 04 | . 00 |
| Other food serv wkrs, exc privt | . 55. | . 33 | . 28 | . 09 | . 06 | . 03 | . 03 | . 02 | . 03 |
| Health service workers | . 02 | . 03 | . 02 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Health aides, except nursiny | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | .01 | . 01 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Air } \\ \text { transporta- } \\ \text { tion } \end{gathered}$ |  |  | Pipelines |  |  | $\begin{gathered} \text { Transporta- } \\ \text { tion } \\ \text { services } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 10.89 | 10.98 | 14.52 | . 12 | .11 | - 11 | 1.76 | 1.50 | 1.84 |
| Plight attendants | 9.72 | 10.36 | 13.96 | . 12 | . 11 | . 11 | .13 | . 12 | . 07 |
| Attendants, recreation, amusement | . 01 | . 01 | .00 | . 00 | . 00 | .00 | . 20 | . 18 | . 27 |
| Attendants, personal serv,other | . 08 | . 06 | . 03 | . 00 | . 00 | . 00 | 1.25 | 1.06 | 1. 29 |
| Baggage porters and bellhops | . 67 | - 33 | . 35 | . 00 | . 00 | .00 | . 02 | . 02 | . 10 |
| Barbers | . 05 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Child care workers, exc private | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Housekeepers, exc pripate homes | .35 | - 21 | . 16 | . 00 | .00 | . 00 | . 15 | . 12 | . 10 |
| Protective service workers | . 58 | . 67 | . 88 | . 26 | . 24 | . 16 | . 94 | . 83 | . 72 |
| Crossing guards,bridgetenders | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 37 | . 30 | . 29 |
| Firefighters | . 14 | . 17 | . 18 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Guards | . 33 | - 38 | . 57 | . 26 | . 24 | . 16 | .41 | .42 | . 38 |
| Police and detectives | . 11 | - 12 | . 11 | . 00 | . 00 | . 00 | . 15 | .12 | . 05 |
| Laborers, except farm | 4.86 | 4.37 | 3.64 | 8.07 | 6.64 | 4.47 | 7.39 | 7.17 | 7.76 |
| Animal caretakers, exc farm | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | 1.06 | 1.18 | 1.02 |
| Carpenter helfers | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 |
| Constr labr, exc carpenter helpr | . 06 | . 05 | . 05 | 6.92 | 5.54 | 3.23 | . 15 | . 14 | . 14 |
| Freight and material handlers | 2.58 | 2. 38 | 2.20 | . 61 | . 60 | . 63 | 2.80 | 2.78 | 3.26 |
| Garbage collectors | . 01 | . 01 | . 01 | . 05 | . 06 | . 08 | . 00 | . 00 | . 00 |
| Gardenrs.ground keepers, exc farm. | . 18 | . 25 | . 25 | . 00 | . 00 | . 00 | . 08 | . 08 | . 07 |
| Longshore workers, stevedores | . 01 | - 01 | .00 | . 00 | .00 | . 00 | . 91 | . 84 | . 94 |
| Stock handlers | . 47 | . 40 | . 16 | . 00 | . 00 | . 00 | .09 | - 10 | - 12 |
| Teainsters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Vehicle washers,equip cleaners | 1.34 | 1.08 | . 78 | . 00 | . 00 | . 00 | . 96 | . 88 | 1.08 |
| Warehouse labcrers, other | . 06 | . 06 | . 06 | . 00 | . 00 | . 00 | - 20 | .17 | . 11 |
| Other laborers | . 14 | . 12 | . 12 | . 50 | . 45 | . 53 | 1.10 | . 94 | . 94 |

Table 1. Fercent distribution of industry employment by occupation, 1970. 1978 and projected 1990

$1970 \quad 1978 \quad 1990$

| Communica- <br> tions |  |
| :--- | :---: |
| $19701978 \quad 1990$ |  |

$1970 \quad 1978 \quad 1990$

Telephone Twire and radiof
$1970 \quad 1978$
 Other writers,artists, entertain
$100.00 \quad 100.00 \quad 100.00$ $10.83 \quad 12.12 \quad 13.49$ $\begin{array}{r}3.59 \\ 2.58 \\ \\ \\ \\ \\ \\ \\ \hline 0.014\end{array}$

| 2.58 | 2.65 | 3.46 |
| ---: | ---: | ---: |
| .12 | .13 | .11 |
| .24 | -24 | .24 |
| .04 | .03 | .03 |

.20
$100.00 \quad 100.00 \quad 100.00$
12.74
14.90
18.68
3.7
3.76
-00
-11
3.34
.05
.05

| 1.89 | 2.07 | 2.31 |
| ---: | ---: | ---: |
| .06 | .07 | .08 |
| .60 | .55 | .61 |



.



| .02 | .04 | .02 |
| :--- | :--- | :--- |
| .02 | .03 | .02 |




| .44 | .57 | .76 |
| :---: | :---: | :---: |
| .29 | .35 | .43 |
| .13 | .19 | .30 |
| .02 | .03 | .03 |
| .13 | .21 | .20 |
| .13 | .20 | .19 |
| .00 | .01 | .01 |
| .02 | .02 | .01 |
| .02 | .02 | .01 |
|  |  |  |
| 2.24 | 2.70 | 3.13 |
| .03 | .04 | .05 |
| .04 | .04 | .07 |
| .11 | .14 | .16 |
| .46 | .59 | .83 |
| .03 | .03 | .02 |
| .06 | .07 | .04 |
| .08 | .09 | .14 |
| .31 | .39 | .44 |
| .93 | 1.05 | 1.13 |
| .21 | .27 | .25 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Comunicatn, utilities. sanitry stv |  |  | Communications |  |  | Telephone (wire and radio) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 1.86 | 2. 12 | 1.93 | 1.81 | 2.17 | 2.35 | 1.82 | 2.22 | 2.46 |
| Accountants | . 96 | 1. 08 | 1.07 | .77 | . 95 | 1.25 | . 73 | .91 | 1.27 |
| Architects | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 02 | . 01 | .01 |
| Foresters and conseryationists | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Home management advisors | . 05 | . 04 | .03 | - 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Lawyers | . 09 | . 17 | .12 | - 07 | . 14 | . 14 | . 06 | . 11 | . 11 |
| Librarians | - 01 | . 01 | . 01 | .02 | . 02 | . 02 | .01 | . 01 | .01 |
| operations and systems research | . 10 | . 15 | .14 | .11 | . 16 | . 17 | . 11 | - 17 | . 19 |
| Personnel ilabor relations wirs | . 56 | . 60 | .48 | . 77 | . 85 | . 74 | .85 | .97 | . 86 |
| other research workers | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 | . 03 | .02 | . 00 |
| Social workers | . 00 | . 00 | . 01 | . 01 | . 01 | .01 | .01 | .01 | .01 |
| Hanagers, officials, proprietors | 6.78 | 8.47 | 7.39 | 8.10 | 10.72 | 7.81 | 6.27 | 8.77 | 4.94 |
| Buyers, sales, lcan managers | . 63 | -60 | . 58 | -57 | . 58 | . 57 | . 37 | . 35 | - 28 |
| Bank, financial managers Credit managers | . 08 | . 08 | . 05 | .09 .01 | . 09 | . 05 | . 06 | . 06 | . 01 |
| purchasing agents, buyers, other | . 25 | . 22 | . 19 | . 11 | . 09 | . 06 | -11 | . 01 | . .05 |
| Sales manager, exc retail trade | . 25 | . 27 | . 32 | .36 | .40 | . 46 | . 20 | .21 | .21 |
| Other managers, officials, proprts | 6.15 | 7.87 | 6.81 | 7.53 | 10.13 | 7.23 | 5.91 | 8.42 | 4.66 |
| Mgrs, superintendents, building | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 | . 01 | . 01 | .02 |
| office managers, other | . 46 | . 49 | . 57 | . 51 | . 56 | -66 | . 43 | . 48 | . 60 |
| Resta urant, cafe, bar, managers | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| other managers, administrators | 5.68 | 7. 36 | 6.21 | 7.00 | 9.55 | 6.53 | 5.46 | 7.92 | 4.03 |
| Sales workers | 1.25 | 1.49 | 2.04 | 1.65 | 2.29 | 3.42 | . 81 | . 97 | 1.45 |
| Advertising agents, sales worker | . 52 | . 80 | 1.23 | 1.03 | 1.62 | 2.48 | . 11 | .16 | . 25 |
| Demonstrators | . 02 | . 02 | . 04 | . 00 | . 00 | - 00 | . 00 | .00 | . 00 |
| Other sales workers | . 71 | . 68 | .77 | -62 | . 67 | . 94 | .70 | .81 | 1.20 |
| Clerical workers | 32.41 | 29.25 | 27.56 | 45.52 | 40.78 | 38.77 | 49.41 | 45.13 | 43.29 |
| Stenographrs, typists, secretaries | 4.50 | 4.41 | 5.54 | 5.26 | 5.49 | 7.77 | 4.34 | 4.54 | 6.85 |
| Legal secretaries | . 03 | . 02 | . 03 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| other secretaries | 2.48 | 2.67 | 3.64 | 2.72 | 3. 10 | 4.82 | 1.96 | 2.27 | 3.79 |
| Stenographers | . 29 | . 16 | .07 | . 24 | . 15 | . 09 | . 27 | . 18 | . 10 |
| Typists | 1.70 | 1.56 | 1.81 | 2.29 | 2.22 | 2.83 | 2.09 | 2.07 | 2.95 |
| office machine operators | 1.12 | 1. 24 | 1.05 | 1.24 | 1.41 | 1.24 | 1.35 | 1.58 | 1.44 |
| Bookkeeping and billing | . 09 | . 05 | . 03 | . 07 | . 03 | . 01 | . 07 | . 03 | . 01 |
| Calculating | . 06 | . 03 | . 02 | . 07 | . 04 | .01 | . 08 | . 04 | . 01 |
| Computer and feripheral equip | . 31 | -68 | . 76 | -37 | . 83 | .99 | . 39 | . 92 | 1.17 |
| Duplicating | . 03 | . 02 | . 02 | . 04 | . 03 | . 01 | . 04 | .03 | . 01 |
| Keypunch | . 56 | - 40 | .19 | . 62 | .44 | . 18 | -69 | . 51 | . 21 |
| Tabulating | .03 | - 01 | . 00 | . 03 | . 01 | . 00 | . 03 | .01 | . 00 |
| other office rachine operators | . 05 | . 05 | .03 | . 05 | . 05 | . 03 | . 05 | . 05 | .03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | comunicatn, utilities. sanitry sry |  |  | Communications |  |  | Telephone (vire and radio) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 26.79 | 23.60 | 20.97 | 39.03 | 33.87 | 29.76 | 43.72 | 39.02 | 35.00 |
| Billing clerks | . 40 | . 43 | . 50 | . 32 | . 36 | . 43 | . 34 | -39 | . 47 |
| Bookkeepers | 1.91 | 1.89 | 2.06 | 1.68 | 1.83 | 2.50 | 1.44 | 1.59 | 2.30 |
| Cashiers | . 57 | . 57 | .53 | . 42 | -41 | . 32 | . 46 | . 47 | . 38 |
| Clerical supervisors, other | . 79 | . 87 | . 86 | 1. 12 | 1.26 | 1.24 | 1.28 | 1.50 | 1.53 |
| Collectors, bill and account | . 25 | . 23 | . 17 | . 13 | - 11 | . 05 | . 15 | . 13 | . 06 |
| Counter clerks.exc food | . 44 | . 44 | . 49 | . 78 | - 80 | . 86 | . 90 | . 96 | 1.07 |
| Dispatchers, starters, vehicle | . 18 | . 18 | . 21 | . 15 | . 16 | . 17 | .17 | . 18 | - 20 |
| Estimators, investigators, other | 1.20 | 1.29 | . 78 | 1.09 | 1. 14 | . 56 | 1.24 | 1.34 | . 67 |
| Expediters, frcduction controlrs | .21 | . 21 | . 20 | . 22 | - 21 | . 15 | - 19 | - 18 | - 12 |
| File clerks | . 47 | . 41 | . 50 | . 64 | . 59 | . 82 | .71 | . 68 | 1.00 |
| Library attendants, assistants | . 02 | . 02 | . 00 | . 03 | . 03 | . 01 | . 03 | -03 | . 01 |
| Mail handlers,exc post office | . 22 | . 21 | - 20 | . 26 | - 26 | . 23 | . 25 | . 25 | . 23 |
| Messengers and office helpers | . 07 | . 07 | . 05 | . 11 | . 11 | . 08 | . 06 | . 06 | . 03 |
| Meter readers,utilities | 1.71 | 1.61 | 1.53 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Payroll, timekeeping clerks | .38 | . 44 | -40 | . 38 | . 48 | . 49 | . 40 | . 52 | . 53 |
| Receptionists | .27 | - 25 | - 20 | . 35 | - 33 | . 26 | -23 | . 20 | - 10 |
| Shipping and receiving clerks | . 09 | . 09 | . 14 | . 09 | . 11 | . 21 | . 08 | . 09 | . 19 |
| Statistical clerks | 1.40 | 1.47 | 1.33 | 1.83 | 2.02 | 1.93 | 2.10 | 2.41 | 2.37 |
| Stock clerks and store keepers | . 51 | - 41 | . 27 | .34 | . 24 | . 09 | . 37 | . 27 | - 10 |
| Telegrafh messengers | - 12 | - 10 | . 03 | . 23 | . 21 | . 05 | . 00 | . 00 | . 00 |
| Telegraph operators | . 18 | - 20 | . 14 | . 36 | . 40 | . 29 | . 06 | - 10 | . 21 |
| Telephone operators | 10.05 | 6.73 | 4.86 | 19.71 | 13.56 | 9.68 | 23.29 | 16.74 | 12.24 |
| weighers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Misc clerical workers | 5.34 | 5.45 | 5.51 | 8.79 | 9.29 | 9.36 | 9.98 | 10.95 | 11.22 |
| Crafts and kindred workers | 32.17 | 32.65 | 32.37 | 29.64 | 29.18 | 29.39 | 33.71 | 34.38 | 35.61 |
| Construction crafts workers | 3.11 | 3. 29 | 3.43 | .43 | - 52 | . 72 | . 40 | . 49 | . 70 |
| Carpenters and apprentices | . 20 | . 27 | . 26 | . 06 | . 08 | - 12 | . 03 | . 04 | . 06 |
| Brick, stonemasons, apprentices | . 03 | - 03 | . 02 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 28 | - 26 | . 26 | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 |
| Cement and concrete finishers | . 02 | . 02 | . 02 | . 00 | . 00 | .01 | .00 | . 00 | . 00 |
| Electricians and apprentices | 1.21 | 1.37 | 1.32 | . 14 | - 16 | . 23 | - 11 | . 13 | - 22 |
| Excavating, grading mach operatr | . 36 | - 33 | . 32 | . 02 | - 01 | . 01 | . 02 | . 02 | . 01 |
| Painters and apprentices | . 12 | - 13 | . 11 | .03 | -03 | . 03 | . 02 | - 02 | . 01 |
| Plumbers, pipefitters, aprentices | . 86 | . 86 | 1.10 | . 18 | . 23 | . 30 | -21 | . 28 | - 37 |
| Structural metal craft workers | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 3.44 | 3.78 | 3.99 | 1.74 | 2.17 | 3.65 | 1.91 | 2.44 | 4.25 |
| Metalworkg craft wrkrs, exc mech | . 35 | - 55 | .81 | .01 | .01 | . 00 | .01 | . 01 | . 00 |
| Blacksmiths | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Boilermakers | . 13 | - 27 | -46 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 16 | . 21 | - 29 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Millwrights | - 02 | . 02 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | - 00 |
| Sheetmetal workers, apprentices | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| tool and diemakers, apprentices | . 01 | . 01 | . 02 | .00 | . 00 | .00 | .00 | . 00 | . 00 |
| Mechanics, repairers, installers | 4.52 | 4.61 | 4.40 | . 90 | . 93 | 1.25 | . 67 | . 71 | 1.04 |
| Air cond, heating, refrig mecn | - 17 | - 23 | . 24 | . 05 | -09 | . 10 | . 06 | - 10 | - 11 |
| Auto mechanics and apprentices | . 61 | . 53 | -45 | . 20 | . 16 | . 20 | . 23 | - 19 | - 25 |
| Data processing mach repairers | . 02 | -03 | . 04 | . 03 | . 05 | . 09 | . 03 | . 04 | . 08 |
| Heavy equip mech. incl diesel | . 84 | 1. 03 | 1.26 | . 12 | - 15 | . 24 | - 10 | - 13 | - 21 |
| Household affliance mechanics | 1.86 | 1. 82 | 1.53 | . 02 | . 02 | .01 | . 01 | . 01 | . 01 |
| office machine repairers | . 02 | . 02 | . 04 | . 04 | . 04 | . 08 | . 05 | . 04 | . 09 |
| Radio, television repairers | .24 | . 23 | -31 | . 37 | . 37 | . 52 | . 15 | - 16 | -27 |
| Other mechanics and apprentices | . 74 | . 73 | . 52 | .07 | . 05 | . 01 | . 06 | . 04 | . 01 |
| Printing trade crafts yorkers' | . 07 | . 08 | - 11 | . 07 | - 10 | . 21 | . 05 | . 08 | - 17 |
| Compositors and typesetters | . 04 | . 04 | . 06 | . 04 | . 06 | -11 | . 03 | . 04 | . 08 |
| Press, plate printers,aprentices | . 03 | . 03 | . 05 | .03 | . 05 | .09 | . 02 | - 04 | . 09 |
| Transport, public util craft wkrs | 17.35 | 16.96 | 15.61 | 26.06 | 25.06 | 23.25 | 30.24 | 30.22 | 29.07 |
| Elec pwr line instaler, repairer | 3.73 | 4.06 | 3.72 | . 16 | . 10 | . 01 | - 16 | . 10 | . 01 |
| Power station operators | . 56 | . 63 | . 38 | . 01 | . 01 | .03 | . 01 | . 02 | . 03 |
| Telephone installers, repairers | 10.77 | 10. 02 | 9.47 | 21.41 | 20.41 | 19.12 | 25.02 | 24.83 | 23.96 |
| Telephone line instalr, splicers | 2.28 | 2.25 | 2.04 | 4.49 | 4.53 | 4.10 | 5.06 | 5.28 | 5.07 |


|  | Comunicatn. utilities. sanitry siv |  |  | Communications |  |  | Telephone (wire and radio) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 3.34 | 3.38 | 4.02 | . 43 | . 40 | . 32 | .43 | . 44 | . 38 |
| Crane,derrick, hoist operator | . 15 | . 13 | .17 | - 01 | . 01 | .01 | . 00 | -00 | . 00 |
| Inspectors, other | .75 | . 79 | . 73 | - 16 | . 19 | . 21 | . 18 | . 22 | .27 |
| Stationary engineers | 2.21 | 2.25 | 2.96 | . 09 | . 07 | . 04 | . 06 | . 05 | . 04 |
| other crafts yorkers | . 23 | . 21 | .17 | . 16 | . 14 | . 06 | . 19 | -16 | . 07 |
| Operatives | 5.32 | 5.38 | 6.15 | . 67 | . 70 | . 83 | .67 | . 72 | . 88 |
| Operatives, except transport | 2.45 | 2. 39 | 2.07 | . 37 | . 39 | . 36 | . 37 | . 39 | . 38 |
| Semiskilled metalworking | . 44 | . 47 | . 49 | . 03 | . 03 | . 04 | . 03 | . 03 | . 05 |
| Punch,stamping press operatives | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 00 | .00 |
| Solderers | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Welders and flamecutters | . 42 | . 45 | .47 | . 01 | . 02 | .03 | . 01 | . 02 | . 03 |
| Semiskilled packing, inspectiny | . 02 | . 02 | . 02 | . 01 | . 01 | . 03 | . 01 | . 02 | .03 |
| Packer, wrapper,exc meat, prodce | . 02 | . 02 | . 02 | . 01 | . 01 | . 03 | . 01 | . 02 | .03 |
| Other operatives, exc transport | 1.99 | 1. 90 | 1.56 | . 33 | . 34 | . 30 | . 32 | -35 | . 30 |
| Asbestos, insulation workers | . 01 | .01 | . 01 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 | .01 | .01 | . 02 |
| Drillers, earth | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Garage wrkr.gas station atten | . 06 | . 04 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| oilers,greasers, exc automobiles | .09 | . 06 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Painters, mfg articles | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photographic frocess workers | .03 | . 04 | . 05 | . 04 | . 05 | . 08 | . 02 | . 03 | . 05 |
| Furnace tendr,stokr, exc metal | . 40 | . 26 | . 24 | .01 | .00 | . 01 | . 01 | . 01 | . 02 |
| Winding operatives, other | . 01 | . 01 | .01 | .01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Miscellaneous machine operatves | . 28 | . 29 | . 26 | . 07 | . 08 | .07 | . 07 | . 07 | . 06 |
| Other operatives, exc transport | 1.06 | 1.13 | .90 | . 19 | - 20 | .12 | . 21 | . 22 | . 14 |
| Transport equifment operatiges | 2.87 | 2.99 | 4.09 | -30 | - 31 | . 47 | .31 | . 32 | . 50 |
| Bus drivers | . 02 | .03 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Delivery and route workers | . 15 | . 14 | . 19 | . 12 | . 12 | .21 | . 12 | . 13 | . 25 |
| Fork lift, tom motor operatives | . 03 | . 03 | .03 | . 01 | . 01 | . 02 | -01 | . 01 | . 02 |
| Railroad suitch operators | . 03 | . 03 | .03 | . 05 | . 05 | . 05 | . 04 | . 04 | . 04 |
| Taxicab drivers, chauffeurs | . 07 | . 05 | . 01 | . 03 | . 03 | . 01 | . 03 | . 02 | .01 |
| Track drivers | 2.56 | 2. 70 | 3.80 | . 10 | - 11 | . 18 | .11 | . 12 | . 18 |
| Service workers | 1.92 | 1.71 | 1.28 | 1.22 | 1.01 | . 71 | 1.13 | .93 | . 55 |
| Cleaning service yorkers | 1.47 | 1.30 | . 85 | . 85 | . 69 | . 40 | -81 | . 66 | .27 |
| Bldg interior cleaners, other | . 22 | . 20 | . 14 | . 21 | . 20 | . 14 | - 20 | - 18 | - 10 |
| Janitors and sextons | 1.26 | 1. 10 | .70 | . 64 | . 49 | . 25 | . 61 | . 48 | . 17 |
| Pood serpice wcrkers | . 11 | . 08 | . 05 | - 15 | .10 | . 06 | - 17. | . 12 | . 06 |
| Cooks, exc private households | . 04 | .02 | . 01 | . 05 | . 03 | .01 | . 05 | .03 | .01 |
| Dishwashers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Food counter,fountain workers | . 02 | . 02 | . 01 | . 04 | . 03 | . 02 | . 04 | . 04 | . 02 |
| Maiters | . 02 | .01 | .01 | . 02 | . 01 | . 01 | . 03 | . 02 | .01 |
| Other food serv wkrs,exc privt | . 03 | . 02 | . 01 | . 04 | . 02 | . 01 | . 05 | . 03 | .01 |
| Personal service vorkers | . 08 | .07 | .05 | . 11 | . 10 | . 07 | . 07 | . 06 | .03 |
| Attendants, personal serv,other | . 03 | .03 | . 02 | . 05 | . 04 | . 01 | . 03 | . 02 | . 01 |
| Elevator operators | . 02 | .01 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 | .01 |
| Hairdressers and cosmetologists | . 01 | . 01 | . 02 | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 02 | .01 | .01 | . 03 | . 02 | .01 | . 02 | . 02 | .01 |
| Protective service morkers | . 25 | . 26 | . 33 | . 10 | .11 | . 19 | . 08 | . 10 | . 19 |
| Crossing yuards,bridgetenders | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 00 | .00 | . 00 |
| Guards | . 22 | . 23 | .30 | . 09 | . 10 | . 17 | . 07 | . 09 | - 17 |
| Police and detectives | . 02 | . 02 | .01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Laborers, except farm | 9.33 | 8. 94 | 9.72 | -47 | . 44 | . 42 | -42 | . 40 | . 34 |
| Carpenter helfers | . 04 | . 04 | .03 | . 00 | - 00 | . 00 | . 00 | .00 | .00 |
| Constr labr,exc carpenter helpr | 1.39 | 1.23 | . 88 | . 08 | . 07 | . 04 | . 09 | . 08 | . 05 |
| Freight and material handlers | . 27 | . 28 | . 28 | . 11 | . 12 | . 15 | . 04 | . 04 | . 04 |
| Garbage collectors | 3.58 | 3.76 | 5.52 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 23 | . 25 | .23 | . 04 | . 04 | . 03 | . 03 | -03 | . 02 |
| Stock handlers | . 06 | . 06 | . 04 | . 04 | - 04 | . 02 | . 05 | . 04 | . 02 |
| Vehicle vashers,equip cleaners | . 10 | . 10 | . 05 | . 07 | . 07 | . 03 | . 09 | . 08 | . 04 |
| Harehouse labcrers, other | . 10 | -10 | . 10 | . 04 | . 04 | . 08 | . 04 | . 05 | . 10 |
| Other laborers | 3.55 | 3. 12 | 2.60 | . 08 | .07 | .07 | . 09 | . 08 | . 09 |


|  | Telegraph. misc comunication srv |  |  | $\begin{gathered} \text { gadio } \\ \text { and ty } \\ \text { broadcastng } \end{gathered}$ |  |  | Utilities and sanitry services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100. 00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Protessional and technical | 13.56 | 15.91 | 19.30 | 48.46 | 48.05 | 43.86 | 8.91 | 9.47 | 8.45 |
| Engineers, technical | 3.19 | 3. 29 | 4.70 | 5.71 | 4.66 | 3.72 | 3.42 | 3.44 | 3. 23 |
| Chemical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 07 | . 09 |
| Civil | . 10 | -09 | . 17 | . 07 | . 06 | . 06 | . 63 | . 54 | - 59 |
| Electrical | 2.59 | 2.74 | 4.00 | 5.31 | 4.33 | 3.38 | 1.83 | 1.96 | 1.70 |
| Industrial | . 11 | . 14 | - 20 | . 06 | . 06 | . 06 | . 13 | . 15 | . 15 |
| Mechanical | . 10 | . 11 | . 20 | . 12 | . 11 | . 12 | . 42 | . 43 | . 42 |
| Petroleum | - 00 | - 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 01 | . 01 |
| Sales | . 02 | . 01 | -00 | . 01 | - 00 | . 00 | . 08 | . 06 | . 05 |
| other engineers | -27 | . 21 | . 13 | . 13 | - 10 | . 11 | . 24 | . 21 | . 22 |
| Life and physical scientists | . 04 | . 04 | . 02 | - 16 | . 26 | . 19 | . 24 | . 27 | . 25 |
| atinospheric and space | . 00 | . 00 | .00 | - 16 | - 26 | . 19 | -00 | . 00 | .00 |
| Biological | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 05 | . 06 |
| Chemists | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 16 | . 14 |
| Geologists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Marine | . 00 | . 00 | .00 | -00 | . 00 | - 00 | . 01 | . 02 | .01 |
| Physicists and astronomers | . 04 | . 04 | . 02 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Mathematical sfecialists | . 08 | . 05 | . 00 | . 02 | . 02 | . 00 | . 06 | . 05 | . 05 |
| Mathematicians | . 02 | . 01 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 00 |
| Statisticians | . 06 | . 04 | .00 | . 02 | . 02 | . 00 | -05 | . 05 | . 05 |
| Engineering, science technicians | 4.45 | 5. 14 | 6.87 | 7.54 | 7.69 | 7.00 | 1.91 | 1.95 | 2.01 |
| Chemical technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 13 | . 14 | - 16 |
| Drafters | . 33 | - 31 | . 50 | -08 | -07 | . 08 | -84 | .75 | - 70 |
| Electrical and electronic | 3.59 | 4. 21 | 5.34 | 7.26 | 7.42 | 6.69 | . 35 | . 42 | .41 |
| Industrial engineering | . 01 | . 01 | . 01 | . 02 | . 03 | . 02 | . 01 | . 01 | .01 |
| Mathematical technicians | . 28 | - 32 | . 56 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanical engineering | . 01 | . 01 | . 01 | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | - 22 | . 23 | . 23 |
| other engineering, science tech | - 22 | - 26 | .46 | - 17 | - 18 | - 21 | . 35 | - 40 | . 49 |
| Medical workers, exc technicians | . 04 | . 03 | . 01 | . 02 | . 02 | . 01 | . 04 | . 04 | . 03 |
| Physicians and osteopaths | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Registered nurses | . 02 | . 02 | .01 | . 02 | . 02 | . 01 | .03 | .03 | . 02 |
| Health technolcgists,technicians | . 02 | . 02 | . 01 | .01 | . 02 | . 00 | . 05 | . 07 | . 05 |
| Other health technicians | . 02 | . 02 | . 01 | .00 | . 00 | . 00 | . 04 | . 06 | . 04 |
| Technicianseexcept health | 1.96 | 2. 51 | 2.33 | 3.22 | 3.36 | 2.08 | -27 | . 33 | . 28 |
| Airplane pilots | . 02 | . 02 | . 00 | . 03 | . 04 | . 06 | -03 | . 03 | . 04 |
| Radio operators | - 64 | - 72 | . 36 | 3.10 | 3. 19 | 1.88 | -11 | . 12 | . 05 |
| Tool prograners, numerical | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 00 | .00 | . 00 |
| Other technicians except nealth | 1.31 | 1. 77 | 1.97 | . 10 | . 12 | . 13 | .14 | - 18 | . 19 |
| Computer specialists | . 97 | 1. 30 | 1.44 | . 15 | - 18 | - 18 | -39 | -47 | - 38 |
| Computer programers | . 58 | . 70 | . 83 | . 11 | - 11 | - 10 | -27 | . 31 | . 26 |
| Computer systems analysts | . 34 | . 51 | -56 | -04 | . 06 | . 07 | - 10 | . 14 | - 12 |
| other computer specialists | . 05 | . 09 | . 06 | .01 | . 01 | . 01 | . 01 | . 02 | . 01 |
| Social scientists | . 25 | -40 | . 46 | . 15 | . 26 | . 22 | . 13 | . 20 | - 16 |
| Economists | . 25 | - 40 | . 46 | . 12 | . 16 | - 14 | . 13 | -20 | . 16 |
| Psychologists | . 00 | - 00 | .00 | . 03 | . 09 | . 08 | .00 | . 00 | . 00 |
| Teachers | . 05 | . 04 | .01. | .07 | - 05 | . 04 | . 01 | . 01 | . 01 |
| Adult educaticn | . 05 | -04 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Preschool and kindergarten | . 00 | - 00 | .00 | . 07 | . 05 | . 04 | . 00 | . 00 | .00 |
| Writers, artists, entertainers | . 56 | . 61 | . 52 | 29.76 | 29.74 | 28.71 | . 49 | . 56 | . 49 |
| Actors | . 00 | . 00 | . 00 | . 55 | - 50 | . 54 | . 00 | - 00 | .00 |
| Authors | . 00 | . 00 | . 00 | . 47 | -41 | . 54 | . 00 | - 00 | . 00 |
| Dancers | . 00 | - 00 | -00 | . 02 | . 01 | . 02 | . 00 | . 00 | .00 |
| Designers | . 06 | . 05 | .01 | . 18 | - 22 | . 27 | . 12 | . 14 | - 10 |
| Editors and reforters | - 10 | - 13 | . 18 | 6.85 | 7.45 | 8.64 | -04 | . 04 | . 04 |
| Musicians and composers | . 00 | - 00 | . 00 | . 44 | - 36 | . 21 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 81 | . 85 | . 40 | . 01 | . 02 | . 02 |
| Photographers | . 05 | - 03 | . 01 | . 99 | - 96 | 1.51 | . 03 | . 02 | . 02 |
| Public relaticns specialists | - 13 | - 18 | . 21 | - 5.98 | 1.17 | 1.10 | . 28 | . 33 | . 31 |
| tadio and ty announcers | . 06 | . 04 | . 01 | 15.49 | 14.49 | 12.94 | . 00 | . 00 | . 01 |
| other writers,artists, entertain | . 16 | . 18 | . 11 | 2.96 | 3. 32 | 2.55 | .01 | .01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Telegraph. misc comunication srv |  |  | $\begin{gathered} \text { Hadio } \\ \text { and ty } \\ \text { broadcastng } \end{gathered}$ |  |  | Utilities and sanitry services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 1.97 | 2.49 | 2.94 | 1.64 | 1.81 | 1.71 | 1.91 | 2.07 | 1.51 |
| Accountants | . 91 | 1.16 | 1.60 | 1.01 | 1.09 | 1.09 | 1.14 | 1.20 | . 88 |
| Architects | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 07 | . 12 |
| Home management advisors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 08 | . 06 |
| Lawyers | - 16 | - 30 | . 23 | . 17 | . 25 | . 23 | .11 | . 19 | . 11 |
| Librarians | . 00 | . 00 | . 00 | . 14 | . 11 | . 08 | . 00 | . 00 | . 00 |
| operations and systems research | - 20 | . 29 | . 31 | . 03 | . 04 | . 06 | .10 | . 14 | . 11 |
| Personnel, lakcr relations wkrs | . 59 | . 67 | . 68 | . 27 | . 28 | . 25 | .35 | . 36 | . 22 |
| Other research workers | . 10 | .07 | . 12 | . 00 | . 00 | .00 | . 03 | . 03 | .01 |
| Recreation workers | . 00 | . 00 | . 00 | . 03 | . 04 | . 02 | . 00 | - 00 | . 00 |
| Managers, officials, proprietors | 14.73 | 16.82 | 18.11 | 18.40 | 19.10 | 17.89 | 5.45 | 6.33 | 6.98 |
| Buyers, sales, lcan managers | .92 | . 87 | . 79 | 1.90 | 1.74 | 1.80 | . 68 | . 62 | . 59 |
| Bank, financial managers | . 22 | . 22 | -20 | . 26 | .21 | . 17 | . 08 | . 08 | . 06 |
| Credit managers | . 08 | - 06 | . 02 | . 03 | . 01 | . 00 | . 07 | . 04 | . 03 |
| Purchasing agents, buyers,other | . 25 | - 20 | . 16 | . 13 | . 09 | . 05 | - 39 | . 35 | . 33 |
| Sales manager, exc retail trade | . 37 | . 39 | -41 | 1.49 | 1.43 | 1.58 | . 15 | - 15 | - 18 |
| Other managers, officials,proprts | 13.82 | 15.96 | 17.32 | 16.50 | 17.37 | 16.09 | 4.77 | 5.71 | 6.39 |
| Mgrs, superintendents, building | .01 | - 01 | . 03 | . 04 | . 05 | . 08 | . 01 | .01 | . 01 |
| office managers, other | 2.13 | 2.17 | 2.34 | . 45 | -43 | . 48 | -40 | . 42 | . 47 |
| Restaurant, cafe, bar, managers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| other managers, administrators | 11.67 | 13.77 | 14.95 | 15.99 | 16.87 | 15.52 | 4.35 | 5.27 | 5.90 |
| Sales workers | .87 | . 58 | . 14 | 7.82 | 10.08 | 12.95 | . 85 | . 73 | . 70 |
| Advertising agents, sales worker | .04 | . 05 | . 04 | 7.82 | 10.08 | 12.95 | . 01 | .01 | . 02 |
| Demonstrators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 |
| Other sales workers | . 83 | . 53 | . 11 | . 00 | .00 | . 00 | . 79 | . 68 | . 61 |
| Clerical workers | 44.89 | 41.17 | 38.08 | 18.63 | 17.00 | 18.93 | 19.23 | 18.23 | 16.65 |
| Stenographrs,typists, secretaries | 13.76 | 13. 16 | 15.55 | 8.54 | 7.93 | 9.87 | 3.73 | 3.37 | 3.37 |
| Legal secretaries | . 03 | . 02 | . 04 | . 07 | . 05 | . 06 | . 03 | . 03 | . 03 |
| Other secretaries | 4.51 | 5.06 | 7.56 | 7.31 | 6.91 | 8.72 | 2.24 | 2.25 | 2.48 |
| Stenographers | . 10 | . 04 | . 00 | . 05 | . 04 | . 06 | . 35 | . 17 | . 05 |
| Typists | 9.12 | 8.04 | 7.95 | 1.13 | . 93 | 1.04 | 1.11 | . 93 | .81 |
| Office machine operators | 1.13 | 1.54 | 1.17 | . 48 | -45 | . 37 | 1.01 | 1.08 | . 87 |
| Bookkeeping and billing | . 10 | . 04 | . 03 | . 06 | . 02 | . 02 | . 12 | . 06 | . 06 |
| calculating | . 06 | . 03 | . 01 | .01 | . 01 | . 01 | . 05 | . 03 | . 03 |
| computer and feripheral equip | . 55 | 1. 16 | . 99 | - 11 | . 22 | - 20 | -25 | - 55 | . 53 |
| Duplicating | .01 | . 01 | . 01 | . 05 | . 03 | . 02 | . 02 | - 02 | . 02 |
| Keypunch | . 36 | . 27 | - 15 | -21 | . 13 | -08 | - 50 | . 37 | - 21 |
| Tabulating | . 03 | . 01 | . 00 | -00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Other office rachine operators | . 02 | . 02 | .00 | . 04 | . 04 | . 05 | . 05 | . 05 | . 03 |


|  | Telegraph. misc comunication srv |  |  | $\begin{gathered} \text { Radio } \\ \text { and tv } \\ \text { broadcastng } \end{gathered}$ |  |  | Utilities and sanitry services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 30.00 | 26.48 | 21.36 | 9.60 | 8. 63 | 8.69 | 14.50 | 13.78 | 12.40 |
| Billing clerks | . 40 | . 43 | . 62 | . 18 | . 17 | . 20 | . 48 | . 51 | . 56 |
| Bookkeepers | 3.54 | 3.70 | 5.14 | 2.72 | 2.46 | 2.70 | 2.14 | 1.95 | 1.63 |
| Cashiers | . 58 | . 48 | .17 | . 05 | . 06 | - 10 | . 72 | .73 | . 74 |
| Clerical supervisors, other | . 71 | . 77 | . 78 | . 15 | . 15 | - 12 | . 46 | -49 | . 48 |
| Collectors, bill and account | . 03 | . 02 | . 00 | . 01 | .01 | . 00 | . 38 | . 35 | . 30 |
| Counter clerks, exc food | - 30 | . 32 | . 38 | . 08 | . 07 | . 06 | -11 | -11 | . 12 |
| Dispatchers, starters, vehicle | . 15 | . 16 | . 21 | . 01 | . 01 | . 01 | .21 | . 21 | . 24 |
| Estimators, investigators, other | .75 | . 76 | . 40 | .16 | - 16 | -09 | 1.32 | 1.43 | . 99 |
| Expediters, frcduction controlrs | . 20 | . 20 | . 20 | . 46 | - 40 | . 30 | - 19 | . 21 | . 25 |
| File clerks | . 56 | . 47 | . 48 | . 17 | - 12 | . 10 | - 31 | . 25 | . 19 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 06 | . 05 | . 01 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | . 47 | . 47 | . 51 | - 28 | . 25 | - 20 | -17 | . 17 | . 16 |
| Messengers and office helpers | . 68 | . 58 | . 27 | . 23 | - 24 | . 30 | . 04 | . 03 | . 02 |
| Meter readers,utilities | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | 3.44 | 3.15 | 3.02 |
| Payroll, timekeeping clerks | . 61 | . 70 | .81 | . 15 | - 17 | . 21 | . 37 | . 40 | . 32 |
| Real estate afpraisers | . 00 | . 00 | . 00 | . 00 | -00 | - 00 | . 01 | . 01 | . 01 |
| Receptionists | . 28 | . 24 | . 15 | 1.23 | 1.06 | . 97 | .19 | - 18 | - 14 |
| Shipping and receiving clerks | -31 | . 36 | . 75 | . 09 | . 09 | - 16 | . 09 | . 08 | .07 |
| Statistical clerks | . 93 | 1.03 | 1.11 | - 26 | - 25 | . 20 | . 96 | . 95 | . 75 |
| Stock clerks and store keepers | . 42 | - 30 | . 11 | . 09 | . 07 | . 05 | . 68 | - 57 | . 45 |
| Telegraph messengers | 5.26 | 3.94 | 1.15 | . 00 | . 00 | . 00 | . 00 | - 00 | - 00 |
| Telegrapb operators | 7.00 | 6. 15 | 2.96 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Telephone operators | 3.49 | 2.01 | .93 | . 69 | . 46 | - 50 | . 34 | . 21 | - 18 |
| Weighers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Misc clerical workers | 3.34 | 3. 39 | 4.23 | 2.53 | 2.39 | 2.41 | 1.88 | 1.78 | 1.77 |
| Crafts and kindred workers | 23.19 | 23.08 | 22.25 | 3.63 | 3. 20 | 3.66 | 34.71 | 35.96 | 35.28 |
| Construction crafts workers | .53 | . 55 | .62 | . 65 | -64 | . 82 | 5.80 | 5.94 | 6.07 |
| Carpenters and apprentices | . 10 | . 08 | . 03 | . 28 | - 30 | . 43 | . 34 | . 46 | . 39 |
| Brick,stonemasons, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 06 | - 04 |
| Bulldozer operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 56 | - 50 | -49 |
| cement and concrete finishers | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 03 | . 03 | . 02 |
| clectricians and apprentices | . 33 | . 35 | . 41 | . 27 | - 25 | . 27 | 2.28 | 2.53 | 2.38 |
| Excavating, grading mach operatr | . 00 | . 00 | .00 | .01 | - 00 | - 00 | . 71 | . 62 | .63 |
| painters and apprentices | . 06 | . 05 | . 13 | . 08 | - 07 | . 08 | . 21 | . 22 | -19 |
| Plumbers, pipefitters, aprentices | . 05 | . 07 | . 06 | . 01 | .01 | . 02 | 1.55 | 1.47 | 1.88 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 06 | . 05 |
| Blue collar worker supervisors | 2.13 | 2.67 | 3.61 | .47 | . 56 | . 99 | 5.15 | 5.31 | 4.32 |
| Metalworkg craft wrkrs,exc mech | . 10 | . 08 | .03 | . 00 | - 00 | . 00 | . 70 | 1.07 | 1.60 |
| Blacksmiths | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Boilermakers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 25 | . 54 | .91 |
| Forge and hammer operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | -01 | . 01 |
| Machinists and apprentices | . 10 | . 08 | . 03 | . 00 | . 00 | . 00 | -31 | . 41 | . 57 |
| Millwrights | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Sheetmetal workers, apprentices | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 04 | . 04 | -03 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| Mechanics, repairers,installers | 3.14 | 3. 18 | 4.73 | 1.65 | 1.29 | 1.30 | 8. 15 | 8.13 | 7.48 |
| air cond, heating, refrig mecn | . 07 | . 11 | . 18 | . 02 | . 02 | . 02 | . 29 | . 37 | - 38 |
| Auto mechanics and apprentices | . 12 | . 09 | . 13 | .01 | . 01 | . 01 | 1.02 | - 88 | . 69 |
| Data processing mach repairers | . 24 | . 31 | . 48 | . 01 | . 01 | . 01 | . 01 | -01 | . 00 |
| Heavy equip mech, incl diesel | . 49 | - 60 | . 89 | . 13 | - 14 | . 19 | 1.56 | 1.86 | 2.26 |
| Household appliance mechanics | . 12 | . 08 | .03 | . 03 | . 02 | . 01 | 3.72 | 3.53 | 3.01 |
| office machine repairers | . 06 | . 06 | . 20 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Radio, television repairers | 1.73 | 1.65 | 2.67 | 1.39 | 1.05 | 1.05 | . 12 | . 10 | - 10 |
| Other mechanics and apprentices | . 31 | . 28 | . 15 | . 06 | . 04 | .01 | 1.42 | 1.38 | 1.01 |
| Printing trade crafts workers | . 27 | . 32 | . 54 | . 13 | - 16 | - 26 | . 06 | . 06 | . 02 |
| Compositors and typesetters | . 19 | . 22 | . 34 | . 08 | . 09 | - 17 | . 04 | . 03 | . 01 |
| Press, plate printers,aprentices | . 07 | . 10 | . 20 | . 06 | . 07 | . 09 | . 02 | . 02 | . 01 |
| Transport, public util craft wkrs | 16.38 | 15. 80 | 12.39 | -44 | - 38 | . 26 | 8.59 | 9.22 | 8. 16 |
| Elec pwr line instaler, repairer | . 41 | - 30 | . 06 | . 06 | . 03 | . 01 | 7.32 | 7.84 | 7.33 |
| Power station operators | . 03 | . 04 | . 08 | . 00 | . 00 | . 00 | 1.12 | 1.22 | . 72 |
| Telephone installers, repairers | 10.47 | 9.96 | 9.14 | . 22 | - 20 | . 18 | . 09 | . 09 | . 07 |
| Telephone line instalr, splicers | 5.48 | 5. 50 | 3.11 | . 16 | . 15 | .07 | . 06 | .07 | . 04 |


|  | Telegraph. misc comunication srp |  |  | $\begin{gathered} \text { Radio } \\ \text { and tv } \\ \text { broadcastrg } \end{gathered}$ |  |  | Utilities and sanitry services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 65 | . 49 | .33 | . 30 | . 16 | . 03 | 6.27 | 6.23 | 7.63 |
| Crane,derrick, hoist oferator | . 12 | - 10 | . 16 | . 00 | . 00 | . 00 | . 29 | . 25 | . 32 |
| Inspectors, other | . 28 | . 23 | . 05 | . 01 | .00 | . 00 | 1.33 | 1.37 | 1.24 |
| Motion picture projectionists | .01 | . 01 | .00 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | .11 | . 06 | . 11 | . 27 | . 14 | . 02 | 4.34 | 4.33 | 5.80 |
| Other crafts morkers | . 13 | . 09 | . 02 | . 02 | . 01 | . 01 | . 30 | . 27 | . 27 |
| Operatives | .79 | . 82 | . 80 | . 57 | . 55 | . 63 | 10.00 | 9.85 | 11.34 |
| Operatives, except transport | . 31 | . 30 | .31 | .39 | . 36 | . 32 | 4.55 | 4.31 | 3.72 |
| Semiskilled metalworking | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 86 | . 90 | . 93 |
| Lathe,milling mach operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Punch,stamping press operatives | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Welders and flamecutters | . 02 | . 02 | .01 | . 00 | . 00 | .00 | .83 | .87 | . 89 |
| Semiskilled packing, inspecting | . 03 | . 01 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Packer, yrapper,exc meat, prodce | . 03 | . 01 | .00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Other operatives, exc transport | . 26 | . 27 | . 31 | . 39 | - 36 | . 32 | 3.66 | 3.39 | 2.79 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 03 | .01 |
| Surveyors ${ }^{\text {chelpers }}$ | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Drillers, earth | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 02 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 12 | . 08 | . 07 |
| oilers, greasers,exc automobiles | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 18 | . 13 | . 06 |
| painters, mfg articles | . 00 | . 00 | . 00 | - 00 | - 00 | . 00 | - 02 | . 02 | . 02 |
| Photographic frocess yorkers | . 03 | . 04 | . 07 | - 17 | - 17 | . 19 | .03 | . 03 | . 01 |
| Furnace tendr,stokr,exc metal | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 80 | . 51 | .47 |
| Winding operatives, other | .00 | .00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Miscellaneous machine operatves | . 15 | . 16 | . 20 | . 07 | . 07 | . 07 | . 48 | . 50 | . 44 |
| other oferatives, exc transport | . 08 | . 08 | . 04 | -15 | . 13 | . 06 | 1.93 | 2.02 | 1.65 |
| transport equifment operatives | . 48 | . 51 | . 48 | . 18 | - 19 | . 31 | 5.45 | 5.55 | 7.61 |
| Bus drivers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 05 | . 06 | . 02 |
| Delivery and route workers | . 22 | . 15 | . 07 | . 05 | . 05 | . 09 | . 19 | . 16 | . 17 |
| Fork lift,tow motor operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 06 | . 05 |
| Hailroad suitch operators | . 12 | . 14 | . 00 | . 03 | . 04 | . 10 | .01 | . 01 | .01 |
| Taxicab drivers, chauffeurs | . 08 | . 11 | . 00 | . 03 | . 03 | . 03 | .11 | . 08 | . 02 |
| truck drivers | . 07 | . 12 | . 41 | . 07 | . 06 | .09 | 5.04 | 5.18 | 7.34 |
| Service workers | 1.61 | 1.31 | 1.05 | 1.68 | 1.31 | 1.31 | 2.62 | 2.38 | 1.84 |
| Cleaning service workers | 1.04 | . 83 | . 58 | 1.09 | . 81 | . 91 | 2.09 | 1.87 | 1.28 |
| Bldg interior cleaners, other | . 22 | . 21 | . 16 | . 32 | . 27 | . 31 | . 22 | . 20 | . 14 |
| Janitors and sextons | .82 | . 62 | . 42 | . 77 | . 54 | . 60 | 1.88 | 1.67 | 1.14 |
| Food service workers |  | . 08 | . 03 | . 05 | . 04 | . 04 | .07 | .05 | . 05 |
| Cooks, exc grivate households | . 06 | . 04 | . 01 | . 02 | . 02 | . 01 | .03 | . 02 | .01 |
| Dishwashers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 00 | .00 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 01 | . 01 | .01 |
| Waiters | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Other food serv wkrs, exc privt | . 03 | . 02 | .01 | . 02 | .01 | . 01 | . 02 | .01 | . 02 |
| Health service workers | .00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | .01 | . 02 |
| Personal service yorkers | . 06 | . 06 | . 04 | . 42 | . 35 | . 24 | .04 | . 04 | . 03 |
| Attendants, recreation, amusement | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Attendants, personal serv,other | . 03 | . 02 | . 01 | . 17 | - 11 | . 04 | . 02 | . 02 | . 02 |
| Elevator operators | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | .01 | .01 |
| Hairdressers and cosmetoloyists | . 00 | . 00 | . 00 | . 16 | . 18 | . 17 | . 00 | .00 | . 00 |
| Housekeepers, exc private homes | . 01 | . 01 | . 01 | . 05 | .03 | .01 | .01 | .00 | .00 |
| Protective service workers | . 39 | . 34 | . 40 | . 12 | . 11 | - 12 | .41 | . 40 | . 46 |
| Crossing guards, bridgetenders | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Pirefighters | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Guards | . 28 | . 26 | . 34 | . 12 | . 10 | . 12 | - 36 | . 35 | .43 |
| Police and detectives | . 07 | . 05 | . 00 | . 00 | .00 | . 00 | . 02 | . 02 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Telegraph, misc comunication srv |  |  | Radio and $t y$ broadcastng |  |  | Otilities and sanitry services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | .36 | . 31 | .28 | .82 | .72 | .77 | 18.23 | 17.06 | 18.79 |
| Carpenter helfers | . 00 | . 00 | -00 | . 01 | . 01 | .01 | -07 | . 08 | . 06 |
| Constr labr, exc carpenter helpr | . 17 | . 14 | . 09 | . 02 | . 02 | . 01 | 2.71 | 2.33 | 1.69 |
| Freight and material handers | . 00 | . 00 | . 00 | . 66 | . 58 | . 67 | . 43 | . 43 | . 41 |
| Garbage collectors | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | 7.17 | 7.36 | 10.89 |
| Gardenrs, groundkeepers, exc farm | . 05 | . 04 | . 03 | . 07 | . 07 | . 06 | . 42 | . 45 | - 42 |
| Stock handlers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 08 | . 09 | . 06 |
| Vehicle washers,equip cleaners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 13 | . 13 | . 08 |
| Warehouse laborers, other | . 07 | . 07 | . 12 | . 00 | . 00 | . 00 | . 17 | - 16 | . 11 |
| Other laborers | .07 | . 05 | . 04 | .03 | . 02 | . 02 | 7.04 | 6.04 | 5.07 |


|  | Electric light and power |  |  | Electricgas utilities |  |  | Gas steam supply systems |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100. 00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and techaical | 12.40 | 13.27 | 12.08 | 12.46 | 12.90 | 13.27 | 9.18 | 9.73 | 9.06 |
| Engineers, technical | 5.73 | 5.87 | 5.70 | 4.54 | 4. 24 | 4.50 | 2.13 | 1.95 | 2. 15 |
| Chemical | . 05 | . 07 | . 05 | -08 | . 08 | . 10 | . 13 | . 14 | .18 |
| Civil | . 46 | . 48 | .41 | . 41 | . 33 | - 37 | .36 | . 27 | . 30 |
| Electrical | 4.20 | 4. 25 | 4.15 | 2.55 | 2.43 | 2.44 | .23 | . 22 | . 23 |
| Industrial | . 17 | . 21 | .23 | . 15 | . 17 | . 24 | . 24 | - 25 | . 25 |
| Mechanical | . 54 | . 60 | . 60 | . 70 | . 67 | .77 | . 57 | - 54 | . 60 |
| Hetallurgical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Petroleum | . 00 | . 00 | . 00 | .01 | . 01 | . 00 | . 10 | . 09 | -10 |
| Sales | . 12 | . 08 | . 06 | . 13 | . 10 | . 09 | - 12 | . 09 | . 11 |
| Other engineers | .18 | . 17 | . 19 | . 51 | . 46 | . 51 | .38 | .34 | . 38 |
| Life and physical scientists | . 15 | - 20 | . 18 | . 14 | - 17 | . 25 | .16 | . 15 | . 20 |
| Agricultural | . 01 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bíological | . 01 | . 02 | . 02 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Chemists | . 09 | - 11 | . 12 | . 09 | - 10 | . 14 | . 05 | . 05 | .03 |
| Geologists | . 01 | . 02 | . 03 | . 02 | . 02 | . 05 | . 11 | . 10 | . 17 |
| Marine | . 01 | .01 | . 00 | . 02 | . 03 | . 04 | .00 | .00 | .00 |
| Physicists and astronomers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Mathematical sfecialists | . 06 | . 07 | . 05 | - 10 | . 09 | - 10 | . 08 | . 08 | .08 |
| Mathematicians | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Statisticians | . 05 | . 05 | . 05 | - 10 | . 09 | -10 | . 07 | . 07 | $\bigcirc 08$ |
| Engineering, science technicians | 2.48 | 2.56 | 2.67 | 2.83 | 2. 83 | 3.44 | 1.53 | 1.51 | 1.91 |
| Chemical technicians | . 07 | . 09 | . 11 | . 11 | . 14 | . 19 | . 05 | . 06 | . 08 |
| Drafters | 1.02 | . 90 | 1.04 | 1.39 | 1.21 | 1.45 | .82 | . 72 | .87 |
| Electrical and electronic | -60 | . 69 | . 74 | . 68 | - 79 | . 92 | . 22 | . 25 | . 26 |
| Industrial engineering | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | .01 | . 02 | .01 |
| Surveyors | . 29 | . 31 | . 29 | . 24 | - 26 | -37 | . 14 | -14 | . 19 |
| Other engineering, science tech | . 49 | . 56 | .48 | -38 | . 41 | -49 | . 28 | .33 | . 51 |
| Medical workers, exc technicians | . 04 | . 05 | . 02 | . 07 | . 05 | .01 | . 02 | . 02 | .01 |
| Pharmacists | . 00 | .00 | . 00 | .01 | .01 | . 00 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 01 | . 01 | . 00 | . 01 | - 01 | -00 | . 00 | . 00 | .00 |
| Registered nurses | . 04 | .05 | . 02 | . 04 | . 03 | . 01 | . 02 | . 02 | .01 |
| Health technologists, technicians | .01 | . 01 | . 00 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Clinical lab technologists, tech | . 00 | .00 | .00 | . 02 | . 03 | . 04 | .00 | .00 | .00 |
| Technicians, except health | . 27 | . 33 | - 25 | - 18 | - 20 | . 11 | . 59 | . 74 | . 71 |
| Airplane pilots | . 01 | -02 | -01 | . 02 | . 02 | . 01 | . 09 | . 09 | . 05 |
| gadio operators | . 11 | - 13 | . 06 | . 13 | . 15 | . 06 | . 13 | . 16 | . 08 |
| Other technicians except healta | . 15 | . 19 | . 18 | . 02 | . 03 | . 04 | . 37 | .49 | . 58 |
| Computer specialists | . 44 | . 57 | . 50 | . 66 | . 82 | . 73 | . 68 | . 82 | . 70 |
| Computer programers | . 33 | . 39 | . 35 | - 42 | . 48 | . 45 | .52 | . 59 | . 53 |
| Computer systems analysts | . 10 | . 15 | . 13 | . 23 | . 32 | . 27 | - 14 | . 20 | . 16 |
| Other computer specialists | . 02 | . 04 | .02 | .01 | . 02 | . 01 | .02 | . 04 | . 02 |
| Social scientists | .17 | . 26 | . 22 | - 22 | . 33 | . 31 | . 25 | - 39 |  |
| Economists | .17 | - 26 | .22 | .21 | .32 | .31 | . 25 | . 39 | .36 |
| Teachers | . 01 | . 02 | .01 | . 02 | . 03 | . 04 | . 01 | .01 | .01 |
| Adult educaticn | .01 | .02 | .01 | . 02 | . 03 | . .04 | .01 | .01 | .01 |
| Writers,artists, entertainers | . 68 | . 75 | .69 | . 89 | 1.01 | .91 | . 57 | . 72 | . 74 |
| Designers | . 19 | . 21 | . 17 | . 28 | . 30 | -20 | . 07 | . 09 | . 12 |
| Editors and reporters | . 05 | . 05 | . 02 | . 07 | . 07 | . 04 | . 04 | . 05 | . 06 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 06 | . 09 | . 11 | . 00 | - 00 | .00 |
| Photographers | . 04 | -03 | . 02 | . 06 | . 05 | .03 | . 00 | . 00 | . 00 |
| Public relations specialists | . 39 | . 44 | . 49 | . 38 | . 46 | . 49 | . 45 | . 57 | . 56 |
| Other writers,artists, entertain | . 01 | . 01 | . 00 | . 03 | .04 | . 04 | . 02 | . 01 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Blectric light and power |  |  | $\begin{gathered} \text { Electric- } \\ \text { gas } \\ \text { utilities } \end{gathered}$ |  |  | $\begin{aligned} & \text { Gas steam } \\ & \text { supply } \\ & \text { systems } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other proressional and tecbnical | 2.36 | 2. 57 | 1.78 | 2.79 | 3.10 | 2.85 | 3.15 | 3.35 | 2. 19 |
| Accountants | 1.45 | 1.54 | 1.15 | 1.67 | 1.80 | 1.94 | 1.99 | 2.05 | 1.31 |
| Architects | . 03 | . 03 | . 02 | . 05 | . 04 | . 03 | . 00 | . 00 | - 00 |
| Foresters and conseryationists | . 04 | . 04 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Home management advisors | - 18 | - 13 | . 13 | . 11 | . 09 | . 09 | . 17 | -10 | . 02 |
| Lawyers | .09 | . 19 | . 09 | . 20 | . 35 | . 20 | . 22 | . 37 | . 26 |
| operations and systems research | . 12 | - 17 | . 13 | . 18 | . 26 | . 26 | . 16 | .21 | . 16 |
| Personnel, latcr relations wkrs | -41 | - 44 | . 25 | . 54 | . 53 | . 31 | . 55 | . 58 | . 42 |
| other research workers | .03 | . 03 | . 01 | . 04 | . 03 | . 02 | . 06 | . 05 | . 02 |
| Managers, officials, proprietors | 5.12 | 5.78 | 6.34 | 5.09 | 5.89 | 6.70 | 7.31 | 8.37 | 9.21 |
| Buyers, sales, lcan managers | .94 | . 84 | . 83 | . 98 | . 88 | . 94 | 1.12 | 1.04 | 1.23 |
| Bank, financial managers | . 10 | - 10 | .07 | - 12 | - 11 | . 09 | . 12 | . 12 | -11 |
| Credit managers | . 09 | . 05 | . 04 | . 11 | - 06 | . 04 | . 13 | . 07 | . 07 |
| Purchasing agents, buyers,other | . 61 | - 54 | . 56 | . 53 | . 46 | . 45 | .53 | . 48 | . 56 |
| Sales manager, exc retail trade | . 15 | . 15 | . 17 | . 23 | . 25 | . 37 | .33 | . 36 | . 49 |
| Other managers, officials, proprts | 4.18 | 4. 94 | 5.51 | 4.11 | 5.01 | 5.76 | 6.19 | 7.33 | 7.98 |
| Mgrs, superintendents, building | . 02 | . 03 | . 03 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| office managers, other | . 46 | . 48 | . 64 | . 43 | .47 | . 58 | . 62 | . 64 | . 72 |
| Restaurant, cafe, bar, managers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other managers, administrators | 3.68 | 4.43 | 4.82 | 3.66 | 4.52 | 5.16 | 5.55 | 6.67 | 7. 24 |
| Sales workers | 1.04 | - 96 | 1.27 | 1.22 | 1. 17 | 1.34 | 1.79 | 1.33 | . 65 |
| Advertising agents, sales worker | . 01 | . 01 | . 01 | . 02 | . 02 | . 00 | .01 | . 01 | .01 |
| Demonstrators | . 07 | . 06 | . 11 | . 05 | . 05 | . 08 | . 09 | .10 | . 24 |
| other sales workers | .96 | . 89 | 1.15 | 1.15 | 1.11 | 1.26 | 1.69 | 1.22 | . 40 |
| Clerical workers | 20.98 | 19.83 | 20.23 | 27.12 | 26.30 | 24.54 | 28.39 | 27.71 | 26. 12 |
| Stenographrs, typists, secretaries | 4.28 | 3. 80 | 3.86 | 4.81 | 4.18 | 4.03 | 5.40 | 5.09 | 5.81 |
| Legal secretaries | . 03 | . 02 | . 02 | . 06 | . 06 | . 09 | . 06 | . 05 | . 05 |
| other secretaries | 2.60 | 2. 58 | 2.98 | 2.62 | 2.58 | 2.83 | 3.63 | 3.70 | 4.60 |
| Stenographers | . 50 | . 23 | . 05 | . 50 | . 20 | . 07 | . 36 | . 19 | . 06 |
| Typists | 1.15 | . 96 | . 81 | 1.63 | 1.35 | 1.03 | 1.36 | 1.15 | 1.10 |
| office machine operators | 1.13 | 1.19 | . 97 | 1.74 | 1.79 | 1.21 | 1.40 | 1.52 | 1.02 |
| Bookkeeping and biliing | . 10 | . 06 | . 06 | . 14 | . 08 | - 10 | .13 | . 07 | . 06 |
| Calculating | . 04 | . 03 | . 04 | . 06 | . 04 | . 03 | . 12 | . 09 | . 08 |
| computer and feripheral equip | . 29 | . 57 | . 47 | - 40 | . 82 | . 59 | . 40 | .81 | . 59 |
| Duglicating | . 04 | . 03 | . 04 | . 04 | . 03 | . 04 | . 02 | .01 | . 01 |
| Keypunch | - 59 | . 45 | . 32 | . 97 | . 73 | . 39 | . 63 | . 47 | . 25 |
| Tabulating | . 03 | . 01 | . 00 | . 05 | . 01 | . 01 | .03 | . 01 | . 00 |
| Other office machine operators | . 05 | . 04 | . 03 | . 08 | . 08 | . 06 | . 06 | . 06 | .03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Blectric light and pover |  |  | Electricgas utilities |  |  | Gas stearf supply systems |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 15.57 | 14. 84 | 15.40 | 20.57 | 20.32 | 19.30 | 21.58 | 21.10 | 19.29 |
| Billing clerks | . 50 | - 53 | . 59 | . 57 | . 62 | . 64 | . 42 | . 45 | . 58 |
| Bookk eepers | 2.26 | 2.03 | 1.69 | 2.54 | 2.34 | 1.90 | 3.35 | 3.05 | 2.44 |
| Cashiers | . 96 | .97 | 1.17 | . 73 | . 77 | . 85 | 1.22 | 1.28 | 1.44 |
| Clerical supervisors, other | .41 | . 46 | . 50 | . 82 | .91 | . 92 | .72 | . 79 | . 76 |
| Collectors, bill and account | . 36 | - 34 | . 37 | . 51 | . 52 | . 53 | . 74 | . 70 | . 56 |
| Counter clerks,exc food | . 12 | . 12 | . 16 | . 17 | . 17 | . 17 | . 18 | . 19 | . 21 |
| Dispatchers, starters, vehicle | . 18 | . 19 | . 26 | . 33 | . 33 | .39 | . 30 | - 30 | . 35 |
| Estimators, investigators, other | 1.57 | 1.69 | 1.34 | 2.57 | 2.88 | 2.12 | 1.92 | 2.16 | 1.57 |
| Expediters, production controlrs | . 27 | - 30 | . 45 | . 31 | . 34 | . 41 | . 25 | . 26 | . 30 |
| File clerks | .36 | . 29 | . 27 | . 56 | . 45 | . 35 | .34 | . 27 | . 21 |
| Mail handlers, exc post office | . 22 | . 23 | . 25 | - 28 | - 27 | . 27 | . 27 | . 25 | - 22 |
| Messengers and office helpers | . 05 | - 04 | . 02 | . 07 | . 07 | . 04 | . 02 | . 02 | . 02 |
| Meter readers, tilities | 3.31 | 3. 10 | 3.84 | 3.69 | 3.75 | 4.52 | 4.52 | 4.29 | 4.07 |
| Payroll, timekeeping clerks | -42 | -45 | . 30 | . 61 | . 61 | . 41 | . 40 | . 44 | - 44 |
| Real estate afpraisers | . 02 | . 02 | . 03 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Receptionists | . 25 | - 23 | . 23 | . 21 | . 21 | . 21 | .31 | . 26 | .17 |
| Shipping and receiving clerks | . 11 | . 09 | . 08 | .15 | . 13 | . 09 | . 11 | . 10 | . 13 |
| Statistical clerks | . 60 | . 65 | . 58 | 1.71 | 1. 79 | 1.45 | 2.46 | 2.55 | 2.04 |
| Stock clerks and store keepers | . 96 | . 79 | . 75 | 1.05 | - 90 | . 78 | . 70 | . 58 | . 44 |
| Telephone operators | . 38 | - 21 | . 16 | . 62 | . 35 | . 27 | . 41 | . 27 | .21 |
| Misc clerical workers | 2.28 | 2. 13 | 2.36 | 3.04 | 2. 92 | 2.98 | 2.92 | 2.90 | 3.14 |
| Crafts and kindred workers | 45.36 | 45. 85 | 46.05 | 39.34 | 39.63 | 39.70 | 35.62 | 36.52 | 39.40 |
| Construction crafts workers | 7.44 | 8.05 | 8. 14 | 6.46 | 6.39 | 7.44 | 5.43 | 5.26 | 6.80 |
| Carpenters and apprentices | . 55 | . 80 | . 56 | . 44 | . 50 | . 67 | . 20 | . 21 | . 23 |
| Brick, stonemasons, apprentices | . 05 | . 05 | . 05 | . 01 | . 02 | . 02 | . 04 | . 03 | . 01 |
| Bulldozer operators | . 20 | . 23 | . 36 | - 11 | . 11 | . 16 | . 20 | . 19 | . 28 |
| Cement and concrete finishers | . 04 | . 05 | . 02 | . 04 | . 03 | . 01 | . 02 | . 03 | . 07 |
| Electricians and apprentices | 5.25 | 5.40 | 5.56 | 2.83 | 2.86 | 3.05 | . 44 | .47 | . 60 |
| Excavating, grading mach operatr | . 36 | . 38 | . 42 | . 81 | . 78 | 1.02 | . 83 | . 71 | . 72 |
| Floor layers, exc tile setters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 00 |
| Painters and apprentices | . 24 | - 29 | - 33 | -19 | . 20 | . 26 | . 13 | . 12 | . 08 |
| Plumbers, pipefitters, aprentices | . 64 | . 71 | . 72 | 1.97 | 1.85 | 2.22 | 3.53 | 3.48 | 4.80 |
| Structural metal craft yorkers | . 10 | - 14 | . 11 | . 06 | . 05 | . 05 | . 02 | . 01 | . 01 |
| Blue collar worker supervisors | 5.36 | 5.04 | 3.40 | 6.33 | 5. 96 | 3.65 | 6.30 | 6.96 | 8.16 |
| Metalworkg craft urkrs,exc mech | 1.07 | 1.83 | 2.48 | 1.07 | 1.38 | 2.85 | . 44 | . 57 | 1. 19 |
| Blacksmiths | . 01 | . 01 | . 01 | . 02 | . 01 | . 00 | . 05 | . 04 | . 01 |
| Boilermakers | . 46 | 1.04 | 1.45 | . 52 | . 90 | 2.54 | . 07 | . 14 | . 45 |
| Porge and hamper operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | .00 |
| Machinists and apprentices | -43 | -62 | -89 | -42 | . 38 | . 25 | - 21 | . 26 | . 49 |
| Millwrights | -08 | . 07 | . 05 | . 01 | . 01 | . 01 | . 04 | . 05 | . 09 |
| Pattern and moldmakers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 06 | . 06 | . 02 | . 05 | . 03 | . 02 | . 03 | . 03 | .07 |
| tool and diemakers, apprentices | . 02 | . 02 | . 04 | . 02 | . 02 | . 03 | . 02 | . 03 | . 08 |
| Mechanics, repairers, installers | 6.20 | 6. 24 | 6.68 | 10.63 | 11.11 | 11.53 | 15.23 | 16.25 | 17.04 |
| Air cond, heating, refrig mech | - 10 | - 13 | . 14 | . 39 | . 50 | . 48 | 1.20 | 1.74 | 2. 10 |
| Auto body repairers | . 00 | . 00 | .00 | . 04 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 97 | - 86 | . 90 | 1.49 | 1.33 | 1.21 | 1.01 | . 89 | . 76 |
| Data processing mach repairers | . 01 | . 01 | . 01 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | 1.53 | 1.82 | 2.22 | 1.68 | 1.94 | 2.13 | 2.03 | 2.47 | 3.37 |
| Household apfliance mechanics | 2.02 | 1. 94 | 2.09 | 5.14 | 5.42 | 6.06 | 9.90 | 10.10 | 10.08 |
| office machine repairers | . 01 | . 01 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Radio, television repairers | -10 | . 06 | . 02 | . 11 | . 08 | . 03 | . 09 | . 08 | - 10 |
| Other mechanics and apprentices | 1.46 | 1.42 | 1.28 | 1.78 | 1.82 | 1.59 | 1.00 | . 96 | . 63 |
| Printing trade crafts workers | . 09 | - 08 | . 04 | - 10 | . 08 | . 00 | .09 | . 10 | . 11 |
| Compositors and typesetters | . 05 | . 04 | . 02 | . 07 | . 05 | .00 | . 04 | . 05 | . 04 |
| Photoengravers, lithographers | .01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 |
| press,plate printers,aprentices | . 03 | . 03 | . 02 | . 02 | . 02 | .00 | . 05 | . 06 | . 07 |
| Transport, public util craft wkrs | 21.04 | 20.83 | 21.56 | 9.99 | 10.36 | 10.63 | 1.97 | 1.51 | . 44 |
| Elec pwr line instaler, repairer | 17.82 | 17.62 | 19.43 | 8.77 | 9.15 | 9.63 | 1.75 | 1.31 | . 33 |
| Poner station operators | 3.03 | 3.01 | 1.96 | . 87 | . 88 | . 80 | . 14 | . 11 | . 04 |
| Telephone installers, repairers | . 11 | . 11 | . 12 | . 21 | . 18 | - 12 | . 04 | . 04 | . 04 |
| Telephone line instalr, splicers | .09 | . 09 | . 06 | . 15 | . 15 | . 08 | . 04 | . 04 | .04 |


|  | Electric light and power |  |  | Electricgas utilities |  |  | Gas steam supply systems |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 4.16 | 3.78 | 3.75 | 4.76 | 4.36 | 3.60 | 6.16 | 5.88 | 5.65 |
| crane,derrick, hoist operator | . 30 | . 24 | . 25 | . 29 | . 22 | . 18 | .11 | . 08 | . 05 |
| Decorators, window dressers | . 00 | - 00 | -00 | . 03 | - 04 | . 01 | . 00 | . 00 | . 00 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 51 | . 49 | . 34 | 1.80 | 1.67 | . 77 | 2.09 | 2.44 | 2.87 |
| Stationary engineers | 2.82 | 2. 58 | 2.57 | 2.10 | 1.94 | 2.19 | 3.89 | 3.29 | 2.68 |
| Other crafts workers | . 54 | . 46 | . 60 | . 51 | . 48 | . 44 | . 08 | . 07 | . 06 |
| Operatives | 6.67 | 6. 42 | 6.61 | 7.79 | 7.53 | 8.02 | 9.51 | 9.37 | 10.72 |
| operatives, except transport | 4.70 | 4. 34 | 3.89 | 5.06 | 4.80 | 4.38 | 6.30 | 6.15 | 5.80 |
| Semiskilled metalworking | . 92 | 1. 03 | 1.00 | 1.37 | 1. 35 | 1.41 | 1.72 | 1.82 | 2.24 |
| Drill press oferatives | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Lathe,milling mach operatives | . 02 | . 02 | . 02 | . 03 | . 03 | . 04 | . 00 | - 00 | . 00 |
| Punch,stamping press operatives | . 04 | . 05 | . 05 | . 02 | . 01 | . 01 | .00 | . 00 | . 00 |
| Pelders and flamecutters | . 84 | .95 | . 92 | 1.31 | 1. 30 | 1. 36 | 1.72 | 1.82 | 2.24 |
| Semiskilled packing, inspecting | . 02 | . 02 | . 00 | . 06 | . 05 | . 04 | . 02 | . 02 | - 00 |
| Packer, wrapfer, exc meat, prodce | . 02 | . 02 | . 00 | . 06 | . 05 | . 04 | . 02 | . 02 | . 00 |
| Other operatives, exc transport | 3.76 | 3. 30 | 2.89 | 3.63 | 3.41 | 2.93 | 4.55 | 4.31 | 3.56 |
| Asbestos, insulation workers | . 05 | . 07 | . 03 | . 02 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Surveyors ${ }^{\text {c }}$ helpers | . 04 | . 03 | . 03 | . 00 | - 00 | . 00 | - 00 | . 00 | - 00 |
| cutting operatives, other | .01 | - 01 | . 00 | .00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Drillers, earth | . 04 | . 08 | . 06 | . 01 | . 01 | .01 | . 03 | . 02 | . 01 |
| Garage wrkr,gas station atten | . 08 | . 06 | . 07 | -21 | . 16 | -18 | . 14 | . 09 | . 07 |
| Mixing operatives | .00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 02 | . 00 |
| oilers, greasers,exc automobiles | .07 | . 05 | . 04 | . 07 | . 05 | . 01 | . 66 | . 41 | . 06 |
| Painters, mfg articles | - 02 | . 02 | . 04 | . 05 | . 05 | . 06 | . 02 | . 01 | . 00 |
| photographic frocess workers | . 04 | . 04 | . 02 | . 06 | . 06 | . 04 | . 02 | . 02 | . 01 |
| Savyers | . 01 | . 01 | - 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | 1.27 | . 66 | - 38 | . 83 | - 45 | - 15 | -40 | . 29 | - 33 |
| yinding operatives, other | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 43 | . 46 | . 35 | . 47 | . 50 | . 52 | . 98 | 1.03 | 1.03 |
| Other operatives, exc transport | 1.66 | 1.77 | 1.85 | 1.91 | 2. 12 | 1.95 | 2.29 | 2.43 | 2.05 |
| Transport equipment operatives | 1.97 | 2.08 | 2.72 | 2.73 | 2.73 | 3.64 | 3.21 | 3.22 | 4.92 |
| Bus drivers | . 04 | . 05 | . 01 | - 11 | - 13 | . 02 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 05 | . 04 | . 03 | . 21 | - 17 | . 14 | . 72 | . 66 | - 88 |
| Fork lift, $\begin{aligned} & \text { oy motor operatives }\end{aligned}$ | .05 | . 05 | . 03 | -06 | . 07 | . 06 | . 05 | . 06 | . 08 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 06 | . 06 | . 06 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 04 | . 02 | . 01 | -17 | . 12 | . 03 | . 00 | . 00 | . 00 |
| Truck drivers | 1.79 | 1. 92 | 2.65 | 2.14 | 2. 18 | 3.35 | 2.44 | 2.50 | 3.96 |
| Service workers | 2.73 | 2. 52 | 2.32 | 2. 18 | 1.97 | 1.88 | 2.31 | 2.03 | 1.44 |
| Cleaning service workers | 2.14 | 1.97 | 1.63 | 1.64 | 1.52 | 1.27 | 2.04 | 1.82 | 1.34 |
| Bldg interior cleaners, other | . 24 | - 23 | . 20 | . 25 | - 27 | . 31 | . 19 | . 16 | . 07 |
| Janitors and sextons | 1.90 | 1.74 | 1.43 | 1.39 | 1.25 | . 97 | 1.85 | 1.66 | 1.27 |
| Food service workers | . 10 | . 07 | . 08 | - 14 | . 11 | . 12 | . 09 | . 06 | . 03 |
| Maiters' assistants | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Cooks, exc private households | .05 | - 03 | . 01 | . 06 | . 03 | . 01 | -03 | . 02 | . 01 |
| Dishyashers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Pood counter, fountain workers | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| wai.ters | .01 | .01 | .01 | . 01 | .01 | . 01 | . 02 | . 01 | .01 |
| other food serv wkrs, exc privt | . 02 | . 02 | . 03 | . 04 | .03 | . 05 | . 03 | . 02 | .01 |
| Health service workers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | .01 | .01 | . 02 | .00 | .00 | .00 | .00 | . 00 | . 00 |
| Personal service workers | . 06 | . 06 | . 05 | . 05 | . 05 | . 04 | . 03 | .03 | . 02 |
| Attendants, personal sery,other | . 02 | . 03 | . 03 | . 03 | .03 | .03 | . 01 | . 01 | . 01 |
| Elevator operators | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 | . 02 | . 01 | .01 |
| Housekeepers, exc private homes | . 02 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Protective service workers | . 43 | . 40 | . 54 | . 34 | - 30 | . 46 | . 15 | . 13 | . 06 |
| Crossing guards,bridgetenders | . 04 | - 03 | . 02 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Pirefighters | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Guards | . 35 | . 33 | . 51 | . 30 | . 27 | . 44 | . 15 | . 13 | . 06 |
| Police and detectives | .03 | . 03 | . 00 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Electric light and pouer |  |  | $\begin{gathered} \text { Electric- } \\ \text { gas } \\ \text { utilities } \end{gathered}$ |  |  | $\begin{aligned} & \text { Gas steam } \\ & \text { supply } \\ & \text { systems } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | 5.71 | 5. 37 | 5.10 | 4.83 | 4.62 | 4.55 | 5.91 | 4.95 | 3.42 |
| Carpenter helfers | -13 | - 15 | . 09 | -10 | . 07 | . 05 | . 03 | . 04 | . 07 |
| Constr labr, exc carpenter helpr | 2.45 | 2. 33 | 2.37 | 2.92 | 2.74 | 2.73 | 4.07 | 3.24 | 1.66 |
| Freight and material handlers | . 42 | . 40 | . 39 | . 22 | . 22 | . 27 | . 26 | . 26 | . 31 |
| Garbage collectors | . 01 | . 01 | . 01 | . 04 | - 05 | . 06 | . 00 | . 00 | . 00 |
| Gardenrs.groundkeepers, exc farm | - 20 | - 24 | . 22 | -39 | - 48 | - 50 | - 10 | .11 | . 11 |
| Timbercutting, logging yorkers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Stock handlers | . 12 | - 12 | . 09 | . 14 | . 16 | . 16 | - 10 | .09 | . 04 |
| Vehicle washers, equip cleaners | . 12 | . 13 | . 14 | . 06 | . 06 | . 04 | . 04 | . 04 | . 02 |
| Warehouse labcrers, other | . 23 | -21 | . 09 | - 29 | . 23 | . 12 | . 20 | . 20 | . 26 |
| other laborers | 2.04 | 1. 76 | 1.70 | . 68 | . 62 | . 62 | 1.10 | . 97 | . 95 |


|  | $\begin{aligned} & \text { Water } \\ & \text { supply } \end{aligned}$ |  |  | Sanitary services |  |  | Other utilities |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 7.22 | 6.97 | 7.01 | 2.32 | 2.50 | 2.47 | 5.04 | 4.76 | 3.57 |
| Engineers, technical | 2.67 | 2. 24 | 2.75 | . 80 | . 69 | . 69 | 1.19 | . 94 | . 78 |
| Chemical | . 03 | . 04 | . 18 | . 03 | . 04 | . 05 | . 02 | . 01 | . 00 |
| Civil | 1.88 | 1.47 | 1.78 | - 55 | . 44 | . 46 | . 73 | . 55 | . 51 |
| Electrical | . 29 | . 28 | . 27 | . 06 | . 06 | . 06 | . 08 | . 04 | . 00 |
| Industrial | . 09 | . 09 | . 09 | .03 | . 03 | . 02 | .03 | . 03 | . 00 |
| Mechanical | . 21 | - 20 | - 24 | . 06 | . 05 | . 04 | - 10 | . 10 | .09 |
| Sales | . 01 | . 01 | -03 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| other engineers | .16 | - 15 | . 16 | . 07 | . 06 | . 06 | . 24 | . 21 | - 18 |
| Life and physical scientists | .68 | . 72 | . 59 | - 25 | - 27 | - 20 | . 48 | . 49 | - 20 |
| Agricultural | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 00 |
| Biological | . 10 | . 17 | . 19 | . 05 | . 09 | . 10 | . 00 | . 00 | . 00 |
| Chemists | . 51 | . 48 | -34 | - 20 | - 18 | . 10 | . 25 | . 25 | . 14 |
| Geologists | .03 | . 03 | . 03 | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Marine | . 04 | . 05 | . 04 | - 00 | - 00 | - 00 | . 21 | . 23 | . 05 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Hathematical sfecialists | . 02 | . 01 | . 00 | . 01 | . 02 | . 02 | . 02 | . 01 | . 00 |
| Statisticians | . 02 | . 01 | . 00 | .01 | . 02 | . 02 | . 02 | .01 | . 00 |
| Engineering, science technicians | 2.29 | 2. 22 | 2.21 | -49 | -49 | -46 | 1.49 | 1.45 | 1.33 |
| Agricultural, biolgcl, exc health | . 04 | . 04 | . 05 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Chemical technicians | .46 | . 46 | . 38 | . 10 | . 08 | . 15 | . 00 | . 00 | . 00 |
| Drafters | . 95 | . 88 | -36 | . 14 | - 15 | . 01 | . 70 | . 65 | . 55 |
| Electrical and electronic | . 08 | . 08 | . 04 | . 02 | . 02 | -01 | . 00 | . 00 | . 00 |
| Industrial engineering | . 01 | . 01 | . 01 | -01 | . 01 | -01 | . 00 | . 00 | . 00 |
| Surveyors | . 34 | . 31 | . 30 | . 08 | . 08 | . 07 | .18 | . 17 | - 10 |
| Other engineering,science tech | . 42 | . 44 | 1.07 | . 15 | . 16 | .21 | .61 | . 63 | . 69 |
| Medical workers, exc technicians | . 04 | . 04 | . 10 | . 02 | .03 | . 04 | . 00 | - 00 | . 00 |
| Pharmacists | .01 | . 01 | . 04 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Physicians and osteopaths | .01 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Registered nurses | . 02 | . 02 | . 05 | . 01 | . 02 | . 03 | . 00 | . 00 | - 00 |
| Health technolcgists, technicians | . 05 | . 08 | . 07 | . 15 | - 22 | . 10 | . 00 | . 00 | . 00 |
| other health technicians | . 05 | . 08 | . 07 | . 15 | . 22 | . 10 | . 00 | . 00 | .00 |
| Technicians, except health | . 26 | . 32 | . 25 | . 14 | -21 | . 25 | . 06 | . 06 | . 03 |
| Airplane pilots | . 03 | . 03 | . 05 | . 02 | . 03 | . 07 | . 00 | . 00 | . 00 |
| Radio operators | . 16 | - 18 | . 09 | . 04 | . 04 | . 02 | . 05 | . 04 | .03 |
| other technicians except health | . 08 | - 10 | . 12 | . 09 | - 13 | - 16 | . 02 | . 01 | - 00 |
| Computer specialists | . 14 | - 16 | . 15 | . 03 | . 04 | . 04 | . 45 | - 55 | .41 |
| Computer programers | . 11 | . 12 | . 10 | . 01 | . 01 | . 01 | - 33 | - 38 | - 30 |
| Computer systems analysts | . 03 | . 04 | . 05 | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| other computer specialists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 12 | . 17 | . 11 |
| Social scientists | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Economists | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Teachers | . 00 | . 00 | . 00 | - 00 | - 00 | . 00 | . 02 | . 01 | .01 |
| Adult education | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | .01 |
| Writers,artists, entertainers | . 21 | - 26 | -31 | . 03 | . 05 | . 04 | . 27 | . 31 | . 12 |
| Designers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 05 | . 03 | . 00 |
| Editors and reforters | . 04 | . 06 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photographers | . 04 | .03 | . 04 | . 00 | . 00 | . 00 | . 00 | - 00 | .00 |
| Public relations specialists | . 09 | . 11 | . 09 | . 03 | . 04 | . 04 | . 22 | -28 | - 12 |
| Radio and tv announcers | . 03 | . 04 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other writers,artists, entertain | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |


|  | $\begin{aligned} & \text { mater } \\ & \text { supply } \end{aligned}$ |  |  | Sanitary services |  |  | Other utilities |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | -85 | . 91 | . 60 | -40 | - 50 | . 64 | 1.07 | . 93 | - 70 |
| Accountants | . 57 | . 57 | . 30 | . 08 | . 10 | . 11 | . 43 | . 48 | . 49 |
| Foresters and conservationists | . 04 | . 04 | . 05 | . 19 | . 24 | . 39 | . 12 | . 07 | . 00 |
| Home management advisors | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 16 | .07 | . 00 |
| Lauyers | . 03 | . 06 | .07 | . 02 | . 03 | .03 | . 02 | .01 | .00 |
| operations and systems research | . 02 | . 03 | .01 | .01 | . 02 | . 02 | . 10 | - 16 | . 18 |
| Personnel, labcr relations wirs | . 17 | . 19 | . 17 | . 08 | . 09 | . 09 | . 13 | . 07 | . 00 |
| Other research workers | .01 | . 01 | - 00 | . 02 | - 01 | - 00 | - 10 | -07 | . 03 |
| Managers, officials, proprietors | 9.21 | 11.32 | 13.00 | 2.84 | 3.54 | 3.98 | 8.57 | 10.20 | 10.68 |
| Euyers, sales, lcan managers | . 20 | . 19 | - 19 | . 08 | . 07 | . 05 | . 67 | . 65 | . 64 |
| Bank, financial managers | . 04 | . 05 | . 05 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Credit managers | . 02 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Purchasing agents, buyers, other | . 12 | . 11 | . 12 | . 05 | . 03 | . 02 | . 49 | . 45 | . 41 |
| Sales manager, exc retail trade | . 02 | . 02 | . 02 | .01 | . 01 | .01 | . 18 | . 20 | . 23 |
| Other managers, officials, proprts | 9.00 | 11.13 | 12.81 | 2.76 | 3.47 | 3.93 | 7.90 | 9.55 | 10.05 |
| Office ranagers, other | . 52 | . 54 | . 57 | . 07 | . 09 | . 09 | . 28 | . 32 | . 33 |
| other managers, administrators | 8.48 | 10.58 | 12.23 | 2.68 | 3.38 | 3.84 | 7.62 | 9.23 | 9.71 |
| Sales workers | . 16 | . 16 | . 15 | . 05 | . 04 | . 02 | -46 | . 40 | . 47 |
| Advertising agents, sales worker | . 02 | . 04 | . 07 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| other sales workers | . 14 | . 13 | . 07 | . 05 | . 04 | . 02 | -46 | . 40 | . 47 |
| Clerical workers | 21.55 | 19.95 | 17.21 | 3.41 | 3.73 | 4.36 | 14.91 | 14.78 | 12.95 |
| Stenographrs, typists, secretaries | 3.59 | 3.33 | 3.45 | 1.09 | 1. 15 | 1.44 | 3.86 | 3.82 | 3.99 |
| Legal secretaries | . 02 | . 02 | . 02 | . 00 | .00 | . 00 | . 03 | . 03 | . 03 |
| Other secretaries | 1.93 | 1.98 | 2.23 | . 70 | . 78 | 1.00 | 2.89 | 3.06 | 3.26 |
| Stenographers | .27 | . 15 | . 05 | . 05 | . 03 | . 01 | . 16 | . 09 | . 03 |
| Typists | 1.37 | 1. 18 | 1.15 | . 33 | . 34 | . 42 | . 78 | . 65 | . 68 |
| Office machine operators | . 83 | . 75 | . 49 | . 09 | . 33 | .71 | 1.09 | 1.20 | . 59 |
| Bookkeeping and billing | . 29 | . 14 | -09 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Calculating | . 03 | - 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Computer and feripheral equip | . 15 | - 31 | . 24 | . 02 | . 28 | . 68 | . 34 | . 75 | . 41 |
| Duplicating | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Keypuncb | . 29 | . 22 | . 12 | . 02 | . 02 | . 01 | . 46 | . 16 | . 00 |
| Other office machine operators | . 07 | . 05 | . 03 | . 02 | . 02 | . 01 | -27 | .28 | . 17 |
| other clerical workers | 17.13 | 15.87 | 13.27 | 2.24 | 2.25 | 2.22 | 9.96 | 9.77 | 8.37 |
| Billing clerks | 1.09 | 1.17 | 1.45 | . 07 | . 07 | . 07 | . 79 | .85 | . 76 |
| Bookxeepers | 2.51 | 2.45 | 2.22 | . 64 | . 63 | . 81 | 2.31 | 2.35 | 2. 17 |
| Cashiers | . 73 | . 68 | . 40 | . 06 | . 07 | . 10 | . 37 | . 34 | . 08 |
| Clerical supervisors, other | . 40 | - 46 | . 48 | . 09 | . 11 | . 09 | - 27 | - 32 | - 30 |
| Collectors, bill and account | . 36 | . 33 | . 23 | . 06 | . 05 | . 02 | -24 | - 23 | . 18 |
| Counter clerks, exc food | . 07 | . 08 | . 10 | .01 | . 01 | . 03 | . 18 | . 20 | . 24 |
| Dispatchers, starters, vehicle | .17 | . 18 | . 20 | . 12 | . 13 | . 12 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 51 | . 58 | -40 | . 07 | . 08 | . 03 | - 22 | . 27 | . 19 |
| Expediters, frcduction controlrs | . 06 | - 06 | . 05 | . 03 | . 03 | . 02 | -00 | -00 | . 00 |
| File clerks | . 24 | . 19 | . 14 | . 06 | . 05 | . 04 | . 12 | .09 | .03 |
| Mail handlers, exc post office | . 08 | . 08 | . 09 | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 |
| Messengers and office helpers | . 01 | . 01 | . 01 | .01 | . 02 | . 03 | . 00 | - 00 | . 00 |
| Meter readers,utilities | 8.24 | 7.01 | 4.94 | - 11 | . 08 | . 01 | 2.97 | 2.65 | 2. 18 |
| Payroll, timekeeping clerks | . 29 | . 33 | . 34 | - 14 | - 18 | . 21 | .33 | . 44 | . 58 |
| Real estate appraisers | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Receptionists | . 17 | . 15 | . 12 | . 03 | . 03 | . 02 | . 42 | .41 | . 27 |
| Shipping and receiving clerks | . 04 | . 04 | . 06 | -02 | . 02 | .03 | - 18 | . 24 | .27 |
| Statistical clerks | . 42 | - 46 | -41 | - 15 | . 18 | . 16 | .15 | . 11 | . 00 |
| Stock clerks and store keepers | - 52 | . 43 | . 31 | . 11 | -08 | . 03 | . 27 | . 14 | - 02 |
| Telephone operators | . 23 | . 17 | .21 | .09 | . 08 | - 11 | . 15 | . 07 | . 00 |
| yeighers | . 00 | . 00 | . 00 | . 15 | . 13 | . 06 | . 00 | . 00 | . 00 |
| Misc clerical workers | 1.00 | 1.02 | 1.11 | - 22 | . 23 | . 23 | . 97 | 1.04 | 1.10 |
| Crafts and kindred workers | 39.42 | 40.84 | 45.23 | 14.21 | 15.69 | 15.58 | 20.44 | 21.83 | 24.30 |


|  | $\begin{array}{r} \text { water } \\ \text { supply } \end{array}$ |  |  | Sanitary services |  |  | $\begin{gathered} \text { other } \\ \text { utilities } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 6.25 | 6. 11 | 7.77 | 3. 12 | 2.73 | 2.06 | 5.55 | 5.40 | 5.48 |
| Carpenters and apprentices | . 32 | . 35 | . 40 | . 09 | . 11 | . 13 | . 33 | - 35 | . 38 |
| Brick, stonemasons, apprentices | . 13 | - 11 | . 05 | . 10 | . 08 | . 04 | . 00 | .00 | . 00 |
| Bulldozer operators | . 20 | . 19 | . 23 | 1.81 | 1.51 | . 98 | 1.16 | 1.17 | 1.50 |
| Cement and concrete finishers | . 04 | . 04 | . 06 | .01 | . 00 | . 00 | . 00 | .00 | . 00 |
| Electricians and apprentices | . 49 | . 54 | . 74 | . 17 | . 20 | . 27 | . 39 | . 42 | . 37 |
| Excavating, grading mach operatr | 1.38 | 1. 15 | - 98 | . 62 | . 52 | . 37 | 2.54 | 2.35 | 2.33 |
| Ploor layers, exc tile setters | . 02 | . 01 | . 03 | .00 | .00 | . 00 | .00 | .00 | . 00 |
| Painters and apprentices | . 40 | . 34 | .21 | . 15 | . 12 | .03 | . 49 | . 47 | . 27 |
| Plumbers, pipefitters, a prentices | 3.27 | 3. 37 | 5.04 | . 17 | - 18 | . 25 | . 64 | . 63 | . 64 |
| Structural metal craft workers | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Tile setters | . 00 | . 00 | .00 | . 01 | .01 | . 00 | . 00 | .00 | .00 |
| Blue collar worker supervisors | 5.43 | 6.35 | 6.05 | 3.02 | 3.76 | 3.22 | 4.67 | 5.61 | 6.26 |
| Metalworkg craft wrkrs.exc mech | . 47 | . 55 | . 94 | . 21 | . 27 | . 45 | .51 | . 86 | 2.15 |
| Blacksmiths | . 02 | . 02 | . 00 | . 03 | . 03 | . 03 | .09 | . 09 | . 00 |
| Boilermakers | . 04 | . 05 | . 06 | - 00 | . 00 | . 00 | .10 | . 13 | . 23 |
| Forge and hammer cperators | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Job and die setters, metal | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 32 | . 39 | .65 | . 15 | . 21 | .38 | .31 | . 65 | 1.92 |
| Millwrights | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Pattern and moldmakers | . 01 | .01 | .01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Rollers and finishers,metal | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Sheetmetal workers, apprentices | . 02 | . 02 | -06 | . 02 | . 02 | . 03 | . 00 | - 00 | . 00 |
| Tool and diemakers, apprentices | . 01 | . 02 | .07 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hechanics, repairers, installers | 11.94 | 12. 28 | 8.28 | 2.06 | 2.09 | 1.70 | 4.85 | 5.20 | 5.41 |
| Air cond, heating, refrig nech | . 03 | . 04 | . 04 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 52 | . 46 | . 39 | 1.02 | . 82 | . 32 | . 60 | . 48 | . 20 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 70 | . 59 | . 80 |
| Heavy equip mech, incl diesel | 2.14 | 2.63 | 3.55 | . 86 | 1.09 | 1.29 | 2.09 | 2.49 | 2.98 |
| Household appliance mechanics | 5.02 | 5. 16 | 1.62 | . 07 | . 06 | . 01 | . 34 | . 38 | . 28 |
| Radio, television repairers | . 45 | . 44 | . 61 | . 00 | . 00 | . 00 | . 13 | .13 | . 10 |
| Other mechanics and apprentices | 3.78 | 3. 55 | 2.09 | - 10 | . 09 | . 04 | . 98 | 1.13 | 1.05 |
| Printing trade crafts yorkers | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Compositors and typesetters | . 02 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Transport, public util craft wkrs | . 36 | - 28 | - 10 | . 08 | . 09 | . 07 | 1.07 | . 76 | . 18 |
| Elec pur line instaler, repairer | . 22 | . 15 | . 02 | . 02 | . 02 | . 01 | . 79 | . 65 | . 17 |
| Power station operators | . 09 | . 08 | . 04 | . 02 | . 02 | . 02 | . 27 | . 10 | . 00 |
| Telephone installers, repairers | . 04 | . 04 | . 04 | . 03 | . 04 | . 04 | . 02 | .01 | . 01 |
| Telephone line instalr,splicers | . 01 | .01 | -01 | - 01 | . 01 | . 00 | .00 | .00 | . 00 |
| Other crafts, kindred workers | 14.94 | 15. 25 | 22.09 | 5.72 | 6.75 | 8.08 | 3.80 | 4.00 | 4.83 |
| crane,derrick, hoist operator | . 22 | - 20 | . 28 | . 44 | .41 | . 60 | . 27 | .23 | . 41 |
| Inspectors, log and lumber | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 12 | . 13 | . 13 |
| Inspectors, other | 1.88 | 2.08 | 1.90 | 1.25 | 1.50 | 1.47 | . 67 | . 82 | . 76 |
| Sign painters and letterers | . 1200 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | 12.71 | 12.86 | 19.82 | 3.96 | 4.79 | 5.99 | 2.60 | 2.72 | 3.47 |
| Other crafts workers | . 12 | - 12 | . 09 | . 05 | . 04 | . 02 | . 15 | . 11 | . 06 |
| Operatives | 8.20 | 8.39 | 8.48 | 17.54 | 17.86 | 19.71 | 7.29 | 7.93 | 10.71 |
| Gperatives, except transport | 5.53 | 5.61 | 4.31 | 2.31 | 2.21 | 2.07 | 2.37 | 2.42 | 2.30 |
| Semiskilled metalworking | . 23 | . 28 | .42 | - 14 | - 19 | . 27 | .76 | . 80 | . 83 |
| Welders and flamecutters | . 23 | - 28 | -42 | . 14 | . 19 | . 27 | .76 | . 80 | . 83 |
| Semiskilled packing, inspecting | . 01 | .01 .01 | .00 .00 | .02 .02 | .02 .02 | .00 .00 | .00 .00 | .00 .00 | .00 .00 |
| Packer, wrapper,exc meat.prodce | . 01 | - 01 | - 00 | - 02 | . 02 | . 00 | . 0 | . 0 | . 00 |


|  | $\begin{array}{r} \text { water } \\ \text { supply } \end{array}$ |  |  | Sanitary services |  |  | Other utilities |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 5.28 | 5.32 | 3.90 | 2.15 | 2. 00 | 1.80 | 1.61 | 1.62 | 1.46 |
| Bottling, canning operatives | . 03 | - 04 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Surveyors* helpers | . 04 | . 04 | . 04 | - 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| cutting operatives, other | . 02 | . 01 | -00 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Drillers, earth | . 06 | . 04 | . 01 | .00 | . 00 | . 00 | . 36 | .16 | . 03 |
| Garage wrkr,gas station atten | . 05 | . 03 | . 03 | . 14 | . 08 | . 02 | - 00 | . 00 | . 00 |
| oilers, greasers,erc automobiles | . 14 | . 11 | . 04 | - 14 | . 14 | . 13 | . 00 | . 00 | . 00 |
| Photographic frocess workers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Savyers | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr, exc metal | . 24 | . 14 | . 07 | . 77 | . 64 | -99 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 45 | -48 | . 47 | - 25 | - 27 | -23 | . 24 | . 20 | . 07 |
| Other operatives, exc transport | 4.19 | 4. 37 | 3.12 | . 86 | . 87 | . 43 | 1.01 | 1.27 | 1.36 |
| Transport equipment operatives | 2.67 | 2.78 | 4.16 | 15.22 | 15.66 | 17.64 | 4.92 | 5.51 | 8.42 |
| Boat operators | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 34 | . 35 | . 29 |
| Bus drivers | - 00 | . 00 | . 00 | . 06 | . 11 | . 06 | . 00 | .00 | . 00 |
| Delivery and route workers | - 10 | - 10 | . 12 | . 07 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Fork lift, tow motor operatives | - 05 | . 06 | . 07 | . 05 | . 07 | . 06 | .00 | . 00 | -00 |
| Taxicab drivers, chauffeurs | . 20 | . 17 | . 07 | . 18 | . 12 | . 01 | . 00 | . 00 | . 00 |
| Truck drivers | 2.29 | 2.41 | 3.89 | 14.86 | 15.29 | 17.44 | 4.58 | 5.16 | 8.12 |
| Service workers | 4.21 | 3.82 | 2.86 | 2.18 | 1.87 | . 98 | 2.89 | 2.79 | 2.32 |
| Cleaning service workers | 3.39 | 3.03 | 2.16 | 1.73 | 1. 39 | . 49 | 2.04 | 2.09 | 1.86 |
| Bldg interior cleaners, other | . 16 | . 14 | . 06 | -21 | . 17 | . 07 | . 06 | . 04 | . 01 |
| Janitors and sextons | 3.23 | 2.89 | 2.09 | 1.52 | 1.22 | . 43 | 1.98 | 2.04 | 1.85 |
|  | . 01 |  | . 01 | . 00 | .00 | . 00 | . 00 | . 00 |  |
| Cooks, exc private households | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Health service workers | .03 | . 03 | . 02 | . 03 | . 03 | . 02 | . 00 | . 00 |  |
| Health aides, except nursing | . 02 | .03 | . 02 | . 02 | . 03 | .02 | . 00 | . 00 | .00 |
| Personal service workers | . 04 | . 03 | . 04 | -02 | . 01 | .01 | .00 | . 00 | . 00 |
| Attendants, personal serv, other | . 01 | . 01 | . 01 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Child care workers, exc private | . 02 | . 01 | . 02 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blevator operators | . 01 | .01 | .01 | -00 | . 00 | . 00 | .00 | . 00 | . 00 |
|  |  | . 72 | . 64 | . 41 | . 44 | -46 |  |  | . 45 |
| Crossing guards, bridgetenders | . 05 | . 04 | . 05 | . 00 | . 00 | . 00 | - 48 | .41 | . 37 |
| Guards | . 67 | - 66 | . 59 | -38 | . 42 | . 45 | . 37 | . 30 | . 08 |
| Police and detectives | . 02 | . 02 | . 00 | . 02 | . 02 | . 02 | .00 | - 00 | .00 |
| Laborers, except farm | 10.05 | 8.55 | 6.07 | 57.46 | 54.76 | 52.91 | 40.38 | 37.31 | 35.00 |
| Carpenter helfers | . 03 | . 03 | . 06 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Constr labr,exc carpenter helpr | 4.61 | 3.70 | 1.89 | . 96 | . 79 | . 34 | 2.67 | 2.27 | 1.23 |
| Freight and material handlers | -16 | -16 | -15 | . 86 | . 86 | . 69 | . 25 | . 27 | . 30 |
| Garbage collectors | . 07 | -07 | - 10 | 31.04 | 32.03 | 38.03 | 2.73 | 2.71 | 2.50 |
| Gardenrs, groundkeepers, exc farm | . 82 | - 89 | . 86 | .67 | . 69 | . 46 | 2.52 | 2.13 | 1.67 |
| Stock handlers | . 05 | -05 | . 04 | - 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Teamsters | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 16 | .18 | . 25 |
| Vehicle washers, equip cleaners | . 08 | - 07 | . 04 | -28 | . 23 | . 06 | -16 | . 11 | . 03 |
| Warehouse laborers, other | -13 4 | - 13 | -17 .75 | 23.01 | 20.02 | 13.03 | . 18 | -16 | . 13 |
| other laborers | 4.09 | 3.44 | 2.75 | 23.61 | 20.14 | 13.27 | 31.70 | 29.49 | 28.90 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Hholesale
and retail
trade
$1970 \quad 1978 \quad 1990$

| Mholesale <br> trade | Wholesale <br> exc misc <br> whsle trade |  |  |
| :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | $1978 \quad 1990$

Total all occupations
Professional and technical
Engineers, technical
Chemical
Civil
Blectrical
Industrial
Mechanical
Petroleum
Sales
Other engineers
Life and physical scientists
Agricultural
Biological
Chemists
Geologists

## Mathematical sfecialists

 StatisticiansEngineering, science technicians Agricultural, biolgcl,exc health chemical technicians Drafters
Electrical and electronic Industrial engineering other engineering, science tech

Hedical workers, exc technicians Dietitians optometrists Pharmacists Registered nurses

Health technologists,technicians other health technicians

Technicians, except bealth Airplane pilots
Radio operators
other technicians except health
Computer specialists
Computer programers
Computer systems analysts other computer specialists

Social scientists
Economists
Teachers
Adult education
Other teachers
Writers, artists, entertainers
Athletes and kindred workers Dancers
Designers
Editors and reporters
Musicians and composers
Painters and sculptors
Photographers
public relations specialists other vriters,artists, entertain
$100.00 \quad 100.00 \quad 100.00$

| 2.61 | 2. 84 | 2.55 |
| :---: | :---: | :---: |
| . 29 | . 25 | . 21 |
| . 01 | . 01 | .01 |
| . 01 | . 01 | .01 |
| . 04 | . 04 | . 03 |
| .03 | .03 | . 03 |
| . 04 | . 04 | . 03 |
| . 00 | . 00 | . 00 |
| . 11 | . 08 | . 06 |
| . 05 | . 04 | . 04 |
| . 04 | . 04 | . 03 |
| . 01 | . 01 | .01 |
| . 00 | . 01 | . 00 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| .01 | .01 | . 01 |
| .01 | . 01 | .01 |
| . 15 | . 15 | .14 |
| .01 | . 01 | . 01 |
| . 01 | .01 | . 01 |
| . 05 | . 05 | . 05 |
| . 04 | . 04 | . 04 |
| . 00 | . 01 | -01 |
| . 03 | .03 | . 03 |
| . 64 | . 60 | . 63 |
| . 01 | . 01 | . 01 |
| .01 | . 01 | . 01 |
| .61 | - 56 | . 59 |
| . 01 | . 01 | . 01 |
| .01 | .01 | .01 |
| . 00 | . 01 | . 00 |
| .03 | . 04 | . 04 |
| .01 | . 01 | . 01 |
| - 00 | . 00 | . 00 |
| . 02 | .03 | -02 |
| .14 | . 19 | - 15 |
| . 08 | . 09 | . 08 |
| . 05 | .07 | . 05 |
| .01 | . 02 | . 01 |
| . 05 | . 07 | . 05 |
| . 05 | .07 | . 05 |
| . 09 | . 07 | . 03 |
| . 01 | . 02 | . 01 |
| . 08 | . 05 | . 02 |
| .41 | - 58 | . 57 |
| . 01 | . 02 | . 02 |
| . 02 | . 03 | . 03 |
| .11 | - 13 | - 12 |
| . 03 | . 04 | . 04 |
| . 09 | . 16 | . 16 |
| . 06 | . 08 | . 09 |
| .01 | . 01 | . 01 |
| . 05 | .07 | . 06 |
| .03 | . 06 | . 05 |

$100.00 \quad 100.00 \quad 100.00$

| 4.43 | 4.72 | 3.93 |
| :---: | :---: | :---: |
| 1.09 | . 95 | . 88 |
| . 04 | . 04 | . 03 |
| . 04 | . 03 | . 02 |
| - 17 | - 16 | . 14 |
| . 09 | - 10 | . 09 |
| -14 | . 14 | . 14 |
| . 01 | . 01 | .01 |
| -41 | - 32 | - 29 |
| . 18 | . 16 | . 15 |
| . 13 | . 13 | . 13 |
| . 02 | . 02 | . 02 |
| . 01 | . 02 | . 01 |
| . 09 | . 08 | . 07 |
| . 01 | . 01 | . 02 |
| . 02 | . 02 | . 02 |
| . 02 | . 01 | . 02 |
| . 52 | . 52 | . 51 |
| . 03 | .03 | . 02 |
| . 03 | . 03 | . 03 |
| . 17 | . 14 | - 16 |
| . 14 | . 16 | . 15 |
| . 02 | . 02 | . 03 |
| . 12 | . 12 | . 11 |
| . 03 | . 04 | . 04 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 01 | -01 | . 02 |
| .01 | . 01 | . 02 |
| . 01 | . 01 | . 01 |
| . 01 | . 01 | . 00 |
| . 10 | . 12 | .11 |
| . 02 | - 03 | .03 |
| . 01 | . 01 | .01 |
| . 06 | . 08 | . 07 |
| . 45 | . 59 | . 43 |
| . 25 | - 28 | . 22 |
| . 16 | . 24 | .16 |
| . 04 | . 07 | . 04 |
| - 15 | - 21 | . 16 |
| - 15 | . 21 | . 16 |
| . 03 | . 03 | . 01 |
| . 03 | . 03 | -01 |
| . 00 | . 00 | .00 |
| -45 | . 50 | . 41 |
| . 01 | . 02 | . 01 |
| . 00 | - 00 | . 00 |
| . 16 | . 17 | .15 |
| . 04 | . 04 | . 04 |
| . 00 | . 00 | .01 |
| . 06 | . 07 | . 06 |
| . 02 | . 02 | .01 |
| . 13 | - 16 | . 12 |
| . 02 | . 03 | . 01 |

$100.00 \quad 100.00 \quad 100.00$

| 4.81 | 5.08 | 4. 14 |
| :---: | :---: | :---: |
| 1.35 | 1.17 | 1.08 |
| . 04 | . 04 | .03 |
| . 03 | . 02 | . 02 |
| - 24 | . 22 | . 20 |
| .11 | . 11 | . 09 |
| . 18 | . 17 | . 17 |
| .00 | . 00 | . 00 |
| . 53 | . 41 | . 37 |
| . 22 | .20 | . 19 |
| . 12 | - 11 | . 10 |
| . 01 | . 01 | . 01 |
| . 01 | . 02 | . 02 |
| .09 | . 09 | . 07 |
| .00 | . 00 | .00 |
| . 02 | . 02 | . 01 |
| .01 | . 01 | .01 |
| . 59 | . 59 | . 54 |
| . 03 | . 03 | . 03 |
| . 04 | . 04 | .03 |
| .17 | . 15 | . 16 |
| . 20 | . 22 | . 20 |
| . 02 | . 03 | .03 |
| . 14 | . 13 | . 10 |
| . 04 | . 05 | . 05 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | .03 |
| . 02 | . 02 | . 02 |
| . 01 | . 02 | . 01 |
| . 01 | . 01 | . 01 |
| - 11 | .13 | . 11 |
| . 02 | . 03 | .03 |
| . 01 | .01 | .00 |
| .07 | . 09 | . 07 |
| - 56 | . 73 | . 51 |
| . 30 | .34 | . 26 |
| . 21 | - 30 | . 20 |
| . 05 | .10 | . 06 |
| - 14 | - 20 | . 14 |
| . 14 | . 20 | - 14 |
| . 04 | . 04 | . 02 |
| . 03 | .03 | . 01 |
| . 00 | . 00 | .00 |
| . 39 | . 43 | . 34 |
| . 01 | . 01 | . 01 |
| .00 | . 00 | . 00 |
| . 14 | . 16 | . 14 |
| . 04 | . 04 | .04 |
| . 00 | .00 | . 00 |
| . 05 | . 06 | . 04 |
| .01 | . 01 | .01 |
| . 11 | .13 | .09 |
| .03 | . 03 | . 01 |


|  | $\begin{gathered} \text { Wholesale } \\ \text { and retail } \\ \text { trade } \end{gathered}$ |  |  | ```Wholesale trade``` |  |  | $\begin{aligned} & \text { Wholesale } \\ & \text { exc misc } \\ & \text { whsle trade } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | . 75 | . 85 | -69 | 1.47 | 1. 60 | 1.22 | 1.45 | 1.59 | 1.23 |
| Accountants | . 48 | . 55 | -47 | 1.02 | 1.13 | . 95 | . 99 | 1.11 | . 97 |
| Lawyers | . 02 | . 03 | . 03 | . 03 | . 05 | . 02 | .03 | . 04 | . 02 |
| Librarians | . 00 | . 00 | - 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 |
| Operations and systems research | . 02 | . 03 | . 02 | . 07 | . 09 | . 06 | . 08 | - 10 | . 06 |
| Personnel, labor relations wkrs | . 20 | . 21 | . 14 | . 26 | . 26 | . 15 | .27 | . 27 | . 15 |
| Other research workers | . 02 | . 01 | . 01 | . 05 | . 04 | . 02 | . 05 | . 04 | . 02 |
| Hanagers, officials, proprietors | 17.51 | 18. 11 | 17.72 | 18. 15 | 19.26 | 17.97 | 18.13 | 19.06 | 17.37 |
| Buyers, sales, loan managers | 3.67 | 3.47 | 3.78 | 4.93 | 4.60 | 4.71 | 5.33 | 4.88 | 4.75 |
| Bank, financial managers | . 09 | . 09 | . 08 | - 20 | . 19 | - 17 | . 20 | . 20 | .18 |
| Credit managers | . 22 | . 13 | .11 | . 34 | . 19 | . 16 | . 33 | . 18 | . 16 |
| Buyers, shippers, farm froducts | . 13 | - 11 | . 08 | . 53 | . 45 | . 38 | .79 | . 65 | . 54 |
| Buyers, wholesale, retail trade | . 95 | . 85 | . 82 | 1.36 | 1.17 | 1.10 | 1.40 | 1.18 | 1.04 |
| Sales manager, retail trade | 1.68 | 1.69 | 2.09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sales manager, exc retail trade | . 60 | . 61 | . 61 | 2.51 | 2.60 | 2.90 | 2.62 | 2.67 | 2.83 |
| Other managers, officials, proprts | 13.84 | 14. 64 | 13.94 | 13.22 | 14.66 | 13.26 | 12.80 | 14.18 | 12.62 |
| Office managers, other | . 52 | . 53 | . 50 | 1.29 | 1. 26 | 1.15 | 1.28 | 1.23 | 1.00 |
| Officers, pilots, pursers,ship | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Restaurant, cafe, bar, managers | 2.56 | 2.68 | 2.40 | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Other managers, administrators | 10.75 | 11.42 | 11.03 | 11.90 | 13.37 | 12.08 | 11.48 | 12.92 | 11.60 |
| Sales workers | 21.41 | 19.09 | 19.88 | 15.95 | 16.76 | 18.21 | 16.75 | 17.70 | 19.82 |
| advertising agents, sales vorker | . 02 | . 03 | . 03 | . 04 | . 05 | . 04 | . 03 | . 03 | . 03 |
| Auctioneers | . 01 | . 02 | . 01 | . 03 | . 03 | . 02 | . 04 | . 04 | . 03 |
| Demonstrators | - 33 | . 29 | . 25 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Hucksters and peddlers | 1.25 | - 97 | . 81 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Neuspaper carriers and vendors | - 10 | - 14 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales wcrkers | 19.70 | 17.65 | 18.70 | 15.88 | 16.68 | 18.15 | 16.68 | 17.62 | 19.76 |
| Clerical workers | 17.76 | 18.09 | 19.16 | 24.32 | 23.07 | 23.22 | 24.67 | 23.40 | 23.28 |
| Stenographrs, typists, secretaries | 2.91 | 2. 80 | 2.88 | 6.99 | 6.63 | 7.08 | 6.95 | 6.61 | 6.91 |
| Legal secretaries | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Other secretaries | 2.20 | 2.21 | 2.34 | 5.39 | 5.31 | 5.84 | 5.35 | 5.27 | 5.62 |
| Stenographers | . 05 | . 03 | . 02 | . 14 | . 09 | . 06 | . 13 | . 09 | . 06 |
| Typists | . 65 | - 56 | . 52 | 1.44 | 1.23 | 1. 17 | 1.45 | 1.25 | 1.22 |
| Office machine operators | . 61 | - 59 | . 46 | 1.35 | 1.28 | . 90 | 1.43 | 1.37 | . 89 |
| Bookkeeping and billing | - 10 | . 05 | . 05 | -21 | . 11 | - 11 | . 20 | . 10 | .09 |
| Calculating | . 08 | . 06 | .07 | . 12 | . 07 | . 05 | . 13 | . 08 | . 04 |
| Computer and peripheral equip | - 10 | - 22 | . 17 | - 25 | - 52 | . 39 | . 29 | . 60 | . 46 |
| Duplicating | -01 | . 01 | -01 | -02 | -02 | -02 | . 02 | . 02 | . 02 |
| Keypunch | . 26 | - 20 | - 11 | . 65 | -48 | . 27 | . 69 | - 50 | . 24 |
| Tabulating | . 01 | - 00 | . 00 | . 02 | . 01 | - 00 | . 02 | .01 | . 00 |
| other office machine operators | . 05 | . 05 | . 04 | . 09 | . 08 | .05 | . 08 | . 08 | . 04 |


|  | $\begin{gathered} \text { Wholesale } \\ \text { and retail } \\ \text { trade } \end{gathered}$ |  |  | Uholesale trade |  |  | Wholesale exc misc uhsle trade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 14.24 | 14. 70 | 15.82 | 15.98 | 15. 15 | 15. 25 | 16.30 | 15.43 | 15.48 |
| Billing clerks | . 26 | - 28 | . 35 | . 67 | . 68 | . 78 | . 66 | . 66 | . 71 |
| Bookkeepers | 3.40 | 3.21 | 2.77 | 4.81 | 4.51 | 4.12 | 4.68 | 4.40 | 3.99 |
| Cashiers | 4.75 | 5.53 | 6.75 | . 29 | - 30 | . 34 | . 30 | . 31 | - 35 |
| Clerical supervisors, other | . 13 | . 15 | .17 | . 24 | - 26 | . 26 | . 23 | . 26 | . 24 |
| collectors, bill and account | .07 | . 07 | . 08 | . 04 | . 03 | . 03 | . 03 | . 03 | . 02 |
| Counter clerks,exc food | . 48 | . 51 | . 59 | -93 | . 92 | . 98 | . 99 | . 97 | -99 |
| Dispatchers, starters, vehicle | . 08 | - 08 | . 08 | . 18 | - 18 | . 19 | .12 | .13 | . 14 |
| Bstimators, investigators; other | . 32 | - 38 | . 30 | - 36 | . 40 | . 28 | . 34 | .37 | . 24 |
| Expediters, production controlrs | . 09 | - 10 | -11 | . 24 | - 25 | . 27 | -27 | . 26 | - 26 |
| File clerks | -24 | - 20 | -17 | -43 | . 36 | -37 | - 45 | . 37 | . 39 |
| Library attendants, assistants | . 01 | . 01 | . 00 | . 01 | - 01 | . 01 | . 01 | . 01 | . 00 |
| Mail handlers, exc post office | . 13 | . 12 | - 13 | . 19 | . 18 | . 17 | . 17 | . 16 | - 15 |
| Messengers and of fice helpers | . 04 | . 04 | . 02 | -05 | . 05 | . 03 | . 04 | . 04 | . 02 |
| Payroll, timekeeping clerks | . 13 | . 75 | . 14 | - 18 | . 19 | . 17 | .18 | . 19 | . 18 |
| Receptionists | . 22 | . 21 | . 17 | . 45 | . 40 | . 32 | . 44 | . 39 | . 30 |
| Shipping and receiving clerks | . 90 | . 81 | . 87 | 2.31 | 2.07 | 2.29 | 2.50 | 2.28 | 2.64 |
| Statistical clerks | . 19 | . 21 | . 23 | . 38 | . 41 | -40 | . 38 | . 41 | . 41 |
| Stock clerks and store keepers | 1.16 | 1.04 | 1.03 | 1.68 | 1.48 | 1.48 | 1.89 | 1.64 | 1.59 |
| Telephone operators | . 19 | - 12 | . 10 | - 27 | . 17 | . 13 | . 27 | . 18 | - 15 |
| Weighers | . 05 | . 05 | . 05 | . 11 | .11 | . 09 | . 12 | . 12 | . 07 |
| Misc clerical workers | 1.41 | 1.45 | 1.69 | 2.16 | 2.19 | 2.58 | 2.23 | 2.25 | 2.66 |
| crafts and kindred workers | 9.10 | 9.02 | 8.99 | 11.18 | 11.57 | 11.98 | 12.01 | 12.46 | 12.82 |
| Construction crafts morkers | .70 | . 65 | . 54 | .93 | . 86 | . 85 | . 81 | . 76 | . 70 |
| Carpenters and apprentices | . 26 | - 26 | . 18 | . 24 | - 22 | . 17 | .15 | . 15 | . 14 |
| Brick,stonemasons, apprentices | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Bulldozer operators | . 02 | . 02 | .03 | . 05 | . 05 | . 09 | .03 | . 02 | . 02 |
| Electricians and apprentices | . 09 | . 09 | . 08 | - 22 | . 21 | . 19 | . 26 | . 24 | - 23 |
| Excavating, grading mach operatr | .02 | . 02 | . 02 | . 05 | . 05 | . 06 | . 03 | . 02 | . 02 |
| Ploor layers, exc tile setters | . 04 | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 |
| painters and apprentices | . 10 | . 09 | . 08 | . 15 | . 14 | . 12 | . 16 | .15 | .11 |
| Plumbers, pipefitters, aprentices | . 11 | - 10 | - 10 | - 14 | - 13 | -15 | - 17 | -15 | - 17 |
| Structural metal craft workers | .01 | . 01 | .01 | . 02 | . 02 | . 02 | . 01 | .01 | . 01 |
| rile setters | . 04 | . 02 | . 02 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | 1. 11 | 1. 18 | 1.12 | 2.54 | 2.69 | 2.76 | 2.43 | 2.63 | 2.87 |
| Metalworkg craft wrkrs,exc mech | . 19 | . 19 | . 21 | . 59 | . 60 | . 71 | . 63 | . 65 | - 74 |
| Boilermakers | . 01 | .01 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Machinists and apprentices | . 11 | . 12 | . 13 | . 36 | - 39 | . 46 | . 43 | . 46 | . 50 |
| Millwrights | . 02 | . 02 | . 02 | . 04 | . 05 | . 05 | .03 | . 04 | . 05 |
| Pattern and moldmakers | . 00 | - 00 | . 00 | . 02 | . 01 | - 02 | . 01 | . 01 | . 02 |
| Sheetmetal workers, apprentices | . 04 | . 04 | .03 | . 09 | . 07 | . 08 | . 07 | . 07 | . 08 |
| Tool and diemakers, apprentices | . 01 | . 01 | . 02 | . 05 | . 04 | . 06 | . 06 | . 05 | . 07 |
| Hechanics, repairers, installers | 5.15 | 4.96 | 5.15 | 5.26 | 5.59 | 5.76 | 6.62 | 6.89 | 6.93 |
| Air cond, heating, refrig mech | . 23 | . 29 | . 26 | . 24 | . 30 | . 25 | . 24 | . 27 | -21 |
| Aircraft mechanics | .01 | . 02 | . 02 | . 04 | . 04 | . 05 | . 05 | . 05 | . 07 |
| Auto accessories installers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto body repairers | . 46 | . 34 | . 37 | . 05 | . 04 | . 04 | . 06 | . 05 | . 04 |
| Auto mechanics and apprentices | 2.53 | 2.31 | 2.38 | 1.10 | 1.05 | 1.02 | 1.27 | 1.18 | 1.17 |
| Data processing mach repairers | . 06 | . 09 | - 12 | . 26 | - 37 | . 53 | .37 | . 52 | - 72 |
| Parm implement mechanics | . 23 | . 23 | . 22 | . 34 | . 40 | . 44 | -51 | . 57 | . 61 |
| Heavy equip mech, incl diesel | . 54 | . 64 | . 69 | 1.53 | 1.87 | 1.96 | 1.91 | 2.31 | 2. 29 |
| Household appliance mechanics | -21 | - 22 | - 23 | . 14 | . 14 | - 15 | .17 | .17 | - 18 |
| office machine repairers | -26 | - 20 | - 26 | . 77 | . 57 | .65 | 1.03 | . 75 | . 82 |
| Radio, television repairers | . 24 | - 20 | - 17 | - 14 | - 11 | - 10 | -19 | -15 | . 13 |
| Raslroad, car shop repairers | . 00 | -00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Other mechanics and apprentices | . 38 | . 41 | . 43 | . 64 | . 68 | . 57 | .82 | . 86 | . 68 |
| Printing trade crafts workers | . 07 | . 07 | . 06 | - 16 | - 16 | . 15 | . 11 | - 13 | - 15 |
| Compositors and typesetters | . 03 | . 03 | . 02 | . 08 | . 07 | . 07 | . 06 | . 06 | . 08 |
| Engravers exc photoengravers | .01 | . 02 | . 01 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| press,plate printers, ${ }^{\text {aprentices }}$ | . 02 | . 02 | . 02 | . 06 | . 06 | . 07 | . 05 | . 05 | . 06 |
| , Transport. public util craft ykrs | . 05 | . 05 | . 04 | . 19 | - 18 | - 16 | .27 | . 24 | . 21 |
| Telephone installers,repairers | . 05 | . 04 | . 03 | . 18 | - 17 | . 15 | . 27 | .23 | .21 |

Table 1. Percent distribution of industry employment by occupation, 1970 , 1978 and projected 1990

|  | yholesale and retail trade |  |  | Hholesale trade |  |  | Wholesale <br> exc misc whsle trade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.83 | 1. 92 | 1.89 | 1.50 | 1.50 | 1.58 | 1.13 | 1. 16 | 1. 23 |
| Bakers | -35 | . 34 | . 26 | - 20 | - 19 | . 21 | - 30 | . 27 | . 30 |
| Cabinetmakers | -13 | - 11 | . 08 | -04 | - 04 | . 03 | -02 | . 03 | . 03 |
| Carpet installers | - 14 | - 15 | . 15 | . 05 | - 06 | . 07 | . 00 | . 00 | . 00 |
| crane.derrick,hoist operator | . 07 | -05 | . 05 | - 25 | - 21 | - 20 | . 04 | . 03 | . 04 |
| Decorators, window dressers | .37 | - 52 | . 60 | -08 | - 12 | . 14 | . 02 | . 03 | . 04 |
| Dental laboratory technicians | . 00 | . 00 | . 00 | . 01. | .01 | . 01 | . 02 | . 01 | . 02 |
| Furniture and wood finishers | . 03 | . 03 | . 03 | .01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Glaziers | . 08 | . 09 | . 09 | - 10 | - 10 | . 13 | . 02 | . 02 | .03 |
| Inspectors, lcg and lumber | . 01 | . 01 | . 00 | . 03 | . 02 | .01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 06 | . 07 | . 05 | . 20 | . 23 | . 19 | . 24 | . 27 | . 24 |
| Jewelers and watchmakers | . 14 | - 13 | . 14 | - 10 | -09 | . 12 | . 02 | . 03 | . 05 |
| Millers, grain. flour, feed | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Opticians,lens grinder, folisher | .09 | . 12 | . 12 | . 15 | -19 | .21 | . 22 | . 28 | . 30 |
| Shoe repairers | .01 | . 00 | . 01 | .01 | -00 | . 00 | . 01 | . 00 | . 00 |
| Sign painters and letterers | . 01 | . 01 | . 02 | -01 | . 01 | - 00 | . 01 | . 01 | - 01 |
| Stationary engineers | . 05 | . 04 | . 04 | -13 | - 12 | . 13 | .10 | . 09 | . 10 |
| Stone cutters, stone carvers | - 01 | . 01 | . 00 | . 01 | . 01 | . 00 | -00 | . 00 | . 00 |
| Tailors | . 12 | . 11 | . 09 | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Upholsterers | . 09 | . 05 | . 06 | .03 | . 02 | . 03 | . 02 | . 01 | . 02 |
| Other crafts workers | . 05 | . 06 | . 08 | . 06 | . 06 | . 07 | . 06 | . 06 | . 05 |
| Operatives | 11.45 | 9.92 | 8.65 | 17.32 | 16.45 | 17.42 | 15.83 | 14.95 | 16.32 |
| Operatives, except transport | 7.43 | 6. 24 | 5.13 | 8.05 | 7.91 | 8.17 | 8.18 | 7.84 | 8.01 |
| Semiskilled metalworking | . 20 | - 20 | . 21 | . 72 | . 73 | - 81 | . 63 | . 64 | .73 |
| Drill press oferatives | . 01 | . 01 | . 00 | -03 | . 02 | . 02 | . 04 | . 03 | . 02 |
| Furnace tendrs, smeltrs, pourers | . 00 | . 00 | . 00 | . 01 | .01 | .01 | . 00 | . 00 | .00 |
| Grinding machine operatives | . 01 | - 01 | . 01 | . 02 | . 02 | . 02 | .03 | . 02 | . 02 |
| Lathe,milling mach operatives | . 02 | . 01 | . 01 | .06 | -05 | . 05 | -07 | . 05 | . 05 |
| Metal platers | . 00 | - 00 | . 00 | -02 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Other precision mach operators | . 01 | . 01 | .01 | . 02 | . 02 | . 02 | . 03 | . 02 | . 02 |
| Punchestamping press operatives | . 01 | . 01 | . 01 | . 04 | -04 | . 04 | . 04 | . 03 | . 03 |
| Solderers | . 01 | . 01 | .00 | . 02 | . 02 | . 02 | . 03 | .03 | . 03 |
| Welders and flamecutters | . 14 | . 15 | . 16 | -49 | - 54 | . 62 | . 40 | . 44 | . 55 |
| Semiskilled packing, inspecting | 1.16 | 1.09 | 1.06 | 2.38 | 2.21 | 2.44 | 2.88 | 2.67 | 3.09 |
| Meat wrappers. retail trade | . 28 | . 28 | . 28 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Packer,wrapper, exc meat, prodce | . 74 | . 67 | -64 | 1.82 | 1.65 | 1.81 | 2.06 | 1.89 | 2.22 |
| Produce grdr, fkrs,exc fact,farm | . 14 | . 14 | . 14 | . 57 | . 56 | . 63 | . 82 | . 78 | . 87 |
| Other operatives, exc transport | 6.06 | 4.95 | 3.86 | 4.94 | 4.98 | 4.92 | 4.66 | 4.54 | 4.19 |
| Asbestos, insulation yorkers | . 01 | . 01 | . 01 | . 02 | . 03 | . 03 | . 02 | . 03 | . 02 |
| Assemblers | . 13 | - 14 | . 19 | . 45 | . 52 | . 73 | . 52 | - 59 | . 82 |
| Bottling, canning operatives | .02 | . 02 | . 02 | . 06 | . 07 | . 08 | . 07 | - 07 | . 07 |
| Clothing ironers and pressers | . 02 | . 02 | . 01 | . 02 | . 01 | . 01 | . 03 | . 02 | .01 |
| Cutting operatives, other | - 13 | - 12 | . 13 | . 39 | - 38 | . 45 | - 15 | - 14 | . 14 |
| Dressmakers, exc factory | . 38 | . 39 | -23 | . 18 | .17 | . 10 | . 19 | . 16 | . 07 |
| Drillers, earth | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .01 | . 01 | .01 |
| Dyers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Filer, polisher, sander, buffer | . 03 | . 03 | . 03 | -06 | . 06 | . 07 | . 04 | . 04 | . 03 |
| Garage wrkregas station atten | 2.88 | 1.88 | 1.29 | . 14 | . 08 | . 04 | -13 | .08 | . 03 |
| Laundry,dry cleang oprs,other | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Meat cutters, cutchers, exc mfy | 1.19 | . 96 | . 72 | . 62 | . 53 | . 41 | . 92 | .76 | . 58 |
| Milleners | . 01 | -01 | . 01 | . 00 | . 00 | - 00 | . 00 | . 00 | -00 |
| Mixing operatives | . 04 | . 05 | . 05 | . 10 | . 11 | .10 | . 12 | . 12 | . 08 |
| dilers, greasers,exc automobiles | . 01 | . 01 | . 01 | . 03 | - 03 | . 03 | . 02 | . 03 | . 03 |
| Painters, mfg articles | . 09 | - 08 | . 08 | . 05 | -05 | . 06 | . 05 | . 05 | . 06 |
| Photographic frocess workers | . 02 | . 02 | . 02 | . 04 | . 04 | . 04 | . 02 | .03 | . 03 |
| Sawyers | . 05 | . 04 | . 03 | - 12 | . 09 | . 06 | . 01 | .01 | . 02 |
| Sewers and stitchers | .07 | . 06 | . 08 | . 08 | . 07 | . 10 | . 09 | . 07 | . 08 |
| Furnace tendr, stokr,exc metal | . 02 | . 01 | . 01 | . 05 | . 03 | . 03 | . 03 | . 02 | . 03 |
| Winding operatives, other | . 01 | . 01 | . 02 | . 05 | . 05 | . 07 | . 06 | . 06 | . 08 |
| Miscellaneous machine operatves | . 42 | . 47 | . 42 | 1.10 | 1.14 | 1.09 | 1.01 | 1.05 | . 94 |
| Other operatives, exc transport | .53 | .61 | . 53 | 1.32 | 1.48 | 1.41 | 1.15 | 1.21 | 1.04 |
| Transport equipment operatives | 4.02 | 3.68 | 3.52 | 9.27 | 8.54 | 9.25 | 7.65 | 7.11 | 8.31 |
| Bus drivers | . 01 | . 01 | . 00 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 |
| Delivery and route workers | 1.92 | 1.68 | 1.56 | 3.97 | 3.34 | 3.17 | 3.69 | 3.02 | 2.83 |
| Fork lift, tow motor operatives | . 24 | . 28 | . 31 | .71 | . 82 | . 96 | . 65 | . 73 | . 82 |
| Parking attendants | . 02 | . 03 | . 03 | .01 | .01 | . 00 | . 01 | . 01 | .01 |
| Taxicab drivers, chauffeurs | . 04 | . 04 | . 03 | . 08 | . 06 | . 03 | . 07 | . 06 | . 03 |
| Truck drivers | 1.79 | 1.65 | 1.60 | 4.48 | 4.29 | 5.07 | 3.22 | 3.26 | 4.62 |
| Service workers | 14.41 | 17.13 | 17.72 | 1.31 | 1.20 | 1.05 | 1.36 | 1.24 | 1. 11 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Wholesale and retail trade |  |  | Wholesale trade |  |  | $\begin{aligned} & \text { Wholesale } \\ & \text { exc misc } \\ & \text { whsle trade } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cleaning service workers | 1.04 | 1. 12 | . 87 | . 84 | . 78 | . 65 | . 88 | . 82 | . 67 |
| Lodging gtrs cleaners, exc privt | . 03 | . 03 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Bldg interior cleaners, other | . 36 | . 41 | .31 | . 20 | - 19 | . 16 | . 21 | . 19 | - 14 |
| Janitors and sextons | . 66 | . 69 | . 55 | . 64 | . 59 | . 49 | . 67 | -62 | . 53 |
| Food service workers | 12.82 | 15. 42 | 16.31 | . 18 | . 15 | . 16 | . 24 | . 19 | . 21 |
| Bartenders | . 94 | 1. 18 | 1.26 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Waiters' assistants | . 49 | - 81 | 1.01 | . 00 | . 00 | . 01 | . 00 | -00 | . 01 |
| Cooks, exc private housenolds | 3.01 | 4.09 | 4.72 | . 07 | . 06 | . 06 | . 08 | . 07 | . 08 |
| Dishwashers | . 78 | . 81 | . 94 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Food counter, fountain workers | 1.12 | 1.61 | 1.85 | . 02 | . 02 | . 03 | . 03 | .03 | . 04 |
| waiters | 5.63 | 5.93 | 5.58 | . 02 | . 02 | . 02 | .03 | . 02 | . 02 |
| Other food serv wkrs,exc privt | . 84 | 1.00 | . 97 | . 06 | . 04 | . 04 | . 08 | . 06 | . 05 |
| Health service workers | .01 | . 01 | .01 | . 01 | . 01 | .01 | .01 | . 01 | . 01 |
| Rersonal service workers | .36 | . 40 | . 35 | - 11 | - 11 | . 09 | . 09 | . 08 | . 06 |
| Attendants, personal serv,other | . 05 | . 05 | . 05 | . 02 | - 02 | . 02 | . 03 | . 02 | . 02 |
| Barbers | .01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Child care workers, exc private | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Elevator operators | . 03 | . 03 | .01 | . 04 | . 04 | . 02 | - 04 | . 04 | .03 |
| Hairdressers and cosmetologists | . 15 | . 18 | .17 | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | -11 | - 12 | . 11 | .01 | . 01 | .01 | .01 | . 01 | . 01 |
| Protective service workers | .18 | . 17 | .17 | . 17 | - 16 | . 15 | -15 | - 16 | . 17 |
| Guards | . 16 | . 16 | . 16 | .16 | . 16 | . 14 | . 15 | . 15 | . 16 |
| Police and detectives | . 02 | - 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Laborers, except farm | 5.75 | 5.81 | 5.33 | 7.35 | 6.97 | 6.23 | 6.44 | 6.11 | 5.13 |
| Animal caretakers, exc farm | . 04 | . 05 | . 03 | . 12 | . 15 | . 06 | . 17 | .21 | . 07 |
| Carpenter helfers | .03 | . 02 | . 03 | . 03 | . 03 | . 03 | . 02 | . 02 | . 03 |
| Constr labrexc carpenter helpr | . 08 | . 07 | . 05 | - 11 | . 09 | . 09 | . 06 | . 05 | . 04 |
| Fishers, hunters,trappers | . 01 | - 00 | . 00 | .01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Preight and material handlers | . 85 | . 83 | . 79 | 2.20 | 2. 11 | 2.10 | 1.91 | 1.77 | 1. 54 |
| Gardenrs, groundkeepers, exc tarm | . 05 | . 06 | . 07 | -07 | . 08 | . 09 | . 03 | . 03 | . 03 |
| Longshore workers, stevedores | . 00 | -00 | .00 | . 01 | . 01 | . 01 | . 01 | . 03 | . 01 |
| Timbercutting, logging workers | . 01 | . 01 | .01 | . 02 | . 02 | . 03 | . 00 | . 00 | . 01 |
| Stock handlers | 3.55 | 3.73 | 3.53 | 2.08 | 2.09 | 1.72 | 2.29 | 2.25 | 1.73 |
| Vehicle washers,equip cleaners | . 24 | - 25 | . 19 | . 14 | . 13 | . 09 | -17 | -16 | - 10 |
| Warehouse labcrers, otner | . 49 | . 42 | . 35 | 1.45 | 1.29 | 1.19 | 1.38 | 1.29 | 1.38 |
| Other laborers | . 39 | . 34 | . 28 | 1. 12 | . 96 | . 82 | .37 | .30 | . 20 |

Motor
vehicles
and equip
$1970 \quad 1978 \quad 1990$

> Drugs, chemcls and allied prod
$1970 \quad 1978 \quad 1990$

Dry goods and apparel
$1970 \quad 1978 \quad 1990$

Total all occupations

$100.00 \quad 100.00 \quad 100.00$

| 2.46 | 2.65 | 2.18 |
| :---: | :---: | :---: |
| . 39 | . 34 | .30 |
| . 00 | . 00 | . 00 |
| . 01 | .01 | .01 |
| . 01 | . 01 | .01 |
| . 09 | . 09 | . 07 |
| . 10 | . 09 | . 09 |
| . 00 | .00 | .00 |
| . 00 | . 00 | . 00 |
| . 12 | . 08 | . 05 |
| .08 | . 07 | . 07 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| . 03 | . 02 | . 02 |
| . 03 | . 02 | . 02 |
| . 12 | . 12 | . 12 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 04 | . 04 | . 04 |
| .01 | . 01 | . 01 |
| . 02 | . 03 | . 03 |
| . 04 | . 04 | . 04 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | -00 |
| . 00 | . 00 | . 00 |
| . 06 | .07 | . 09 |
| .01 | . 02 | . 03 |
| . 01 | .01 | . 01 |
| . 01 | . 01 | . 03 |
| . 03 | . 04 | . 03 |
| . 22 | . 27 | . 24 |
| - 16 | . 19 | . 18 |
| . 04 | . 06 | . 05 |
| .01 | . 02 | . 01 |
| . 12 | . 17 | . 12 |
| . 12 | . 17 | . 12 |
| . 04 | . 04 | . 01 |
| . 04 | . 04 | . 01 |
| . 21 | . 24 | - 17 |
| . 03 | . 03 | . 01 |
| .01 | . 01 | . 01 |
| . 01 | . 01 | . 01 |
| .02 | . 02 | . 02 |
| .00 | . 00 | -00 |
| . 00 | . 00 | . 00 |
| .11 | . 13 | .10 |
| .03 | . 03 | . 01 |

$100.00 \quad 100.00 \quad 100.00$

| 6.20 | 6.51 | 5.28 |
| :---: | :---: | :---: |
| . 99 | .87 | . 80 |
| . 32 | . 31 | . 28 |
| . 04 | . 03 | . 03 |
| . 08 | . 07 | . 07 |
| . 06 | . 05 | . 03 |
| . 13 | . 13 | . 17 |
| . 02 | . 01 | . 01 |
| . 01 | .01 | . 01 |
| -19 | - 14 | . 14 |
| .14 | . 11 | . 08 |
| . 75 | . 76 | . 68 |
| . 01 | . 02 | . 03 |
| . 08 | . 12 | . 08 |
| . 64 | . 62 | . 54 |
| . 02 | . 02 | . 02 |
| . 01 | . 01 | .01 |
| . 00 | . 00 | . 00 |
| . 93 | . 89 | . 75 |
| . 02 | . 02 | . 02 |
| - 32 | - 30 | . 21 |
| - 12 | . 11 | . 14 |
| . 03 | . 03 | .03 |
| . 03 | .03 | . 02 |
| .41 | . 40 | -33 |
| .21 | . 28 | . 33 |
| .17 | . 18 | . 27 |
| .01 | . 01 | . 02 |
| . 02 | - 01 | . 01 |
| . 01 | .07 | . 04 |
| . 05 | . 07 | . 05 |
| . 03 | . 03 | . 03 |
| . 02 | .03 | . 02 |
| . 10 | . 12 | . 09 |
| . 02 | . 03 | . 03 |
| . 01 | . 01 | .01 |
| . 00 | . 00 | . 00 |
| . 07 | . 08 | . 05 |
| . 39 | . 46 | . 38 |
| . 29 | . 31 | . 23 |
| - 10 | . 14 | . 14 |
| . 00 | . 00 | . 00 |
| . 31 | -43 | . 30 |
| . 31 | . 43 | . 30 |
| . 00 | .00 | . 00 |
| .00 | .00 | .00 |
| . 51 | . 59 | . 50 |
| . 03 | . 03 | . 04 |
| . 00 | .00 | .00 |
| . 12 | . 14 | . 12 |
| . 07 | . 08 | . 08 |
| . 07 | . 10 | . 08 |
| . 01 | . 01 | .01 |
| . 20 | .23 | . 16 |
| . 01 | .01 | . 01 |

$100.00 \quad 100.00 \quad 100.00$

| 2.92 | 3.32 | 2.89 |
| :---: | :---: | :---: |
| . 10 | . 09 | . 07 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| . 04 | . 04 | . 03 |
| . 02 | .01 | .01 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | .01 |
| .01 | .01 | .01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| .01 | . 01 | . 01 |
| . 01 | .01 | .01 |
| . 06 | . 06 | . 06 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| .00 | .01 | .01 |
| . 02 | . 02 | . 02 |
| . 02 | . 03 | . 02 |
| . 02 | .01 | .01 |
| .01 | . 01 | . 01 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 01 | .01 | .01 |
| . 00 | .00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | .00 | .00 |
| . 01 | . 01 | . 03 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| . 01 | .01 | .03 |
| . 29 | -37 | - 32 |
| . 19 | . 22 | . 22 |
| . 05 | . 08 | . 06 |
| . 05 | . 08 | . 05 |
| . 08 | - 12 | . 10 |
| . 08 | . 12 | . 10 |
| . 01 | .01 | . 01 |
| . 01 | .01 | .01 |
| 1.37 | 1. 57 | 1.32 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| 1.10 | 1.24 | 1.07 |
| . 04 | . 04 | . 04 |
| . 14 | . 17 | . 11 |
| . 00 | .00 | .00 |
| . 10 | . 12 | - 10 |
| .00 | . 00 | . 00 |


|  | Motor vehicles and equip |  |  | Drugs. chemcls and allied prod |  |  | Dry goods and apparel |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and tecnnical | 1.24 | 1. 36 | 1.10 | 1.97 | 2.04 | 1.40 | . 99 | 1.08 | . 95 |
| Accountants | . 85 | . 97 | . 89 | 1.17 | 1.26 | . 98 | -74 | . 83 | . 79 |
| Architects | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Home management advisors | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Lawyers | . 01 | . 01 | . 01 | . 08 | - 12 | . 06 | . 01 | .01 | . 01 |
| Librarians | -00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 01 | . 01 | . 01 |
| operations and systems research | . 07 | . 08 | .03 | . 11 | - 13 | -08 | . 01 | . 02 | . 02 |
| Personnel, labcr relations wkrs | . 28 | . 28 | . 15 | . 37 | . 37 | . 23 | . 18 | -17 | . 10 |
| Other research workers | . 03 | - 02 | . 01 | .19 | . 13 | . 03 | . 04 | . 03 | . 02 |
| Managers, officials, proprietors | 20.73 | 22. 11 | 21.16 | 16.49 | 17.53 | 17.39 | 18.86 | 19.75 | 17.70 |
| Buyers, sales, loan managers | 4.68 | 4.33 | 4.11 | 5.61 | 5.30 | 5.37 | 5.68 | 5.11 | 4.79 |
| Bank, financial managers | . 17 | . 16 | .11 | . 22 | .21 | . 18 | . 28 | . 26 | - 19 |
| credit managers | . 35 | . 20 | .17 | . 49 | . 28 | . 24 | . 36 | . 18 | . 11 |
| Buyers, wholesale, retail trade | 1.47 | 1.25 | 1.15 | 1.11 | . 97 | . 88 | 2.77 | 2.36 | 1.97 |
| Sales manager, exc retail trade | 2.70 | 2.72 | 2.68 | 3.80 | 3.84 | 4.06 | 2.27 | 2.31 | 2.53 |
| Other managers, officials, proprts | 16.04 | 17.78 | 17.05 | 10.88 | 12.23 | 12.02 | 13.18 | 14.64 | 12.91 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| Office managers, other | 1.12 | 1.10 | 1.04 | 1.13 | 1.14 | 1. 19 | 1.11 | 1.10 | 1.13 |
| officers, pilots, pursers,ship | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,managers | . 02 | . 02 | . 02 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| other managers, administrators | 14.91 | 16.66 | 16.00 | 9.70 | 11.06 | 10.81 | 12.06 | 13.53 | 11.77 |
| Sales workers | 19.22 | 20.08 | 21.64 | 21.16 | 22.42 | 24.82 | 22.32 | 23.56 | 25.84 |
| Advertising agents, sales worker | . 02 | . 02 | . 03 | . 03 | . 04 | . 05 | . 02 | . 03 | . 02 |
| auctioneers | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales workers | 19.17 | 20.02 | 21.57 | 21.13 | 22. 38 | 24.77 | 22.30 | 23.54 | 25.82 |
| Clerical workers | 25.32 | 23.91 | 23.19 | 30.06 | 28.02 | 26.59 | 31.64 | 29.55 | 29.96 |
| Stenographrs,typists, secretaries | 4.97 | 4. 65 | 4.69 | 8.95 | 8.43 | 9.03 | 7.91 | 7.40 | 7.86 |
| Legal secretaries | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 02 | . 02 | . 02 |
| Medical secretaries | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other secretaries | 3.83 | 3.69 | 3.81 | 6.77 | 6.66 | 7.46 | 5.96 | 5.80 | 6.34 |
| Stenographers | . 13 | . 09 | . 07 | -12 | . 05 | . 00 | -11 | -.06 | -02 |
| Typists | 1.00 | . 86 | . 81 | 2.03 | 1.70 | 1.52 | 1.81 | 1.53 | 1.49 |
| Office machine operators | 1.44 | 1. 45 | .91 | 2.21 | 2.09 | 1. 17 | 1.73 | 1.49 | . 91 |
| Bookkeeping and billing | . 17 | . 08 | . 05 | . 22 | . 09 | . 03 | . 40 | . 17 | . 07 |
| Calculating | . 09 | . 06 | . 04 | . 10 | . 05 | . 02 | . 15 | . 08 | . 03 |
| Computer and keripheral equip | . 32 | - 65 | . 44 | . 47 | -97 | . 74 | . 25 | . 53 | - 42 |
| Duplicating | . 01 | . 01 | . 01 | . 03 | . 02 | . 00 | . 02 | . 01 | . 01 |
| Keypunch | . 75 | . 58 | . 34 | 1.29 | . 90 | . 37 | . 76 | . 56 | . 29 |
| Tabulating | . 03 | . 01 | . 00 | . 04 | . 01 | . 00 | . 01 | .00 | . 00 |
| Other office machine operators | . 07 | . 06 | .03 | . 07 | . 06 | . 01 | - 14 | . 13 | - 10 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Motor vehicles and equip |  |  | Drugs, chencls and allied prod |  |  | Dry goods and apparel |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 18.91 | 17.81 | 17.59 | 18.90 | 17.49 | 16.39 | 22.01 | 20.67 | 21.19 |
| Billing clerks | . 57 | . 56 | . 55 | . 73 | . 72 | . 75 | .95 | . 94 | 1.04 |
| Bookkeepers | 5.62 | 5. 20 | 4.93 | 3.72 | 3.38 | 2.80 | 5.87 | 5.58 | 5.61 |
| Cashiers | . 20 | . 22 | .28 | . 36 | . 38 | . 48 | . 28 | . 28 | . 23 |
| Clerical supervisors, otner | . 25 | . 28 | . 27 | . 32 | - 34 | - 30 | . 32 | . 35 | . 33 |
| collectors, bill and account | . 03 | . 02 | . 02 | . 01 | . 01 | . 00 | . 03 | . 02 | . 02 |
| Counter clerks.exc food | 1.14 | 1.13 | 1.11 | 1.97 | 1.94 | 1.94 | 1.17 | 1.15 | 1. 18 |
| Dispatchers,starters, vehicle | . 12 | - 12 | . 12 | . 09 | - 10 | . 11 | . 05 | . 05 | . 06 |
| Estinators, investigators, other | . 49 | . 54 | . 36 | . 37 | - 39 | . 23 | . 32 | . 34 | . 22 |
| Expediters, prcduction controlrs | . 34 | - 34 | . 36 | - 22 | - 20 | - 14 | . 39 | . 37 | . 33 |
| File clerks | . 44 | . 37 | .36 | . 56 | . 46 | . 46 | . 76 | . 63 | . 65 |
| Insurance adjusters, examiners | .01 | . 02 | . 02 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 03 | . 02 | - 00 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | . 17 | - 17 | -15 | . 21 | - 19 | . 13 | . 24 | . 24 | . 24 |
| messengers and office helpers | . 05 | . 04 | . 04 | . 04 | . 03 | .01 | . 06 | . 05 | . 02 |
| Payroll, timekeeping clerks | . 15 | . 16 | - 15 | - 18 | - 18 | . 14 | .24 | . 26 | . 24 |
| Receptionists | . 29 | - 26 | . 20 | -59 | . 52 | . 41 | . 73 | . 65 | . 54 |
| Shipping and receiving clerks | 2.91 | 2.69 | 3.03 | 3.01 | 2.69 | 2.84 | 4.55 | 4.17 | 4.90 |
| Statistical clerks | . 43 | . 47 | . 49 | . 44 | . 47 | . 41 | . 76 | . 82 | . 79 |
| Stock clerks and store keepers | 3.38 | 2. 88 | 2.44 | 2.09 | 1.67 | 1. 14 | 2.43 | 2.00 | 1.59 |
| Telephone operators | . 21 | . 14 | . 09 | . 27 | .17 | .11 | .34 | . 24 | . 24 |
| Weighers | . 01 | . 01 | . 01 | . 08 | . 07 | . 03 | . 03 | . 03 | . 03 |
| Misc clerical workers | 2.12 | 2. 20 | 2.64 | 3.60 | 3.57 | 3.96 | 2.49 | 2.50 | 2.90 |
| Crafts and kindred yorkers | 14.04 | 13.72 | 14.02 | 4.68 | 4.92 | 5.43 | 4.39 | 4.56 | 5. 14 |
| Construction crafts workers | . 53 | . 51 | . 52 | .75 | . 68 | . 60 | . 24 | . 23 | . 27 |
| Carpenters and apprentices | . 11 | . 12 | -13 | . 13 | . 13 | - 13 | . 07 | . 07 | .09 |
| Brick,stonemasons, apprentices | . 01 | .01 | - 00 | . 02 | . 01 | . 01 | . 00 | . 00 | .00 |
| gulldozer oferators | . 01 | . 01 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | .01 |
| Electricians and apprentices | . 12 | - 12 | . 14 | . 15 | . 15 | . 14 | . 07 | .07 | - 10 |
| Excavating, grading mach operatr | . 00 | . 00 | -00 | -03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Floor layers, exc tile setters | . 01 | . 00 | .01 | . 00 | . 00 | .00 | .02 | .01 | .00 |
| painters and apprentices | . 23 | . 21 | .16 | . 26 | . 23 | . 16 | .06 | . 05 | . 03 |
| Plumbers, pipefitters, aprentices | . 05 | . 05 | . 06 | . 13 | . 12 | . 14 | . 01 | . 01 | . 02 |
| Structural metal craft workers | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | -00 | . 00 | . 00 |
| Tile setters | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | .01 |
| Blue collar worker supervisors | 2.17 | 2.41 | 2.83 | 2.33 | 2.52 | 2.87 | 2.08 | 2.27 | 2.68 |
| Metalworkg craft wrkrs,exc mech | 1.28 | 1. 24 | 1.10 | . 23 | - 24 | - 28 | . 00 | . 00 | . 00 |
| Machinists and apprentices | 1.15 | 1. 10 | . 91 | . 16 | . 17 | . 21 | .00 | . 00 | .00 |
| Millwrights | . 03 | . 03 | . 05 | . 06 | . 06 | . 07 | .00 | . 00 | . 00 |
| Pattern and moldmakers | .01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Tool and diemakers, apprentices | . 05 | . 05 | . 07 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Mechanics, repairers,installers | 9.48 | 8. 96 | 8.93 | .77 | . 82 | - 90 | . 36 | . 39 | . 41 |
| Air cond, heating, refrig mech | . 06 | . 07 | . 06 | .01 | . 01 | .01 | . 02 | . 03 | . 04 |
| Aircraft mechanics | . 02 | . 03 | . 08 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Auto accessories installers | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto body repairers | -45 | . 33 | .23 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | 7.01 | 6.31 | 5.93 | . 14 | - 12 | . 12 | . 07 | . 06 | . 05 |
| Farm implement mechanics | . 04 | . 04 | . 05 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Heavy equip mech. incl diesel | 1.44 | 1. 73 | 2. 20 | . 38 | - 45 | . 57 | .17 | . 20 | . 23 |
| Household afpliance mechanics | . 03 | . 03 | . 04 | . 02 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Loom fixers | . 00 | . 00 | -00 | . 00 | -00 | . 00 | . 02 | . 02 | . 04 |
| Office machine repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 00 | - 00 | . 00 |
| Radio, television repairers | . 03 | . 03 | -03 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hailroad, car shop repairers | . 02 | . 02 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 35 | . 34 | . 26 | . 18 | . 18 | - 14 | . 06 | . 05 | . 03 |
| Printing trade crafts workers | . 06 | . 06 | . 04 | . 15 | -18 | . 22 | . 14 | .18 | . 32 |
| Compositors and typesetters | . 03 | . 03 | . 02 | . 07 | . 08 | $\bigcirc 10$ | . 07 | . 09 | . 18 |
| Press, plate printers,aprentices | . 02 | .03 | . 02 | .08 | .09 | . 12 | .07 | .09 | . 14 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Motor vehicles and equip |  |  | Drugs. chemels and allied prod |  |  | Dry goods and apparel |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | $1990{ }^{\circ}$ | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | - 51 | . 54 | . 60 | . 45 | . 48 | . 56 | 1.57 | 1.49 | 1.46 |
| Cabinetmakers | . 02 | . 02 | . 02 | . 02 | . 02 | . 04 | . 01 | . 02 | . 02 |
| Crane,derrick,hoist operator | .01 | .01 | . 01 | . 04 | . 04 | . 07 | . 01 | .01 | .03 |
| Decorators, window dressers | - 00 | - 00 | . 00 | . 04 | . 07 | - 12 | . 09 | - 14 | . 14 |
| Furriers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 03 | - 02 | . 02 |
| Glaziers | - 10 | . 12 | . 14 | . 04 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Inspectors, other | . 20 | . 23 | .24 | . 15 | - 17 | . 18 | . 61 | . 68 | . 72 |
| Jewelers and watchmakers | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Motion picture projectionists | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Shoe repairers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 05 | .03 |
| Stationary engineers | . 04 | - 04 | . 05 | . 10 | . 09 | . 07 | . 03 | . 02 | . 03 |
| Tailors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 40 | . 37 | . 31 |
| Upholsterers | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 | . 17 | . 11 | . 08 |
| Other crafts workers | .08 | . 08 | . 08 | . 04 | . 03 | . 03 | . 06 | .06 | . 06 |
| Operatives | 11.50 | 10.83 | 11.51 | 11.44 | 11.12 | 12.86 | 12.97 | 12.55 | 12.41 |
| Operatives,except transport | 5.78 | 5.42 | 5.57 | 5.31 | 5. 18 | 5.38 | 11.34 | 10.93 | 10.25 |
| Semiskilled metalyorking | . 91 | . 88 | 1.01 | . 13 | - 12 | - 11 | . 01 | .01 | . 01 |
| Drill press oferatives | . 03 | . 02 | . 01 | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine oferatives | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Lathe, milling mach operatives | - 10 | . 07 | . 06 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Metal platers | . 04 | . 03 | . 02 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Other precision mach operators | . 06 | . 05 | . 05 | - 01 | -01 | - 01 | . 01 | .01 | . 01 |
| Punch, stamping press operatives | . 04 | .03 | . 02 | . 01 | .01 | .01 | . 00 | .00 | .00 |
| Solderers | . 01 | . 01 | -01 | .00 | .00 | . 00 | . 00 | .00 | . 00 |
| Welders and flamecutters | . 59 | . 64 | .83 | . 10 | . 09 | . 08 | .00 | .00 | .00 |
| Semiskilled packing, inspectiny | 1.28 | 1. 23 | 1.43 | 2.70 | 2.50 | 2.76 | 2.95 | 2.85 | 3.69 |
| Packer,wrapper,exc meat, prodce | 1.28 | 1. 23 | 1.43 | 2.70 | 2.50 | 2.76 | 2.95 | 2.85 | 3.69 |
| Other operatives, exc transport | 3.59 | 3.31 | 3.12 | 2.48 | 2. 55 | 2.52 | 8.38 | 8.07 | 6.55 |
| Assemblers | . 48 | . 56 | . 83 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bottling, canning operatives | . 00 | - 00 | . 00 | . 12 | . 12 | . 11 | . 00 | . 00 | . 00 |
| clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 44 | . 32 | . 19 |
| Cutting operatives, other | . 06 | . 06 | . 07 | - 11 | . 11 | . 08 | . 80 | . 78 | . 77 |
| Dressmakers, Exc factory | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 3.03 | 2.87 | 1.22 |
| Drillers, earth | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 00 | . 00 | . 00 | . 05 | . 05 | . 07 | . 08 | . 09 | -13 |
| Filer, polisher, sander, buffer | . 09 | . 08 | . 06 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Garage urkr,gas station atten | . 86 | - 45 | -13 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Laundry, dry cleang oprs,other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Meat cutters, Lutchers, exc mfg | .01 | - 00 | - 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Milleners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | .03 | .01 |
| Mixing operatives | . 03 | . 03 | . 02 | -40 | . 40 | .37 | . 02 | . 02 | . 02 |
| oilers, greasers,exc automobiles | . 05 | . 05 | . 04 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 16 | - 14 | - 16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photographic frocess workers | . 01 | . 01 | . 01 | . 02 | . 01 | .01 | . 01 | . 02 | . 03 |
| Riveters and fasteners | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Sawyers | . 02 | - 01 | . 01 | . 00 | - 00 | - 00 | . 01 | . 01 | . 01 |
| Severs and stitchers | . 02 | . 02 | .03 | . 00 | . 00 | . 00 | 1.16 | 1.01 | 1.32 |
| Shoemaking machine operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 |
| Furnace tendr,stokr,exc metal | . 02 | . 01 | . 01 | . 06 | . 04 | . 04 | . 03 | - 02 | . 03 |
| Winding operatives, other | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 05 | . 06 | . 07 |
| miscellaneous machine operatves | 1.13 | 1. 18 | 1.12 | 1.01 | 1.06 | 1.08 | 1.10 | 1.13 | 1.09 |
| Other operatives, exc transport | .63 | .67 | . 59 | . 68 | . 74 | . 72 | 1.48 | 1.62 | 1.59 |
| Transport equifment operatives | 5.73 | 5.41 | 5.95 | 6.13 | 5.94 | 7.48 | 1.64 | 1.62 | 2. 16 |
| Bus drivers | . 01 | . 02 | . 02 | . 10 | - 16 | . 06 | . 00 | . 00 | - 00 |
| Delivery and route workers | 2.59 | 2.31 | 2.68 | 2.40 | 2. 15 | 2.64 | .71 | . 65 | . 86 |
| Fork lift, tou motor operatives | . 61 | - 74 | . 89 | . 56 | . 64 | . 72 | . 16 | -19 | . 23 |
| Parking attendants | . 02 | . 02 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | - 00 |
| Taxicab drivers, chauffeurs | . 21 | -21 | - 14 | . 04 | . 03 | .01 | . 17 | . 18 | . 15 |
| Truck drivers | 2.29 | 2. 13 | 2.22 | 3.02 | 2.96 | 4.06 | . 59 | . 60 | .93 |
| Service workers | 1.07 | 1.00 | -92 | 1.13 | 1.03 | . 91 | 1.49 | 1.36 | 1. 25 |
| Cleaning service workers | . 80 | . 74 | .61 | . 83 | . 73 | . 54 | . 74 | . 70 | - 64 |
| Bldg interior cleaners, other | . 20 | - 18 | . 13 | - 20 | . 17 | . 09 | . 34 | - 34 | . 36 |
| Janitors and sextons | . 61 | . 56 | .48 | .63 | . 56 | . 46 | -40 | . 36 | . 29 |

Iable 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Motor vehicles and equip |  |  | Drugs, chemcls and allied prod |  |  | Dry goods and apparel |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 08 | . 07 | . 09 | .13 | - 11 | . 13 | . 05 | . 03 | . 02 |
| Cooks, exc private households | . 03 | . 03 | .03 | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 |
| Dishwashers | . 01 | . 01 | . 01 | . 02 | .01 | .01 | .00 | .00 | . 00 |
| Food counter, fountain workers | .03 | . 03 | . 04 | . 05 | . 05 | . 07 | . 00 | . 00 | . 00 |
| Haiters | .01 | . 01 | .01 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| other food serv wkrs, exc privt | .00 | . 00 | . 00 | . 02 | . 02 | .01 | . 02 | -01 | .01 |
| Health service workers | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 | . 01 | .01 | . 02 |
| Health aides, except nursing | . 00 | - 00 | . 00 | . 02 | .03 | . 04 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies |  | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Personal service workers | . 02 | . 02 | . 02 | . 02 | . 03 | . 04 | . 58 | . 50 | . 43 |
| Attendants, personal serv,other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 46 | . 37 | .31 |
| Elevator operators | . 01 | .01 | . 01 | . 02 | . 03 | . 04 | . 08 | . 07 | . 05 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 04 | . 06 | .07 |
| Protective service workers | -17 | . 17 | .20 | . 14 | - 14 | . 16 | - 12 | - 12 | . 14 |
| Guards | .17 | - 17 | . 20 | .13 | - 13 | . 16 | .12 | . 12 | -13 |
| Laborers, except farm | 5.66 | 5.70 | 5.38 | 8.83 | 8.47 | 6.73 | 5.40 | 5.35 | 4.81 |
| Animal caretakers, exc farm | . 00 | .00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | . 04 | . 03 | . 01 | . 05 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Freight and material handlers | . 96 | . 96 | 1.11 | 1.29 | 1.23 | 1.27 | . 90 | . 86 | . 90 |
| Gardenrs, groundkeepers, exc farm | .01 | . 01 | . 01 | . 03 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Timbercutting, logging workers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | 2.79 | 2. 90 | 2.35 | 5.44 | 5.26 | 3.40 | 3.47 | 3.49 | 2.69 |
| Teamsters | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Vehicle washers, equip cleaners | . 43 | - 39 | . 21 | . 05 | . 05 | . 03 | . 06 | . 05 | . 03 |
| Warehouse labcrers. other | 1.31 | 1.29 | 1.55 | 1.80 | 1.71 | 1.84 | . 80 | . 80 | 1.05 |
| Other laborers | . 09 | . 08 | .09 | . 16 | . 14 | . 12 | . 14 | . 12 | . 11 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Food and related products |  |  | Farm prods-raw materials |  |  | Electrical goods |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| rotal all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.90 | 2.15 | 1.80 | 2.61 | 3.09 | 2.74 | 7.97 | 7.82 | 6.48 |
| Engineers, technical | . 15 | . 14 | .13 | . 14 | . 13 | . 12 | 3.26 | 2.69 | 2.23 |
| Chemical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | .01 |
| Civil | .01 | . 01 | . 02 | . 03 | . 03 | . 03 | . 03 | . 02 | .01 |
| Electrical | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | 1. 10 | .99 | .85 |
| Industrial | . 05 | . 05 | . 04 | . 04 | . 05 | . 04 | . 21 | . 22 | . 20 |
| Mechanical | . 05 | . 04 | . 04 | . 02 | . 02 | . 02 | . 22 | . 19 | . 16 |
| Sales | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | 1.26 | . 90 | . 72 |
| Other engineers | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | -43 | . 35 | . 28 |
| Life and physical scientists | . 07 | . 08 | . 09 | - 11 | - 12 | . 12 | . 06 | . 05 | . 04 |
| Agricultural | . 01 | . 01 | . 03 | . 05 | . 06 | . 05 | . 00 | . 00 | - 00 |
| Biological | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | . 05 | . 05 | . 04 | . 06 | . 06 | . 07 | . 03 | .03 | . 02 |
| Physicists and astronomers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Hathematical sfecialists | . 01 | . 01 | . 01 | . 01 | . 01 | .00 | . 02 | . 02 | .03 |
| Statisticians | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | . 02 | .02 | . 03 |
| Engineering, science technicians | . 19 | . 20 | - 19 | . 25 | - 25 | . 23 | 1.45 | 1.47 | 1.40 |
| Agricultural, biolgcl, exc health | . 10 | . 11 | - 10 | . 07 | . 08 | . 07 | . 02 | . 02 | . 02 |
| Chemical technicians | .01 | .01 | . 02 | . 02 | . 02 | . 02 | . 00 | -00 | . 00 |
| Drafters | . 01 | . 01 | . 01 | . 07 | . 06 | . 06 | . 33 | . 28 | . 28 |
| Electrical and electronic | .00 | . 00 | .00 | -00 | - 00 | .00 | . 86 | . 94 | . 90 |
| Industrial engineering | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | . 04 | . 05 | . 05 |
| Mathematical technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 03 |
| Michanical engineering | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Other engineering, science tech | .05 | . 05 | . 03 | . 08 | . 09 | . 07 | .19 | .17 | . 11 |
| Medical workers.exc technicians | . 01 | . 01 | . 01 | . 05 | . 06 | . 08 | . 04 | . 04 | .03 |
| Registered nurses | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 04 | . 03 |
| veterinarians | . 00 | . 00 | .00 | . 04 | . 04 | . 07 | . 00 | .00 | . 00 |
| Health technolcgists, technicians | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Clinical lab technologists, tech | . 00 | . 00 | . 00 | .01 | . 01 | .01 | .00 | .00 | . 00 |
| Technicians, except health | . 03 | . 03 | . 04 | - 10 | - 12 | . 11 | . 15 | - 17 | . 14 |
| airplane pilots | . 01 | . 02 | . 02 | . 04 | . 06 | .06 | -02 | . 02 | . 02 |
| dadio operators | . 00 | . 00 | . 00 | .01 | . 01 | .01 | . 01 | . 02 | . 01 |
| Tool programers, numerical | . 00 | - 00 | . 00 | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 |
| Other technicians except health | . 01 | . 02 | . 02 | . 05 | . 06 | . 04 | .11 | . 13 | . 09 |
| Computer specialists | . 20 | . 25 | .21 | - 16 | - 20 | . 17 | . 39 | . 51 | . 47 |
| Computer programers | . 15 | . 17 | - 15 | -11 | - 13 | . 11 | . 21 | . 24 | . 24 |
| Computer systems analysts | . 04 | . 06 | . 05 | . 03 | . 05 | . 04 | - 15 | . 22 | . 20 |
| Other computer specialists | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 | .03 | . 04 | . 03 |
| Social scientists | . 05 | . 07 | . 04 | . 08 | . 12 | . 09 | - 19 | .27 | . 20 |
| Economists | . 05 | . 07 | . 04 | . 08 | - 12 | . 09 | - 19 | .27 | . 20 |
| Teachers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 05 | . 05 | . 06 |
| Adult education | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 04 | . 04 | . 01 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 05 |
| Writers,artists, entertainers | . 15 | . 18 | .13 | . 21 | - 26 | . 21 | . 53 | . 58 | . 38 |
| Designers | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | - 14 | . 16 | - 13 |
| Editors and reporters | . 02 | . 02 | . 02 | . 04 | . 04 | . 05 | . 08 | .08 | . 06 |
| Painters and sculptors | . 03 | . 03 | . 01 | . 01 | - 01 | . 01 | . 09 | . 11 | . 08 |
| photographers. | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 |
| Public relations specialists | - 10 | - 12 | . 09 | - 13 | - 17 | - 13 | -15 | - 16 | . 08 |
| Other writers, artists, entertain | .01 | .01 | . 01 | .01 | . 01 | .01 | . 05 | . 06 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Food and related products |  |  | $\begin{aligned} & \text { Farm } \\ & \text { prods-ray } \\ & \text { materials } \end{aligned}$ |  |  | Electrical goods |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 1.04 | 1. 16 | . 95 | 1.51 | 1.80 | 1.61 | 1.84 | 1.97 | 1.51 |
| Accountants | .77 | . 89 | . 80 | 1.24 | 1. 50 | 1.41 | 1.22 | 1.33 | 1.08 |
| Architects | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Farm management advisors | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Home management adviscrs | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Lawyers | . 02 | . 03 | . 02 | . 04 | . 07 | . 03 | . 01 | . 02 | - 01 |
| Librarians | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | .01 | . 03 | . 10 |
| operations and systems researca | . 02 | . 02 | .01 | . 02 | . 03 | . 03 | . 15 | .17 | .09 |
| Personnel, labcr relations wirs | . 19 | - 19 | . 10 | . 13 | - 13 | . 07 | - 37 | - 35 | . 18 |
| Other research workers | .03 | . 02 | .01 | . 05 | . 05 | . 03 | . 07 | . 06 | .03 |
| Managers, officials, proprietors | 14.11 | 14. 92 | 13.28 | 33.78 | 31.09 | 32.54 | 18.28 | 19.23 | 17.77 |
| Buyers, sales, loan managers | 3.72 | 3.45 | 3.48 | 18.65 | 13.68 | 17.40 | 6.03 | 5.66 | 5.82 |
| Bank, financial managers | . 13 | . 13 | . 11 | . 07 | . 08 | . 08 | . 32 | . 31 | . 25 |
| credit managers | .13 | . 07 | . 06 | . 09 | - 06 | . 05 | . 59 | -33 | - 30 |
| Buyers, shippers,farm products | . 46 | . 35 | . 52 | 17.27 | 12.41 | 16.41 | . 00 | . 00 | . 00 |
| Buyers, wholesale, retail trade | 1.28 | 1. 12 | 1.02 | . 57 | . 47 | . 33 | 1.66 | 1.45 | 1.31 |
| Sales manager. exc retail trade | 1.73 | 1.79 | 1.77 | . 65 | . 66 | . 54 | 3.47 | 3.57 | 3.97 |
| Other managers, officials, proprts | 10.39 | 11.46 | 9.79 | 15.13 | 17.42 | 15. 14 | 12.25 | 13.57 | 11.95 |
| Mgrs, superintendents, buildiny | .00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| office managers, other | . 76 | . 73 | . 59 | 1.06 | 1.09 | . 98 | 1.35 | 1.37 | 1.46 |
| officers, pilots, pursers,ship | . 03 | . 03 | . 03 | -00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,manayers | . 03 | . 02 | -01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| other managers, administrators | 9.57 | 10.68 | 9.17 | 14.04 | 16.29 | 14.13 | 10.88 | 12.18 | 10.47 |
| Sales workers | 11.86 | 12.70 | 13.43 | 5.95 | 7.06 | 9.30 | 18.46 | 19.39 | 20.48 |
| Advertising agents,sales worker | . 03 | . 04 | . 04 | . 01 | . 02 | . 03 | -06 | . 07 | . 06 |
| Auctioneers | .00 | . 00 | . 00 | . 81 | .78 | . 79 | . 00 | . 00 | . 00 |
| other sales workers | 11.83 | 12.67 | 13.39 | 5.12 | 6.26 | 8.48 | 18.40 | 19.32 | 20.43 |
| Clerical workers | 15.86 | 15. 13 | 13.70 | 19.80 | 19.56 | 17.36 | 30.27 | 28.70 | 29.22 |
| Stenographrs,typists, secretaries | 3.47 | 3.31 | 3.24 | 4.31 | 4.36 | 4.51 | 9.57 | 8.87 | 8.75 |
| Legal secretaries | . 01 | . 00 | . 00 | . 03 | . 02 | . 01 | -01 | . 01 | . 01 |
| other stcretaries | 2.78 | 2.73 | 2.75 | 3.44 | 3.59 | 3.76 | 7.36 | 7.07 | 7. 21 |
| Stenographers | . 07 | . 05 | . 06 | . 08 | . 06 | . 09 | -18 | . 13 | . 12 |
| Typists | . 61 | . 52 | . 44 | .75 | . 68 | . 65 | 2.01 | 1.66 | 1.41 |
| Office machine operators | 1.20 | 1. 13 | . 58 | . 95 | . 85 | . 45 | 1.53 | 1.48 | 1. 10 |
| Bookkeeping and billing | . 10 | - 04 | -01 | . 10 | . 05 | . 02 | . 23 | . 13 | . 14 |
| Calculating | . 21 | . 12 | .03 | . 26 | . 15 | . 05 | . 14 | . 11 | - 10 |
| Computer and feripheral equip | . 24 | - 50 | - 34 | - 13 | - 31 | . 26 | . 28 | - 58 | . 45 |
| Duplicating | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .03 | . 03 | . 03 |
| Keypunch | . 58 | . 42 | - 16 | . 32 | . 22 | . 07 | . 75 | . 57 | . 34 |
| Tabulating | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 | . 03 | . 01 | . 01 |
| Other office machine operators | . 05 | . 05 | . 03 | - 12 | . 11 | . 05 | . 07 | . 06 | .03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | rood and related products |  |  | Farm prods-raw materials |  |  | Electrical goods |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical yorkers | 11.19 | 10.69 | 9.88 | 14. 55 | 14.36 | 12.40 | 19.17 | 18.34 | 19.37 |
| Billing clerks | . 38 | . 38 | . 39 | . 36 | -39 | . 41 | . 74 | . 73 | . 76 |
| Bookkeepers | 4.02 | 3.75 | 3.17 | 8.44 | 8.23 | 7.00 | 4.52 | 4.24 | 3.93 |
| Cashiers | . 64 | . 71 | . 87 | . 30 | - 33 | . 34 | . 20 | -21 | . 24 |
| Clerical supervisors, other | . 10 | - 12 | . 11 | - 12 | - 13 | . 09 | . 25 | - 26 | - 20 |
| collectors, bill and account | .01 | . 01 | . 02 | -00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Counter clerks,exc food | . 67 | . 67 | -63 | . 13 | - 13 | . 08 | 1.10 | 1.09 | 1. 14 |
| Dispatchers,starters, vehicle | . 15 | - 15 | - 15 | . 05 | . 05 | . 05 | - 12 | - 12 | -14 |
| Enumerators and interviewers | .01 | . 01 | .00 | . 00 | . 00 | - 00 | . 01 | . 01 | . 02 |
| Estimators, investigators,other | . 10 | . 11 | . 06 | . 07 | . 07 | . 03 | - 52 | - 59 | -45 |
| Expediters, frcduction controlrs | . 07 | . 07 | . 05 | . 04 | - 04 | . 03 | - 52 | - 54 | . 60 |
| file clerks | . 17 | - 14 | -12 | - 17 | - 16 | . 18 | . 71 | -58 | - 59 |
| Mail handlers,exc fost ofrice | .09 | . 09 | . 08 | . 12 | . 11 | . 08 | -20 | . 19 | . 18 |
| Messengers and office helpers | . 03 | . 03 | . 03 | . 06 | . 06 | . 03 | -04 | . 04 | . 03 |
| Payroll,timekeeping clerks | . 22 | - 24 | - 22 | - 20 | - 26 | . 33 | -14 | . 15 | -11 |
| Receptionists | . 23 | . 20 | . 14 | . 16 | . 14 | . 08 | . 55 | . 49 | -40 |
| Shipping and receiving clerks | 1.55 | 1. 46 | 1.62 | . 45 | . 47 | . 61 | 3.11 | 2.80 | 3.05 |
| Statistical clerks | . 22 | . 24 | - 20 | . 52 | . 56 | . 40 | . 50 | - 56 | . 62 |
| Stock clerks and store keepers | .75 | . 63 | -45 | - 36 | - 30 | - 17 | 2.35 | 2.11 | 2.33 |
| Telephone oferators | . 15 | . 11 | . 09 | . 16 | . 12 | . 09 | . 47 | - 32 | - 29 |
| heighers | . 27 | . 25 | . 18 | 1.24 | 1.20 | . 85 | . 00 | . 00 | . 00 |
| Misc clerical workers | 1.36 | 1.34 | 1.33 | 1.60 | 1.62 | 1.57 | 3.09 | 3.28 | 4.28 |
| Crafts and kindred workers | 7.31 | 7.73 | 8.10 | 6.25 | 6.95 | 6.73 | 11.60 | 11.38 | 10.85 |
| Construction crafts workers | .41 | . 38 | .36 | . 62 | . 57 | . 42 | 1.55 | 1.44 | 1. 13 |
| Carpenters and apprentices | . 12 | . 12 | . 12 | . 22 | - 22 | - 14 | - 12 | . 11 | . 07 |
| Brick, stonerasons, apprentices | .01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 07 | . 06 | . 06 | . 08 | . 06 | . 02 | . 01 | . 01 | . 02 |
| Electricians and apprentices | . 09 | - 09 | - 10 | . 11 | . 12 | . 12 | 1.19 | 1.10 | . 84 |
| Excavating. grading mach operatr | .01 | . 01 | . 01 | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 07 | . 06 | . 03 | . 06 | . 05 | . 02 | . 11 | - 10 | . 09 |
| Plasterers and apprentices | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Plumbers, pipetitters, aprentices | . 03 | . 03 | . 04 | . 05 | . 05 | -07 | -11 | . 09 | . 09 |
| Structural metal craft workers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Blue collar worker sugervisors | 3.18 | 3. 52 | 3.82 | 2.55 | 2.91 | 3.03 | 2.43 | 2.55 | 2.61 |
| Metalworkg craft wrkrs,exc mecn | . 13 | . 14 | - 16 | . 00 | . 00 | . 01 | . 69 | . 67 | . 75 |
| Machinists and apprentices | . 13 | - 13 | - 15 | . 00 | . 00 | . 00 | . 38 | . 40 | . 47 |
| Millurights | .00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 03 |
| Pattern and meldmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 |
| Sheetmetal yorkers, apprentices | .01 | . 01 | .01 | . 00 | . 00 | . 01 | - 10 | . 08 | . 09 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 15 | .13 | . 13 |
| Mechanics, repairers,installers | 1.80 | 1. 87 | 1.67 | 1.27 | 1.42 | 1.38 | 4.21 | 4. 17 | 4.29 |
| Air cond, heating, refrig mech | . 15 | . 17 | . 12 | . 01 | . 02 | . 03 | . 34 | . 39 | - 30 |
| Aircraft mechanics | .01 | .01 | . 02 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| Auto body repairers | .01 | . 01 | . 01 | - 00 | . 00 | - 00 | -00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 71 | . 65 | . 56 | - 27 | - 26 | - 24 | . 13 | - 12 | - 16 |
| Data processing mach repairers | . 00 | . 00 | .00 | . 00 | - 00 | -00 | -09 | - 12 | . 18 |
| Parm implement mechanics | . 02 | . 02 | . 04 | . 14 | . 14 | - 10 | . 02 | . 02 | . 02 |
| Heavy equip mech, incl diesel | .73 | . 83 | . 79 | . 76 | . 92 | . 97 | . 65 | . 77 | 1.02 |
| Household appliance mechanics | . 01 | . 01 | -02 | . 01 | . 01 | -01 | . 81 | -84 | -90 |
| Office machine repairers | .00 | - 00 | . 00 | . 00 | - 00 | - 00 | . 06 | -04 | . 05 |
| Radio, television repairers | . 01 | . 01 | . 02 | . 01 | . 02 | . 03 | 1.25 | . 96 | . 73 |
| Other mechanics and apprentices | . 16 | . 15 | . 09 | . 06 | - 05 | . 01 | . 84 | -89 | - 92 |
| Printing trade crafts workers | .09 | - 10. | - 11 | . 04 | . 04 | . 04 | - 10 | - 10 | . 06 |
| Compositors and typesetters. | . 05 | . 06 | . 07 | . 03 | . 03 | . 03 | . 03 | . 03 | . 02 |
| Press, plate printers,aprentices | .03 | . 04 | . 04 | .01 | . 01 | .01 | . 06 | . 06 | . 04 |
| Transport, public util craft wixs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.13 | 1.97 | 1.59 |
| Elec pwr line instaler, repairer | .00 | . 00 | . 00 | . 00 | - 00 | . 00 | .01 | . 01 | . 01 |
| Teleptone installers, repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.10 | 1.93 | 1. 56 |
| Telephone line instalr,splicers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970 , 1978 and projected 1990

|  | Food and related products |  |  | Parm prods-ran materials |  |  | Electrical goods |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.71 | 1. 73 | 1.98 | 1.78 | 2.01 | 1.84 | . 49 | . 49 | . 42 |
| Bakers | 1.33 | 1. 31 | 1.56 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | .03 | . 02 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Crane, derrick, hoist operator | . 00 | . 00 | . 00 | . 06 | . 06 | . 09 | . 03 | . 02 | . 02 |
| Decorators, window dressers | . 03 | . 06 | . 08 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Purniture and wood finishers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Furriers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 18 | . 20 | . 18 | 1.37 | 1.58 | 1. 35 | . 30 | . 31 | - 25 |
| Jewelers and watchmakers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | .01 |
| Millers, grain, flour, feed | . 00 | . 00 | . 00 | . 22 | - 25 | - 28 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Stationary engineers | . 12 | . 11 | . 13 | . 07 | . 07 | . 09 | . 06 | . 05 | . 03 |
| Other crafts workers | . 03 | . 03 | . 02 | . 04 | . 04 | . 02 | . 03 | . 03 | . 05 |
| Operatives | 36.18 | 35.27 | 39.37 | 16.63 | 17.50 | 20.69 | 8.46 | 8.62 | 10.39 |
| Operatives, except transport | 17.22 | 17. 14 | 17.43 | 7.61 | 7.81 | 6.35 | 5.72 | 6.03 | 7.36 |
| Semiskilled metalworking | . 05 | . 05 | . 05 | . 01 | . 01 | . 00 | . 80 | . 74 | . 78 |
| Drill press oferatives | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | .03 | . 03 |
| Grinding machine operatives | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Lathe,milling mach operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 05 | . 04 |
| Metal platers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 |
| other precision mach operators | . 00 | . 00 | . 00 | .01 | . 01 | . 00 | . 05 | .04 | . 05 |
| Punch,stamping press operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 11 | . 10 | . 13 |
| Solderers | . 00 | . 00 | .00 | .00 | . 00 | . 00 | .13 | . 13 | . 11 |
| welders and flamecutters | . 05 | . 05 | . 05 | . 00 | . 00 | . 00 | . 34 | . 33 | . 34 |
| Semiskilled packing, inspectiny | 8.46 | 8. 60 | 10.53 | 1.31 | 1.26 | 1.15 | . 88 | - 82 | . 87 |
| Packer,wrapper, exc meat, prodce | 4.80 | 4.78 | 6.03 | . 95 | - 91 | . 84 | . 88 | . 82 | .87 |
| Produce grdi, fkrs, exc fact, farm | 3.66 | 3.82 | 4.50 | .36 | . 36 | . 30 | .00 | . 00 | .00 |
| Other operatives, exc transport | 8.71 | 8.49 | 6.85 | 6.30 | 6.54 | 5.21 | 4.04 | 4.46 | 5.71 |
| Asbestos, insulation workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| Assemblers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.76 | 1.96 | 2.64 |
| Bottling, canning operatives | . 25 | - 26 | - 27 | . 02 | . 02 | .01 | .00 | . 00 | . 00 |
| Cutting operatives, other | . 14 | . 13 | .11 | . 15 | . 15 | . 12 | . 10 | . 10 | . 12 |
| Dressmakers, exc factory | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dyers | . 00 | -00 | . 00 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | . 06 | . 06 | . 07 |
| Garage wrkr,gas station atten | . 03 | . 02 | .01 | . 27 | . 19 | . 14 | -01 | . 01 | . 02 |
| Laundry,dry cleang oprs,other | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | -00 | . 00 | .00 |
| Meat cutters, rutchers, exc mfg | 4.02 | 3.61 | 2.92 | . 54 | . 49 | . 34 | . 02 | .01 | .01 |
| Mixing operatives | . 17 | . 17 | .13 | .91 | . 90 | . 65 | . 00 | . 00 | . 00 |
| oilers, greasers, exc automobiles | . 04 | . 04 | . 06 | . 06 | . 06 | . 09 | .01 | .01 | . 01 |
| Painters, mfg articles | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 07 | . 06 | .09 |
| Photographic frocess workers | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Sewers and stitchers | . 02 | . 02 | . 02 | . 05 | . 04 | . 03 | .00 | . 00 | . 00 |
| Furnace tendr, stokr,exc metal | . 04 | -03 | . 05 | . 00 | - 00 | . 00 | . 04 | . 03 | . 03 |
| Winding operatives, other | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .36 | . 38 | . 47 |
| Miscellaneous machine operatves | 1.49 | 1.53 | 1.26 | 2.60 | 2.76 | 2.20 | . 78 | . 86 | 1.07 |
| Other operatives, exc transport | 2.46 | 2.62 | 1.96 | 1.65 | 1.89 | 1.62 | . 81 | -95 | 1.13 |
| transport equipment operatives | 18.96 | 18. 12 | 21.94 | 9.01 | 9.69 | 14.34 | 2.74 | 2.59 | 3.03 |
| Bus drivers | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Delivery and route workers | 10.35 | 8.76 | 7.76 | 1.51 | 1.41 | 1.55 | 1.15 | . 96 | . 88 |
| Fork lift, tow motor operatives | 1.59 | 1. 85 | 1.92 | .27 | - 32 | . 30 | . 38 | .46 | . 61 |
| Parking attendants | . 01 | . 01 | -01 | .01 | . 02 | . 01 | . 01 | . 01 | .01 |
| Taxicab drivers, chauffeurs | . 05 | . 04 | . 00 | . 06 | . 06 | . 04 | . 05 | . 03 | .01 |
| Truck drivers | 6.94 | 7.45 | 12.24 | 7.16 | 7.87 | 12.44 | 1.16 | 1.13 | 1.53 |
| Service workers | 2.15 | 1.98 | 2.05 | 2.67 | 2.56 | 2.18 | . 90 | . 86 | . 85 |
| Cleaning service workers | 1.19 | 1. 15 | 1.05 | 1.21 | 1.18 | . 90 | .66 | .63 | . 62 |
| Bldg interior cleaners, other | . 27 | . 24 | - 12 | . 35 | . 38 | . 34 | . 15 | . 15 | . 14 |
| Janitors and sextons | . 92 | . 91 | . 94 | . 85 | . 80 | . 56 | . 50 | . 48 | .49 |
| Food service workers | . 66 | . 54 | . 69 | . 54 | . 43 | . 47 | . 08 | . 07 | . 05 |
| Waiters* assistants | . 01 | . 01 | . 05 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Cooks, exc private housenolds | . 23 | - 20 | . 25 | . 23 | . 21 | . 22 | . 03 | . 02 | . 01 |
| Dishwashers | . 05 | . 03 | . 04 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Food counter,fountain workers | . 05 | . 06 | . 11 | . 03 | . 03 | .01 | . 02 | .02 | . 02 |
| Waiters | . 06 | . 04 | . 05 | .21 | . 16 | . 22 | . 01 | . 00 | . 00 |
| Other food serv wkrs,exc privt | . 27 | . 20 | . 19 | .03 | . 02 | .01 | . 02 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Pood and related products |  |  | Farm prods-rau materials |  |  | Blectrical goods |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 06 | . 05 | . 03 | . 52 | . 53 | . 45 | . 03 | .03 | .03 |
| attendants, personal serv,other | . 02 | . 01 | -01 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Child care workers, exc private | . 00 | . 00 | . 00 | .03 | . 02 | . 03 | . 00 | .00 | . 00 |
| Elevator operators | . 02 | . 02 | . 01 | . 47 | . 49 | . 42 | . 01 | . 01 | . 01 |
| Housekeepers, exc private homes | .03 | . 02 | . 01 | - 02 | . 02 | . 01 | . 01 | .01 | . 01 |
| Protective service workers | . 23 | . 24 | . 28 | .41 | . 42 | . 36 | .14 | . 14 | . 15 |
| Guards | . 22 | . 23 | . 28 | .41 | . 42 | . 36 | .13 | .13 | . 14 |
| Laborers, except farm | 10.64 | 10. 12 | 8.28 | 12.32 | 12. 19 | 8.46 | 4.06 | 4.01 | 3.97 |
| Animal caretakers, exc farm | . 04 | . 05 | . 04 | 3.88 | 4.17 | 2.39 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 03 | . 02 | . 04 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | . 04 | . 04 | . 03 | . 06 | . 05 | . 02 | . 09 | . 08 | . 07 |
| Fishers,hunters,trappers | . 09 | . 08 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Freight and material handlers | 4.98 | 4.75 | 4.16 | 5.32 | 5.08 | 3.81 | . 70 | . 68 | - 74 |
| Gardenrs, groundkeepers, exc farm | . 06 | . 07 | . 06 | . 05 | . 06 | . 04 | . 01 | . 01 | . 01 |
| Longshore workers, stevedores | . 05 | . 04 | . 04 | . 07 | . 09 | . 14 | . 00 | . 00 | . 00 |
| Timbercutting, logging workers | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Stock handlers | 2.32 | 2.36 | 1.64 | . 75 | . 78 | . 50 | 1.58 | 1.66 | 1.46 |
| Teamsters | . 02 | . 01 | . 01 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Vehicle washers,equip cleaners | . 26 | . 26 | . 18 | . 12 | . 10 | . 03 | . 03 | .03 | . 03 |
| Warehouse laborers, other | 1.82 | 1.73 | 1.65 | . 68 | . 68 | . 66 | 1.52 | 1.44 | 1.52 |
| other laborers | . 91 | . 70 | - 38 | 1.35 | 1. 16 | - 80 | . 12 | - 11 | . 13 |


|  | Hardware and plumbing |  |  | Nachinery equipment. supplies |  |  | Misc wholesale trade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 3.54 | 3.41 | 3.02 | 7.35 | 7.49 | 5.71 | 3.64 | 3.91 | 3.43 |
| Engineers, technical | 1.63 | 1. 34 | 1.24 | 2.38 | 1.99 | 1.82 | . 55 | -44 | . 39 |
| Aeronautical | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | - 00 | - 00 | . 00 |
| Chemical | . 02 | . 01 | . 01 | . 04 | . 03 | . 03 | .03 | . 03 | . 03 |
| Civil | . 02 | . 01 | . 01 | . 05 | . 04 | . 04 | . 06 | . 04 | . 02 |
| Electrical | . 04 | . 04 | . 03 | . 32 | . 29 | . 24 | . 02 | . 02 | .02 |
| Industrial | . 10 | - 11 | . 09 | - 15 | - 15 | - 11 | . 07 | . 07 | . 08 |
| Mechanical | . 38 | . 35 | . 35 | .33 | . 30 | . 30 | . 07 | . 06 | . 05 |
| Metallurgical | . 00 | . 00 | -00 | . 01 | . 01 | . 01 | .01 | . 01 | . 02 |
| Mining | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | .01 |
| Petroleum | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 03 | . 02 | . 02 |
| Sales | . 93 | . 70 | . 64 | . 99 | .74 | .69 | . 18 | .12 | . 08 |
| Other engineers | . 13 | - 11 | . 12 | . 47 | . 40 | - 38 | . 08 | . 07 | . 07 |
| Life and physical scientists | . 02 | . 02 | . 02 | . 07 | . 07 | . 05 | . 16 | - 18 | . 20 |
| Agricultural | - 00 | -00 | -00 | -00 | . 00 | . 00 | . 04 | . 05 | . 04 |
| Biological | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Chemists | . 02 | . 02 | . 02 | . 06 | . 05 | .03 | . 08 | . 08 | . 09 |
| Geologists | .00 | . 00 | . 00 | .00 | .00 | .00 | . 04 | . 04 | . 06 |
| Hathematical sfecialists | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 | . 02 | . 02 | .03 |
| Mathematicians | . 00 | - 00 | . 00 | . 01 | . 01 | .01 | .00 | . 00 | .01 |
| Statisticians | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 | - 02 | . 02 |
| Engineering, science technicians | -31 | - 28 | .30 | . 88 | . 82 | . 68 | . 35 | . 36 | . 44 |
| Agricultural, biolgcl, exc healta | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Chemical technicians | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 |
| Drafters | - 22 | . 18 | - 19 | -34 | - 28 | - 29 | . 16 | . 13 | . 14 |
| Electrical and electronic | -03 | . 03 | . 04 | . 31 | - 32 | . 24 | . 03 | . 03 | . 04 |
| Industrial engineering | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 | -01 | . 02 | . 04 |
| Mechanical engineering | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 |
| Surveyors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | .01 | . 01 |
| Other engineering, science tech | . 07 | . 07 | . 07 | - 19 | . 17 | . 12 | -10 | .11 | . 15 |
| Medical workers, exc technicians | . 01 | . 01 | . 01 | . 05 | . 05 | . 05 | . 01 | . 01 | . 02 |
| Pharmacists | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 00 | -00 | .01 |
| Reyistered nurses | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 01 | -01 | . 02 |
| Therapists | . 00 | - 00 | . 00 | . 01 | - 02 | . 01 | .00 | .00 | .00 |
| Health technolcgists, technicians | .00 | . 00 | . 00 | .03 | . 04 | . 02 | . 00 | . 00 | . 00 |
| other health technicians | . 00 | . 00 | .00 | . 02 | .03 | .01 | .00 | .00 | . 00 |
| Technicians, except health | . 03 | . 03 | . 02 | . 23 | - 26 | . 19 | . 07 | - 10 | . 11 |
| airplane pilot's | . 02 | . 02 | . 01 | . 05 | . 06 | . 05 | . 02 | . 03 | . 03 |
| Radio oferators | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 |
| Tool proyramers, numerical | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -00 | -00 | . 00 |
| Other technicians except health | .01 | . 01 | . 01 | . 15 | . 17 | .13 | . 04 | . 06 | . 08 |
| Computer specialists | -19 | . 22 | - 20 | 3.32 | 1.62 | . 97 | . 21 | . 27 | . 24 |
| Computer programers | . 16 | - 18 | . 17 | . 61 | . 63 | . 39 | -14 | -16 | - 14 |
| Computer systems analysts | . 02 | . 03 | . 02 | . 57 | . 74 | . 43 | . 07 | . 10 | . 08 |
| Other computer specialists | . 01 | . 02 | . 01 | . 15 | . 25 | . 14 | -01 | . 02 | .01 |
| Social scientists | . 05 | . 07 | . 05 | . 19 | . 26 | . 16 | . 16 | - 24 | . 21 |
| Economists | . 05 | .07 | . 05 | .19 | . 26 | - 16 | .16 | - 24 | .21 |
| 'Ieachers | . 01 | . 01 | . 01 | . 08 | . 07 | . 02 | .01 | . 01 | . 01 |
| Adult educaticn | .01 | .01 | . 01 | . 08 | . 07 | . 02 | . 01 | . 01 | . 01 |
| Writers, artists, entertainers | .23 | . 27 | - 20 | . 41 | . 46 | . 37 | . 56 | . 65 | . 58 |
| athletes and kindred workers | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Designers | . 06 | . 06 | . 04 | - 16 | . 18 | . 16 | . 19 | - 20 | . 16 |
| Editors and reforters | . 02 | . 02 | . 01 | . 04 | . 04 | . 04 | . 05 | . 05 | . 05 |
| Musicians and composers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Painters and sculptors | -06 | . 08 | . 06 | . 04 | . 05 | . 03 | . 08 | . 10 | . 11 |
| Photographers | . 01 | . 01 | . 01 | . 03 | . 03 | . 02 | . 03 | . 02 | . 02 |
| Public relations specialists | . 05 | . 06 | . 05 | . 09 | - 11 | . 08 | -18 | . 22 | . 18 |
| other writers,artists, entertain | .03 | . 04 | .03 | .03 | .04 | .02 | . 02 | . 02 | .01 |


|  | $\begin{gathered} \text { Hardware } \\ \text { and } \\ \text { plumbing } \end{gathered}$ |  |  | Machinery equipment, supplies |  |  | $\begin{gathered} \text { Misc } \\ \text { wholesale } \\ \text { trade } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | 1.06 | 1. 16 | . 97 | 1.69 | 1.83 | 1.38 | 1.53 | 1.64 | 1. 20 |
| Accountants | . 86 | . 97 | .86 | 1.10 | 1.22 | 1.07 | 1.10 | 1.18 | . 89 |
| Architects | . 02 | . 02 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | .01 |
| Foresters and conservationists | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 03 | . 02 | . 01 |
| Lawyers | . 00 | . 01 | . 00 | . 04 | . 06 | . 02 | . 05 | .07 | . 03 |
| Librarians | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | .01 | . 01 | . 00 |
| operations and systems research | . 00 | . 00 | . 00 | . 13 | . 16 | . 09 | . 05 | . 06 | . 06 |
| Personnel, labcr relations wirs | . 16 | . 16 | . 09 | . 34 | - 32 | . 16 | . 24 | . 24 | . 15 |
| Other researcb workers | . 02 | . 01 | . 01 | . 05 | . 04 | . 01 | . 05 | . 04 | . 03 |
| vocation, education counselors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 |
| Managers, officials, proprietors | 18.56 | 19.71 | 18.61 | 18.10 | 18.76 | 16.48 | 18.20 | 19.72 | 19.38 |
| Buyers,sales,ican managers | 5.26 | 4.81 | 4.70 | 4.57 | 4.31 | 4.17 | 4.10 | 3.98 | 4.63 |
| Bank, financial managers | . 22 | . 23 | .23 | - 21 | - 22 | . 21 | -19 | . 19 | . 16 |
| Credit managers | . 59 | . 33 | . 27 | . 29 | - 16 | - 13 | . 37 | . 20 | . 17 |
| Buyers, wholesale, retail trade | 2.36 | 2. 11 | 1.94 | 1.05 | . 87 | . 68 | 1.28 | 1.16 | 1.23 |
| Sales manager, exc retail trade | 2.09 | 2. 14 | 2.26 | 3.02 | 3.06 | 3.15 | 2.27 | 2.43 | 3.06 |
| Other managers, officials, proprts | 13.31 | 14.90 | 13.91 | 13.53 | 14.46 | 12.31 | 14.09 | 15.75 | 14.75 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Office managers, other | 1.88 | 1. 86 | 1.74 | 1.70 | 1.49 | . 86 | 1.31 | 1.34 | 1.50 |
| Officers, pilots, pursers,sinip | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Bestaurant, cafe, bar, managers | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Other managers, administrators | 11.40 | 13.02 | 12.16 | 11.79 | 12.94 | 11.42 | 12.75 | 14.37 | 13.21 |
| Sales workers | 19.22 | 20.09 | 20.61 | 17.13 | 18.24 | 21.12 | 14.32 | 14.65 | 14.47 |
| Advertising agents, sales worker | . 02 | . 03 | . 02 | . 02 | . 02 | . 01 | . 06 | . 08 | . 07 |
| Auctioneers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Other sales workers | 19.19 | 20.06 | 20.59 | 17.11 | 18.22 | 21.11 | 14.25 | 14.56 | 14.40 |
| Clerical workers | 31.60 | 29.78 | 29.79 | 24.82 | 23.71 | 24.17 | 23.60 | 22.31 | 23.08 |
| Stenographrs,typists, secretaries | 7.88 | 7.31 | 7.13 | 8.75 | 8.29 | 8.81 | 7.08 | 6.69 | 7.46 |
| Legal secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| other secretaries | 5.86 | 5.67 | 5.76 | 6.77 | 6.59 | 7.06 | 5.46 | 5.39 | 6.33 |
| Stenographers | . 20 | - 12 | . 07 | . 16 | - 10 | . 05 | . 16 | .09 | . 05 |
| Tyfists | 1.83 | 1.52 | 1.30 | 1.81 | 1.59 | 1.69 | 1.44 | 1.19 | 1.07 |
| Office machine operators | 1.54 | 1.28 | . 99 | 1.29 | 1.34 | - 94 | 1.19 | 1.09 | .91 |
| Bookkeeping and billing | . 33 | - 19 | . 22 | . 21 | - 12 | . 13 | - 25 | . 13 | - 17 |
| Calculating | . 25 | - 20 | . 25 | . 04 | . 02 | . 00 | . 09 | . 07 | . 07 |
| Computer and feripheral equip | . 16 | - 35 | . 27 | -31 | . 66 | . 54 | . 17 | . 34 | . 24 |
| Duplicating | . 02 | . 02 | . 05 | . 03 | . 02 | . 01 | . 02 | . 02 | . 02 |
| Keypunch | . 68 | . 45 | . 13 | . 58 | . 42 | - 20 | - 55 | . 45 | . 34 |
| Tabulating | .01 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Other office machine operators | . 09 | . 08 | . 07 | . 11 | . 10 | . 06 | . 09 | . 08 | . 07 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Harduare and plumbing |  |  | Machinery equipment, supplies |  |  | MiscWholesaletrade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 22.18 | 21. 19 | 21.67 | 14.79 | 14.08 | 14.42 | 15.33 | 14.53 | 14.70 |
| Billing clerks | 1.23 | 1.21 | 1.23 | . 72 | . 73 | . 80 | . 69 | . 72 | . 95 |
| Bookkeepers | 5.69 | 5. 38 | 4.94 | 4.13 | 3.86 | 3.69 | 5.08 | 4.77 | 4.44 |
| Cashiers | . 29 | . 31 | .35 | . 13 | . 12 | - 10 | . 26 | . 28 | - 32 |
| Clerical supervisors, other | . 22 | . 24 | . 22 | - 28 | - 32 | . 32 | . 25 | . 29 | . 31 |
| collectors, bill and account | . 01 | . 01 | . 01 | . 06 | . 05 | . 03 | . 05 | . 05 | . 04 |
| Counter clerks,exc food | 1.51 | 1. 53 | 1.62 | . 78 | . 78 | -80 | -81 | . 82 | . 97 |
| Dispatchers, starters, vehicle | . 17 | . 17 | . 19 | . 14 | . 14 | . 15 | .30 | . 30 | . 32 |
| Estimators, investigators, other | - 34 | - 38 | . 27 | . 41 | . 42 | . 22 | . 40 | -46 | . 37 |
| Expediters, frcduction controlrs | . 29 | . 29 | . 32 | . 29 | . 28 | . 25 | . 20 | .21 | . 28 |
| File clerks | . 56 | . 47 | . 48 | . 46 | . 40 | -44 | -41 | -33 | - 31 |
| Library attendants, assistants | . 01 | . 01 | . 01 | -02 | . 02 | -01 | -02 | . 02 | . 01 |
| Mail handlers, exc fost office | . 16 | - 16 | -19 | -19 | - 18 | . 17 | -24 | . 23 | -21 |
| kessengers and office helpers | . 01 | . 01 | . 01 | . 06 | . 05 | . 02 | . 07 | . 06 | . 03 |
| Payroll,timekeeping clerks | . 17 | - 18 | - 15 | . 16 | - 18 | - 18 | . 17 | -18 | . 14 |
| Receptionists | . 60 | . 54 | . 44 | . 53 | . 46 | -33 | . 46 | . 41 | . 35 |
| Shipping and receiving clerks | 3.72 | 3.37 | 3.56 | 2.21 | 2.08 | 2.52 | 1.91 | 1.62 | 1. 46 |
| Statistical clerks | -39 | . 44 | . 45 | . 32 | . 34 | . 34 | . 37 | . 39 | . 37 |
| Stock clerks and store keepers | 2.68 | 2.45 | 2.78 | 1.78 | 1.59 | 1.64 | 1.26 | 1.11 | 1. 22 |
| Telephone operators | .37 | . 23 | . 12 | . 26 | - 17 | -15 | -28 | - 17 | . 09 |
| weighers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 09 | . 10 | - 14 |
| Misc clerical workers | 3.77 | 3.81 | 4.34 | 1.84 | 1. 90 | 2.27 | 2.02 | 2.03 | 2.39 |
| Crafts and kindred workers | 8.81 | 9.18 | 8.98 | 20.37 | 19.93 | 19.97 | 9.48 | 9.58 | 10.01 |
| Construction crafts workers | 1.67 | 1.51 | 1.40 | .91 | . 85 | - 81 | 1.18 | 1.07 | 1.21 |
| Carpenters and apprentices | . 28 | . 26 | . 18 | - 18 | . 18 | . 18 | . 44 | . 38 | . 23 |
| Brick,stonemasons, apprentices | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 03 | . 02 |
| Bulldozer oferators | . 01 | -01 | . 02 | . 02 | . 02 | . 02 | - 10 | . 11 | . 24 |
| Electricians and apprentices | - 12 | - 11 | . 08 | . 18 | . 18 | . 19 | .14 | . 13 | -09 |
| Excavating, grading mach operatr | - 11 | - 10 | . 10 | . 04 | . 03 | -03 | . 09 | . 10 | . 16 |
| Floor layers, exc tile setters | .01 | . 01 | . 00 | - 00 | . 00 | - 00 | . 05 | . 03 | . 04 |
| Painters and apprentices | . 06 | . 06 | . 06 | - 26 | - 23 | - 16 | . 12 | . 12 | - 15 |
| Paper hangers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 01 | .01 |
| Plumbers, pipefitters, aprentices | 1.05 | - 94 | . 92 | . 20 | . 19 | . 22 | . 09 | . 08 | - 10 |
| Structural metal craft workers | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 05 | . 04 | . 06 |
| Tile setters | . 02 | -01 | . 02 | . 00 | . 00 | . 00 | . 06 | . 05 | . 09 |
| Blue collar worker supervisors | 2.35 | 2.52 | 2.62 | 2.08 | 2.25 | 2.49 | 2.76 | 2.83 | 2.51 |
| Metalworkg craft wrkrs, exc mech | . 96 | . 90 | 1.00 | . 97 | . 98 | 1.16 | . 50 | . 49 | . 63 |
| Blacksmiths | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Boilermakers | - 12 | . 11 | . 13 | . 02 | . 02 | . 02 | .03 | . 03 | .03 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .01 | -01 | . 01 |
| Machinists and apprentices | - 33 | . 34 | .38 | . 64 | . 66 | . 76 | . 22 | . 24 | . 37 |
| Millwrights | . 03 | -03 | . 02 | . 06 | . 07 | - 10 | . 07 | - 07 | . 06 |
| Pattern and moldmakers | . 01 | . 01 | . 01 | . 03 | . 02 | . 03 | . 02 | . 01 | . 01 |
| Sheetmetal workers, apprentices | . 39 | - 34. | . 38 | - 10 | . 09 | . 10 | . 12 | . 09 | -09 |
| Tool and diemakers, apprentices | . 09 | . 07 | .08 | . 09 | . 09 | -13 | . 02 | -02 | . 03 |
| Mechanics, repairers, installers | 3.19 | 3.64 | 3.39 | 14.81 | 14.20 | 13.69 | 2.46 | 2.67 | 3.06 |
| Air cond, heating, refrig meca | 2.02 | 2. 35 | 1.77 | .09 | . 11 | . 09 | . 25 | . 35 | . 35 |
| Aircraft mechanics | . 01 | . 01 | . 01 | - 14 | . 14 | . 15 | -01 | . 01 | .01 |
| Auto body repairers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 03 | . 03 | . 02 |
| Auto mechanics and apprentices | . 20 | - 20 | . 27 | . 64 | . 58 | . 55 | .76 | . 76 | -68 |
| data processing mach repairers | - 00 | - 00 | . 00 | 1.25 | 1.59 | 2.14 | . 03 | . 05 | . 07 |
| Farm implement mechanics | . 00 | . 00 | . 00 | 1.72 | 1.74 | 1.78 | . 02 | . 02 | . 04 |
| Heavy equip mech, incl diesel | . 47 | - 59 | . 84 | 4.91 | 5.37 | 4.78 | . 74 | -90 | 1. 19 |
| Household afpliance mechanics | . 15 | . 16 | . 18 | . 20 | . 18 | - 14 | . 08 | . 08 | . 08 |
| office machine repairers | . 03 | . 02 | . 03 | 3. 59 | 2. 35 | 2. 46 | -25 | . 17 | -27 |
| Radio, television repairers | . 02 | . 01 | . 01 | . 12 | - 10 | . 11 | . 03 | . 02 | - 01 |
| Railroad, car shop repairers | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| other mechanics and apprentices | . 29 | . 31 | . 29 | 2.12 | 2.03 | 1.47 | . 26 | . 29 | . 33 |
| Printing trade crafts workers | . 23 | - 24 | -22 | . 13 | . 15 | . 21 | . 26 | . 23 | . 15 |
| Bookbinders | -00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 02 | -01 | . 00 |
| Compositors and typesetters | - 11 | - 11 | . 09 | . 07 | . 08 | - 12 | . 11 | . 09 | . 05 |
| Engravers exc photoengravers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 03 | . 02 |
| Press,plate printers,aprentices | .10 | . 11 | .13 | . 04 | . 05 | . 07 | . 08 | . 08 | . 08 |
| Transport, public util craft ukrs | . 02 | . 02 | -02 | . 05 | . 05 | . 04 | . 04 | . 04 | . 05 |
| Locomotive engineers' helpers | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 |
| Power station operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | .01 |
| Telephone installers, repairers | . 02 | . 02 | . 02 | . 05 | . 04 | -04 | . 02 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Harduare and plumbing |  |  | Machinery equipment. supplies |  |  | $\begin{gathered} \text { Misc } \\ \text { wholesale } \\ \text { trade } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 39 | - 36 | . 33 | 1.42 | 1.46 | 1.59 | 2.27 | 2.25 | 2.40 |
| Bakers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 01 |
| Cabinetmakers | . 02 | . 02 | . 01 | . 05 | - 05 | . 06 | . 08 | . 06 | . 02 |
| Carpet installers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 14 | . 17 | . 21 |
| crane, derrick, hoist operator | .09 | . 07 | . 05 | . 07 | . 06 | . 06 | . 70 | . 60 | . 59 |
| becorators, window dressers | . 01 | . 02 | . 02 | .01 | . 01 | - 00 | . 20 | . 33 | . 38 |
| Dental laboratory technicians | - 00 | - 00 | . 00 | -06 | . 03 | . 05 | -00 | . 00 | . 00 |
| Purniture and wood finishers | . 01 | . 00 | - 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 06 |
| Glaziers | .03 | . 03 | . 03 | . 00 | . 00 | - 00 | .27 | . 29 | . 35 |
| Inspectors, 1 cg and lumber | .00 | . 00 | . 00 | - 00 | . 00 | . 00 | - 10 | . 07 | . 02 |
| Inspectors, other | . 06 | . 06 | . 05 | . 12 | . 14 | . 15 | . 12 | . 12 | . 08 |
| Jewelers and watchmakers | . 00 | - 00 | . 00 | . 07 | . 07 | .13 | . 27 | . 25 | . 28 |
| Opticians, lens grinder, polisher | . 00 | . 00 | . 00 | . 79 | . 87 | . 90 | . 01 | . 01 | . 00 |
| Piano,organ tuners, repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Sign painters and letterers | . 00 | . 00 | .00 | . 01 | .01 | . 02 | . 00 | . 00 | .00 |
| Stationary engineers | . 09 | . 08 | . 07 | - 13 | - 12 | . 15 | . 22 | - 20 | . 21 |
| Stone cutters, stone carvers | -00 | - 00 | . 00 | . 00 | . 00 | - 00 | -02 | . 02 | . 01 |
| Tailors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Upholsterers | . 01 | . 01 | -01 | . 02 | . 01 | - 02 | . 04 | . 03 | . 05 |
| Other crafts workers | . 06 | . 06 | . 07 | . 09 | . 08 | . 06 | . 07 | . 07 | . 12 |
| operatives | 9.79 | 9.37 | 10.68 | 8.27 | 8.11 | 9.23 | 20.36 | 19.83 | 19.95 |
| Cperatives, except transfort | 3.87 | 3.67 | 3.40 | 4. 54 | 4.61 | 5.04 | 7.79 | 8.08 | 8.53 |
| Semiskilled metalworking | .69 | . 64 | .66 | 1.26 | 1.19 | 1.31 | . 90 | . 94 | 1.00 |
| Drill press oferatives | . 07 | -05 | . 03 | . 08 | . 06 | . 03 | . 02 | . 01 | . 01 |
| Furnace tendrs, smeltrs, fourers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 |
| Grinding machine operatives | . 07 | . 05 | . 05 | . 04 | . 03 | . 02 | -02 | . 02 | . 03 |
| Lathe,milling mach operatives | - 10 | . 07 | . 08 | - 15 | - 10 | . 09 | .05 | . 04 | . 05 |
| Metal platers | . 03 | . 03 | . 04 | . 02 | . 01 | . 01 | .01 | . 02 | . 02 |
| other precision mach operators | . 03 | . 03 | . 03 | . 03 | . 02 | . 01 | .01 | . 01 | . 02 |
| Punch,stamping press operatives | . 03 | . 03 | . 04 | . 06 | . 05 | . 04 | . 04 | . 04 | . 05 |
| solderers | . 02 | . 02 | . 02 | . 04 | . 04 | .03 | . 02 | .01 | . 01 |
| Welders and flamecutters | .36 | . 36 | .36 | . 84 | - 88 | 1.08 | .70 | . 76 | . 79 |
| Semiskilled packing, inspecting | 1.43 | 1. 13 | . 61 | . 70 | - 68 | . 87 | 1.36 | 1.18 | . 93 |
| Packer, wrapper,exc meat, prode | 1.43 | 1. 13 | .61 | .70 | . 68 | . 87 | 1.31 | 1.12 | . 86 |
| Produce grdrefkrs, exc fact,farm | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 05 | . 06 | . 08 |
| Other operatives, exc transport | 1.76 | 1.90 | 2.13 | 2.59 | 2.73 | 2.86 | 5.52 | 5.96 | 6.59 |
| Asbestos, insulation workers | . 04 | . 06 | . 06 | -04 | . 06 | . 05 | -03 | . 04 | . 03 |
| Assemblers | . 46 | - 52 | . 71 | . 76 | . 83 | 1.03 | . 32 | - 35 | - 50 |
| Blasters | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 05 | . 06 | . 09 |
| Cutting operatives, other | - 15 | - 17 | -21 | . 09 | -09 | . 09 | . 88 | - 92 | 1. 18 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 16 | .18 | . 17 |
| Drillers, earth | . 00 | - 00 | . 00 | . 04 | . 03 | . 02 | . 02 | . 02 | . 02 |
| Filer, polisher, sander, buffer | . 08 | . 08 | - 10 | . 05 | . 04 | . 03 | .11 | . 11 | . 16 |
| Garage urkr,gas station atten | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | - 16 | . 10 | . 06 |
| Laundry,dry cleang oprs, other | . 00 | - 00 | . 00 | . 01 | .01 | . 01 | .00 | . 01 | - 01 |
| Meat cutters, butchers, exc mfy | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | .01 | . 01 | . 01 |
| Mixing operatives | . 00 | . 00 | . 00 | -02 | . 02 | . 03 | . 08 | . 08 | . 12 |
| oilers, greasers,exc automobiles | . 02 | . 01 | . 01 | . 02 | . 02 | . 02 | . 05 | . 04 | . 03 |
| painters. mfg articles | . 02 | . 02 | . 03 | . 08 | . 06 | . 05 | . 05 | . 05 | . 07 |
| Photographic frocess workers | . 04 | . 05 | . 05 | . 05 | . 05 | . 06 | . 07 | . 07 | - 06 |
| Riveters and fasteners | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | -01 | . 01 | . 02 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Sawyers | . 04 | . 03 | . 02 | . 03 | . 03 | . 04 | . 34 | . 27 | . 15 |
| Sewers and stitchers | . 00 | - 00 | - 00 | -02 | . 02 | . 03 | . 06 | . 07 | - 13 |
| Furnace tendr, stokr,exc metal | . 02 | . 01 | -01 | . 03 | . 02 | . 04 | . 09 | . 05 | . 03 |
| Winding operatives, other | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 | . 03 | . 03 | . 04 |
| Miscellaneous machine operatves | . 43 | . 45 | . 40 | . 58 | . 60 | . 58 | 1.29 | 1.35 | 1.42 |
| Other operatives, exc transport | . 39 | . 45 | . 49 | -67 | . 74 | .71 | 1.69 | 2.10 | 2.25 |
| Transport equifment operatives | 5.92 | 5.70 | 7.27 | 3.73 | 3. 50 | 4.19 | 12.58 | 11.75 | 11.41 |
| Delivery and route workers. | 2.04 | 1.73 | 1.61 | 1.80 | 1.51 | 1.42 | 4.55 | 4.07 | 3.96 |
| Pork lift, tom motor operatives | . 31 | - 37 | . 43 | - 30 | - 36 | . 44 | . 82 | 1.00 | 1.30 |
| Parking attendants | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Railroad switch operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 03 | . 02 | . 01 | . 09 | . 07 | - 02 |
| Truck drivers | 3.53 | 3.57 | 5.22 | 1.59 | 1.60 | 2.32 | 7.08 | 6.58 | 6.11 |
| Service workers | . 95 | . 89 | -81 | 1.03 | . 92 | . 75 | 1.19 | 1.10 | . 91 |
| Cleaning service workers | . 71 | .67 | . 59 | . 80 | . 72 | . 53 | .77 | .71 | - 59 |
| Bldg interior cleaners, other | . 14 | - 14 | . 14 | -15 | -15 | . 13 | .19 | . 20 | . 19 |
| Janitors and sextons | . 57 | . 53 | . 45 | . 64 | . 57 | .40 | . 58 | . 51 | . 39 |

Table 1. Percent distribution of industry employment ty occupation, 1970, 1978 and projected 1990

|  | Harduare <br> and <br> plumbing |  |  | Machinery equipment. supplies |  |  | Misc wholesale trade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 04 | . 04 | . 04 | - 11 | . 09 | . 10 | . 07 | . 06 | . 05 |
| Cooks, exc private households | . 01 | . 01 | .01 | . 04 | . 03 | . 04 | . 03 | . 03 | . 02 |
| Food counter, fountain workers | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 | .01 | . 01 | .01 |
| waiters | .01 | . 01 | .01 | . 01 | . 01 | . 01 | .01 | .01 | . 01 |
| Other food serv wkrs,exc privt | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 | .01 | .01 | .01 |
| Health service workers | . 01 | . 01 | . 04 | . 01 | . 01 | . 00 | .00 | . 00 | .00 |
| Nursing aides and orderlies | . 01 | - 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Practical nurses | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 10 | . 08 | . 04 | . 03 | . 02 | . 02 | - 15 | - 17 | . 17 |
| Plight attendants | .01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 00 | .00 | .00 |
| Attendants, personal serv,otner | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| Child care workers, exc private | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Elevator operators | . 06 | . 05 | . 01 | . 01 | . 01 | . 01 | . 04 | . 03 | . 02 |
| Hairdressers and cosmetclogists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 10 | - 12 | . 13 |
| Housekeepers, exc private homes | .01 | . 01 | . 01 | . 02 | . 01 | .01 | . 01 | .01 | . 01 |
| Protective service workers | . 09 | . 09 | .11 | . 09 | . 09 | -09 | - 19 | -17 | - 10 |
| Guards | . 09 | . 09 | . 11 | . 08 | -08 | .09 | .19 | .17 | . 09 |
| Laborers, except farm | 7.52 | 7. 56 | 7.51 | 2.93 | 2.84 | 2.59 | 9.22 | 8.90 | 8.78 |
| Animal caretakers, exc farm | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Carpenter helfers | . 05 | . 04 | . 07 | . 03 | . 02 | . 04 | . 06 | . 04 | . 04 |
| Constr labrexc carpenter helpr | . 20 | . 18 | . 14 | . 07 | . 05 | . 03 | . 19 | . 17 | - 20 |
| freight and material handers | 1.13 | 1. 12 | 1.27 | . 55 | - 52 | . 50 | 2.79 | 2.88 | 3.39 |
| Gardenrs,groundkeepers, exc farm | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 | . 16 | . 18 | . 24 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| Timbercutting, logging workers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 06 | . 06 | . 08 |
| Stock handlers | 3.43 | 3.63 | 3.19 | 1.08 | 1.11 | . 90 | 1.64 | 1.73 | 1.71 |
| Teamsters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Vehicle vashers.equip cleaners | . 01 | . 01 | . 01 | . 13 | . 13 | . 09 | . 07 | . 07 | . 06 |
| Warehouse labcrers, other | 2.48 | 2. 39 | 2.60 | . 85 | - 81 | . 87 | 1.58 | 1.28 | . 74 |
| other laborers | . 22 | - 19 | . 22 | . 19 | . 16 | . 14 | 2.64 | 2.44 | 2.28 |

Table 1. Percent distribution of industry employment by cccupation, 1970, 1978 and projected 1990

|  | Metals, minerals. other |  |  | Petroleum products |  |  | Scrap and waste material |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| protessional and technical | 4.72 | 4.88 | 4.62 | 6.17 | 6.69 | 5.19 | .71 | . 81 | . 76 |
| Engineers, technical | 1.28 | 1.08 | 1.05 | 1.07 | . 90 | . 73 | . 10 | . 10 | . 13 |
| Chemical | . 04 | . 03 | . 01 | . 12 | - 13 | . 13 | . 00 | . 00 | . 00 |
| Civil | -13 | - 08 | . 04 | - 20 | . 13 | - 08 | . 01 | . 01 | .01 |
| Electrical | . 04 | . 05 | . 05 | . 03 | . 03 | - 04 | -01 | . 00 | . 00 |
| Industrial | . 18 | - 20 | . 25 | . 09 | . 08 | . 03 | .03 | . 05 | . 11 |
| Mechanical | - 14 | - 12 | . 10 | -13 | . 14 | - 16 | . 01 | . 01 | . 01 |
| Metallurgical | . 09 | - 10 | - 14 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Mining | . 03 | . 04 | . 10 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| petroleum | . 00 | . 00 | . 00 | . 16 | . 14 | . 10 | .00 | . 00 | . 00 |
| Sales | . 47 | . 30 | . 13 | . 17 | . 13 | - 11 | . 02 | .01 | . 00 |
| other engineers | - 16 | - 16 | . 24 | - 15 | . 11 | . 06 | . 02 | . 02 | . 01 |
| Life and physical scientists | .26 | . 27 | . 33 | . 35 | . 34 | . 47 | . 05 | . 07 | . 09 |
| Biological | . 00 | . 00 | . 00 | .01 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Chemists | . 23 | - 25 | - 30 | . 13 | - 11 | . 06 | . 05 | . 07 | . 09 |
| Geologists | . 03 | . 02 | . 03 | . 22 | .21 | - 36 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | .06 | . 07 | - 10 | . 05 | . 06 | . 06 | - 00 | . 00 | . 00 |
| Mathematicians | . 00 | . 00 | . 00 | .01 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Statisticians | . 06 | . 07 | . 10 | . 04 | . 04 | . 03 | . 00 | . 00 | .00 |
| Engineering, science technicians | . 80 | - 84 | 1.21 | -54 | . 51 | . 43 | . 08 | - 10 | - 13 |
| Chemical techricians | . 05 | . 06 | . 09 | . 04 | . 04 | - 04 | . 00 | - 00 | . 00 |
| Drafters | . 51 | . 44 | . 50 | - 20 | - 16 | . 12 | . 02 | -02 | . 01 |
| Electrical and electronic | . 03 | . 05 | . 08 | . 05 | . 05 | . 03 | . 00 | . 00 | . 00 |
| Industrial engineering | . 02 | . 05 | . 11 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Mathematical technicians | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Mechanical engineering | .03 | . 05 | . 12 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Surveyors | . 02 | . 01 | . 01 | . 04 | . 04 | . 04 | . 01 | . 01 | . 01 |
| other engineering, science tecn | - 14 | . 18 | - 31 | - 18 | - 19 | - 18 | . 06 | . 08 | .11 |
| Medical workers,exc technicians | $.02$ | . 02 |  | . 03 |  | . 05 | . 00 | . 00 |  |
| Registered nurses | $.02$ | . 02 | . 01 | . 03 | .03 | . 05 | . 00 | . 00 | .00 |
| Technicians, except health | . 03 | -03 | . 02 | . 16 | - 22 | . 25 | . 01 | . 00 | . 00 |
| Airplane pilcts | .01 | . 01 | . 01 | . 05 | . 08 | -11 | . 00 | . 00 | . 00 |
| Radio operators | . 01 | . 01 | . 01 | . 04 | . 05 | - 02 | . 00 | . 00 | . 00 |
| Other technicians except healta | . 01 | .01 | . 01 | . 06 | . 09 | . 11 | . 01 | . 00 | - 00 |
| Computer specialists | . 25 | . 32 | . 25 | . 39 | . 51 | . 43 | . 02 | . 02 | . 02 |
| Computer programers | . 13 | - 14 | . 12 | - 23 | - 27 | . 24 | . 02 | . 02 | . 02 |
| Computer systems analysts | . 12 | - 16 | - 12 | - 14 | - 20 | - 17 | . 00 | . 00 | . 00 |
| Other computer specialists | . 01 | . 02 | . 02 | . 02 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Social scientists | .12 | - 17 | . 13 | . 52 | . 78 | . 59 | . 01 | . 01 | . 00 |
| Economists | . 12 | . 17 | . 13 | . 52 | . 78 | - 59 | . 01 | .01 | .00 |
| Teachers | . 03 | .01 | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Adult education | . 01 | .01 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | . 19 | - 18 | . 08 | . 22 | - 26 | . 22 | .03 | . 04 | . 03 |
| Designers | .03 | . 03 | . 01 | -00 | . 00 | - 00 | . 01 | . 01 | . 00 |
| Editors and reforters | .03 | . 02 | . 01 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 03 | . 02 | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Photographers | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 08 | -09 | . 05 | -15 | - 20 | . 17 | . 02 | . 03 | . 03 |
| other writers,artists, entertain | . 01 | . 01 | .00 | . 09 | . 01 | .00 | . 00 | . 00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Metals, } \\ \text { minerals, } \\ \text { other } \end{gathered}$ |  |  | Petroleum products |  |  | Scrap and waste material |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.70 | 1.89 | 1.42 | 2.82 | 3.08 | 1.96 | . 43 | . 48 | . 36 |
| accountants | 1.23 | 1.35 | 1.04 | 2. 10 | 2. 24 | 1.50 | . 35 | . 40 | . 29 |
| Architects | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Lavyers | . 08 | - 12 | . 07 | .17 | . 28 | . 14 | .01 | . 02 | . 01 |
| operations and systems research | . 04 | - 06 | . 05 | - 10 | . 13 | . 09 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wkrs | . 29 | . 31 | .23 | . 38 | . 39 | -21 | . 06 | . 06 | . 06 |
| Other research morkers | . 06 | . 05 | . 03 | . 04 | . 03 | .01 | . 01 | . 00 | . 00 |
| Managers, officials, proprietors | 15.31 | 16.63 | 15.77 | 19.87 | 21.79 | 21.58 | 19.46 | 19.43 | 14.63 |
| Buyers, sales, loan managers | 4.77 | 4. 60 | 4.92 | 3. 10 | 2.73 | 2.07 | 2.85 | 2.73 | 3.18 |
| Bank, financial managers | . 21 | . 21 | -19 | - 17 | . 15 | . 07 | . 12 | .13 | . 09 |
| Credit managers | . 46 | . 26 | . 21 | . 55 | - 30 | . 19 | . 01 | . 00 | . 00 |
| Buyers, wholesale, retail trade | 1.50 | 1. 38 | 1.38 | . 35 | . 28 | - 14 | 2.47 | 2.28 | 2.67 |
| Sales manager, exc retail trade | 2.60 | 2.75 | 3.14 | 2.02 | 2.00 | 1.67 | . 25 | .31 | . 43 |
| Other managers, officials, proprts | 10.54 | 12.02 | 10.85 | 16.77 | 19.06 | 19.51 | 16.61 | 16.70 | 11.45 |
| Mgrs, superintendents, building | . 01 | . 02 | . 02 | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Office managers, other | 1.31 | 1.34 | 1.41 | 1.23 | 1.21 | 1.01 | - 55 | -60 | . 60 |
| officers, filots, pursers, ship | . 00 | . 00 | . 00 | . 09 | . 07 | . 04 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other managers, administrators | 9.22 | 10.67 | 9.42 | 15.42 | 17.76 | 18.44 | 16.05 | 16.08 | 10.84 |
| Sales workers | 12.58 | 13.01 | 11.63 | 7.18 | 7.72 | 8.22 | 3.42 | 3.52 | 3.25 |
| Advertising agents, sales worker | . 02 | . 02 | . 02 | . 02 | . 03 | . 02 | . 01 | . 01 | . 00 |
| other sales wrikers | 12.56 | 12.99 | 11.61 | 7.16 | 7.69 | 8.20 | 3.41 | 3.51 | 3.25 |
| Clerical workers | 24.74 | 23.95 | 25.01 | 24.41 | 22.78 | 27.13 | 7.33 | 7.48 | 7.87 |
| Stenographrs, typists, secretaries | 8.90 | 8.65 | 9.55 | 6.03 | 5.69 | 5.86 | 2.36 | 2.51 | 2.97 |
| Legal secretaries | . 02 | . 01 | . 02 | . 07 | . 05 | . 03 | . 00 | . 00 | . 00 |
| other secretaries | 6.69 | 6.82 | 7.98 | 4.59 | 4.55 | 4.98 | 2.03 | 2.22 | 2.76 |
| stenographers | . 30 | . 21 | . 19 | - 30 | - 18 | . 07 | . 04 | . 02 | . 01 |
| typists | 1.90 | 1.60 | 1.36 | 1.06 | . 90 | . 78 | - 30 | . 27 | .21 |
| Office machine operators | 1.25 | 1. 17 | 1.04 | 1.31 | - 85 | . 33 | - 13 | . 14 | . 15 |
| Bookkeefing and billing | . 29 | . 16 | . 19 | . 19 | . 08 | . 04 | . 04 | .03 | .07 |
| Calculating | . 12 | . 09 | . 11 | .19 | . 09 | . 02 | . 01 | . 01 | . 01 |
| Computer and feripheral equip | . 17 | . 35 | . 25 | .00 | . 01 | . 00 | . 03 | . 07 | . 05 |
| Duplicating | . 02 | . 03 | . 06 | . 02 | . 01 | . 01 | . 00 | .00 | . 00 |
| Keypunch | . 58 | . 48 | .39 | . 76 | . 56 | . 25 | . 04 | .03 | . 02 |
| Tabulating | . 03 | . 01 | . 00 | . 05 | . 01 | . 00 | .01 | . 00 | . 00 |
| Other office machine operators | . 05 | . 05 | . 04 | . 10 | . 08 | . 02 | .01 | .01 | .01 |
| Other clerical workers | 14.59 | 14. 14 | 14.41 | 17.07 | 16.25 | 14.94 | 4.84 | 4.82 | 4.75 |
| Billing clerks | . 58 | . 61 | . 73 | . 43 | . 45 | . 50 | . 08 | . 0.9 | . 10 |
| Bookkeepers | 3.12 | 3.01 | 2.88 | 7.61 | 7.33 | 7.82 | 2.47 | 2.26 | 1.81 |
| Cashiers | . 08 | . 08 | . 08 | . 30 | - 32 | . 34 | . 19 | . 23 | . 25 |
| Clerical supervisors, other | . 24 | . 28 | . 34 | . 45 | . 48 | . 36 | . 11 | . 15 | .21 |
| Collectors, bill and account | . 03 | . 04 | . 07 | - 15 | .11 | . 02 | .01 | . 01 | .01 |
| Counter clerks,exc food | . 85 | . 89 | 1.05 | . 26 | . 25 | - 21 | . 07 | . 08 | . 10 |
| Dispatchers, starters, vehicle | . 26 | - 28 | . 34 | 1.09 | 1.02 | . 76 | . 09 | . 10 | . 11 |
| Estimators, investigators, otner | . 43 | . 53 | . 47 | . 74 | . 76 | . 35 | .03 | .04 | .03 |
| Expediters, production controlrs | . 45 | . 48 | . 55 | . 25 | . 24 | . 16 | . 04 | . 06 | - 12 |
| Pile clerks | -47 | . 40 | . 41 | . 39 | . 32 | . 27 | . 07 | . 07 | . 09 |
| Insurance adjusters, examiners | . 00 | - 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Library attendants, assistants | . 01 | . 01 | . 01 | . 03 | . 03 | . 00 | . 00 | .00 | . 00 |
| Mail handlers,exc post office | . 22 | . 23 | . 29 | . 27 | . 24 | . 16 | .01 | . 00 | . 00 |
| Messengers and office helpers | . 08 | . 07 | . 05 | . 05 | . 04 | . 02 | -03 | . 03 | . 02 |
| Payroll, timekeeping clerks | . 24 | - 24 | . 17 | - 20 | - 22 | . 22 | - 14 | - 15 | . 08 |
| Real estate afpraisers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | .00 | . 00 | . 00 |
| Receptionists | . 54 | . 52 | . 50 | . 40 | - 30 | -11 | -11 | - 11 | . 08 |
| Shipping and receiving clerks | 1.83 | 1. 54 | 1.18 | . 34 | . 34 | . 46 | . 23 | . 22 | . 19 |
| Statistical clerks | . 30 | . 36 | . 45 | -48 | . 49 | . 34 | - 10 | .13 | .22 |
| Stock clerks and store keepers | 1.49 | 1.36 | 1.46 | -57 | . 45 | . 26 | -19 | . 20 | . 25 |
| Telephone operators | - 52 | . 30 | . 14 | . 21 | . 13 | . 08 | . 10 | . 04 | . 00 |
| deighers | . 17 | . 20 | . 29 | . 01 | . 01 | . 02 | -45 | . 51 | . 62 |
| Misc clerical workers | 2.69 | 2.71 | 2.95 | 2.79 | 2.67 | 2.47 | . 35 | .38 | . 48 |
| Crafts and kindred workers | 13.23 | 12.72 | 13.00 | 9.88 | 10.78 | 11.74 | 13.98 | 13.81 | 14.79 |


|  | Metals. minerals, other |  |  | petroleum products |  |  | Scrap and vaste material |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts workers | 1.78 | 1. 58 | 1.72 | . 79 | . 81 | . 97 | .66 | .76 | 1.25 |
| Carpenters and apprentices | . 22 | . 16 | . 04 | . 13 | - 15 | . 18 | . 12 | . 12 | . 09 |
| Brick,stonemasons, apprentices | . 07 | . 06 | . 05 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Bulldozer operators | - 18 | . 21 | . 47 | -04 | . 03 | - 02 | -13 | .16 | - 35 |
| Cement and concrete finishers | . 01 | - 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Blectricians and apprentices | - 50 | . 45 | . 28 | . 14 | - 14 | . 13 | . 06 | .07 | .11 |
| Excavating, grading mach operatr | .17 | . 18 | . 33 | . 03 | . 02 | . 02 | . 24 | .27 | . 47 |
| Painters and apprentices | . 18 | - 18 | . 21 | - 15 | - 13 | . 08 | . 06 | . 07 | -10 |
| Plumbers, pipefitters,aprentices | . 22 | . 14 | . 05 | -26 | - 30 | - 53 | . 02 | -03 | . 05 |
| Structural metal craft workers | . 24 | - 19 | . 29 | . 01 | . 01 | . 00 | . 03 | .03 | . 06 |
| Tile setters | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .00 | . 00 | . 00 |
| Blue collar worker supervisors | 4.07 | 4.22 | 3.68 | 2.75 | 3.09 | 3.53 | 2.60 | 2.74 | 1.92 |
| Metalworkg craft wrkrs, exc meca | 2.19 | 2. 17 | 2.68 | - 30 | . 42 | .91 | . 21 | - 22 | . 22 |
| Blacksmiths | . 04 | . 03 | . 01 | - 00 | - 00 | - 00 | . 00 | - 00 | . 00 |
| Boilermakers | . 02 | . 02 | .01 | . 06 | . 07 | . 11 | . 00 | . 00 | - 00 |
| Heat treaters, annealers | . 05 | . 05 | .07 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| forge and hammer operators | .02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Job and die setters, metal | . 04 | . 04 | . 06 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 73 | . 86 | 1.38 | . 19 | -29 | . 66 | - 12 | -13 | - 14 |
| Millurights | - 23 | - 22 | . 14 | . 02 | . 04 | . 07 | . 03 | . 03 | . 01 |
| Pattern and moldmakers | . 05 | - 04 | . 08 | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Hollers and finishers, metal | . 03 | - 04 | . 08 | . 00 | . 00 | . 00 | - 00 | - 00 | - 00 |
| Sheetmetal workers, apprentices | -93 | . 79 | . 74 | . 01 | .01 | .01 | . 05 | . 05 | . 06 |
| Tool and diemakers, apprentices | . 07 | . 06 | . 08 | .01 | . 02 | . 06 | . 01 | .01 | . 01 |
| Mechanics, repairers, installers | 1.68 | 1. 96 | 2.57 | 4.64 | 5.09 | 4.54 | 5.82 | 5.87 | 6.40 |
| Air cond, heating, refrig mech | . 08 | - 10 | . 11 | 1.42 | 1.96 | 2.04 | . 01 | . 00 | . 00 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | .03 | . 02 | .01 |
| Auto body repairers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 38 | . 32 | . 28 |
| Auto mechanics and apprentices | . 35 | - 35 | -42 | 1.36 | 1.10 | . 61 | 4.53 | 4.42 | 4.76 |
| Data processing mach repairess | . 02 | - 03 | . 09 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Heavy equip mech, incl diesel | 1.00 | 1.21 | 1.59 | 1.35 | 1. 55 | 1.52 | . 76 | -98 | 1.23 |
| Household appliance mechanics | - 01 | . 01 | . 02 | -20 | - 16 | . 06 | - 01 | -01 | . 00 |
| office machine refairers | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 01 | .01 | . 01 |
| Radio, television repairers | . 02 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 | .01 |
| kailroad, car shop repairers | . 02 | . 04 | . 08 | . 03 | . 03 | . 06 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 16 | - 18 | .21 | - 23 | -22 | . 15 | . 07 | . 09 | . 09 |
| Printing trade crafts workers | . 08 | . 06 | .00 | . 02 | . 02 | - 00 | . 03 | -02 | . 00 |
| Compositors and typesetters | . 04 | - 03 | . 00 | . 01 | . 01 | . 00 | . 02 | .01 | - 00 |
| press, plate printers,aprentices | . 03 | - 02 | .00 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 |
| Transport, public util craft wirs | . 08 | - 11 | .21 | . 07 | . 08 | - 10 | . 04 | . 04 | . 02 |
| Elec pwr line instaler, repairer | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | .01 |
| Locomotive engineers | .03 | .03 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Locomotive engineers' helpers | -01 | . 02 | . 12 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Power station operators | . 01 | -01 | . 01 | . 01 | . 02 | . 05 | .00 | . 00 | . 00 |
| Telephone installers,repairers | . 03 | - 04 | . 05 | . 04 | . 04 | . 03 | -03 | . 02 | . 01 |
| Telephone line instalr, splicers | . 01 | . 01 | .01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | 3.33 | 2.62 | 2.14 | 1.31 | 1.30 | 1.69 | 4.62 | 4.16 | 4.99 |
| Bakers | . 00 | . 00 | . 00 | . 01 | . 02 | . 06 | . 00 | -00 | . 00 |
| Cabinetmakers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 00 |
| Crane, derrick, hoist operator | 2.77 | 2.09 | 1.75 | . 07 | -08 | - 17 | 4.28 | 3.81 | 4.72 |
| Decorators, window dressers | . 02 | . 03 | .01 | -00 | . 00 | - 00 | . 01 | . 01 | . 02 |
| Glaziers | . 02 | - 02 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Inspectors, other | . 25 | . 24 | . 13 | . 12 | . 15 | . 19 | .13 | . 13 | . 05 |
| Jewelers and watchmakers | . 01 | -01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Opticians, lens grinder, folisher | . 01 | . 01 | .01 | . 00 | . 00 | -00 | . 00 | . 00 | - 00 |
| Stationary engineers | . 11 | - 09 | . 05 | 1.07 | 1.03 | 1.28 | . 05 | .03 | .01 |
| Tailors | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | -09 | . 10 | . 07 |
| Other crafts workers | - 13 | - 13 | . 16 | . 03 | . 02 | . 01 | . 04 | . 06 | . 11 |
| operatives | 18.73 | 18.64 | 19.91 | 28.38 | 26.69 | 29.91 | 29.09 | 31.62 | 33.78 |
| operatives, except transport | 11.70 | 11.99 | 12.73 | 3.61 | 3.25 | 2.62 | 18.82 | 21.57 | 24.53 |


|  | Metals. minerals. other |  |  | Petroleum products |  |  | Scrap and yaste material |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Semiskilled metalvorking | 3.30 | 3. 29 | 3.70 | .21 | . 26 | -41 | 3.82 | 4. 15 | 4.32 |
| Drill press oceratives | . 06 | . 05 | . 04 | -00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Furnace tendrs, smeltrs, fourers | . 15 | - 14 | . 13 | . 00 | . 00 | . 00 | . 18 | . 20 | . 21 |
| Grinding machine operatives | . 15 | - 13 | . 13 | . 00 | . 00 | . 00 | .03 | .03 | .03 |
| Heaters, metal | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | .03 | . 02 | .01 |
| Lathe,milling mach operatives | . 21 | . 16 | . 20 | . 01 | . 01 | .01 | . 03 | .03 | .03 |
| Metal platers | . 04 | . 05 | . 07 | . 00 | - 00 | .00 | . 01 | . 01 | .01 |
| Other precisicn mach operators | . 03 | . 03 | . 06 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 |
| Punch, stamping press operatives | . 20 | . 19 | . 26 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | . 01 |
| Welders and flamecutters | 2.47 | 2.54 | 2.79 | -20 | . 24 | -39 | 3.51 | 3.83 | 4.02 |
| Semiskilled packing, inspecting | . 50 | . 40 | . 23 | . 12 | . 14 | . 21 | 1.12 | . 96 | . 49 |
| Packer,wrapper, exc meat, prodce | . 50 | . 40 | . 23 | . 12 | - 14 | .21 | 1.12 | . 96 | . 49 |
| Other operatives, exc transport | 7.90 | 8.29 | 8.81 | 3.27 | 2.86 | 2.00 | 13.88 | 16.46 | 19.72 |
| Asbestos, insulation workers | . 01 | . 01 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | .00 |
| Assemblers | . 28 | . 32 | . 43 | . 04 | . 05 | . 08 | . 06 | . 09 | . 17 |
| Blasters | . 03 | . 02 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bottling, canning operatives | . 02 | . 04 | . 08 | . 04 | . 04 | . 05 | . 00 | .00 | .00 |
| Surveyors ' helpers | . 00 | . 00 | . 00 | . 01 | . 02 | . 05 | .00 | . 00 | .00 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Cutting operatives, other | 2.63 | 2.78 | 3.23 | .01 | . 01 | . 01 | 1.60 | 1.90 | 2.40 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 06 | . 08 | .09 |
| Drillers, earth | . 06 | . 06 | . 07 | - 03 | . 02 | .01 | . 02 | . 02 | .01 |
| Filer, polisher,sander, buffer | . 08 | . 09 | . 16 | . 01 | . 01 | . 00 | . 05 | . 07 | . 12 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | . 93 | - 56 | . 28 | . 05 | . 05 | . 07 |
| Laundry,dry cleang oprs, other | -00 | . 00 | . 00 | . 01 | . 01 | . 01 | .03 | .04 | . 10 |
| Meat cutters,tutchers, exc mfg | . 01 | . 01 | . 01 | .01 | . 01 | . 04 | .00 | .00 | . 00 |
| Mixing operatives | .03 | . 04 | . 08 | .10 | . 08 | . 04 | . 00 | . 00 | .00 |
| 0ilers, greasers,exc automobiles | . 10 | . 09 | . 06 | . 09 | . 09 | -11 | . 04 | .03 | . 01 |
| Painters, mfg articles | . 08 | .07 | . 08 | . 04 | . 04 | .06 | . 04 | . 05 | .14 |
| Photographic process workers | . 01 | . 01 | . 01 | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Riveters and fasteners | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Sailors and deckhands | . 02 | . 01 | . 00 | -12 | . 10 | . 11 | . 01 | - 00 | . 00 |
| Sawyers | . 82 | . 69 | .32 | . 00 | . 00 | . 00 | . 04 | .03 | . 02 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 03 | . 02 |
| Furnace tendr, stokr,exc metal | . 09 | . 04 | . 00 | - 11 | . 08 | . 08 | . 11 | . 09 | . 09 |
| winding operatives, other | . 06 | . 07 | . 09 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Miscellaneous machine operatves | 2.05 | 2. 12 | 1.89 | . 66 | . 65 | . 42 | 1.78 | 2.04 | 1.98 |
| other operatives, exc transport | 1.54 | 1.85 | 2.28 | 1.05 | 1.05 | . 62 | 9.96 | 11.93 | 14.50 |
| Transport equifment operatives | 7.03 | 6.65 | 7.18 | 24.77 | 23.45 | 27.29 | 10.27 | 10.05 | 9.24 |
| Boat operators | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Delivery and route workers | 1.46 | 1.20 | 1.00 | 8.99 | 8.33 | 10.64 | -49 | . 44 | . 40 |
| Fork lift, tow motor operatives | . 65 | . 81 | 1.07 | - 22 | . 25 | . 22 | . 81 | 1.02 | 1.13 |
| Rail vehicle cperators, other | . 04 | . 03 | . 01 | . 01 | . 02 | . 06 | . 00 | . 00 | . 00 |
| Railroad brake operators | . 00 | . 00 | . 00 | -00 | . 00 | - 00 | .01 | . 02 | .03 |
| Railroad switch operators | . 07 | . 07 | . 08 | . 00 | . 00 | . 00 | . 10 | .11 | . 12 |
| Taxicab drivers, chauffeurs | . 09 | . 05 | . 00 | - 11 | . 09 | . 03 | .13 | . 10 | . 03 |
| Truck drivers | 4.72 | 4. 49 | 5.02 | 15.40 | 14.73 | 16.33 | 8.72 | 8.35 | 7.53 |
| Service workers | 1.31 | 1. 19 | .95 | 1.08 | . 86 | . 45 | 1.02 | . 99 | . 68 |
| Cleaning service workers | . 92 | . 86 | . 73 | . 76 | . 59 | . 21 | . 54 | . 55 | . 43 |
| Bldy interior cleaners, other | . 15 | . 16 | . 17 | - 11 | . 08 | . 03 | . 15 | . 17 | - 16 |
| Janitors and sextons | . 77 | . 70 | . 56 | . 65 | . 50 | . 19 | . 39 | . 38 | . 27 |
| Food service workers | . 07 | . 05 | . 03 | . 11 | . 09 | . 12 | . 05 | . 04 | . 03 |
| Cooks, exc private households | . 06 | . 04 | . 02 | . 06 | . 05 | . 06 | .03 | . 03 | .01 |
| Dishwashers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | . 01 |
| Pood counter,fountain workers | . 00 | . 00 | . 00 | . 01 | . 01 | - 05 | .01 | . 00 | .00 |
| Waiters | . 01 | . 01 | .01 | . 02 | .01 | . 01 | .01 | . 01 | .01 |
| Other food serv whrs, exc privt | . 00 | . 00 | . 00 | -01 | .01 | . 01 | .00 | .00 | .00 |
| Health service workers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 01 | . 01 | . 02 | .00 | .00 | .00 | . 00 | .00 | .00 |

Table 1- Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Metals. minerals, other |  |  | Petroleum products |  |  | Scrap and waste material |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 03 | . 03 | . 02 | . 06 | . 06 | . 08 | . 02 | . 02 | .01 |
| Attendants, personal serv, other | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| elevator operators | . 01 | . 01 | . 01 | . 03 | . 04 | . 06 | . 02 | . 02 | . 01 |
| Housekeepers, exc private homes | . 02 | . 01 | . 01 | .02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Protective service workers | . 28 | . 25 | . 16 | - 15 | - 12 | . 04 | -41 | - 38 | . 21 |
| Firefighters | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Guards | .27 | . 23 | .14 | .15 | - 12 | . 04 | . 40 | . 37 | . 20 |
| Police and detectives | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Laborers, except farm | 9.38 | 8.98 | 9.12 | 3.04 | 2.68 | 1.78 | 25.00 | 22.35 | 24. 25 |
| Carpenter belfers | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Constr labr, exc carpenter helpr | . 59 | . 60 | . 81 | . 15 | - 12 | . 06 | . 11 | .11 | . 10 |
| preight and material handler: | 3.18 | 3. 23 | 3.85 | 1.31 | 1.17 | . 79 | 4.53 | 5.29 | 7.47 |
| Garbage collectors. | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 07 | . 13 |
| Gardenrs, groundkeepers, exc tarm | . 03 | . 04 | . 07 | . 08 | . 07 | . 03 | . 09 | . 08 | . 08 |
| Longshore workers, stevedores | . 02 | . 02 | . 01 | . 04 | . 04 | . 09 | . 02 | . 02 | . 01 |
| Stock handlers | 1.45 | 1.59 | 1.59 | . 18 | - 16 | . 06 | - 12 | . 16 | . 19 |
| Teamsters | .00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | .00 |
| Vehicle washers, equip cleaners | . 06 | . 07 | . 07 | . 17 | . 15 | . 07 | .17 | . 20 | . 20 |
| warehouse labcrers, other | 2.25 | 1. 82 | . 93 | . 93 | . 83 | . 60 | .17 | . 16 | . 09 |
| other laborers | 1.77 | 1.60 | 1.79 | .18 | . 13 | . 07 | 19.70 | 16.25 | 15.97 |


|  | Alcoholic beverages |  |  | Paper and paper products |  |  | Lumber, constructn materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.86 | 2. 15 | 1.80 | 3. 15 | 3.52 | 2.97 | 2.67 | 2.77 | 2.59 |
| Engineers, technical | . 00 | . 00 | . 00 | . 23 | . 21 | .24 | . 50 | .39 | . 35 |
| Chemical | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Civil | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 10 | . 04 | . 00 |
| Industrial | . 00 | . 00 | . 00 | . 05 | . 06 | . 06 | . 06 | . 07 | . 08 |
| Mechanical | . 00 | . 00 | . 00 | . 06 | . 05 | . 06 | .06 | . 05 | . 04 |
| Metallurgical | .00 | - 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | . 01 |
| Sales | . 00 | . 00 | . 00 | . 06 | . 04 | . 04 | . 20 | . 15 | . 13 |
| Other engineers | . 00 | . 00 | . 00 | . 06 | . 05 | .07 | .06 | . 06 | . 08 |
| Life and physical scientists | . 03 | . 04 | . 06 | . 05 | . 05 | . 06 | . 04 | . 04 | . 05 |
| Chemists | . 03 | . 04 | . 06 | .05 | . 05 | .06 | . 04 | . 04 | . 05 |
| Mathematical sfecialists | . 03 | . 03 | . 05 | . 01 | . 00 | .00 | . 01 | .01 | .01 |
| Statisticians | . 03 | . 03 | .05 | .01 | .00 | . 00 | . 01 | . 01 | - 01 |
| Engineering, science technicians | . 05 | - 06 | . 09 | . 17 | . 18 | . 26 | . 42 | . 42 | . 57 |
| Agricultural, biolgclexc nealta | . 01 | . 01 | . 01 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| chemical technicians | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Drafters | .01 | . 01 | . 01 | . 07 | . 05 | . 05 | . 30 | . 27 | . 33 |
| Industrial engineering | . 02 | - 03 | -06 | . 00 | . 00 | . 00 | . 03 | . 05 | . 08 |
| Mechanical engineering | . 00 | . 00 | . 00 | . 00 | $\bigcirc 00$ | . 00 | . 01 | . 01 | . 01 |
| Surveyors | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| other engineering, science teca | . 00 | . 00 | .00 | .09 | .11 | . 19 | . 06 | .07 | - 12 |
| Technicians, except health | . 01 | . 02 | . 01 | . 04 | . 04 | . 06 | . 05 | . 06 | . 06 |
| Airplane pilots | .01 | . 02 | . 01 | . 00 | .00 | . 00 | . 02 | . 02 | . 02 |
| other technicians except healti | .00 | . 00 | . 00 | . 04 | . 04 | . 06 | . 02 | .03 | . 04 |
| Computer specialists | . 15 | . 19 | . 17 | - 24 | . 33 | . 31 | . 08 | . 10 | -08 |
| Computer programers | . 12 | . 14 | .13 | .11 | . 13 | . 13 | . .06 | . 06 | . 05 |
| Computer systems analysts | . 03 | - 05 | . 04 | . 10 | . 14 | .13 | .03 | . 03 | . 03 |
| other computer specialists | . 00 | . 00 | . 00 | .03 | . 06 | . 05 | . 00 | . 00 | . 00 |
| Social scientists | . 08 | . 11 | -09 | . 15 | . 23 | . 21 | . 04 | . 09 | . 13 |
| Economists | . 08 | . 11 | .09 | .15 | . 23 | . 21 | . 04 | .09 | . 13 |
| Teachers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Adult education | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .00 | .00 | .00 |
| Writers, artists, entertainers | . 44 | . 51 | . 37 | . 73 | . 86 | . 71 | .17 | . 20 | . 16 |
| Designers | . 01 | . 01 | . 01 | . 26 | . 28 | . 20 | . 07 | .07 | . 04 |
| Editors and reforters | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | .01 | . 01 | .01 |
| Painters and sculptors | . 03 | . 02 | . 01 | . 16 | . 22 | . 23 | . 01 | . 01 | . 01 |
| Photographers | . 00 | - 00 | . 00 | . 03 | . 02 | . 01 | . 00 | . 00 | .00 |
| Public relations specialists | . 36 | . 45 | . 33 | .24 | . 30 | . 25 | . 08 | . 11 | . 10 |
| Radio and tv announcers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other writers,artists, entertain | .01 | . 01 | . 01 | . 03 | .03 | . 03 | .00 | . 00 | . 00 |
| Other professicnal and technical | 1.07 | 1. 19 | . 95 | 1.53 | 1.60 | 1.12 | 1.36 | 1.47 | 1. 19 |
| Accountants | . 88 | . 98 | . 82 | - 99 | 1.05 | . 78 | . 99 | 1.10 | . 92 |
| Architects | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Poresters and conservationists | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 09 | . 08 | . 04 |
| Lanyers | . 02 | . 02 | .01 | . 03 | . 04 | .01 | . 02 | . 03 | . 01 |
| operations and systems research | . 02 | . 03 | . 02 | . 08 | .11 | . 10 | . 02 | . 04 | . 04 |
| Personnel, labcr relations wkrs | . 16 | . 16 | -10 | . 32 | . 31 | .17 | . 16 | . 17 | -12 |
| other research vorkers | . 00 | . 00 | . 00 | . 10 | . 08 | . 06 | . 03 | . 03 | . 03 |
| Managers, officials, profrietors | 16.45 | 18.00 | 18.67 | 16.22 | 17.84 | 18.92 | 17.11 | 18.33 | 16.54 |
| Buyers, sales, loan managers | 4.08 | 4. 22 | 4.98 | 5.24 | 5.04 | 5.61 | 3.87 | 4.14 | 6.02 |
| Bank, financial managers | . 20 | . 20 | -17 | . 18 | . 18 | . 20 | .17 | . 19 | . 22 |
| Credit ranagers | . 26 | . 15 | .13 | . 48 | . 27 | . 21 | . 46 | . 27 | . 26 |
| Buyers, wholesale, retail trade | .30 | . 27 | . 26 | 1.74 | 1.57 | 1.53 | 1.21 | 1.22 | 1.55 |
| Sales manager, exc retail trade | 3.32 | 3.60 | 4.42 | 2.85 | 3.02 | 3.68 | 2.03 | 2.47 | 3.99 |
| Other managers, officials, proprts | 12.38 | 13.78 | 13.69 | 10.97 | 12.81 | 13.31 | 13.24 | 14.19 | 10.52 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Office managers, other | 1.37 | 1.40 | 1.41 | 1.50 | 1.53 | 1.68 | 1.43 | 1.55 | 1.97 |
| officers, pilots, pursers,ship | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Resta urant, cafe, bar,managers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| other managers, administrators | 11.00 | 12.37 | 12.27 | 9.46 | 11.27 | 11.62 | 11.75 | 12.57 | 8.45 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Alcoholic beverages |  |  | Paper and paper products |  |  | Lumber. constructn materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 7990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | 20.11 | 21.80 | 23.22 | 22.11 | 22.76 | 21.31 | 12.85 | 14.17 | 16.52 |
| Advertising agents, sales worker | . 22 | . 29 | . 25 | . 05 | . 07 | . 09 | . 01 | . 01 | . 01 |
| other sales workers | 19.88 | 21. 52 | 22.97 | 22.05 | 22.68 | 21.22 | 12.84 | 14.16 | 16.51 |
| Clerical workers | 18.17 | 17.88 | 18.46 | 29.06 | 27.59 | 29.11 | 18.43 | 17.99 | 19.11 |
| Stenographrs, typists, secretaries | 4.34 | 4.31 | 4.95 | 8.77 | 8. 37 | 9.35 | 6.11 | 5.91 | 6.48 |
| Legal secretaries | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Other secretaries | 3.48 | 3.60 | 4.35 | 6.61 | 6.63 | 7.86 | 5.03 | 5.05 | 5.73 |
| Stenographers | . 04 | . 02 | . 01 | -19 | . 10 | . 03 | -13 | . 05 | . 00 |
| typists | . 80 | . 68 | . 58 | 1.96 | 1.63 | 1.44 | . 94 | - 80 | . 73 |
| Office machine operators | 1.50 | 1.54 | 1.31 | 1.63 | 1.52 | 1.45 | -59 | . 61 | - 57 |
| Bookkeeping and billing | . 18 | - 11 | . 16 | -44 | . 25 | - 31 | - 15 | . 09 | - 13 |
| Calculating | . 03 | . 03 | . 08 | . 16 | . 13 | . 16 | . 03 | .03 | . 04 |
| Computer and feripheral equip | . 27 | . 58 | . 42 | . 19 | . 40 | - 32 | -11 | . 25 | . 19 |
| Duplicating | . 01 | . 01 | . 01 | . 04 | . 03 | . 06 | .01 | .01 | . 01 |
| Keypunch | . 94 | . 79 | -63 | - 57 | . 47 | -40 | . 24 | - 20 | . 16 |
| Tabulating | . 06 | . 01 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other office machine operators | .01 | . 01 | .01 | . 23 | . 23 | . 20 | . 04 | . 04 | . 03 |
| other clerical workers | 12.33 | 12.04 | 12.20 | 18.66 | 17.70 | 18.31 | 11.73 | 11.47 | 12.07 |
| Billing clerks | . 35 | . 38 | . 46 | 1.04 | 1.10 | 1.45 | . 56 | -62 | . 89 |
| Bookkeepers | 5.73 | 5.41 | 4.97 | 4.73 | 4.49 | 4.34 | 4.83 | 4.59 | 4. 36 |
| Cashiers | . 55 | . 59 | . 69 | - 20 | - 22 | . 26 | - 11 | . 12 | . 13 |
| Clerical supervisors, other | -18 | . 22 | . 28 | -27 | -30 | - 33 | .17 | -19 | . 21 |
| Collectors, bill and account | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 | . 03 | - 06 |
| Counter clerks.exc food | . 84 | . 87 | 1.00 | 1.61 | 1.67 | 2.02 | -53 | . 58 | . 77 |
| Dispatchers, starters, vehicle | . 19 | - 20 | . 21 | . 12 | . 14 | . 22 | . 24 | . 27 | . 40 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Estimators, investigators, other | . 17 | . 21 | .23 | . 34 | - 40 | - 38 | . 21 | . 27 | . 27 |
| Expediters, production controlrs | . 05 | . 06 | . 11 | - 12 | - 14 | . 23 | -17 | - 20 | - 30 |
| File clerks | . 25 | . 21 | . 22 | - 58 | . 48 | . 47 | .19 | . 16 | .17 |
| Mail handlers,exc post office | . 11 | . 12 | . 16 | . 28 | - 27 | . 27 | . 10 | . 10 | - 11 |
| Messengers and office helpers | . 05 | . 05 | . 04 | . 07 | - 07 | . 04 | . 03 | . 02 | . 01 |
| Payroll,timekeeping clerks | . 18 | . 19 | . 17 | - 16 | . 16 | - 11 | - 19 | - 21 | . 20 |
| geceptionists | . 43 | . 42 | - 38 | . 53 | - 51 | . 52 | . 37 | . 36 | . 37 |
| Shipping and receiving clerks | . 88 | . 78 | .73 | 3.32 | 2.77 | 2. 14 | 1.28 | 1.12 | 1.02 |
| Statistical clerks | - 32 | - 34 | -27 | -40 | -43 | . 40 | -43 | . 50 | . 60 |
| Stock clerks and store keepers | . 84 | - 78 | . 87 | 2.09 | 1.91 | 2.22 | . 77 | -73 | . 92 |
| Telephone operators | . 22 | - 14 | . 08 | -49 | . 28 | . 14 | . 25 | .15 | . 09 |
| Weighers | . 02 | . 03 | . 05 | . 04 | . 04 | . 07 | .08 | . 09 | - 12 |
| Misc clerical workers | . 98 | 1.05 | 1.32 | 2.27 | 2.31 | 2.70 | 1.21 | 1.15 | 1.07 |
| Crafts and kindred workers | 3.83 | 4. 13 | 3.76 | 6.30 | 6.13 | 5.94 | 14.01 | 13.80 | 13.60 |
| Construction crafts workers | . 27 | . 24 | .19 | . 33 | - 29 | . 24 | 3.98 | 3.58 | 3.29 |
| Carpenters and apprentices | . 09 | . 08 | . 05 | . 09 | . 08 | - 06 | 2.21 | 1.89 | . 85 |
| Brick, stonemasons, apprentices | .01 | . 01 | . 01 | . 00 | - 00 | -00 | . 15 | . 13 | - 12 |
| Bulldozer operators | . 00 | - 00 | . 00 | . 02 | . 02 | . 03 | . 26 | . 30 | . 65 |
| cement and concrete finishers | . 01 | - 00 | . 00 | . 01 | . 01 | . 01 | . 05 | . 04 | . 02 |
| Electricians and apprentices | . 04 | . 03 | .01 | - 13 | - 11 | . 05 | . 17 | - 17 | - 16 |
| Excavating.grading mach operatr | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 33 | . 32 | . 51 |
| Ploor layers, exc tile setters | - 00 | . 00 | .00 | -01 | . 01 | . 01 | . 07 | . 05 | . 06 |
| Painters and apprentices | . 07 | . 08 | - 10 | . 05 | -06 | . 07 | -21 | - 22 | . 29 |
| Plasterers and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Plumbers, pipefitters, aprentices | . 04 | . 03 | . 02 | . 02 | -02 | . 01 | . 05 | . 04 | . 02 |
| Roofers and slaters | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 |
| Structural metal craft workers | . 00 | - 00 | . 00 | -00 | -00 | . 00 | . 18 | -15 | -24 |
| Tile setters | . 01 | . 01 | . 00 | . 00 | - 00 | . 00 | . 25 | . 22 | - 35 |
| Blue collar worker supervisors | 2.11 | 2. 15 | 1.76 | 2.57 | 2. 57 | 2. 10 | 3.70 | 3.90 | 3.75 |
| Metalworkg craft wrkrs, exc mech | . 04 | . 04 | . 03 | - 34 | . 33 | . 39 | .77 | . 72 | - 58 |
| Blacksmiths | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 01 | . 00 |
| Boilermakers | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | .10 | . 08 | . 05 |
| Machinists and apprentices | . 02 | . 02 | . 01 | . 20 | - 22 | . 32 | -26 | . 25 | - 22 |
| Millurights | . 01 | . 01 | .01 | . 04 | - 04 | . 02 | . 28 | . 29 | . 25 |
| Pattern and moldmakers | . 00 | . 00 | . 00 | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 09 | . 07 | -04 |
| tool and diemakers, apprentices | .00 | . 00 | . 00 | . 04 | . 03 | . 02 | . 02 | .02 | . 02 |


|  | Alcoholic beverages |  |  | Paper and paper products |  |  | Lumber, constructn materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers, installers | . 69 | .76 | 1.00 | 1.77 | 1.68 | 2.27 | 1.48 | 1.71 | 2.46 |
| Air cond, heating, refrig meca | . 02 | . 02 | . 03 | - 01 | .01 | . 01 | . 05 | .07 | . 09 |
| Aircraft mechanics | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Auto mechanics and apprentices | . 38 | . 37 | . 45 | .11 | . 09 | . 07 | . 56 | - 54 | . 66 |
| Data processing mach regairers | . 01 | . 01 | .01 | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 02 | .03 | . 09 | . 03 | . 04 | . 06 |
| Heavy equip mech, incl diesel | . 20 | . 26 | . 41 | . 70 | . 87 | 1.28 | . 66 | . 85 | 1.36 |
| Household affliance mechanics | . 02 | . 01 | . 00 | .00 | . 00 | . 00 | . 09 | . 11 | . 16 |
| office machinc repairers | . 00 | . 00 | . 00 | . 80 | - 56 | .73 | . 01 | . 01 | . 01 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 05 | . 03 | . 00 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | .06 | . 08 | - 10 | . 07 | .07 | . 06 | . 08 | .09 | .11 |
| Printing trade crafts workers | . 04 | . 03 | . 00 | 1.02 | . 99 | . 68 | . 11 | . 09 | . 08 |
| Bookbinders | . 01 | . 01 | .00 | . 05 | .03 | . 02 | . 01 | .01 | . 01 |
| Compositors and typesetters | .01 | . 01 | .00 | . 51 | . 45 | . 22 | . 05 | . 03 | . 01 |
| Engravers exc photoengravers | . 00 | . 00 | . 00 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Photoengravers, lithograpners | . 00 | . 00 | .00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| press,plate frinters, aprentices | . 02 | . 01 | . 00 | . 44 | . 48 | . 43 | . 05 | . 05 | . 06 |
| Transport, public util craft wkrs | . 04 | . 03 | . 01 | .03 | . 02 | . 02 | . 02 | . 03 | . 02 |
| Elec pur line instaler, repairer | .03 | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Locomotive engineers | .00 | .00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Telephone installers, repairers | . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other crafts, kindred workers | . 05 | . 89 | . 76 | . 24 | . 24 | . 23 | 3.95 | 3.77 | 3.44 |
| Cabinetmakers | .00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 28 | . 22 | . 07 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 04 | . 06 |
| Crane, derrick, boist operator | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 37 | . 28 | . 26 |
| Decorators, indow dressers | . 48 | . 72 | . 58 | . 05 | .05 | .01 | . 01 | . 01 | . 02 |
| Furniture and wood finisners | . 00 | . 00 | . 00 | .01 | .01 | . 01 | . 02 | . 03 | . 06 |
| glaziers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | 2.09 | 2.34 | 2.60 |
| Inspectors, lcg and l umber | . 00 | . 00 | . 00 | .01 | . 01 | .01 | .73 | . 49 | . 10 |
| Inspectors, other | . 06 | . 06 | . 03 | . 05 | . 05 | . 04 | . 07 | . 07 | . 04 |
| Jewelers and watchmakers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Stationary engineers | . 06 | . 03 | .01 | . 04 | . 02 | . 01 | - 10 | . 05 | . 00 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 11 | . 09 | . 04 |
| other crafts workers | .03 | . 05 | . 12 | . 05 | . 06 | . 12 | .13 | . 12 | - 18 |
| Operatives | 30.30 | 27.15 | 25.78 | 15.37 | 14.55 | 14.42 | 23.27 | 21.66 | 19.81 |
| Operatives,except transport | 1.59 | 1.70 | 2.08 | 7.30 | 7.33 | 7.87 | 8.38 | 8.81 | 10.10 |
| Semiskilled metalworking | . 02 | . 02 | . 01 | . 07 | . 07 | . 08 | . 85 | . 84 | 1.02 |
| Drill press oferatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Grinding machine operatives | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Heaters, metal | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Lathe,milling mach operatives | . 00 | . 00 | . 00 | -01 | . 01 | .01 | . 11 | . 08 | . 08 |
| Other precisicn mach operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Punch, stamping press operatives | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 06 | . 06 | . 06 |
| Welders and flamecutters | . 02 | . 02 | .01 | . 07 | . 07 | . 07 | . 61 | . 63 | . 73 |
| Semiskillea packing, inspectiny | . 54 | - 50 | . 46 | 2.15 | 1.84 | 1.41 | . 40 | .33 | - 18 |
| Packer,wrapper, exc meat, prodce | . 54 | . 50 | . 46 | 2.15 | 1.84 | 1.41 | . 40 | . 33 | . 18 |


|  | Alcoholic beverages |  |  | Paper and paper products |  |  | Lumber, constructn materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 1.02 | 1. 18 | 1.62 | 5.07 | 5.42 | 6.39 | 7. 14 | 7.64 | 8.90 |
| Asbestos, insulation workers | .00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 18 | . 26 | . 22 |
| Assemblers | .05 | . 08 | - 16 | . 28 | . 32 | . 44 | . 60 | . 69 | . 96 |
| Blasters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 |
| Bottling, canning operatives | . 45 | . 54 | . 83 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Cutting operatives, other | . 00 | . 00 | . 00 | 1.88 | 1.96 | 2.34 | 1.09 | 1.19 | 1.52 |
| Drillers, earth | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 03 | . 03 | . 06 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Filer, polisher, sander, buffer | . 01 | .01 | . 00 | .03 | . 02 | .01 | . 24 | . 26 | . 36 |
| Garage wrirgas station atten | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 |
| Mixing operatives | .01 | . 01 | . 01 | . 03 | . 04 | . 09 | . 08 | . 09 | . 12 |
| vilers, greasers, exc automobiles | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 10 | . 08 | . 04 |
| Painters, mig articles | - 00 | . 00 | .00 | . 07 | . 07 | . 08 | . 06 | . 05 | . 07 |
| Photographic frocess workers | .00 | . 00 | . 00 | .02 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Riveters and fasteners | . 01. | . 01 | . 00 | . 03 | . 02 | . 01 | . 03 | . 04 | . 06 |
| Sailors and deckhands | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Savyers | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | 1.54 | 1.32 | . 73 |
| Severs and stitchers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 07 |
| Purnace tendr,stokr,exc metal | . 02 | -01 | . 01 | . 09 | . 04 | . 00 | - 17 | . 09 | . 03 |
| Winding operatives, other | . 00 | . 00 | . 00 | . 06 | . 06 | . 08 | . 02 | . 03 | .07 |
| Miscellaneous machine operatves | .30 | . 34 | .41 | 1.68 | 1.80 | 1. 97 | 1.96 | 2.26 | 2.98 |
| Other oferatives, exc transport | . 15 | - 17 | . 20 | . 86 | 1.02 | 1.33 | . 90 | 1.11 | 1.48 |
| Transport equifment operatives | 28.71 | 25. 46 | 23.69 | 8.08 | 7.22 | 6.55 | 14.89 | 12.86 | 9.71 |
| Bus drivers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Delivery and route workers | 17.10 | 14.41 | 12.73 | 2.85 | 2.33 | 1.95 | 2.88 | 2.46 | 2.36 |
| Pork lift,tow motor operatives | 1.14 | 1.29 | 1.23 | . 97 | 1.15 | 1.43 | 2.46 | 3.06 | 4.02 |
| Taxicab drivers, chauffeurs | . 18 | . 16 | . 06 | . 09 | . 07 | . 04 | .11 | . 07 | . 01 |
| Truck drivers | 10.29 | 9.60 | 9.67 | 4. 17 | 3.67 | 3.14 | 9.41 | 7.23 | 3.32 |
| Service workers | . 80 | . 75 | . 60 | . 83 | .74 | . 56 | 1.19 | 3.12 | . 94 |
| Cleaniny service workers | . 61 | - 57 | . 44 | . 69 | . 63 | . 50 | . 79 | .75 | . 67 |
| Bldy interior cleaners, otner | .16 | . 16 | . 14 | .17 | . 17 | . 17 | . 22 | . 22 | . 23 |
| Janitors and sextons | . 45 | .41 | .30 | . 52 | . 46 | . 33 | . 57 | . 52 | . 44 |
| Pood service workers | . 05 | . 04 | . 03 | . 04 | . 03 | . 03 | . 02 | . 02 | .01 |
| Bartenders | .01 | . 01 | -01 | .01 | .01 | .01 | . 00 | . 00 | . 00 |
| cooks,exc private households | . 02 | . 02 | . 01 | .03 | . 02 | .01 | .01 | .01 | . 01 |
| waiters | . 01 | . 01 | . 01 | .01 | .01 | .01 | -00 | .00 | . 00 |
| Personal service workers | . 05 | . 04 |  | . 05 | . 04 | .01 | . 02 | . 02 | . 02 |
| Attendants, fersonal serv,other | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Elevator operators | . 02 | . 02 | . 01 | . 05 | . 04 | . 01 | . 01 | .01 | .01 |
| Housekeepers, exc private homes | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | .01 | . 01 | .01 |
| Frotective service workers | .10 | . 10 | . 09 | . 05 | . 04 | . 02 | . 37 | . 34 | . 24 |
| Guards | . 10 | - 10 | . 09 | . 04 | . 03 | .01 | . 36 | . 33 | . 23 |
| Laborers, except farm | 8.48 | 8. 14 | 7.72 | 6.97 | 6.87 | 6.77 | 10.47 | 10.17 | 10.89 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Carpenter helfers | . 02 | . 01 | . 01 | . 03 | . 02 | . 01 | . 30 | - 24 | . 23 |
| Constr labr,exc carpenter helpr | . 02 | . 02 | . 04 | . 01 | . 01 | . 02 | . 54 | . 52 | . 57 |
| Freight and material handlers | 4.76 | 4.76 | 5.24 | 1.57 | 1.59 | 2.03 | 5.75 | 5.86 | 7.18 |
| Gardenrs, groundxeepers, exc farin | . 04 | . 05 | - 10 | . 02 | . 03 | . 08 | . 05 | . 07 | . 11 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Timbercutting, logging workers | . 00 | . 00 | .00 | . 02 | . 02 | . 03 | . 25 | . 25 | . 28 |
| Stock handlers | .92 | 1.00 | .90 | 3.03 | 3.28 | 3.31 | . 91 | . 98 | . 90 |
| Teamsters | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 02 | . 01 | . 01 |
| Venicle washers, equip cleaners | . 07 | . 08 | . 10 | . 03 | . 03 | . 02 | . 06 | . 07 | . 09 |
| Warehouse laborers, other | 2.50 | 2.08 | 1.15 | 2.07 | 1.72 | 1.06 | 1.77 | 1.46 | . 82 |
| other laborers | . 15 | - 13 | .17 | .19 | . 17 | . 20 | . 80 | . 71 | . 70 |


|  | other <br> uholesale trade |  |  | $\begin{array}{r} \text { Retail } \\ \text { trade } \end{array}$ |  |  | Building materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 3.73 | 4.11 | 3.69 | 2.03 | 2.26 | 2.18 | 1.09 | 1.20 | 1.02 |
| Engineers, techrical | . 43 | . 34 | .27 | . 04 | . 04 | . 04 | . 13 | . 10 | . 06 |
| Chemical | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Civil | . 02 | . 01 | .01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electrical | . 04 | . 04 | .03 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Industrial | . 06 | . 06 | .07 | .01 | .01 | . 01 | . 01 | . 01 | .01 |
| mechanical | . 04 | . 03 | .01 | .01 | .01 | . 01 | . 03 | . 03 | . 01 |
| Sales | . 19 | - 13 | . 08 | .01 | .01 | . 00 | . 07 | . 05 | . 03 |
| Other engineers | . 07 | . 06 | .06 | . 01 | . 01 | . 01 | - 02 | .01 | . 01 |
| Life and physical scientists | . 19 | - 21 | .21 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Agricultural | . 12 | . 14 | -11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Biological | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | . 05 | . 05 | .07 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Geologists | .01 | .01 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mathematical specialists | .01 | . 01 | . 01 | . 01 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Statisticians | .01 | - 01 | .01 | . 01 | . 00 | . 01 | . 00 | . 00 | .00 |
| Engineering, science technicians | . 30 | . 32 | .38 | .03 | . 03 | . 04 | . 19 | . 20 | - 20 |
| Agricultural, biolgci, exc healta | . 05 | - 06 | . 05 | .00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Chemical technicians | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .01 | . 02 | . 01 |
| Drafters | . 08 | . 07 | . 07 | . 02 | . 02 | . 02 | .14 | . 14 | . 16 |
| Electrical and electronic | .05 | . 06 | .07 | .01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Industrial engineering | . 01 | . 02 | . 03 | -00 | . 00 | -00 | . 00 | . 00 | . 00 |
| other engineering,science tech | . 09 | - 10 | . 14 | .01 | . 01 | .01 | . 03 | . 03 | . 02 |
| Medical workers,exc technicians | .02 | . 02 | . 04 | .84 | . 77 | . 79 | . 00 | .00 | .00 |
| Dietitians | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| optometrists | .00 | . 00 | .00 | . 01 | . 02 | . 02 | . 00 | . 00 | .00 |
| Pharmacists | . 01 | . 01 | . 02 | - 80 | . 73 | . 74 | .00 | . 00 | . 00 |
| Registered nurses | .01 | . 01 | . 02 | . 01 | .01 | . 01 | - 00 | . 00 | - 00 |
| Technicians.except healta | . 09 | - 13 | . 16 | . 01 | . 02 | . 02 | . 02 | . 03 | . 03 |
| Airplane pilots | . 02 | - 02 | . 02 | . 00 | . 00 | . 00 | . 00 | .01 | .01 |
| Radio oferators | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | - 00 |
| other technicians except nealth | . 06 | . 09 | .13 | .01 | .01 | .01 | . 01 | .01 | . 02 |
| Computer specialists | . 22 | - 27 | . 25 | . 05 | . 06 | . 07 | . 03 | . 04 | . 04 |
| Computer programers | . 16 | - 19 | . 18 | . 03 | . 04 | . 04 | . 03 | . 03 | .03 |
| Computer systems analysts | . 06 | . 08 | . 08 | .01 | . 02 | . 03 | . 01 | .01 | . 01 |
| Social scientists | .11 | - 17 | . 16 | . 01 | . 02 | . 02 | . 01 | -01 | . 01 |
| Economists | . 11 | - 17 | . 16 | . 01 | . 02 | . 02 | . 01 | . 01 | .01 |
| Teachers |  | .01 |  | .11 | . 08 | . 04 | .01 | .01 | . 01 |
| Adult education | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Other teachers | . 00 | . 00 | .00 | - 10 | . 07 | . 03 | . 00 | .00 | . 00 |
| Writers,artists, entertainers | 1.05 | 1. 22 | 1.12 | . 40 | -61 | .61 | .10 | . 12 | - 10 |
| Athletes and kindred workers | . 04 | . 04 | . 05 | . 01 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Dancers | . 00 | . 00 | .00 | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Designers | . 41 | .45 | .37 | . 10 | - 11 | . 11 | . 04 | . 04 | . 02 |
| Editors and reforters | - 11 | - 12 | .11 | . 03 | . 03 | . 04 | . 01 | . 01 | . 03 |
| Musicians and composers | . 02 | . 03 | . 06 | . 11 | . 20 | . 20 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 14 | . 20 | . 24 | . 06 | . 09 | . 09 | .01 | .01 | .01 |
| Photographers | . 07 | -05 | . 04 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 23 | - 28 | . 23 | . 03 | . 04 | . 05 | .03 | . 04 | . 04 |
| Other writers,artists, entertain | . 03 | . 04 | . 03 | .03 | . 07 | . 06 | .00 | .00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | other wholesale trade |  |  | $\begin{aligned} & \text { Retail } \\ & \text { trade } \end{aligned}$ |  |  | Building materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.33 | 1.42 | 1.07 | . 52 | .62 | - 54 | . 61 | . 70 | - 58 |
| Accountants | .91 | -98 | . 75 | - 30 | - 37 | - 35 | . 46 | - 54 | . 48 |
| Architects | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Archivists and curators | . 01 | . 01 | . 02 | . 00 | . 01 | .01 | . 00 | . 00 | . 00 |
| Foresters and conservationists | . 04 | - 03 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Home management advisors | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | . 02 | . 03 | -01 | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Librarians | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| operations and systems research | . 04 | . 06 | . 06 | .01 | .01 | . 01 | . 00 | .00 | . 00 |
| Personnel, labcr relations wkrs | . 22 | . 22 | . 13 | - 18 | - 20 | . 14 | . 11 | . 12 | . 09 |
| other research workers | . 06 | . 05 | . 04 | .01 | . 01 | .01 | .00 | .00 | - 00 |
| vocation, education counselors | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 19.35 | 21.03 | 21.70 | 17.31 | 17.75 | 17.66 | 20.89 | 22.06 | 20.89 |
| Buyers,sales, loan managers | 4.38 | 4.29 | 5.02 | 3.27 | 3.12 | 3.54 | 3.28 | 2.63 | 1.45 |
| Bank, financial managers | . 20 | - 20 | -18 | . 06 | . 06 | . 05 | . 06 | . 06 | . 03 |
| Credit managers | -31 | . 18 | . 15 | . 19 | . 11 | - 10 | . 30 | . 19 | . 14 |
| Buyers, wholesale, retail trade | 1.45 | 1.30 | 1.36 | . 82 | . 75 | . 75 | . 93 | . 71 | . 37 |
| Sales manager, retail trade | . 00 | - 00 | . 00 | 2.21 | 2.20 | 2.64 | 1.99 | 1.68 | . 92 |
| Sales manager, exc retail trade | 2.42 | 2.61 | 3.33 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Other managers, officials, proprts | 14.97 | 16.75 | 16.68 | 14.03 | 14.63 | 14.12 | 17.62 | 19.44 | 19.43 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 |
| office managers, other | 1.38 | 1.44 | 1.70 | . 28 | . 30 | -33 | . 66 | . 68 | . 56 |
| officers, pilots, pursers,saip | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | .00 | . 00 |
| Restaurant, cafe,bar,managers | . 03 | . 0.02 | . 0.01 | 3.37 | 3.49 | 3.03 | . .04 | . .02 | . 01 |
| other managers, administrators | 13.55 | 15.27 | 14.95 | 10.38 | 10.83 | 10.75 | 16.90 | 18.72 | 18.85 |
| Sales workers | 17.31 | 17. 27 | 15.53 | 23.14 | 19.80 | 20.32 | 25.43 | 24.76 | 33.15 |
| Advertising agents, sales worker | . 09 | . 11 | . 08 | . 02 | . 03 | . 03 | . 01 | . 02 | . 02 |
| Auctioneers | . 01 | .01 | . 03 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Demonstrators | . 00 | . 00 | .00 | . 43 | . 38 | . 32 | .00 | . 00 | . 00 |
| Hucksters and peddlers | . 00 | . 00 | . 00 | 1.65 | 1.26 | 1.02 | . 00 | . 00 | . 00 |
| Newspaper carriers and vendors | . 00 | . 00 | . 00 | . 13 | . 18 | . 10 | . 00 | . 00 | . 00 |
| other sales workers | 17.22 | 17. 16 | 15.42 | 20.90 | 17.95 | 18.85 | 25.42 | 24.74 | 33.12 |
| Clerical workers | 27.82 | 26. 55 | 27.05 | 15.68 | 16.57 | 18.09 | 15.39 | 14.84 | 13.87 |
| Stenographrs, typists, secretaries | 8.45 | 8.07 | 8.78 | 1.62 | 1.63 | 1.77 | 3.15 | 3.21 | 3.42 |
| Legal secretaries | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other secretaries | 6.45 | 6.41 | 7.33 | 1. 20 | 1.27 | 1.41 | 2.73 | 2.85 | 3.15 |
| Stenographers | . 12 | . 07 | . 03 | . 02 | . 01 | . 01 | . 04 | . 02 | .01 |
| Tyfists | 1.87 | 1.57 | 1.40 | -40 | .35 | .35 | . 39 | . 34 | . 27 |
| office machine operators | 1.38 | 1.37 | 1.15 | . 37 | . 37 | . 34 | -22 | . 19 | . 10 |
| Bookkeeping and billing | . 30 | .17 | .21 | . 06 | . 03 | . 04 | . 07 | .03 | .01 |
| Calculating | . 09 | . 07 | . 09 | . 07 | . 06 | . 08 | . 02 | . 01 | . 01 |
| computer and feripheral equip | . 25 | - 50 | .33 | . 06 | - 12 | . 11 | . 03 | . 08 | . 05 |
| Duplicating | . 03 | . 03 | . 03 | . 01 | . 00 | . 01 | .00 | . 00 | . 00 |
| Keypunch | . 59 | . 49 | -41 | . 14 | . 11 | . 07 | . 09 | . 06 | . 02 |
| Tabulating | . 02 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other office machine operators | . 11 | . 11 | . 09 | . 04 | . 05 | . 04 | . 01 | . 01 | . 01 |


|  | other <br> wholesale trade |  |  | $\begin{aligned} & \text { Retail } \\ & \text { trade } \end{aligned}$ |  |  | Building materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 17.99 | 17. 12 | 17.12 | 13.69 | 14.57 | 15.97 | 12.02 | 11.44 | 10.35 |
| Billing clerks | . 98 | 1.04 | 1.34 | . 14 | . 16 | . 23 | . 18 | . 19 | . 19 |
| Bookkeepers | 5.17 | 4. 72 | 3.97 | 2.95 | 2.81 | 2.42 | 7.32 | 6.87 | 6.07 |
| Cashiers | . 31 | . 33 | . 39 | 6.17 | 7.12 | 8.44 | 1.15 | 1.28 | 1. 90 |
| Clerical supervisors, other | . 24 | . 28 | .33 | - 10 | . 12 | . 14 | . 05 | . 06 | . 05 |
| collectors, bill and account | . 05 | . 05 | . 06 | . 08 | . 08 | . 09 | .05 | . 04 | . 02 |
| Counter clerks, exc food | 1.06 | 1.08 | 1.19 | . 34 | - 38 | -49 | . 22 | . 22 | .17 |
| Dispatchers, starters, vebicle | . 12 | . 13 | . 19 | . 05 | . 05 | -05 | . 14 | . 15 | . 11 |
| Estimators, investigators, other | . 46 | . 54 | . 47 | - 31 | . 37 | - 31 | . 14 | . 15 | . 06 |
| Expediters, freduction controlrs | . 19 | . 22 | . 32 | . 04 | . 05 | -07 | . 06 | . 06 | . 05 |
| File clerks | . 54 | - 43 | . 37 | -17 | . 14 | - 12 | . 13 | . 12 | - 12 |
| Library attendants, assistants | .03 | . 03 | . 03 | -00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Mail handlers, exc post office | . 36 | . 33 | . 28 | . 10 | -11 | . 12 | . 07 | . 06 | . 04 |
| Messengers and office helpers | . 10 | . 08 | . 04 | . 04 | -03 | . 02 | . 04 | . 03 | . 02 |
| Paycoll, timekeeping clerks | - 14 | - 14 | - 10 | . 11 | - 13 | . 14 | . 06 | . 07 | . 06 |
| Heceptionists | . 55 | . 50 | . 40 | . 15 | . 15 | . 14 | . 15 | . 12 | . 04 |
| Shipping and receiving clerks | 3.00 | 2. 61 | 2.32 | .45 | -43 | - 50 | . 53 | . 51 | . 50 |
| Statistical clerks | . 37 | - 39 | . 32 | . 13 | - 16 | - 19 | .21 | -23 | . 14 |
| Stock clerks and store keepers | 1.74 | 1. 56 | 1.64 | 1.00 | .91 | . 92 | .77 | . 55 | . 18 |
| relephone operators | . 25 | - 16 | . 10 | . 16 | . 11 | - 10 | -10 | . 07 | - 05 |
| Weighers | . 05 | . 06 | . 09 | . 03 | . 03 | . 04 | . 03 | . 03 | . 02 |
| Misc clerical workers | 2.29 | 2.45 | 3.19 | 1.17 | 1.23 | 1.45 | . 62 | . 62 | . 59 |
| Crafts and kindred workers | 7.78 | 7.97 | 8.69 | 8.45 | 8.25 | 8.20 | 20.18 | 20.95 | 19.84 |
| Construction crafts workers | . 75 | . 71 | -88 | . 62 | . 58 | . 46 | 6.05 | 6.15 | 5.41 |
| carpenters and apprentices | . 26 | . 25 | . 19 | - 26 | .27 | . 19 | 2.67 | 3.06 | 2.70 |
| Brick,stonemasons, apprentices | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 08 | . 06 | . 01 |
| Bulldozer operators | . 07 | . 09 | . 21 | . 01 | . 01 | . 02 | - 10 | - 12 | - 24 |
| cement and concrete finisuers | . 00 | . 00 | . 00 | . 00 | - 00 | -00 | . 03 | . 03 | . 04 |
| Electricians and apprentices | . 08 | -06 | . 03 | . 06 | . 06 | -05 | . 31 | - 34 | . 32 |
| Excavating. grading mach operatr | . 03 | . 03 | . 07 | . 01 | . 01 | . 01 | . 15 | . 14 | . 12 |
| Floor layers, exc tile setters | - 10 | . 07 | . 08 | . 04 | . 02 | . 01 | . 05 | . 03 | . 01 |
| painters and apprentices | . 10 | . 11 | . 15 | . 08 | . 08 | . 07 | . 60 | . 48 | . 15 |
| Paperhangers | . 01 | . 02 | . 03 | -00 | - 00 | . 00 | . 03 | . 03 | . 01 |
| plasterers and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Plumbers, pipetitters, aprentices | . 03 | . 03 | .01 | . 10 | . 09 | . 09 | 1.59 | 1.59 | 1.73 |
| Roofers and slaters | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | . 05 | . 05 | . 02 |
| Structural metal craft workers | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Tile setters | . 07 | . 06 | . 11 | . 04 | .03 | . 02 | . 35 | . 19 | . 04 |
| Blue collar worker supervisors | 2.29 | 2. 26 | 1.71 | . 66 | . 72 | .69 | 1.82 | 2.10 | 2.06 |
| metalworkg craft wrkrs,exc mecn | . 22 | - 22 | . 25 | . 07 | . 07 | . 07 | . 60 | .61 | .67 |
| Boilermakers | . 01 | . 01 | . 03 | -00 | . 00 | . 00 | . 01 | -01 | -01 |
| Machinists and apprentices | . 13 | . 14 | . 18 | . 03 | . 04 | . 04 | . 11 | . 12 | - 12 |
| Millurights | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .07 | . 09 | . 12 |
| Pattern and mcldmakers | . 02 | . 01 | . 01 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 02 | . 02 | . 01 | . 03 | . 02 | . 02 | -40 | -39 | . 41 |
| Tool and diemakers, apprentices | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | .01 |
| Mechanics.repairers,installers | 1.94 | 2. 04 | 2.82 | 5.12 | 4.77 | 4.98 | 9.43 | 9.39 | 9. 16 |
| Air cond, heating, refrig mech | . 03 | . 05 | . 05 | . 23 | . 29 | . 26 | 1.40 | 1.94 | 1.74 |
| Auto accessories installers | . 00 | . 00 | -00 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Auto body refairers | . 00 | . 00 | . 00 | . 58 | . 44 | . 46 | . 02 | . 02 | . 01 |
| Auto mechanics and apprentices | . 14 | . 14 | . 21 | 2.98 | 2.70 | 2.74 | -69 | . 53 | -28 |
| Data processing mach repairecs | . 08 | . 11 | -16 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Farm implement mechanics | . 02 | . 03 | . 05 | . 20 | . 17 | . 16 | 4.02 | 3.64 | 3.82 |
| Heavy equip mech, incl diesel | . 55 | . 69 | 1.02 | -22 | . 27 | - 35 | 2.31 | 2.49 | 2.96 |
| Household appliance mecnanics | . 09 | - 10 | . 14 | . 23 | . 24 | . 25 | . 32 | . 27 | - 12 |
| office machine repairers | . 46 | . 33 | . 51 | - 10 | . 09 | - 16 | - 00 | -00 | . 00 |
| Radio, television repairers | . 06 | . 04 | . 01 | . 27 | . 22 | . 19 | - 11 | . 08 | .07 |
| Other mechanics and apprentices | . 51 | . 57 | .67 | .30 | . 33 | . 39 | . 56 | .43 | . 17 |
| Printing trade crafts workers | . 35 | . 32 | . 20 | . 05 | . 05 | -04 | . 02 | . 03 | . 02 |
| Bookbinders | . 03 | . 02 | . 00 | .00 | -00 | . 00 | . 00 | . 00 | . 00 |
| compositors and typesetters | - 12 | - 12 | . 07 | . 02 | . 02 | . 01 | . 02 | . 02 | - 02 |
| Engravers exc photoengravers | . 10 | . 09 | . 05 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Photoengravers, lithographers | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| press, plate frinters, aprentices | . 08 | . 08 | . 08 | . 01 | .01 | . 01 | .01 | . 01 | . 00 |
| Transport, public util craft wkes | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Telephone installers, repairers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 07 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | other wholesale trade |  |  | $\begin{array}{r} \text { Retail } \\ \text { trade } \end{array}$ |  |  | Building materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 2.21 | 2.42 | 2.82 | 1.93 | 2.05 | 1.97 | 2.27 | 2.67 | 2. 51 |
| Bakers | . 00 | . 00 | . 00 | . 39 | . 38 | . 28 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 11 | . 08 | . 03 | . 16 | . 14 | . 10 | . 31 | . 36 | - 31 |
| carpet installers | - 39 | . 46 | . 55 | - 17 | - 18 | - 18 | . 07 | . 08 | . 06 |
| crane, derrick,hoist oferator | . 05 | . 04 | . 04 | . 01 | . 01 | . 01 | . 08 | . 07 | . 07 |
| Decorators, Window dressers | . 43 | . 69 | . 88 | . 46 | . 64 | . 72 | . 09 | . 16 | . 18 |
| Furniture and wood finishers | .07 | - 08 | -13 | . 04 | . 03 | .03 | .00 | . 00 | . 00 |
| Purriers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Glaziers | . 02 | . 02 | . 02 | . 08 | . 09 | . 08 | 1.47 | 1.76 | 1.76 |
| Inspectors, log and lumber | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | . 12 | . 11 | . 04 |
| Inspectors, other | . 12 | - 11 | . 06 | . 02 | . 02 | . 01 | . 01 | .01 | .03 |
| Jewelers and watchmakers | .75 | . 67 | . 74 | - 15 | . 15 | .14 | . 00 | .00 | . 00 |
| Opticians, lens grinder, polisher | . 01 | -01 | .01 | . 07 | . 09 | - 10 | . 00 | . 00 | . 00 |
| piano,organ tuners, repairers | .01 | . 01 | . 03 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Shoe repairers | . 00 | . 00 | . 00 | -02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Stationary engineers | . 04 | . 03 | . 04 | . 02 | . 02 | . 01 | . 05 | . 04 | . 01 |
| Stone cutters, stone carvers | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Tailors | -01 | . 01 | -02 | . 15 | - 14 | - 11 | . 00 | . 00 | . 00 |
| Upholsterers | . 10 | - 08 | .14 | .11 | -07 | . 07 | . 00 | . 00 | . 00 |
| Other crafts workers | . 07 | . 08 | -12 | . 05 | . 06 | . 08 | . 05 | . 04 | . 02 |
| Operatives | 13.81 | 13. 18 | 13.59 | 9.59 | 7.93 | 6.33 | 10.21 | 10.01 | 7.96 |
| operatives, except transpart | 7.30 | 7.28 | 7.57 | 7.23 | 5.73 | 4.33 | 2.45 | 2.56 | 2.16 |
| Semiskilled metaluorking | -32 | - 30 | . 31 | . 04 | . 04 | . 05 | . 30 | - 30 | - 34 |
| Drill press operatives | . 03 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Grinding machine operatives | . 01 | . 01 | -02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lathe,miliing mach operatives | .04 | . 03 | .03 | - 00 | - 00 | . 00 | . 03 | . 02 | . 00 |
| Metal platers | . 02 | -03 | . 04 | . 00 | - 00 | . 00 | . 00 | . 00 | - 00 |
| Other precisicn mach operators | . 01 | . 01 | . 02 | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Punch,stamping press operatives | . 03 | - 03 | . 04 | . 00 | . 00 | . 00 | . 01 | - 00 | . 00 |
| Solderers | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Welders and flamecutters | . 14 | - 14 | . 15 | . 03 | . 04 | . 04 | . 26 | .28 | . 34 |
| Semiskilled packing, inspecting | 2.48 | 2. 16 | 1.74 | . 78 | -75 | . 69 | . 11 | . 12 | - 13 |
| Meat wrappers, retail trade | . 00 | . 00 | . 00 | . 37 | - 37 | - 36 | . 00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodce | 2.33 | 2.00 | 1.54 | . 40 | - 37 | . 33 | .11 | . 12 | .13 |
| Produce grdr,fkrs, exc fact, farm | . 15 | - 16 | . 20 | . 01 | . 01 | . 01 | . 00 | . 00 | .01 |
| Other operatives, exc transport | 4.51 | 4.83 | 5.52 | 6.42 | 4. 94 | 3.59 | 2.04 | 2.14 | 1.69 |
| Asbestos,insulation yorkers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 05 | . 02 |
| Assemblers | . 47 | . 53 | . 68 | . 03 | . 03 | . 04 | . 26 | - 30 | . 47 |
| Bottling, Canning operatives | .01 | . 01 | . 02 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| clothing ircners and pressers | .01 | . 01 | . 02 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| cutting operatives, other | .43 | . 47 | .65 | . 04 | . 04 | . 04 | . 27 | . 27 | . 14 |
| Dressmakers, exc factory | . 43 | -48 | . 43 | -44 | . 45 | . 26 | . 00 | . 00 | - 00 |
| Drillers, earth | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| dry wall installers, lathers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 01 |
| Dyers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 17 | . 17 | . 24 | . 02 | . 01 | . 01 | . 05 | . 04 | . 02 |
| Garage wrkr.gas station atten | . 02 | . 02 | . 03 | 3.75 | 2.43 | 1.62 | . 06 | .03 | . 02 |
| Laundry, dry cleang oprs,other | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 | . 00 | -00 | - 00 |
| meat cutters, butchers, exc mfy | . 02 | . 02 | . 01 | 1.38 | 1.09 | -80 | . 00 | . 00 | - 00 |
| Milleners | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Mixing operatives | - 13 | - 15 | . 23 | . 02 | . 03 | .03 | . 05 | . 06 | .03 |
| oilers, greasers, exc automobiles | . 03 | . 02 | . 01 | . 01 | -01 | - 00 | . 02 | . 02 | . 02 |
| painters, mfg articles . | . 05 | - 05 | . 08 | - 10 | . 09 | . 09 | . 03 | . 02 | - 02 |
| Photographic process workers | - 16 | . 15 | -13 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 |
| Riveters and fasteners | . 01 | . 01 | . 02 | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 |
| Sailors and deckhands | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sauyers | .15 | . 13 | . 06 | . 02 | . 03 | . 02 | . 47 | . 52 | . 48 |
| Sewers and stitchers | . 16 | - 16 | .31 | . 06 | . 06 | . 07 | . 03 | . 02 | -02 |
| Furnace tendr,stokr,exc metal | . 05 | . 03 | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 03 |
| Winding operatives, other | . 03 | . 04 | . 04 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Miscellaneous machine operatves | 1.10 | 1. 13 | 1.07 | . 20 | . 26 | . 24 | .38 | .41 | . 24 |
| other operatives,exc transport | 1.05 | 1.22 | 1.44 | . 28 | - 34 | . 30 | . 34 | . 34 | . 18 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Other wholesale trade |  |  | $\begin{array}{r} \text { Betail } \\ \text { trade } \end{array}$ |  |  | Building materials |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Transport equipment operatives | 6.51 | 5.90 | 6.02 | 2.36 | 2.20 | 2.00 | 7.76 | 7.46 | 5.80 |
| Delivery and route workers | 2.81 | 2. 33 | 2.09 | 1.27 | 1.17 | 1.14 | 2.37 | 2.41 | 2.87 |
| Fork lift, tow motor operatives | . 47 | - 59 | . 82 | .09 | . 12 | . 13 | . 52 | . 63 | . 46 |
| Parking attendants | . 00 | - 00 | .00 | . 03 | . 04 | . 03 | .00 | . 00 | .00 |
| Taxicab drivers, chauffeurs | . 06 | - 04 | . 00 | -03 | . 03 | . 02 | . 02 | .02 | . 00 |
| Truck drivers | 3.17 | 2. 94 | 3.11 | . 94 | . 84 | . 68 | 4.85 | 4.41 | 2.47 |
| Service workers | 1.42 | 1.38 | 1.27 | 18.57 | 21.99 | 22.13 | -89 | . 74 | . 30 |
| Cleaning service workers | . 85 | - 80 | . 75 | 1.11 | 1.23 | . 93 | . 76 | . 62 | . 24 |
| Lodging gtrs cleaners, exc privt | . 02 | . 01 | . 02 | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Bldg interior cleaners, other | . 26 | . 26 | . 28 | . 40 | . 48 | . 35 | . 28 | . 26 | . 13 |
| Janitors and sextons | . 57 | - 53 | . 45 | . 66 | . 72 | . 56 | . 47 | .37 | - 12 |
| Food service workers | . 08 | . 07 | . 06 | 16.82 | 20.08 | 20.59 | . 01 | .01 | .00 |
| Bartenders | .00 | . 00 | .00 | 1.24 | 1.54 | 1.59 | . 00 | .00 | .00 |
| waiters' assistants | . 00 | . 00 | . 00 | . 64 | 1.05 | 1.27 | . 00 | . 00 | . 00 |
| Cooks, exc private households | . 03 | . 02 | . 01 | 3.95 | 5.33 | 5.95 | . 00 | . 00 | . 00 |
| Dishwashers | . 00 | . 00 | . 00 | 1.03 | 1.06 | 1.19 | . 00 | .00 | .00 |
| Pood counter, fountain workers | . 01 | . 02 | . 02 | 1.47 | 2.09 | 2.33 | . 00 | . 00 | .00 |
| Waiters | . 02 | .01 | .01 | 7.41 | 7.73 | 7.05 | . 01 | .00 | .00 |
| Other food serv wkrs, exc privt | . 02 | . 02 | . 02 | 1.09 | 1.29 | 1.21 | . 00 | . 00 | .00 |
| Health service workers | . 00 | . 00 | .00 | . 02 | . 02 | .01 | .00 | . 00 | . 00 |
| Health aides, except nursing | .00 | . 00 | .00 | .01 | .01 | .01 | .00 | . 00 | .00 |
| Personal service workers | . 35 | . 40 | . 41 | . 44 | . 49 | . 42 | . 00 | . 00 | . 00 |
| Attendants, personal serv,other | .01 | . 01 | . 02 | . 06 | . 06 | . 06 | . 00 | .00 | .00 |
| Barbers | . 00 | . 00 | .00 | . 01 | . 00 | . 00 | . 00 | .00 | .00 |
| Child care workers, exc private | . 01 | . 00 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| elevator operators | . 06 | . 04 | . 01 | . 03 | . 02 | . 01 | . 00 | .00 | . 00 |
| Hairdressers and cosmetologists | .27 | . 33 | . 35 | .18 | . 23 | - 20 | . 00 | .00 | .00 |
| Housekeepers, exc private homes | . 01 | . 01 | .01 | . 14 | . 16 | . 13 | . 00 | . 00 | . 00 |
| Protective service workers | . 14 | - 12 | . 06 | . 18 | - 18 | - 18 | - 12 | .11 | . 06 |
| Guards | . 13 | . 11 | . 06 | . 16 | . 16 | .16 | . 12 | .11 | . 06 |
| Police and detectives | . 01 | . 01 | .01 | . 02 | . 02 | . 01 | .00 | .00 | . 00 |
| Laborers, except farm | 8.78 | 8.49 | 8.47 | 5.24 | 5.45 | 5.09 | 5.91 | 5.44 | 2.99 |
| Animal caretakers, exc farm | . 04 | . 04 | . 03 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 03 | - 02 | . 02 | . 03 | . 02 | . 03 | .31 | . 29 | .33 |
| Constr labreexc carpenter helpr | . 07 | -07 | . 07 | . 08 | . 07 | . 04 | . 99 | . 85 | . 33 |
| Freight and material handlers | 1.84 | 1.83 | 2.14 | . 42 | . 43 | . 45 | 2.07 | 2.02 | 1. 21 |
| Gardenrs, groundkeepers, exc farm | -34 | . 39 | . 51 | . 05 | . 06 | . 06 | . 07 | . 06 | . 05 |
| Longshore workers, stevedores | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Timbercutting, logging workers | . 08 | -08 | - 10 | .01 | .01 | .01 | .11 | . 10 | . .04 |
| Stock handlers | 2.67 | 2.86 | 2.72 | 4.02 | 4.24 | 4.00 | 1.20 | 1.04 | . 32 |
| Teamsters | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01. | .01 | .01 |
| Yehicle washers, equip cleaners | . 02 | . 02 | . 02 | . 28 | . 29 | . 22 | . 04 | . 04 | . 02 |
| Warehouse labcrers, other | 1.56 | 1.26 | . 65 | . 18 | - 16 | . 13 | . 35 | . 35 | . 31 |
| Other laborers | 2.11 | 1. 90 | 2.18 | . 16 | . 16 | . 14 | . 77 | . 67 | .36 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Lumber and building materials |  |  | Harduare and farm equipment |  |  | General merchandse, total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.40 | 1.44 | 1.18 | .61 | .73 | .78 | 1.93 | 2.31 | 2.12 |
| Engineers, technical | . 17 | - 13 | . 08 | . 06 | . 04 | . 02 | . 05 | . 05 | . 07 |
| Industrial | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Mechanical | . 05 | . 04 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Sales | .10 | . 07 | .05 | . 03 | -02 | . 00 | . 00 | . 00 | . 00 |
| other engineers | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | -01 | . 02 |
| Mathematical specialists | . 00 | - 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Statisticians | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Engineering. science technicians | . 29 | - 28 | - 30 | . 03 | . 04 | . 06 | . 04 | . 05 | . 08 |
| chemical techricians | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Drafters | .21 | . 20 | . 24 | . 01 | . 02 | . 04 | . 03 | . 02 | . 03 |
| Electrical and electronic | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 04 |
| Surveyors. | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Other engineering, science tech | . 04 | . 04 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 |
| Hedical workers, exc technicians | . 00 | - 00 | . 00 | - 00 | . 00 | - 00 | . 07 | . 06 | . 03 |
| Pharmacists | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Hegistered nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | .03 | . 02 |
| Technicians, except health | . 03 | . 03 | . 02 | . 01 | . 02 | . 04 | . 01 | - 02 | . 02 |
| Airplane pilots | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other technicians except health | . 01 | . 01 | . 01 | . 01 | . 02 | . 04 | .01 | . 02 | - 02 |
| Computer specialists | . 03 | . 04 | . 04 | . 03 | . 04 | . 04 | - 12 | -17 | - 16 |
| Computer programers | . 02 | . 03 | . 03 | -03 | . 03 | . 03 | . 08 | - 10 | . 10 |
| Computer systems analysts | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 04 | . 06 | . 05 |
| Other computer specialists | . 00 | - 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 02 | . 01 |
| Social scientists | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 02 | .03 | .03 |
| Economists | .01 | . 02 | . 01 | .00 | . 00 | .00 | . 02 | . 03 | . 03 |
| Teachers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 15 | . 12 | . 08 |
| Adult education | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| other teachers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 13 | . 09 | . 06 |
| Writers, artists, entertainers | . 14 | . 15 | . 10 | . 03 | . 06 | . 11 | . 45 | . 63 | . 65 |
| Athletes and kindred workers | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 03 | . 04 | . 05 |
| Designers | . 07 | . 07 | . 03 | . 00 | . 00 | . 00 | . 12 | . 16 | . 16 |
| Editors and reporters | . 01 | . 01 | . 01 | . 01 | . 03 | . 05 | . 10 | . 11 | . 09 |
| Painters and sculptors | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 13 | . 22 | . 26 |
| Photographers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Puolic relations specialists | . 03 | . 04 | . 02 | . 02 | . 03 | . 05 | . 05 | . 07 | . 07 |
| other uriters,artists, entertain | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| other professicnal and technical | . 71 | - 78 | .63 | . 45 | . 54 | . 52 | 1.00 | 1.17 | . 96 |
| Accountants | . 52 | . 59 | . 51 | . 37 | . 45 | . 43 | -47 | . 57 | . 55 |
| Architects | . 02 | . 01 | . 00 | -00 | - 00 | . 00 | -01 | . 01 | -01 |
| Foresters and conservationists | . 03 | . 03 | .03 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Lawyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| operations and systems researcn | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| Personnel, labcr relations ukrs | . 14 | - 14 | . 09 | . 08 | . 09 | . 08 | . 47 | . 51 | . 33 |
| other researcb workers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Managers, officials, proprietors | 19.75 | 20.46 | 19.37 | 22.68 | 25. 21 | 23.15 | 13.75 | 15.60 | 17.13 |
| - Buyers,sales,ican managers | 3.43 | 2.65 | 1.35 | 3.04 | 2.59 | 1.60 | 6.50 | 6.82 | 8.21 |
| Bank, financial managers | . 06 | . 05 | . 02 | -08 | .07 | . 04 | . 09 | - 10 | . 10 |
| credit managers | -42 | - 25 | . 20 | . 10 | - 06 | . 05 | . 35 | . 23 | - 22 |
| Buyers, wholesale, retail trade | -85 | $\begin{array}{r}.63 \\ \hline 1.72\end{array}$ | . 28 | 1.05 | . 85 | . 49 | 1.58 | 1.56 | 1.52 |
| Sales manager, retail trade | 2.11 | 1.72 | . 85 | 1.81 | 1.60 | 1.02 | 4.49 | 4.94 | 6.37 |
| Other managers, officials, proprts | 16.32 | 17.82 | 18.02 | 19.64 | 22.62 | 21.55 | 7.25 | 8.78 | 8.93 |
| Mgrs, superintendents, building | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| office managers, other | . 81 | - 79 | . 65 | -43 | . 45 | -43 | . 27 | - 31 | - 40 |
| Resta urant, cafe, bar,managers | . 03 | . 02 | . 01 | . 06 | . 03 | . 00 | . 15 | . 13 | . 12 |
| Other managers, administrators | 15.46 | 16.98 | 17.33 | 19.15 | 22.14 | 21.12 | 6.83 | 8.33 | 8.38 |

$100.00 \quad 100.00 \quad 100.00$

|  | Lumber and building materials |  |  | Hardware and farm equipment |  |  | General merchandse. total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales uorkers | 20.32 | 22. 21 | 31.38 | 33.42 | 29.76 | 35.79 | 44.87 | 39.79 | 35.27 |
| Advertising agents, sales worker | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 04 | . 06 | . 06 |
| Demonstrators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.05 | 1.96 | 1.46 |
| Hucksters and peddlers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | 7.99 | 6.77 | 4.82 |
| Neuspaper carriers and vendors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 56 | . 89 | . 35 |
| Other sales workers | 20.30 | 22. 19 | 31.34 | 33.42 | 29.76 | 35.79 | 34.24 | 30.10 | 28.58 |
| Clerical workers | 15.84 | 14.98 | 13.61 | 14.69 | 14.57 | 14.26 | 23.07 | 25.37 | 28.79 |
| Stenographrs, typists, secretaries | 3.80 | 3.75 | 4.18 | 2.13 | 2.16 | 2.28 | 2.20 | 2.29 | 2.66 |
| Other stcretaries | 3.29 | 3.33 | 3.85 | 1.84 | 1.91 | 2.09 | 1.33 | 1.48 | 1.83 |
| Stenographers | .04 | . 02 | .01 | . 03 | . 02 | . 01 | . 03 | . 02 | . 01 |
| Typists | . 47 | . 40 | . 33 | . 26 | . 23 | -18 | . 84 | . 80 | . 82 |
| Office machine operators | . 23 | - 21 | . 11 | - 20 | - 15 | . 07 | . 90 | . 97 | . 89 |
| Bookkeeping and billing | . 09 | . 04 | .01 | .05 | . 02 | . 00 | . 12 | . 08 | .11 |
| Calculating | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | .17 | . 15 | . 21 |
| Computer and feripheral equip | . 05 | - 10 | .07 | . 02 | . 04 | . 02 | - 14 | . 32 | . 27 |
| Duplicating | . 00 | . 00 | .00 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Keypunch | . 07 | . 05 | . 02 | . 12 | . 08 | . 03 | . 35 | . 29 | . 17 |
| other office macbine operators | .01 | . 01 | .01 | .01 | . 01 | . 01 | . 11 | -13 | - 11 |
| Other clerical workers | 11.81 | 11.02 | 9.31 | 12.36 | 12.26 | 11.91 | 19.97 | 22.10 | 25.25 |
| Billing clerks | . 21 | . 22 | . 22 | . 12 | . 13 | . 13 | . 32 | . 41 | . 68 |
| Bookkeepers | 7.18 | 6.65 | 5.66 | 7.54 | 7.31 | 6.68 | 2.48 | 2.47 | 2.06 |
| Cashiers | . 66 | . 77 | 1.01 | 1.91 | 2.29 | 3.23 | 6.07 | 6.97 | 8.86 |
| Clerical supervisors, other | . 06 | . 06 | . 05 | . 04 | . 05 | . 04 | - 30 | . 39 | . 45 |
| collectors, till and account | . 05 | . 04 | .01 | . 07 | . 06 | . 03 | . 24 | . 27 | .31 |
| Counter clerks,exc food | . 25 | - 24 | . 18 | . 16 | . 17 | . 16 | . 91 | 1.09 | 1.43 |
| Dispatchers, starters, venicle | - 23 | - 23 | . 17 | - 01 | . 01 | -01 | . 03 | . 04 | . 07 |
| Estimators, investigators, other | . 15 | - 15 | . 06 | . 14 | - 14 | . 06 | . 94 | 1.25 | 1.04 |
| Expediters, prcduction controliss | . 07 | . 07 | . 05 | . 04 | . 04 | . 05 | . 09 | . 12 | . 19 |
| Pile clerks | . 14 | - 13 | . 13 | . 12 | - 10 | - 11 | . 45 | . 38 | . 25 |
| Mail handlers,exc post office | . 07 | . 06 | . 04 | . 07 | . 06 | - 03 | -24 | - 27 | - 32 |
| Messengers and office helpers | . 04 | . 03 | . 02 | . 05 | . 04 | . 01 | . 04 | . 04 | . 03 |
| Payroll,timekeeping clerks | .09 | - 10 | . 07 | . 02 | . 03 | . 05 | . 27 | . 33 | . 31 |
| Heceptionists | . 20 | . 15 | . 05 | . 06 | . 05 | . 03 | . 18 | . 19 | . 21 |
| Shipping and receiving clerks | - 57 | - 54 | . 55 | . 46 | . 44 | - 42 | 1.14 | 1.18 | 1.39 |
| Statistical clerks | . 31 | - 32 | . 20 | . 06 | -07 | . 04 | . 33 | . 43 | . 57 |
| Stock clerks and store keepers | . 68 | -47 | . 14 | . 91 | . 69 | - 25 | 1.81 | 1.76 | 2.02 |
| Telephone operators | . 12 | . 09 | . 07 | . 06 | . 04 | . 03 | . 45 | . 35 | . 32 |
| Weighers | . 04 | . 04 | . 02 | .01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Misc clerical workers | . 69 | . 66 | . 62 | . 53 | . 54 | . 54 | 3.67 | 4.17 | 4.75 |
| Crafts and kindred workers | 19.36 | 19.94 | 19.35 | 21.48 | 22.94 | 20.56 | 3.95 | 4.72 | 5.10 |
| Construction crafts workers | 9.13 | 8.71 | 8.49 | 1.22 | 1. 11 | . 80 | .31 | . 30 | . 24 |
| carpenters and apprentices | 4.21 | 4.49 | 4.36 | . 26 | . 27 | . 23 | .17 | . 15 | . 07 |
| Brick,stonemasons, apprentices | - 12 | . 08 | . 02 | . 02 | . 01 | . 01 | .00 | . 00 | . 00 |
| Buildozer oferators | . 14 | - 17 | . 39 | . 05 | . 04 | . 02 | . 00 | . 00 | .00 |
| Cement and concrete finishers | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 40 | . 41 | .45 | . 19 | . 19 | - 14 | . 06 | .06 | . 05 |
| Excavating.grading mach operatr | . 23 | . 21 | - 20 | . 02 | . 01 | . 01 | -00 | - 00 | . 00 |
| Ploor layers, exc tile setters | . 08 | - 04 | . 01 | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 |
| Painters and apprentices | . 85 | . 64 | .21 | .21 | - 17 | . 07 | . 05 | . 06 | . 09 |
| Paperhangers | . 05 | . 05 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| plasterers and apprentices | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Plumbers, pipefitters, aprentices | 2.32 | 2.20 | 2.68 | . 45 | . 40 | . 31 | . 02 | . 01 | .01 |
| Roofers and slaters | . 08 | . 07 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Structural metal craft yorkers | . 02 | - 01 | .01 | -60 | . 00 | -00 | . 00 | . 00 | . 00 |
| Tile setters | . 57 | . 29 | . 06 | . 02 | .01 | .01 | .00 | . 00 | . 01 |
| Blue collar worker supervisors | 2.40 | 2.61 | 2.52 | . 90 | 1.09 | 1.37 | 1.02 | 1.14 | 1.09 |
| Metalworkg craft wrkrs, exc mech | . 78 | - 75 | . 89 | . 30 | . 33 | . 35 | . 02 | .03 | .03 |
| Soilermakers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | -00 |
| Machinists and apprentices | . 09 | - 10 | - 13 | . 15 | . 16 | . 12 | . 02 | . 02 | . 03 |
| Millwrights | . 07 | . 09 | . 11 | . 06 | . 08 | - 13 | . 00 | .00 | . 00 |
| Sheetmetal workers, apprentices | . 60 | - 55 | . 63 | . 09 | . 08 | . 09 | . 00 | . 00 | . 00 |
| Tool and diemakers, apprentices | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |

Table 1. Percent distribution of inäustry employment by occupation, 1970, 1978 and projected 1990

|  | Lumber and building materials |  |  | Hardware and farm equipment |  |  | $\begin{gathered} \text { General } \\ \text { merchandse, } \\ \text { total } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers,installers | 3.37 | 3.89 | 3.45 | 18.91 | 20.20 | 17.71 | 1.50 | 1.74 | 2.27 |
| Air cond, heating, refrig meca | 2.20 | 2.83 | 2.80 | . 15 | . 19 | . 15 | . 11 | . 16 | . 18 |
| Auto body repairers | . 00 | . 00 | . 00 | .06 | . 04 | . 02 | . 01 | . 01 | . 01 |
| Auto mechanics and apprentices | . 37 | . 27 | . 09 | 1. 19 | 1.02 | . 57 | . 07 | . 06 | . 09 |
| Farm implement mechanics | . 04 | . 04 | . 03 | 10.24 | 10.73 | 9.50 | -00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | . 34 | . 40 | . 39 | 5.40 | 6.60 | 6.81 | . 11 | . 16 | . 28 |
| Household appliance mechanics | . 23 | -19 | .07 | -45 | . 41 | . 19 | - 36 | -49 | . 75 |
| office machine repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 |
| Radio, television repairers | . 04 | . 04 | . 05 | . 21 | . 17 | - 10 | . 24 | . 19 | . 09 |
| Other mechanics and apprentices | . 15 | - 12 | . 03 | 1.21 | 1.03 | . 36 | . 58 | . 65 | . 84 |
| Printing trade crafts workers | .03 | . 04 | .03 | .01 | . 01 | . 01 | . 07 | . 07 | . 06 |
| Compositors and typesetters | . 02 | . 02 | . 03 | .01 | . 01 | .01 | . 05 | . 04 | . 02 |
| press, plate printers, aprentices | .01 | . 01 | . 00 | .00 | .00 | . 00 | . 02 | .03 | . 04 |
| Transport, public util craft wkrs | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Other crafts, kindred workers | 3.63 | 3.92 | 3.96 | . 14 | - 19 | . 33 | 1.02 | 1.43 | 1.40 |
| Bakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 05 | . 04 |
| Cabinet makers | .49 | . 52 | . 47 | . 02 | . 03 | - 06 | . 03 | . 03 | . 01 |
| Carpet installers | . 10 | - 10 | . 07 | . 03 | . 04 | . 05 | . 04 | . 06 | - 10 |
| Crane,derrick, hoist operator | . 12 | . 09 | . 08 | . 01 | . 01 | . 06 | . 00 | . 00 | . 00 |
| Decorators, window dressers | .13 | . 23 | . 29 | . 02 | . 03 | . 01 | . 54 | . 90 | . 74 |
| Purniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Glaziers | 2.40 | 2.65 | 2.90 | . 01 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Inspectors, lcg and lumber | . 19 | . 16 | . 06 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 01 | . 01 | . 01 | . 01 | . 02 | . 05 | . 04 | . 04 | . 02 |
| Jewelers and watchmakers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 |
| Shoe repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Sign painters and letterers | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 05 | . 06 |
| Stationary engineers | . 07 | . 05 | . 02 | . 01 | . 01 | . 01 | . 04 | . 03 | . 01 |
| Stone cutters, stone carvers | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Tailors | . 00 | . 00 | . 00 | . 00 | .00 | - 00 | . 11 | - 16 | . 27 |
| Upholsterers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| other crafts workers | . 07 | . 06 | . 03 | . 01 | . 01 | . 01 | . 00 | . 00 | .00 |
| operatives | 14.17 | 13.06 | 10.59 | 4.03 | 4.02 | 4.02 | 3.60 | 3.68 | 3.66 |
| Operatives, except transfort | 3.05 | 3.04 | 2.49 | 1.52 | 1.61 | 1.66 | 2.06 | 2.26 | 2.38 |
| Semiskilled metalworking | .23 | . 23 | - 26 | -49 | . 43 | . 47 | . 02 | . 02 | - 03 |
| Lathermilling mach operatives | . 03 | . 02 | . 00 | . 03 | . 02 | . 00 | . 01 | . 00 | - 01 |
| Punch, stamping fress operatives | . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 20 | - 22 | . 25 | . 36 | . 40 | . 46 | . 01 | . 01 | . 02 |
| Semiskilled packing, inspecting | . 12 | . 13 | . 15 | . 10 | . 10 | . 10 | . 67 | . 67 | . 61 |
| Packer, wrapper,exc meat, prodce | . 12 | . 13 | . 15 | . 09 | . 09 | . 09 | . 66 | . 66 | . 60 |
| Produce grdr, fkrs,exc fact,farm | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |


|  | Lumber and bailding materials |  |  | Hardware and farm equipment |  |  | General merchandse, total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther operatives, exc transport | 2.70 | 2.68 | 2.09 | 1.02 | 1.08 | 1.09 | 1.37 | 1.57 | 1.74 |
| Asbestos, insulation workers | . 05 | . 07 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Assemblers | . 16 | . 21 | -33 | . 40 | . 49 | . 68 | . 02 | . 03 | . 05 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Cutting operatives, other | . 43 | . 39 | . 24 | . 02 | . 02 | . 01 | . 04 | . 05 | . 08 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 63 | .79 | . 66 |
| Dry wall installers, lathers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, ouffer | . 06 | . 05 | . 02 | .03 | . 02 | . 01 | . 01 | . 01 | .01 |
| Garage wrkr,gas station atten | . 03 | . 02 | . 01 | . 09 | . 05 | . 02 | .21 | - 16 | .21 |
| Meat cutters, tutchers, exc mfy | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 07 | . 05 |
| Milleners | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | .01 |
| Mixing operatives | . 08 | - 08 | . 05 | - 01 | . 01 | . 01 | . 00 | . 00 | .00 |
| oilers, greasers, exc automobiles | . 03 | . 03 | . 03 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Painters, mfg articles | . 04 | . 03 | . 02 | . 02 | .01 | . 01 | . 00 | . 00 | . 00 |
| Photographic trocess workers | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Riveters and fasteners | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sawyers | .74 | . 77 | . 76 | . 03 | . 04 | . 06 | .00 | . 00 | .00 |
| Sewers and stitchers | . 05 | . 04 | .03 | . 00 | . 00 | . 00 | . 06 | . 07 | . 16 |
| Furnace tendr, stokr, exc metal | .04 | . 02 | . 01 | .01 | . 01 | . 05 | .01 | . 01 | .01 |
| Winding operatives, other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Miscellaneous machine operatves. | . 59 | . 58 | . 38 | . 06 | .06 | .04 | . 09 | .11 | . 15 |
| other oferatives.exc transport | . 34 | . 33 | . 16 | . 34 | . 36 | . 20 | - 17 | . 22 | . 29 |
| Transport equipment operatives | 11.12 | 10.02 | 8.10 | 2.51 | 2.41 | 2.36 | 1.55 | 1.42 | 1.28 |
| Delivery and route workers | 3.19 | 3.09 | 3.95 | 1.09 | 1.05 | 1.24 | 1.10 | . 98 | . 90 |
| Fork lift,tow motor operatives | . 80 | . 91 | . 74 | . 07 | . 07 | . 05 | . 09 | - 12 | - 16 |
| Parking attendants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| Taxicab drivers, chauffeurs | . 03 | . 03 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Truck drivers | 7.09 | 6.00 | 3.40 | 1.35 | 1.28 | 1.07 | .33 | . 28 | .18 |
| Service workers | . 95 | . 77 | -29 | .79 | . 67 | .33 | 5.39 | 4.76 | 4.27 |
| Cleaning service workers | . 78 | . 63 | . 24 | . 73 | . 61 | . 25 | 1.19 | 1.18 | -91 |
| Bldg interior cleaners, other | . 29 | . 26 | .13 | . 28 | . 25 | . 12 | . 40 | . 42 | . 34 |
| Janitors and sextons | .49 | .37 | - 10 | . 45 | . 36 | .13 | . 79 | . 76 | . 57 |
| Food service workers | . 00 | . 00 | .00 | . 02 | . 02 | .01 | 2.73 | 1.96 | 1.93 |
| Waiterst assistants | - 00 | .00 | . 00 | .00 | .00 | .00 | - 10 | . 12 | . 27 |
| Cooks, exc private housenolds | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 43 | . 30 | . 15 |
| Dishwashers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 15 | . 11 | .17 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 46 | . 45 | . 47 |
| Waiters | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | 1.20 | . 64 | . 30 |
| Other food serv wrss,exc privt | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 39 | . 35 | . 56 |
| Personal service workers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .93 | 1.04 | . 93 |
| Attendants, personal serv,otner | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 10 | - 10 | . 13 |
| Barders | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 01 | . 01 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 04 |
| Elevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 11 | . 07 | .01 |
| Hairdressers and cosmetoloyists | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 60 | . 80 | . 70 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 05 | . 04 | . 04 |
| Protective service workers | . 18 | . 14 | . 05 | . 04 | . 04 | . 07 | . 54 | . 58 | . 49 |
| Guards | . 17 | - 14 | . 05 | . 04 | . 04 | .07 | . 45 | . 49 | . 45 |
| police and detectives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 08 | . 05 |
| Laborers, except farm | 8.22 | 7. 13 | 4.24 | 2.30 | 2. 10 | 1.11 | 3.44 | 3.78 | 3.67 |
| Carpenter helfers | . 48 | . 42 | . 51 | . 04 | . 04 | . 06 | . 01 | .01 | . 01 |
| Constr labrexc carpenter helpr | 1.53 | 1.23 | . 54 | . 14 | - 10 | .02 | . 03 | . 03 | . 04 |
| Freight and material handlers | 3.17 | 2.88 | 1.84 | . 34 | . 34 | . 26 | . 38 | .42 | . 50 |
| Garbage collectors | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 06 | . 05 | . 02 | . 08 | . 08 | . 09 | . 01 | . 02 | .03 |
| Timbercutting, logging workers | . 18 | . 15 | . 06 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Stock handlers | 1.12 | . 95 | - 26 | 1.34 | 1.21 | .41 | 2.64 | 2.97 | 2.81 |
| Teamsters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Venicle washers.equip cleaners | . 03 | . 03 | .01 | . 06 | . 06 | .04 | . 01 | . 02 | . 02 |
| Warehouse labcrers, other | . 43 | . 42 | . 40 | . 21 | . 21 | . 19 | . 30 | . 26 | . 18 |
| Other laborers | 1.22 | . 99 | .57 | . 07 | . 06 | . 04 | . .04 | .04 | . 05 |

Table 1. Percent distribution of industry employment by occupation. 1970, 1978 and projected 1990


Total all occupations

| Professional and technical |
| :---: |
| Engineers, technical |
| Electrical |
| Industrial |
| Mechanical |
| Other engineers |
| Mathematical specialists |
| Statisticians |
| Engineering, science technicians Drafters |
|  |  |
|  |
| Medical workers, exc technicians |
| Dietitians |
| Pharmacists |
| Registered nurses |
| Technicians, except health |
| Airplane filots |
| Radio operators |
| Other technicians except health |
| Computer specialists |
| Computer programers |
| Computer systems analysts |
| Other computer specialists |
| Social scientists |
| Economists |
| Teachers |
| adult education |
| Other teachers |
| miters, artists, entertainers |
| Athletes and kindred workers |
| Designers |
| Editors and reforters |
| painters and sculptors |
| Photographers |
| Public relations specialists |
| other writers,artists, entertain |
| Other professicnal and technical |
| accountants |
| Lawyers |
| Operations and systems research |
| Personnel, labcr relations wkrsOther research workers |
|  |  |

Managers, officials, proprietors
Buyers,sales,lcan managers
Bank, financial managers
Credit managers
Buyers, wholesale, retail trade Sales manager, retail trade

Other managers, officials, proprts
Mgrs, superintendents, building office managers, other
Resta urant, cafe,bar,managers
other managers, administrators
Sales workers
advertising agents,sales worker Demonstrators
other sales workers
Clerical workers
$100.00 \quad 100.00 \quad 100.00$

| 2.27 | 2.75 | 2.38 | 1.19 | 1.39 | 1.12 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| . 05 | . 06 | . 06 | . 01 | . 01 | .00 |
| .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| . 02 | . 03 | . 03 | . 00 | . 00 | . 00 |
| . 01 | .01 | . 01 | .00 | .00 | . 00 |
| .01 | . 01 | . 02 | . 01 | . 01 | . 00 |
| . 02 | . 02 | . 02 | .01 | . 00 | .00 |
| . 02 | . 02 | . 02 | . 01 | . 00 | .00 |
| . 04 | . 05 | . 08 | . 04 | . 05 | . 09 |
| . 02 | . 02 | . 03 | . 04 | . 05 | . 09 |
| . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| . 09 | - 08 | . 03 | . 02 | . 03 | . 05 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 05 | . 04 | . 01 | . 02 | . 02 | . 05 |
| . 04 | . 04 | . 02 | . 00 | . 00 | .00 |
| . 01 | . 02 | . 02 | . 01 | . 01 | .01 |
| . 00 | .00 | . 00 | . 01 | . 01 | . 01 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| .01 | . 02 | .02 | - 00 | . 00 | . 00 |
| . 15 | . 21 | . 19 | . 06 | . 09 | . 07 |
| . 10 | . 12 | -11 | .03 | . 04 | . 03 |
| . 05 | . 07 | . 06 | . 02 | . 03 | . 03 |
| . 01 | . 02 | . 02 | .01 | . 02 | .01 |
| . 02 | . 04 | . 04 | .00 | . 00 | .00 |
| . 02 | . 04 | . 04 | . 00 | . 00 | . 00 |
| . 10 | . 09 | . 07 | . 00 | . 00 | . 00 |
| . 02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| . 08 | . 06 | -05 | . 00 | . 00 | . 00 |
| . 67 | . 88 | . 85 | . 06 | . 09 | . 15 |
| .04 | . 06 | . 06 | . 00 | . 00 | . 00 |
| . 17 | . 21 | . 20 | . 03 | . 05 | . 08 |
| . 14 | - 16 | . 12 | . 02 | . 03 | . 04 |
| . 21 | . 33 | - 36 | . 00 | . 00 | . 00 |
| . 03 | . 03 | . 01 | . 00 | . 00 | . 00 |
| . 06 | . 08 | . 07 | . 01 | . 02 | . 04 |
| . 01 | . 02 | . 02 | . 00 | . 00 | .00 |
| 1. 12 | 1.31 | 1.02 | .99 | 1. 12 | . 75 |
| . 56 | .68 | . 60 | . 20 | . 26 | . 26 |
| . 02 | . 04 | . 02 | . 02 | . 04 | . 05 |
| . 03 | . 04 | . 03 | . 01 | . 02 | . 03 |
| . 49 | - 53 | . 34 | . 75 | .79 | . 40 |
| . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| 13.66 | 15.11 | 16.30 | 18.35 | 21.98 | 22.30 |
| 8.22 | 8.46 | 10.00 | 5.27 | 4.72 | 3.19 |
| . 12 | . 13 | . 12 | . 04 | . 04 | . 03 |
| . 45 | . 28 | . 25 | . 37 | . 24 | - 26 |
| 2.03 | 1. 95 | 1.77 | 1.24 | 1.05 | . 58 |
| 5.62 | 6.10 | 7.86 | 3.63 | 3.39 | 2.33 |
| 5.44 | 6.65 | 6.30 | 13.07 | 17.26 | 19.11 |
| . 01 | . 02 | . 03 | . 01 | . 01 | .01 |
| . 25 | . 30 | . 40 | . 36 | . 39 | . 35 |
| . 12 | . 12 | . 12 | - 30 | . 24 | . 09 |
| 5.06 | 6.22 | 5.75 | 12.40 | 16.62 | 18.65 |
| 39.33 | 34.21 | 32.36 | 40.46 | 34.79 | 30.46 |
| . 05 | . 07 | . 07 | . 04 | . 06 | - 10 |
| . 07 | . 07 | . 14 | . 07 | . 07 | . 15 |
| 39.21 | 34.08 | 32.16 | 40.35 | 34.66 | 30.22 |
| 27.62 | 29.88 | 32.24 | 23.57 | 27.05 | 34.04 |

$100.00 \quad 100.00 \quad 100.00$

| 1.91 | 2.08 | 1.71 |
| :---: | :---: | :---: |
| . 23 | . 22 | . 22 |
| . 01 | .01 | . 00 |
| . 08 | . 10 | . 11 |
| . 07 | . 04 | .00 |
| . 07 | . 07 | . 11 |
| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 12 | . 15 | . 25 |
| . 07 | . 07 | . 09 |
| . 05 | . 07 | . 16 |
| . 11 | . 07 | . 02 |
| . 08 | . 05 | .01 |
| . 00 | . 00 | . 00 |
| .03 | . 02 | . 01 |
| . 06 | . 08 | . 07 |
| . 00 | . 00 | . 00 |
| . 05 | . 07 | . 07 |
| . 01 | . 01 | . 00 |
| . 07 | . 08 | . 03 |
| . 04 | . 03 | . 00 |
| . 02 | . 03 | . 02 |
| . 01 | . 02 | .01 |
| . 01 | . 01 | . 00 |
| . 01 | . 01 | . 00 |
| . 02 | . 02 | . 02 |
| . 02 | . 02 | . 02 |
| .00 | . 00 | . 00 |
| . 15 | . 20 | . 24 |
| .00 | . 00 | . 00 |
| . 08 | . 10 | . 12 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 07 | . 09 | - 12 |
| .00 | .00 | . 00 |
| 1.15 | 1.26 | . 87 |
| . 78 | . 89 | . 70 |
| . 01 | . 01 | - 00 |
| . 00 | . 00 | . 00 |
| .36 | . 36 | . 17 |
| . 00 | . 00 | . 00 |
| 15.56 | 17.40 | 17.84 |
| 1.95 | 1.99 | 2.32 |
| . 16 | . 16 | . 10 |
| . 06 | . 04 | . 06 |
| . 29 | . 30 | . 37 |
| 1.43 | 1.49 | 1.79 |
| 13.62 | 15.42 | 15. 52 |
| . 05 | . 07 | . 14 |
| . 66 | . 74 | . 96 |
| . 51 | . 49 | . 42 |
| 12.40 | 14.13 | 14.00 |
| 3.76 | 3.98 | 5.01 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| 3.76 | 3.98 | 5.01 |
| 12.93 | 13.48 | 14.90 |


|  | Department stores. mail order |  |  | Limited price stores |  |  | Vending machine operators |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Stenographrs, typists, secretaries | 2.57 | 2.64 | 2.88 | 1.36 | 1.43 | 1.58 | 2.97 | 3.06 | 3.47 |
| other secretaries | 1.48 | 1.63 | 1.92 | . 95 | 1.06 | 1.25 | 2.44 | 2.60 | 3.03 |
| Stenographers | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 |
| Typists | 1.06 | . 99 | .96 | . 39 | . 36 | .33 | . 52 | .45 | . 42 |
| Office machine operators | 1.21 | 1.27 | 1.12 | . 40 | - 38 | . 20 | . 42 | . 41 | . 29 |
| Bookkeeping and billing | . 17 | . 11 | . 14 | . 02 | . 01 | . 01 | . 04 | . 02 | . 03 |
| Calculating | . 24 | . 21 | . 29 | . 08 | . 05 | . 02 | . 04 | - 02 | . 01 |
| Computer and peripheral equip | . 17 | . 40 | . 31 | . 07 | . 15 | . 11 | . 05 | . 14 | . 16 |
| Duplicating | . 02 | - 02 | . 03 | .01 | . 01 | .01 | . 00 | . 00 | .00 |
| Keypunch | -44 | . 36 | . 20 | . 20 | . 14 | . 04 | . 28 | . 21 | . 09 |
| Tabulating | . 01 | . 00 | . 00 | .00 | . 00 | .00 | .00 | . 00 | . 00 |
| other office machine operators | . 16 | .18 | .15 | .02 | . 03 | . 02 | . 01 | . 01 | . 01 |
| Other clerical workers | 23.84 | 25. 97 | 28.24 | 21.82 | 25. 24 | 32.26 | 9.53 | 10.02 | 11. 14 |
| Billing clerks | . 43 | . 54 | . 85 | . 20 | . 22 | . 24 | . 11 | . 15 | . 26 |
| Bookk eepers | 2.58 | 2.54 | 1.96 | 2.86 | 3.07 | 3.19 | 3.35 | 3.31 | 3.20 |
| Cashiers | 5.82 | 6.84 | 8.52 | 12.38 | 15.58 | 23. 16 | 2.34 | 2.66 | 3.17 |
| Clerical supervisors, other | . 38 | . 48 | . 56 | . 31 | . 35 | . 27 | . 08 | .10 | . 12 |
| Collectors, bill and account | . 32 | - 35 | . 40 | . 13 | . 11 | . 05 | . 26 | . 27 | . 32 |
| Counter clerks, exc food | 1.26 | 1.45 | 1.80 | . 49 | . 50 | . 40 | - 15 | .18 | . 23 |
| Dispatchers, starters, vehicle | . 04 | . 05 | . 08 | -01 | . 01 | . 01 | . 12 | . 16 | . 26 |
| Estimators, investigators, other | 1.39 | 1. 74 | 1.36 | . 19 | . 21 | . 09 | . 25 | . 30 | . 27 |
| Expediters, frcduction controlrs | . 12 | . 16 | . 24 | . 03 | . 03 | . 02 | .06 | . 08 | . 14 |
| File clerks | -62 | . 50 | -30 | . 20 | - 19 | . 19 | . 10 | . 09 | . 10 |
| Library attendants, assistants | . 01 | . 01 | .01 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Mail handlers,exc fost office | .33 | . 36 | . 41 | . 07 | . 07 | . 05 | . 09 | . 09 | . 10 |
| Messengers and office helpers | . 05 | . 05 | . 03 | . 02 | . 02 | . 04 | . 06 | . 05 | . 04 |
| Payroll, timekeeping clerks | . 35 | . 41 | . 35 | . 22 | . 30 | . 40 | . 23 | . 26 | . 22 |
| Receptionists | . 22 | . 23 | . 24 | . 09 | . 07 | . 02 | . 29 | - 30 | . 31 |
| Shipping and receiving clerks | 1.50 | 1.49 | 1.64 | . 73 | - 83 | 1.24 | . 26 | . 24 | . 25 |
| Statistical clerks | . 43 | . 56 | . 71 | . 15 | . 15 | . 09 | . 24 | .31 | . 42 |
| Stock clerks and store keepers | 2.08 | 2.03 | 2.16 | 2.01 | 1.71 | 1.00 | . 81 | . 80 | . 96 |
| Telephone operators | . 68 | . 50 | . 43 | . 08 | . 07 | - 10 | . 10 | . 04 | . 00 |
| Weighers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | 5.22 | 5. 69 | 6.19 | 1. 65 | 1. 76 | 1.72 | . 61 | . 63 | .79 |
| Crafts and kindred workers | 4.27 | 5.08 | 5.05 | 1.82 | 2. 10 | 1.98 | 24.73 | 27.68 | 29.05 |
| Construction crafts workers | . 38 | . 35 | . 24 | . 14 | . 14 | . 13 | . 21 | . 20 | . 19 |
| Carpenters and apprentices | . 20 | .18 | . 07 | .11 | . 11 | . 05 | .06 | . 05 | . 03 |
| Brick, stonemasons, apprentices | . 00 | . 00 | .00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 07 | . 07 | . 05 | .01 | . 01 | . 04 | . 06 | . 05 | . 01 |
| Painters and apprentices | . 07 | . 08 | .11 | .00 | . 00 | . 00 | . 07 | . 08 | .13 |
| plumbers, pipefitters, aprentices | . 02 | . 01 | .01 | .01 | . 02 | . 04 | . 03 | . 02 | .02 |
| Blue collar worker supervisors | 1.06 | 1. 19 | 1.10 | 1.09 | 1.30 | 1.41 | 3.29 | 3.39 | 2.28 |
| Metalworkg craft wrkrs,exc mech | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 38 | . 35 | . 24 |
| Heat treaters, annealers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | .01 |
| Forge and hammer operatcrs | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Job and die setters, metal | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 03 | . 03 |
| Machinists and apprentices | . 01 | -01 | . 03 | . 00 | . 00 | . 00 | . 19 | . 19 | . 15 |
| Millurights | . 00 | . 00 | . 00 | . 00 | .00 | .00 | .03 | . 02 | .01 |
| Sheetmetal morkers, apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Tool and diemakers, apprentices | .00 | .00 | .00 | .00 | . 00 | . 00 | . 06 | . 04 | . 03 |
| Mechanics, repairers, installers | 1.30 | 1.49 | 1.81 | . 18 | . 16 | . 12 | 20.59 | 23.52 | 26.23 |
| Air cond, heating, refrig meca | .16 | . 23 | . 24 | . 00 | . 00 | .00 | . 02 | . 02 | . 01 |
| Auto body repairers | .01 | .01 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 00 | . 00 | . 00 | . 07 | . 05 | . 03 | . 23 | . 23 | . 31 |
| Heavy eguip mech, incl diesel | . 12 | . 17 | . 28 | . 03 | . 04 | . 05 | .73 | . 97 | 1.38 |
| Household appliance mechanics | . 53 | . 69 | 1.01 | . 02 | . 02 | . 01 | . 13 | . 16 | . 24 |
| office machine repairers | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Radio, television repairers | . 36 | . 27 | . 12 | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 08 | - 10 | . 12 | . 03 | . 03 | .01 | 19.49 | 22.14 | 24.30 |
| Printing trade crafts workers | . 09 | . 09 | . 06 | . 04 | . 06 | . 09 | . 00 | . 00 | .00 |
| Compositors and typesetters | . 06 | . 05 | . 02 | . 02 | . 03 | . 04 | . 00 | .00 | . 00 |
| Press, plate printers,aprentices | . 03 | . 04 | . 04 | . 02 | . 03 | . 05 | .00 | .00 | . 00 |


|  | Department stores, mail order |  |  | Limited price stores |  |  | Vending machine operators |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.44 | 1. 94 | 1.81 | . 37 | - 44 | - 23 | . 26 | . 23 | . 11 |
| Bakers | . 06 | . 06 | . 04 | . 08 | . 06 | . 01 | - 15 | . 13 | . 07 |
| Cabinetmakers | . 05 | . 05 | . 02 | -00 | . 00 | . 00 | . 04 | . 03 | .01 |
| carpet installers | . 00 | . 08 | . 13 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Decorators, window dressers | .77 | 1.23 | . 96 | -23 | . 32 | . 13 | . 02 | .03 | . 02 |
| Furniture and wood finishers | . 05 | . 05 | . 06 | -00 | - 00 | . 00 | - 00 | . 00 | .00 |
| Inspectors, other | . 06 | . 06 | .03 | -00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Jewelers and watchmakers | .06 | . 06 | . 06 | . 01 | . 02 | - 06 | . 00 | . 00 | . 00 |
| Shoe repairers | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 05 | . 06 | . 09 | . 03 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Stationary engineers | . 06 | - 04 | . 01 | -01 | .01 | .01 | . 02 | . 02 | .01 |
| Tailors | . 17 | . 22 | .36 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Upholsterers | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| other crafts workers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 02 | .01 |
| Operatives | 3.35 | 3.51 | 3.37 | .76 | . 84 | 1.05 | 29.88 | 25.55 | 20.05 |
| Operatives, exceft transfort | 2.60 | 2.79 | 2.71 | . 35 | -34 | .25 | 2.39 | 2.18 | 1.90 |
| Semiskilled metalworking | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 45 | . 40 | . 40 |
| Grinding machine cperatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 07 | . 08 |
| Lathe, milling mach operatives | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 11 | . 09 | . 08 |
| Metal platers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | .03 | . 03 | . 02 |
| Other precisicn mach operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -10 | . 08 | . 09 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | .00 |
| Welders and flamecutters | . 01 | . 01 | .01 | . 00 | - 00 | . 00 | . 13 | . 13 | - 12 |
| Semiskilled packing, inspecting | .91 | . 88 | .77 | . 14 | . 13 | . 10 | 1.10 | . 87 | . 36 |
| Meat wrappers, retail trade. | . 01 | . 01 | .01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Packer,wrapper, exc meat, prodce | . 90 | . 87 | . 76 | . 13 | . 13 | . 10 | 1.10 | . 87 | . 36 |
| Other operatives, exc transport | 1.68 | 1. 90 | 1.93 | . 21 | - 21 | - 14 | -84 | -91 | 1. 13 |
| Assemblers | . 02 | . 02 | . 02 | . 03 | . 04 | . 06 | . 16 | .17 | . 18 |
| clothing ironers and pressers | .03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| cutting operatives, other | . 05 | . 06 | . 09 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dressmakers, exc factory | . 88 | 1.06 | . 83 | - 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Filer, polisher, sander, buffer | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 17 |
| Garage wrkr.gas station atten | . 25 | - 19 | . 24 | . 02 | . 01 | . 01 | . 07 | . 06 | . 09 |
| Meat cutters, $\mathrm{butchers,exc} \mathrm{mfy}$ | . 06 | . 05 | .03 | . 04 | . 03 | - 02 | . 06 | .03 | . 00 |
| Milleners | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Oilers, greasers,exc automobiles | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Sewers and stitchers | . 08 | . 09 | . 18 | . 00 | . 00 | - 00 | -00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | . 01 | . 01 | .01 | . 00 | -00 | . 00 | . 04 | . 02 | . 01 |
| Miscellaneous machine oferatves | . 09 | . 11 | - 15 | . 05 | . 05 | . 03 | - 30 | . 34 | . 39 |
| Other operatives, exc transport | . 19 | . 25 | .31 | . 07 | - 07 | . 03 | - 22 | . 27 | - 30 |
| Transport equipment oferatives | . 75 | . 73 | . 66 | . 41 | - 50 | . 81 | 27.50 | 23.37 | 18.16 |
| Bus drivers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .05 | . 06 | . 01 |
| Delivery and route workers | . 33 | . 30 | - 30 | - 11 | - 12 | - 16 | 26.36 | 22.45 | 17.73 |
| Fork lift, tow motor operatives | . 09 | . 13 | . 18 | .14 | . 18 | . 17 | . 06 | . 09 | . 17 |
| Parking attendants | . 03 | . 04 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Truck drivers | . 29 | . 24 | . 11 | - 15 | . 21 | . 47 | 1.04 | . 77 | . 25 |
| Service workers | 5.76 | 5. 24 | 4.26 | 9.13 | 7.54 | 7.41 | 9.72 | 8.24 | 9.81 |
| Cleaning service workers | 1.48 | 1.45 | 1.04 | . 98 | - 86 | - 40 | . 67 | . 67 | . 60 |
| Bldg interior cleaners, other | . 51 | . 53 | . 41 | -31 | - 29 | . 14 | . 20 | . 22 | . 19 |
| Janitors and sextons | . 96 | . 91 | .63 | . 67 | - 58 | - 27 | . 47 | . 45 | . 40 |
| Pood service workers | 2.16 | 1. 52 | 1.36 | 7.82 | 6.31 | 6.56 | 8.98 | 7.52 | 9.21 |
| Waiters' assistants | . 11 | . 14 | . 32 | -16 | . 13 | . 06 | . 04 | . 05 | . 05 |
| Cooks, exc private households | . 33 | . 23 | . 09 | . 98 | - 84 | . 78 | 1.40 | . 91 | - 29 |
| Dishwashers | . 15 | . 11 | . 20 | . 39 | . 21 | . 09 | . 19 | . 15 | . 25 |
| rood counter, fountain workers | . 30 | . 30 | . 26 | 1.75 | 2.04 | 2.80 | . 67 | . 67 | . 62 |
| Waiters | 1.01 | . 49 | . 12 | 4.30 | 2.91 | 2.71 | . 60 | . 29 | . 07 |
| Other food serv wkrs,exc privt | . 26 | . 24 | .37 | . 24 | . 18 | . 12 | 6.08 | 5.47 | 7.93 |


|  | Department stores, mail order |  |  | Limited price stores |  |  | Vending machine operators |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 1.35 | 1.49 | 1.23 | . 15 | . 15 | .13 | . 00 | . 00 | . 00 |
| Attendants, personal serv, other | . 16 | - 15 | - 18 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Barbers | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Child care workers, exc private | . 03 | - 02 | . 04 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Elevator operators | . 16 | . 10 | . 01 | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Hairdressers and cosmetologists | . 93 | 1.16 | . 94 | . 07 | . 10 | . 11 | . 00 | .00 | . 00 |
| Housekeepers, exc private homes | . 07 | . 06 | . 05 | . 05 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Protective service workers | . 78 | . 78 | . 63 | . 19 | . 22 | . 31 | . 07 | . 05 | . 01 |
| Guards | . 65 | . 67 | . 57 | .17 | . 20 | . 29 | . 05 | . 04 | .01 |
| Police and detectives | . 13 | . 11 | . 06 | . 02 | - 02 | . 03 | . 02 | .01 | . 00 |
| Laborers, except farm | 3.74 | 4.22 | 4.04 | 4.73 | 4.32 | 1.64 | 1.52 | 1.59 | 1.62 |
| Carpenter helfers | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Constr labrexc carpenter helpr | .03 | . 04 | . 04 | . 01 | . 01 | .01 | . 02 | . 01 | . 00 |
| Freight and material handlers | . 45 | . 48 | . 54 | . 27 | . 26 | - 20 | . 27 | - 30 | . 40 |
| Gardenrs, groundkeepers, exc farm | . 01 | . 02 | . 03 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Timbercutting, logging workers | . 01 | . 02 | . 03 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | 2.87 | 3. 34 | 3.17 | 4.16 | 3.76 | 1.18 | . 50 | -61 | . 68 |
| Teamsters | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Venicle washers, equip cleaners | . 01 | . 01 | .01 | . 00 | . 00 | .00 | . 26 | . 29 | . 29 |
| Warenouse labcrers, other | . 31 | . 28 | . 16 | . 23 | . 23 | . 21 | .31 | . 24 | .09 |
| Other laborers | . 04 | . 04 | . 05 | . 03 | . 03 | . 04 | .11 | . 10 | - 11 |

Table 1. fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Direct selling |  |  | Misc merchandise stores |  |  | ```Food and dairy stores``` |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| rotal all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Frofessional and technical | . 50 | . 61 | . 54 | 2.40 | 2.43 | 2.37 | . 55 | . 66 | . 71 |
| Engineers,technical | . 02 | . 01 | . 00 | . 08 | . 08 | . 15 | . 03 | . 03 | . 06 |
| Electrical | . 00 | .00 | . 00 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Industrial | .01 | .01 | . 00 | . 04 | . 04 | . 09 | -01 | . 01 | . 02 |
| Kechanical | . 00 | . 00 | . 00 | . 02 | .01 | . 03 | . 01 | . 01 | .01 |
| Other engineers | . 01 | . 00 | . 00 | . 01 | .01 | - 03 | . 01 | .01 | . 02 |
| Life and physical scientists | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Chemists | . 00 | . 00 | .00 | .01 | . 01 | . 02 | . 00 | .00 | .00 |
| Mathematical stecialists | .01 | . 01 | . 00 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Statisticians | . 01 | . 01 | . 00 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Engineering, science technicians | . 02 | . 02 | . 04 | . 05 | . 05 | . 08 | . 01 | .01 | . 01 |
| Drafters | . 01 | .01 | -01 | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Other engineering,science teca | .01 | .01 | . 03 | . 02 | . 03 | . 07 | . 00 | . 00 | . 00 |
| Medical workers, exc technicians | . 01 | . 00 | . 00 | . 04 | . 03 | - 02 | . 04 | . 03 | . 08 |
| Pharmacists | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 02 | . 02 | . 07 |
| Registered nurses | . 01 | . 00 | . 00 | . 01 | . 01 | .01 | .01 | . 01 | . 01 |
| Health technolcgists, technicians | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| clinical lab technologists, tech | . 00 | . 00 | . 00 | . 01 | .01 | .03 | . 00 | . 00 | . 00 |
| Technicians, except health | . 00 | . 00 | -00 | . 02 | .03 | . 05 | . 00 | . 00 | . 00 |
| Other technicians except health | . 00 | . 00 | . 00 | . 02 | .03 | . 05 | . 00 | .00 | .00 |
| Computer specialists | . 06 | . 06 | -05 | - 12 | . 16 | . 15 | . 03 | . 05 | . 12 |
| Computer programers | . 05 | . 05 | . 04 | . 06 | . 07 | . 08 | . 02 | . 03 | .07 |
| Computer systems analysts | . 01 | . 01 | . 01 | . 05 | . 06 | . 05 | .01 | . 02 | . 05 |
| other computer specialists | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 00 | .00 | .00 |
| Social scientists | . 02 | . 04 | . 02 | . 01 | . 02 | . 03 | . 01 | . 02 | . 04 |
| Economists | . 02 | . 04 | . 02 | . 01 | . 02 | .03 | .01 | . 02 | . 04 |
| Teachers | .03 | . 03 | . 01 | -71 | . 53 | . 30 | .00 | . 00 | . 00 |
| Adult education | . 03 | . 03 | . 01 | . 02 | . 04 | . 05 | . 00 | .00 | .00 |
| Other teachers | . 00 | . 00 | .00 | . 68 | -49 | . 25 | . 00 | .00 | .00 |
| Writers,artists, entertainers | . 10 | . 11 | . 14 | . 21 | . 27 | . 26 | . 05 | .07 | . 06 |
| Designers | . 02 | . 03 | . 02 | . 09 | - 12 | . 09 | .01 | . 01 | . 02 |
| Editors and reporters | . 05 | . 05 | . 08 | . 02 | . 02 | . 03 | -01 | . 01 | . 01 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 04 | . 06 | . 06 | . 02 | . 03 | . 03 |
| Public relaticns specialists | . 03 | . 03 | . 02 | . 04 | . 04 | . 06 | . 01 | .01 | .01 |
| Other writers,artists, entertain | .01 | .01 | . 02 | .01 | . 02 | . 02 | . 00 | .00 | .00 |
| Other professional and technical | . 29 | . 33 | . 28 | 1.15 | 1.22 | 1.25 | -37 | -43 | - 34 |
| Accountants | - 10 | - 10 | . 13 | . 58 | . 63 | . 71 | - 22 | . 25 | .18 |
| Architects | . 00 | . 00 | . 00 | -03 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Lawyers | .01 | . 02 | . 03 | . 01 | . 02 | . 01 | -01 | . 02 | . 02 |
| Operations and systems research | .00 | . 00 | . 00 | . 04 | . 05 | . 07 | . 01 | . 01 | . 02 |
| Personnel, labcr relations wkrs | . 17 | - 20 | -10 | -45 | -47 | -41 | - 14 | . 15 | . 12 |
| Other research morkers | . 01 | .01 | . 02 | . 02 | . 02 | . 03 | . 00 | .00 | . 00 |
| Managers, officials, proprietors | 4.20 | 5.97 | 4.74 | 19.36 | 23.46 | 27.02 | 18.90 | 18.97 | 21.41 |
| Buyers,sales, lcan managers | 1.96 | 1.86 | 1.73 | 4.79 | 5.18 | 6.76 | 3.32 | 3.47 | 4.42 |
| Bank, financial managers | . 01 | . 00 | . 00 | . 06 | . 07 | . 08 | . 03 | . 03 | . 03 |
| Credit managers | . 04 | . 02 | . 02 | . 20 | . 13 | . 12 | . 02 | .01 | .01 |
| Buyers, wholesale, retail trade | . 05 | . 05 | . 05 | 1.52 | 1.59 | 1.98 | -53 | . 52 | . 71 |
| Sales manager, retail trade | 1.86 | 1.79 | 1.66 | 3.01 | 3. 38 | 4.58 | 2.74 | 2.90 | 3.67 |
| Other managers, officials, proprts | 2.24 | 4. 11 | 3.01 | 14.57 | 18.28 | 20.26 | 15.58 | 15.50 | 16.99 |
| Office ranagers, other | -19 | . 19 | -23 | - 24 | . 29 | - 40 | -09 | . 10 | . 14 |
| Hestaurant, cafe, bar,managers | . 02 | . 02 | . 02 | - 18 | . 15 | .17 | .19 | . 13 | . 13 |
| Other managers, administrators | 2.03 | 3.90 | 2.76 | 14.14 | 17.84 | 19.69 | 15.30 | 15.27 | 16.73 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Sales workers
advertising agents, sales worker
Auctioneers
Demonstrators
Hucksters and pedders
Newspaper carriers and vendors
Other sales wcrkers

Clerical workers
Stenographrs,typists,secretaries
Other secretaries
Stenographers
Tyfists
office machine operators
Bookkeeping and billing
Calculating
computer and feripheral equip
Duplicating
Keypunch
Other office aachine operaturs
Other clerical workers
Billing clerks
Bookkeepers
Cashiers
Clerical supervisors, other
Collectors, bill and account
Counter clerks,exc food
Dispatchers,starters, vehicle
estimators, investigators, other
Expediters, prcduction controles
File clerks
Mail handlers,exc post cffice
Messengers and office helpers
Payroll, timekeeping clerks
Eeceptionists
Snipping and receiving clerks
Statistical clerks
Stock clerks and store keepers
Telephone operators
weighers
Misc clerical workers
Crafts and kindred wrokers
Construction crafts workers
Carpenters and apprentices Electricians and apprentices floor layers, exc tile setters Painters and apprentices
Plumbers, pipefitters,aprentices Tile setters

Blue collar worker supervisors
Metalworkg craft wrkrs, exc meca
Machinists and apprentices
Pattern and mcldmakers
Mechanics,repairers,installers
Air cond, heating, refrig mech
Aircraft mechanics
Auto body repairers
Auto mechanics and apprentices
Heavy equip mech, incl diesel
Household appliance mechanics
office machine repairers
Radio, television repairers
Other mechanics and apprentices
Printing trade crafts workers
Compositors and typesetters
Engravers exc photoengravers
press, plate frinters, aprentices

Direct
selling

1970 88
88.
15
63
4
4
3
1.1
.8
.0
.37
.24
.02
1.
8
86
16
5

| 86.23 | 8 |
| ---: | ---: |
| .08 |  |
| .01 |  |
| 16.13 | 16 |


| 40.87 | 35.55 |
| ---: | ---: |
| .03 | .04 |
| .00 | .00 |
| .01 | .02 |
| .00 | .00 |
| .00 | .00 |
| 40.83 | 35.49 |
| 22.12 | 23.01 |


| 2.09 | 2.09 |
| ---: | ---: |
| 1.30 | 1.43 |
| .06 |  |

26. 

13.22
.01
.00
.04
.00
.00
13.16
26.26

Food and dairy stores

1978

1990

| . 64 | . 67 | . 74 |
| :---: | :---: | :---: |
| . 50 | . 55 | .63 |
| . 01 | . 01 | . 01 |
| . 13 | . 12 | . 10 |
| .35 | .38 | . 38 |
| . 02 | . 01 | . 02 |
| . 13 | - 11 | . 14 |
| . 06 | . 13 | . 10 |
| . 00 | .00 | . 00 |
| - 11 | . 10 | . 10 |
| . 02 | . 02 | . 02 |
| 25.27 | 27.27 | 30.08 |
| . 04 | . 05 | . 08 |
| 1.80 | 1.74 | 1.70 |
| 19.68 | 21.51 | 24.25 |
| . 05 | . 06 | . 07 |
| . 01 | . 01 | .03 |
| . 31 | . 36 | . 50 |
| . 03 | . 03 | . 03 |
| . 08 | . 11 | . 10 |
| . 02 | . 03 | . 05 |
| . 05 | . 05 | . 05 |
| . 07 | . 08 | . 10 |
| .03 | . 02 | . 02 |
| . 09 | . 09 | . 07 |
| . 04 | . 04 | . 04 |
| . 32 | - 29 | .21 |
| . 04 | . 05 | . 07 |
| 1.91 | 1.94 | 1.74 |
| . 04 | . 02 | . 01 |
| . 14 | .17 | . 24 |
| . 50 | . 59 | . 75 |
| 3.34 | 3.27 | 2.48 |
| . 15 | . 14 | . 11 |
| . 09 | . 07 | . 02 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| . 03 | . 03 | . 06 |
| . 01 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| . 67 | . 70 | . 47 |
| . 02 | . 02 | . 01 |
| . 01 | . 01 | .01 |
| . 00 | . 00 | . 00 |
| . 34 | . 42 | . 52 |
| . 06 | . 09 | . 08 |
| . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| . 15 | . 16 | . 20 |
| . 09 | .13 | . 20 |
| .00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | .01 |
| . 02 | . 02 | .01 |
| .01 | . 01 | . 00 |
| . 00 | . 00 | .00 |
| .01 | . 01 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Direct
selling
$1970 \quad 1978 \quad 1990$

Transport, public util craft wkrs
Elec pur line instaler,repairer
Other crafts, kindred workers Bakers
Cabinetrakers
Carpet installers
Decorators, window dressers
Inspectors, other
Jevelers and watchmakers
opticians, lens grinder, polisher Shoe repairers
Sign painters and letterers
Stationary engineers
Tailors
Upholsterers
other crafts workers
operatives
Operatives, except transport
Semiskilled metalworking
Lathe,milling mach oferatives
welders and flamecutters
Semiskilled packing, inspecting
Heat wrappers, retail trade
Packer, wrapper,exc meat, prodce Produce grdr, fkrs, exc fact, farm

Other operatives, exc transport Assemblers
Bottling, canning operatives
Clothing ironers and pressers
cutting operatives, other
Dressmakers, exc factory
Garage wrkr,gas station atten
Laundry,dry cleang oprs,other
Meat cutters, tutchers, exc mfg
Milleners
Mixing operatives
oilers.greasers,exc automobiles
painters, mfg articles
Sewers and stitchers
Furnace tendr, stokr,exc metal
Miscellaneous machine operatves
Other operatives, exc transport
Transport equifment operatives Bus drivers
Delivery and route workers
Fork lift, tow motor operatives
Parking attendants
Taxicab drivers, chauffeurs
Truck drivers
Service workers
Cleaning service workers
Blag interior cleaners, other
Janitors and sextons
Food service warkers
Bartenders
waiters' assistants
Cooks,exc private households
Dishwashers
rood counter, fountain workers Maiters
other food serv whrs, exc privt
Health service workers

| . 01 | $\begin{array}{r} .01 \\ .01 \end{array}$ | $\begin{aligned} & .03 \\ & .03 \end{aligned}$ |
| :---: | :---: | :---: |
| . 02 | .03 | . 06 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .01 | . 02 | . 05 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | .00 |
| . 01 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 01 | . 02 | .01 |
| 1.88 | 2. 04 | 2.23 |
| .51 | . 51 | -87 |
| . 01 | .01 | . 01 |
| .00 | . 00 | . 00 |
| .01 | . 01 | .01 |
| . 25 | . 21 | . 31 |
| . 00 | . 00 | . 00 |
| . 25 | . 21 | . 31 |
| . 00 | . 00 | . 00 |
| . 25 | . 28 | . 55 |
| .00 | . 00 | . 22 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .02 | . 02 | . 02 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 01 | . 02 | . 02 |
| . 01 | . 01 | . 00 |
| . 00 | . 00 | . 00 |
| .01 | . 01 | . 01 |
| .07 | . 09 | .10 |
| .11 | . 12 | .16 |
| 1.37 | 1. 54 | 1.36 |
| . 00 | . 00 | . 00 |
| 1. 10 | 1. 23 | 1.04 |
| . 03 | . 03 | . 03 |
| .00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| . 23 | - 27 | - 28 |
| . 34 | . 33 | .32 |
| . 09 | . 07 | . 08 |
| . 02 | . 02 | . 02 |
| . 07 | . 06 | . 06 |
| .24 | - 26 | . 23 |
| . 00 | . 00 | . 00 |
| . 00 | - 00 | . 00 |
| . 09 | . 11 | . 03 |
| . 02 | . 03 | . 02 |
| .03 | . 04 | . 10 |
| . 03 | . 02 | . 02 |
| .06 | .07 | . 06 |
| . 00 | . 00 | . 00 |


| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| .00 | .00 | . 00 | .00 | . 00 | . 00 |
| . 75 | 1.00 | 1.00 | 2.14 | 1.98 | 1.37 |
| . 06 | . 06 | . 04 | 1.99 | 1.81 | 1.25 |
| .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| .02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| .36 | . 60 | . 51 | . 06 | . 09 | . 04 |
| . 02 | . 02 | . 03 | . 02 | . 02 | .01 |
| . 10 | . 09 | . 08 | . 00 | .00 | . 00 |
| . 04 | . 03 | . 03 | . 00 | . 00 | . 00 |
| . 01 | . 00 | . 02 | .00 | .00 | . 00 |
| . 02 | . 02 | . 04 | . 02 | . 02 | . 03 |
| . 02 | . 01 | .01 | . 02 | . 02 | . 01 |
| . 08 | - 10 | . 18 | . 00 | . 00 | .00 |
| . 02 | . 02 | . 04 | . 00 | .00 | . 00 |
| .00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| 3.79 | 3.82 | 3.80 | 15.06 | 13.78 | 11.67 |
| 2.59 | 2.76 | 2.93 | 12.96 | 11.66 | 9.39 |
| . 05 | . 05 | . 09 | . 00 | .01 | . 02 |
| . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| . 02 | . 03 | . 07 | . 00 | .01 | . 02 |
| . 31 | . 29 | . 20 | 3.35 | 3.32 | 3.00 |
| . 01 | . 00 | . 00 | 2.36 | 2.46 | 2.43 |
| . 29 | . 27 | . 19 | . 96 | . 82 | . 53 |
| .01 | .01 | . 01 | . 04 | . 05 | . 04 |
| 2.24 | 2.42 | 2.64 | 9.60 | 8.33 | 6.37 |
| . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | .01 | . 02 | . 02 |
| . 06 | . 05 | - 10 | . 00 | .00 | . 00 |
| . 08 | . 11 | .14 | . 02 | .03 | . 04 |
| . 76 | . 94 | . 74 | . 01 | . 01 | .01 |
| . 45 | . 30 | . 39 | .11 | . 08 | . 09 |
| . 04 | . 04 | . 07 | .06 | . 06 | . 08 |
| . 29 | . 27 | . 18 | 8.42 | 6.93 | 5.13 |
| . 01 | .01 | .01 | . 00 | .00 | . 00 |
| . 02 | . 03 | . 04 | .01 | . 02 | . 01 |
| . 02 | . 01 | . 01 | . 00 | -00 | . 00 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 12 | . 14 | . 25 | . 00 | . 00 | . 00 |
| .01 | .01 | .01 | . 00 | .00 | .00 |
| .13 | . 17 | . 25 | . 26 | .31 | . 32 |
| .24 | . 32 | . 39 | . 67 | . 86 | . 67 |
| 1.20 | 1.06 | . 87 | 2.10 | 2.12 | 2.28 |
| . 02 | . 02 | . 00 | . 00 | .00 | .00 |
| . 45 | - 43 | .44 | 1.07 | .97 | . 76 |
| . 07 | . 08 | . 11 | . 22 | . 30 | .41 |
| -00 | . 00 | .00 | .01 | . 01 | .01 |
| . 02 | . 02 | .01 | .01 | .01 | .01 |
| .63 | . 51 | . 31 | . 79 | -83 | 1.10 |
| 4.09 | 3.27 | 3.45 | 2.53 | 2.09 | 1.79 |
| 1. 19 | 1.21 | 1.15 | . 76 | . 80 | . 80 |
| . 34 | . 36 | . 32 | . 28 | . 31 | . 31 |
| . 86 | . 85 | . 83 | . 48 | . 49 | . 49 |
| 1.76 | 1.24 | 1.52 | 1.61 | 1. 15 | . 84 |
| . 03 | . 02 | .01 | . 01 | .01 | .01 |
| . 09 | . 12 | . 39 | .03 | . 04 | . 10 |
| . 48 | . 30 | . 19 | . 42 | . 27 | .11 |
| . 08 | . 06 | . 12 | . 09 | . 07 | . 09 |
| . 38 | . 35 | .33 | . 29 | . 30 | . 21 |
| . 42 | . 19 | . 04 | . 57 | .29 | . 07 |
| . 28 | .21 | . 45 | . 20 | . 18 | . 25 |
| .00 | . 00 | . 00 | .01 | .01 | . 00 |

Table 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Food
and dairy
stores

|  | Grocery <br> stores |  |  | Dairy product stores |  |  |  | Retail bakeries |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| rotal all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | . 59 | . 70 | . 74 | . 69 | . 91 | . 96 | - 16 | - 20 | .31 |
| Engineers, technical | .03 | . 04 | . 07 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Industrial | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanical | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Other engineers | .01 | .01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Engineering, science technicians | .01 | . 01 | . 01 | - 12 | . 17 | - 27 | . 01 | . 01 | . 02 |
| Agricultural, biolgcl, exc health | . 00 | .00 | . 00 | . 08 | . 12 | . 20 | . 00 | . 00 | . 00 |
| Drafters | .01 | . 01 | . 01 | . 01 | . 01 | . 01 | -01 | . 01 | . 01 |
| other engineering, science tech | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | .01 | .01 | . 01 |
| Medical workers, exc technicians | . 04 | . 03 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Pharmacists | . 03 | .02 | . 08 | . 00 | - 00 | . 00 | . 00 | . 00 | .00 |
| Computer specialists | . 04 | . 05 | . 13 | . 05 | . 07 | . 06 | . 01 | .01 | . 08 |
| computer programers | .03 | . 04 | . 07 | . 03 | . 04 | . 04 | . 01 | .01 | . 04 |
| Computer systems analysts | .01 | . 02 | . 05 | - 00 | . 00 | . 00 | . 00 | . 00 | . 04 |
| Other computer specialists | .00 | .00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Social scientists | . 01 | . 02 | . 04 | . 01 | . 02 | .01 | . 00 | . 00 | . 03 |
| Economists | .01 | . 02 | . 04 | .01 | . 02 | . 01 | . 00 | . 00 | . 03 |
| Writers, artists, entertainers | . 05 | . 07 | . 07 | . 04 | . 04 | .01 | . 02 | . 03 | . 02 |
| Designers | .01 | .01 | . 02 | .00 | . 00 | . 00 | . 01 | .01 | .01 |
| Editors and reporters | .01 | . 01 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 02 | . 04 | . 03 | . 00 | - 00 | . 00 | . 00 | . 00 | .00 |
| puolic relaticns specialists | . 01 | . 01 | . 01 | . 04 | . 04 | . 01 | . 01 | . 01 | . 01 |
| Other professicnal and technical | . 40 | - 46 | - 35 | . 48 | . 63 | . 61 | .11 | . 15 | . 16 |
| Accountants | . 23 | . 26 | . 19 | . 30 | . 41 | . 42 | . 06 | . 08 | . 11 |
| Lawyers | .01 | . 02 | . 02 | -01 | . 01 | . 01 | . 00 | . 00 | .00 |
| Operations and systems research | . 01 | . 02 | . 03 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wkrs | . 15 | . 16 | - 12 | . 17 | . 20 | . 18 | . 05 | . 06 | . 05 |
| Managers, officials, proprietors | 19.99 | 19.69 | 21.99 | 17.87 | 21. 15 | 26.70 | 7.36 | 8.98 | 10.49 |
| Buyers,sales, Ican managers | 3.62 | 3. 75 | 4.68 | 1.82 | 2.07 | 2.60 | . 78 | . 89 | 1.07 |
| Bank, financial managers | . 03 | . 04 | . 03 | . 02 | . 02 | .01 | . 02 | . 01 | . 01 |
| Credit managers | . 02 | . 01 | . 01 | . 07 | . 04 | . 04 | . 02 | .01 | . 01 |
| Buyers, wholesale, retail trade | . 53 | . 52 | .69 | . 14 | . 19 | .33 | . 08 | .09 | . 14 |
| Sales manager, retail trade | 3.03 | 3. 19 | 3.95 | 1.59 | 1. 82 | 2.22 | . 67 | .77 | .91 |
| Other managers, officials, proprts | 16.36 | 15.93 | 17.31 | 16.05 | 19.08 | 24.10 | 6.57 | 8.10 | 9.42 |
| office ranagers, other | . 08 | - 10 | . 13 | . 24 | . 29 | . 36 | - 10 | . 11 | - 16 |
| Restautant, cafe, bar, managers | . 20 | . 14 | . 13 | . 16 | . 11 | . 07 | . 06 | . 06 | . 09 |
| other managers. administrators | 16.08 | 15.69 | 17.04 | 15.66 | 18.68 | 23.67 | 6.42 | 7.93 | 9.17 |
| Sales workers | 9.80 | 6.93 | 5.35 | 38.32 | 34.69 | 34.86 | 33.08 | 31.16 | 34.67 |
| Advertising agents, sales worker | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Demonstrators | . 04 | .03 | . 04 | . 12 | . 14 | . 28 | . 02 | . 05 | . 22 |
| other sales workers | 9.75 | 6.88 | 5.29 | 38. 19 | 34. 54 | 34.56 | 33.05 | 31.10 | 34.44 |
| Clerical workers | 29.52 | 31.68 | 34.17 | 10.09 | 11.69 | 12.25 | 4.97 | 5.78 | 6. 16 |
| Stenografhrs, typists,secretaries | . 65 | . 67 | - 72 | 1.01 | 1.14 | 1.19 | . 43 | . 48 | . 59 |
| Legal secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other secretaries | . 51 | . 54 | . 62 | - 88 | 1. 02 | 1.11 | . 36 | . 41 | . 52 |
| Stenographers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Typists | . 13 | . 12 | . 10 | . 11 | .09 | .07 | .07 | . 06 | . 07 |
| Office machine operators | . 37 | . 40 | . 39 | . 56 | -66 | . 88 | . 22 | . 27 | - 30 |
| Bookkeeping and billing | . 02 | . 01 | . 02 | . 05 | . 03 | . 03 | . 01 | . 01 | . 02 |
| Calculating | - 14 | . 12 | . 15 | . 18 | . 18 | . 28 | . 10 | . 09 | . 14 |
| Computer and feripheral equip | . 06 | . 14 | . 10 | - 07 | .17 | - 13 | . 04 | . 12 | - 12 |
| Keypunch | . 12 | . 11 | - 10 | . 22 | . 25 | . 43 | . 05 | . 04 | . 03 |
| Other office nachine operators | . 02 | .03 | . 02 | . 05 | .03 | . 00 | . 01 | . 01 | .01 |


|  | $\begin{aligned} & \text { Grocery } \\ & \text { stores } \end{aligned}$ |  |  | Dairy product stores |  |  | $\begin{aligned} & \text { Betail } \\ & \text { bakeries } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 28.49 | 30.61 | 33.06 | 8.52 | 9.90 | 10.18 | 4.32 | 5.03 | 5.26 |
| Billing clerks | . 04 | . 05 | . 08 | . 14 | . 22 | . 21 | .03 | . 05 | . 10 |
| Bookkeepers | 1.84 | 1.75 | 1.68 | 2.81 | 3.01 | 3.13 | 1.11 | 1.16 | 1.27 |
| Cashiers | 22.53 | 24.53 | 27.01 | 3.32 | 4.13 | 4.12 | 1.80 | 2.21 | 2.19 |
| Clerical supervisors, other | . 06 | . 07 | . 07 | .01 | . 02 | . 02 | .01 | . 01 | . 01 |
| collectors, bill and account | .01 | . 01 | . 02 | . 03 | . 02 | .01 | . 00 | . 00 | . 00 |
| counter clerks, exc food | . 32 | - 37 | . 51 | . 41 | . 53 | .71 | . 25 | . 32 | . 29 |
| Dispatchers,starters, vehicle | . 03 | . 03 | . 03 | . 03 | . 03 | . 04 | . 01 | . 01 | . 03 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | .01 | . 02 |
| Estimators, investigators, other | . 08 | . 11 | . 10 | . 23 | . 31 | . 34 | . 04 | . 06 | . 08 |
| Expediters, prcduction controlrs | . 03 | . 03 | . 06 | . 04 | . 05 | . 08 | . 02 | . 02 | . 04 |
| File clerks | . 05 | . 05 | . 05 | . 05 | . 04 | . 02 | . 02 | .01 | .01 |
| Mail handlers, exc fost office | . 07 | . 08 | - 11 | . 02 | . 02 | . 03 | . 04 | .04 | . 08 |
| Messengers and office helpers | . 03 | . 02 | . 01 | . 06 | . 04 | . 09 | . 01 | . 01 | .01 |
| Paycoll, timekeeping clerks | . 09 | - 10 | . 06 | . 10 | .11 | . 10 | . 05 | . 07 | . 06 |
| Receptionists | . 04 | . 04 | - 04 | . 11 | . 11 | - 11 | . 02 | . 02 | . 04 |
| Shipping and receiving clerks | . 33 | - 28 | . 19 | . 35 | - 38 | - 36 | . 36 | . 38 | - 33 |
| Statistical clerks | . 04 | . 05 | . 06 | . 09 | . 06 | . 01 | . 07 | . 09 | . 10 |
| Stock clerks and store keepers | 2.18 | 2.21 | 1.92 | . 36 | . 41 | . 38 | -18 | . 21 | . 18 |
| Telephone operators | . 04 | . 02 | . 01 | . 07 | . 03 | . 01 | .04 | . 02 | .01 |
| Weighers | . 15 | . 18 | .26 | . 02 | . 03 | . 04 | .05 | . 07 | . 07 |
| Misc clerical workers | . 54 | . 63 | .79 | . 27 | . 33 | - 38 | . 20 | . 26 | - 36 |
| Crafts and kindred workers | 1.53 | 1.52 | 1.13 | 4.26 | 4.86 | 4.42 | 30.55 | 29.41 | 25. 18 |
| Construction crafts workers | . 15 | - 14 | - 10 | . 24 | - 22 | . 16 | . 13 | . 14 | - 13 |
| Carpenters and apprentices | . 09 | . 07 | . 02 | . 07 | . 05 | . 01 | . 02 | . 02 | $\bigcirc 01$ |
| Bulldozer operators | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 05 | . 06 | . 07 |
| Electricians and apprentices | . 02 | . 02 | . 02 | . 11 | .11 | . 11 | .03 | .03 | . 02 |
| Painters and apprentices | . 03 | . 03 | . 06 | . 06 | . 06 | . 05 | . 02 | . 02 | . 02 |
| Blue collar worker supervisors | . 63 | . 63 | .39 | 1.72 | 2.02 | 1.64 | 1.11 | 1.37 | 1. 18 |
| Metalworkg craft wrkrs,exc meca | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .11 | . 12 | . 15 |
| Blacksmiths | . 00 | .00 | .00 | .00 | . 00 | .00 | . 02 | . 01 | . 00 |
| Machinists and apprentices | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 07 | . 09 | . 14 |
| Millurights | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Mechanics, repairers, installers | -25 | - 30 | . 38 | 1.94 | 2.30 | 2.41 | .97 | 1.24 | 1.78 |
| Air cond, heating, refrig mech | . 07 | . 09 | . 08 | - 25 | . 35 | . 31 | . 01 | . 01 | .01 |
| Auto accessories installers | . 00 | - 00 | . 00 | -00 | - 00 | . 00 | . 09 | . 08 | . 07 |
| Auto body repairers | . 00 | - 00 | . 00 | . 08 | . 07 | . 06 | . 04 | . 03 | . 03 |
| Auto mechanics and apprentices | - 10 | - 10 | . 13 | 1.16 | 1.31 | 1.49 | . 46 | . 56 | . 80 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Heary equip mech, incl diesel | . 07 | . 09 | . 16 | . 35 | -46 | . 49 | - 3.1 | . 48 | . 80 |
| Household a | . 00 | . 00 | - 00 | . 02 | . 03 | -04 | . 01 | . 02 | -03 |
| Radio, television repairers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other mechanics and apprentices | . 01 | . 01 | .01 | . 08 | . 06 | . 02 | .03 | . 03 | . 03 |
| Printing trade crafts workers | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Compositors and typesetters | . 01 | . 01 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Press,plate frinters,aprentices | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | .00 | . 00 | . 00 |
| Other crafts, kindred workers | . 46 | . 43 | . 24 | - 36 | - 32 | - 20 | 28.23 | 26.55 | 21.95 |
| Bakers | . 33 | - 28 | . 14 | . 19 | . 16 | . 08 | 27.96 | 26.26 | 21.61 |
| Cabinetmakers | . 00 | - 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 01 | .01 |
| Carpet installers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 03 | . 02 |
| Decorators, window dressers | . 06 | . 08 | . 04 | . 07 | . 09 | .11 | . 06 | . 06 | . 01 |
| Inspectors, other | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 02 | . 02 | . 03 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Stationary engineers | . 02 | . 02 | . 01 | . 09 | . 05 | .01 | . 02 | . 02 | .01 |
| Other crafts workers | . 01 | . 01 | . 02 | .00 | . 00 | . 00 | . 15 | . 17 | . 29 |
| operatives | 13.64 | 12. 13 | 10.44 | 12.35 | 11.78 | 9.18 | 14.22 | 15.85 | 15.62 |
| Cperatives, except transfort | 12.07 | 10. 50 | 8.47 | 2.75 | 3. 37 | 4.07 | 9.60 | 11.21 | 10.47 |
| Semiskilled metalworking | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Welders and flamecutters | .01 | . 01 | . 02 | .01 | . 01 | . 01 | .00 | .00 | .00 |
| Semiskilled packing, inspectiny | 3.43 | 3.37 | 3.02 | -44 | - 46 | - 37 | 1.92 | 1.90 | 1.40 |
| Meat urappers, retail trade | 2.61 | 2.71 | 2.63 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| packer,wrapfer, exc meat, prodce | -81 | . 65 | . 39 | . 43 | . 45 | - 36 | 1.91 | 1.89 | 1.39 |
| Produce grdr,fkrs,exc fact,farm | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 00 | .00 | .00 |


|  | $\begin{aligned} & \text { Grocery } \\ & \text { stores } \end{aligned}$ |  |  | Dairy product stores |  |  | Retail bakeries |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transfort | 8.64 | 7.13 | 5.43 | 2. 30 | 2. 89 | 3. 70 | 7.68 | 9.30 | 9.07 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | . 41 | - 57 | . 84 | . 00 | . 00 | . 00 |
| cutting operatives, other | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 13 | . 17 | . 20 |
| Dressmakers, exc factory | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | . 11 | . 08 | . 09 | . 04 | . 04 | . 05 | - 01 | . 01 | . 01 |
| Laundry,dry cleang oprs, other | . 06 | . 06 | . 08 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Meat cutters,butchers, exc míy | 8.12 | 6.57 | 4.92 | . 03 | . 02 | . 00 | . 08 | . 07 | . 06 |
| Mixing operatives | . 00 | . 00 | . 00 | . 06 | . 07 | . 09 | - 13 | . 18 | -18 |
| Oilers,greasers,exc automodiles | .00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | -01 | .01 |
| Painters, mfg articles | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Furnace tendr,stokr,exc metal | . 00 | . 00 | .00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 06 | . 07 | . 09 | 1.47 | 1.82 | 2.28 | 1.87 | 2.12 | 2.15 |
| other oferatives, exc transport | . 24 | - 30 | . 23 | . 26 | - 36 | . 43 | 5.42 | 6.73 | 6.45 |
| transport equifment operatives | 1.57 | 1.63 | 1.98 | 9.61 | 8.41 | 5.11 | 4.62 | 4. 65 | 5.15 |
| Bus drivers | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 00 | - 00 | . 00 |
| Delivery and route workers | . 62 | . 52 | . 40 | 7.56 | 6.47 | 3.98 | 3.65 | 3.67 | 3.93 |
| Pork lift,tow motor operatives | . 25 | - 33 | . 44 | . 10 | . 13 | . 15 | . 00 | . 00 | . 00 |
| Parking attendants | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | .01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Truck drivers | . 68 | . 74 | 1.11 | 1.93 | 1.78 | .95 | . 97 | . 98 | 1.22 |
| Service workers | 1.87 | 1.51 | 1.39 | 12. 17 | 9.96 | 7. 15 | 8.24 | 6.97 | 6.20 |
| Cleaning service workers | . 04 | . 67 | -69 | . 94 | 1.02 | . 93 | 2.15 | 2.38 | 2.31 |
| Bldg interior cleaners, other | . 24 | . 26 | -26 | . 32 | . 34 | . 33 | . 84 | . 98 | . 90 |
| Janitors and sextons | . 41 | . 41 | .43 | . 62 | . 68 | . 60 | 1.31 | 1.40 | 1.40 |
| Rood service workers | 1.05 | . 70 | -55 | 11.16 | 8.89 | 6. 20 | 5.99 | 4.51 | 3.83 |
| Bartenders | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| waiters' assistants | . 03 | . 04 | . 09 | . 14 | . 21 | . 50 | . 05 | .09 | . 25 |
| Cooks, exc private households | . 36 | - 22 | . 07 | . 89 | . 67 | . 40 | 1.03 | . 80 | . 52 |
| Dishwashers | . 05 | . 04 | . 05 | . 23 | . 21 | . 41 | . 66 | . 51 | . 70 |
| Food counter, fountain workers | . 14 | - 13 | . 09 | 4.63 | 4.88 | 3.82 | . 71 | . 80 | . 79 |
| Waiters | . 29 | . 12 | . 02 | 5.03 | 2.66 | . 67 | 3.03 | 1.81 | .81 |
| Other food serv whrs, exc privt | .18 | - 15 | . 22 | . 25 | - 26 | . 41 | . 49 | . 48 | .77 |
| Health service workers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Personal service workers | . 04 | . 03 | . 02 | . 04 | . 03 | . 02 | . 07 | . 05 | . 04 |
| Attendants, personal serv,other | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| child care workers, exc private | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hairdressers and cosmetologists | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Housekeepers, exc private homes | . 02 | . 02 | . 01 | . 03 | . 02 | . 01 | . 06 | . 05 | . 04 |
| Protective service workers | . 12 | - 11 | .13 | . 03 | . 02 | .01 | . 04 | . 04 | . 02 |
| Guards | .11 | . 10 | . 13 | . 03 | . 02 | .01 | . 03 | . 03 | .01 |
| Police and detectives | . 01 | .01 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Laborers, except farm | 23.07 | 25.85 | 24.80 | 4.25 | 4.96 | 4.47 | 1.43 | 1.65 | 1.38 |
| carpenter helfers | . 01 | -01 | . 02 | . 00 | - 00 | . 00 | . 01 | .01 | .01 |
| Constr labr,exc carpenter helpr | . 01 | . 01 | -02 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Pishers,hunters,trapfers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Freight and material handers | . 50 | . 56 | .77 | 1.31 | 1.63 | 1.64 | . 48 | . 51 | .43 |
| Garbage collectors | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Gardenrs, groundkeepers, exc farm | . 01 | . 01 | . 02 | . 03 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Stock handlers | 22.16 | 24.91 | 23.74 | - 95 | 1. 26 | 1.11 | . 53 | . 65 | . 54 |
| Teamsters | .01 | - 01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | .03 | . 04 | . 05 | . 31 | - 38 | . 27 | . 33 | . 42 | . 36 |
| Warehouse labcrers, other | . 30 | . 25 | .11 | . 09 | . 08 | . 03 | . 04 | . 04 | . 02 |
| other laborers | .03 | .03 | . 05 | 1.55 | 1.57 | 1.40 | . 03 | . 02 | . 02 |


|  | Pood stores, other |  |  | Auto dealers,gas stations |  |  | Motor vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | .37 | . 49 | . 52 | . 61 | - 84 | . 74 | .79 | .91 | . 70 |
| Engineers, technical | .00 | . 00 | .00 | .03 | . 03 | . 04 | . 03 | . 02 | . 02 |
| other engineers | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | .01 | .01 |
| Life and physical scientists | . 02 | . 03 | . 03 | .00 | .00 | . 00 | .00 | . 00 | . 00 |
| Agricultural | . 02 | . 02 | .01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Biological | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Engineering, science technicians | . 00 | . 00 | .00 | . 02 | . 03 | . 04 | .01 | .01 | .01 |
| Drafters | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | .01 | .01 |
| Electrical and electronic | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | .00 |
| other engineering, science tech | . 00 | . 00 | . 00 | . 01 | . 02 | .02 | .00 | . 00 | . 00 |
| Medical workers,exc technicians | .01 | .01 | .01 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| Dietitians | . 01 | .01 | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Tecanicians, except health | . 01 | . 01 | .01 | . 02 | . 04 | . 04 | . 03 | . 04 | . 03 |
| Airplane pilots | . 00 | . 00 | . 00 | .01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| other technicians except nealth | . 01 | .01 | . 01 | .01 | . 02 | . 01 | . 02 | . 04 | . 03 |
| Computer specialists | .01 | . 02 | . 06 | . 01 | . 01 | .01 | . 01 | . 01 | .01 |
| Computer programers | . 00 | . 00 | . 03 | . 01 | . 01 | .01 | . 01 | .01 | .01 |
| Computer systems analysts | . 01 | . 02 | . 03 | . 00 | .00 | . 00 | .00 | .00 | . 00 |
| Social scientists | .03 | . 03 | . 04 | . 01 | . 01 | . 01 | . 01 | . 02 | . 02 |
| Economists | . 03 | . 03 | . 04 | . 01 | . 01 | .01 | .01 | . 02 | . 02 |
| Teachers | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 01 | .01 | . 01 |
| Adult educaticn | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 01 | .01 | .01 |
| other teachers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .01 | .00 | .00 |
| Writers,artists, entertainers | . 04 | . 05 | . 03 | . 04 | . 07 | . 06 | . 05 | . 07 | . 05 |
| painters and sculptors | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Public relaticns specialists | . 02 | . 03 | .02 | . 03 | . 04 | . 05 | . 04 | . 06 | . 05 |
| Other professional and technical | . 23 | .31 | . 33 | .46 | . 62 | . 51 | . 63 | .73 | . 56 |
| Accountants | . 13 | . 18 | . 19 | . 38 | . 50 | . 42 | . 57 | . 66 | .51 |
| Foresters and conservationists | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Home management advisors | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Lawyers | . 00 | . 00 | .00 | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 |
| operations and systems research | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wirs | . 08 | . 12 | . 11 | .06 | . 09 | .07 | . .06 | . 07 | . 05 |
| Managers, officials, proprietors | 15.55 | 17.99 | 20.87 | 20.27 | 21.88 | 22.83 | 16.81 | 18.41 | 14.84 |
| Buyers, sales,lcan managers | 2.14 | 2.44. | 3.65 | 2.27 | 2.70 | 2.94 | 3.49 | 3.76 | 3.89 |
| Bank, financial managers | . 01 | . 01 | . 01 | . 09 | . 11 | . 12 | .17 | .19 | .20 |
| Credit managers | . 01 | . 01 | . 01 | .21 | . 16 | . 17 | . 15 | . 09 | . 06 |
| Buyers,wholesale, retail trade | 1.01 | 1. 07 | 1.65 | . 22 | . 26 | -23 | . 33 | . 32 | . 25 |
| Sales manager, retail trade | 1.11 | 1.35 | 1.98 | 1.75 | 2.17 | 2.42 | 2.85 | 3. 16 | 3.38 |
| Other managers, officials, proprts | 13.41 | 15. 55 | 17.22 | 18.01 | 19.18 | 19.90 | 13.31 | 14.65 | 10.95 |
| Office managers, other | . 11 | . 14 | . 16 | . 49 | . 64 | . 67 | . 8.85 | 1.00 | -99 |
| Restaurant, cafe, bar,managers | . 09 | . 08 | . 07 | . 01 | . 02 | . 02 | .01 | . 01 | . 01 |
| other managers, administrators | 13.20 | 15.32 | 16.99 | 17.50 | 18.52 | 19.20 | 12.44 | 13.64 | 9.95 |
| Sales workers | 33.09 | 28. 89 | 29.79 | 13.34 | 13.97 | 14.81 | 21.15 | 20.02 | 19.48 |
| Advertising agents, sales worker | .01 | . 02 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 | . 01 |
| Auctioneers | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .01 |
| Demonstrators | . 06 | . 08 | . 18 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| other sales wcrkers | 33.02 | 28.80 | 29.60 | 13.32 | 13.96 | 14.80 | 21.13 | 19.99 | 19.46 |
| Clerical workers | 7.25 | 8.67 | 10.06 | 8.56 | 9.83 | 9.52 | 11.16 | 11.30 | 9.60 |
| Stenographrs, typists, secretaries | . 68 | . 81 | 1.05 | 1.79 | 2. 11 | 2.08 | 2.61 | 2.60 | 2.18 |
| Other stcretaries | . 52 | . 66 | . 91 | 1.42 | 1.75 | 1.81 | 2.00 | 2.08 | 1.81 |
| Stenographers | . 02 | . 01 | .01 | . 03 | . 02 | . 01 | . 03 | . 02 | .01 |
| Typists | .14 | . 14 | .13 | . 34 | .33 | .25 | . 57 | . 50 | .37 |


|  | Food stores. other |  |  | auto dealers,gas stations |  |  | Motor vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cffice machine operators | . 12 | . 13 | . 16 | . 15 | . 16 | - 18 | . 18 | . 16 | . 15 |
| Bookkeeping and billing | . 03 | . 02 | . 06 | . 05 | . 04 | . 05 | . 08 | . 05 | . 06 |
| Calculating | . 01 | . 01 | . 02 | . 02 | . 02 | . 04 | . 00 | - 00 | . 00 |
| Computer and feripheral equip | .01 | . 03 | . 03 | . 02 | . 04 | . 03 | . 02 | . 05 | . 03 |
| Keypunch | . 04 | . 04 | . 03 | . 05 | . 05 | . 05 | . 06 | . 06 | . 05 |
| Other office machine operators | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | .01 | .01 |
| Other clerical morkers | 6.45 | 7.73 | 8.85 | 6.63 | 7.57 | 7.27 | 8.38 | 8.54 | 7.27 |
| Billing clerks | . 06 | - 07 | . 09 | .11 | - 15 | - 16 | . 17 | -21 | . 21 |
| Bookkeepers | 1.69 | 1.88 | 2.22 | 3.97 | 4. 27 | 3.94 | 4.66 | 4.57 | 3.91 |
| Cashiers | 2.96 | 3.72 | 3.96 | . 49 | -64 | . 83 | . 61 | . 68 | . 71 |
| Clerical supervisors, other | .03 | . 05 | . 10 | . 04 | - 06 | . 07 | . 04 | . 05 | . 04 |
| collectors, bill and account | . 03 | . 05 | . 09 | . 05 | -07 | - 08 | . 05 | . 05 | . 05 |
| Counter clerks,exc food | . 20 | . 25 | . 34 | . 10 | . 14 | . 18 | - 13 | .16 | .17 |
| Dispatchers, starters, vehicle | . 02 | . 03 | . 04 | - 08 | . 10 | - 12 | -13 | . 16 | . 19 |
| Estimators, investigators, other | . 07 | . 09 | . 07 | . 28 | . 40 | - 30 | -48 | . 62 | .46 |
| Expediters, preduction controlis | . 01 | .01 | .01 | . 04 | . 06 | . 08 | . 07 | -08 | - 10 |
| Pile clerks | . 09 | . 08 | . 07 | . 12 | - 13 | - 14 | - 20 | . 18 | . 18 |
| Mail handlers,exc fost office | . 06 | . 07 | . 07 | . 03 | . 04 | . 04 | .02 | . 02 | - 02 |
| Messengers and office helpers | . 02 | . 02 | . 02 | . 05 | -05 | . 04 | . 10 | . 08 | . 06 |
| Payroll,timekeeping clerks | . 06 | . 08 | . 09 | . 05 | . 07 | . 05 | . 08 | . 08 | . 05 |
| Receptionists | . 09 | . 09 | . 07 | . 14 | - 16 | . 12 | - 25 | . 25 | - 18 |
| Shipping and receiving clerks | . 21 | - 24 | - 29 | - 12 | - 13 | - 14 | - 10 | . 08 | . 04 |
| Statistical clerks | . 04 | . 05 | . 10 | . 08 | . 11 | . 13 | . 09 | .11 | . 11 |
| Stock clerks and store keepers | . 38 | . 42 | . 57 | . 34 | . 41 | -41 | -43 | . 44 | . 37 |
| Telephone operators | . 03 | . 02 | . 01 | . 16 | - 10 | . 06 | . 33 | . 18 | - 12 |
| Weighers | . 11 | - 14 | . 14 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | . 33 | . 38 | . 50 | . 36 | -48 | - 38 | . 47 | . 54 | . 33 |
| Crafts and kind red workers | 1.62 | 1.99 | 2.37 | 25.97 | 27. 28 | 31.09 | 39.50 | 38.56 | 45.33 |
| Construction crafts workers | . 12 | . 13 | . 16 | . 31 | - 37 | . 30 | . 25 | - 27 | . 22 |
| Carpenters and apprentices | . 05 | . 04 | . 01 | - 15 | . 17 | . 11 | . 05 | . 04 | . 01 |
| Bulldozer operators | . 01 | . 02 | . 03 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Blectricians and apprentices | . 01 | . 01 | .01 | . 02 | . 02 | . 03 | .01 | . 00 | . 00 |
| painters and apprentices | . 03 | . 04 | . 10 | . 10 | . 13 | . 13 | . 18 | .21 | . 20 |
| plumbers, pipefitters, aprentices | . 01 | .01 | . 01 | . 02 | . 03 | . 02 | . 00 | . 00 | .00 |
| Blue collar worker supervisors | . 55 | .69 | . 72 | . 63 | . 79 | . 69 | . 89 | . 93 | . 67 |
| Hetalworkg craft wrkrs, exc mech | . 05 | . 05 | . 05 | . 13 | . 16 | - 16 | . 08 | -07 | . 05 |
| Machinists and apprentices | . 03 | . 04 | . 04 | . 12 | - 15 | - 15 | -06 | . 06 | . 05 |
| Mechanics, repairers,installers | . 53 | . 69 | 1.04 | 24. 59 | 25.50 | 29.29 | 38.17 | 37.20 |  |
| Air cond, heating, refrig meca | . 02 | . 05 | . 09 | . 04 | . 07 | . 05 | . 01 | . 01 | . 01 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 | .01 | -01 | . 01 |
| Auto accessories installers | . 01 | . 00 | . 00 | . 09 | - 11 | . 11 | . 07 | . 07 | . 05 |
| auto body repairers | . 09 | . 08 | . 09 | 3.97 | 3.43 | 4.02 | 8.95 | 7.35 | 9.21 |
| Auto mechanics and apprentices | . 28 | . 33 | . 45 | 19.71 | 20.68 | 23.44 | 28.93 | 29.52 | 34.69 |
| Farm implement mechanics | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Heavy equip mech, incl diesel | . 08 | . 14 | . 28 | . 22 | - 34 | - 53 | -12 | - 17 | - 27 |
| household appliance mechanics | . 01 | . 02 | . 04 | . 03 | . 04 | . 05 | . 01 | . 00 | . 00 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 03 | -03 | . 02 | . 02 | . 02 | . 01 |
| Other mechanics and apprentices | . 05 | . 07 | .09 | . 46 | . 75 | 1.00 | . 04 | . 05 | . 06 |


|  | Food stores. other |  |  | Auto dealers.gas stations |  |  | Motor vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | .37 | . 44 | . 41 | . 31 | -46 | . 65 | - 10 | . 10 | . 08 |
| Bakers | . 18 | - 19 | . 15 | . 01 | . 01 | . 01 | .03 | . 02 | . 01 |
| Crane,derrick, hoist operator | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Decorators, window dressers | . 07 | . 13 | . 16 | . 02 | . 04 | . 05 | . 00 | . 01 | .00 |
| Glaziers | . 00 | . 00 | .00 | . 02 | . 04 | . 04 | . 03 | . 03 | . 03 |
| Inspectors, other | . 04 | . 05 | . 04 | .01 | . 01 | .01 | .01 | .01 | . 01 |
| Jeyelers and watchmakers | -01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | .00 | . 00 | . 00 |
| Stationary engineers | . 03 | . 02 | . 01 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Uphoisterers | . 00 | . 00 | .00 | . 02 | . 02 | . 03 | .03 | . 02 | . 02 |
| Other crafts workers | . 02 | . 02 | . 01 | . 19 | .31 | . 48 | .00 | . 00 | . 00 |
| Operatives | 36.00 | 35. 19 | 29.88 | 28.24 | 22.61 | 17.78 | 5.23 | 4.96 | 5.00 |
| Operatives, except transport | 31.39 | 30.56 | 25.91 | 26.57 | 20.69 | 15.76 | 3.85 | 3.62 | 3.80 |
| Semiskilled metalworking | . 00 | . 00 | .00 | . 08 | .11 | . 13 | . 06 | . 05 | . 04 |
| welders and Elamecutters | . 00 | . 00 | .00 | . 06 | . 08 | . 11 | . 04 | . 04 | . 03 |
| Semiskilled packing, inspecting | 4.59 | 4.95 | 5.04 | .06 | . 07 | . 07 | . 02 | . 02 | . 01 |
| Meat wrappers, retail trade | 1.97 | 2. 15 | 2.15 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodce | 2.19 | 2.22 | 2.24 | . 06 | . 07 | . 07 | . 02 | . 02 | .01 |
| Produce grdr, fkrs, exc fact, farm | . 43 | - 58 | . 65 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Other operatives, exc transport | 26.80 | 25.61 | 20.87 | 26.43 | 20.52 | 15.56 | 3.77 | 3.55 | 3.75 |
| Assemblers | . 00 | . 00 | .00 | . 02 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Bottling, canning operatives | . 06 | . 08 | .13 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Clotining ircners and pressers | . 01 | . 01 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Cutting operatives, other | -02 | . 02 | .01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Dressmakers, exc factory | . 04 | . 06 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 | . 02 | . 02 | . 03 |
| Garage wrkregas station atten | . 28 | . 25 | . 30 | 25.13 | 18.80 | 13.62 | 1.88 | 1.49 | 1. 64 |
| Laundry,dry cleang oprs,other | . 08 | - 10 | . 09 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| meat cutters, butchers, exc mfg | 23.09 | 20.56 | 15.60 | . 01 | . 02 | . 02 | -00 | . 00 | . 00 |
| Mixing operatives | .01 | . 01 | . 01 | . 00 | . 01 | .01 | . 00 | . 00 | . 00 |
| Oilers, greasers,exc automobiles | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Painters, mfg articles | . 00 | . 00 | . 00 | . 62 | . 69 | . 73 | 1.40 | 1.45 | 1.60 |
| Sawyers | -01 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purnace tendr,stokr,exc metal | . 01 | . 01 | . 01 | . 00 | . 01 | . 00 | .00 | . 00 | . 00 |
| Miscellaneous machine operatves | 1.06 | 1.41 | 1.99 | . 27 | . 45 | . 59 | .03 | . 04 | . 04 |
| Other operatives, exc transport | 2.12 | 3.09 | 2.59 | . 33 | . 48 | . 46 | . 42 | . 53 | . 43 |
| Transport equipment operatives | 4-61 | 4.63 | 3.97 | 1.67 | 1.91 | 2.02 | 1.38 | 1.34 | 1. 20 |
| Bus drivers | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 02 | . 02 | . 00 |
| Delivery and route workers | 2.77 | 2.82 | 2.83 | . 58 | . 69 | . 72 | . 38 | . 34 | . 30 |
| Fork lift, tow mator operatives | . 10 | - 16 | . 25 | . 02 | . 04 | . 06 | . 02 | . 03 | . 03 |
| Parking attendants | . 00 | . 00 | . 00 | . 08 | . 09 | . 06 | .17 | . 19 | . 14 |
| Taxicab drivers, chauffeurs | . 02 | . 02 | .01 | . 15 | - 16 | . 13 | . 32 | . 31 | . 27 |
| Truck drivers | 1.71 | 1.62 | . 88 | - 82 | . 92 | 1.05 | .48 | . 46 | . 47 |
| Service workers | 3.22 | 3.03 | 2.77 | . 81 | . 87 | . 75 | 1.26 | 1.21 | . 97 |
| Cleaning service workers | . 93 | 1. 11 | 1.15 | . 66 | . 73 | - 57 | 1.07 | 1.06 | . 78 |
| Bldg interior cleaners, other | . 35 | . 45 | -54 | . 17 | . 21 | - 20 | . 24 | . 26 | . 20 |
| Janitors and sextons | - 58 | .66 | . 61 | .49 | - 52 | .37 | .83 | .79 | - 58 |
| Pood service workers | 2.15 | 1.76 | 1.39 | . 06 | . 05 | .06 | . 05 | . 04 | . 05 |
| Bartenders | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Haiters* assistants | .01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cooks, exc private households | . 47 | .33 | . 14 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 |
| Dishwashers | . 09 | . 07 | . 09 | . 00 | . 00 | .01 | . 00 | .00 | . 00 |
| Food counter,tountain workers | . 69 | . 74 | .77 | . 00 | .01 | .01 | .01 | . 01 | . 02 |
| Waiters | . 05 | .36 | .11 | . 02 | .01 | .01 | . 02 | . 01 | . 01 |
| Other food serv wkrs,exc privt | . 24 | . 23 | . 25 | .01 | . 01 | .01 | .01 | . 01 | .01 |
| Health service workers | . 01 | . 01 | . 03 | . 02 | . 02 | . 02 | .05 | . 04 | . 05 |
| Health aides, except nursing | . 01 | .01 | . 03 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Wursing aides and orderlies | .00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 04 | . 03 | .03 |
| practical nurses | .00 | .00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
$\left.\begin{array}{llllllll}\text { Motor } \\ \text { vehicle } \\ \text { dealers }\end{array}\right)$

|  | Tire,batry. accessory dealers |  |  | Gasoline service stations |  |  | Misc vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | . 82 | 1.05 | 1.00 | . 32 | . 56 | . 51 | 1.27 | 1.45 | 1.31 |
| Engineers, technical | . 09 | . 11 | . 13 | . 01 | . 02 | . 02 | .03 | . 02 | . 03 |
| Electrical | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Industrial | . 03 | . 04 | . 05 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Mechanical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Sales | . 01 | . 01 | .01 | . 00 | . 00 | .00 | . 02 | . 01 | .01 |
| other engineers | . 02 | . 02 | .03 | . 01 | . 02 | . 02 | . 01 | . 01 | -02 |
| Engineering, science technicians | . 04 | . 06 | . 10 | . 01 | . 03 | . 02 | . 14 | - 18 | . 21 |
| Drafters | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | . 03 | . 03 | .02 |
| Electrical and electronic | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | . 08 | . 09 | - 11 |
| other engincering, science tech | . 01 | . 01 | . 01 | . 01 | . 03 | . 02 | . 03 | . 06 | . 07 |
| Technicians, except health | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 25 | . 34 | . 33 |
| Airplane pilots | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 23 | . 31 | . 31 |
| kadio operators | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other technicians except health | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Computer specialists | . 03 | . 04 | . 03 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Computer programers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Computer systems analysts | . 02 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Social scientists | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Economists | . 01 | .01 | . 01 | . 00 | . 00 | .00 | .01 | . 01 | . 01 |
| Teachers | .01 | . 01 | .01 | .01 | . 01 | . 01 | . 20 | . 16 | . 09 |
| Adult education | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | .01 | .01 | . 01 |
| Other teachers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 20 | . 15 | . 08 |
| Writers, artists, entertainers | . 09 | . 13 | . 11 | . 02 | . 04 | . 04 | - 10 | .11 | - 12 |
| Designers | .01 | . 01 | . 01 | - 00 | . 00 | . 00 | .03 | . 03 | . 03 |
| Editors and reforters | . 01 | . 02 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Painters and sculptors | . 04 | . 08 | . 07 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Public relaticns specialists | .01 | . 01 | . 01 | . 01 | . 03 | . 04 | . 06 | .07 | . 08 |
| Other professicnal and technical | . 55 | . 67 | .60 | -26 | -46 | .41 | . 54 | . 64 | . 53 |
| Accountants | - 39 | - 48 | . 42 | . 18 | . 31 | - 30 | -48 | . 56 | -47 |
| Lawyers | . 00 | . 00 | . 00 | . 01 | . 04 | . 03 | . 03 | . 02 | . 01 |
| Operations and systems research | . 01 | . 03 | . 04 | -01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wiss | . 14 | . 17 | - 14 | . 05 | . 08 | . 05 | . 04 | . 05 | . 06 |
| Managers officials, proprietors | 21.70 | 24.85 | 22.49 | 22.97 | 24. 64 | 33.42 | 24. 12 | 24.52 | 21.09 |
| Buyers, sales, lcan managers | 4.41 | 4. 33 | 4.71 | . 32 | . 42 | - 38 | 4.81 | 4.77 | 5.03 |
| Bank, financial managers | . 11 | . 13 | . 14 | . 01 | . 01 | . 01 | . 10 | . 11 | . 09 |
| Credit managers | 1.24 | . 82 | . 81 | . 04 | . 03 | . 03 | . 06 | . 04 | . 05 |
| Buyers, wholesale, retail trade | . 52 | . 55 | . 51 | . 03 | . 04 | . 04 | . 39 | -38 | . 40 |
| Sales manager, retail trade | 2.54 | 2. 83 | 3.25 | -24 | - 33 | . 31 | 4.26 | 4.24 | 4.49 |
| Other managers, officials, proprts | 17.30 | 20.52 | 17.78 | 22.65 | 24.22 | 33.04 | 19.30 | 19.75 | 16.05 |
| Mgrs, superintendents, building | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| office managers, other | - 58 | . 72 | .75 | . 08 | . 12 | . 15 | . 77 | . 84 | . 99 |
| officers.pilots.pursers.ship | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 07 | . 07 | . 09 |
| Restaurant, cafe, bar,managers | . 03 | . 03 | . 05 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Other managers, administrators | 16.69 | 19.75 | 16.95 | 22.56 | 24.09 | 32.88 | 18.44 | 18.82 | 14.96 |
| Sales vorkers | 28.37 | 23.55 | 23.44 | .93 | 1.11 | 1.79 | 26.02 | 24.47 | 27.44 |
| Advertising agents, sales worker | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales wcrkers | 28.36 | 23.53 | 23.43 | . 92 | 1. 10 | 1.79 | 26.02 | 24.47 | 27.44 |
| Clerical workers | 14.36 | 15.38 | 15.96 | 4.23 | 5.56 | 5.69 | 13.01 | 12.13 | 12.31 |
| Stenographrs, typists, secretaries | 2.21 | 2.40 | 2.73 | . 54 | . 84 | .70 | 5.39 | 5.23 | 5.85 |
| Legal secretaries | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Other secretaries | 1.84 | 2.05 | 2.42 | . 42 | . 72 | . 60 | 4.86 | 4.79 | 5.52 |
| Stenographers | . 03 | . 02 | .01 | . 02 | . 02 | . 02 | . 05 | .03 | .01 |
| Typists | -34 | . 33 | .31 | . 09 | - 10 | . 07 | . 47 | . 41 | .31 |
| Office machine operators | . 39 | . 42 | . 42 | . 06 | . 06 | .11 | - 12 | . 10 | - 14 |
| Bookkeeping ard billing | . 09 | . 06 | -09 | . 02 | . 01 | . 01 | . 04 | . 03 | . 06 |
| Calculating | . 04 | . 03 | . 03 | . 03 | . 03 | . 09 | . 02 | . 02 | . 03 |
| Computer and feripheral equip | . 07 | - 15 | - 12 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 |
| Keypunch | -18 | - 15 | . 16 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| other office machine operators | .01 | . 02 | . 02 | .01 | . 02 | . 02 | . 00 | . 00 | .00 |


|  | Tire, batry. accessory dealers |  |  | Gasoline service stations |  |  | Misc vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 11.76 | 12. 56 | 12.81 | 3.63 | 4.65 | 4.88 | 7.51 | 6.80 | 6.32 |
| Billing clerks | . 13 | - 17 | . 15 | . 04 | . 07 | .11 | . 09 | . 10 | . 09 |
| Bookkeepers | 6.77 | 6.73 | 6.49 | 2.53 | 2.96 | 2.79 | 5.15 | 4.36 | 3.84 |
| Cashiers | . 66 | . 82 | 1.11 | . 37 | . 59 | . 99 | -14 | . 18 | . 25 |
| Clerical supervisors, other | .07 | - 10 | - 15 | . 03 | . 06 | .07 | . 04 | . 07 | . 10 |
| Collectors, bill and account | . 19 | . 22 | . 24 | .03 | . 04 | . 05 | . 04 | .05 | . 09 |
| Counter clerks,exc food | . 30 | . 38 | . 52 | . 02 | . 03 | . 04 | . 08 | . 10 | . 10 |
| Dispatchers, starters, vehicle | . 05 | . 07 | . 08 | . 03 | . 06 | . 07 | . 05 | . 07 | - 11 |
| Estimators, investigators, other | . 26 | - 37 | . 33 | .11 | . 17 | . 13 | . 16 | .18 | . 13 |
| Expediters, production controlrs | . 06 | . 07 | - 10 | . 02 | . 03 | . 04 | . 04 | . 06 | . 09 |
| File clerks | . 17 | . 17 | .19 | .05 | . 06 | .09 | .11 | .09 | .07 |
| Mail handlers,exc post office | . 10 | . 11 | - 11 | . 02 | . 03 | .03 | . 03 | . 03 | . 02 |
| Messengers and office helpers | . 05 | . 05 | . 03 | . 01 | . 01 | . 01 | . 08 | .09 | . 08 |
| Paycoll, timekeeping clerks | . 07 | . 09 | . 09 | . 03 | . 05 | . 05 | . 02 | . 02 | . 02 |
| Receptionists | - 10 | . 11 | . 10 | . 03 | . 04 | . 03 | . 35 | . 35 | - 29 |
| Shipping and receiving clerks | - 60 | . 61 | . 63 | . 01 | . 02 | . 03 | -19 | - 16 | - 13 |
| Statistical clerks | . 14 | . 39 | . 28 | . 06 | . 09 | . 11 | - 11 | - 11 | - 10 |
| Stock clerks and store keepers | 1.26 | 1. 38 | 1.33 | .03 | . 04 | . 04 | . 33 | . 33 | . 37 |
| Telephone operators | . 08 | . 05 | . 02 | . 02 | . 03 | . 02 | . 07 | . 04 | . 04 |
| Heighers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | .70 | . 87 | . 85 | .18 | . 27 | . 20 | . 42 | . 44 | . 40 |
| Crafts and kindred workers | 14.09 | 15. 35 | 18.45 | 15.51 | 17.63 | 20.00 | 25.37 | 27.28 | 27.96 |
| Construction crafts workers | - 22 | - 22 | -19 | . 12 | - 17 | - 13 | 2.97 | 2.62 | 1.62 |
| Carpenters and apprentices | . 08 | -08 | . 03 | . 04 | . 05 | . 03 | 2.39 | 2.05 | 1.09 |
| Brick,stonemasons, apprentices | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 06 |
| Electricians and apprentices | . 04 | . 05 | . 04 | . 01 | . 02 | . 03 | . 15 | - 14 | . 10 |
| Excavating. grading mach operatr | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 | .01 | .01 | . 01 |
| Painters and apprentices | . 04 | . 04 | . 05 | . 02 | . 03 | . 03 | . 27 | .31 | . 31 |
| Plumbers, pipefitters, aprentices | . 03 | . 02 | . 02 | . 03 | . 06 | . 03 | - 10 | . 07 | . 04 |
| Roofers and slaters | . 00 | - 00 | -00 | .00 | - 00 | - 00 | .01 | .01 | . 01 |
| Blue collar worker supervisors | .99 | 1. 14 | 1.10 | . 26 | .47 | . 55 | . 85 | . 87 | . 66 |
| Metalworkg craft wrkrs, exc mech | .75 | . 83 | .76 | . 02 | .03 | . 02 | - 16 | - 15 | . 13 |
| Machinists and apprentices | . 75 | . 83 | . 74 | . 02 | . 02 | . 02 | . 13 | .13 | . 13 |
| Sheetmetal workers, apprentices | .00 | . 00 | - 00 | . 00 | . 00 | . 00 | . 04 | . 02 | . 01 |
| Tool and diemakers, apprentices | . 00 | . 00 | . 02 | . 00 | .00 | - 00 | . 00 | . 00 | . 00 |
| Mechanics, repairers, installers | 11.83 | 12. 82 | 15.96 | 15.04 | 16.90 | 19.26 | 16.35 | 17.99 | 19.17 |
| Air cond, heating, refrig mech | . 03 | . 05 | . 05 | . 07 | . 14 | . 10 | . 09 | .11 | . 08 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 89 | . 75 | . 75 |
| Auto accessories installers | . 51 | - 53 | . 48 | .01 | . 01 | . 01 | . 06 | .07 | - 08 |
| Auto body repairers | . 34 | . 31 | . 34 | . 30 | . 27 | . 20 | . 18 | - 17 | . 21 |
| Auto mechanics and apprentices | 10.22 | 11.02 | 13.92 | 14.41 | 16.10 | 18.57 | 3.88 | 4.01 | 4.28 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Heavy equip mech, incl diesel | . 29 | . 41 | . 69 | .21 | . 31 | . 34 | 1.09 | 1.51 | 2.35 |
| Household appliance mechanics | . 14 | - 20 | . 20 | .01 | . 02 | . 01 | .09 | . 13 | . 19 |
| Office machine repairers | . 00 | - 00 | -00 | . 00 | -00 | -00 | -01 | . 01 | . 01 |
| Radio, television repairers | . 13 | - 11 | . 07 | -01 | . 01 | . 01 | - 10 | . 05 | . 02 |
| other mechanics and apprentices | . 15 | . 18 | -23 | . 02 | . 03 | . 02 | 9.93 | 11.17 | 11.16 |
| Printing trade crafts workers | . 00 | . 00 | .00 | .00 | . 00 | . 00 | . 02 | .02 | $.01$ |
| compositors and typesetters | .00 | . 00 | . 00 | .00 | .00 | . 00 | . 02 | . 02 | . 01 |


|  | Tire,batry. accessory dealers |  |  | Gasoline service stations |  |  | $\begin{aligned} & \text { Misc } \\ & \text { vehicle } \\ & \text { dealers } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 30 | . 34 | . 44 | . 06 | .06 | . 06 | 5.03 | 5.63 | 6.37 |
| Bakers | .01 | .01 | . 01 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | .09 | . 07 | . 06 |
| Carpet installers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 06 | . 07 | . 10 |
| Crane, derrick, hoist operator | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Decorators, window dressers | .03 | . 05 | . 09 | . 00 | - 00 | . 00 | . 31 | . 45 | . 42 |
| Glaziers | - 12 | . 15 | .19 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Inspectors, other | .01 | . 01 | .01 | . 01 | . 01 | . 01 | .05 | . 04 | . 03 |
| Sign painters and letterers | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Stationary engineers | .03 | . 02 | .01 | . 04 | . 04 | . 03 | . 01 | . 01 | . 01 |
| Upholsterers | . 07 | . 07 | - 10 | . 00 | -00 | . 00 | . 01 | . 01 | . 01 |
| other crafts workers | .01 | . 01 | .01 | .01 | . 01 | .01 | 4.48 | 4.96 | 5.74 |
| Operatives | 17.95 | 16.65 | 15.36 | 55.40 | 49.70 | 37.97 | 5.85 | 5.58 | 5.42 |
| operatives, except transport | 14.06 | 13.01 | 11.81 | 54.07 | 47.79 | 35.56 | 3.13 | 3.31 | 3.74 |
| Semiskilled metalworking | . 25 | . 27 | . 32 | . 03 | . 06 | . 07 | .37 | . 41 | - 44 |
| Grinding machine operatives | . 04 | . 04 | .03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lathe,milling mach operatives | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | - 00 |
| Metal platers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | - 00 |
| other precision mach operators | .03 | . 03 | .03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Punch, stamping press operatives | . 01 | . 01 | . 01 | . 00 | . 00 | -00 | -00 | -00 | -00 |
| Solderers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 02 | . 02 |
| \#elders and flamecutters | -14 | - 16 | . 21 | . 03 | . 06 | . 07 | . 34 | . 39 | . 42 |
| Semiskilled packing, inspecting | .21 | - 20 | .18 | . 06 | - 10 | . 11 | . 06 | . 05 | . 04 |
| Packer,wrapper,exc meat.prodce | . 21 | . 20 | .18 | . 06 | - 10 | -11 | .06 | . 05 | . 04 |
| Other operatives, exc transport | 13.60 | 12. 55 | 11.31 | 53.98 | 47.63 | 35.37 | 2.70 | 2.85 | 3.26 |
| Assemblers * | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 48 | . 60 | . 75 |
| Cutting operatives, other | .00 | .00 | .00 | .01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 06 | . 08 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | 10.48 | 8.56 | 6.84 | 53.72 | 47.24 | 35.00 | .92 | . 72 | - 72 |
|  | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | - 00 | . 00 | . 00 |
| Mixing operatives | . 03 | . 04 | . 05 | -00 | . 00 | - 00 | - 00 | . 00 | - 00 |
| oilers, greasers, exc automobiles | . 01 | . 01 | . 01 | -01 | . 01 | . 02 | . 02 | . 01 | . 00 |
| Painters, mfg articles | -08 | -08 | - 12 | . 03 | . 04 | -03 | . 24 | . 26 | . 37 |
| Photographic frocess workers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 01 | . 01 | -01 |
| Sailors and deckhands | . 00 | . 00 | . 00 | - 00 | . 00 | -00 | .03 | . 02 | . 02 |
| Furnace tendr,stokr, exc metal | . 00 | -00 | . 00 | . 01 | . 01 | . 01 | -01 | - 01 | . 01 |
| Miscellaneous machine operatves | 2.34 | 2.97 | 3.41 | . 04 | . 06 | . 05 | -18 | . 21 | . 22 |
| other operatives, exc transport | . 60 | .81 | . 80 | - 12 | . 19 | - 17 | . 79 | 1.00 | 1.15 |
| Transport equipment operatives | 3.89 | 3. 64 | 3.56 | 1.33 | 1.92 | 2.41 | 2.72 | 2.27 | 1.68 |
| Boat operators | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 02 | . 01 | .01 |
| Bus drivers | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | .03 | . 03 | . 00 |
| Delivery and route workers | 2.19 | 2. 15 | 2.23 | -40 | . 59 | . 56 | .70 | . 62 | .57 |
| Fork lift, tow motor operatives | . 12 | . 18 | . 26 | . 01 | -01 | . 02 | . 02 | . 02 | . 02 |
| Parking attendants | . 02 | . 03 | . 02 | . 00 | . 01 | - 00 | . 02 | . 02 | .01 |
| Taxicab drivers, chauffeurs | . 08 | . 07 | . 05 | . 01 | . 02 | . 02 | . 05 | . 04 | . 01 |
| Truck drivers | 1.48 | 1.22 | 1.00 | . 89 | 1.29 | 1.81 | 1.87 | 1.53 | 1.06 |
| Service workers | . 59 | . 60 | . 52 | . 24 | . 26 | - 18 | 2.56 | 2.59 | 2.32 |
| Cleaning service workers | . 40 | . 47 | . 34 | . 14 | . 15 | . 07 | 2.23 | 2.31 | 1.98 |
| Bldg interior cleaners, other | . 08 | - 10 | -11 | . 03 | . 04 | . 02 | . .99 | 1.10 | 1.09 |
| Janitors and sextons | .38 | . 37 | .23 | . 10 | . 11 | . 06 | 1.24 | 1.21 | . 88 |
| Pood service workers | . 04 | . 05 | . 06 | . 07 | . 07 | . 07 | . 03 | . 02 | . 04 |
| Cooks, exc private households | . 02 | . 01 | . 01 | .03 | . 03 | . 05 | . 01 | . 01 | . 01 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | -01 | -02 | . 00 | . 00 | . 00 |
| Food counter, fountain workers | -01 | . 01 | . 02 | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 |
| Waiters, | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 |
| other food sery wirs.exc privt | . 01 | .01 | . 01 | . 00 | . 00 | .00 | . 02 | .01 | .01 |


|  | Tire, batrye accessory dealers |  |  | Gasoline service stations |  |  | Misc vehicle dealers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 15 | . 10 | . 12 |
| Attendants, personal serv,otner | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 04 | . 03 | .05 |
| Elevator operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | .01 | .01 | .01 | . 10 | . 06 | -06 |
| Protective service workers | . 07 | . 07 | - 11 | . 01 | . 01 | . 02 | . 15 | . 15 | - 19 |
| Guards | .06 | . 06 | . 10 | .01 | .01 | . 02 | . 14 | . 15 | . 19 |
| Police and detectives | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | . 01 | .01 | . 00 |
| Laborers, except farm | 2.12 | 2. 57 | 2.77 | . 42 | . 55 | . 43 | 1.81 | 1.98 | 2.16 |
| Carpenter helpers | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 04 | .03 | . 02 |
| Constr labr, exc carpenter helpr | . 06 | . 06 | .07 | . 02 | . 02 | . 03 | . 11 | . 10 | . 07 |
| preight and material handlers | .33 | . 42 | . 60 | . 04 | . 05 | . 06 | . 25 | - 30 | . 43 |
| Gardenrs, groundxeepers, exc farm | . 01 | .01 | . 01 | .01 | . 01 | . 01 | . 19 | . 20 | - 25 |
| Stock handlers | 1.20 | 1.57 | 1.65 | .01 | . 02 | . 01 | . 24 | - 32 | - 37 |
| Vehicle washers, equip cleaners | . 10 | - 11 | . 09 | . 29 | . 37 | - 20 | - 51 | - 57 | - 55 |
| warehouse labcrers, other | . 30 | . 28 | .21 | . 03 | . 05 | . 10 | . 09 | . 10 | . 10 |
| other laborers | . 12 | - 12 | . 14 | . 02 | . 03 | . 03 | . 38 | . 37 | . 36 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Apparel and accessory stores |  |  | Apparel and accessory. exc shoes |  |  | $\begin{aligned} & \text { Shoe } \\ & \text { stores } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100. 00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| prafessional and technical | . 95 | 1.19 | 1.03 | 1.01 | 1.26 | 1.10 | .72 | . 87 | . 74 |
| Engineering, science technicians | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Drafters | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 02 | . 02 | . 02 |
| Medical workers, exc technicians | . 01 | . 01 | . 01 | .01 | . 01 | . 02 | . 00 | .00 | - 00 |
| Eegistered nurses | . 01 | . 01 | . 01 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Computer specialists | . 04 | . 05 | . 04 | . 03 | . 04 | . 03 | . 06 | -09 | . 09 |
| Computer programers | . 03 | . 03 | . 02 | . 02 | . 02 | . 01 | . 05 | . 06 | . 07 |
| computer systems analysts | .01 | . 01 | . 02 | .01 | .01 | . 02 | . 01 | . 02 | .03 |
| Social scientists | . 02 | . 02 | . 01 | . 02 | .03 | .01 | .01 | . 01 | . 00 |
| Economists | . 02 | . 02 | . 01 | . 02 | . 03 | .01 | . 01 | . 01 | . 00 |
| Teachers | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Adult educaticn | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| writers,artists, entertainers | . 34 | . 42 | . 37 | . 39 | . 48 | . 42 | . 11 | . 14 | . 18 |
| Designers | . 19 | . 23 | . 21 | - 22 | - 27 | . 25 | . 04 | . 06 | . 07 |
| Editors and reforters | . 03 | . 05 | . 09 | - 04 | - 05 | . 09 | . 02 | . 03 | . 09 |
| Painters and sculptors | . 08 | . 09 | . 03 | . 10 | . 11 | . 04 | . 02 | . 02 | . 00 |
| Photographers | .01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Public relaticns specialists | . 03 | . 04 | . 02 | . 03 | . 04 | . 03 | . 02 | . 02 | . 01 |
| Other professicnal and technical | . 54 | . 67 | . 58 | - 55 | . 69 | .61 | -51 | . 61 | -46 |
| Accountants | . 33 | . 42 | . 40 | . 33 | -43 | -41 | . 33 | -41 | -34 |
| Lawyers | .01 | . 02 | . 02 | . 01 | . 02 | - 02 | . 02 | - 02 | .01 |
| Personnel, labor relations ukrs | . 19 | . 22 | - 16 | . 20 | . 24 | . 18 | . 16 | . 18 | - 11 |
| Manayers, officials, proprietors | 19.46 | 21.73 | 21.03 | 18.88 | 20.89 | 20.67 | 21.82 | 25.38 | 22.41 |
| Buyers, sales, lcan managers | 5.81 | 5.27 | 3.84 | 5.94 | 5.29 | 3.67 | 5.31 | 5.21 | 4.49 |
| Bank, financial managers | . 10 | . 10 | . 05 | - 10 | - 10 | . 05 | . 07 | . 08 | . 06 |
| Credit managers | . 38 | . 22 | . 12 | . 45 | - 26 | . 15 | .11 | . 06 | . 03 |
| Buyers, wholesale, retail trade | 2.40 | 2.17 | 1.67 | 2.58 | 2.32 | 1.82 | 1.64 | - 1.49 | 1. 10 |
| Sales manager, retail trade | 2.94 | 2.79 | 2.00 | 2.81 | 2.61 | 1.66 | 3.49 | 3.58 | 3.30 |
| Other managers, officials, proprts | 13.64 | 16. 46 | 17.19 | 12.94 | 15.60 | 17.00 | 16.52 | 20.17 | 17.92 |
| office ranagers, other | . 28 | . 31 | . 27 | . 30 | . 33 | . 28 | . 20 | - 22 | . 24 |
| Restaurant, cafe, bar, managers | . 03 | . 02 | . 01 | . 03 | . .03 | . 01 | . 03 | . 02 | -01 |
| Other managers, administrators | 13.33 | 16. 13 | 16.91 | 12.61 | 15.25 | 16.70 | 16.30 | 19.93 | 17.67 |
| Sales workers | 51.28 | 47.81 | 55.24 | 50.12 | 46.82 | 54.27 | 56.02 | 52.11 | 58.92 |
| Advertising agents, sales worker | . 04 | -06 | . 09 | . 04 | . 06 | . 09 | . 03 | . 05 | . 10 |
| other sales workers | 51.24 | 47.74 | 55.15 | 50.08 | 46.75 | 54.18 | 56.00 | 52.05 | 58.82 |
| Clerical workers | 14.43 | 15. 19 | 13.30 | 14.56 | 15.41 | 13.94 | 13.90 | 14.21 | 10.89 |
| Stenographrs, typists, secretaries | 1.35 | 1.44 | 1.48 | 1.37 | 1.49 | 1.67 | 1.30 | 1.20 | .76 |
| Legal secretaries | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Other secretaries | . 97 | 1.09 | 1.20 | . 97 | 1. 13 | 1.38 | . 99 | - 92 | . 50 |
| Stenographers | -02 | . 01 | . 01 | . 02 | . 01 | . 01 | -01 | . 01 | - 01 |
| Typists | - 36 | . 34 | -27 | -38 | . 35 | - 28 | - 29 | .27 | . 24 |
| Office machine operators | . 51 | . 48 | . 26 | - 50 | - 46 | . 24 | . 57 | . 56 | . 35 |
| Bookkeeping and billing | . 09 | . 04 | . 02 | . 11 | . 05 | . 02 | . 03 | . 02 | .01 |
| Calculating | . 10 | . 06 | . 02 | . 08 | . 05 | .01 | . 17 | .11 | . 03 |
| computer and feripheral equip | . 07 | . 15 | . 11 | . 06 | . 14 | . 09 | . 08 | . 19 | . 17 |
| Keypunch | . 19 | - 16 | . 09 | . 17 | . 15 | . 09 | . 24 | . 20 | . 10 |
| Other office machine operators | . 06 | . 06 | .03 | . 07 | . 07 | .03 | . 05 | . 05 | . 04 |


|  | Apparel and accessory stores |  |  | Apparel and accessory. exc shoes |  |  | Shoe stores |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 12.56 | 13. 27 | 11.56 | 12.69 | 13.46 | 12.03 | 12.03 | 12.45 | 9.78 |
| Billing clerks | . 16 | . 18 | .19 | - 16 | . 18 | .21 | . 16 | . 16 | .11 |
| Bookkeepers | 3.56 | 3. 60 | 2.85 | 3.61 | 3.67 | 2.98 | 3.35 | 3.28 | 2.33 |
| Cashiers | 3.91 | 4.44 | 4.26 | 3.50 | 4.06 | 4.12 | 5.58 | 6.06 | 4.79 |
| Clerical supervisors, other | . 09 | . 11 | . 08 | -10 | . 11 | . 08 | . 07 | . 08 | . 06 |
| Collectors, bill and account | . 06 | . 05 | . 02 | . 07 | . 06 | .02 | .02 | . 02 | . 01 |
| Counter clerks, exc food | . 20 | - 21 | . 18 | . 22 | - 24 | - 21 | . 10 | . 11 | . 10 |
| Estimators, investigators, other | . 22 | - 24 | . 09 | - 24 | . 27 | - 11 | . 11 | . 11 | . 04 |
| Expediters, production controlrs | . 03 | . 03 | . 03 | . 04 | . 04 | . 03 | - 01 | -01 | .01 |
| Pile cleris | .22 | . 21 | . 20 | .23 | . 22 | . 21 | .18 | . 16 | . 16 |
| Mail handlers,exc post office | . 10 | . 10 | .07 | . 10 | . 10 | . 07 | . 09 | .09 | . 04 |
| Messengers and office helpers | . 03 | - 03 | . 01 | . 04 | . 03 | . 01 | . 01 | . 01 | . 01 |
| Payroll, timekeeping clerks | .13 | . 17 | - 18 | . 13 | - 16 | . 16 | . 15 | .21 | . 28 |
| aeceptionists | .13 | . 12 | . 07 | . 14 | . 13 | . 08 | . 11 | . 09 | . 04 |
| Shipping and receiving clerks | .68 | . 71 | .78 | .76 | . 79 | . 88 | . 37 | . 38 | . 41 |
| Statistical clerks | . 15 | . 16 | - 11 | . 16 | . 18 | - 12 | . 09 | . 10 | . 06 |
| Stock clerks and store keepers | 1.13 | 1.04 | .72 | 1.15 | 1.05 | .71 | 1.07 | 1.00 | .76 |
| Telephone operators | . 17 | . 13 | .09 | -19 | . 14 | . 10 | . 08 | . 06 | . 04 |
| Misc clerical workers | 1.58 | 1.74 | 1.64 | 1.85 | 2.02 | 1.94 | .47 | . 52 | . 53 |
| Crafts and kindred workers | 4.00 | 4. 25 | 3.81 | 4.38 | 4.72 | 4.08 | 2.40 | 2.23 | 2.81 |
| Construction crafts workers | . 10 | . 12 | .17 | . 10 | - 11 | . 13 | . 10 | . 15 | . 32 |
| Carpenters and apprentices | . 06 | . 08 | .11 | . 06 | . 08 | . 10 | . 05 | . 08 | . 15 |
| Electricians and apprentices | . 02 | . 02 | .03 | .01. | . 02 | . 02 | . 03 | . 04 | . 08 |
| Painters and apprentices | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 01 |
| plumbers, pipefitters,aprentices | . 00 | . 01 | .02 | . 00 | . 00 | .00 | . 02 | .03 | . 08 |
| Blue collar worker supervisors | . 56 | . 64 | . 60 | - 54 | . 60 | . 49 | . 64 | . 82 | 1.01 |
| Mechanics, repairers,installers | . 18 | - 18 | .17 | . 15 | . 15 | .13 | . 34 | - 32 | - 31 |
| Air cond, heating, refrig mech | . 01 | . 02 | -02 | . 01 | . 01 | . 01 | . 02 | . 04 | . 06 |
| Auto body repairers | . 00 | . 00 | . 00 | -00 | - 00 | . 00 | . 02 | . 01 | . 01 |
| Auto mechanics and apprentices | . 10 | . 08 | . 03 | . 07 | . 06 | .03 | - 20 | . 15 | . 05 |
| Heavy equip mech, incl diesel | .03 | . 04 | . 06 | . 03 | . 03 | . 05 | . 04 | . 06 | . 11 |
| Household affliance mechanics | .01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 | .01 |
| office machine repairers | .01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Radio, television repairers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 07 |
| other mechanics and apprentices | .02 | . 02 | .01 | . 02 | - 02 | .01 | . 02 | . 02 | .01 |
| Printing trade crafts workers | .03 | . 04 | . 07 | . 03 | . 04 | . 06 | . 03 | . 05 | - 10 |
| Compositors and typesetters | . 02 | . 03 | . 05 | . 02 | . 03 | . 04 | . 02 | . 04 | . 09 |
| Engravers exc photoengravers | .01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 00 | -00 | . 00 |
| Press, plate printers,aprentices | . 01 | . 01 | . 00 | .01 | . 00 | . 00 | . 01 | . 01 | .01 |
| Transport, public util craft ukrs | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Telephone installers, repairers | . 01 | . 01 | .01 | . 02 | .01 | .01 | . 01 | .01 | . 01 |
| Other crafts, kindred workers | 3.11 | 3.25 | 2.81 | 3.55 | 3. 80 | 3.27 | 1.29 | . 89 | 1.06 |
| Cabinetmakers | .01 | . 01 | . 02 | . 01 | . 02 | . 02 | .01 | .01 | . 01 |
| Carpet installers | . 01 | . 01 | . 02 | .01 | . 01 | . 02 | . 01 | .01 | . 01 |
| Decorators, vindow dressers | . 58 | 1.11 | 1.48 | . 67 | 1.26 | 1.70 | .23 | . 45 | . 64 |
| Purniture ana wood finishers | .01 | .01 | . 01 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Purriers | . 18 | . 17 | . 16 | . 23 | . 21 | . 20 | . 00 | . 00 | . 00 |
| Inspectors, other | .03 | . 03 | . 02 | . 04 | . 03 | . 01 | . 02 | .03 | . 07 |
| Shoe repairers | - 19 | . 06 | . 05 | -01 | . 00 | . 00 | -94 | - 30 | - 23 |
| s.ign painters and letterers | .01 | . 01 | . 00 | .01 | . 01 | . 00 | .01 | .01 | . 00 |
| Stationary engineers | .01 | . 02 | .03 | .01 | . 02 | . 04 | . 01 | . 01 | . 01 |
| tailors | 2.03 | 1.79 | .99 | 2.51 | 2.18 | 1.23 | . 05 | .06 | . 08 |
| Upholsterers | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| other crafts workers | . 03 | . 03 | . 03 | . 04 | . 03 | .03 | .01 | .01 | . 01 |
| Operatives | 6.09 | 6.01 | 3.04 | 7.16 | 7.06 | 3.59 | 1.70 | 1.44 | . 98 |
| Operatives, except transport | 5.81 | 5.71 | 2.66 | 6.85 | 6.72 | 3.15 | 1.55 | 1.29 | . 80 |
| Semiskilled metalworking | .01 | . 01 | . 03 | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Helders and flamecutters | .01 | .01 | . 03 | . 01 | . 02 | . 04 | . 00 | .00 | .00 |
| Semiskilled packing, inspecting | . 39 | . 40 | . 36 | . 42 | . 43 | . 40 | . 25 | . 25 | . 20 |
| Packer,wrapper,exc meat, prodce | . 39 | . 40 | . 36 | . 42 | . 43 | . 40 | . 25 | .25 | . 20 |


|  | Apparel and accessory stores |  |  | Apparel and accessory. exc shoes |  |  | Shoe stores |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 5.42 | 5. 30 | 2.27 | 6.42 | 6. 28 | 2.71 | 1.30 | 1.05 | . 60 |
| Clothing ircners and pressers | - 30 | . 22 | . 08 | . 37 | - 27 | . 10 | . 01 | . 01 | . 00 |
| Cutting operatives, other | . 05 | . 05 | .04 | . 06 | . 06 | .04 | . 03 | . 02 | . 01 |
| Dressmakers, exc factory | 3.79 | 3.88 | 1.37 | 4.67 | 4.75 | 1.72 | - 13 | . 13 | . 04 |
| Dyers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 04 | . 05 | . 08 |
| Filer, polisher,sander, buffer | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Garage wrkr,gas station atten | . 14 | . 09 | . 04 | . 01 | . 01 | . 01 | . 68 | . 42 | . 16 |
| Laundry, dry cleang oprs,other | . 01 | . 01 | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Meat cutters, tutchers, exc mfg | . 01 | . 02 | . 02 | . 02 | . 02 | .03 | . 00 | . 00 | . 00 |
| Milleners | . 21 | . 18 | .09 | -26 | . 22 | . 11 | . 00 | . 00 | . 00 |
| Photographic frocess workers | . 00 | . 00 | . 01 | . 00 | - 00 | . 00 | . 01 | . 02 | . 04 |
| Sewers and stitchers | . 54 | . 48 | .39 | . 66 | . 57 | . 48 | . 06 | . 06 | . 08 |
| Shoemaking machine operatives | . 01 | . 01 | . 00 | . 00 | . 00 | - 00 | . 04 | . 03 | .01 |
| Furnace tendr,stokr, exc metal | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Miscellaneous machine operatves | . 11 | - 12 | . 09 | - 10 | - 10 | . 08 | . 15 | . 17 | . 13 |
| Other operatives, exc transport | . 22 | . 23 | .11 | . 24 | . 25 | . 12 | . 13 | . 13 | . 05 |
| Transport equifment operatives | . 28 | - 30 | . 38 | - 32 | - 34 | . 44 | . 14 | . 15 | . 19 |
| Delivery and route workers | . 15 | . 14 | . 14 | .17 | . 16 | . 17 | . 06 | . 05 | . 04 |
| Fork lift,tow motor operatives | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | .01 | . 01 | .01 |
| Taxicab drivers, chauffeurs | . 01 | .01 | . 02 | .01 | . 01 | . 02 | . 01 | . 01 | .01 |
| Truck drivers | . 11 | . 13 | . 21 | . 12 | . 14 | . 23 | .07 | . 08 | . 13 |
| Service workers | 1.95 | 1.98 | 1.50 | 2.18 | 2.22 | 1.69 | . 97 | . 91 | . 78 |
| Cleaning service vorkers | 1.07 | 1.09 | . 72 | 1. 19 | 1. 20 | . 81 | . 59 | - 59 | . 39 |
| Blay interior cleaners, other | . 47 | - 50 | .36 | . 53 | - 56 | . 40 | . 25 | . 27 | . 21 |
| Janitors and sextons | . 60 | . 58 | .36 | . 66 | . 64 | . 40 | . 34 | . 32 | - 19 |
|  |  |  |  | . 20 | . 17 | . 20 | . 09 | . 09 | . 13 |
| waiters' assistants | . 01 | . 01 | . 02 | . 01 | .01 | . 03 | . 00 | . 00 | .00 |
| cooks, exc private households | . 03 | . 03 | . 03 | . 04 | . 03 | . 04 | . 01 | .01 | .01 |
| Dishwashers | . 02 | . 01 | . 01 | . 02 | .01 | . 01 | . 00 | . 00 | . 00 |
| Focd counter, fountain workers | .03 | . 04 | . 06 | . 03 | . 04 | . 07 | . 01 | . 02 | . 05 |
| Waiters | . 07 | . 05 | . 05 | . 07 | . 05 | . 04 | . 05 | . 04 | . 06 |
| Other food serv wkrs,exc privt | . 02 | . 02 | .01 | . 03 | . 02 | . 01 | .01 | . 01 | . 01 |
| Health service workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Practical nurses | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Personal service workers | . 53 | . 54 | . 37 | . 60 | -62 | .43 | . 23 | . 16 | . 14 |
| Attendants, personal serv,otier | . 15 | - 12 | . 08 | . 18 | . 15 | . 10 | . 00 | . 00 | .00 |
| Barbers | . 01 | . 00 | . 00 | . 01 | . 00 | . 00 | . 02 | . 00 | . 00 |
| Bootblacks | . 02 | . 01 | .01 | . 00 | . 00 | .00 | . 09 | . 04 | . 07 |
| lilevator operators | . 11 | . 08 | . 02 | . 13 | . 09 | . 02 | . 03 | . 02 | . 01 |
| Hairäressers and cosmetologists | . 23 | . 31 | . 25 | . 27 | - 36 | . 30 | . 05 | . 07 | . 06 |
| Housekeepers, exc private homes | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 | . 03 | . 01 |
| Protective service workers | . 17 | - 19 | - 22 | .19 | . 22 | . 25 | . 05 | .07 | - 10 |
| Guards | . 15 | . 17 | .20 | . 17 | . 20 | .23 | . 04 | . 06 | . 10 |
| Police and aetectives | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 01 | . 01 | .00 |
| Laborers, except farm | 1.85 | 1.86 | 1.05 | 1.70 | 1.63 | . 68 | 2.48 | 2.85 | 2.48 |
| Constr labr, exc carpenter helpr | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Freight and material handlers | - 10 | - 10 | . 07 | - 10 | . 10 | . 08 | . 08 | . 08 | . 06 |
| Stock handlers | 1.60 | 1.60 | . 79 | 1.50 | 1.41 | . 46 | 2.04 | 2.40 | 2.04 |
| Vehicle washers,equip cleaners | . 01 | - 01 | .01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Warehouse labcrers, other | . 10 | . 11 | . 15 | . 07 | . 08 | . 11 | . 24 | . 26 | . 29 |
| Other laborers | . 03 | . 03 | .03 | .01 | .01 | . 02 | . 08 | . 08 | . 06 |

Furntre and
appliance
stores
$1970 \quad 1978 \quad 1990$
$100.00 \quad 100.00 \quad 100.00$

| 3.07 | 2.91 | 2.12 |
| :---: | :---: | :---: |
| .11 | .11 | .08 |
| .01 | . 01 | . 02 |
| . 04 | .05 | . 04 |
| .01 | .01 | . 00 |
| . 02 | . 02 | . 01 |
| .02 | . 01 | . 00 |
| . 02 | . 02 | - 01 |
| . 10 | - 12 | . 14 |
| . 05 | . 06 | . 09 |
| . 04 | . 05 | . 04 |
| .01 | . 01 | .00 |
| .00 | . 01 | .01 |
| .00 | .01 | . 00 |
| .03 | .04 | .02 |
| . 01 | . 02 | .01 |
| .01 | .02 | .01 |
| .06 | .09 | . 08 |
| . 05 | . 06 | .05 |
| .01 | .03 | . 03 |
| . 02 | .04 | .05 |
| .02 | . 04 | .04 |
| .00 | .01 | .01 |
| 1.28 | . 81 | .23 |
| .04 | .04 | .02 |
| 1.24 | .76 | .22 |
| .98 | 1. 14 | 1.11 |
| .74 | . 85 | .85 |
| . 03 | . 04 | .06 |
| .05 | . 06 | . 04 |
| . 08 | . 09 | . 06 |
| . 02 | . 02 | .03 |
| . 06 | . 08 | . 07 |
| .48 | - 56 | . 42 |
| - 36 | .41 | - 30 |
| .00 | -00 | . 00 |
| . 01 | . 01 | .00 |
| .01 | .01 | . 01 |
| .10 | - 12 | .09 |
| 19.28 | 20.41 | 20.48 |


| 3.67 | 3.11 | 2.11 |
| ---: | ---: | ---: |
| .09 | .09 | .04 |
| .45 | .24 | .14 |
| .85 | .69 | .51 |
| 2.28 | 2.09 | . .42 |
| 15.61 | 17.29 | 18.37 |
| .03 | .01 | .01 |
| .59 | .61 | .58 |
| .04 | .02 | .01 |
| 14.94 | 16.65 | 17.78 |
| 25.74 | 27.14 | 34.52 |
| .05 | .07 | .11 |
| .11 | .09 | .09 |
| 25.58 | 26.98 | 34.32 |
| 15.88 | 15.22 | 13.02 |
| 3.96 | 4.06 | 4.48 |
| 3.25 | 3.44 | 3.99 |
| .04 | .02 | .01 |
| .66 | .60 | .49 |

Home
furnishings
$1970 \quad 1978 \quad 1990$

Household appliances. tv.radio
$1970 \quad 1978 \quad 1990$

Total all occupations


Manayers, officials, proprietors
Buyers, sales, lcan managers
Bank, financial managers
Credit managers
Buyers, wholesale, retail trade
Sales manager, retail trade
Other managers, officials, proprts
Funeral directors
Office managers, other
festaurant, cafe, bar, managers
other managers, administrators
Sales workers
Advertising agents, sales worker
Demonstrators
Other sales workers
Clerical workers
Stenographrs, typists, secretaries
other secretaries
Stenographers
Tyfists
$100.00 \quad 100.00 \quad 100.00$

| 1.84 | 2.16 | 1.99 |
| :---: | :---: | :---: |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | - 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 04 | . 04 | . 04 |
| . 04 | . 04 | . 04 |
| -00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 03 | . 05 | . 06 |
| . 03 | . 03 | . 03 |
| . 01 | . 02 | . 03 |
| . 02 | . 03 | . 03 |
| . 02 | . 03 | . 03 |
| . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 |
| .01 | . 01 | . 01 |
| .00 | . 00 | - 00 |
| 1.33 | 1.59 | 1.52 |
| 1.15 | 1.37 | 1.34 |
| . 04 | . 04 | . 06 |
| . 00 | . 00 | . 00 |
| - 10 | . 11 | . 07 |
| . 02 | . 02 | . 02 |
| . 03 | . 04 | . 02 |
| . 40 | . 45 | -32 |
| . 32 | . 35 | . 26 |
| -00 | . 00 | . 00 |
| . 00 | - 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 08 | . 09 | . 06 |
| 18.76 | 19.58 | 18.63 |
| 3.74 | 3.03 | 2.04 |
| . 08 | . 08 | . 05 |
| . 60 | . 33 | - 19 |
| 1.06 | . 87 | . 63 |
| 2.00 | 1.76 | 1.18 |
| 15.03 | 16.54 | 16.59 |
| . 05 | . 02 | . 01 |
| . 60 | . 62 | . 58 |
| . 03 | . 02 | . 01 |
| 14.34 | 15.88 | 16.00 |
| 24.98 | 26.90 | 36.90 |
| . 05 | . 07 | . 11 |
| . 05 | . 05 | . 11 |
| 24.88 | 26.77 | 36.68 |
| 15.26 | 14.32 | 11.36 |
| 3.69 | 3.64 | 3.74 |
| 3.04 | 3.09 | 3.32 |
| . 03 | . 02 | . 01 |
| . 61 | . 53 | . 41 |

$100.00 \quad 100.00 \quad 100.00$

| 5.09 | 4.03 | 2.35 |
| :---: | :---: | :---: |
| . 29 | . 27 | . 21 |
| . 02 | . 02 | . 04 |
| . 12 | . 12 | - 10 |
| . 02 | . 02 | . 00 |
| . 05 | . 05 | . 04 |
| . 05 | . 03 | . 00 |
| . 04 | . 04 | . 03 |
| . 21 | . 26 | . 31 |
| . 07 | . 09 | . 16 |
| -11 | . 13 | . 10 |
| . 01 | . 02 | .01 |
| . 01 | . 02 | . 04 |
| . 01 | . 01 | . 01 |
| . 07 | . 09 | . 06 |
| . 03 | . 04 | . 02 |
| . 03 | . 04 | . 04 |
| . 11 | . 15 | . 11 |
| . 08 | . 10 | . 08 |
| . 03 | . 04 | . 03 |
| . 02 | . 06 | . 07 |
| . 02 | . 04 | . 06 |
| . 01 | . 02 | . 02 |
| 3.37 | 1.99 | . 60 |
| -09 | . 09 | . 03 |
| 3.29 | 1.90 | . 57 |
| . 40 | . 48 | . 42 |
| . 06 | . 07 | . 04 |
| . 03 | . 04 | . 05 |
| . 14 | . 14 | . 10 |
| . 04 | . 06 | . 05 |
| . 03 | . 03 | . 04 |
| -10 | - 14 | . 14 |
| . 61 | . 74 | . 57 |
| .43 | . 50 | . 36 |
| . 01 | . 01 | . 01 |
| . 01 | . 01 | - 00 |
| -02 | . 03 | . 04 |
| - 13 | . 16 | . 15 |
| 20.12 | 21.65 | 23.53 |
| 3.56 | 3.23 | 2.22 |
| . 10 | . 09 | . 03 |
| . 21 | . 12 | . 05 |
| . 50 | . 43 | . 31 |
| 2.75 | 2.59 | 1.82 |
| 16.57 | 18.41 | 21.32 |
| . 00 | . 00 | . 00 |
| . 59 | -60 | -59 |
| . 04 | . 03 | . 01 |
| 15.94 | 17.79 | 20.72 |
| 27.00 | 27.50 | 30.60 |
| . 05 | . 07 | - 10 |
| . 22 | . 14 | . 06 |
| 26.73 | 27.29 | 30.44 |
| 16.90 | 16.57 | 15.77 |
| 4.42 | 4.68 | 5.70 |
| 3.61 | 3.95 | 5.09 |
| . 06 | . 03 | . 00 |
| . 75 | . 70 | . 60 |


|  | Furntre and appliance stores |  |  | Home furnishings |  |  | Household appliances, tv,radio |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| cffice machine operators | . 30 | . 30 | . 18 | . 26 | . 25 | . 15 | . 36 | .38 | . 25 |
| Bookkeeping and billing | . 06 | . 03 | . 02 | . 05 | . 03 | . 01 | . 08 | . 04 | . 02 |
| Calculating | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 02 | . 01 | . 01 |
| Computer and feripheral equip | . 05 | . 12 | . 09 | . 04 | . 10 | . 07 | . 06 | . 15 | . 11 |
| Keypunch | . 13 | . 11 | . 05 | . 12 | . 09 | . 04 | . 16 | . 14 | . 07 |
| other office machine operators | . 03 | . 03 | . 02 | . 0.3 | . 03 | . 02 | . 03 | . 04 | . 03 |
| Other clerical workers | 11.63 | 10.86 | 8.36 | 11.32 | 10.43 | 7.48 | 12.12 | 11.50 | 9.83 |
| Billing clerks | . 16 | . 17 | . 16 | . 15 | . 15 | . 12 | . 17 | . 20 | . 23 |
| Bookkeepers | 6.18 | 5. 56 | 4.15 | 5.79 | 5. 15 | 3.50 | 6.83 | 6.18 | 5.23 |
| Casniers | . 72 | . 79 | . 75 | . 73 | . 77 | . 66 | . 70 | . 81 | . 88 |
| clerical superyisors, other | . 07 | . 09 | . 08 | . 09 | . 11 | . 10 | . 05 | . 06 | . 04 |
| Collectors, bill and account | . 28 | - 25 | .12 | . 35 | - 31 | . 15 | .17 | . 15 | . 06 |
| Counter clerks, exc rood | - 14 | - 15 | . 13 | .13 | . 13 | . 12 | - 16 | . 18 | . 16 |
| Dispatchers,starters, vehicle | . 06 | . 07 | . 05 | . 03 | . 03 | . 02 | .11 | . 11 | . 08 |
| Estimators, investigators, other | . 37 | - 42 | . 22 | . 41 | . 45 | . 24 | . 32 | - 37 | . 18 |
| Expediters, frcduction controlrs | . 06 | . 06 | . 05 | . 06 | . 06 | . 05 | . 07 | . 06 | . 04 |
| File clerks | . 24 | . 21 | . 18 | - 22 | - 18 | . 14 | . 27 | . 26 | . 26 |
| Mail handlers,exc post office | . 09 | . 09 | . 06 | . 06 | . 05 | . 04 | - 15 | . 15 | - 10 |
| Messengers and office helpers | . 05 | . 05 | . 03 | . 05 | . 04 | . 02 | . 05 | . 05 | . 04 |
| Payroll, timekeeping clerks | . 08 | - 10 | . 12 | . 07 | . 09 | - 11 | . 10 | - 12 | . 14 |
| keceptionists | . 43 | - 38 | . 22 | -40 | . 36 | - 21 | -48 | . 40 | - 22 |
| Shipping and receiving clerks | . 61 | - 56 | . 45 | . 74 | . 65 | -45 | . 39 | .41 | . 46 |
| Statistical clerks | . 13 | - 14 | . 10 | . 11 | . 11 | . 07 | . 18 | . 19 | . 13 |
| Stock clerks and store keepers | .71 | . 61 | .39 | . 74 | . 65 | . 48 | .66 | . 55 | . 25 |
| Telephone operators | .18 | . 13 | .10 | .18 | . 12 | . 06 | . 18 | . 15 | . 16 |
| Heighers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Misc clerical workers | 1.05 | 1.04 | 1.01 | 1.03 | 1.01 | . 93 | 1.08 | 1.09 | 1. 15 |
| Crafts and kindred workers | 23.57 | 22.88 | 21.06 | 23.01 | 22.18 | 20.18 | 24.51 | 23.94 | 22.50 |
| Construction crafts workers | 2.86 | 2. 18 | 1.36 | 3.74 | 2.75 | 1.60 | 1.41 | 1.32 | . 96 |
| Carpenters and apprentices | . 79 | . 71 | . 49 | 1.21 | 1. 11 | . 73 | .10 | . 11 | . 09 |
| Brick, stonerasons, apprentices | .01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Bulldozer oferators | . 02 | . 01 | .01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| cement and concrete finishers | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 04 |
| slectricians and apprentices | - 37 | . 35 | .17 | . 05 | . 06 | . 09 | .91 | . 78 | . 29 |
| Excavating, grading mach operatr | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Floor layers, exc tile setters | . 79 | . 41 | . 14 | 1.26 | . 67 | . 21 | .01 | . 01 | . 00 |
| painters and apprentices | . 19 | . 16 | . 08 | . 26 | . 21 | - 10 | . 08 | . 07 | . 04 |
| paperhangers | . 01 | -01 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Plasterers and apprentices | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | .11 | . 13 | . 19 | . 02 | . 02 | .01 | . 26 | . 31 | . 48 |
| Tile setters | . 54 | - 37 | . 26 | . 87 | . 62 | . 41 | .00 | . 00 | . 00 |
| Blue collar worker supervisors | . 81 | . 98 | 1.14 | . 81 | . 91 | . 89 | . 82 | 1.09 | 1.56 |
| Metalworkg craft wrkrs, exc mech | . 11 | . 15 | . 27 | . 04 | . 06 | - 14 | -23 | . 28 | . 50 |
| Machinists and apprentices | . 04 | . 06 | . 12 | . 02 | . 04 | -10 | . 08 | .09 | - 15 |
| Millurights | . 00 | . 01 | . 03 | . 00 | . 00 | .00 | . 01 | . 02 | . 08 |
| Sheetmetal workers, apprentices | . 05 | . 06 | . 08 | . 00 | - 00 | . 00 | . 13 | . 14 | . 21 |
| Tool and diemakers, apprentices | . 01 | . 02 | . 05 | . 01 | . 02 | . 04 | .01 | . 02 | . 07 |
| Mechanics, repairers, installers' | 8.91 | 8. 98 | 7.60 | 1.64 | 1. 52 | 1.04 | 20.85 | 20.12 | 18.43 |
| Air cond, heating, refrig mech | 1.01 | 1.51 | 1.54 | . 08 | - 10 | . 09 | 2.55 | 3.60 | 3.94 |
| Aircraft mechanics | . 00 | . 01 | . 02 | . 00 | . 00 | . 00 | .01 | . 02 | . 06 |
| Auto accessories installers | . 05 | - 04 | . 01 | . 02 | . 02 | . 01 | . 10 | . 08 | . 03 |
| Auto mechanics and apprentices | . 07 | . 07 | . 05 | . 04 | . 03 | . 02 | . 13 | . 12 | . 09 |
| Data processing mach repairers | . 01 | . 02 | . 02 | - 00 | . 00 | . 00 | . 03 | . 05 | . 05 |
| Parm implement mechanics | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | . 09 | - 12 | . 11 | . 04 | . 06 | . 08 | . 17 | . 21 | . 17 |
| Household afpliance mechanics | 2.47 | 2.49 | 1.48 | . 97 | . 91 | . 56 | 4.94 | 4.85 | 3.01 |
| office machine repairers | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | . 07 | . 06 | . 08 |
| Radio, television repairers | 4.60 | 4. 17 | 4.12 | .43 | . 35 | . 27 | 11.46 | 9.89 | 10.47 |
| other mechanics and apprentices | . 56 | . 53 | . 20 | . 06 | . 05 | . 02 | 1.37 | 1.25 | . 51 |
| Printing trade crafts workers | . 02 | . 02 | . 02 | . 03 | . 03 | . 03 | . 01 | . 01 | .00 |
| Compositors and typesetters | . 02 | . 02 | . 02 | . 02 | .03 | .03 | . 01 | . 01 | . 00 |
| Transport, public util craft wkrs | . 05 | . 05 | . 02 | . 00 | . 00 | .00 | .11 | .11 | . 05 |
| Elec pur line instaler, repairer | . 03 | . 03 | .01 | .00 | . 00 | . 00 | .07 | . 07 | . 03 |
| Power station operators | . 00 | -00 | . 00 | - 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Telephone installers, repairers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Telephone line instalf, splicers | .01 | . 01 | . 00 | .00 | .00 | .00 | . 02 | . 02 | .00 |

Table 1. Percent distribution of industry emplopment by occupation, 1970 . 1978 and projected 1990

|  | Furntre and appliance stores |  |  | Home furnishings |  |  | Household appliances. tv,radio |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 10.81 | 10.53 | 10.64 | 16.73 | 16.92 | 16.49 | 1.07 | 1.01 | 1.00 |
| Cabinetmakers | 2.91 | 2.48 | 1.99 | 4.65 | 4.10 | 3.17 | . 04 | . 05 | . 05 |
| carpet installers | 3.46 | 3. 79 | 3.76 | 5.52 | 6.29 | 6.02 | . 06 | . 07 | . 04 |
| Crane, derrick, hoist operator | . 01 | . 01 | . 05 | . 01 | . 01 | . 04 | . 01 | - 02 | . 06 |
| Decorators, window dressers | 1.31 | 2.06 | 2.75 | 2.07 | 3.38 | 4.38 | . 06 | . 09 | . 07 |
| Furniture and wood finishers | . 48 | .41 | . 21 | . 72 | . 63 | . 31 | . 09 | . 08 | . 03 |
| Glaziers | . 04 | . 04 | . 05 | . 06 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Inspectors, other | . 02 | .03 | . 04 | . 02 | . 02 | . 03 | .03 | . 04 | . 05 |
| Jewelers and watchmakers | . 01 | . 01 | . 04 | .01 | . 01 | - 05 | .01 | . 01 | . 02 |
| Piano,organ tuners, repairers | . 23 | . 20 | - 17 | . 00 | . 00 | .00 | .61 | -48 | . 46 |
| Stationary engineers | . 04 | . 05 | . 08 | . 01 | . 01 | . 01 | . 10 | . 12 | - 20 |
| Tailors | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Upholsterers | 2.17 | 1.35 | 1.47 | 3.49 | 2.25 | 2.35 | . 01 | . 01 | . 01 |
| Other crafts workers | . 12 | . 08 | . 03 | - 17 | . 12 | . 04 | . 04 | .03 | . 00 |
| Operatives | 8.19 | 7.38 | 5.77 | 10.77 | 9.71 | 7.07 | 3.94 | 3.91 | 3.63 |
| Operdtives, except transport | 3.11 | 2.98 | 1.97 | 4.20 | 4.03 | 2.42 | 1.33 | 1.41 | 1. 24 |
| Semiskilled metalworking | .07 | . 08 | . 10 | . 05 | . 05 | . 05 | .11 | - 13 | - 18 |
| Punch,stamping press operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Solderers | . 01 | .01 | -00 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| welders and flamecutters | . 05 | . 06 | . 08 | . 02 | . 03 | .03 | . 09 | . 11 | . 17 |
| Semiskilled packing, inspecting | . 16 | . 16 | -19 | . 16 | . 15 | . 14 | . 15 | .18 | . 27 |
| Packer,wrapper,exc meat, prodce | . 16 | - 16 | . 19 | . 16 | . 15 | . 14 | -15 | - 18 | . 27 |
| Other operatives, exc transport | 2.88 | 2.74 | 1.68 | 3.99 | 3.84 | 2.23 | 1.07 | 1.09 | . 78 |
| Asbestos, insulation workers | . 01 | . 02 | . 03 | . 01 | . 01 | . 00 | . 01 | . 03 | . 08 |
| Assemblers | . 14 | - 16 | -19 | . 17 | - 18 | . 21 | - 10 | - 12 | - 15 |
| Clothing ironcrs and pressers | .01 | . 01 | . 00 | . 01 | . 01 | .00 | .01 | . 01 | . 00 |
| cutting operatives, other | . 25 | . 23 | . 19 | . 39 | . 38 | . 31 | . 01 | . 01 | . 00 |
| dressmakers, exc factory | 1.51 | 1.41 | . 60 | 2.22 | 2.15 | - 92 | . 34 | . 31 | . 07 |
| Drillers, earth | . 00 | . 00 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Filer, polisher, sander, buffer | . 07 | . 06 | . 03 | . 09 | . 08 | . 05 | .03 | . 03 | . 00 |
| Garage wrkr.gas station atten | .03 | . 02 | . 02 | . 01 | . 01 | . 01 | . 06 | . 04 | . 03 |
| Laundry.dry cleang oprs, other | . 02 | - 01 | . 00 | . 02 | . 02 | . 01 | . 00 | -00 | - 00 |
| Meat cutters,tutchers, exc mfg | .01 | .01 | . 02 | . 01 | . 02 | . 02 | .01 | .01 | . 01 |
| Painters, mfg articles | .06 | . 05 | . 04 | -10 | . 08 | . 06 | . 00 | . 00 | - 00 |
| Photographic frocess workers | . 01 | . 01 | . 02 | . 01 | . 01 | . 03 | . 01 | . 01 | . 01 |
| Sawyers | . 02 | . 02 | . 02 | . 04 | . 04 | . 03 | - 00 | . 00 | . 00 |
| Sewers and stitchers | . 23 | - 20 | . 22 | . 29 | . 25 | . 26 | - 12 | . 12 | . 16 |
| Furnace tendr,stokr,exc metal | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | . 03 | . 03 | . 05 |
| Winding operatives, other | .01 | . 01 | . 00 | . 01 | . 00 | . 00 | -03 | . 02 | - 00 |
| Miscellaneous machine operatves | . 18 | - 17 | -11 | . 24 | . 22 | .11 | . 09 | . 10 | - 10 |
| other oferatives, exc transport | . 30 | . 31 | . 18 | . 35 | . 36 | -22 | -22 | . 24 | - 12 |
| Transport equifment operatives | 5.07 | 4.40 | 3.80 | 6.57 | 5.68 | 4.66 | 2.61 | 2. 50 | 2.39 |
| Delivery and route workers | 3.57 | 3.27 | 3.40 | 4.59 | 4.21 | 4.21 | 1.90 | 1.87 | 2.06 |
| Fork lift, tow motor operatives | . 05 | . 06 | . 07 | . 06 | . 07 | . 07 | . 03 | . 05 | . 07 |
| Taxicab drivers, chauffeurs | . 02 | . 03 | . 02 | . 03 | . 02 | - 01 | . 02 | . 03 | -05 |
| Truck drivers | 1.42 | 1.04 | - 31 | 1.89 | 1.37 | . 38 | . 66 | - 55 | - 21 |
| Service workers | 1.58 | 1. 50 | 1.10 | 1.95 | 1.87 | 1.38 | . 98 | -95 | .63 |
| Cleaning service workers | 1.34 | 1.27 | . 86 | 1.65 | 1.61 | 1.12 | . 83 | . 77 | - 42 |
| Bldg interior cleaners, other | . 72 | . 72 | -53 | . 97 | - 98 | . 73 | - 32 | - 32 | - 20 |
| Janitors and sextons | . 62 | . 55 | . 32 | . 68 | . 62 | -39 | - 51 | -45 | . 21 |
| Food service workers | . 12 | . 11 | . 15 | . 17 | - 16 | . 21 | . 04 | . 04 | . 05 |
| Waiters assistants | . 00 | . 01 | . 02 | . 01 | . 01 | . 03 | .00 | . 00 | . 00 |
| Cooks, exc private households | . 02 | . 02 | . 02 | . 02 | . 02 | . 03 | . 01 | . 01 | . 01 |
| Dishwashers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Food counter, fountain workers | . 05 | . 05 | . 08 | . 07 | . 08 | . 11 | .01 | . 01 | . 02 |
| Waiters | . 04 | . 03 | . 02 | . 05 | . 03 | . 03 | . 02 | .01 | . 01 |
| Other food serv wkrs, exc privt | .01 | . 01 | . 01 | .01 | .01 | .01 | . 00 | .00 | . 00 |

Table 1. percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Purntre and appliance stores |  |  | Home <br> furnishings |  |  | Household appliances. tv,radio |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 07 | .06 | .03 | . 08 | . 06 | . 02 | . 05 | . 05 | . 04 |
| Attendants, personal serv,other | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Elevator operators | . 03 | . 02 | . 01 | . 04 | . 03 | .01 | . 02 | . 02 | .01 |
| Hairdressers and cosmetoloyists | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .01 |
| Housekeepers, exc private homes | . 03 | . 02 | .01 | . 04 | . 02 | .01 | .01 | .01 | .01 |
| Protective service workers | .06 | . 06 | . 07 | . 05 | . 05 | . 03 | . 07 | . 08 | . 14 |
| Guards | . 06 | . 06 | . 07 | . 05 | . 05 | . 03 | . 06 | . 08 | . 14 |
| Laborers, except farm | 2.69 | 2. 55 | 1.93 | 3.43 | 3.28 | 2.50 | 1.46 | 1.47 | 1.00 |
| Carpenter helfers | . 11 | . 09 | . 12 | . 18 | . 15 | . 19 | . 01 | . 01 | . 01 |
| Constr labr,exc carpenter belpr | . 13 | . 11 | . 05 | . 05 | . 04 | . 02 | . 25 | .21 | .09 |
| Freight and material handlers | 1.22 | 1. 16 | . 94 | 1.70 | 1.65 | 1.28 | . 41 | . 44 | . 37 |
| Gardenrs, groundkeepers, exc farm | . 03 | . 04 | . 03 | . 02 | . 03 | . 03 | . 05 | . 06 | . 04 |
| Stock handlers | . 58 | - 56 | . 22 | . 62 | . 57 | . 22 | . 53 | . 54 | . 23 |
| Vehicle washers,equip cleaners | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Warehouse labcrers, other | . 53 | - 52 | . 52 | . 76 | . 75 | . 71 | . 15 | . 17 | . 21 |
| other laborers | . 08 | . 06 | . 04 | .09 | . 08 | . 04 | . .06 | . 05 | - 04 |

## Eating and drinking <br> drinking places

$1970 \quad 1978 \quad 1990$
$100.00 \quad 100.00 \quad 100.00$
Total all occupations
Professional and technical
Engineers, technical
Hechanical
Sales
Other engineers
Life and Fhysical scientists
Agricultural
Biological
Mathematical sfecialists
Statisticians
ungineering, science technicians Agricultural, tiolgcl, exc healta Drafters
Other engineexing, science tecn
Medical yorkers, exc technicians Dentists
Dietitians
optometrists
Pharmacists
Physicians and osteopaths
Registered nurses
Therapists
Health technolcgists, technicians Clinical lab technologists, tech other health technicians

Technicians, except health
Other technicians except
Other technicians except nealth
Computer specialists
Computer programers
Computer systems analysts
Social scientists
Economists
Teachers
Adult education
Other teachers
Writers, artists, entertainers Actors
Athletes and kindred workers
Authors
Dancers
Designers
Editors and reforters
Musicians and composers
Painters and sculptors
Photographers
Public relaticns specialists
Other writers,artists, entertain
Other professional and technical
Accountants
Archivists and curators
Layyers
Librarians
Operations and systems research
Personnel, labcr relations wkrs
other research workers
Managers, officials, proprietors
$1.04 \quad 1.53 \quad 1.47$

| .01 | .01 | .00 |
| :--- | :--- | :--- |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .01 | .00 |
| .00 | .00 | .00 |
| .00 | .01 | .00 |


| 100.00 | 100.00 | 100.00 |
| ---: | ---: | ---: |
| 8.24 | 8.08 | 8.13 |
| .07 | .06 | .05 |
| .01 | .01 | .01 |
| .02 | .01 | .01 |
| .03 | .02 | .03 |
| .03 | .04 | .03 |
| .03 | .03 | .02 |
| .01 | .01 | .01 |

21.98
23.91
.05

| 100.00 | 8.00 | 100.00 |
| ---: | ---: | ---: |
| 8.24 | 8.08 | 8.13 |
| .07 | .06 | .05 |
| .01 | .01 | .01 |
| .02 | .01 | .01 |
| .03 | .02 | .03 |
| .03 | .04 | .03 |
| .03 | .03 | .02 |
| .01 | .01 | .01 |

$100.00 \quad 100.00 \quad 100.00$
21
21
21.3
.33
.07
.04
.00
.00
.04
.02
.00
.02
.01
.01
.01
.00
.00
.01

$$
23
$$

23.11 22
.01
21.01
2.08
22

| .14 | .14 | .15 |
| :---: | :---: | :---: |
| .01 | .01 | .02 |
| .00 | .00 | .00 |
| .03 | .03 | .02 |
| .02 | .02 | .01 |
| .01 | .02 | .01 |
| .01 | .02 | .03 |
| .01 | .02 | .03 |
| .05 | .07 | .07 |
| .04 | .05 | .06 |
| .01 | .02 | .02 |
| .01 | .02 | .03 |
| .01 | .01 | .03 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .15 | .18 | .15 |
| .00 | .00 | .00 |
| .06 | .05 | .01 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .01 | .02 | .02 |
| .02 | .03 | .04 |
| .00 | .00 | .00 |
| .04 | .06 | .04 |
| .00 | .00 | .00 |
| .02 | .03 | .04 |
| .00 | .00 | .00 |
| .33 | .41 | .36 |
| .21 | .26 | .25 |
| .00 | .00 | .00 |
| .01 | .03 | .02 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .10 | .12 | .08 |
| .00 | .00 | .00 |
| 6.00 | 6.20 | 4.29 |
|  | 00 |  |


|  | Eating and drinking places |  |  | $\begin{aligned} & \text { Misc } \\ & \text { retail } \\ & \text { trade } \end{aligned}$ |  |  | $\begin{aligned} & \text { Drug } \\ & \text { stores } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Buyers, sales,lcan managers | . 25 | . 32 | . 33 | 2.87 | 2.95 | 3.18 | 1.66 | 1.49 | 1. 15 |
| Bank, financial managers | . 02 | . 02 | . 01 | . 04 | . 04 | . 03 | . 03 | . 03 | . 01 |
| Credit managers | . 01 | .01 | . 02 | . 17 | . 09 | . 05 | . 03 | . 02 | . 02 |
| Buyers, wholesale, retail trade | . 09 | - 12 | .12 | 1.07 | 1.13 | 1.15 | . 75 | . 63 | . 44 |
| Sales manager, retail trade | . 14 | . 18 | . 18 | 1.59 | 1.69 | 1.95 | . 84 | .81 | . 68 |
| Other managers, officials, proprts | 15.22 | 12.62 | 10.91 | 14.92 | 18.83 | 17.19 | 4.34 | 4.71 | 3.14 |
| office managers, other | . 04 | . 07 | . 09 | . 44 | . 48 | - 56 | . 08 | .09 | . 08 |
| Restaurant, cafe, bar,managers | 15.18 | 12.55 | 10.83 | . 07 | . 06 | . 04 | . 12 | . 11 | . 05 |
| other managers, administrators | . 00 | . 00 | . 00 | 14.41 | 18.29 | 16.59 | 4.14 | 4.52 | 3.00 |
| Sales workers | 1.30 | 1.60 | 1.99 | 33.89 | 30.22 | 30.50 | 34.21 | 31.04 | 34.39 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 02 | . 04 | . 04 | . 02 | . 04 | . 05 |
| Auctioneers | . 00 | . 00 | . 00 | . 07 | . 09 | . 08 | . 00 | . 00 | . 00 |
| Newspaper carriers and vendors | . 00 | . 00 | . 00 | . 08 | . 10 | .17 | . 00 | -00 | . 00 |
| other sales workers | 1.30 | 1.59 | 1.99 | 33.72 | 30.00 | 30.22 | 34.19 | 31.00 | 34.34 |
| Clerical workers | 5.76 | 8. 10 | 8.76 | 16.35 | 16.59 | 18.11 | 20.36 | 22.74 | 24.45 |
| Stenographrs,typists, secretaries | . 38 | . 45 | . 41 | 2.61 | 2.65 | 3.04 | 1.46 | 1.54 | 1.83 |
| Other secretaries | -33 | . 40 | . 35 | 1.91 | 2.03 | 2.38 | . 74 | . 83 | 1.05 |
| Stenoyraphers | . 00 | . 00 | . 00 | .03 | . 02 | . 01 | .01 | . 01 | . 02 |
| Typists | . 05 | . 05 | .06 | . 66 | . 60 | . 63 | .71 | -70 | . 76 |
| office machine oferators | . 08 | - 11 | - 11 | - 32 | - 29 | . 22 | .25 | .25 | . 14 |
| Bookkeeping and billing | . 01 | . 01 | .01 | . 08 | . 04 | . 03 | . 04 | . 02 | .01 |
| Calculating | .01 | . 01 | .01 | . 03 | - 02 | . 02 | . 03 | . 02 | . 01 |
| Computer and feripheral esuip | .01 | . 04 | . 04 | . 05 | - 11 | . 09 | . 05 | . 11 | .09 |
| Keypunch | . 02 | . 02 | . 01 | . 13 | . 09 | . 04 | . 13 | .10 | . 04 |
| Other office machine operators | . 03 | . 04 | . 03 | . 03 | . 03 | . 02 | . 01 | .00 | . 00 |
| Other clerical vorkers | 5.30 | 7.54 | 8.25 | 13.43 | 13.65 | 14.86 | 18.64 | 20.95 | 22.48 |
| Billing clerks | . 01 | . 01 | . 01 | . 17 | . 19 | . 27 | . 12 | . 13 | 22. 14 |
| Bookkeepers | . 84 | 1.01 | . 90 | 4.60 | 4.40 | 4.01 | 3.64 | 3.75 | 3.75 |
| Cashiers | 3.89 | 5.78 | 6.66 | 4.75 | 5.13 | 6.45 | 11.31 | 13.62 | 15.73 |
| Clerical supervisors, other | . 02 | . 03 | . 03 | . 07 | . 09 | . 09 | . 03 | . 04 | . 04 |
| collectors, bill and account | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 | .01 | . 01 | . 02 |
| Counter clerks,exc food | - 12 | - 15 | - 10 | -25 | -28 | . 34 | . 25 | - 26 | . 24 |
| Dispatchers, starters, vehicle | . 01 | . 01 | . 02 | . 09 | . 07 | . 05 | . 01 | .01 | . 01 |
| Estimators, investigators, other | . 03 | -05 | . 03 | . 16 | . 19 | . 15 | - 10 | . 11 | . 06 |
| Expediters, prcduction controlrs | . 01 | . 01 | . 02 | . 03 | - 04 | . 06 | . 01 | . 01 | . 02 |
| Pile clerks | . 02 | . 02 | -03 | -18 | . 15 | . 13 | . 17 | . 15 | . 14 |
| Mail handlers, exc fost office | . 01 | . 01 | . 01 | - 21 | . 20 | . 19 | . 35 | . 34 | . 23 |
| Messengers and of fice helpers | . 01 | . 01 | . 01 | . 06 | . 05 | .03 | .03 | . 02 | . 01 |
| Payroll, timekeeping clerks | . 05 | . 09 | -10 | . 07 | -08 | . 09 | -08 | - 10 | - 11 |
| Receptionists | . 04 | . 05 | . 04 | . 37 | . 37 | . 40 | - 10 | . 08 | . 03 |
| Shipping and receiving clerks | . 03 | . 04 | . 05 | -42 | . 43 | . 52 | . 39 | . 44 | . 63 |
| Statistical clerks | . 02 | . 03 | . 04 | -13 | . 15 | . 16 | . 09 | . 11 | . 09 |
| Stock clerks and store keepers | . 09 | - 10 | . 09 | . 96 | . 86 | . 82 | 1.40 | 1.19 | . 67 |
| Telephone operators | . 02 | . 02 | . 02 | . 08 | . 06 | . 05 | . 05 | . 04 | . 04 |
| Weighers | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 | .00 | . 00 | . 00 |
| Misc clerical workers | . 09 | . 12 | . 10 | . 74 | - 82 | . 96 | . 50 | . 53 | . 52 |
| crafts and kindred workers | . 63 | . 85 | .83 | 7.82 | 8.77 | 9.88 | . 70 | . 85 | . 97 |
| Construction crafts workers | . 09 | - 11 | . 10 | -40 | . 40 | . 40 | . 09 | . 08 | . 06 |
| Carpenters and apprentices | . 05 | . 06 | . 04 | . 15 | - 15 | . 09 | . 05 | . 05 | .03 |
| Brick,stonemasons, apprentices | . 00 | - 00 | . 00 | . 03 | . 04 | . 06 | .00 | . 00 | . 00 |
| Bulldozer operators | . 00 | . 00 | . 00 | . 04 | . 04 | . 07 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 01 | . 01 | . 02 | . 03 | . 03 | -03 | . 01 | . 01 | . 02 |
| Excavating.grading mach operatr | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | .00 | . 00 |
| painters and apprentices | . 03 | . 04 | . 05 | . 05 | . 06 | . 06 | . 02 | . 02 | . 01 |
| Plumbers, pipefitters, aprentices | . 00 | . 00 | . 00 | . 06 | . 05 | -04 | . 00 | -00 | -00 |
| Tile setters | . 00 | . 00 | - 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Blue collar worker supervisors | . 10 | - 17 | . 22 | . 60 | . 70 | .73 | . 37 | . 46 | . 57 |


|  | Eating and drinking places |  |  | $\begin{aligned} & \text { Misc } \\ & \text { retail } \\ & \text { trade } \end{aligned}$ |  |  | $\begin{aligned} & \text { Drug } \\ & \text { stores } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1790 |
| Metalworkg craft urkrs, exc mech | .01 | . 01 | . 00 | . 06 | . 06 | . 07 | . 00 | . 00 | . 00 |
| machinists and apprentices | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | .00 | . 00 |
| tool and diemakers, apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Mechanics, repairers, installers | -11 | - 17 | . 17 | 2.51 | 2.63 | 3.27 | -07 | .09 | - 12 |
| air cond, heating, refrig meca | . 01 | . 02 | . 02 | . 63 | . 66 | - 55 | . 01 | . 01 | . 02 |
| Auto mechanics and apprentices | . 02 | . 03 | . 02 | - 20 | . 18 | - 17 | . 01 | . 01 | . 01 |
| Data processirg mach repairers | . 00 | - 00 | . 00 | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 |
| Parm implement mechanics | . 00 | . 00 | .00 | . 03 | . 05 | -07 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | .04 | . 07 | . 10 | . 24 | . 33 | -42 | . 02 | . 03 | . 06 |
| Household appliance mechanics | -00 | - 00 | . 00 | . 21 | - 17 | -13 | . 01 | . 01 | . 02 |
| office machinc repairers | . 00 | . 00 | . 00 | . 78 | . 71 | 1.26 | . 00 | .00 | . 00 |
| Radio, television repairers | . 00 | .00 | . 00 | . 03 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Other mechanics and apprentices | . 04 | . 05 | . 04 | . 37 | -48 | . 59 | . 00 | . 00 | . 00 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 19 | . 21 | - 14 | . 03 | . 04 | . 07 |
| Compositors and typesetters | . 00 | . 00 | .00 | .06 | . 06 | . 03 | . 02 | . 03 | . 04 |
| Engravers exc photoengravers | . 00 | - 00 | .00 | - 10 | - 12 | . 07 | . 00 | . 00 | -00 |
| Press, plate printers, aprentices | . 00 | - 00 | .00 | . 02 | . 02 | . 02 | . 01 | .01 | . 02 |
| Transport, public util craft ukrs | . 00 | . 00 | . 00 | .01 | .01 | . 01 | .00 | . 00 | . 00 |
| Other crafts, kindred workers | . 31 | . 39 | . 34 | 4.07 | 4.76 | 5.27 | . 14 | .18 | . 16 |
| Bakers | . 29 | . 36 | . 31 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Caioinetmakers | . 00 | . 00 | .00 | . 06 | . 06 | . 03 | .01 | .01 | . 02 |
| Carpet installers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | - 02 |
| crane, derrick, hoist operator | . 00 | . 00 | .00 | . 01 | . 01 | . 07 | . 00 | . 00 | . 00 |
| Decorators, window dressers | .01 | . 02 | . 03 | 1.98 | 2.41 | 2.91 | . 06 | . 09 | . 05 |
| Furniture and wood finishers | . 00 | . 00 | .00 | . 06 | -08 | - 10 | . 00 | - 00 | . 00 |
| Inspectors, other | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | - 00 |
| Jewelers and watchmakers | - 00 | -00 | . 00 | 1.15 | 1. 15 | 1.09 | . 01 | -01 | . 03 |
| Opticians,lens grinder, folisner | - 00 | . 00 | . 00 | . 56 | . 77 | . 84 | . 00 | . 00 | . 00 |
| Shoe repairers | .00 | . 00 | .00 | . 01 | . 00 | . 01 | . 00 | .00 | . 00 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 03 | . 03 | . 02 |
| Stationary engineers | . 01 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 08 | . 09 | . 04 | . 00 | . 00 | . 00 |
| Upholsterers | -00 | . 00 | .00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Other crafts workers | . 00 | . 00 | .00 | . 07 | . 09 | . 13 | . 00 | . 00 | . 00 |
| Operatives | 1.08 | 1. 50 | 1.45 | 7.60 | 6.88 | 6.14 | 3.64 | 3.41 | 3. 10 |
| Operatives, except transport | . 51 | . 68 | . 46 | 1.47 | 1.77 | 1.99 | . 27 | . 28 | . 24 |
| Semiskilled metalworking | . 00 | . 00 | . 00 | . 05 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Helders and flamecutters | . 00 | . 00 | .00 | . 04 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Semiskilled packing, inspecting | . 13 | - 18 | - 19 | - 32 | - 33 | . 29 | . 14 | - 14 | - 16 |
| Packer,wrapper,exc meat, prodce | . 13 | - 18 | - 19 | -30 | -31 | . 28 | -14 | - 14 | - 16 |
| produce grdr,fkrs,exc fact,farm | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | .00 | .00 | . 00 |


|  | Eating and drinking places |  |  | $\begin{gathered} \text { Misc } \\ \text { retail } \\ \text { trade } \end{gathered}$ |  |  | $\begin{aligned} & \text { Drug } \\ & \text { stores } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transfort | . 39 | . 50 | . 27 | 1.10 | 1.40 | 1.63 | .14 | - 14 | . 08 |
| Bottling, carning operatives | .00 | - 00 | .00 | . 00 | . 00 | . 01 | .00 | .00 | . 00 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .01 | . 00 | . 00 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | .00 | . 00 | . 00 |
| dressmakers, exc factory | .01 | . 01 | . 01 | . 08 | - 11 | . 11 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 00 | . 00 | . 00 | . 05 | . 05 | . 04 | . 00 | - 00 | . 00 |
| Garage wrkr.gas station atten | . 05 | . 05 | . 04 | . 05 | . 04 | .03 | . 00 | . 00 | . 00 |
| Laundry, dry cleang oprs,other | . 01 | . 01 | .01 | .00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Meat cutters, butchers, exc mfg | .13 | - 16 | . 12 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Mixing operatives | . 00 | . 00 | - 00 | . 12 | . 17 | . 23 | . 00 | . 00 | .00 |
| oilers,greasers, exc automobiles | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 00 | . 00 | .00 | .01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 | . 02 | . 02 | .01 |
| Sawyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Winding operatives, other | -00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Miscellaneous macnine operatves | . 12 | - 18 | . 05 | . 34 | . 44 | . 50 | . 04 | . 04 | . 03 |
| other oferatives, exc transfort | . 06 | . 07 | . 04 | . 32 | . 42 | . 48 | . 05 | . 06 | .03 |
| Transport equipment operatives | . 57 | . 82 | 1.00 | 6.13 | 5.11 | 4.16 | 3.37 | 3.13 | 2.86 |
| Bus drivers | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 |
| Delivery and route workers | . 37 | . 51 | . 59 | 3.56 | 3.00 | 2.86 | 3.09 | 2.84 | 2.62 |
| Fork lift, tow motcr oferatives | . 01 | . 01 | . 00 | . 07 | . 09 | - 10 | .08 | . 10 | . 09 |
| Parking attendants | . 05 | . 07 | . 05 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Taxicab drivers, chauffeurs | .01 | . 01 | . 02 | . 02 | . 02 | . 01 | . 02 | . 02 | .01 |
| Truck drivers | .13 | . 22 | . 35 | 2.46 | 1.98 | 1. 18 | .17 | .17 | . 13 |
| Service workers | 74.50 | 73. 17 | 73.97 | 4.45 | 3.58 | 3.01 | 9.49 | 8.15 | 7.23 |
| Cleaning service workers | 1.77 | 2.03 | 1.46 | . 86 | -81 | - 59 | . 95 | . 92 | - 64 |
| Lodging gtrs cleaners,exc privt | . 19 | - 12 | . 06 | . 01 | .01 | . 01 | . 00 | .00 | . 00 |
| Bldg interior cleaners, other | . 63 | . 76 | -47 | . 35 | - 36 | . 30 | - 33 | . 34 | . 25 |
| Janitors and sextons | . 95 | 1.15 | . 93 | . 49 | . 44 | . 29 | . 61 | - 58 | . 39 |
| Food service vcrkers | 71.95 | 70.36 | 71.88 | 3.01 | 2.09 | 1.93 | 8.26 | 6.93 | 6.34 |
| Bartenders | 5.59 | 5.55 | 5.75 | . 21 | . 12 | . 02 | . 00 | . 00 | . 00 |
| waiters' assistants | 2.81 | 3.73 | 4.31 | . 03 | . 03 | . 05 | . 08 | . 08 | . 08 |
| cooks, exc private housenolds | 17.26 | 18.98 | 21.34 | . 33 | . 22 | . 14 | .94 | .73 | . 46 |
| Dishwashers | 4.44 | 3.72 | 4.10 | . 11 | . 06 | . 05 | . 33 | . 21 | . 15 |
| Food counter, fountain workers | 5.43 | 6.66 | 7.39 | 1.22 | 1.10 | 1.35 | 3.80 | 4.06 | 4.69 |
| Waiters | 31.95 | 27.39 | 25.17 | 1.05 | . 52 | . 28 | 2.97 | 1.76 | . 92 |
| other food sery wkrs,exc privt | 4.47 | 4.35 | 3.81 | . 06 | . 04 | . 04 | . 14 | . 10 | . 06 |
| dealth service workers | . 02 | . 03 | . 02 | . 06 | . 05 | . 04 | . 14 | . 16 | . 10 |
| Health aides, except nursing | . 01 | . 01 | . 01 | . 05 | . 05 | . 04 | . 14 | . 16 | - 10 |
| Nursing aides and orderlies | .01 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Personal service workers | . 72 | . 69 | . 55 | . 43 | . 53 | . 37 | . 07 | . 06 | . 03 |
| Attendants, recreation, amusement | . 02 | . 03 | . 03 | -00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Attendants, personal serv,other | . 12 | - 12 | . 09 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| child care workers, exc private | . 01 | . 01 | . 01 | . 01 | . 00 | . 01 | .01 | . 00 | . 00 |
| Elevator operators | .00 | . 00 | . 00 | . 03 | . 03 | . 01 | .01 | .01 | . 01 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | . 35 | . 47 | . 32 | . 01 | . 01 | . 01 |
| Housekeepers, exc private homes | . 55 | . 52 | . 42 | . 02 | . 01 | . 01 | . 05 | .03 | .01 |
| Protective service workers | . 05 | . 07 | . 06 | . 10 | . 10 | . 08 | . 07 | . 09 | . 12 |
| Guards | . 05 | . 07 | . 06 | . 09 | .09 | . 08 | . 06 | . 07 | . 10 |
| Police and detectives | . 00 | . 00 | . 00 | .01 | . 01 | . 00 | . 01 | .01 | . 01 |
| Laborers, except farm | . 24 | . 32 | .30 | 3.87 | 4.11 | 3.86 | 3.63 | 3.71 | 2.63 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 12 | - 17 | . 19 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | .01 | . 01 | . 00 | . 05 | . 05 | . 05 | . 00 | - 00 | . 00 |
| Freight and material handlers | . 05 | . 07 | . 07 | . 62 | . 71 | . 81 | . 11 | . 11 | . 09 |
| Gardenrs, groundkeepers, exc farm | . 02 | . 03 | . 04 | . 27 | . 29 | . 29 | . 01 | . 01 | . 02 |
| Stock handlers | . 10 | - 14 | . 11 | 1.89 | 1.96 | 1.64 | 3.32 | 3.39 | 2.28 |
| Vehicle washers, equip cleaners | - 02 | - 03 | . 03 | . 03 | . 03 | . 04 | . 01 | . 01 | . 02 |
| Warehouse labcress, other | . 01 | . 01 | . 02 | . 17 | - 17 | -14 | . 16 | . 17 | . 20 |
| Other laborers | .02 | . 03 | .03 | . 70 | . 71 | . 68 | . 01 | . 01 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990


| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Professional and technical | . 34 | . 46 | . 48 | 1.28 | 1.60 | 1.62 | 1.07 | 1.33 | 1.00 |
| Engineers, technical | .00 | . 00 | .00 | . 04 | . 03 | .01 | . 00 | . 00 | . 00 |
| Sales | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Life and physical scientists | .00 | . 00 | .00 | . 15 | . 22 | . 24 | . 00 | . 00 | . 00 |
| Agricultural | . 00 | . 00 | . 00 | . 12 | .17 | . 20 | . 00 | . 00 | . 00 |
| Biological | . 00 | - 00 | . 00 | . 03 | . 05 | . 04 | .00 | . 00 | . 00 |
| Engineering, science technicians | . 00 | . 00 | . 00 | . 14 | . 18 | . 27 | . 00 | . 00 | . 00 |
| Agricultural, biolgcl, exc healta | . 00 | . 00 | . 00 | . 08 | . 11 | . 16 | . 00 | . 00 | . 00 |
| Chemical technicians | .00 | . 00 | . 00 | . 01 | . 01 | -01 | . 00 | . 00 | . 00 |
| Drafters | . 00 | - 00 | . 00 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Other engineering, science tech | .00 | . 00 | . 00 | .03 | . 04 | .09 | .00 | . 00 | . 00 |
| Medical workers,exc technicians | . 01 | . 01 | . 00 | .03 | . 02 | . 02 | . 02 | . 01 | . 00 |
| Dietitians | . 00 | . 00 | .00 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| optometrists | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| phamacists | .01 | . 01 | . 00 | .00 | . 00 | . 00 | . 01 | . 00 | . 00 |
| Veterinarians | . 00 | . 00 | . 00 | .01 | .01 | .01 | .00 | . 00 | .00 |
| Computer specialists | . 01 | . 01 | . 01 | . 05 | . 06 | . 06 | . 04 | . 06 | . 05 |
| computer jrcgramers | . 01 | . 01 | . 01 | . 04 | . 05 | . 05 | . 03 | . 04 | . 03 |
| Computer systems analysts | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| other computer specialists | . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Social scientists | . 01 | .01 | . 00 | .01 | .01 | .01 | . 02 | . 03 | . 00 |
| Economists | . 01 | .01 | . 00 | .01 | .01 | .01 | . 02 | . 03 | . 00 |
| Teachers | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 01 | .01 | . 01 |
| Adult education | .00 | . 00 | .00 | .00 | .00 | .00 | . 01 | . 01 | . 01 |
| Writers,artists, entertainers | . 04 | . 06 | . 06 | . 12 | - 18 | . 26 | . 43 | - 52 | . 40 |
| Designers | . 00 | . 00 | .00 | . 06 | . 07 | . 06 | - 30 | . 37 | -29 |
| Editors and reforters | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Painters and sculptors | . 00 | - 00 | . 00 | . 02 | . 05 | - 10 | . 05 | . 05 | . 01 |
| Photographers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Public relations specialists | . 04 | . 06 | . 06 | .03 | . 06 | .08 | . 05 | . 08 | . 09 |
| Other professicnal and technical | . 26 | . 36 | . 41 | . 76 | . 89 | . 75 | . 55 | .71 | . 54 |
| Accountants | . 15 | . 19 | . 22 | . 53 | . 64 | . 53 | . 41 | . 53 | . 44 |
| Architects | . 00 | . 00 | . 00 | . 05 | . 04 | . 06 | .00 | . 00 | . 00 |
| Farm management advisors | .00 | .00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Lawyers | . 02 | . 06 | . 09 | .01 | .01 | . 00 | . 01 | . 02 | . 01 |
| Personnel, labcr relations wkrs | .09 | - 11 | . 10 | - 12 | - 13 | . 08 | . 13 | - 16 | . 09 |
| Other research workers | . 00 | . 00 | .00 | . 04 | . 04 | . 04 | .01 | . 00 | . 00 |
| Managers, officials, proprietors | 27.42 | 30.75 | 30.17 | 22.12 | 24.38 | 24.98 | 21.02 | 22.36 | 22.23 |
| Buyers, sales, lcan managers | 2.56 | 2.23 | 1.19 | 3.29 | 3.30 | 3.63 | 4.46 | 3.83 | 2.13 |
| Bank, financial managers | . 03 | . 02 | .01 | . 04 | . 06 | . 08 | . 06 | . 05 | . 01 |
| Credit managers | . 02 | . 01 | .01 | . 12 | . 08 | . 07 | 1.09 | . 64 | . 25 |
| Bugers, wholesale, retail trade | 1.12 | . 90 | . 46 | . 69 | . 64 | . 69 | 1.33 | 1.25 | . 88 |
| Sales manager, retail trade | 1.39 | 1.30 | . 71 | 2.43 | 2.53 | 2.79 | 1.97 | 1.90 | 1.00 |
| Other managers,officials, proprts | 24.87 | 28.52 | 28.98 | 18.83 | 21.08 | 21.35 | 16.56 | 18.53 | 20.09 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| office managers, other | . 09 | . 09 | . 05 | . 66 | . 77 | . 95 | . 50 | . 53 | . 32 |
| Resta urant, cafe,bar,managers | . 20 | . 12 | . 03 | . 05 | . 04 | . 06 | .03 | . 02 | . 01 |
| other managers, administrators | 24.58 | 28.31 | 28.89 | 18. 12 | 20.26 | 20.33 | 16.03 | 17.98 | 19.76 |
| Sales workers | 49.01 | 45.16 | 49.88 | 22.92 | 18.31 | 15.45 | 39.87 | 37.70 | 43.47 |
| Advertising agents, sales vorker | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 07 | . 12 |
| other sales workers | 49.00 | 45. 16 | 49.88 | 22.92 | 18.31 | 15.45 | 39.84 | 37.63 | 43.35 |
| Clerical workers | 10.20 | 11. 27 | 11.58 | 14.26 | 14.89 | 15.89 | 15.81 | 16.31 | 13.76 |
| Stenoyraphrs, typists, secretaries | . 76 | . 80 | . 66 | 2.90 | 3.00 | 3.27 | 3.01 | 3.21 | 3.53 |
| Other secretaries | . 58 | . 63 | . 49 | 2. 52 | 2.66 | 2.99 | 2.04 | 2.36 | 2.75 |
| Stenographers | . 00 | . 00 | . 00 | . 05 | . 02 | . 01 | . 02 | . 02 | . 02 |
| Typists | . 19 | .17 | .16 | . 33 | . 31 | . 27 | . 94 | . 84 | . 76 |


|  | Liquor stores |  |  | Farm, gardn suply stores |  |  | Jevelry <br> stores |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Office machine operatcrs | . 11 | . 11 | . 07 | . 24 | - 26 | . 21 | . 36 | . 32 | - 20 |
| Bookkeeping and billing | .01 | . 07 | . 01 | . 06 | . 03 | . 04 | . 10 | . 04 | . 02 |
| Calculating | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | .03 | . 02 | . 01 |
| computer and feripheral equip | . 01 | . 02 | . 03 | . 05 | - 12 | . 09 | . 04 | . 13 | . 13 |
| Keypunch | . 07 | . 05 | .01 | . 10 | . 09 | . 06 | . 16 | . 11 | . 02 |
| Other office machine operators | . 02 | . 02 | . 01 | . 02 | . 02 | . 01 | . 03 | . 02 | . 02 |
| Other clerical workers | 9.33 | 10.36 | 10.86 | 11.12 | 11.63 | 12.42 | 12.44 | 12.79 | 10.03 |
| Billing clerks | . 05 | . 06 | . 07 | . 20 | . 25 | . 39 | . 17 | . 20 | . 16 |
| Bookkeepers | 2.89 | 2. 92 | 2.73 | 7.20 | 7. 15 | 7.12 | 6.48 | 6.53 | 5.02 |
| Cashiers | 4.33 | 5.46 | 6.86 | 1.05 | 1.20 | 1.49 | 1.30 | 1.53 | 1. 50 |
| Clerical supervisors, other | . 00 | . 00 | . 00 | . 06 | . 08 | . 07 | . 11 | -12 | . 11 |
| collectors, bill and account | .01 | - 00 | .00 | . 02 | . 03 | . 03 | . 20 | . 18 | . 11 |
| counter clerks,exc fcod | . 20 | - 23 | . 18 | . 19 | . 22 | . 28 | - 12 | . 11 | .12 |
| Dispatchers,starters, vebicle | . 01 | -01 | . 01 | . 04 | - 06 | -08 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 03 | . 04 | .03 | . 27 | . 37 | . 37 | . 24 | .23 | . 19 |
| Expediters, prcauction controirs | . 00 | . 00 | . 00 | . 04 | . 05 | . 09 | . 02 | . 02 | . 01 |
| File clerks | . 03 | -03 | . 07 | .13 | - 12 | -11 | . 26 | . 24 | . 18 |
| Mail handlers, exc fost cffice | . 08 | . 08 | . 06 | . 12 | . 14 | . 19 | . 18 | . 15 | . 05 |
| Messengers and office helpers | . 02 | . 02 | . 04 | .03 | . 03 | . 02 | . 23 | . 21 | . 05 |
| Payroll,timekeeping clerks | . 01 | . 02 | . 02 | . 09 | . 09 | . 06 | . 10 | .15 | . 18 |
| Eeceptionists | . 04 | . 04 | .03 | . 10 | . 11 | . 13 | . 21 | . 16 | . 14 |
| Shipping and receiving clerks | . 13 | . 14 | . 16 | .31 | . 30 | .31 | . 49 | . 52 | .43 |
| Statistical clerks | . 06 | . 07 | . 07 | . 14 | . 16 | . 15 | . 13 | . 14 | . 07 |
| Stock clerks and store keepers | 1.34 | 1. 10 | . 38 | . 48 | . 51 | . 61 | . 76 | . 73 | . 45 |
| Telephone oferators | . 01 | -01 | . 01 | . 04 | . 02 | . 00 | . 12 | . 11 | . 12 |
| Heighers | . 00 | . 00 | . 00 | . 15 | . 18 | . 24 | . 00 | . 00 | . 00 |
| Misc clerical workers | . 12 | . 14 | .14 | .47 | . 56 | . 67 | 1.34 | 1.47 | 1. 16 |
| Crafts and kindred workers | . 68 | . 87 | . 87 | 5.58 | 6.76 | 8.55 | 17.86 | 18.04 | 17.33 |
| Construction crafts workers | . 14 | - 15 | . 14 | 1.07 | 1.07 | 1.29 | . 09 | . 08 | . 04 |
| Carpenters and apprentices | .06 | . 07 | . 08 | . 30 | . 25 | . 09 | . 04 | . 03 | . 01 |
| Brick, stonemasons, apfrentices | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 00 | - 00 | . 00 | -29 | . 37 | . 78 | . 00 | . 00 | . 00 |
| Electricians and apprentices | .01 | . 01 | . 03 | . 04 | -03 | . 03 | . 00 | . 00 | . 00 |
| Excavating.grading mach operatr | . 00 | . 00 | . 00 | . 12 | - 12 | . 17 | . 00 | . 00 | . 00 |
| Ploor layers, exc tile setters | . 00 | -00 | . 00 | . 02 | . 02 | . 04 | .00 | . 00 | . 00 |
| painters and apprentices | . 07 | . 07 | . 03 | . 06 | . 07 | . 08 | . 04 | . 03 | .01 |
| Plumbers, pipefitters, aprentices | . 00 | .00 | .00 | . 24 | . 19 | - 11 | . 01 | . 01 | .01 |
| Blue collar worker supervisors | .33 | . 42 | .41 | 1.53 | 1.77 | 1.72 | . 48 | .63 | . 74 |
| Metalworkg craft wrkrs,exc mecn | .00 | . 00 | . 00 | . 15 | . 18 | . 22 | . 00 | . 00 | . 00 |
| Boilermakers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Machinists and apfrentices | . 00 | -00 | .00 | . 09 | - 10 | -11 | . 00 | . 00 | . 00 |
| Millwrights | .00 | . 00 | .00 | .05 | .07 | .11 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | . 13 | - 16 | . 17 | 2.45 | 3. 26 | 4.85 | . 08 | .07 | .03 |
| Air cond, heating, refrig mech | . 01 | . 01 | . 02 | . 08 | . 12 | . 13 | . 00 | . 00 | . 00 |
| Auto body repairers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 01 | - 01 | -01 | . 49 | . 55 | . 77 | . 02 | . 02 | . 01 |
| Farm implement mechanics. | . 00 | . 00 | . 00 | . 38 | . 56 | . 94 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | . 05 | . 08 | - 12 | . 95 | 1.38 | 2.25 | . 00 | . 00 | . 00 |
| Household appliance mechanics | . 01 | . 01 | .01 | . 05 | . 07 | . 09 | . 04 | . 03 | . 01 |
| office machine repairers | . 00 | . 00 | . 00 | . 01 | -01 | . 01 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | .01 |
| Other mechanics and apprentices | . 05 | . 04 | .01 | . 47 | . 56 | . 65 | . 01 | . 01 | . 01 |
| Printing trade crafts workers | . 00 | .00 | .00 | . 04 | . 03 | . 00 | . 95 | 1.10 | . 52 |
| Compositors and typesetters | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 03 | . 02 | . 01 |
| Engravers exc photoengravers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .91 | 1.07 | - 50 |
| Press, plate printers,aprentices | . 00 | .00 | .00 | . 01 | . 01 | .00 | .01 | . 01 | .01 |


|  | Liquor stores |  |  | Farm. gardn suply stores |  |  |  | $\begin{aligned} & \text { Jevelry } \\ & \text { stores } \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 08 | . 14 | . 16 | . 35 | . 45 | . 47 | 16.26 | 16.16 | 16.01 |
| Bakers | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 01 | .00 |
| Crane,derrick,hoist operator | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | .00 | . 00 |
| Decorators, window dressers | . 06 | . 11 | . 12 | . 17 | . 26 | . 24 | .23 | . 42 | . 49 |
| Inspectors, other | . 01 | . 02 | . 03 | .03 | . 04 | .03 | . 03 | . 03 | . 02 |
| Jewelers and watchmakers | .00 | . 00 | . 00 | - 00 | . 00 | . 00 | 15.85 | 15.60 | 15.49 |
| Millers, grain, flour, feed | . 00 | - 00 | . 00 | . 03 | . 04 | .03 | . 00 | . 00 | . 00 |
| opticians,lens grinder, polisher | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 04 | . 03 | . 01 |
| Sign painters and letterers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Stationary engineers | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other crafts workers | . 00 | . 00 | . 00 | . 07 | . 08 | . 15 | . 07 | . 05 | . 01 |
| Operatives | 3.74 | 3.93 | 3.35 | 20.58 | 19.99 | 17.04 | 1.77 | 1.80 | 1.26 |
| Operatives, except transport | - 13 | . 15 | .17 | 5.79 | 6.95 | 8.59 | 1.38 | 1.44 | 1.03 |
| Semiskilled metalworking | . 00 | . 00 | . 00 | .21 | . 23 | . 24 | . 00 | . 00 | . 01 |
| Punch,stamping press operatives | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Welders and flamecutters | .00 | . 00 | . 00 | - 21 | - 23 | . 24 | . 00 | . 00 | . 00 |
| Semiskilled packing. inspecting | - 11 | - 13 | . 16 | . 72 | . 68 | . 50 | -64 | . 73 | . 75 |
| Packer,wrapper,exc meat,prodce | .11 | - 13 | - 16 | . 59 | . 54 | - 33 | . 64 | . 73 | .75 |
| Produce grdrefkrs, exc fact, farm | . 00 | . 00 | .00 | . 13 | - 14 | .16 | . 00 | . 00 | .00 |
| Other operatives, exc transport | . 02 | . 02 | . 01 | 4.86 | 6.04 | 7.85 | . 74 | . 71 | . 27 |
| Filer, polisher, sander, buffer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 40 | - 36 | . 13 |
| Garage wrkr gas station atten | . 00 | . 00 | . 00 | . 25 | - 20 | . 23 | . 00 | . 00 | . 00 |
| Mixing operatives | . 00 | . 00 | . 00 | 1.50 | 1.91 | 2.78 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Winding operatives, other | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | 2.58 | 3.22 | 4.00 | .13 | . 15 | . 08 |
| other operatives, exc transport | . 02 | . 02 | . 01 | . 54 | . 71 | . 84 | . 17 | . 18 | . 07 |
| Transport equipment operatives | 3.62 | 3.77 | 3.19 | 14.79 | 13. 04 | 8.45 | -39 | .36 | . 24 |
| Delivery and route workers. | 2.55 | 2. 57 | 2.19 | 4.60 | 4.31 | 4.20 | .27 | - 22 | . 07 |
| Pork lift,tow motor operatives | . 11 | . 16 | - 18 | . 24 | .33 | - 40 | .01 | . 01 | . 01 |
| Parking attendants | .01 | .01 | . 00 | . 00 | .00 | . 00 | .01 | .01 | . 00 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| Truck drivers | . 95 | 1.03 | . 82 | 9.95 | 8.39 | 3.84 | - 10 | - 12 | - 15 |
| Service workers | 4.51 | 2.95 | 1.00 | 1.21 | 1. 18 | . 88 | 1.57 | 1.51 | . 68 |
| Cleaning service workers | . 89 | . 80 | . 29 | . 83 | . 87 | . 74 | 1.15 | 1.09 | -41 |
| Bldg interior cleaners, other | . 33 | . 32 | . 13 | . 32 | . 37 | . 38 | . 67 | . 70 | . 32 |
| Janitors and sextons | . 56 | . 48 | . 16 | . 52 | - 50 | . 35 | .49 | . 40 | . 09 |
| Food service workers | 3.42 | 1.93 | . 53 | . 05 | . 04 | . 03 | . 13 | . 11 | . 04 |
| Bartenders | 2.41 | 1.32 | . 21 | . 00 | . 00 | .00 | .00 | .00 | . 00 |
| Waiters assistants | . 01 | . 02 | . 03 | . 00 | .00 | .00 | . 00 | .00 | . 00 |
| Cooks, exc private households | - 12 | - 11 | -07 | -01 | . 01 | .01 | -03 | .03 | .01 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 03 | . 02 | .01 |
| Food counter, fountain workers | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 03 | .03 | . 01 |
| Haiters | . 83 | . 44 | . 17 | . 03 | .02 | .01 | . 03 | . 02 | .01 |
| Other food serv wirs, exc privt | .03 | . 02 | . 01 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Personal service workers | . 01 | . 01 | . 01 | .25 | . 20 | . 05 | . 09 | . 07 | . 02 |
| Elevator operators | . 01 | . 01 | -01 | . 24 | - 19 | . 04 | . 06 | . 04 | . 01 |
| Hairdressers and cosmetologists | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Housekeepers, exc private homes | . 00 | .00 | . 00 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Protective service workers | $\text { . } 19$ | - 22 | . 17 | . 08 | . 08 | . 06 | -20 | .24 | . 21 |
| Guards | . 19 | . 22 | .17 | . 08 | . 08 | . 06 | - 20 | .24 | . 21 |
| Laborers, except farm | 4.10 | 4. 61 | 2.67 | 12.05 | 12.89 | 15.60 | 1.04 | .95 | - 28 |
| Animal caretakers, exc farm | . 00 | .00 | . 00 | . 06 | . 08 | . 07 | . 00 | .00 | . 00 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 05 | . 05 | . 09 | . 00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | . 01 | . 01 | . 00 | . 22 | . 23 | - 27 | .01 | . 01 | . 00 |
| Freight and material handlers | . 51 | . 55 | . 39 | 4.25 | 4.96 | 6.59 | . 10 | . 10 | . 08 |
| Gardenrs, groundkeepers, exc farm | . 02 | . 02 | . 02 | 2.29 | 2.26 | 2.96 | . 03 | .03 | . 02 |
| Longshore workers, stevedores | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | 3.29 | 3.75 | 1.99 | 1.25 | 1.56 | 1.71 | .77 | .71 | . 14 |
| Vehicle washers,equip cleaners | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 | .03 | .03 | . 01 |
| Warehouse laborers, other | . 18 | . 20 | . 24 | . 51 | . 46 | . 26 | . 04 | . 04 | . 02 |
| Other laborers | . 05 | . 04 | .01 | 3.41 | 3.28 | 3.67 | . 07 | . 05 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

| Fuel and ice dealers |  |  | Retail <br> florists |  |  | Misc retail trade stores |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 1.52 | 1.76 | 1.69 | . 74 | .76 | . 35 | 2.97 | 3.65 | 3.63 |
| .23 | . 19 | - 19 | . 00 | . 00 | .00 | . 11 | . 09 | . 10 |
| . 03 | . 03 | . 04 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| .11 | . 10 | . 08 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| .05 | . 05 | . 08 | .00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| . 02 | . 02 | . 01 | . 00 | . 00 | .00 | .03 | .03 | . 06 |
| . 00 | . 00 | .00 | . 27 | . 25 | . 07 | . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 | . 27 | . 25 | . 07 | . 00 | .00 | . 00 |
| . 08 | . 08 | . 11 | .01 | . 01 | . 01 | . 03 | .03 | . 05 |
| . 00 | . 00 | . 00 | . 01 | .01 | .01 | . 00 | . 00 | . 00 |
| . 04 | . 05 | .09 | . 00 | . 00 | .00 | .03 | .03 | . 05 |
| . 04 | .03 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | - 30 | . 38 | . 42 |
| . 00 | .00 | .00 | .00 | . 00 | . 00 | . 26 | . 33 | . 37 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 02 | .01 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .03 | . 04 | . 04 |
| . 00 | .00 | . 00 | . 00 | . 00 | . 00 | .06 | . 11 | . 09 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | .11 | . 09 |
| . 10 | .11 | . 08 | .00 | .00 | . 00 | . 04 | . 06 | . 09 |
| . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | .01 | . 01 | . 00 |
| . 05 | . 05 | -01 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 03 | . 04 | .03 | .00 | .00 | .00 | . 04 | .06 | . 09 |
| . 07 | .09 | . 07 | . 00 | . 00 | . 00 | - 12 | - 16 | . 17 |
| . 04 | . 05 | . 04 | . 00 | . 00 | .00 | . 06 | . 08 | . 08 |
| . 02 | . 03 | . 02 | . 00 | .00 | . 00 | . 05 | . 08 | . 08 |
| . 01 | . 02 | . 01 | .00 | . 00 | . 00 | . 01 | .01 | .01 |
| . 10 | . 15 | . 10 | . 00 | . 00 | .00 | . 05 | . 09 | - 12 |
| . 10 | . 15 | - 10 | .00 | .00 | .00 | . 05 | .09 | . 12 |
| . 01 | .01 | . 01 | . 00 | . 00 | .00 | . 49 | .43 | . 23 |
| .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 07 | . 08 | . 05 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 42 | .34 | . 17 |
| . 06 | .09 | .11 | .35 | . 35 | . 15 | 1.15 | 1.55 | 1.60 |
| .00 | . 00 | . 00 | . 00 | . 00 | . 00 | .11 | . 15 | . 16 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 03 |
| . 02 | . 01 | . 00 | . 32 | . 33 | . 13 | .42 | . 51 | . 53 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 08 | . 08 |
| .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 33 | . 57 | . 63 |
| . 00 | . 00 | . 00 | . 02 | . 01 | .01 | . 12 | . 12 | .07 |
| . 05 | . 07 | . 11 | . 01 | .01 | . 01 | . 06 | . 08 | . 08 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | .03 |
| . 88 | 1.04 | 1.02 | . 11 | . 14 | . 11 | . 63 | . 76 | . 76 |
| .71 | . 80 | . 75 | .10 | .13 | .11 | . 29 | .33 | . 35 |
| . 00 | .00 | . 00 | . 00 | . 00 | . 00 | - 11 | . 15 | .11 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| . 01 | . 01 | . 01 | .00 | . 00 | . 00 | .00 | .00 | . 00 |
| . 05 | - 11 | - 14 | . 00 | . 00 | . 00 | -01 | . 02 | . 03 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | . 03 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 03 |
| . 11 | - 12 | . 13 | . 02 | . 02 | . 01 | . 15 | . 17 | . 15 |
| . 00 | . 00 | - 00 | . 00 | . 00 | .00 | . 01 | .01 | . 02 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 02 |
| 18.49 | 20.57 | 19.45 | 21.46 | 19.93 | 28.24 | 24.39 | 30.54 | 27.53 |
| 2.54 | 1.91 | 1.09 | . 44 | . 26 | . 06 | 4.24 | 4.54 | 6.16 |
| . 04 | . 03 | . 01 | . 01 | . 01 | . 00 | . 06 | . 06 | . 06 |
| . 52 | . 29 | . 22 | . 01 | . 00 | . 00 | . 08 | . 04 | . 04 |
| .17 | . 13 | . 05 | . 23 | . 08 | . 00 | 1.79 | 1.96 | 2.35 |
| 1.80 | 1.47 | . 81 | . 21 | . 16 | . 06 | 2.31 | 2.47 | 3.71 |



Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Fuel and ice dealers |  |  | Retail florists |  |  | Misc retail trade stores |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other managers, officials, proprts | 15.95 | 18.66 | 18.36 | 21.02 | 19.67 | 28.17 | 20.16 | 26.00 | 21.37 |
| Office managers, other | 1.42 | 1. 32 | . 94 | . 14 | . 14 | . 07 | -64 | . 71 | 1.07 |
| Restaurant, cafe, bar, managers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 04 |
| Other managers, administrators | 14.53 | 17.34 | 17.42 | 20.89 | 19.53 | 28.10 | 19.48 | 25.27 | 20.27 |
| Sales workers | 6.18 | 6.01 | 6. 16 | 21.09 | 18.53 | 16.82 | 40.23 | 33.17 | 29.35 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 04 |
| auctioneers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 21 | . 24 | . 22 |
| Newspaper carriers and vendors | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 27 | . 27 | . 46 |
| other sales workers | 6.18 | 6.01 | 6.16 | 21.09 | 18.53 | 16.82 | 39.71 | 32.62 | 28.64 |
| Clerical workers | 20.74 | 19.53 | 18.36 | 8.41 | 8.57 | 6.45 | 14.99 | 14.80 | 18.37 |
| Stenographrs, typists, secretaries | 4.94 | 4.79 | 5.41 | 1. 10 | 1.27 | 1.43 | 3.79 | 3.59 | 4.41 |
| Legal secretaries | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Hedical secretaries | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Other secretaries | 3.94 | 3.98 | 4.65 | . 73 | . 93 | 1.17 | 2.97 | 2.89 | 3.61 |
| Stenographers | . 09 | . 04 | .00 | . 00 | . 00 | . 00 | . 04 | . 02 | . 01 |
| typists | -91 | . 78 | . 75 | . 37 | . 34 | . 27 | .77 | . 67 | . 75 |
| Office machine operators | . 91 | . 74 | . 40 | . 05 | . 04 | . 02 | . 35 | . 34 | . 33 |
| Bookkeeping and billing | . 34 | - 16 | . 09 | . 03 | . 02 | . 00 | . 07 | . 04 | . 06 |
| Calculating | . 04 | . 02 | . 01 | . 01 | . 01 | . 01 | . 03 | . 03 | .03 |
| Computer and feripheral equip | . 16 | . 32 | . 23 | . 00 | - 00 | - 00 | . 05 | - 11 | . 11 |
| Duplicating for | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Keypunch | . 26 | - 18 | . 07 | . 01 | . 01 | . 01 | - 13 | . 10 | . 06 |
| Tabulating | . 03 | . 01 | . 00 | - 00 | . 00 | . 00 | . 01 | . 00 | . 01 |
| Other office machine operators | . 07 | . 04 | . 00 | . 00 | . 00 | .00 | . 05 | . 05 | . 05 |
| Other clerical workers | 14.89 | 13.99 | 12.54 | 7.26 | 7. 27 | 5.00 | 10.85 | 10.87 | 13.63 |
| Billing clerks | . 40 | . 39 | . 39 | . 11 | - 12 | . 09 | . 20 | . 23 | . 43 |
| Bookxeepers | 9.41 | 9.09 | c. 90 | 5.02 | 4.99 | 3.34 | 3.65 | 3.30 | 3.22 |
| Cashiers | - 17 | . 16 | .11 | . 38 | - 54 | . 73 | 1.92 | 2.14 | 3. 12 |
| clerical supervisors, other | .23 | . 24 | . 17 | . 01 | . 01 | . 01 | . 11 | -13 | . 17 |
| Collectors, bill and account | . 16 | - 13 | . 07 | . 01 | . 01 | .00 | . 06 | . 07 | . 10 |
| Counter clerks, exc food | . 23 | . 21 | - 15 | . 33 | - 32 | - 14 | . 32 | . 36 | - 56 |
| Dispatchers, starters, vehicle | 1.00 | . 89 | . 59 | . 05 | . 05 | . 02 | . 02 | . 03 | . 05 |
| Estimators, investigators, other | . 23 | - 20 | . 05 | . 08 | . 07 | . 02 | . 21 | . 26 | . 22 |
| Expediters. prcduction controlss | . 11 | . 09 | . 04 | . 02 | . 02 | .01 | . 05 | . 06 | - 12 |
| File clerks | . 24 | . 19 | - 15 | . 06 | . 07 | - 10 | . 24 | . 18 | - 14 |
| Library attendants, assistants | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Mail handlers, exc fost office | . 08 | . 06 | . 03 | . 11 | -10 | . 02 | . 18 | - 20 | . 27 |
| Messengers and office belpers | . 06 | . 06 | . 05 | . 03 | . 04 | . 03 | . 06 | . 06 | . 05 |
| Payroll,timekeeping clerks | - 14 | - 17 | . 21 | . 01 | . 01 | . 01 | . 06 | . 07 | . 08 |
| Receptionists | . 32 | . 22 | . 05 | . 23 | . 17 | . 05 | . 86 | . 83 | . 98 |
| Shipping and receiving clerks | . 13 | - 15 | . 24 | . 07 | . 06 | .01 | . 67 | . 61 | . 72 |
| Statistical clerks | . 31 | - 30 | - 18 | . 05 | . 05 | . 00 | - 16 | . 20 | . 29 |
| Stock clerks and store keepers | . 22 | . 16 | . 06 | . 08 | . 05 | . 00 | . 94 | . 93 | 1.40 |
| Telephone operators | - 20 | - 14 | . 14 | . 08 | . 07 | . 07 | . 10 | . 06 | . 05 |
| Heighers | . 08 | . 06 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Misc clerical workers | 1. 16 | 1.08 | . 96 | . 53 | . 52 | . 34 | 1.03 | 1.13 | 1.63 |
| Crafts and kindred workers | 15.23 | 17.92 | 18.42 | 33.03 | 36.82 | 37.14 | 8.79 | 8.94 | 11.26 |
| Construction crafts workers | 1.08 | 1.04 | 1.26 | . 08 | . 09 | . 09 | - 56 | . 54 | - 56 |
| Carpenters and apprentices | . 15 | . 16 | - 21 | . 08 | . 09 | -09 | . 26 | . 24 | . 13 |
| Brick, stonemasons. apprentices | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 10 | . 11 | . 16 |
| Bulldozer operators | - 17 | - 15 | . 13 | . 00 | - 00 | . 00 | . 01 | . 00 | . 00 |
| Electricians and apprentices | - 12 | - 14 | - 22 | - 00 | . 00 | . 00 | . 03 | . 04 | . 04 |
| Excavating, grading mach operatr | - 13 | . 11 | - 10 | . 00 | . 00 | . 00 | . 01 | . 01 | .03 |
| Painters and apprentices | . 11 | . 09 | . 07 | . 00 | - 00 | . 00 | . 08 | . 09 | . 13 |
| Plumbers, pipefitters, aprentices | - 38 | - 38 | . 53 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| Tile setters | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 |
| Blue collar worker supervisors | 1.19 | 1.33 | 1.62 | . 26 | . 27 | . 19 | .61 | . 66 | .71 |
| Hetalworkg craft wrkrs,exc mech | . 31 | . 35 | . 64 | . 00 | . 00 | .00 | . 07 | . 06 | . 07 |
| Boilermakers | . 05 | . 06 | . 13 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hachinists and apprentices | . 08 | . 09 | - 16 | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 |
| Sheetmetal workers, apprentices | . 18 | -19 | -35 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Tool and diemakers, apprentices | . 00 | . 00 | .00 | .00 | . 00 | .00 | .01 | .01 | .03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Fuel and } \\ & \text { ice dealers } \end{aligned}$ |  |  | $\begin{aligned} & \text { Retail } \\ & \text { florists } \end{aligned}$ |  |  | $\begin{gathered} \text { Hisc retail } \\ \text { trade } \\ \text { stores } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, ${ }^{\text {cepairers, installers }}$ | 12.19 | 14.61 | 13.92 | . 06 | . 07 | . 05 | 4.21 | 3.95 | 6.05 |
| Aic cond, heating, refrig mecn | 7.82 | 10.85 | 11.84 | . 00 | - 00 | . 00 | . 03 | . 04 | . 05 |
| Aircraft mechanics | . 01 | .01 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Auto body repairers | . 00 | - 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Auto mechanics and apprentices | 1.31 | .99 | . 45 | .03 | . 03 | . 01 | .17 | . 17 | . 23 |
| Data processing mach repairers | -01 | .01 | . 01 | . 00 | . 00 | . 00 | . 07 | . 09 | . 15 |
| Farm implement mechanics | . 03 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | . 74 | .81 | . 76 | -00 | . 00 | . 00 | . 31 | .38 | . 51 |
| Household appliance mechanics | 1.89 | 1. 55 | . 59 | .01 | - 01 | . 01 | - 15 | . 18 | . 25 |
| office machine repairers | . 00 | . 00 | . 00 | -01 | - 01 | . 01 | 2.48 | 1.93 | 3.40 |
| Radio, television repairers | . 07 | . 07 | . 10 | . 01 | . 01 | . 01 | . 05 | . 03 | . 01 |
| other mechanics and apprentices | . 34 | . 30 | . 16 | .00 | .00 | . 00 | . 95 | 1.12 | 1.44 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 13 | . 11 | . 00 | -31 | . 28 | . 22 |
| Bookbinders | . 00 | - 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Compositors and typesetters | . 00 | . 00 | . 00 | - 10 | . 09 | . 00 | .13 | . 11 | . 05 |
| Engravers exc photoengravers | . 00 | . 00 | . 00 | . 03 | . 03 | .00 | . 11 | .11 | . 10 |
| Photoengravers, lithographers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Press, plate printers,aprentices | . 00 | .00 | .00 | . 00 | . 00 | .00 | . 04 | . 05 | . 04 |
| Transport, public util craft wkrs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .01 | . 01 | . 02 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -01 | . 01 | .01 |
| Other crafts, kindred workers | . 46 | - 59 | . 98 | 32.50 | 36.29 | 36.81 | 3.01 | 3.42 | 3.62 |
| Bakers | .00 | .00 | . 00 | . 01 | . 00 | .00 | . 02 | . 02 | . 02 |
| Cabinetmakers | . 02 | . 02 | . 04 | - 00 | - 00 | . 00 | . 18 | . 16 | . 05 |
| Carpet installers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Crane, derrick, hoist operator | . 04 | . 03 | . 01 | . 02 | . 01 | . 00 | . 01 | -01 | .03 |
| Decorators, window dressers | - 16 | . 31 | . 61 | 32.43 | 36.23 | 36.76 | -18 | -28 | - 25 |
| Furniture and wood finishers | . 01 | . 01 | . 00 | . 00 | - 00 | .00 | . 18 | . 22 | . 28 |
| glaziers | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 02 |
| Inspectors, other | . 02 | . 02 | . 01 | - 02 | - 02 | . 04 | . 02 | . 02 | . 02 |
| Jevelers and watchmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 08 | . 09 |
| Opticians, lens grinder, polisner | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | 1.78 | 2.09 | 2.27 |
| piano,organ tuners, repairers | . 00 | . 00 | . 00 | - 00 | - 00 | . 00 | . 01 | .01 | .01 |
| Shoe repairers | - 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | .01 | . 03 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Stationary engineers | . 20 | . 20 | .31 | . 00 | .00 | .00 | . 01 | .01 | . 01 |
| Stone cutters, stone carvers | . 00 | - 00 | -00 | . 00 | . 00 | . 00 | . 26 | .23 | . 10 |
| Tailors | - 00 | . 00 | .00 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Upholsterers | - 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | . 03 | . 06 |
| other crafts workers | .01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 17 | . 20 | . 32 |
| operatives | 34.39 | 31.41 | 34.37 | 9.45 | 9.81 | 7.71 | 3.54 | 3.57 | 4.10 |
| operatives, except transport | 1.57 | 1. 38 | . 99 | . 46 | . 51 | . 40 | 2.11 | 2.33 | 2. 96 |
| Semiskilled metalvorking | . 17 | . 18 | . 25 | . 00 | - 00 | . 00 | . 06 | . 05 | . 08 |
| Lathe,milling mach operatives | . 01 | . 01 | . 01 | - 00 | -00 | . 00 | .01 | .01 | . 02 |
| Punch,stamping press operatives | . 00 | - 00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | . 01 |
| Welders and flamecutters | . 16 | . 18 | -24 | . 00 | . 00 | . 00 | .03 | . 03 | . 05 |
| Semiskilled packing, inspecting | . 06 | . 04 | . 01 | . 35 | . 38 | . 35 | -44 | .38 | - 32 |
| Packer, wrapper,exc meat, prodce | . 06 | . 04 | . 01 | . 28 | .33 | .34 | -44 | . 38 | . 32 |
| Produce grdr,pkrs,exc fact,farm | . 00 | . 00 | . 00 | . 07 | . 05 | .01 | . 00 | .00 | .00 |


|  | Fuel and ice dealers |  |  | $\begin{aligned} & \text { Retail } \\ & \text { florists } \end{aligned}$ |  |  | Misc retail trade |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 1.34 | 1. 16 | . 74 | .11 | . 13 | . 06 | 1.61 | 1.90 | 2.56 |
| Asbestos, insulation workers | . 00 | . 00 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bottling, canning operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| clothing ironers and pressers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 04 |
| Cutting operatives, other | . 00 | . 00 | -00 | . 00 | - 00 | . 00 | . 07 | . 08 | - 14 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 26 | . 31 | - 30 |
| Filer, polisher, sander, buffer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 06 | . 09 |
| Garage wrkr,gas station atten | . 30 | . 16 | . 04 | . 00 | . 00 | . 00 | . 03 | . 02 | . 04 |
| Laundry,dry cleang oprs,other | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Meat cutters, butchers, exc mfg | . 02 | . 02 | . 01 | .00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Mixing operatives | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .03 |
| Oilers,greasers,exc automobiles | .13 | . 15 | . 24 | . 00 | .00 | -00 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 02 | . 06 |
| Photographic process morkers | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 13 | . 13 | .13 |
| Sauyers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Sewers and stitchers | .00 | .00 | - 00 | . 00 | . 00 | . 00 | . 05 | . 05 | - 10 |
| Purnace tendr,stokr,exc metal | . 00 | . 00 | -00 | . 00 | - 00 | . 00 | . 01 | .01 | . 01 |
| Winding operatives, other | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | .03 |
| Miscellaneous machine operatves | . 33 | . 30 | . 18 | . 00 | .00 | . 00 | . 28 | .33 | . 46 |
| other operatives, exc transport | . 55 | . 52 | -25 | . 11 | . 13 | . 06 | .64 | . 79 | 1.05 |
| Transport equipment operatives | 32.82 | 30.03 | 33.38 | 8.99 | 9.31 | 7.31 | 1.44 | 1.23 | 1.14 |
| Bus drivers | . 02 | . 04 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route morkers | 16.20 | 14.93 | 19.27 | 7.98 | 8.22 | 6.56 | . 80 | - 70 | . 76 |
| Fork lift, tow motor operatives | - 10 | . 12 | - 13 | .00 | . 00 | . 00 | . 03 | . 04 | . 06 |
| Parking attendants | . 00 | . 00 | .00 | . 00 | .00 | . 00 | . 01 | .01 | . 03 |
| Taxicab drivers, chauffeurs | . 10 | . 06 | . 00 | . 06 | . 05 | .01 | . 02 | . 02 | .01 |
| Truck drivers | 16.40 | 14.88 | 13.96 | . 96 | 1.04 | . 74 | - 57 | -46 | . 29 |
| Service workers | . 90 | .67 | . 27 | . 80 | -66 | . 08 | 2. 38 | 2.38 | 2.06 |
| Cleaning service workers | . 69 | . 52 | .17 | . 72 | . 59 | . 04 | . 76 | . 74 | . 79 |
| Lodging qtrs cleaners, exc privt | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 03 | . 01 | . 02 |
| Bldg interior cleaners, other | .25 | . 19 | . 06 | . 46 | . 37 | . 04 | . 32 | . 34 | . 43 |
| Janitors and sertons | . 43 | . 33 | -12 | . 26 | . 23 | . 00 | . 41 | .38 | . 35 |
| Food service workers | . 06 | . 05 | . 03 | . 00 | . 00 | . 00 | . 31 | - 22 | - 24 |
| Bartenders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Waiters ${ }^{\text {d }}$ assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 06 |
| Cooks, exc private households | .03 | . 02 | .01 | .00 | . 00 | .00 | . 06 | . 04 | . 02 |
| Dishwashers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Food counter, fountain workers | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 07 | . 06 | . 07 |
| Waiters | . 01 | . 01 | . 01 | -00 | . 00 | . 00 | . 10 | . 05 | . 01 |
| other food serv ukrs,exc privt | . 02 | . 02 | . 01 | .00 | . 00 | .00 | . 04 | . 03 | . 04 |
| Health service workers | . 02 | . 01 | -01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Health aides, except nursing | . 00 | . 00 | . 00 | .00 | . 00 | .00 | .03 | . 03 | . 04 |
| Practical nurses | . 02 | - 01 | . 01 | . 00 | . 00 | .00 | .00 | . 00 | . 00 |
| Personal service workers | . 02 | . 02 | . 04 | . 04 | . 03 | . 03 | 1.19 | 1.32 | . 95 |
| Attendants, recreation, amusement | . 00 | - 00 | -00 | . 00 | . 00 | .00 | . 01 | . 01 | .03 |
| Attendants, personal serv,other | .00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Child care workers, exc private | . 00 | .00 | . 00 | . 03 | . 02 | . 02 | . 01 | .00 | .01 |
| Elevator operators | .01 | . 01 | . 03 | .01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | 1.12 | 1.25 | . 85 |
| Housekeepers. erc private homes | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Protective service workers | .12 | .07 | . 02 | . 03 | . 03 | .01 | . 09 | . 08 | . 04 |
| Guards | .11 | . 06 | . 01 | . 03 | . 03 | . 01 | . 08 | . 07 | . 04 |
| Police and detectives | .01 | . 01 | -01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Laborers, except farm | 2.56 | 2. 14 | 1.31 | 5.03 | 4.92 | 3.21 | 2.70 | 2.95 | 3.70 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 37 | . 44 | .49 |
| Carpenter helpers | . 02 | . 01 | . 01 | . 02 | . 02 | . 03 | . 01 | . 01 | . 03 |
| Constr labr, exc carpenter helpr | . 18 | . 17 | . 17 | .01 | . 01 | . 01 | . 04 | . 04 | . 06 |
| Preight and material handlers | 1.17 | 1.01 | . 62 | - 12 | - 10 | . 02 | . 31 | . 34 | . 55 |
| Gardenrs, groundkeepers, exc farm | . 02 | . 02 | -01 | . 93 | . 82 | - 32 | . 07 | . 09 | . 08 |
| Timbercutting, logging workers | . 06 | . 04 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Stock handlers | . 16 | . 14 | . 04 | . 30 | . 28 | . 06 | 1.21 | 1.40 | 1.83 |
| Teamsters | . 01 | . 01 | -01 | . 00 | - 00 | .00 | . 00 | . 00 | . 00 |
| Vehicle washers, equip cleaners | . 15 | . 14 | . 08 | . 01 | . 01 | . 01 | . 04 | . 05 | . 07 |
| Harehouse labcrers, other | .07 | . 05 | . 03 | . 02 | . 03 | . 04 | . 19 | . 16 | .11 |
| Other laborers | . 72 | . 56 | . 32 | 3.63 | 3.66 | 2.73 | . 46 | . 43 | . 47 |


|  | Finance, insurance. real estate |  |  | Pinance. total |  |  | Banking |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.52 | 4.80 | 5.07 | 4.84 | 5.50 | 6.12 | 4.78 | 5.39 | 6.30 |
| Engineers, technical | .21 | - 17 | - 20 | . 07 | . 07 | . 11 | . 06 | . 06 | . 11 |
| Civil | . 04 | . 02 | . 02 | .01 | . 01 | . 00 | . 01 | . 00 | . 00 |
| Electrical | . 01 | -01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Industrial | . 12 | - 11 | . 13 | . 02 | . 03 | . 05 | . 02 | . 03 | . 06 |
| Mechanical | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 02 |
| other engineers | . 02 | - 02 | . 02 | . 02 | . 02 | .03 | . 02 | . 02 | . 03 |
| Life and physical scientists | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | . 17 | - 19 | . 18 | . 05 | . 05 | . 06 | . 04 | . 04 | . 06 |
| actuaries | . 09 | . 12 | .11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mathematicians | .02 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Statisticians | . 06 | . 05 | . 06 | .05 | . 05 | . 06 | . 03 | . 03 | . 06 |
| Engineering, science technicians | . 06 | . 05 | . 06 | . 01 | .01 | . 01 | - 00 | . 00 | . 00 |
| Drafters | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Surveyors | . 02 | . 02 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other engineering, science tech | .01 | . 01 | . 01 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Medical workers, exc technicians | . 05 | . 04 | . 03 | . 02 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Physicians and osteopaths | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | -00 | - 00 |
| Registered nurses | .03 | . 03 | . 02 | .01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Technicians, except health | .02 | . 03 | . 02 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Airplane pilots | .01 | . 04 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Computer specialists | . 75 | . 81 | . 90 | . 81 | - 99 | 1.31 | -97 | 1.19 | 1.60 |
| Computer programers | . 54 | . 52 | . 57 | . 56 | . 63 | . 82 | . 67 | . 74 | . 98 |
| Computer systems analysts | . 20 | . 25 | . 29 | -22 | -31 | . 43 | -26 | . 38 | . 54 |
| Other computer specialists | . 02 | . 04 | . 04 | .03 | . 05 | . 06 | . 04 | . 07 | . 09 |
| Social scientists | . 20 | . 29 | . 42 | . 32 | - 51 | . 77 | -29 | -49 | . 85 |
| Economists | . 19 | . 28 | -41 | . 32 | . 51 | .77 | - 28 | -48 | . 85 |
| Teachers | .01 | . 01 | . 01 | . 01 | .01 | . 01 | .01 | . 01 | .01 |
| Adult education | . 01 | .01 | . 01 | .01 | . 01 | .01 | . 01 | -01 | . 01 |
| Writers, artists, entertainers | . 28 | . 31 | . 30 | . 30 | . 33 | . 30 | .31 | .34 | . 30 |
| Designers | .01 | . 02 | . 02 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Editors and reforters | .05 | . 04 | . 04 | . 04 | . 03 | . 02 | . 03 | . 02 | . 00 |
| Public relations specialists | -20 | . 23 | -22 | -22 | . 25 | - 22 | -24 | . 27 | . 24 |
| Other writers,artists, entertain | . 02 | . 02 | -02 | .03 | . 04 | -04 | . 03 | . 04 | . 05 |
| Other professicnal and technical | 2.76 | 2.89 | 2.94 | 3.24 | 3.50 | 3.53 | 3.08 | 3.25 | 3. 35 |
| Accountants | 1.72 | 1. 74 | 1.91 | 2.20 | 2.31 | 2.34 | 2.11 | 2.15 | 2. 17 |
| Architects | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Parm management advisors | .01 | . 01 | . 00 | . 03 | . 03 | . 01 | . 00 | .00 | . 00 |
| Lawyers | - 30 | . 43 | - 29 | . 19 | - 30 | . 23 | .13 | . 20 | . 17 |
| Librarians | . 02 | . 02 | . 02 | . 03 | . 03 | . 03 | . 02 | . 02 | . 02 |
| operations and systems research | . 14 | - 18 | . 21 | . 15 | . 23 | -31 | - 18 | . 28 | . 40 |
| Personnel, labor relations wirs | - 43 | - 38 | - 39 | -47 | . 47 | -45 | -51 | - 50 | . 45 |
| Other research vorkers | - 10 | . 08 | .10 | . 17 | . 13 | - 17 | .13 | .11 | . 14 |
| Social vorkers | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Managers, officials, proprietors | 19.35 | 20. 14 | 22.19 | 26.32 | 27.60 | 28.94 | 25.39 | 25.84 | 26.33 |
| Euyers, sales,lcan managers | 9.92 | 10.30 | 12.47 | 21.65 | 22.65 | 25.22 | 25.01 | 25.43 | 25.98 |
| Bank, financial managers | 8.88 | 9.50 | 11.58 | 20.59 | 21.92 | 24.32 | 24.52 | 25.11 | 25.52 |
| Credit managers | . 31 | . 17 | . 18 | . 70 | . 39 | . 37 | . 34 | . 17 | . 14 |
| purchasing agents, buyers, other | . 12 | - 10 | .13 | .14 | - 13 | . 21 | . 11 | . 10 | .21 |
| Sales manager, exc retail trade | . 62 | . 53 | . 58 | . 22 | . 22 | - 32 | . 04 | . 05 | . 11 |
| Other managers, officials, proprts | 9.43 | 9.84 | 9.72 | 4.68 | 4.96 | 3.71 | -39 | .41 | - 35 |
| Mgrs, superintendents, building | 2.29 | 2.68 | 2.75 | . 06 | . 08 | . 15 | . 05 | . 07 | . 14 |
| office managers, other | 1.15 | 1.09 | . 89 | 1.18 | 1.30 | . 82 | . 34 | .35 | . 21 |
| Other managers, administrators | 5.98 | 6.06 | 6.08 | 3.44 | 3.57 | 2.73 | . 00 | . 00 | . 00 |


|  | Finance, insurance, real estate |  |  | $\begin{gathered} \text { Pinance, } \\ \text { total } \end{gathered}$ |  |  | Banking |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Sales workers | 21.81 | 24.60 | 22.80 | 6.49 | 5.29 | 4.31 | . 57 | . 57 | . 87 |
| Advertising agents, sales worker | . 02 | . 03 | . 04 | . 01 | . 01 | . 03 | .01 | . 01 | . 02 |
| Insurance agents and brokers | 10.78 | 11.30 | 10.49 | . 14 | - 16 | . 19 | - 14 | - 16 | - 19 |
| Heal estate agents, brokers | 8.27 | 11.04 | 10.31 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock and bond sales agents | 2.66 | 2.17 | 1.85 | 6.20 | 4.98 | 3.87 | -30 | -29 | - 50 |
| Other sales workers | . 06 | . 06 | .11 | - 15 | - 14 | . 23 | . 12 | . 11 | . 16 |
| Clerical morkers | 46.17 | 43. 12 | 43.45 | 58.62 | 58.42 | 57.20 | 64.77 | 64.48 | 62.38 |
| Stenographrs, typists, secretaries | 14.28 | 12.00 | 13.20 | 12.39 | 10.99 | 12.52 | 10.19 | 8.70 | 10. 17 |
| Legal stcretaries | . 10 | . 07 | .10 | . 08 | . 07 | . 12 | . 05 | . 05 | . 09 |
| Medical secretaries | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | .01 | .00 | . 00 |
| Other secretaries | 9.74 | 8.76 | 10.10 | 8.67 | 8.10 | 9.70 | 6.93 | 6.28 | 7.88 |
| Stenographers | . 31 | . 17 | . 08 | . 27 | . 15 | . 06 | - 26 | . 13 | . 05 |
| typists | 4.11 | 3.00 | 2.92 | 3.36 | 2.67 | 2.64 | 2.94 | 2.24 | 2. 15 |
| Office machine operators | 3.07 | 2.88 | 3.05 | 4.59 | 4.54 | 5.21 | 6.20 | 5.89 | 6.88 |
| Bookkeeping and billing | . 68 | - 36 | . 57 | 1.48 | - 79 | 1. 19 | 2.27 | 1.19 | 1.77 |
| Calculating | . 14 | . 08 | . 09 | -22 | -15 | . 17 | . 31 | . 20 | . 23 |
| Computer and feripheral equip | -69 | 1.37 | 1.59 | - 99 | 2. 17 | 2.66 | 1.26 | 2.72 | 3.37 |
| Duplicating forder | . 04 | . 02 | . 03 | . 03 | . 03 | . 05 | . 03 | . 03 | . 05 |
| Keypunch | 1.27 | - 84 | .55 | 1.46 | 1.05 | - 75 | 1.78 | 1.27 | . 90 |
| Tabulating | . 04 | . 01 | .00 | . 06 | . 01 | . 00 | . 08 | . 02 | - 00 |
| other office rachine operators | . 23 | - 20 | .22 | . 36 | . 35 | -40 | -48 | . 47 | . 56 |
| Other clerical yorkers | 28.82 | 28. 24 | 27.20 | 41.64 | 42.89 | 39.46 | 48.38 | 49.88 | 45.33 |
| Bank tellers | 7.51 | 8.93 | 7.85 | 17.78 | 20.93 | 16.69 | 26.27 | 30.28 | 23.87 |
| Billing clerks | . 13 | - 11 | - 13 | . 10 | - 10 | . 13 | . 09 | . 08 | . 08 |
| Bookkeepers | 5.06 | 4.16 | 3.38 | 7.58 | 6.34 | 4.83 | 7.89 | 6.31 | 4.70 |
| Cashiers | . 70 | -62 | . 51 | 1. 13 | 1.06 | . 84 | . 00 | . 00 | . 00 |
| Clerical supervisors, other | . 76 | . 74 | . 82 | . 79 | . 86 | 1.14 | . 73 | - 80 | 1. 14 |
| collectors, bill and account | . 64 | . 62 | . 56 | 1.18 | 1.19 | 1.05 | . 47 | . 46 | . 49 |
| Counter clerks,exc food | . 13 | . 11 | . 13 | -19 | - 17 | - 21 | . 07 | . 07 | . 15 |
| Dispatchers,starters, vehicle | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Estimat ors, investigat ors, other | 1.59 | 1.62 | 1.53 | 1.99 | 2. 29 | 2.55 | 1.65 | 1.84 | 2.05 |
| Expediters, frcduction controirs | . 12 | - 10 | . 14 | . 13 | - 14 | . 24 | . 21 | . 22 | . 38 |
| File clerks | 1.42 | -95 | . 93 | 1. 13 | . 86 | . 90 | 1.27 | . 96 | 1.03 |
| Insurance adjusters, examiners | 2.61 | 3. 16 | 3.53 | . 04 | . 06 | . 05 | . 03 | . 05 | . 05 |
| Library attendants, assistants | . 04 | . 03 | . 02 | . 04 | . 05 | . 03 | . 05 | . 06 | . 04 |
| Mail handlers, exc post office | - 50 | . 40 | . 39 | - 56 | - 50 | -60 | . 62 | . 57 | . 76 |
| nessengers and office helpers | . 31 | - 24 | . 19 | . 62 | - 47 | . 35 | . 63 | . 46 | . 26 |
| payroll, timekeeping clerks | . 18 | - 17 | - 12 | . 22 | -19 | . 11 | . 24 | . 20 | . 09 |
| Real estate afpraisers | . 42 | -47 | . 49 | - 25 | - 30 | -47 | . 17 | - 19 | - 32 |
| Receptionists | . 72 | -61 | . 65 | . 70 | . 65 | . 83 | -60 | . 56 | . 82 |
| Shipping ana receiving clerks | . 06 | . 04 | . 04 | . 06 | . 05 | . 03 | . 05 | . 03 | . 01 |
| Statistical clerks | 1.42 | 1.22 | 1.05 | .93 | - 89 | . 86 | . 63 | . 64 | . 72 |
| Stock clerks and store keepers | . 16 | - 13 | -15 | -21 | - 18 | - 24 | - 16 | - 15 | . 25 |
| Telephone operators | . 38 | . 19 | . 12 | . 47 | . 21 | . 06 | -45 | . 18 | . 03 |
| Misc clerical workers | 3.96 | 3.60 | 4.46 | 5.54 | 5.41 | 7.25 | 6.08 | 5.78 | 8.08 |
| Crafts and kindred workers | 1.73 | 1.64 | 1.47 | . 69 | -51 | .33 | -68 | . 43 | . 25 |
| Construction crafts workers | . 82 | . 82 | . 75 | - 12 | -09 | . 07 | . 13 | . 09 | . 06 |
| Carpenters and apprentices. | . 32 | - 33 | - 27 | . 06 | . 04 | . 02 | . 06 | . 04 | . 01 |
| Brick, stonemasons, apprentices | . 02 | . 02 | . 02 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Electricians and apprentices | . 06 | . 06 | . 07 | . 02 | . 02 | . 01 | . 03 | . 02 | - 00 |
| Excavating, grading mach operatr | -03 | -02 | . 03 | . 00 | - 00 | -00 | -00 | . 00 | - 00 |
| Painters and apprentices | . 31 | . 31 | .26 | . 03 | . 03 | . 04 | . 04 | . 03 | . 05 |
| Plumbers, pipefitters, aprentices | . 05 | . 05 | .07 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | . 31 | . 27 | . 24 | . 27 | - 18 | . 08 | - 24 | .13 | . 01 |
| Hetaluorkg craft urkrs, exc mech | .01 | . 01 | . 02 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Boilermakers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |


|  | Finance, insurance, real estate |  |  | $\underset{\text { Potal }}{\text { Pinance, }}$ |  |  | Banking |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Mechanics, repairers,installers | . 20 | . 21 | . 23 | . 08 | - 08 | - 11 | . 08 | . 08 | - 14 |
| Air cond, heating, refrig mech | . 04 | . 05 | . 06 | -01 | . 02 | . 02 | . 02 | . 02 | .03 |
| Auto mechanics and apprentices | .01 | . 01 | . 01 | -01 | . 01 | -01 | . 00 | . 00 | . 00 |
| Data processing mach repairers | . 01 | . 01 | . 02 | . 01 | . 02 | . 04 | . 02 | . 03 | . 07 |
| Heavy eguip mech, incl diesel | . 09 | - 10 | . 11 | . 01 | - 01 | . 01 | . 00 | -00 | . 00 |
| Office machine repairers | . 02 | .01 | . 01 | .03 | . 02 | .02 | . 04 | . 02 | . 02 |
| Other mechanics and apprentices | . 02 | . 02 | . 01 | .01 | . 01 | .01 | .01 | . 01 | . 02 |
| Printing trade crafts yorkers | . 12 | - 10 | . 08 | - 12 | . 08 | - 04 | . 13 | . 09 | .03 |
| Compositors and typesetters | . 06 | . 05 | . 03 | . 07 | . 04 | . 01 | . 08 | . 04 | . 00 |
| Press.plate frinters,aprentices | . 05 | . 04 | . 04 | . 04 | . 04 | .03 | . 05 | . 04 | .03 |
| Other crafts, kindred workers | .27 | - 22 | - 17 | . 10 | . 06 | . 02 | . 09 | . 05 | . 02 |
| Inspectors, other | . 11 | - 10 | . 07 | . 03 | . 03 | . 01 | .01 | . 01 | . 01 |
| Stationary engineers | - 14 | . 11 | . 09 | .07 | -03 | . 01 | . 08 | - 04 | . 01 |
| Operatives | . 38 | . 33 | .33 | . 34 | . 29 | . 30 | . 32 | . 25 | - 25 |
| Operatives, except transport | . 18 | - 16 | .17 | - 12 | - 13 | . 20 | - 13 | . 14 | . 22 |
| Other operatives, exc transport | . 17 | . 16 | . 16 | . 12 | . 13 | - 20 | . 13 | . 14 | - 22 |
| Purnace tendr,stokr,exc metal | . 04 | . 03 | . 02 | . 01 | .01 | . 01 | . 01 | . 01 | .01 |
| Miscellaneous machine operatves | . 05 | . 05 | . 05 | -06 | . 06 | . 08 | . 06 | . 06 | . 08 |
| other operatives, exc transport | . 05 | . 06 | . 07 | . 05 | . 06 | . 11 | . 05 | . 06 | . 13 |
| Transport equipment operatives | . 20 | . 17 | . 16 | . 22 | - 16 | . 09 | . 19 | . 11 | . 03 |
| Bus drivers | . 01 | - 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .00 |
| Delivery and route workers | . 03 | - 02 | . 03 | . 04 | . 03 | . 03 | . 03 | . 02 | .01 |
| Parking attendants | . 04 | . 03 | . 01 | . 07 | . 04 | . 01 | . 10 | . 05 | . 00 |
| Tasicab drivers, chauffeurs | . 04 | . 03 | . 02 | . 05 | . 04 | . 02 | - 03 | . 02 | .00 |
| Truck drivers | . 08 | . 07 | . 09 | . 06 | . 05 | . 04 | . 04 | . 02 | .01 |
| Service workers | 4.62 | 3.94 | 3.51 | 2.59 | 2.29 | 2.66 | 3.41 | 2.96 | 3.46 |
| cleaning service workers | 3.34 | 2.89 | 2.48 | 1.53 | 1. 36 | 1.47 | 2.01 | 1.74 | 1.85 |
| Lodging qtrs cleaners, exc privt | . 05 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 |
| Bldg interior cleaners, other | . 92 | -84 | . 71 | . 46 | -43 | . 48 | . 60 | . 54 | . 59 |
| Janitors and sextons | 2.37 | 2.03 | 1.77 | 1.07 | . 93 | . 99 | 1.41 | 1.19 | 1.27 |
| Food service wcrkers | . 22 | - 14 | . 12 | . 18 | . 11 | . 11 | -25 | . 16 | . 15 |
| Cooks, exc frivate households | . 06 | . 04 | . 03 | . 06 | . 03 | . 02 | . 08 | . 04 | . 02 |
| Dishwashers | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 | .01 | . 01 |
| Food counter, fountain workers | . 03 | . 02 | . 02 | .03 | . 03 | . 04 | -04 | . 04 | . 06 |
| maiters | . 06 | . 03 | . 02 | . 05 | . 02 | . 01 | . 06 | . 03 | .01 |
| Other food serv wirs,exc privt | .05 | . 03 | . 03 | . 03 | . 03 | . 05 | . 05 | . 04 | . 06 |
| Personal service vorkers | . 52 | .40 | . 23 | . 09 | . 07 | . 04 | . 13 | . 09 | . 06 |
| Attendants, recreation, amusement | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Attendants, personal serv, other | . 14 | . 10 | . 06 | . 02 | . 02 | . 02 | . 04 | . 03 | . 04 |
| Elevator operators | . 32 | . 27 | . 15 | . 07 | . 05 | . 02 | . 09 | . 06 | . 02 |
| Housekeepers, exc frivate homes | . 04 | - 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Protective service workers | . 54 | . 52 | . 68 | . 79 | . 75 | 1.03 | 1.03 | -98 | 1.40 |
| Guards | . 51 | . 49 | .67 | .77 | . 73 | 1.03 | 1.00 | . 96 | 1.40 |
| Police and detectives | . 03 | . 03 | . 02 | . 02 | . 01 | . 00 | . 03 | - 02 | . 00 |
| Laborers, except farm | 1.43 | 1.44 | 1.17 | . 11 | .09 | . 15 | .09 | . 08 | - 17 |
| Carpenter belpers | . 03 | . 03 | . 03 | .00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Constr labr, exc carpenter helpr | . 06 | . 05 | . 03 | . 01 | .01 | . 02 | . 01 | .01 | . 02 |
| Freight and material handlers | . 02 | . 02 | . 02 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | .90 | . 98 | .77 | . 04 | . 02 | . 06 | . 03 | . 02 | -05 |
| Stock handlers | .03 | . 03 | . 03 | . 05 | . 04 | . 06 | . 04 | . 05 | . 08 |
| Other laborers | . 38 | - 32 | . 29 | .01 | .01 | . 01 | . 01 | .01 | .02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Credit agencies |  |  | Stock brks. investment companies |  |  | Insurance |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 4.21 | 5.03 | 4.99 | 5.91 | 6.79 | 7.61 | 5.76 | 6.00 | 5.53 |
| Engineers, technical | . 06 | .07 | . 09 | . 13 | - 13 | - 12 | . 39 | . 35 | . 39 |
| Chemical | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Civil | . 02 | . 01 | . 01 | . 02 | . 01 | .01 | . 04 | . 02 | . 00 |
| Electrical | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 01 | .01 | .01 |
| Industrial | - 02 | . 03 | . 04 | . 03 | . 02 | .01 | - 31 | . 30 | - 36 |
| Mechanical | . 00 | . 00 | . 00 | .01 | .01 | . 02 | . 01 | . 01 | .01 |
| Mining | . 00 | . 00 | . 00 | .01 | .01 | .01 | . 00 | .00 | . 00 |
| Petroleum | . 00 | . 00 | . 00 | .01 | .01 | . 02 | .00 | . 00 | .00 |
| Other engineers | . 02 | . 02 | .03 | .03 | . 02 | . 02 | . 03 | . 02 | . 01 |
| Life and physical scientists | . 02 | . 03 | . 02 | . 02 | . 02 | . 02 | .00 | . 00 | . 00 |
| Agricultural | - 01 | .02 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | - 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | -00 | . 00 |
| Geologists | .00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | .00 | .00 |
| Mathematical sfecialists | - 02 | . 03 | . 05 | . 15 | . 13 | . 13 | . 41 | . 51 | . 48 |
| Actuaries | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 27 | . 38 | . 38 |
| Mathematicians | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Statisticians | . 02 | . 03 | . 05 | . 15 | . 13 | . 13 | .11 | . 09 | . 08 |
| Engineering, science technicians | . 01 | . 01 | . 02 | . 02 | . 02 | . 03 | . 06 | . 05 | . 05 |
| Drafters | .01 | .01 | . 02 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Electrical and electronic | . 00 | .00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Other engineering, science tech | . 00 | . 00 | . 00 | . 02 | . 02 | .03 | . 01 | . 01 | . 01 |
| Medical workers,exc technicians | .01 | . 01 | . 01 | .01 | . 01 | . 00 | .09 | . 08 | . 08 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Registered nurses | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 |
| Therapists | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | . 01 |
| Health technolcgists, technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| clinical lab technologists,tech | . 00 | . 00 | -00 | . 00 | .00 | . 00 | .01 | .01 | . 01 |
| Technicians, except health | . 00 | . 00 | .00 | . 06 | . 07 | . 08 | .03 | .03 | . 02 |
| Airplane pilots | . 00 | .00 | . 00 | . 04 | . 05 | . 06 | .01 | . 01 | .01 |
| Badio operators | . 00 | . 00 | . 00 | .01 | . 01 | .01 | . 00 | .00 | . 00 |
| Other technicians except health | . 00 | . 00 | -00 | . 01 | . 01 | .01 | . 02 | . 02 | . 01 |
| Computer specialists | . 45 | . 59 | .75 | . 68 | . 81 | . 90 | 1.14 | 1.16 | . 89 |
| Computer frogramers | - 32 | - 39 | . 52 | . 46 | . 51 | . 57 | . 82 | . 77 | . 59 |
| Computer systems analysts | . 11 | - 17 | -22 | - 19 | -26 | . 30 | . 28 | . 34 | . 26 |
| other computer specialists | . 01 | . 02 | -02 | . 02 | . 04 | . 03 | . 03 | . 04 | . 04 |
| Social scientists | .17 | - 32 | -43 | . 65 | . 94 | 1.04 | - 12 | .15 | - 11 |
| Rconomists | .17 | . 32 | -43 | . 65 | . 94 | 1.04 | . 12 | . 15 | . 11 |
| Teachers | . 01 | .00 | . 02 | . 00 | .00 | .00 | . 01 | .01 | . 01 |
| adult educaticn | . 01 | - 00 | . 02 | . 00 | . 00 | .00 | .01 | . 01 | . 01 |
| Writers, artists, entertainers | -30 | . 34 | . 28 | . 27 | . 30 | . 32 | . 27 | . 29 | . 28 |
| Authors | - 00 | - 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Designers | - 00 | - 00 | -00 | . 03 | . 03 | . 03 | . 00 | . 00 | - 00 |
| Editors and reporters | . 04 | . 04 | . 01 | . 09 | - 10 | . 13 | .07 | . 07 | - 06 |
| Public relations specialists | . 24 | - 28 | . 24 | .11 | . 13 | . 12 | . 19 | .21 | . 20 |
| Other writerspartists, entertain | . 02 | . 03 | -03 | .03 | . 03 | . 02 | .02 | . 02 | . 02 |
| Other professicnal and technical | 3.17 | 3.64 | 3.32 | 3. 92 | 4.38 | 4.99 | 3.21 | 3.36 | 3.21 |
| accountants | 2.23 | 2.47 | 2.43 | 2.51 | 2.73 | 3.03 | 1.79 | 1.79 | 2.03 |
| Farm management advisors | . 12 | - 12 | -03 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | . 26 | . 43 | -24 | .33 | . 54 | . 52 | . 52 | .75 | -44 |
| Librarians | . 02 | . 02 | . 01 | . 06 | . 07 | . 07 | . 02 | . 02 | . 01 |
| operations and systems research | . 06 | . 09 | . 11 | . 17 | . 24 | . 26 | . 21 | . 25 | -18 |
| Personnel.labor relations wkrs | -43 | - 46 | -43 | . 36 | . 40 | . 47 | . 59 | . 50 | . 54 |
| other research workers | . 04 | . 03 | . 04 | . 48 | . 40 | . 64 | . 07 | . 04 | . 02 |
| Vocation, education counselors | . 01 | . 01 | . 01 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 37.13 | 37.79 | 39.64 | 15.21 | 18. 15 | 19.59 | 11.85 | 12.08 | 14.76 |


|  | Credit agencies |  |  | Stock baks. investment companies |  |  | Insurance |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Euyers, sales,lcan managers | 26.83 | 27.68 | 33.88 | 2.11 | 1.85 | 1.57 | 1.69 | 1.43 | 1.42 |
| Bank, financial managers | 24.22 | 26.02 | 31.94 | 1.02 | . 89 | . 50 | . 34 | .27 | . 29 |
| Credit managers | 2.12 | 1. 14 | 1.08 | . 12 | . 07 | - 10 | . 03 | . 01 | . 01 |
| Purchasing agents, buyers, otber | . 13 | - 12 | . 22 | . 30 | . 22 | . 18 | . 08 | . 05 | .03 |
| Sales manager, exc retail trade | .37 | . 40 | . 64 | . 67 | . 66 | . 79 | 1.24 | 1.09 | 1.09 |
| Other managers, officials, proprts | 10.30 | 10. 11 | 5.76 | 13.10 | 16. 30 | 18.02 | 10.15 | 10.65 | 13.34 |
| Mgrs, superintendents, building | - 10 | -11 | . 22 | . 06 | . 06 | . 06 | . 07 | . 07 | . 05 |
| office managers, other | 3.52 | 3.90 | 2.10 | 1.13 | 1.11 | 1.36 | 1.41 | 1.23 | 1.17 |
| Officers, pilots, pursers,ship | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Restaurant, cafe,bar,managers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 6.67 | 6.08 | 3.39 | 11.91 | 15. 13 | 16.60 | 8.66 | 9.35 | 12. 11 |
| Sales workers | 1.18 | 1.06 | 1.65 | 35.82 | 33.36 | 29.63 | 29.97 | 34.54 | 33.82 |
| Advertising agents, sales worker | . 01 | . 01 | .03 | .03 | . 03 | . 04 | . 03 | . 03 | . 03 |
| Auctioneers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Insurance agents and brokers | . 13 | - 15 | . 16 | . 14 | . 19 | . 26 | 29.88 | 34.46 | 33.78 |
| Stock and bond sales agents | . 71 | - 59 | . 94 | 35.64 | 33. 12 | 29.31 | . 06 | . 05 | .01 |
| Other sales workers | .34 | . 30 | . 51 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Clerical workers | 55.52 | 54.37 | 52.10 | 39.82 | 38.56 | 39.55 | 50.00 | 45.42 | 44.33 |
| Stenographrs, typists, secretaries | 16.27 | 14.81 | 16.45 | 15.37 | 14.66 | 16. 97 | 20.52 | 17.34 | 19.05 |
| Legal secretaries | . 14 | - 12 | . 21 | . 11 | . 09 | - 10 | . 13 | . 08 | . 09 |
| Medical secretaries | . 00 | . 00 | . 00 | . 04 | . 02 | . 03 | . 02 | . 01 | -00 |
| Other secretaries | 11.47 | 10.90 | 12.68 | 11.39 | 11.44 | 13.24 | 13.04 | 11.90 | 13. 94 |
| Stenographers | . 38 | . 24 | . 11 | . 17 | . 09 | . 03 | . 48 | . 27 | . 16 |
| Typists | 4.28 | 3.55 | 3.46 | 3.66 | 3.03 | 3.57 | 6.85 | 5.08 | 4. 86 |
| Office machine operators | 1.86 | 2. 18 | 2.35 | 2.29 | 2.57 | 2.25 | 3.05 | 2.79 | 1.83 |
| Bookkeeping and billing | . 31 | . 17 | . 25 | . 12 | . 05 | . 03 | . 12 | . 04 | . 04 |
| Calculating | . 06 | . 05 | . 08 | -10 | . 06 | . 02 | - 12 | . 06 | . 04 |
| Computer and feripheral equip | . 51 | 1.17 | 1.37 | -67 | 1.43 | 1.54 | . 72 | 1.33 | 1.05 |
| Duplicating | . 03 | . 03 | . 05 | . 03 | . 02 | . 01 | . 06 | . 03 | . 01 |
| Keypunch | . 80 | . 62 | . 46 | 1.15 | . 84 | . 56 | 1.78 | 1.17 | . 63 |
| Tabulating | .01 | . 00 | . 01 | . 03 | . 01 | . 00 | . 05 | .01 | . 01 |
| Other office machine operators | . 14 | . 14 | .14 | -19 | . 16 | . 09 | - 20 | -15 | . 06 |
| Other clerical workers | 37.40 | 37.37 | 33.30 | 22.17 | 21.33 | 20.33 | 26.44 | 25.29 | 23.45 |
| Bank tellers | 7.46 | 8.87 | 6.13 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Billing clerks | . 09 | - 10 | .21 | . 15 | . 15 | . 23 | -22 | . 20 | - 23 |
| Bookkeepers | 8.72 | 7. 32 | 5.18 | 4.91 | 4.80 | 4.82 | 3.56 | 2.77 | 1.87 |
| Cashiers | 3.71 | 3. 33 | 2.50 | 1.86 | 1.88 | 1.86 | . 51 | . 40 | . 21 |
| Clerical supervisors, other | . 80 | -93 | 1.14 | . 97 | 1.03 | 1.14 | 1.12 | 1.04 | . 85 |
| Collectors, bill and account | 3.96 | 3.77 | 2.88 | . 06 | . 05 | . 04 | - 20 | . 16 | - 11 |
| Counter clerks,exc food | . 04 | . 05 | . 08 | . 84 | - 78 | . 84 | . 04 | . 03 | . 02 |
| Dispatchers, starters, vehicle | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 02 | . 02 | . 02 |
| Estimators, investigators, other | 3.46 | 4.08 | 4.39 | 1.25 | 1.25 | 1.21 | 1.57 | 1.33 | . 52 |
| Expediters, prcduction controlrs | - 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 12 | . 06 |
| File clerks | . 78 | - 59 | . 44 | 1.11 | . 91 | 1.15 | 2.53 | 1.71 | 1.58 |
| Insurance adjusters, examiners | . 08 | . 11 | . 07 | . 02 | . 02 | . 01 | 7.34 | 9.79 | 11.59 |
| Library attendants, assistants | . 01 | . 02 | . 01 | . 05 | . 05 | -01 | . 06 | . 05 | . 01 |
| Mail handlers,exc post office | . 26 | . 24 | .24 | . 73 | -63 | -51 | . 69 | . 52 | - 30 |
| Messengers and office helpers | .13 | . 09 | .03 | 1.22 | 1. 17 | 1.53 | .10 | . 08 | . 05 |
| Payroll, timekeeping clerks | . 17 | - 16 | . 07 | . 18 | . 21 | . 33 | .21 | . 21 | . 19 |
| Real estate afpraisers | -65 | . 77 | 1.04 | . 01 | . 01 | . 01 | . 15 | - 13 | . 08 |
| Receptionists | . 82 | . 76 | . 85 | . 91 | . 82 | -89 | .70 | - 56 | . 47 |
| Shipping and receiving clerks | . 03 | . 02 | . 01 | - 18 | . 18 | . 19 | . 06 | . 05 | . 07 |
| Statistical clerks | . 55 | - 59 | . 59 | 2.54 | 2.55 | 2.32 | 2.80 | 2.50 | 2.05 |
| Stock clerks and store keepers | . 07 | . 06 | . 08 | . 58 | . 52 | . 54 | . 17 | . 11 | . 06 |
| Telephone operators | -35 | - 17 | . 04 | . 72 | -42 | . 28 | . 32 | . 19 | . 16 |
| Misc clerical workers | 5.27 | 5.35 | 7.33 | 3.88 | 3.89 | 2.38 | 3.91 | 3.33 | 2.95 |
| Crafts and kindred workers | . 59 | . 48 | . 24 | . 87 | . 90 | . 99 | . 96 | . 84 | . 74 |


|  | Credit agencies |  |  | stock brks. investment companies |  |  | Insurance |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Construction crafts vorkers | . 09 | . 07 | . 06 | .13 | . 13 | - 13 | .13 | . 10 | . 09 |
| Carpenters and apprentices | . 06 | . 04 | . 01 | . 07 | . 07 | . 06 | . 05 | . 04 | . 04 |
| Electricians and apprentices | . 01 | . 01 | . 02 | . 03 | . 03 | . 03 | . 03 | . 02 | . 03 |
| painters and apprentices | . 02 | - 02 | . 02 | . 03 | . 02 | . 01 | . 04 | . 03 | .01 |
| plumbers, pipefitters, aprentices | . 01 | . 00 | . 00 | .01 | . 02 | . 04 | .01 | -01 | . 01 |
| Blue collar worker supervisors | . 27 | . 21 | .06 | . 35 | .38 | . 54 | . 29 | . 27 | . 25 |
| Metalworkg craft wrkrs,exc meca | .01 | .01 | . 00 | .01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Blacksmiths | . 01 | .01 | . 00 | . 00 | . 00 | - 00 | . 00 | .00 | . 00 |
| Macbinists and apprentices | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Mechanics, repairers,installers | . 04 | . 04 | . 06 | - 13 | . 16 | . 12 | . 09 | . 07 | . 05 |
| Air cond, heating, refrig mecn | . 00 | . 00 | . 00 | . 03 | . 05 | . 03 | . 02 | . 02 | . 01 |
| Auto mechanics and apprentices | .01 | . 01 | . 01 | . 02 | . 02 | .07 | . 01 | . 01 | - 01 |
| Data processing mach repairers | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Heavy equip mech, incl diesel | . 01 | . 02 | . 03 | .03 | . 04 | . 04 | .03 | -02 | - 00 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| office machine repairers | . 02 | . 01 | . 02 | .01 | . 01 | . 01 | . 02 | .01 | .01 |
| other mechanics and apprentices | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Printing trade crafts workers | .09 | . 08 | . 04 | . 09 | . 10 | . 12 | . 18 | . 17 | - 16 |
| Bookbinders | . 01 | . 01 | . 03 | . 00 | .00 | . 00 | . 01 | . 01 | .01 |
| Compositors and typesetters | . 05 | . 04 | . 00 | . 06 | . 06 | . 07 | . 09 | -08 | - 07 |
| Photoengravers, lithographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Press,plate printers,aprentices | . 04 | . 03 | . 02 | . 04 | . 04 | . 06 | . 07 | . 07 | . 07 |
| Transport, public util craft wkrs | . 00 | . 01 | . 00 | . 03 | - 02 | . 02 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | .02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Cther crafts, kindred workers | . 09 | . 07 | . 02 | . 14 | . 10 | . 04 | .28 | . 24 | . 19 |
| Inspectors, other | . 07 | . 06 | . 01 | . 06 | . 05 | . 02 | . 23 | -20 | . 16 |
| Stationary engineers | . 02 | . 02 | . 01 | .07 | . 05 | . 02 | . 04 | . 03 | . 03 |
| Operatives | . 18 | . 20 | . 26 | . 65 | . 61 | . 65 | .21 | . 18 | . 16 |
| Operativeseexcept transport | .09 | - 11 | . 19 | . 16 | . 15 | .13 | . 12 | . 10 | . 06 |
| Other operatives, exc transport | . 09 | . 11 | . 19 | - 16 | . 15 | . 13 | . 12 | . 10 | . 06 |
| Photographic frocess workers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 |
| Furnace tendr,stokr,exc metal | -01 | - 01 | . 02 | -01 | . 01 | .01 | . 01 | . 01 | . 01 |
| Miscellaneous machine operatves | . 04 | . 05 | . 07 | . 06 | . 06 | . 06 | . 06 | . 05 | . 04 |
| other operatives, exc transport | . 04 | . 05 | . 08 | . 08 | . 08 | .06 | .03 | . 02 | . 02 |
| Transport equipment operatives | . 09 | . 09 | . 06 | . 49 | . 46 | - 52 | . 09 | -08 | . 09 |
| Bus drivers | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 01 | . 01 | .01 | . 13 | . 11 | . 15 | . 02 | . 01 | -02 |
| parking attendants | . 03 | . 03 | . 02 | - 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Taxicab drivers, chauffeurs | . 01 | . 01 | . 01 | . 16 | . 15 | . 14 | . 02 | . 02 | . 02 |
| Truck drivers | . 01 | . 01 | . 02 | . 19 | . 19 | . 23 | . 04 | . 04 | . 05 |
| Service workers | 1.14 | 1.05 | 1.04 | 1.44 | 1.40 | 1.80 | 1.14 | . 84 | . 60 |
| Cleaning service vorkers |  | - 87 | . 91 | - 53 | . 51 | . 57 | . 76 | - 59 | . 41 |
| Bldg interior cleaners, other | -29 | . 29 | . 36 | .16 | . 16 | .15 | . 27 | -24 | . 22 |
| Janitors and sextons | . 64 | . 58 | . 56 | .37 | . 35 | . 42 | . 49 | . 35 | . 19 |
| Food service workers |  | . 04 | . 05 | . 06 | . 05 | . 07 | . 20 | . 12 | . 06 |
| Cooks, exc private households | . 02 | - 01 | -01 | . 03 | . 03 | . 03 | . 04 | - 02 | . 01 |
| Dishwashers | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Pood counter,fountain workers | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 04 | .03 | . 02 |
| Waiters | . 01 | . 01 | . 01 | . 03 | . 02 | . 03 | . 05 | . 02 | -02 |
| Other food sery wkrs,exc privt | . 01 | .01 | . 03 | . 00 | . 00 | . 00 | . 06 | .03 | . 01 |
| Health service workers | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 01 | . 01 | . 02 |
| Practical nurses | . 00 | .00 | . 00 | .00 | .00 | .00 | . 01 | .01 | . 02 |

Table 1. Percent distribution ō industry employment by occupation, 1970, 1978 and projected 1990

|  | Credit agencies |  |  | Stock brks, investment companies |  |  | Insurance |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 03 | . 03 | . 02 | . 06 | . 05 | . 02 | . 07 | . 05 | . 02 |
| Attendants, personal serv,other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | .01 |
| Elevator operators | . 03 | . 03 | . 02 | . 06 | . 05 | . 02 | . 04 | . 03 | . 01 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .01 | . 01 | .00 |
| Protective service workers |  | .11 | . 07 | . 80 | . 80 | 1.13 | - 10 | . 09 | . 10 |
| Guards | . 13 | .11 | . 07 | . 76 | . 77 | 1.12 | . 09 | . 08 | . 10 |
| Police and detectives | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | .00 | .00 | . 00 |
| Laborers, except farm | . 05 | . 03 | . 09 | . 28 | . 24 | . 19 | . 13 | . 10 | . 07 |
| Constr labr,exc carpenter helpr | . 00 | . 00 | . 00 | . 04 | . 03 | .02 | . 01 | . 01 | .01 |
| Preight and material handlers | . 00 | . 00 | -00 | . 04 | -03 | . 03 | .01 | . 01 | .01 |
| Gardenrs,groundkeepers, exc farm | .05 | . 03 | . 09 | . 04 | -04 | . 03 | . 07 | . 05 | . 04 |
| Stock handlers | -00 | - 00 | -00 | . 14 | - 11 | . 08 | . 02 | . 01 | . 00 |
| Other laborers | . 00 | . 00 | .00 | .03 | . 02 | .03 | .01 | .01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Beal } \\ \text { estate } \end{gathered}$ |  |  | Services. total |  |  | Hotels and lodging places |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.97 | 2.08 | 2.31 | 34.24 | 35.31 | 32.24 | 2.52 | 3.15 | 3.05 |
| Engineers, technical | .17 | - 13 | . 15 | . 68 | . 73 | . 79 | . 06 | . 06 | . 04 |
| Aeronautical | .00 | - 00 | -00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Chemical | . 00 | . 00 | .00 | . 02 | . 02 | . 02 | . 00 | . 00 | .00 |
| Çivil | . 08 | . 06 | . 07 | . 17 | . 16 | . 16 | . 01 | . 01 | . 00 |
| Electrical | .01 | . 01 | . 02 | -15 | . 17 | - 16 | . 02 | . 02 | . 02 |
| Industrial | . 02 | . 02 | .01 | . 07 | . 09 | - 12 | . 00 | . 00 | . 00 |
| Mechanical | .03 | . 02 | . 02 | . 10 | . 12 | . 13 | - 02 | . 03 | . 02 |
| Other engineers | . 03 | . 02 | . 03 | . 14 | . 15 | . 17 | . 00 | . 00 | . 00 |
| Life and physical scientists | . 01 | . 01 | .01 | . 28 | . 37 | . 39 | . 00 | . 00 | . 00 |
| Agricultural | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | - 00 |
| Atmospheric and space | .00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Biological | . 00 | . 00 | . 00 | . 08 | - 14 | - 14 | . 00 | - 00 | . 00 |
| Chemists | . 00 | . 00 | . 00 | . 10 | . 11 | - 14 | . 00 | - 00 | . 00 |
| Geologists | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 05 | . 05 | . 04 | .00 | . 00 | . 00 |
| Mathematical sfecialists | .01 | . 01 | . 01 | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 |
| Actuaries | .00 | .00 | . 00 | .01 | . 01 | .01 | . 00 | . 00 | .00 |
| Mathematicians | .00 | .00 | .00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Statisticians | . 01 | . 01 | . 01 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Engineering, science technicians | - 17 | - 14 | - 20 | . 81 | . 91 | -97 | . 01 | . 01 | . 01 |
| agricultural, tiolgclexc health | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Chemical technicians | . 00 | . 00 | . 00 | . 05 | . 05 | -06 | . 00 | . 00 | . 00 |
| Drafters | . 09 | . 07 | - 11 | . 34 | - 36 | - 38 | . 00 | . 00 | . 00 |
| Electrical and electronic | - 00 | - 00 | -00 | . 08 | - 10 | -11 | . 00 | . 00 | . 00 |
| Surveyors | .07 | . 05 | .06 | .11 | . 14 | . 15 | . 00 | . 00 | . 00 |
| Other engineering, science tech | .02 | . 02 | . 03 | . 20 | . 22 | . 23 | .01 | . 01 | .01 |
| Medical workers, exc technicians | . 03 | . 03 | . 02 | 5.97 | 6. 37 | 6.95 | . 08 | . 08 | . 07 |
| Chiropractors | . 00 | . 00 | .00 | . 08 | . 07 | . 06 | . 00 | . 00 | . 00 |
| Dentists | . 00 | . 00 | . 00 | . 45 | .44 | . 44 | . 00 | . 00 | . 00 |
| Dietitians | . 00 | . 00 | . 00 | . 14 | - 12 | -13 | . 01 | . 01 | . 01 |
| Optometrists | . 00 | . 00 | .00 | . 08 | . 07 | . 07 | . 00 | . 00 | . 00 |
| Pharmacists | . 00 | . 00 | -00 | . 07 | . 07 | . 08 | . 00 | . 00 | - 00 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | 1.37 | 1.36 | 1.39 | . 00 | . 00 | . 00 |
| Podiatrists | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Registered nurses | . 03 | - 02 | - 02 | 3.37 | 3.61 | 4.08 | . 06 | . 05 | . 04 |
| Therapists | . 01 | . 01 | . 00 | . 37 | . 58 | . 64 | - 01 | . 01 | . 01 |
| $V \mathrm{terinarians}$ | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other medical and health tech | .00 | . 00 | .00 | . 00 | . 03 | . 03 | .00 | . 00 | .00 |
| Heal th technologists, technicians | . 00 | . 00 | . 00 | 1.28 | 1.83 | 1.85 | . 00 | - 00 | . 00 |
| Clinical lab technologists, tech | . 00 | . 00 | . 00 | . 62 | . 79 | . 74 | . 00 | . 00 | . 00 |
| Dental hygienists | .00 | . 00 | . 00 | . 08 | . 13 | . 19 | - 00 | . 00 | . 00 |
| Health record technologist, tech | . 00 | . 00 | . 00 | .06 | . 06 | . 06 | . 00 | . 00 | . 00 |
| Radiologic technologists, tech | . 00 | . 00 | .00 | . 25 | . 38 | -40 | . 00 | . 00 | . 00 |
| Therapy assistants | . 00 | -00 | . 00 | -02 | . 03 | . 03 | . 00 | -00 | . 00 |
| other health technicians | . 00 | . 00 | . 00 | - 27 | . 45 | -44 | . 00 | . 00 | . 00 |
| Technicians, except health | . 04 | . 04 | . 05 | . 09 | . 13 | . 15 | . 00 | . 00 | .00 |
| airplane pilots | . 02 | - 03 | . 03 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Embalmers | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 | .00 | . 00 | . 00 |
| Flight engineers | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| kadio operators | . 01 | .01 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other technicians except health | . 00 | . 00 | .00 | .05 | . 08 | . 11 | . 00 | . 00 | . 00 |
| Computer specialists | . 05 | . 06 | . 07 | . 37 | . 53 | - 59 | . 02 | . 02 | . 04 |
| Computer programers | . 04 | . 04 | . 04 | .25 | . 31 | . 34 | . 01 | . 01 | . 03 |
| Computer systems analysts | . 02 | . 02 | . 04 | .11 | - 18 | . 22 | . 01 | . 01 | . 00 |
| Other computer specialists | .00 | . 00 | . 00 | \%. 02 | . 04 | . 03 | . 00 | .00 | .01 |
| Social scientists | . 08 | - 10 | . 12 | .23 | . 53 | - 59 | . 01 | . 02 | . 02 |
| Economists | . 05 | . 06 | . 07 | .07 | - 11 | . 15 | . 01 | . 01 | . 02 |
| Political scientists | .01 | . 01 | . 02 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Psychologists | . 00 | . 00 | . 00 | . 13 | . 38 | -40 | . 00 | . 00 | . 00 |
| Sociologists | . 00 | . 00 | . 00 | - 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Urban and regional planners | . 02 | . 03 | . 03 | . 01 | -02 | . 01 | . 00 | . 00 | . 00 |
| other social scientists | .00 | .00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Real } \\ \text { estate } \end{gathered}$ |  |  | $\begin{gathered} \text { Services, } \\ \text { total } \end{gathered}$ |  |  | Hotels and lodging places |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Teachers | . 00 | . 00 | . 00 | 15.46 | 13.49 | 10.14 | .21 | . 12 | . 12 |
| Adult educaticn | . 00 | - 00 | . 00 | . 18 | . 24 | . 23 | . 00 | . 00 | . 00 |
| College and university | . 00 | . 00 | . 00 | 2.08 | 2. 15 | 1.43 | . 00 | . 00 | . 00 |
| Elementary school | . 00 | . 00 | . 00 | 6.20 | 5.01 | 4.52 | . 00 | . 00 | . 00 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 82 | . 87 | . 80 | . 12 | . 07 | . 08 |
| Secondary schcol | . 00 | . 00 | .00 | 5.33 | 4.42 | 2.52 | . 00 | . 00 | . 00 |
| Other teachers | .00 | . 00 | . 00 | . 85 | . 79 | -65 | - 10 | .05 | . 04 |
| writers, artists, entertainers | -27 | - 30 | . 33 | 1.94 | 2.47 | 2.16 | . 61 | . 81 | . 86 |
| Actors | . 00 | . 00 | . 00 | . 05 | . 04 | . 05 | . 00 | . 00 | .00 |
| Athletes and kindred workers | . 00 | - 00 | .00 | - 20 | - 32 | . 26 | .01 | .01 | . 02 |
| Authors | . 00 | . 00 | . 00 | . 08 | . 11 | . 09 | . 00 | . 00 | . 00 |
| Dancers | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 02 | . 02 | . 04 |
| Designers | . 04 | . 04 | . 05 | - 15 | . 18 | - 16 | . 01 | . 02 | . 02 |
| Editors and reforters | . 02 | . 02 | . 04 | . 15 | . 15 | . 12 | .01 | . 01 | . 01 |
| Musicians and composers | . 00 | . 00 | . 00 | . 43 | . 45 | -47 | . 38 | -49 | - 59 |
| Painters and sculptors | . 00 | . 00 | . 00 | -31 | . 50 | . 42 | . 01 | .01 | . 01 |
| Photographers | . 01 | -01 | . 02 | .21 | . 24 | - 19 | . 01 | .01 | . 01 |
| Public relations specialists | . 20 | . 22 | . 22 | .16 | . 21 | . 20 | . 08 | .11 | . 09 |
| other writers,artists, entertain | .01 | . 00 | . 00 | . 18 | - 26 | . 20 | . 09 | . 12 | . 09 |
| Other protessicnal and technical | 1.15 | 1. 26 | 1.37 | 7.10 | 7.91 | 7.61 | 1.51 | 2.03 | 1.89 |
| Accountants | .70 | . 73 | . 85 | 1.20 | 1.38 | 1.47 | . 88 | 1.20 | 1. 10 |
| Architects | . 06 | . 04 | . 06 | . 24 | . 22 | . 27 | . 00 | .00 | . 00 |
| Archivists and curators | . 00 | . 00 | . 00 | -02. | . 03 | .03 | . 00 | . 00 | . 00 |
| Clergy | . 00 | . 00 | . 00 | 1.16 | . 96 | . 78 | . 02 | . 01 | . 01 |
| Religious workers, except cleryy | . 00 | . 00 | . 00 | . 21 | - 22 | .21 | . 00 | .01 | .01 |
| Farm management advisors | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 | .00 | . 00 | . 00 |
| Home management advisors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Lawyers | - 16 | -24 | . 22 | 1.12 | 1.27 | 1.28 | . 01 | . 02 | . 01 |
| Librarians | .01 | . 01 | . 01 | . 51 | . 51 | . 43 | . 00 | . 00 | . 00 |
| Operations and systems research | . 01 | . 02 | . 02 | . 03 | . 05 | . 06 | .01 | .01 | .01 |
| Personnel, labcr relations wkrs | . 09 | . 08 | . 07 | . 48 | . 64 | . 63 | . 12 | .14 | . 10 |
| other research workers | . 04 | . 03 | . 05 | . 34 | . 32 | - 30 | -01 | .01 | . 01 |
| Recreation workers | . 03 | . 04 | . 04 | . 24 | - 39 | . 40 | . 43 | . 61 | .61 |
| Social workers | . 04 | . 07 | . 05 | 1.00 | 1.25 | 1.18 | . 02 | .03 | .03 |
| Vocation, education counselors | . 01 | . 01 | .01 | . 50 | . 62 | . 53 | . 01 | .01 | . 01 |
| Managers, officials, proprietors | 18.04 | 17. 73 | 18.09 | 6.26 | 7.39 | 7.30 | 15.32 | 16.37 | 13.61 |
| Buyers,sales, ican managers | . 81 | .68 | . 74 | -27 | . 31 | . 44 | . 25 | . 29 | - 23 |
| Bank, financial manayers | . 26 | . 22 | .21 | . 06 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Credit managers | . 02 | . 01 | . 02 | . 03 | - 02 | . 02 | -03 | . 02 | . 01 |
| Purchasing agents, buyers, otier | . 13 | . 10 | . 10 | . 11 | - 12 | . 19 | . 12 | .14 | .13 |
| Sales manager, exc retail trade | . 40 | . 36 | . 41 | . 08 | . 10 | . 15 | - 10 | . 13 | . 09 |
| Administrators, public inspectors | . 00 | . 00 | . 00 | 1.52 | 1.90 | 1.79 | . 00 | . 00 | . 00 |
| Health administrators | . 00 | . 00 | . 00 | . 48 | . 68 | . 81 | . 00 | .00 | .00 |
| School administrators, college | . 00 | . 00 | . 00 | -19 | . 21 | . 17 | . 00 | . 00 | . 00 |
| School admin, elem, secondary | . 00 | . 00 | . 00 | . 84 | 1.02 | - 82 | . 00 | . 00 | . 00 |
| Other managers, officials, proprts | 17.23 | 17.05 | 17.35 | 4.46 | 5.18 | 5.07 | 15.07 | 16.09 | 13.39 |
| Funeral directors | . 00 | . 00 | . 00 | -19 | . 15 | .11 | . 00 | .00 | . 00 |
| Mgrs, superintendents, building | 10.01 | 10. 36 | 11.70 | . 03 | . 05 | . 06 | .16 | .17 | . 20 |
| office managers, otner | . 67 | - 58 | . 65 | . 27 | . 34 | . 48 | . 18 | .21 | . 18 |
| officials of lodges, unions | - 00 | . 00 | . 00 | - 32 | - 30 | . 24 | . 00 | . 00 | . 00 |
| Hestaurant, cafe, bar, managers | . 02 | . 01 | . 01 | . 20 | . 20 | . 16 | - 58 | . 62 | .43 |
| Other managers, administrators | 6.54 | 6.10 | 5.00 | 3.45 | 4.14 | 4.01 | 14.14 | 15.08 | 12.58 |
| Sales workers | 37.81 | 44.57 | 46.42 | . 61 | . 66 | . 80 | -28 | . 32 | . 35 |
| Advertising agents,sales worker | . 03 | . 04 | . 07 | - 13 | - 14 | . 14 | . 01 | . 01 | . 01 |
| Auctioneers | . 02 | . 02 | .03 | .01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Hucksters and peddiers | . 00 | -00 | . 00 | . 02 | . 02 | . 01 | . 00 | - 00 | . 00 |
| Insurance agents and brokers | . 71 | . 82 | . 87 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| keal estate agents, brokers | 36.93 | 43.58 | 45.34 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock and bond sales agents | . 12 | . 11 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other sales warkers | . 00 | . 00 | . 00 | . 44 | -49 | . 63 | -28 | .31 | .34 |
| clerical workers | 16.65 | 14.44 | 13.84 | 16.76 | 18.57 | 20.92 | 13.21 | 15.05 | 14.16 |
| Stenographrs,typists, secretaries | 7.99 | 6.93 | 6.83 | 6.98 | 7.37 | 8.58 | 1.45 | 1.69 | 1.72 |
| Legal secretaries | . 08 | . 06 | . 05 | -43 | - 54 | .59 | . 00 | .00 | . 00 |
| Medical secretaries | . 00 | . 00 | . 00 | . 37 | . 30 | . 51 | . 00 | . 00 | . 00 |
| Other secretaries | 6.56 | 5.89 | 5.85 | 4.68 | 5. 15 | 6.08 | 1.21 | 1.44 | 1. 50 |
| Stenographers | . 13 | . 07 | . 02 | . 17 | . 11 | . 07 | . 02 | . 01 | . 01 |
| Typists | 1.22 | . 92 | . 92 | 1.33 | 1.27 | 1.32 | .23 | .23 | . 21 |


|  | $\begin{gathered} \text { Real } \\ \text { estate } \end{gathered}$ |  |  | Services. total |  |  | Hotels and lodging places |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Office machine operators | . 26 | . 22 | . 21 | .63 | . 80 | . 70 | .17 | -19 | . 22 |
| Bookkeeping and billing | . 04 | . 02 | .01 | . 04 | . 03 | . 03 | . 04 | . 03 | . 03 |
| Calculating | . 01 | - 01 | -01 | . 02 | -01 | . 01 | . 02 | . 02 | . 02 |
| Computer and feripheral equip | . 05 | . 09 | -11 | -16 | - 38 | . 36 | . 01 | . 04 | . 05 |
| Duplicating | . 01 | . 01 | . 01 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Keypunch | . 11 | . 07 | . 04 | . 31 | . 26 | . 18 | . 04 | . 03 | . 03 |
| Other office rachine operators | . 03 | . 02 | . 03 | . 07 | . 08 | . 07 | . 06 | . 07 | - 10 |
| Other clerical workers | 8.40 | 7.29 | 6.80 | 9. 15 | 10.41 | 11.65 | 11.58 | 13.18 | 12.22 |
| Billing clerks | . 03 | . 02 | . 01 | . 08 | - 10 | . 18 | . 04 | . 04 | . 04 |
| Bookkeepers | 2.69 | 2.24 | 2.38 | 1.43 | 1.49 | 1.54 | 1.77 | 1.90 | 2.00 |
| Cashiers | .18 | . 18 | . 21 | . 54 | . 62 | . 73 | 1.57 | 2.08 | 2.37 |
| Clerical assistant,soc yelfare | .00 | . 00 | . 00 | .01 | - 14 | - 12 | . 00 | . 00 | . 00 |
| clerical supervisors, other | . 13 | . 13 | . 14 | - 16 | - 21 | -29 | . 04 | . 05 | . 04 |
| collectors, bill and account | - 32 | . 25 | . 13 | . 07 | . 08 | . 09 | . 11 | . 10 | . 12 |
| Counter clerks, exc food | . 15 | . 13 | - 12 | . 79 | - 72 | . 69 | 5.29 | 6.18 | 5.30 |
| Dispatchers, starters, vehicle | .01 | . 01 | . 01 | . 03 | . 03 | . 05 | . 01 | . 01 | . 01 |
| knumerators and interviewers | . 00 | - 00 | . 00 | . 08 | . 08 | - 14 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 89 | . 86 | . 79 | -22 | - 31 | . 31 | - 10 | . 09 | . 07 |
| Expediters, yrcduction controlrs | . 02 | . 03 | . 04 | . 03 | . 03 | . 05 | . 01 | . 01 | . 02 |
| rile clerks | -22 | - 15 | .13 | - 29 | - 27 | - 29 | . 05 | . 05 | . 06 |
| Insurance adjusters, examiners | . 02 | . 02 | . 02 | . 02 | -02 | . 01 | . 00 | . 00 | . 00 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 54 | -60 | . 54 | . 00 | . 00 | . 00 |
| Mail handlers,exc post office | . 08 | . 06 | . 06 | . 15 | - 16 | - 19 | . 05 | . 05 | . 03 |
| Messengers and office belpers | . 06 | . 05 | . 04 | . 09 | - 10 | . 08 | . 03 | . 03 | . 03 |
| Payroll,timekeeping clerks | . 08 | . 07 | . 07 | - 12 | - 14 | . 15 | . 20 | -28 | . 24 |
| Real estate afpraisers | 1.16 | 1. 17 | 1.07 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Eeceptionists | . 78 | -61 | . 50 | 1.37 | 1.61 | 1.66 | - 57 | . 67 | . 53 |
| Shipping and receiving clerks | . 02 | . 02 | . 02 | . 06 | . 06 | . 06 | . 04 | . 04 | . 05 |
| Statistical clerks | - 19 | - 17 | .12 | . 23 | . 29 | - 37 | . 07 | . 08 | . 07 |
| Stock clerks and store keepers | . 07 | . 06 | . 07 | - 20 | - 20 | . 27 | -15 | - 16 | - 14 |
| Teachers aides, exc monitors | . 00 | . 00 | . 00 | . 91 | 1.26 | 1.48 | . 00 | . 00 | .00 |
| Telephone operators | . 29 | . 17 | . 18 | . 38 | - 28 | -27 | 1.16 | . 94 | - 70 |
| Misc clerical workers | 1.05 | . 90 | . 71 | 1.36 | 1.58 | 2.07 | -33 | . 41 | .39 |
| Crafts and kindred workers | 4.90 | 4. 55 | 4.81 | 4.83 | 5.15 | 5. 12 | 2.51 | 2-69 | 2.42 |
| Construction crafts workers | 3.25 | 2.96 | 3.02 | -81 | . 78 | . 81 | 1.23 | 1.27 | 1.02 |
| Carpenters and apprentices | 1.24 | 1.17 | 1.08 | - 32 | -27 | - 22 | . 45 | -45 | . 31 |
| Brick,stonemasons, apprentices | . 07 | . 06 | . 07 | . 01 | . 01 | . 01 | . 02 | . 02 | . 02 |
| Bulldozer ogerators | . 08 | . 06 | .10 | . 01 | . 01 | . 02 | . 02 | . 02 | . 02 |
| Cement and concrete finishers | . 02 | . 02 | .02 | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | - 17 | - 17 | . 23 | . 14 | . 14 | - 16 | . 14 | - 16 | . 15 |
| Excavating, grading mach operatr | . 12 | . 09 | - 12 | .01 | . 02 | . 02 | . 00 | . 00 | .00 |
| Painters and apprentices | 1.26 | 1.13 | 1.07 | . 19 | - 22 | - 26 | . 47 | . 51 | . 42 |
| Paperhangers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Plasterers and apprentices | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| plumbers, pipetitters, aprentices | - 20 | . 19 | . 27 | - 10 | . 09 | . 10 | . 11 | . 10 | . 08 |
| Hoofers and slaters | .01 | . 01 | .01 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Structural metal craft workers | .03 | . 02 | .01 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Tile setters | . 02 | . 01 | . 02 | .00 | . 00 | - 00 | . 01 | . 01 | - 01 |
| Blue collar worker supervisors | . 42 | . 44 | . 56 | . 28 | . 32 | . 35 | . 22 | . 27 | - 30 |
| Metaluorkg craft urkrs,exc mech | . 04 | . 04 | . 06 | - 10 | . 12 | . 12 | . 00 | . 00 | . 00 |
| Slacksmiths | . 00 | . 00 | . 00 | . 02 | -03 | .01 | . 00 | . 00 | . 00 |
| Boilermakers | . 03 | . 03 | . 05 | . 01 | . 01 | . 02 | . 00 | - 00 | - 00 |
| Machinists and apprentices | . 00 | . 00 | . 00 | . 05 | . 06 | . 07 | . 00 | . 00 | .00 |
| Sheetmetal workers, apprentices | .01 | .01 | . 01 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Mechanics, repairers, installers |  |  | . 69 | 2.54 | 2.88 | 2.91 | . 40 | - 50 | . 55 |
| Air cond, heating, refrig mecn | . 12 | . 15 | . 19 | . 11 | . 14 | . 13 | . 05 | . 08 | . 06 |
| Aircraft mechanics | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Auto accessories installers | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| Auto body repairers | . 00 | . 00 | . 00 | . 38 | . 40 | . 38 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 03 | . 02 | .01 | 1.02 | 1.20 | 1.15 | . 02 | . 03 | . 03 |
| Data processing mach repairers | . 00 | . 00 | . 00 | . 06 | . 09 | - 16 | .00 | . 00 | . 00 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 03 | . 04 | - 04 | . 00 | . 00 | . 00 |
| Heayy equip mech, incl diesel | . 35 | . 37 | . 43 | .21 | . 29 | . 36 | . 20 | . 26 | . 32 |
| Household appliance mechanics | . 04 | . 03 | . 03 | - 12 | - 11 | - 12 | . 01 | . 02 | . 03 |
| office machine repairers | . 00 | . 00 | .00 | . 06 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Radio. television repairers | . 00 | . 00 | . 00 | .27 | . 20 | . 21 | . 03 | . 02 | . 02 |
| Other mechanics and apprentices | . 06 | . 05 | . 04 | . 26 | - 32 | . 27 | . 07 | . 09 | . 10 |


|  | $\begin{aligned} & \text { Beal } \\ & \text { estate } \end{aligned}$ |  |  | Services. total |  |  | Hotels and lodging places |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Printing trade crafts workers | . 02 | . 02 | . 03 | . 07 | . 08 | . 08 | . 02 | . 02 | . 02 |
| Compositors and typesetters | . 01 | . 01 | . 01 | .03 | . 03 | . 03 | .01 | .01 | .01 |
| Press, plate printers,aprentices | . 01 | . 01 | . 02 | . 03 | . 03 | . 04 | .00 | . 01 | .01 |
| Transport, public util craft wkrs | .00 | . 00 | . 00 | . 03 | . 04 | . 02 | . 00 | . 00 | . 00 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | . 03 | . 04 | . 02 | . 00 | .00 | .00 |
| other crafts, kindred workers | . 56 | .46 | . 45 | 1.00 | . 95 | . 82 | . 66 | .63 | . 54 |
| Bakers | . 00 | .00 | . 00 | . 07 | .07 | . 05 | . 11 | .12 | . 11 |
| Cabinetmakers | . 01 | . 01 | . 01 | . 03 | . 03 | . 01 | .01 | . 01 | .01 |
| Carpet installers | . 01 | . 01 | . 01 | . 00 | .00 | . 00 | .01 | .01 | .01 |
| Crane, derrick, hoist operator | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 04 | . 05 | . 03 | . 01 | . 02 | . 02 |
| Dental laboratory technicians | .00 | . 00 | . 00 | . 13 | . 16 | - 18 | . 00 | . 00 | . 00 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 | . 01 | . 01 | .01 |
| Glaziers | . 01 | . 01 | . 02 | .01 | . 01 | .01 | .00 | . 00 | . 00 |
| Inspectors, other | . 06 | . 08 | . 07 | . 08 | . 09 | . 07 | . 05 | . 06 | . 05 |
| Jewelers and watchmakers | . 00 | . 00 | -00 | . 03 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Motion picture projectionists | . 00 | . 00 | . 00 | . 08 | . 04 | . 03 | . 00 | .00 | . 00 |
| Opticians,lens grinder, polisher | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Piano,organ tuners, repairers | . 00 | . 00 | -00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Shoe repairers | . 00 | . 00 | . 00 | - 10 | . 07 | . 05 | . 00 | . 00 | . 00 |
| sign painters and letterers | . 00 | . 00 | . 00 | . 06 | . 06 | . 05 | - 00 | . 00 | . 00 |
| Stationary engineers | . 45 | - 34 | . 34 | .13 | . 11 | . 11 | . 37 | . 32 | . 26 |
| Tailors | . 00 | . 00 | . 00 | . 05 | . 03 | . 01 | . 01 | . 01 | .01 |
| Upholsterers | . 00 | . 00 | . 00 | . 09 | . 08 | . 08 | . 03 | . 02 | . 02 |
| other crafts workers | . 01 | . 01 | . 01 | . 03 | . 03 | . 03 | . 05 | . 05 | . 06 |
| Operatives | .71 | . 60 | .63 | 3.93 | 3.47 | 3.27 | 1.81 | 1.96 | 1.66 |
| operatives, except transyort | .37 | . 30 | . 25 | 3.04 | 2. 57 | 2.53 | 1.43 | 1.47 | 1.22 |
| Semiskilled metalvorking | . 02 | . 02 | . 03 | . 24 | . 28 | . 20 | . 00 | . 00 | . 00 |
| Grinding machine oferatives | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | .00 | . 00 |
| Welders and flamecutters | . 02 | . 02 | . 03 | . 22 | . 26 | . 19 | .00 | . 00 | .00 |
| Semiskilled packing, inspecting | .01 | - 01 | -01 | . 07 | . 07 | . 05 | .01 | . 01 | . 01 |
| Packer, wrapper, exc meat,prodce | .01 | .01 | . 01 | . 07 | . 07 | . 05 | .01 | .01 | .01 |
| Other operatives, exc transport | . 34 | . 27 | . 21 | 2.74 | 2.22 | 2.28 | 1.42 | 1.46 | 1.21 |
| Assemblers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Surveyors' helpers | . 01 | . 00 | . 00 | . 02 | . 03 | . 02 | . 00 | .00 | . 00 |
| clothing ironers and pressers | . 00 | . 00 | . 00 | . 64 | . 31 | .21 | . 17 | . 20 | - 26 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| dressmakers, exc factory | - 00 | . 00 | . 00 | . 23 | - 21 | . 16 | . 01 | . 01 | . 01 |
| Dry wall installers, lathers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Filer, polisher, sander, buffer | . 00 | . 00 | -00 | . 01 | . 01 | . 01 | .01 | .01 | . 01 |
| Garaye wrkr,gas station atten | . 02 | . 01 | . 01 | -08 | . 07 | . 07 | . 04 | . 04 | . 04 |
| Laundry, dry cleang oprs,other | . 02 | . 01 | . 01 | . 89 | . 59 | . 70 | . 86 | . 87 | . 66 |
| Meat cutters, ${ }^{\text {cutchers, }}$ exc mfy | . 00 | . 00 | . 00 | . 02 | -01 | . 01 | . 07 | . 07 | . 05 |
| Painters, mfg articles | . 02 | . 01 | -01 | . 06 | . 08 | . 07 | . 00 | . 00 | . 00 |
| Photographic process workers | . 00 | . 00 | . 00 | . 19 | . 23 | . 21 | . 00 | . 00 | . 00 |
| Sawyers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Severs and stitchers | . 00 | . 00 | . 00 | . 10 | . 07 | . 11 | . 05 | .05 | .04 |
| Furnace tendr,stokr, exc metal | . 14 | . 09 | -04 | . 08 | . 06 | . 05 | . 04 | . 03 | . 02 |
| Winding operatives, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 03 | . 03 | . 04 | . 06 | . 09 | . 10 | . 05 | . 05 | . 04 |
| Other operatives, exc transport | . 09 | . 09 | . 09 | . 32 | .41 | . 53 | -10 | . 12 | .09 |
| Transport equipment operatives | . 34 | - 30 | . 38 | . 89 | . 90 | . 74 | -38 | -49 | . 45 |
| Bus drivers | . 03 | . 04 | . 04 | - 16 | . 25 | .21 | . 05 | . 07 | . 05 |
| Delivery and route workers | . 03 | . 03 | . 03 | . 27 | - 19 | . 14 | . 00 | . 00 | . 00 |
| Fork lift, tow motor operatives | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | .01 | . 01 | . 01 |
| Parking attendants | . 06 | . 04 | . 02 | . 12 | . 13 | . 12 | -18 | . 27 | . 27 |
| Taxicab drivers, chauffeurs | . 05 | . 05 | . 04 | - 12 | . 13 | . 08 | . 07 | . 06 | . 04 |
| Truck drivers | . 17 | . 15 | . 24 | .21 | . 18 | - 18 | . 07 | . 07 | . 07 |
| Service workers | 13.95 | 10.64 | 9.15 | 31.25 | 27.51 | 28.53 | 63.23 | 59.33 | 63.74 |
| Cleaning service workers | 10.83 | 8.36 | 7.34 | 5.91 | 5.88 | 6.36 | 21.00 | 18.32 | 19.34 |
| Lodging gtrs cleaners, exc privt | . 21 | . 07 | . 03 | . 99 | . 67 | . 82 | 14.17 | 10.34 | 11.02 |
| Bldg interior cleaners, other | 2.83 | 2.28 | 1.84 | 2.12 | 2.41 | 2.88 | 3.93 | 4.86 | 5.15 |
| Janitors and sextons | 7.78 | 6.01 | 5.47 | 2.79 | 2.81 | 2.66 | 2.90 | 3.11 | 3. 17 |


|  | Real estate |  |  | Services. total |  |  | Hotels and lodging places |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 33 | -21 | .19 | 4.39 | 3.71 | 4.04 | 17.06 | 15.73 | 18.13 |
| Bartenders | . 01 | . 01 | . 01 | . 15 | . 14 | . 13 | 1.26 | 1.21 | 1.37 |
| Waiters' assistants | . 02 | . 01 | . 02 | .14 | . 17 | - 25 | 1.65 | 1.99 | 2.49 |
| Cooks, exc private households | . 09 | . 07 | -08 | 1.42 | 1. 15 | . 94 | 3.51 | 3.53 | 4. 10 |
| Dishwashers | .03 | . 02 | . 01 | -36 | - 26 | -43 | 1.64 | 1. 22 | 1. 14 |
| Food counter, fountain workers | . 01 | . 01 | . 01 | . 44 | . 45 | . 47 | . 16 | . 23 | . 36 |
| Waiters | . 12 | . 07 | . 05 | . 74 | . 56 | . 57 | 7.04 | 6.04 | 7.44 |
| Other food sery wkrs,exc privt | . 05 | .03 | . 01 | 1.14 | . 97 | 1.26 | 1.80 | 1.52 | 1.23 |
| Health service workers | . 00 | . 00 | . 00 | 6.97 | 7.22 | 8.93 | . 26 | . 24 | . 43 |
| Dental assistants | . 00 | . 00 | .00 | . 48 | . 55 | . 64 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | . 00 | -63 | - 90 | 1.42 | . 01 | . 02 | . 03 |
| Health trainees | . 00 | . 00 | . 00 | . 09 | . 05 | . 03 | - 00 | . 00 | . 00 |
| Nursing aides and orderlies | .00 | . 00 | . 00 | 4.01 | 3.82 | 4.45 | .18 | . 16 | - 31 |
| Practical nurses | . 00 | . 00 | . 00 | 1.76 | 1.90 | 2.39 | . 07 | . 06 | . 09 |
| Personal service workers | 2.04 | 1. 40 | . 88 | 6.07 | 5.38 | 5.37 | 24.51 | 24.57 | 25. 36 |
| Attendants, recreation, amusement | . 04 | . 03 | . 01 | . 36 | . 39 | . 41 | . 95 | 1.16 | 2.01 |
| Attendants, personal serv, other | . 56 | - 35 | - 20 | . 19 | . 20 | . 21 | . 55 | . 59 | . 76 |
| Baggage porters and bellhops | . 00 | . 00 | . 00 | . 08 | . 08 | . 07 | 1.57 | 1.57 | 1.03 |
| Barbers | . 00 | . 00 | . 00 | .75 | . 45 | . 40 | . 27 | . 04 | . 11 |
| Boarding, lodging housekeepers | . 00 | . 00 | . 00 | . 14 | - 13 | . 15 | 2.95 | 2.76 | 2.87 |
| Bootblacks | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 04 | . 01 | . 02 |
| child care workers, exc private | . 04 | . 02 | . 02 | 1.59 | 1.38 | 1.54 | 15.90 | 16.21 | 16.38 |
| Elevator operators | 1.25 | - 93 | . 59 | . 05 | . 04 | . 02 | . 38 | . 30 | . 10 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | 2.21 | 1.86 | 1.66 | . 21 | -26 | . 35 |
| Housekeepers, exc frivate homes | .15 | . 08 | . 07 | . 40 | . 35 | . 42 | 1.69 | 1.67 | 1.73 |
| School monitors | . 00 | . 00 | . 00 | - 13 | - 13 | - 12 | . 00 | . 00 | . 00 |
| Ushers, recreation and amusement | . 00 | - 00 | -00 | . 08 | . 05 | . 05 | .00 | . 00 | . 00 |
| Welfare service aides | .00 | . 00 | . 00 | . 07 | - 30 | . 32 | .00 | - 00 | . 00 |
| Protective service workers | . 75 | . 67 | . 75 | . 78 | 1.03 | 1.28 | .41 | . 48 | . 49 |
| Crossing guards,bridgetenders | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | - 00 | . 00 | . 00 |
| Guards | . 68 | . 59 | . 66 | . 67 | . 93 | 1. 20 | . 38 | . 45 | .47 |
| Police and detectives | . 07 | .07 | .08 | .08 | . 08 | . 05 | . 03 | . 03 | . 02 |
| Private household workers | . 00 | - 00 | . 00 | 7.14 | 4.30 | 2.55 | . 00 | .00 | . 00 |
| child care workers | . 00 | . 00 | . 00 | 2.70 | 1.80 | . 96 | . 00 | . 00 | .00 |
| cooks | . 00 | . 00 | . 00 | -19 | . 08 | . 08 | .00 | .00 | . 00 |
| Housekeepers | - 00 | .00 | . 00 | . 56 | . 44 | . 18 | . 00 | . 00 | . 00 |
| Launderers | . 00 | . 00 | . 00 | . 06 | -03 | . 01 | . 00 | . 00 | . 00 |
| Cleaners and servants | . 00 | - 00 | . 00 | 3.64 | 1.96 | 1.33 | . 00 | . 00 | . 00 |
| Laborers, except farm | 5.97 | 5.39 | 4.75 | 2.12 | 1. 94 | 1.83 | 1.12 | 1.13 | 1.01 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 08 | . 13 | . 14 | . 02 | . 02 | . 02 |
| Carpenter helfers | . 14 | . 12 | . 12 | . 02 | . 02 | . 03 | . 05 | -05 | . 05 |
| Constr labreexc carpenter helpr | . 23 | - 16 | . 10 | . 04 | . 04 | . 03 | . 09 | -09 | . 07 |
| Freight and material handlers | . 05 | . 05 | . 06 | . 07 | . 07 | . 10 | . 06 | . 07 | . 09 |
| Garbage collectors | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc tarm | 3.85 | 3.77 | 3.21 | 1.32 | 1.09 | . 93 | - 72 | . 73 | . 59 |
| Stock handlers | . 02 | . 02 | . 01 | .13 | . 12 | - 13 | -04 | . 05 | . 05 |
| Vehicle washers, equip cleaners | . 01 | . 01 | . 01 | - 26 | . 27 | -27 | . 00 | . 00 | - 00 |
| Warehouse laborers, other | . 01 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other laborers | 1.65 | 1. 26 | 1.22 | . 18 | . 19 | - 19 | . 14 | . 12 | . 13 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Hotels and motels |  |  | Other <br> lodging <br> places |  |  | other personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 2.55 | 3.31 | 3.29 | 2.44 | 2.72 | 2.46 | 3.28 | 5.48 | 5.82 |
| Engineers, technical | . 09 | . 08 | . 06 | .00 | .00 | . 00 | . 02 | . 02 | . 02 |
| Civil | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| clectrical | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Mechanical | .03 | . 04 | .03 | .00 | .00 | .00 | .01 | .01 | .01 |
| Engineering, science technicians | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 04 | . 09 | - 13 |
| Drafters | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 06 | .09 |
| Other engincering,science teca | .01 | . 01 | .01 | . 00 | . 00 | .00 | .01 | .03 | . 04 |
| Medical workers, exc technicians | . 04 | . 04 | .02 | - 19 | - 19 | - 18 | .01 | . 03 | . 06 |
| Dietitians | .01 | . 01 | . 01 | . 02 | . 02 | . 02 | . 00 | .01 | . 02 |
| Registered nurses | .03 | . 02 | . 01 | - 16 | . 14 | . 13 | . 00 | .01 | . 02 |
| Therapists | . 00 | . 00 | .00 | . 02 | . 04 | . 03 | . 01 | . 02 | . 02 |
| Technicians, except health | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 35 | .38 | . 42 |
| Airplane pilots | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Embalmers | . 00 | .00 | .00 | .00 | . 00 | . 00 | .33 | .33 | . 36 |
| other technicians except health | .00 | . 00 | .00 | .00 | - 00 | - 00 | . 01 | .03 | . 04 |
| Computer specialists | . 02 | . 02 | .05 | . 02 | . 01 | . 00 | .01 | . 01 | . 01 |
| computer programers | .01 | . 02 | . 04 | .00 | . 00 | . 00 | .00 | .00 | .00 |
| Computer systems analysts | . 00 | . 01 | . 00 | . 02 | . 01 | . 00 | . 00 | .00 | . 00 |
| other computer specialists | . 00 | . 00 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | .00 |
| Social scientists | . 01 | . 02 | .03 | . 00 | . 01 | .00 | .01 | . 02 | . 04 |
| Economists | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Other social scientists | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .02 | . 04 |
| Teachers | .03 | . 02 | .01 | . 64 | . 38 | - 39 | . 03 | . 03 | . 02 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 39 | . 25 | . 28 | . 00 | . 00 | . 00 |
| Other teachers | . 03 | . 02 | . 01 | . 25 | . 13 | - 10 | . 03 | . 03 | . 02 |
| Writers, artists, entertainers | . 85 | 1.09 | 1.20 | . 06 | . 06 | . 06 | 2.62 | 4.60 | 4.86 |
| Athletes and kindred workers | . 02 | . 02 | . 02 | . 00 | .00 | .00 | .10 | . 26 | . 27 |
| Authors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 06 |
| Dancers | . 03 | . 03 | . 06 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Designers | . 02 | . 02 | . 02 | . 00 | . 00 | -00 | . 03 | . 08 | . 12 |
| Editors and reforters | .01 | . 01 | .01 | . 01 | . 01 | . 01 | .01 | . 02 | . 04 |
| Musicians and composers | . 52 | . 66 | . 81 | . 05 | . 05 | . 05 | .06 | . 13 | . 12 |
| Painters and sculptors | .01 | .02 | . 01 | .00 | . 00 | .00 | . 14 | . 39 | . 43 |
| Photographers | . 02 | . 02 | .02 | . 00 | . 00 | . 00 | 2.17 | 3.45 | 3.63 |
| Public relaticns specialists | . 11 | . 16 | . 12 | . 00 | . 00 | . 00 | .03 | .07 | . 07 |
| other writers,artists, entertain | . 12 | . 16 | . 12 | .00 | . 00 | .00 | . 07 | . 19 | . 13 |
| Other professicnal and technical | 1.50 | 2.02 | 1.91 | 1.52 | 2.07 | 1.83 | . 20 | . 30 | -27 |
| Accountants | 1.23 | 1.63 | 1.53 | . 06 | . 07 | . 07 | . 09 | - 14 | . 12 |
| clergy | . 00 | . 00 | . 00 | . 05 | -03 | . 03 | . 00 | . 01 | .02 |
| Religious workers, except clergy | .00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 01 | . 02 |
| Lavyers | -02 | . 03 | . 01 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Operations and systems research | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Personnel, labcr relations wkrs | .15 | - 18 | .13 | . 05 | . 04 | . 04 | . 09 | -11 | . 08 |
| Other research workers | .01 | . 01 | -02 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Becreation workers | . 08 | . 16 | -21 | 1.26 | 1.78 | 1.56 | . 00 | . 02 | . 02 |
| Social workers | .01 | . 01 | . 01 | . 06 | . 09 | . 08 | .00 | .00 | .00 |
| Vocation, education counselors | . 00 | .00 | .00 | . 03 | . 04 | .03 | . 00 | .00 | .00 |
| Managers, officials, proprietors | 15.52 | 18. 15 | 14.51 | 14.85 | 11.68 | 11.44 | 10.05 | 12.20 | 11.03 |
| Buyers, sales,lcan managers | . 35 | . 39 | .31 | . 02 | . 02 | . 02 | .17 | . 25 | . 36 |
| Credit managers | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Purchasing agents, buyers,other | .17 | . 19 | . 17 | . 02 | . 02 | . 02 | . 03 | . 08 | . 14 |
| Sales manager, exc retail trade | . 14 | . 18 | . 13 | . 00 | . 00 | .00 | . 12 | . 15 | . 20 |
| Other managers, officials, proprts | 15.17 | 17.76 | 14.20 | 14.83 | 11.66 | 11.42 | 9.87 | 11.96 | 10.67 |
| Puneral directors | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.76 | 2.73 | 2. 90 |
| Mgrs, superintendents, building | . 09 | - 12 | - 12 | . 32 | . 30 | . 38 | . 01 | . 03 | . 04 |
| Office managers, other | . 20 | . 24 | . 19 | . 15 | - 14 | . 14 | . 16 | .21 | . 23 |
| Restaurant, cafe, bar,managers | . 80 | . 83 | . 58 | . 07 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Other managers, administrators | 14.08 | 16.56 | 13.30 | 14.29 | 11.18 | 10.84 | 6.94 | 8.98 | 7.50 |

Table 1. Percent distribution of industry employment ty occupation, 1970. 1978 and projected 1990

|  | $\begin{aligned} & \text { Hotels } \\ & \text { and } \\ & \text { motels } \end{aligned}$ |  | other lodging places |  |  | Other personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| . 34 | . 40 | . 44 | . 14 | . 11 | . 14 | 1.16 | 1.53 | 1.44 |
| .01 | .01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 01 | . 01 |
| . 34 | . 39 | . 42 | . 14 | . 11 | . 14 | 1.15 | 1.51 | 1.40 |
| 17.31 | 19. 58 | 18.58 | 3.48 | 3.13 | 3.53 | 10.48 | 11.65 | 11.57 |
| 1.76 | 2.03 | 2.08 | . 73 | . 78 | . 85 | . 93 | 1.49 | 1.85 |
| 1.46 | 1.73 | 1.83 | . 61 | . 66 | .71 | . 73 | 1.22 | 1.56 |
| . 02 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | - 01 |
| . 27 | - 28 | . 25 | - 12 | .11 | .13 | . 20 | . 26 | . 28 |
| . 23 | - 26 | -31 | . 03 | - 02 | . 02 | . 12 | . 08 | . 05 |
| . 06 | . 04 | . 04 | . 01 | .00 | .01 | . 03 | .01 | .01 |
| . 03 | . 03 | . 02 | . 00 | . 00 | .00 | . 01 | .01 | . 00 |
| . 02 | . 06 | . 07 | .00 | . 00 | . 00 | . 01 | .01 | .01 |
| . 05 | . 04 | . 04 | . 02 | . 01 | . 00 | -04 | . 02 | . 01 |
| . 08 | - 10 | - 13 | . 01 | . 01 | .01 | . 02 | .03 | . 02 |
| 15.33 | 17.29 | 16.19 | 2.71 | 2.34 | 2.67 | 9.43 | 10.08 | 9.66 |
| . 04 | . 05 | . 04 | . 03 | . 02 | .03 | . 07 | . 08 | . 10 |
| 1.99 | 2.25 | 2.31 | 1.25 | . 97 | 1.26 | 1.29 | 1.44 | 1.31 |
| 2.19 | 2. 82 | 3.29 | . 12 | . 14 | . 16 | . 09 | . 22 | . 19 |
| . 05 | . 07 | . 05 | . 00 | . 00 | . 00 | . 06 | . 06 | . 06 |
| . 04 | . 05 | . 06 | -28 | . 24 | - 28 | . 02 | . 04 | . 04 |
| 7.42 | 8.43 | 7.40 | . 23 | . 23 | . 25 | 5.51 | 4.60 | 4.41 |
| . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| . 06 | . 06 | . 04 | . 20 | . 16 | . 14 | . 08 | . 11 | . 08 |
| .01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 02 | . 04 | . 04 |
| . 06 | . 07 | . 08 | . 02 | . 02 | . 02 | . 10 | . 11 | . 12 |
| . 06 | . 06 | . 04 | . 02 | .01 | . 01 | . 03 | . 04 | .03 |
| . 04 | - 04 | . 03 | . 01 | . 02 | . 02 | . 03 | . 04 | . 02 |
| . 29 | . 38 | . 33 | . 01 | . 01 | .01 | . 09 | . 09 | . 08 |
| . 72 | . 85 | . 68 | . 20 | - 18 | . 17 | 1.03 | 1.94 | 1.80 |
| . 05 | . 06 | -07 | . 01 | . 01 | . 01 | . 17 | . 14 | . 15 |
| . 08 | - 10 | . 08 | . 05 | . 04 | . 04 | . 07 | .11 | . 11 |
| . 20 | . 21 | - 19 | . 02 | . 02 | . 02 | .13 | . 10 | . 07 |
| 1.63 | 1.28 | -98 | . 05 | . 04 | . 04 | . 06 | . 05 | . 05 |
| . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 03 | . 05 | . 06 |
| . 37 | . 49 | . 47 | . 21 | . 22 | . 21 | . 55 | . 80 | .93 |
| 3.00 | 3. 25 | 2.91 | 1.37 | 1.23 | 1.25 | 3.55 | 3.18 | 2.86 |
| 1.45 | 1.53 | 1.21 | . 69 | . 59 | . 57 | . 08 | . 10 | . 11 |
| . 49 | - 50 | . 32 | . 35 | . 32 | . 28 | . 03 | . 05 | . 04 |
| . 02 | . 02 | . 03 | . 01 | . 01 | . 01 | .00 | .00 | .00 |
| .01 | . 01 | . 01 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| .17 | - 19 | . 18 | . 06 | . 06 | . 07 | . 01 | . 02 | . 03 |
| . 61 | . 65 | . 54 | . 15 | . 13 | . 13 | . 03 | . 03 | . 03 |
| .01 | - 01 | . 01 | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| .01 | . 01 | -01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 12 | . 12 | . 10 | . 07 | . 04 | .03 | . 01 | .01 | .01 |
| . 01 | . 01 | .01 | -02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| .23 | - 30 | - 34 | - 18 | - 18 | . 19 | -63 | - 56 | . 52 |
| . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 03 | .03 | . 06 |
| .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 06 |
| . 45 | . 59 | . 65 | . 28 | . 26 | .31 | . 49 | . 47 | . 48 |
| . 08 | - 11 | . 08 | . 00 | . 00 | .00 | . 00 | . 01 | . 00 |
| . 02 | . 03 | . 04 | . 02 | . 02 | .02 | . 08 | . 06 | . 05 |
| . 22 | . 29 | . 36 | . 15 | - 15 | . 22 | . 18 | .19 | - 23 |
| . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 20 | .17 | . 14 |
| .03 | .03 | . 02 | . 02 | . 01 | .01 | . 00 | .01 | . 02 |
| . 07 | - 10 | . 11 | . 07 | . 07 | . 06 | .03 | . 04 | . 03 |
| . 02 | . 03 | . 03 | .00 | . 00 | .00 | . 02 | . 05 | . 05 |
| . 01 | . 02 | . 01 | . 00 | .00 | .00 | . 01 | . 02 | . 02 |
| . 00 | . 00 | -00 | - 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| .01 | .01 | . 02 | . 00 | . 00 | .00 | .01 | . 02 | .03 |



Crafts and kindred workers
Construction crafts workers
Brick, stonemasons, apprentices Bulldozer operators
Electricians and apprentices
Painters and apprentices Paperhangers
plasterers and apprentices
Plumbers, pipefitters,aprentices rile setters

Blue collar worker supervisors
Metalworkg craft wrkrs, exc mech
Machinists and apprentices
Mechanics,repairers,installers
Air cond, heating, refrig mech
Auto mechanics and apprentices
Heavy equip mech, incl diesel
Household appliance mechanics
Radio, television repairers
other mechanics and apprentices
Printing trade crafts vorkers
compositors and typesetters
Photoengravers, lithographers
press,plate printers,aprentices

|  | $\begin{gathered} \text { Hotels } \\ \text { and } \\ \text { motels } \end{gathered}$ |  |  | other lodging places |  |  | other personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 84 | . 80 | . 69 | . 22 | . 19 | .19 | 2.31 | 1.97 | 1.64 |
| Bakers | . 15 | . 16 | . 14 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 02 | . 02 | . 01 | .01 | . 00 | .00 | . 00 | . 00 | .01 |
| Carpet installers | . 01 | . 01 | -01 | . 00 | . 00 | - 00 | . 00 | . 01 | . 02 |
| Decorators, yindow dressers | .01 | . 02 | . 02 | . 00 | . 01 | . 00 | . 01 | . 02 | . 04 |
| Furniture and wood finishers | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Furriers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 01 | . 00 |
| Inspectors, other | . 07 | . 09 | . 07 | . 00 | . 00 | - 00 | . 04 | . 04 | . 06 |
| Shoe repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.40 | 1.27 | 1. 19 |
| Stationary engineers | . 51 | . 43 | - 35 | . 03 | . 03 | . 02 | .07 | . 04 | .01 |
| Tailors | . 01 | . 01 | . 01 | - 00 | . 00 | - 00 | . 75 | . 54 | . 29 |
| Upholsterers | . 04 | . 03 | . 03 | . 00 | . 00 | . 00 | . 01 | .01 | - 00 |
| Other crafts morkers | . 01 | . 02 | .03 | -16 | . 14 | . 15 | . 02 | . 02 | . 01 |
| Operatives | 2.35 | 2.52 | 2.17 | . 53 | . 47 | . 45 | 25.70 | 18.71 | 13.06 |
| Operatives, except transfort | 1.87 | 1.91 | 1.61 | . 38 | . 30 | . 26 | 22.16 | 15.98 | 11.08 |
| Semiskilled packing, inspecting | . 01 | . 01 | . 01 | . 01 | .01 | . 00 | . 29 | . 26 | . 39 |
| Packer,wrapper, exc meat, prodce | . 01 | . 01 | .01 | .01 | . 01 | .00 | .29 | .26 | . 39 |
| Other operatives, exc transport | 1.86 | 1. 90 | 1.60 | . 37 | . 30 | . 26 | 21.87 | 15.71 | 10.69 |
| Clothing ironers and pressers | . 22 | - 26 | . 34 | . 06 | . 05 | . 05 | 8.42 | 4.81 | 2.95 |
| cutting operatives, other | - 00 | - 00 | . 00 | . 00 | - 00 | .00 | . 01 | . 02 | . 05 |
| Dressmakers, exc factory | . 00 | . 00 | -00 | .03 | . 03 | . 02 | 2.78 | 3.26 | 3.08 |
| Filer, polisher, sander, bufter | . 02 | . 02 | . 01 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Garage urkr.gas station atten | . 06 | . 05 | . 05 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Laundry,dry cleang oprs,other | 1.16 | 1. 15 | . 89 | . 16 | - 12 | . 11 | 9.01 | 5.71 | 3. 15 |
| Meat cutters,butchers, exc mfg | . 10 | . 10 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .62 | 1.17 | . 80 |
| Severs and stitchers | . 07 | .07 | . 06 | .01 | .01 | . 00 | .93 | . 62 | . 57 |
| Shoemaking machine operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Furnace tendr,stokr,exc metal | . 06 | . 05 | . 03 | . 00 | . 00 | . 00 | . 04 | . 02 | . 01 |
| Miscellaneous machine operatyes | . 06 | . 06 | . 05 | . 02 | . 02 | . 02 | .00 | . 00 | .00 |
| Other oferatives, exc transport | . 12 | . 14 | - 10 | . 07 | . 06 | . 05 | . 03 | . 07 | . 06 |
| Transport equipment operatives | . 47 | . 61 | . 56 | - 15 | .17 | . 19 | 9.54 | 2.73 | 1.98 |
| Bus drivers | . 05 | . 09 | . 06 | . 03 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Delivery and route workers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | 2.64 | 1.72 | 1.43 |
| Pork lift, tow motor operatives | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 | . 01 | .01 | . 01 |
| Parking attendants | . 25 | . 37 | . 38 | . 02 | . 02 | . 02 | .01 | . 03 | . 02 |
| Taxicab drivers, chauffeurs | . 10 | . 09 | . 06 | . 00 | . 00 | . 00 | .31 | . 66 | .42 |
| Truck drivers | .07 | . 07 | . 07 | . 07 | . 06 | . 08 | . 56 | . 32 | . 11 |
| Service workers | 57.96 | 51.76 | 57.25 | 75.73 | 79. 28 | 79.36 | 44.35 | 45.98 | 53.47 |
| Cleaning service workers | 27.52 | 23.50 | 25.07 | 5.56 | 4.66 | 5.54 | 1.57 | 2.28 | 1.70 |
| Lodging gtrs cleaners, exc privt | 19.49 | 13.93 | . 15.18 | 1.58 | . 89 | . 99 | . 13 | - 14 | . 16 |
| Bldg interior cleaners, other | 4.84 | 6.07 | 6.50 | 1.77 | 1.69 | 1.89 | . 56 | . 89 | . 51 |
| Janitors and sextons | 3.19 | 3. 50 | 3.38 | 2.22 | 2.08 | 2.66 | . 88 | 1.26 | 1.04 |
| Pood service workers | 22.64 | 20.44 | 23.83 | 3.84 | 3.30 | 4.38 | . 12 | . 09 | . 07 |
| Bartenders | 1.75 | 1.63 | 1.90 | -11 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Waiters assistants | 2.30 | 2.68 | 3.39 | - 11 | . 15 | . 30 | . 01 | . 02 | .01 |
| cooks, exc private households | 4.18 | 4.25 | 4.90 | 1.91 | 1.64 | 2.19 | . 01 | .01 | .01 |
| Dishuashers | 2.13 | 1. 54 | 1.42 | . 48 | . 36 | .46 | . 01 | . 01 | .01 |
| Pood counter, fountain workers | . 18 | . 26 | . 41 | . 09 | . 14 | . 26 | . 07 | . 03 | .01 |
| Waiters | . 9.72 | 8.13 | 10.27 | . 71 | - 55 | . 62 | . 02 | . 02 | . 01 |
| other food serv ukrs, exc privt | 2.38 | 1.94 | 1.54 | . 43 | . 40 | . 47 | .01 | . 01 | .00 |
| Health service morkers | . 04 | . 05 | . 08 | . 76 | . 75 | 1.27 | . 05 | . 11 | . 19 |
| Health aides, except nursing | . 01 | . 01 | . 03 | . 02 | . 03 | . 04 | . 03 | . 08 | . 09 |
| Nursing aides and orderlies | . 02 | . 02 | . 03 | . 55 | . 54 | . 97 | . 01 | . 03 | - 10 |
| Practical nurses | . 02 | . 02 | . 02 | . 19 | .17 | . 26 | . 00 | . 00 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Hotels and motels |  |  | Other lodging places |  |  | Other personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 7.22 | 7. 16 | 7.63 | 65.46 | 70.46 | 68.04 | 42.53 | 43.41 | 51.43 |
| Attendants, recreation, amusement | 1.07 | 1.32 | 2.33 | . 67 | . 75 | 1. 24 | . 01 | . 01 | . 01 |
| Attendants, personal serv,other | . 68 | . 74 | -97 | - 25 | . 19 | . 25 | . 57 | 1.04 | 1.13 |
| Baggage porters and bellhops | 2.22 | 2. 16 | 1.44 | -02 | . 02 | . 04 | . 00 | . 01 | . 03 |
| Barbers | - 18 | . 03 | . 08 | -47 | -05 | - 20 | 10.08 | 8.11 | 9.66 |
| Boarding, lodging housekeepers | . 00 | . 00 | . 00 | 9.95 | 10.02 | 9.80 | . 00 | . 00 | . 00 |
| Bootblacks | . 02 | . 01 | .01 | . 09 | . 02 | . 03 | - 18 | .16 | . 03 |
| Child care workers, exc private | . 13 | . 07 | . 10 | 53.26 | 58.76 | 55.61 | -65 | . 70 | . 85 |
| Elevator operators | . 53 | - 40 | - 13 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Hairdressers and cosmetologists | . 17 | . 28 | . 37 | -29 | . 23 | . 29 | 30.98 | 33.29 | 39.67 |
| Housekeepers, exc private homes | 2.21 | 2. 15 | 2.21 | . 44 | . 40 | . 58 | . 06 | . 08 | . 05 |
| Protective service workers | . 54 | . 61 | . 64 | . 11 | - 12 | . 13 | . 08 | . 09 | . 08 |
| Guards | . 50 | . 57 | . 61 | .11 | . 12 | . 13 | . 08 | . 09 | . 08 |
| Police and detectives | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 |
| Laborers, except farm | . 97 | 1. 04 | .86 | 1.47 | 1. 37 | 1.37 | 1.43 | 1.26 | . 76 |
| Animal caretakers, exc farm | . 01 | . 01 | . 01 | . 04 | . 03 | .03 | . 00 | . 00 | . 00 |
| Carpenter helpers | . 06 | . 05 | . 05 | . 04 | . 04 | . 04 | .01 | . 01 | . 01 |
| Constr labr, exc carpenter helpr | . 09 | . 08 | . 06 | . 11 | -11 | - 11 | . 01 | .01 | . 00 |
| Freight and material handlers | . 07 | - 09 | - 11 | . 03 | . 03 | -03 | - 12 | . 09 | . 07 |
| Gardenrs,groundkeepers, exc farm | . 62 | . 66 | -49 | .95 | -91 | . 85 | . 04 | . 09 | - 12 |
| Stock handlers | . 05 | . 07 | . 07 | . 01 | . 01 | . 02 | . 85 | . 57 | . 23 |
| Vehicle washers,equip cleaners | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 20 | . 15 | . 07 |
| Other laborers | . 08 | . 08 | . 07 | . 29 | - 24 | . 29 | . 20 | . 33 | - 26 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Laundering. cleaning services |  |  | $\begin{aligned} & \text { Beauty } \\ & \text { shops } \end{aligned}$ |  |  | Barber shops |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100. 00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | .39 | . 45 | -45 | . 04 | . 10 | . 05 | . 00 | . 00 | . 00 |
| Engineers, tecbnical | . 05 | . 05 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Industrial | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanical | . 02 | . 02 | . 04 | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Computer specialists | . 02 | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | - 00 | . 00 |
| Computer programers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Computer systems analysts | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | . 04 | . 05 | . 06 | . 01 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Public relations specialists | . 03 | . 04 | . 04 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other uriters,artists, entertain | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other frofessicnal and technical | . 28 | . 32 | . 29 | . 03 | . 07 | . 03 | . 00 | . 00 | . 00 |
| Accountants | .13 | . 14 | .11 | .01 | . 03 | . 02 | .00 | . 00 | .00 |
| Personnel, labcr relations wkrs |  | - 17 | - 18 | .01 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Managers, officials, proprietors | 15.24 | 22.95 | 25.96 | .36 | 1. 12 | . 85 | . 06 | . 65 | . 14 |
| Buyers, sales,lcan managers | . 27 | . 27 | . 34 | . 02 | . 14 | - 26 | . 00 | -00 | . 00 |
| credit managers | . 02 | .01 | . 02 | .00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Purchasing agents, buyers, other | . 04 | . 03 | .01 | . 02 | . 14 | . 26 | . 00 | . 00 | . 00 |
| Sales manager, exc retail trade | . 22 | . 23 | . 30 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Cther managers, officials, proprts | 14.96 | 22.69 | 25.63 | . 34 | - 98 | - 58 | . 06 | . 65 | - 14 |
| Office ranagers, other | . 24 | . 26 | . 34 | . 01 | . 02 | . 02 | . 00 | . 02 | .00 |
| Other managers, administrators | 14.72 | 22.42 | 25.29 | . 33 | . 96 | . 56 | . 06 | . 63 | -14 |
| Sales workers | 1.58 | 1.64 | 2.29 | . 15 | - 29 | . 12 | .00 | .00 | . 00 |
| other sales workers | 1.58 | 1.64 | 2.29 | . 15 | . 29 | - 12 | . 00 | .00 | . 00 |
| Clerical workers | 19.18 | 20.76 | 25.96 | 1.59 | 3.51 | 2.88 | . 14 | - 89 | - 11 |
| Stenographrs, typists, secretaries | . 90 | - 96 | 1.45 | .09 | . 16 | . 08 | . 02 | -11 | . 01 |
| Other stcretaries | .66 | .74 | 1.19 | .07 | . 14 | . 06 | . 02 | . 10 | .01 |
| Stenographers | . 01 | . 01 | .01 | .01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Typists | . 24 | . 22 | . 25 | . 01 | .01 | . 00 | . 00 | . 02 | . 00 |
| Office machine operators | . 25 | - 19 | . 13 | .01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Bookkeeping and billing | . 07 | . 03 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| calculating | . 02 | . 01 | . 01 | . 00 | - 01 | . 00 | . 00 | . 00 | . 00 |
| Computer and peripheral equip | . 02 | . 04 | . 02 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Keypunch | . 10 | . 07 | . 05 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Other office machine operators | . 04 | . 04 | . 04 | .00 | . 01 | . 00 | . 00 | . 00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Laundering. cleaning services |  |  | Beauty shops |  |  | Barber shops |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 18.03 | 19. 61 | 24.38 | 1.49 | 3. 34 | 2.81 | . 12 | . 77 | . 10 |
| Billing clerks | . 12 | . 13 | . 19 | - 00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Bookkeepers | 2.24 | 2. 35 | 2.64 | .17 | - 38 | . 27 | . 05 | . 34 | . 03 |
| Cashiers | . 00 | . 00 | . 00 | . 06 | - 12 | . 06 | . 02 | . 20 | . 04 |
| clerical supervisors, other | . 11 | . 12 | .11 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| collectors, bill and account | . 03 | . 03 | . 04 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| counter clerks,exc food | 13.09 | 14.63 | 18.83 | . 01 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Dispatchers, starters, vehicle | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Estimators, investigators, other | . 14 | - 15 | . 12 | . 00 | . 00 | . 00 | .00 | .00 | .00 |
| Expediters, prcduction controlrs | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| File clerks | . 14 | . 13 | .17 | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Mail handlers, exc fost office | . 04 | . 04 | . 03 | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Messengers and office helpers | . 03 | . 04 | . 04 | . 00 | .01 | . 00 | . 00 | . 00 | . 00 |
| Payroll,timekeeping clerks | . 19 | - 23 | . 32 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Receptionists | . 27 | - 23 | . 17 | 1.19 | 2.56 | 2. 20 | . 05 | . 22 | . 03 |
| Shipping and receiving clerks | -35 | - 32 | . 40 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| statistical clerks | . 09 | - 10 | .11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock clerks and store keepers | . 26 | .21 | . 15 | . 02 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Telephone operators | . 09 | . 06 | .05 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heighers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | .76 | . 78 | . 93 | . 04 | - 18 | . 24 | . 00 | . 02 | . 00 |
| crafts and kindred workers | 4.77 | 4. 97 | 5.24 | . 04 | . 06 | . 00 | . 04 | . 18 | . 03 |
| Construction crafts workers | . 11 | - 12 | . 17 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Carpenters and apprentices | . 02 | . 03 | . 04 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 02 | .03 | .04 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 05 | . 04 | . 04 | .01 | . 01 | . 00 | . 00 | . 00 | - 00 |
| Plumbers, pi pefitters, aprentices | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Blue collar worker supervisors | 1.44 | 1.60 | 1.90 | .01 | . 02 | . 00 | . 00 | . 00 | .00 |
| Metalyorkg craft wrkrs, exc mech | . 06 | . 09 | - 26 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 06 | . 09 | . 26 | . 00 | . 00 | .00 | . 00 | - 00 | .00 |
| Mechanics, repairers, installers | 1.07 | 1.20 | 1.58 | . 01 | . 02 | .00 | . 01 | . 02 | . 00 |
| Air cond, heating, refrig mech | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 00 |
| Auto mechanics and apprentices | . 17 | - 14 | . 11 | . 00 | . 00 | . 00 | -00 | - 00 | - 00 |
| Heavy equip mech, incl diesel | . 39 | . 50 | . 82 | .00 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Household afpliance mechanics | . 45 | . 49 | . 57 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | . 05 | . 06 | . 08 | .00 | - 00 | . 00 | . 00 | .00 | . 00 |
| Other crafts, kindred workers | 2.09 | 1. 96 | 1.34 | . 01 | . 01 | . 00 | . 04 | . 16 | . 03 |
| Furiers | . 04 | . 04 | .02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | - 10 | . 13 | -22 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Shoe repairers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 02 | . 06 | - 01 |
| Stationary engineers | . 16 | . 11 | . 04 | . 00 | . 00 | . 00 | . 00 | .01 | -00 |
| Tailors | 1.76 | 1. 66 | 1.04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other crafts workers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .01 | . 09 | . 02 |
| operatives | 53.36 | 44.34 | 36.92 | . 03 | . 06 | . 02 | . 00 | . 00 | . 00 |
| Operatives, except transport | 45.76 | 38.00 | 30.72 | . 02 | . 05 | . 02 | . 00 | .00 | .00 |
| Semiskilled metalworking | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | . 00 | . .00 | . 00 |
| Semiskilled packing, inspecting |  |  |  |  | .00 | . 00 | . 00 |  |  |
| Packer, wrapfer,exc meat,prodce | $.05$ | . 74 | 1.50 | .00 | . 00 | .00 | . 00 | .00 | .00 |


|  | Laundering. cleaning services |  |  | Beauty shops |  |  | Barber shops |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 45.09 | 37.25 | 29.22 | . 02 | . 05 | . 02 | . 00 | . 00 | . 00 |
| Clothing ironers and pressers | 20.24 | 15.74 | 12.83 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Dressmakers, exc factory | . 90 | . 82 | . 27 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Dyers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Garage urkr.gas station atten | . 01 | . 01 | . 01 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Laundry, dry cleang oprs,other | 21.60 | 18.61 | 13.66 | . 01 | . 01 | . 00 | .00 | .00 | .00 |
| Severs and stitchers | 2.22 | 1.99 | 2.37 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Furnace tendr,stokr,exc metal | . 10 | . 06 | . 05 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| other operatives, exc transport | . 00 | . 00 | . 00 | . 01 | . 03 | . 02 | . 00 | .00 | . 00 |
| Transport equipment operatives | 7.60 | 6.34 | 6.20 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route workers | 6.27 | 5.40 | 5.85 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Fork lift, tow motor operatives | .03 | . 03 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Parking attendants | . 01 | . 01 | . 02 | . 00 | .01 | . 00 | . 00 | .00 | . 00 |
| Taxicab drivers, chauffeurs | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Truck drivers | 1.29 | . 89 | . 29 | .01 | .01 | .00 | . 00 | . 00 | .00 |
| Service workers | 2.60 | 2.24 | 1.56 | 97.79 | 94.86 | 96.09 | 99.73 | 98.16 | 99.71 |
| Cleaning service workers | 2.13 | 1.89 | 1.30 | . 84 | 1.79 | 2.01 | . 43 | 3.63 | . 32 |
| Lodging qurs cleaners, exc privt | . 00 | . 00 | . 00 | . 31 | . 31 | . 29 | . 02 | . 09 | .03 |
| Bldg interior cleaners. other | . 57 | . 53 | . 36 | . 36 | . 73 | . 43 | . 09 | . 77 | . 13 |
| Janitors and sextons | 1.56 | 1. 36 | . 94 | . 16 | . 75 | 1.29 | . 32 | 2.78 | . 16 |
| Pood service vorkers | . 23 | . 15 | . 07 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 |
| Waiters' assistants | . 02 | . 02 | . 03 | . 00 | .01 | .00 | . 00 | . 00 | . 00 |
| Cooks, exc private households | . 01 | . 01 | . 02 | . 00 | . 01 | .00 | .00 | . 00 | . 00 |
| Dishwashers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Food counter, rountain workers | . 17 | . 09 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Waiters | . 03 | . 02 | . 01 | . 01 | .01 | .00 | .00 | .00 | .00 |
| Health service yorkers | . 00 | . 00 | . 00 | .02 | . 04 | . 02 | . 00 | .00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | .00 | .01 | . 03 | .02 | . 00 | .00 | .00 |
| Personal service workers | . 11 | . 08 | . 07 | 96.91 | 93.00 | 94.06 | 99.30 | 94.49 | 99.39 |
| Attendants, fersonal sery,other | . 00 | . 00 | . 00 | . 06 | . 20 | . 38 | . 05 | . 43 | . 02 |
| Barbers | . 00 | . 00 | . 00 | . 56 | . 20 | . 60 | 96.11 | 77.44 | 94.69 |
| Bootblacks | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 25 | . 65 | . 16 |
| Child care workers, exc private | . 05 | . 04 | . 05 | . 08 | - 16 | . 19 | . 55 | . 96 | . 33 |
| elevator operators | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | 96.18 | 92.41 | 92.88 | 2.34 | 14.96 | 4.18 |
| Housekeepers, exc private homes | . 05 | .03 | . 02 | . 01 | . 02 | . 02 | . 01 | . 06 | . 01 |
| Protective service workers | .13 | - 13 | -12 | . 01 | . 01 | . 00 | . 01 | . 04 | . 00 |
| Guards | . 13 | . 12 | . 12 | .00 | .01 | .00 | . 00 | . 00 | . 00 |
| Police and detectives | . 00 | . 00 | .00 | .00 | .00 | .00 | .01 | . 04. | .00 |
| Laborers, except farm | 2.89 | 2.64 | 1.62 | . 00 | . 00 | . 00 | . 02 | - 13 | . 00 |
| Carpenter helfers | . 01 | . 01 | . 03 | . 00 | .00 | . 00 | . 00 | . 00 | .00 |
| Freight and material handlers | . 30 | . 29 | . 32 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| stock handlers | 2.05 | 1. 88 | 1.00 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Vehicle washers, equip cleaners | . 43 | . 38 | . 16 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Warehouse labcrers, other | . 01 | . 01 | . 03 | .00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Other laborers | .08 | . 08 | . 08 | . 00 | . 00 | . 00 | . 02 | .13 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Shoe <br> repaic <br> shops | 1990 | 1970 | Dressmaking <br> shops |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1978 | 1990 |  |


|  | Misc <br> gersonal <br> services |  |
| :---: | :---: | :---: |
| 1970 | 1978 | 1990 |

Total all occupations
Professional and technical
Bathematical scecialists
Statisticians
Engineering, science technicians
Drafters
Surveyors
Other engineering. science tecn

Medical workers, exc technicians Dietitians
Physicians and osteopaths
Registered nurses
Therapists
Health technologists, technicians
Technicians, except health
Airplane pilots
Embalmers
other technicians except health
Social scientists
other social scientists

Teachers
Other teachers
Uriters, artists, entertainers
Athletes and kindred workers
Authors
Designers
Editors and reforters
Musicians and composers
painters and sculptors
Photographers
Public relations specialists
other writers, artists, entertain
other professicnal and technical
Accountants
clergy
Religious vorkers, except clergy Home management advisors
Librarians
Personnel, labcr relations wks
other research workers
Recreation workers
Managers, officials, proprietors
Buyers, sales, loan managers Credit managers
purchasing agents, buyers, other Sales manager, exc retail trade

Other managers, officials, proprts Puneral directors
Mgrs, superintendents, building Office managers, other
officers, pilots, pursers, ship
Restaurant, cafe, bar, managers
Other managers, administrators
Sales workers
Advertising agents, sales worker Hucksters and peddiers
other sales workers

Clerical workers
$100.00 \quad 100.00 \quad 100.00$

| .24 | . 43 | .27 |
| :---: | :---: | :---: |
| . 02 | .02 | .00 |
| . 02 | . 02 | .00 |
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| .23 | .42 | . 27 |
| . 19 | .40 | -26 |
| . 00 | - 00 | - 00 |
| . 00 | . 00 | .00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 04 | . 02 | . 00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| 6.34 | 17.33 | 14.80 |
| .00 | . 00 | .00 |
| .00 | - 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| 6.34 | 17.33 | 14.80 |
| . 00 | . 00 | . 00 |
| - 00 | -00 | . 00 |
| . 00 | - 00 | .00 |
| . 00 | - 00 | .00 |
| . 00 | . 00 | .00 |
| 6.34 | 17. 33 | 14.80 |
| 3.38 | 6.69 | 5.88 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| 3.38 | 6.69 | 5.88 |
| 6.09 | 10.76 | 7.81 |

$100.00 \quad 100.00$ 100.00

| .65 | .56 | - 54 | 25.39 | 25.93 | 26.85 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| .00 | .00 | .00 | .01 | .00 | . 00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| . 00 | . 00 | .00 | -36 | . 46 | . 62 |
| .00 | . 00 | . 00 | . 24 | -30 | .44 |
| .00 | .00 | - 00 | . 03 | .03 | . 02 |
| .00 | .00 | .00 | .09 | .13 | . 17 |
| . 00 | - 00 | . 00 | . 08 | . 17 | - 26 |
| . 00 | .00 | .00 | .01 | .03 | . 09 |
| .00 | .00 | . 00 | . 01 | . 01 | . 02 |
| - 00 | . 00 | . 00 | . 02 | .04 | .09 |
| . 00 | .00 | .00 | .05 | .09 | .07 |
| .00 | .00 | .00 | .02 | .01 | .01 |
| . 00 | . 00 | . 00 | 2.86 | 1.86 | 1.99 |
| . 00 | .00 | .00 | . 04 | . 07 | -10 |
| . 00 | . 00 | .00 | 2.74 | 1.64 | 1. 70 |
| .00 | .00 | . 00 | .08 | - 15 | . 19 |
| $.00$ | . 00 | -00 | .07 | -10 | - 21 |
| .00 | .00 | .00 | .07 | - 10 | - 21 |
| .43 | - 28 | - 32 | .16 | - 12 | . 04 |
| .43 | . 28 | - 32 | .16 | . 12 | . 04 |
| .07 | . 06 | .07 | 21-33 | 22.44 | 22.88 |
| . 00 | .00 | - 00 | .85 | 1.29 | 1. 28 |
| . 00 | .00 | . 00 | . 02 | . 06 | . 26 |
| . 07 | . 06 | .07 | . 23 | .40 | . 56 |
| .00 | . 00 | . 00 | . 07 | . 11 | - 18 |
| . 00 | . 00 | - 00 | .46 | . 62 | . 58 |
| .00 | . 00 | .00 | 1. 11 | 1.89 | 2. 02 |
| .00 | .00 | . 00 | 17.86 | 16.93 | 17. 17 |
| . 00 | -00 | . 00 | -13 | . 22 | .23 |
| .00 | .00 | .00 | .59 | . 92 | .61 |
| . 15 | .23 | -16 | - 52 | . 78 | . 84 |
| .09 | - 14 | .07 | . 24 | .37 | -39 |
| . 00 | . 00 | - 00 | . 02 | .03 | .07 |
| . 00 | - 00 | . 00 | .01 | .03 | .09 |
| .00 | . 00 | .00 | .01 | .01 | .01 |
| . 00 | - 00 | -00 | .01 | . 01 | . 01 |
| . 06 | . 09 | . 09 | .16 | . 21 | . 13 |
| . 00 | .00 | .00 | . 04 | .04 | . 04 |
| .00 | .00 | .00 | .02 | .06 | - 10 |
| 1. 13 | 1.79 | 1.87 | 28.43 | 21.43 | 21.27 |
| .04 | .05 | .05 | . 43 | - 58 | . 82 |
| . 00 | . 00 | . 00 | . 08 | .06 | . 08 |
| . 04 | . 05 | . 05 | .09 | .11 | . 14 |
| . 00 | .00 | .00 | -26 | .41 | . 60 |
| 1.09 | 1.74 | 1.83 | 28.00 | 20.85 | 20.45 |
| . 00 | . 00 | . 00 | 22.72 | 13.39 | 13.73 |
| .00 | .00 | . 00 | . 10 | . 15 | . 18 |
| .00 | . 00 | .00 | .43 | . 58 | . 70 |
| .00 | . 00 | . 00 | .01 | .01 | . 02 |
| . 00 | - 00 | . 00 | .01 | . 02 | . 01 |
| 1.09 | 1.74 | 1.83 | 4.73 | 6.70 | 5.81 |
| .53 | . 59 | - 26 | 3.09 | 3.76 | 3. 62 |
| . 04 | . 08 | . 08 | . 05 | .09 | . 10 |
| .00 | .00 | .00 | . 02 | . 03 | . 07 |
| . 49 | .51 | - 18 | 3.02 | 3.65 | 3.46 |
| 1.43 | 2. 14 | 2. 52 | 15.23 | 18.59 | 20.29 |


|  | $\begin{aligned} & \text { Shoe } \\ & \text { repair } \\ & \text { shops } \end{aligned}$ |  |  | Dressmaking shops |  |  | Misc personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Stenographrs, typists, secretaries | . 37 | . 80 | . 67 | . 55 | .81 | . 95 | 4.15 | 5.34 | 6.86 |
| Legal secretaries | . 00 | . 00 | . 00 | . 01 | . 02 | .01 | . 00 | . 00 | . 00 |
| other secretaries | . 28 | . 67 | . 63 | . 39 | . 63 | . 81 | 3.39 | 4.44 | 5.81 |
| Stenographers | .03 | . 04 | . 01 | -00 | . 00 | .00 | . 03 | . 02 | . 01 |
| Typists | . 06 | . 09 | . 03 | . 15 | - 16 | .13 | .72 | . 87 | 1.04 |
| Office machine operators | . 02 | . 02 | . 00 | . 02 | .03 | .01 | . 09 | . 09 | .09 |
| Bookkeeping and billing | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 03 | . 02 | . 02 |
| Calculating | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | .01 |
| Duplicating | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| other office wachine operators | . 02 | . 02 | .00 | . 02 | . 03 | .01 | . 03 | . 04 | . 06 |
| Other clerical workers | 5.62 | 9.94 | 7.13 | . 87 | 1.31 | 1.56 | 10.99 | 13. 16 | 13.34 |
| Billing clerks | . 00 | . 00 | . 00 | . 05 | . 08 | . 08 | . 12 | .17 | . 24 |
| Bookkeepers | . 86 | 1. 27 | . 78 | . 20 | . 27 | . 26 | 2.27 | 2.61 | 2.74 |
| Cashiers | 2.09 | 4. 18 | 3.36 | . 09 | . 19 | . 39 | . 20 | . 29 | . 40 |
| clerical supervisors, other | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 09 | . 13 | - 16 |
| Collectors, bill and account | . 00 | . 00 | . 00 . | . 00 | . 00 | . 00 | . 10 | . 13 | . 14 |
| Counter clerks, exc food | 2.26 | 3.65 | 2.46 | . 04 | . 07 | . 08 | . 28 | . 39 | . 52 |
| Dispatchers, starters, vehicle | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .04 | . 09 |
| Estimators, investigators, other | .00 | . 00 | . 00 | . 04 | . 07 | . 04 | . 20 | . 29 | . 24 |
| Expediters, preduction controlrs | . 03 | . 05 | . 01 | . 00 | . 00 | . 00 | -08 | . 12 | . 17 |
| File clerks | . 00 | . 00 | - 00 | . 04 | . 04 | . 02 | .28 | . 32 | . 38 |
| Library attendants, assistants | . 00 | - 00 | -00 | . 00 | . 00 | -00 | -01 | . 02 | . 01 |
| Mail handlers, exc fost office | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | -12 | . 14 | - 12 |
| Messengers and office helpers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 15 | . 15 | . 05 |
| Payroll, timekeeping clerks | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | .03 | . 04 | .02 |
| Real estate appraisers | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Receptionists | - 10 | - 17 | . 10 | . 15 | . 18 | . 16 | 4.39 | 4.83 | 4.00 |
| Shipping and receiving clerks | . 00 | - 00 | . 00 | -08 | . 14 | . 23 | . 16 | . 21 | . 26 |
| Statistical clerks | . 00 | -00 | . 00 | . 00 | . 00 | -00 | . 28 | . 40 | . 42 |
| Stock clerks and store keepers | - 00 | - 00 | . 00 | . 02 | . 02 | . 03 | . 10 | . 12 | . 12 |
| relephone operators | - 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 18 | . 16 | . 16 |
| Weighers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 18 | . 24 | . 24 |
| Misc clerical workers | . 24 | . 58 | -40 | . 12 | . 22 | . 27 | 1.74 | 2.36 | 2.86 |
| Crafts and kindred workers | 72.94 | 55.74 | 68.15 | .47 | . 59 | .62 | 1.23 | 1.74 | 2. 19 |
| Construction crafts workers | . 00 | . 00 | . 00 | . 04 | . 05 | .03 | . 23 | .29 | . 32 |
| Carpenters and apprentices | . 00 | . 00 | . 00 | . 04 | . 05 | . 03 | . 13 | . 16 | .15 |
| Electricians and apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 04 | . 09 |
| painters and apprentices | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 06 | . 08 | . 08 |
| Blue collar worker supervisors | . 06 | . 08 | . 00 | . 10 | - 19 | . 27 | - 20 | - 30 | . 39 |
| Metalworkg craft urkrs, exc mech | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Tool and diemakers, apprentices | . 02 | . 02 | .01 | . 00 | - 00 | .00 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | . 03 | . 05 | . 01 | . 03 | . 04 | .02 | . 33 | . 47 | . 57 |
| Air cond, heating, refrig mecn | . 03 | . 05 | . 01 | . 00 | .00 | . 00 | . 01 | . 01 | . 01 |
| Auto body repairers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Auto mechanics and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 05 | .07 | .11 |
| Heavy equip mech, incl diesel | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 09 | - 16 | .23 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 00 | -00 | - 00 | . 06 | . 08 | . 07 |
| Radio, television repairers | . 00 | -00 | . 00 | -00 | . 00 | . 00 | . 02 | . 04 | . 08 |
| other mechanics and apprentices | . 00 | . 00 | .00 | .03 | . 04 | .02 | . 09 | -11 | . 06 |
| Printing trade crafts workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 23 | . 24 |
| Compositors and typesetters | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 07 | . 09 | . 08 |
| Photoengravers, lithographers | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 04 | . 05 | . 03 |
| Press, plate frinters,aprentices | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 09 | . 13 |
| Transport, public util craft wess | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Elec pwr line instaler, repairer | .00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | .01 |
| Telephone installers, repairers | .00 | .00 | . 00 | . 00 | .00 | .00 | .01 | .01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Shoe } \\ & \text { repair } \\ & \text { shops } \end{aligned}$ |  |  | Dressmaking shops |  |  | Misc personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 72.84 | 55. 59 | 68.13 | . 31 | .31 | .31 | . 29 | . 42 | . 65 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Carpet installers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 04 | . 09 |
| Decorators, window dressers | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 | . 05 | .11 | . 18 |
| Purniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Inspectors, other | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | - 02 | . 03 |
| Shoe repairers | 72.69 | 55.39 | 68.10 | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Sign painters and letterers | . 00 | . 00 | - 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Stationary engineers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Stone cutters, stone carvers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| Tailors | . 00 | . 00 | . 00 | . 29 | . 28 | . 29 | -09 | . 14 | .21 |
| Upholsterers | . 00 | - 00 | -00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| other crafts morkers | . 15 | . 20 | . 03 | . 02 | . 03 | . 02 | . 02 | . 02 | .01 |
| Operatives | 2.06 | 3.68 | 1.99 | 94.90 | 93.33 | 93. 50 | 9.19 | 10.90 | 7.75 |
| Operatives, except transport | 1.98 | 3.47 | 1.79 | 94.78 | 93. 12 | 92.94 | 6.07 | 6.97 | 5. 10 |
| Semiskilled packing, inspecting | .00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 15 | . 19 | - 27 |
| Packer, wrapper, exc meat, prodce | .00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 15 | . 19 | . 27 |
| Other operatives. exc transport | 1.98 | 3.47 | 1.79 | 94.76 | 93.10 | 92.94 | 5.92 | 6.78 | 4.84 |
| Clothing ironers and pressers | . 37 | - 58 | . 45 | . 05 | . 06 | . 07 | . 14 | . 16 | - 20 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 31 | . 37 | .76 | . 03 | . 05 | . 09 |
| Dressmakers, exc factory | -46 | . 78 | . 18 | 93.88 | 92.03 | 91.22 | . 23 | . 29 | . 17 |
| Garage urkr,gas station atten | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 04 |
| Laundry,dry cleang oprs,other | . 78 | 1. 43 | . 87 | . 08 | . 11 | . 13 | . 22 | .23 | . 24 |
| Milleners | . 02 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 00 | - 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Photographic process workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 5.06 | 5.72 | 3.79 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 38 | . 44 | . 73 | .01 | .01 | . 03 |
| Shoemaking machine operatives | . 36 | . 65 | . 30 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr, exc metal | . 00 | - 00 | . 00 | . 00 | .00 | . 00 | . 01 | . 01 | .01 |
| other operatives, exc transport | .00 | - 00 | . 00 | . 06 | . 08 | . 04 | . 18 | . 26 | . 25 |
| Transport equifment operatives | . 08 | . 21 | - 20 | - 12 | . 21 | - 56 | 3.12 | 3.93 | 2.65 |
| Delivery and route workers | . 08 | .21 | -20 | . 02 | . 02 | . 02 | . 31 | . 38 | . 50 |
| Fork lift, tow motor operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Parking attendants | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 08 | .11 | . 05 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.53 | 3.23 | 1.96 |
| Truck drivers | . 00 | . 00 | . 00 | . 10 | . 19 | . 54 | . 18 | -19 | . 12 |
| Service workers | 8.91 | 5. 27 | . 96 | - 86 | . 97 | .68 | 15.59 | 15.51 | 16.18 |
| Cleaning service workers | . 39 | . 72 | . 30 | -44 | . 49 | - 19 | 2.97 | 3.45 | 2. 54 |
| Lodging gtrs cleaners, exc privt | . 00 | . 00 | . 00 | - 11 | . 06 | . 01 | . 18 | -13 | - 15 |
| Bldg interior cleaners, other | . 15 | .31 | . 15 | . 04 | . 05 | . 01 | 1.65 | 1.92 | 1. 13 |
| Janitors and sextons | . 24 | . 41 | .15 | . 29 | . 37 | . 17 | 1.15 | 1.41 | 1.26 |
| Pood service workers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .17 | . 19 | . 24 |
| Bartenders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Waiters' assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| Cooks, exc private households | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 03 | . 05 |
| Dishwashers | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 03 | . 03 | . 04 |
| Food counter, fountain workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 05 |
| Waiters | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 05 |
| Other food serv wirs, exc privt | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 |
| Health service workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 34 | . 50 | . 87 |
| Health aides, except nursing | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 22 | . 34 | . 38 |
| Nursing aides and orderlies | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 13 | . 47 |
| Practical nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Personal service workers | 8.52 | 4. 55 | . 66 | . 24 | . 21 | . 13 | 11.97 | 11.18 | 12.34 |
| attendants, recreation, amusement | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 04 |
| Attendants, personal ser p , other | . 09 | - 14 | . 05 | - 10 | . 08 | . 03 | 4.48 | 4.53 | 4.56 |
| Baggage porters and bellhops | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 14 |
| Barbers | . 35 | -10 | . 06 | . 00 | . 00 | . 00 | . 06 | . 01 | . 05 |
| Bootblacks | 7.75 | 3. 84 | . 45 | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 |
| Child care workers, exc private | - 10 | . 09 | -04 | . 08 | . 05 | . 06 | 4.42 | 2.59 | 3.44 |
| Elevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 03 |
| Hairdressers and cosmetologists | . 23 | .37 | . 07 | . 00 | . 00 | . 00 | 2.63 | 3.69 | 3.90 |
| Housekeepers, exc private homes | .00 | . 00 | . 00 | . 06 | . 07 | . 04 | . 31 | .28 | . 17 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{aligned} & \text { Shoe } \\ & \text { repair } \\ & \text { shops } \end{aligned}$ |  |  | Dressmaking shops |  |  | Misc personal services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Protective service vorkers | . 00 | . 00 | . 00 | .17 | . 28 | . 36 | .14 | .19 | . 20 |
| Guards | . 00 | . 00 | . 00 | . 16 | . 27 | . 36 | - 14 | . 19 | . 20 |
| Police and detectives | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 |
| Laborers, except farm | .11 | . 09 | . 14 | . 02 | . 02 | . 00 | 1.86 | 2.16 | 1.86 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| Constr labr,exc carpenter helpr | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 04 | . 04 | . 01 |
| Gardenrs, groundkeepers, exc farm | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 | .31 | . 46 | . 54 |
| Stock handlers | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Vehicle vashers,equip cleaners | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 15 | . 18 | . 14 |
| other laborers | . 11 | .09 | . 14 | . 00 | . 00 | . 00 | 1.34 | 1.45 | 1. 11 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

| Misc <br> business <br> services | Advertising | Business <br> management <br> services |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 |


$100.00 \quad 100.00 \quad 100.00$
18.82
19.49
17.95 1.83
1.83
$.03 \quad 1.62 \quad 1.77$
103
-06
-06


.55
.20
.02
.00

ife and physical scientists
Agricultural
Atmospheric and space
Biological
Geologists
Physicists and astronomers
Other life, physical scientists
athematical sfecialists
Actuaries
Mathematicians

Engineering, science technicians
Agricultural,biolgcl,exc aealth
Drafters
Electrical and electronic
Industrial engineering
lechanical engineering
Other'engineering, science tech

Registered nurses
Health technologists, technicians other health technicians

Technicians, except health
Airplane pilats
tool programers,numerical
other technicians except health
Computer specialists
Computer systems analysts

Social scientists
Egonomists
political scientists

Urban and regional planners
Other social scientists

Adult education
other teachers
$100.00 \quad 100.00 \quad 100.00$
$22.14 \quad 23.79 \quad 24.55$
$.05 \quad .04 \quad .03$
$100.00 \quad 100.00 \quad 100.00$
41.4842 .83
40.79

| 5.18 | 4.73 | 5.13 |
| ---: | ---: | ---: |
| .01 | .01 | .01 |
| .01 | .01 | .01 |
| .10 | .05 | .01 |
| .25 | .20 | .16 |
| 3.98 | 3.87 | 4.32 |
| .13 | .10 | .05 |
| .00 | .00 | .00 |
| .01 | .01 | .01 |
| .23 | .09 | .01 |
| .45 | .40 | .56 |
| .12 | .10 | .11 |
| .04 | .03 | .02 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .03 | .03 | .04 |
| .01 | .01 | .01 |
| .03 | .03 | .03 |
| .01 | .01 | .01 |
|  |  |  |
| .33 | .35 | .40 |
| .03 | .06 | .08 |
| .06 | .05 | .01 |
| .24 | .25 | .31 |

1.65
$1.35 \quad 1.24$

| .01 | .01 | .0 |
| ---: | ---: | ---: |
| .00 | .00 | .00 |
| 1.26 | .96 | .83 |


| .10 | .12 | .1 |
| :--- | :--- | :--- |
| .02 | .03 | .04 |
| .00 | .00 | .00 |


| .16 | .13 | .00 |
| :--- | :--- | :--- |
| .16 | .13 | .09 |
| .10 | .10 | .10 |


| .00 | .00 | .00 |
| ---: | ---: | ---: |
| .00 | .00 | .00 |
|  |  |  |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
|  |  |  |
| .06 | .07 | .09 |
| .01 | .01 | .01 |
| .00 | .00 | .00 |
| .01 | .01 | .01 |
| .04 | .05 | .07 |
|  |  |  |
| 1.87 | 2.37 | 2.07 |
| 1.09 | 1.23 | 1.06 |
| .71 | 1.02 | .94 |
| .07 | .12 | .07 |
|  |  | .07 |
| 4.51 | 6.22 | 6.72 |
| 3.66 | 5.00 | 6.02 |
| .17 | .17 | .14 |
| .18 | .41 | .28 |
| .01 | .02 | .01 |
| .49 | .60 | .24 |
| .01 | .02 | .03 |
|  |  |  |
| .05 | .05 | .04 |
| .05 | .05 | .04 |
| .00 | .00 | .00 |

5.18

|  | Misc business services |  |  | Advertising |  |  | Business management services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | 3.85 | 3.55 | 2.76 | 17.92 | 19. 54 | 20.08 | 11.92 | 11.74 | 10.18 |
| Actors | . 02 | . 01 | . 01 | -17 | - 17 | - 13 | . 00 | . 00 | . 00 |
| Athletes and kindred workers | . 04 | . 04 | .03 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Authors | . 07 | . 06 | . 04 | . 17 | . 18 | . 23 | . 17 | . 17 | . 09 |
| Designers | .87 | . 77 | . 69 | 1.37 | 1.49 | 1.44 | 5.76 | 5.28 | 4.96 |
| sditors and reforters | . 72 | - 58 | . 35 | 5.28 | 5.37 | 5.60 | . 83 | . 72 | . 37 |
| Musicians and composers | . 07 | . 07 | . 07 | . 08 | . 07 | . 07 | . 00 | . 00 | . 00 |
| painters and sculftors | . 95 | . 88 | . 66 | 9.05 | 10.39 | 10.74 | . 57 | . 68 | . 63 |
| Photographers | . 21 | . 15 | . 08 | . 55 | . 49 | . 59 | . 08 | . 06 | . 04 |
| Public relaticns specialists | . 70 | .74 | . 64 | 1.01 | 1.11 | 1.02 | 4.22 | 4.50 | 3.77 |
| Radio and tv announcers | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 |
| other writers,artists, entertaln | .21 | . 23 | . 20 | . 20 | $\therefore 21$ | . 20 | . 29 | . 34 | . 31 |
| other professicnal and technical | 7.16 | 7.84 | 7.04 | 3.13 | 3.07 | 3.37 | 15.80 | 15.84 | 14.82 |
| Accountants | 2.03 | 2.02 | 1.97 | 1.83 | 1.94 | 1.99 | 11.93 | 12.00 | 11.77 |
| Architects | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | - 11 | . 08 | . 10 |
| Home management advisors | . 01 | . 00 | . 00 | . 03 | . 02 | . 01 | . 02 | . 02 | .01 |
| Lawyers | . 08 | - 12 | . 06 | . 06 | - 10 | -10 | . 14 | . 18 | . 04 |
| Librarians | . 05 | . 05 | . 04 | . 07 | . 06 | . 03 | . 09 | . 10 | . 09 |
| operations and systens researca | . 16 | . 22 | . 24 | . 04 | . 05 | . 04 | . 33 | .47 | . 47 |
| personnel, labcr relations wiks | 4.18 | 4.86 | 4.18 | . 41 | . 37 | . 28 | 1.68 | 1.64 | 1.11 |
| Other research workers | . 55 | . 45 | . 43 | . 67 | - 50 | -90 | 1.26 | 1.12 | 1.04 |
| Recreation workers | .01 | . 01 | .01 | -01 | . 02 | . 01 | . 02 | . 03 | .03 |
| Social workers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 07 | . 08 | . 06 |
| Vocation, education counselors | . 06 | . 06 | . 06 | . 01 | . 01 | . 01 | - 12 | . 11 | . 10 |
| Managers, officialseproprietors | 11.36 | 11.85 | 11.88 | 20.72 | 21.35 | 20.09 | 14.98 | 15.61 | 15.84 |
| Buyers,sales, loan managers | 1.10 | 1.05 | 1.32 | 1.85 | 1.53 | 1.37 | 1.53 | 1.60 | 1.98 |
| Bank, financial managers | . 18 | . 18 | .17 | . 26 | .23 | . 18 | . 68 | . 69 | . 64 |
| Credit managers | . 18 | - 10 | . 07 | . 08 | . 04 | . 02 | . 03 | . 02 | .01 |
| Purchasing agents, buyers, other | . 26 | . 22 | . 28 | . 80 | . 62 | . 57 | . 15 | - 12 | . 11 |
| Sales manager, exc retail trade | . 49 | . 55 | . 81 | .71 | . 64 | . 61 | . 66 | . 76 | 1.22 |
| Other managers, officials, proprts | 10.25 | 10.81 | 10.56 | 18.87 | 19.81 | 18.72 | 13.45 | 14.02 | 13.86 |
| Mgrs, superintendents, building | . 03 | . 03 | . 04 | . 02 | . 02 | . 02 | . 05 | . 06 | . 09 |
| office managers, other | . 99 | 1. 14 | 1.65 | . 99 | . 89 | . 82 | 1.26 | 1.35 | 1.79 |
| Restaurant, cafe,bar,managers | . 00 | . 00 | . 00 | . 01 | . 01 | -01 | . 00 | . 00 | . 00 |
| other managers, administrators | 9.23 | 9.63 | 8.87 | 17.85 | 18.90 | 17.88 | 12.14 | 12.60 | 11.98 |
| Sales morkers | 3.84 | 3.56 | 3.96 | 18.61 | 22.26 | 28.70 | 3.29 | 3.16 | 3.45 |
| Advertising agents, sales worker | 1.57 | 1.38 | 1.10 | 18.60 | 22. 25 | 28.70 | . 55 | .63 | . 40 |
| auctioneers | . 17 | . 12 | -08 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Demonstrators | . 03 | . 03 | . 07 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Hucksters and peddlers | . 30 | - 15 | . 04 | -00 | - 00 | . 00 | -00 | . 00 | . 00 |
| other sales wrrkers | 1.78 | 1.89 | 2.67 | -00 | . 00 | . 00 | 2.74 | 2.53 | 3.05 |
| Clerical workers | 31.38 | 30.84 | 30.28 | 27.52 | 23.51 | 19.74 | 33.14 | 32.00 | 35.67 |
| Stenographrs,typists, secretaries | 11.76 | 11.05 | 11.45 | 13.51 | 11.91 | 11.47 | 11.39 | 10.67 | 11.19 |
| Legal secretaries | . 10 | - 10 | . 13 | . 01 | . 01 | . 01 | . 03 | . 0.3 | . 05 |
| Medical secretaries | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other stcretaries | 7.55 | 7. 52 | 8.45 | 11.17 | 10.13 | 9.88 | 9.00 | 8.75 | 9.43 |
| Stenographers | . 44 | . 28 | . 27 | . 10 | . 06 | . 03 | . 20 | . 11 | . 04 |
| rypists | 3.65 | 3. 13 | 2.57 | 2.22 | 1.72 | 1.55 | 2.16 | 1.79 | 1.67 |
| Office machine operators | 3.24 | 3.45 | 2.49 | 1.06 | . 83 | . 64 | 2.49 | 2.68 | 2.01 |
| Bookkeeping and billing | . 13 | . 07 | . 07 | . 26 | - 12 | . 09 | . 09 | . 05 | . 06 |
| Calculating | . 08 | . 06 | . 08 | . 05 | . 03 | . 01 | -27 | . 21 | . 28 |
| Computer and feripheral equip | . 81 | 1.58 | 1.31 | -13 | - 25 | . 26 | . 57 | 1.23 | . 99 |
| Duplicating | -11 | -10 | . 11 | . 07 | . 05 | . 03 | . 16 | . 14 | - 16 |
| Keypunch | 1.69 | 1.22 | . 61 | . 30 | . 19 | .07 | 1.20 | . 87 | . 40 |
| Tabulating | . 02 | .01 | . 00 | . 02 | . 01 | . 00 | . 03 | .01 | . 00 |
| Other office machine operators | . 40 | . 41 | .31 | . 23 | . 18 | . 18 | .17 | . 17 | . 13 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Misc business services |  |  | advertising |  |  | Business management services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 16.38 | 16. 35 | 16.35 | 12.95 | 10.76 | 7.63 | 19.26 | 18.65 | 22.47 |
| Billing clerks | . 22 | - 25 | . 36 | . 48 | . 45 | . 42 | . 07 | . 08 | . 12 |
| Bookkeepers | 2.50 | 2.28 | 1.90 | 3.36 | 2.74 | 2.00 | 2.99 | 2.61 | 2.27 |
| Cashiers | . 17 | - 19 | - 20 | . 07 | . 07 | . 06 | . 08 | . 08 | . 09 |
| clerical supervisors, other | . 43 | . 52 | -63 | . 51 | -49 | -41 | -49 | - 56 | . 69 |
| Collectors, bill and account | . 68 | -67 | . 52 | . 04 | . 03 | . 01 | . 03 | . 02 | . 02 |
| counter clerks,exc food | . 27 | . 30 | . 38 | . 32 | . 26 | . 18 | . 04 | . 04 | . 06 |
| Dispatchers,starters, vehicle | . 10 | . 12 | . 16 | . 01 | . 01 | . 01 | . 01 | . 01 | . 03 |
| Enumerators and intervievers | . 79 | . 71 | 1.09 | - 16 | . 13 | . 14 | 5.92 | 5.47 | 8.01 |
| Estimators, investigators, other | 1.42 | 1. 78 | 1.53 | . 40 | . 37 | . 30 | . 68 | . 78 | .73 |
| Expediters, production controlrs | . 22 | - 24 | . 32 | . 44 | . 37 | . 25 | - 27 | . 30 | -47 |
| File clerks | . 87 | . 74 | -63 | . 50 | . 35 | . 24 | . 55 | . 42 | . 31 |
| Insurance adjusters, examiners | . 12 | . 14 | . 03 | . 03 | . 03 | . 01 | . 00 | - 00 | . 00 |
| Library attendants, assistants | . 07 | . 07 | . 03 | . 06 | . 06 | . 01 | . 08 | . 10 | . 05 |
| Mail handlers, exc post office | . 53 | . 54 | . 56 | . 81 | . 66 | . 45 | . 30 | . 30 | . 35 |
| Messengers and office helpers | . 49 | . 41 | -17 | 1.06 | . 82 | . 52 | . 14 | - 11 | . 03 |
| Payroll, timekeeping clerks | . 27 | . 29 | . 22 | . 18 | . 18 | . 16 | . 18 | . 17 | . 08 |
| Beal estate affraisers | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Receptionists | 1.25 | 1.25 | 1.35 | 1.03 | . 86 | . 72 | 2.67 | 2.56 | 2.63 |
| Shipping and receiving clerks | . 17 | . 14 | . 09 | - 19 | - 15 | . 11 | . 00 | . 00 | . 00 |
| Statistical clerks | . 51 | . 56 | . 58 | . 39 | . 37 | . 28 | 1.23 | 1.41 | 1.74 |
| Stock clerks and store keepers | . 30 | . 26 | . 21 | . 12 | . 08 | . 03 | . 00 | . 00 | . 00 |
| Telegraph operators | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Telephone operators | 1.20 | . 78 | . 42 | . 29 | . 14 | . 05 | . 24 | - 12 | . 03 |
| Weighers | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | 3.73 | 4. 06 | 4.90 | 2.50 | 2.15 | 1.30 | 3.29 | 3.49 | 4.73 |
| crafts and kindred workers | 6.51 | 6.20 | 5.64 | 6.36 | 5.51 | 4.41 | 5.09 | 4.60 | 2.92 |
| Construction crafts workers | .95 | .77 | -56 | 1.31 | 1. 10 | . 85 | .46 | -31 | . 09 |
| Carpenters and apprentices | . 22 | . 15 | -04 | . 49 | . 42 | . 33 | .11 | . 07 | . 02 |
| Electricians and apprentices | . 18 | .17 | .13 | . 30 | . 27 | . 21 | .01 | . 01 | . 00 |
| Excavating.grading mach operatr | . 08 | . 08 | - 10 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Painters and apprentices | . 23 | - 19 | . 15 | . 48 | . 38 | . 29 | . 28 | . 18 | . 07 |
| Paperhangers | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 | . 05 | . 04 | . 01 |
| Plumbers, pifefitters, aprentices | . 20 | . 16 | . 12 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Structural metal craft workers | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Blue collar worker supervisors | .81 | . 88 | 1.02 | . 68 | . 67 | . 64 | . 40 | . 35 | - 17 |
| Metalworkg craft urkrs, exc mech | . 22 | . 18 | . 16 | . 19 | - 13 | .07 | . 10 | . 08 | . 06 |
| Machinists and apprentices | . 13 | - 12 | .10 | . 03 | . 02 | . 01 | .03 | . 03 | .01 |
| Pattern and moldmakers | . 02 | . 01 | .01 | . 04 | . 03 | . 02 | . 04 | . 03 | . 03 |
| Sheetmetal workers, apprentices | . 03 | . 02 | . 02 | . 12 | . 08 | . 04 | .03 | . 02 | . 03 |
| Tool and diemakers, apprentices | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanics, repairers, installers | 2.28 | 2. 35 | 2.67 | 1.74 | 1.38 | . 98 | . 79 | . 77 | . 92 |
| Air cond, heating, refrig mecn | . 05 | . 06 | . 05 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Aircraft mechanics | . 04 | . 03 | . 01 | . 01 | . 01 | .01 | . 00 | . 00 | .00 |
| Auto accessories installers | .02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Auto body repairers | . 04 | . 03 | .03 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Auto mechanics and apprentices | - 18 | - 17 | . 19 | . 09 | . 07 | . 07 | . 00 | . 00 | . 00 |
| Data processing mach repairers | . 52 | -65 | 1.04 | . 00 | . 00 | . 00 | . 19 | . 25 | . 37 |
| Farm implement mechanics | . 01 | . 01 | -01 | . 00 | - 00 | . 00 | .00 | .00 | . 00 |
| Heavy equip mech, incl diesel | . 46 | - 53 | . 51 | . 09 | . 09 | . 06 | - 12 | - 14 | . 13 |
| Household appliance mechanics | . 22 | -19 | -17 | 1.48 | 1.16 | . 81 | -10 | . 09 | . 09 |
| Orfice machine repairers | . 21 | - 14 | . 16 | . 01 | . 01 | . 01 | .33 | . 22 | . 27 |
| Radio, television repairers | . 16 | - 10 | . 04 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | - 37 | . 42 | . 43 | . 05 | . 04 | . 01 | . 04 | . 05 | . 06 |
| Printing trade crafts workers | . 19 | . 17 | . 10 | . 76 | . 74 | . 78 | . 12 | . 12 | . 07 |
| Bookbinders | . 01 | . 01 | .00 | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Compositors and typesetters | . 05 | . 04 | . 02 | . 47 | . 46 | -49 | . 06 | . 05 | . 01 |
| Engravers exc photoengravers | .01 | . 01 | . 01 | . 02 | . 02 | . 01 | . 00 | .00 | . 00 |
| Photoengravers, lithographers | . 02 | . 02 | . 01 | . 04 | .03 | . 02 | . 00 | . 00 | . 00 |
| Press, plate printers, aprentices | . 10 | - 10 | . 07 | - 20 | . 22 | . 24 | . 07 | . 07 | . 06 |
| Transport, public util craft wkrs | . 28 | . 33 | . 14 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Telephone installers, repairers | . 27 | - 32 | .13 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |


|  | Misc business services |  |  | Advertising |  |  | Business management services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.79 | 1.50 | 1.00 | 1.67 | 1.49 | 1. 10 | 3.19 | 2.95 | 1.58 |
| Cabinetmakers | . 00 | - 00 | . 00 | . 02 | . 01 | .01 | . 02 | . 02 | . 01 |
| Carpet installers | . 01 | - 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Crane,derrick, hoist operator | . 13 | - 10 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Decorators, window dressers | - 42 | - 39 | . 20 | . 09 | . 12 | . 12 | 2.89 | 2.71 | 1.41 |
| Furniture and wood finisners | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Inspectors, $\log$ and lumber | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | . 26 | - 26 | . 14 | . 03 | . 03 | . 03 | . 08 | . 07 | . 03 |
| Jewelers and watchmakers | . 01 | . 01 | .03 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Motion picture projectionists | . 01 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 74 | . 59 | . 44 | 1.42 | 1.23 | . 85 | . 01 | -01 | . 01 |
| Stationary engineers | . 10 | . 06 | . 02 | . 01 | .01 | . 01 | . 04 | -03 | . 01 |
| Tailors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .03 |
| Upholsterers | . 01 | -01 | . 01 | - 00 | .00 | .00 | . 08 | . 05 | . 04 |
| Other crafts workers | . 06 | . 06 | . 07 | -08 | . 07 | . 07 | .02 | . 02 | . 02 |
| Operatives | 5.29 | 5. 16 | 5.01 | 3.28 | 2.60 | 1.82 | 1.00 | -92 | . 67 |
| Operatives,except transport | 4.06 | 4.08 | 4.21 | 2.64 | 2.08 | 1.35 | .75 | . 71 | . 56 |
| Semiskilled metalyorking | . 12 | . 11 | . 11 | . 15 | . 14 | . 14 | . 01 | . 01 | . 01 |
| Solderers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Welders and flamecutters | . 08 | . 08 | . 07 | . 15 | . 14 | . 14 | . 01 | . 01 | .01 |
| Semiskilled packing, inspectiny | . 41 | . 36 | . 23 | .21 | . 19 | . 17 | . 00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodce | . 41 | . 36 | . 23 | .21 | . 19 | .17 | .00 | . 00 | . 00 |
| Other operatives, exc transport | 3.53 | 3.61 | 3.88 | 2. 27 | 1.74 | 1.04 | .74 | . 70 | - 55 |
| Assemblers | - 10 | . 09 | . 09 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 05 | . 06 | . 08 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dressmakers, exc factory | . 09 | . 08 | . 06 | .03 | . 03 | .03 | . 40 | . 39 | - 26 |
| Drillers, earth | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Filer, polisher,sander, ouffer | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Garage wrir,gas station atten | . 06 | . 05 | . 05 | . 01 | . 01 | .01 | .00 | .00 | . 00 |
| Laundry,dry cleang oprs, other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Mixing operatives | . 02 | . 02 | -02 | . 00 | -00 | . 00 | .00 | .00 | . 00 |
| oilers,greasers,exc automobiles | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 03 | . 02 | . 03 | . 11 | . 08 | . 06 | . 02 | .02 | . 03 |
| Photographic process workers | 1.24 | 1.26 | 1.05 | - 24 | . 22 | -19 | . 09 | . 08 | . 04 |
| Sewers and stitchers | -02 | . 02 | . 03 | - 00 | - 00 | . 00 | . 06 | . 04 | . 05 |
| Furnace tendr,stokr, exc metal | . 03 | . 02 | . 02 | -00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Miscellaneous machine operatves | . 05 | -05 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other operatives, exc transport | 1.78 | 1.88 | 2.36 | 1.86 | 1.40 | . 76 | . 16 | . 16 | . 17 |
| Transport equipment operatives | 1.23 | 1.08 | -80 | . 65 | . 53 | . 47 | . 25 | -21 | . 11 |
| Bus arivers | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Delivery and coute workers. | . 47 | - 40 | - 29 | . 35 | - 26 | -19 | . 11 | . 09 | . 06 |
| Fork lift,tow motor operatives | . 05 | . 06 | -08 | . 02 | . 02 | .01 | .01 | . 01 | . 01 |
| Parking attendants | . 02 | -02 | . 02 | . 00 | - 00 | . 00 | .01 | . 02 | . 01 |
| Taxicab drivers, chauffeurs | - 10 | . 07 | . 01 | . 07 | - 06 | . 03 | . 05 | . 04 | . 01 |
| Truck drivers | . 57 | . 51 | -41 | .21 | . 20 | . 25 | . 06 | . 04 | .01 |
| Service workers | 21.57 | 21.73 | 23.94 | 1.06 | . 77 | . 58 | . 92 | . 77 | . 53 |
| Cleaning service workers | 15.03 | 13.99 | 15.81 | . 73 | . 52 | . 34 | . 59 | . 52 | . 39 |
| Lodging gtrs cleaners, exc privt | . 17 | . 10 | . 16 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Bldg interior cleaners, other | 11.88 | 11.05 | 11.58 | . 24 | . 18 | . 09 | . 19 | . 20 | . 20 |
| Janitors and sextons | 2.99 | 2.85 | 4.08 | - 50 | - 34 | . 24 | .40 | .33 | . 19 |
| Food service workers | . 03 | . 02 | . 03 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Other food sery wirs, exc privt | . 01 | .01 | . 02 | . 00 | .00 | . 00 | .00 | .00 | .00 |
| Health service workers | . 02 | . 02 | . 03 | . 01 | .00 | . 00 | . 02 | . 02 | . 03 |
| Health aides, except nursing | . 01 | . 01 | -01 | . 00 | .00 | .00 | . 01 | .01 | .01 |
| Nursing aides and orderlies | . 01 | . 01 | . 02 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Practical nurses | .01 | .01 | . 01 | . 01 | .00 | . 00 | .01 | .01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Misc business services |  |  | Advertising |  |  | Business management services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | .27 | . 20 | . 23 | . 17 | . 12 | . 08 | . 19 | . 13 | . 07 |
| Attendants, fersonal serv,other | . 06 | . 05 | . 06 | . 11 | . 08 | . 07 | . 07 | . 06 | . 04 |
| Baggage porters and bellhops | . 01 | . 00 | . 05 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Child care workers, exc private | . 02 | . 01 | . 03 | . 01 | . 00 | - 01 | . 01 | .01 | .01 |
| Elevator operators | . 08 | . 05 | . 01 | . 00 | . 00 | . 00 | . 05 | . 03 | .01 |
| Housekeepers, exc private homes | .11 | . 08 | . 08 | . 06 | . 03 | .01 | .06 | . 04 | .01 |
| protective service workers | 6.21 | 7.49 | 7.84 | . 14 | . 13 | . 16 | - 11 | . 09 | . 04 |
| Firefighters | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Guards | 5.51 | 6.91 | 7.52 | .12 | . 12 | . 16 | - 11 | . 09 | . 04 |
| Police and detectives | . 67 | . 56 | . 32 | .01 | . 01 | . 01 | .01 | . 01 | . 00 |
| Laborers, except farm | 1.23 | 1. 17 | 1.34 | . 32 | - 22 | - 11 | .11 | - 12 | . 14 |
| Animal caretakers, exc farm | . 02 | . 03 | . 03 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 00 | . 00 | -01 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | .03 | . 02 | . 02 | - 19 | - 12 | . 03 | . 01 | .01 | . 01 |
| Freight and material handlers | .13 | . 15 | . 18 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 14 | - 13 | -21 | -02 | . 02 | . 02 | . 03 | . 04 | . 05 |
| Stock handlers | . 14 | - 17 | -18 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Vehicle washers,equip cleaners | . 11 | - 13 | . 16 | . 01 | . 01 | . 00 | . 01 | . 01 | . 01 |
| Warehouse labcrers, cther | .06 | . 05 | . 02 | .03 | . 02 | . 02 | .00 | . 00 | . 00 |
| other laborers | . 59 | . 48 | . 52 | . 07 | . 05 | .03 | . 02 | . 02 | . 02 |


|  | Commercial research. development |  |  | Computer programing |  |  | Detective, protective services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 56.12 | 55.87 | 51.90 | 37.82 | 39. 36 | 38.42 | 1.89 | 2.10 | 1.78 |
| Engineers, technical | 13.37 | 12. 14 | 12.48 | 3.06 | 2.52 | 2.94 | -22 | - 20 | - 21 |
| Aeronautical | . 47 | -49 | . 51 | . 01 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Chemical | 1. 10 | 1.01 | . 84 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Civil | . 54 | . 38 | . 37 | . 07 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Electrical | 4.76 | 4.40 | 4.50 | 1.18 | - 96 | 1.03 | . 04 | . 04 | . 05 |
| Industrial | . 72 | . 77 | . 94 | . 46 | . 44 | . 57 | . 09 | . 09 | - 10 |
| Mechanical | 2.26 | 2.08 | 2.34 | . 31 | . 21 | . 12 | .01 | . 01 | . 00 |
| Metallurgical | . 36 | . 39 | . 55 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Petroleum | . 03 | . 03 | . 07 | .00 | . 00 | - 00 | . 00 | - 00 | . 00 |
| Sales | . 06 | . 03 | . 00 | . 04 | . 03 | . 06 | . 03 | . 02 | . 02 |
| other engineers | 3.06 | 2.55 | 2.38 | -98 | . 79 | 1.05 | . 06 | . 05 | . 04 |
| Life and physical scientists | 7.67 | 7.56 | 6.30 | . 17 | . 13 | .09 | . 01 | . 01 | . 01 |
| Agricultural | .21 | - 25 | . 31 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Atmospheric and space | . 13 | . 24 | . 30 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Biological | . 59 | . 85 | . 54 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | 4.41 | 3. 95 | 2.98 | . 05 | . 04 | . 03 | . 01 | . 01 | . 01 |
| Geologists | . 18 | . 17 | . 32 | . 05 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Marine | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Physicists and astronomers | 1.72 | 1.66 | 1.48 | . 04 | . 04 | . 03 | . 00 | .00 | . 00 |
| other life, physical scientists | . 40 | . 41 | . 32 | . 02 | . 02 | .01 | .00 | . 00 | . 00 |
| Mathematical sfecialists | .67 | . 86 | 1.21 | . 24 | - 19 | . 12 | .00 | . 00 | . 00 |
| Mathematicians | . 47 | . 65 | . 92 | .17 | - 14 | . 07 | . 00 | .00 | . 00 |
| Statisticians | . 20 | . 20 | .29 | . 07 | . 06 | .05 | . 00 | .00 | . 00 |
| Engineering, science technicians | 18.72 | 17.59 | 14.47 | 1.71 | 1.47 | 1.26 | . 16 | - 18 | . 24 |
| Agricultural, biolgcl, exc healtn | . 96 | . 84 | . 46 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemical technicians | 1.74 | 1.70 | 1.43 | . 00 | . 00 | . 00 | . 00 | .00 | - 00 |
| Drafters | 1.40 | 1. 16 | 1.29 | . 22 | . 14 | . 09 | . 07 | . 06 | . 09 |
| Electrical and electronic | 2.32 | 2.41 | 2.10 | 1.17 | 1.06 | . 92 | . 08 | . 10 | . 14 |
| Industrial engineeriny | -11 | . 15 | . 19 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Mathematical technicians | . 02 | . 03 | . 08 | . 00 | - 00 | . 00 | . 00 | .00 | .00 |
| Mechanical engineering | . 27 | . 31 | . 35 | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| Surveyors | . 05 | . 04 | . 03 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Other engineering, science tecn | 11.85 | 10.95 | 8.53 | . 28 | . 23 | . 20 | .01 | . 01 | .01 |
| Medical workers,exc technicians | . 23 | - 23 | .17 | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 |
| Dentists | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dietitians | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Pharmacists | . 02 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Physicians and osteopaths | . 05 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Registered nurses | . 08 | . 04 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 |
| Therapists | . 02 | . 02 | . 02 | . 00 | - 00 | - 00 | - 00 | . 00 | . 00 |
| Veterinarians | . 03 | -04 | . 09 | -00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Other medical and health tech | . 01 | . 05 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Health technolcgists, technicians | . 46 | . 58 | .61 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Clinical lab technologists, tech | . 29 | . 34 | . 44 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Radiologic technologists,tech | . 06 | . 08 | . 07 | -00 | . 00 | -00 | . 00 | . 00 | . 00 |
| other health technicians | . 10 | . 16 | . 10 | . 00 | . 00 | . 00 | .00 | .00 | . 00 |
| Technicians, except health | . 48 | . 67 | .96 | .17 | - 20 | - 27 | - 30 | . 37 | - 28 |
| Airplane pilots | . 02 | - 02 | . 01 | - 00 | . 00 | . 00 | . 03 | . 03 | . 03 |
| Radio operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | -20 | . 11 |
| rool programers,numerical | . 03 | . 04 | . 08 | . 03 | . 02 | . 01 | .00 | . 00 | . 00 |
| other technicians except health | . 42 | . 61 | .87 | . 15 | . 18 | -26 | .11 | . 14 | . 15 |
| Computer specialists | 3.15 | 4.07 | 4.44 | 26.97 | 29.38 | 28.64 | . 06 | . 07 | . 05 |
| computer programers | 2.05 | 2.43 | 2.86 | 17.26 | 16.55 | 15.06 | . 06 | . 06 | . 04 |
| Computer systems analysts | . 88 | 1. 27 | 1.35 | 8.20 | 10.59 | 12.00 | . 01 | . 01 | . 01 |
| other computer specialists | . 22 | . 36 | . 22 | 1.50 | 2.24 | 1.59 | . 00 | . 00 | . 00 |
| Social scientists | . 82 | 1.29 | 1.28 | . 70 | 1.00 | 1.28 | .00 | . 00 | .01 |
| Economists | . 55 | . 83 | . 92 | . 69 | . 98 | 1.28 | . 00 | .00 | . 00 |
| Political scientists | . 07 | . 06 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Psychologists | . 12 | . 28 | . 19 | .01 | . 01 | . 00 | .00 | . 00 | . 00 |
| Sociologists | . 03 | . 07 | .11 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Urban and regional planners | . 03 | . 05 | .03 | . 01 | . 01 | . 00 | .00 | . 00 | . 00 |
| other social scientists | . 01 | .01 | .01 | .00 | . 00 | .00 | .00 | .00 | . 01 |


|  | Commercial research. development |  |  | Computer programing |  |  | Detective. protective services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Teachers | . 03 | . 05 | . 09 | . 67 | . 53 | . 29 | . 01 | . 01 | . 01 |
| Adult educaticn | . 02 | . 04 | . 06 | -42 | . 39 | . 23 | . 01 | . 01 | .01 |
| preschool and kindergarten | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other teachers | .00 | . 00 | . 00 | . 25 | .13 | . 06 | .00 | . 00 | . 00 |
| Writers, artists, entertainers | 2.58 | 2.91 | 2.66 | 1.09 | 1.03 | . 79 | . 17 | .21 | . 20 |
| Authors | . 33 | - 30 | . 13 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Designers | - 66 | . 70 | -51 | . 33 | . 30 | . 18 | . 02 | . 03 | .03 |
| Editors and reforters | . 38 | - 36 | . 23 | . 22 | . 19 | . 14 | . 01 | . 00 | . 01 |
| Painters and sculptors | . 35 | . 53 | . 73 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photographers | . 25 | - 19 | . 08 | . 04 | . 03 | . 03 | . 01 | . 01 | . 01 |
| Public relaticns specialists | . 17 | . 21 | -19 | .15 | - 15 | . 10 | . 09 | . 12 | . 11 |
| Other writers,artists, entertain | . 43 | . 62 | . 79 | .34 | . 37 | . 33 | . 04 | . 05 | . 04 |
| Other frofessional and technical | 7.96 | 7.93 | 7.23 | 3.06 | 2.91 | 2.75 | . 95 | 1.04 | . 78 |
| Accountants | 1.00 | 1.04 | . 78 | 1. 19 | 1.20 | 1.44 | . 30 | . 36 | - 37 |
| Architects | . 06 | . 05 | . 05 | . 07 | . 04 | . 04 | . 00 | . 00 | . 00 |
| Foresters and conservationists | . 04 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | .00 | .00 |
| Home management advisors | . 02 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Lawyers | . 18 | - 30 | -23 | . 04 | . 05 | . 02 | . 04 | . 05 | . 02 |
| Librarians | . 27 | . 28 | . 25 | . 12 | . 10 | . 07 | .01 | . 01 | . 01 |
| operations and systems researca | . 90 | 1.34 | 1.54 | . 42 | . 54 | . 59 | . 02 | . 04 | . 04 |
| Personnel, labcr relations wirs | . 65 | . 68 | . 55 | . 85 | . 71 | . 42 | . 51 | . 50 | - 26 |
| other research workers | 4.80 | 4. 13 | 3.78 | . 38 | . 26 | . 16 | . 04 | . 03 | . 02 |
| Recreation workers | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Social workers | . 01 | . 05 | . 04 | . 00 | . 00 | . 00 | . 04 | . 05 | . 05 |
| Vocation, education counselors | . 02 | . 02 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Eanagers, officials, proprietors | 7.96 | 8.83 | 9.67 | 12.08 | 12.48 | 15.50 | 5.16 | 6.16 | 7.42 |
| Buyers, sales, lcan managers | 1.02 | 1.07 | 1.67 | 1.36 | 1.29 | 1.91 | - 33 | . 38 | . 50 |
| Bank, financial managers | . 23 | . 24 | . 26 | .33 | . 30 | .31 | . 00 | . 00 | . 00 |
| credit managers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purchasing agents, buyers, other | . 62 | . 62 | 1.03 | . 21 | - 18 | . 26 | . 03 | . 03 | . 05 |
| Sales manager, exc retail trade | . 17 | - 20 | . 38 | . 82 | - 82 | 1.34 | . 31 | . 35 | . 45 |
| Other managers, officials, proprts | 6.93 | 7. 76 | 8.00 | 10.72 | 11.19 | 13.59 | 4.83 | 5.78 | 6.92 |
| Mgrs, superintendents, building | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| office managers, other | - 23 | - 25 | - 37 | . 48 | . 45 | .63 | . 60 | . 60 | . 55 |
| officers, pilots, pursers,snip | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,manaqers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other managers, administrators | 6.65 | 7.47 | 7.60 | 10.23 | 10.73 | 12.95 | 4.23 | 5.19 | 6.37 |
| Sales vorkers | . 57 | . 58 | -87 | 2.52 | 2.29 | 3.47 | 1.06 | 1.07 | 1.38 |
| Advertising agents, sales worker | . 01 | . 01 | . 01 | . 04 | . 04 | . 05 | . 01 | . 01 | . 01 |
| other sales vorkers | . 50 | . 57 | . 85 | 2.48 | 2.24 | 3.43 | 1.05 | 1.06 | 1.36 |
| Clerical workers | 19.39 | 19.46 | 22.28 | 34.82 | 33.87 | 27.39 | 11.09 | 11.14 | 11. 19 |
| Stenographrs, typists, secretaries | 9.89 | 9.38 | 11.10 | 6.68 | 5.29 | 5.00 | 3.52 | 3.42 | 3.59 |
| Legal secretaries | . 04 | - 04 | . 06 | . 04 | . 03 | . 02 | . 02 | . 02 | . 03 |
| Medical secretaries | . 04 | . 03 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other secretaries | 7.62 | 7.56 | 9.39 | 5.45 | 4.45 | 4.41 | 2.73 | 2.76 | 3.01 |
| Stenographers | -20 | - 13 | . 09 | . 07 | . 04 | . 02 | . 07 | . 04 | . 02 |
| Typists | 2.00 | 1.63 | 1.50 | 1.13 | . 77 | . 56 | .71 | . 61 | - 53 |
| Office machine operators | 1.66 | 2.24 | 1.72 | 20.12 | 21.71 | 15.29 | . 27 | . 29 | . 15 |
| Bookkeeping and billing | . 04 | . 02 | . 04 | -11 | . 05 | . 04 | . 02 | . 01 | . 02 |
| Calculating | . 02 | . 01 | . 01 | . 13 | . 07 | . 05 | . 00 | .00 | . 00 |
| computer and feripheral equip | . 78 | 1.58 | 1.23 | 7.94 | 14.17 | 11.50 | . 08 | . 16 | . 09 |
| Duplicating | . 11 | . 11 | . 15 | . 06 | . 04 | . 02 | . 00 | .00 | . 00 |
| Keypunch | . 58 | . 40 | . 15 | 11.55 | 7.21 | 3.59 | . 14 | . 09 | . 03 |
| Tabulating | .01 | . 00 | .00 | . 15 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Other office rachine operators | .11 | . 12 | .13 | . 18 | . 13 | . 07 | . 03 | . 02 | . 02 |


|  | Commercial research. development |  |  | Computer programing |  |  | Detective, protective services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 7.84 | 7.84 | 9.47 | 8.02 | 6.87 | 7.09 | 7.30 | 7.43 | 7.45 |
| Billing clerks | . 09 | . 11 | . 22 | - 10 | . 10 | . 17 | . 14 | . 14 | . 14 |
| Bookkeepers | 1.46 | 1. 35 | 1.28 | 1.22 | . 94 | .75 | 1.00 | . 98 | 1.03 |
| Cashiers | . 07 | . 08 | . 08 | . 03 | . 02 | . 01 | .27 | . 26 | - 18 |
| Clerical supervisors, other | - 30 | - 35 | . 48 | . 82 | . 85 | 1. 15 | . 17 | . 21 | . 22 |
| collectors, bill and account | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 06 | . 07 |
| Counter clerks,exc food | . 108 | . 09 | . 13 | . 00 | . 00 | .00 | . 04 | . 05 | . 05 |
| Dispatchers, starters, vehicle | . 05 | . 05 | . 06 | . 11 | - 10 | . 12 | . 44 | . 47 | - 55 |
| Enumerators and interviewers | .70 | . 60 | . 73 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| estimators, investigators,other | . 30 | . 36 | . 40 | . 57 | . 47 | - 19 | . 31 | . 36 | - 30 |
| Expediters, prcduction controlrs | . 47 | . 55 | . 89 | . 62 | . 58 | . 82 | - 11 | . 12 | . 15 |
| File clerks | . 37 | . 30 | . 32 | . 29 | . 19 | - 14 | . 14 | - 12 | . 11 |
| Insurance adjusters, examiners | . 01 | - 02 | . 02 | . 00 | . 00 | . 00 | . 11 | .13 | . 06 |
| Library attendants. assistants | . 26 | - 26 | - 11 | . 40 | . 38 | . 17 | -00 | . 00 | . 00 |
| Mail handlers, exc fost office | . 26 | - 26 | . 35 | - 25 | . 21 | - 23 | . 07 | . 07 | . 07 |
| messengers and office helpers | . 04 | . 04 | . 02 | . 09 | . 06 | . 03 | . 33 | . 34 | . 32 |
| Payroll, timekeeping clerks | . 15 | - 16 | . 12 | . 29 | - 23 | . 11 | . 50 | . 56 | . 54 |
| Receptionists | . 38 | .37 | . 41 | -49 | . 40 | . 41 | -40 | . 39 | . 36 |
| Shipping and receiving clerks | - 29 | . 24 | . 19 | - 10 | . 07 | . 06 | . 06 | -06 | . 06 |
| Statistical clerks | . 53 | . 61 | . 83 | -61 | . 57 | . 64 | -16 | . 17 | . 18 |
| Stock clerks and store keepers | . 45 | . 44 | . 61 | . 34 | - 25 | . 24 | . 03 | . 04 | . 05 |
| Telephone operators | -23 | - 11 | . 03 | . 25 | . 11 | . 04 | . 31 | .23 | - 23 |
| Weighers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | 1.35 | 1.48 | 2.17 | 1.46 | 1.33 | 1.82 | 2.63 | 2.68 | 2.80 |
| Crafts and kindred workers | 8.11 | 7. 96 | 8.17 | 9.31 | 9.26 | 13.00 | 6.49 | 6.56 | 5. 22 |
| Construction crafts workers | 1.44 | 1.21 | . 85 | .11 | -09 | - 11 | 1.07 | 1.08 | 1.27 |
| Carpenters and apprentices | . 30 | - 24 | . 10 | . 03 | . 02 | . 03 | . 02 | . 02 | . 03 |
| Brick,stonerasons, apprentices | . 01 | .01 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Bulldozer oferators | . 01 | . 01 | . 01 | . 00 | . 00 | -00 | -00 | - 00 | - 00 |
| Electricians and apprentices | . 64 | . 55 | . 32 | . 03 | . 03 | .03 | .27 | . 30 | . 39 |
| Excavating.grading mach operatr | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| painters and apprentices | . 20 | . 22 | . 36 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 |
| Plasterers and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Plumbers, pipefitters, aprentices | . 25 | - 16 | . 04 | . 04 | . 03 | . 04 | . 74 | . 72 | . 82 |
| Structural metal craft workers | . 01 | . 01 | . 01 | . 00 | . 00 | .00 | .00 | .00 | . 00 |
| Blue collar worker supervisors | 1.14 | 1.20 | 1.36 | . 67 | - 56 | . 42 | .73 | - 82 | . 88 |
| Metalworkg craft yrkrs, exc mech | 1.66 | 1.60 | 1.86 | -42 | - 27 | . 13 | . 00 | .00 | . 00 |
| Boilermakers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Heat treaters, annealers | . 03 | . 02 | . 01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Jon and die setters. metal | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Machinists and apprentices | 1.10 | 1. 12 | 1.32 | -21 | - 13 | . 04 | . 00 | . 00 | - 00 |
| Millwrights | . 08 | . 08 | . 08 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Pattern and moldmakers | . 13 | - 10 | . 15 | . 03 | . 02 | . 01 | .00 | . 00 | .00 |
| Sheetmetal workers, apprentices | -15 | - 13 | . 13 | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 |
| Tool and diemakers, apprentices | . 15 | . 13 | -15 | . 15 | - 10 | . 07 | . 00 | . 00 | . 00 |
| Mechanics, repairers, installers | 1.99 | 2. 15 | 2.79 | 7.76 | 8.08 | 12.19 | 1.75 | 1.77 | 1.84 |
| air cond, heating, refrig mech | . 13 | - 17 | . 17 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Aircraft mechanics | . 13 | . 11 | . 05 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Auto accessories installers | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 18 | . 18 | - 20 |
| Auto body repairers | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | . 08 | . 06 | . 05 |
| Auto mechanics and apprentices | - 33 | . 33 | . 53 | . 34 | . 28 | . 35 | . 36 | . 34 | . 43 |
| Data processirg mach repairers | . 09 | - 11 | -14 | 5.83 | 6.69 | 10.60 | . 01 | . 01 | . 01 |
| Farm implement mechanics | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Heavy equip mech, incl diesel | - 55 | . 66 | . 97 | -37 | - 37 | . 47 | . 07 | . 09 | - 12 |
| Household appliance mechanics | . 04 | - 04 | . 06 | . 01 | . 01 | . 01 | . 03 | . 04 | . 06 |
| office machine repairers | . 01 | . 01 | .01 | 1.00 | . 57 | -65 | - 00 | . 00 | . 00 |
| Radio, television repairers | - 18 | - 14 | .11 | - 10 | . 06 | .03 | . 08 | . 07 | . 07 |
| Other mechanics and apprentices | .51 | . 57 | .75 | - 10 | . 08 | . 07 | . 92 | . 96 | . 89 |
| Printing trade crafts workers | . 19 | - 17 | . 07 | . 09 | . 08 | . 05 | . 00 | .00 | . 00 |
| Compositors and typesetters | . 06 | . 04 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Engravers exc photoengravers | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Photoengravers; lithographers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Press, plate frinters,aprentices | . 10 | . 10 | . 06 | . 07 | . 06 | . 05 | . 00 | . 00 | . 00 |
| Transport, public util craft wxrs | .01 | . 01 | . 00 | .01 | . 01 | .01 | 2.55 | 2.48 | . 69 |
| Telephone installers, repairers | .00 | . 00 | .00 | .01 | . 01 | .01 | 2.55 | 2.48 | . 69 |

Table 1. Percent distribution of industry employment by occupation, 1970. 1978 and projected 1990

|  | Commercial research, development |  |  | Computer programing |  |  | Detective, protective services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther crafts, kindred workers | 1.68 | 1. 62 | 1.25 | . 25 | . 17 | . 09 | . 39 | . 41 | . 54 |
| Bakers | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| crane, derrick,hoist operator | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, $\log$ and lumber | . 02 | . 01 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Inspectors, other | 1.20 | 1. 20 | . 85 | . 04 | . 04 | . 03 | .28 | . 32 | . 33 |
| Jewelers and watchmakers | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 10 | . 08 | . 20 |
| opticians, lens grinder, polisher | . 02 | . 02 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| stationary engineers | . 28 | . 24 | . 23 | . 18 | . 12 | . 06 | . 00 | . 00 | . 00 |
| other crafts workers | . 10 | . 10 | . 14 | . 01 | . 01 | . 00 | .01 | . 01 | .01 |
| operatives | 3.92 | 3. 69 | 3.91 | 2.36 | 1.89 | 1.40 | 3.21 | 3.07 | 3.35 |
| Operatives, except transfort | 2.86 | 2. 95 | 3.64 | 2. 12 | 1.70 | 1.24 | . 32 | .31 | . 36 |
| Semiskilled metalworking | . 65 | . 63 | . 84 | . 27 | . 20 | . 15 | . 00 | . 00 | . 00 |
| Drill press oferatives | . 02 | . 02 | . 01 | .00 | . 00 | .00 | . 00 | .00 | . 00 |
| Furnace tendrs, smeltrs, pourers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Grinding machine operatives | .03 | . 03 | . 04 | . 04 | . 02 | . 00 | - 00 | . 00 | . 00 |
| Lathe, milling mach operatives | . 10 | . 09 | - 16 | . 01 | -01 | . 01 | . 00 | . 00 | . 00 |
| Metal platers | . 02 | . 02 | . 02 | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| other precision mach operators | . 04 | . 03 | . 06 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Punch.stamping press operatives | . 02 | . 02 | . 02 | . 06 | . 04 | . 03 | . 00 | . 00 | . 00 |
| solderers | .07 | . 06 | . 04 | . 12 | . 09 | . 05 | . 00 | . 00 | - 00 |
| Welders and flamecutters | . 34 | . 35 | . 46 | . 02 | . 01 | .01 | .00 | .00 | . 00 |
| Semiskilled packing, inspecting | . 15 | . 11 | . 05 | -11 | . 08 | . 06 | . 00 | . 00 | . 00 |
| Packer, wrapper, exc meat, prodce | . 14 | .11 | . 05 | - 11 | . 08 | . 06 | - 00 | .00 | - 00 |
| Other operatives, exc transport | 2.06 | 2. 20 | 2.75 | 1.74 | 1.42 | 1.03 | . 32 | . 31 | . 36 |
| Ascestos, insulation workers | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Assemblers | . 35 | . 41 | -67 | 1.12 | . 90 | .63 | . 00 | . 00 | . 00 |
| Surveyors' helpers | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 03 | . 04 | . 08 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Dressmakers, exc factory | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Drillers, earth | - 16 | . 16 | . 21 | . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| Piler, polisher, sander, buffer | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | .01 | . 01 | .01 | . 01 | . 01 | . 01 | . 03 | . 02 | .03 |
| Laundry,dry cleang oprs,other | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mixing operatives | . 04 | . 05 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters, mfg articles | . 02 | . 01 | . 00 | .01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Photographic frocess workers | - 19 | . 18 | . 18 | . 06 | . 05 | . 03 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Purnace tendrestokr,exc metal | . 09 | . 04 | . 01 | . 00 | . 00 | . 00 | . 15 | . 11 | - 14 |
| 日inding operatives, other | . 01 | . 01 | . 00 | .07 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Hiscellaneous machine operatres | . 45 | . 48 | . 59 | . 27 | . 22 | . 15 | . 00 | . 00 | . 00 |
| other operatives, exc transport | . 63 | . 73 | .90 | . 19 | . 18 | . 17 | . 15 | . 17 | . 19 |
| Transport equipment operatives | 1.07 | . 74 | . 27 | . 24 | - 19 | .16 | 2.88 | 2.77 | 2.99 |
| Bus drivers | . 06 | .07 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Delivery and route vorkers | . 14 | . 10 | .07 | . 12 | . 08 | . 07 | . 30 | . 28 | . 32 |
| Fork lift, tow motor operatives | . 03 | . 05 | . 10 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Parking attendants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 |
| taxicab drivers, chauffeurs | . 56 | . 32 | . 02 | . 02 | . 02 | . 01 | .19 | . 16 | . 05 |
| Truck drivers | . 29 | - 20 | . 07 | . 07 | . 06 | . 06 | 2.35 | 2.28 | 2.56 |
| Service workers | 2.77 | 2.33 | 1.64 | . 82 | . 64 | . 63 | 70.62 | 69.45 | 69.17 |
| Cleaning service vorkers | 1.66 | 1.41 | 1.03. | . 51 | . 40 | .34 | . 62 | . 54 | . 33 |
| Bldg interior cleaners, other | . 32 | . 32 | . 37 | . 09 | . 08 | . 06 | . 10 | -10 | . 09 |
| Janitors and sextons | 1.34 | 1.09 | .65 | . 42 | . 32 | . 28 | . 52 | . 44 | . 24 |
| Food service workers | . 28 | . 20 | . 20 | . 09 | . 07 | . 07 | .00 | . 00 | . 00 |
| Cooks, exc private households | - 10 | . 05 | . 01 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Dishwashers | . 05 | . 04 | . 07 | .01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Rood counter, fountain workers | . 05 | . 05 | . 04 | . 01 | . 01 | .02 | . 00 | .00 | . 00 |
| Waiters | . 04 | . 02 | . 01 | -01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Other food serv wkrs, exc privt | . 04 | . 04 | . 08 | . 04 | . 02 | .01 | . 00 | . 00 | . 00 |
| Health service workers | . 07 | . 07 | . 09 | . 06 | . 04 | . 07 | . 03 | .03 | . 04 |
| Dental assistants | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Health aides, except nursing | . 04 | . 06 | . 06 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Nursing aides and orderlies | . 01 | . 01 | . 02 | . 06 | . 04 | . 07 | . 00 | . 00 | .00 |
| Practical nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 |

Table 1. Percent distribution of industry emplopment by occupation, 1970, 1978 and projected 1990

|  | Commercial research, development |  |  | Computer programing |  |  | Detective, protective services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | . 10 | . 09 | .06 | . 03 | . 02 | .01 | . 10 | . 07 | . 15 |
| Attendants, personal serv, other | .02 | . 02 | . 02 | . 00 | . 00 | .00 | . 03 | . 02 | . 02 |
| Baggage forters and bellhops | .00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 09 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 02 | .03 |
| Elevator operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | .01 |
| Hairdressers and cosmetologists | . 07 | . 06 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Housekeepers, exc private homes | . 02 | . 02 | . 01 | .03 | . 02 | . 01 | .00 | . 00 | .00 |
| Protective service workers | . 66 | . 54 | . 27 | . 13 | . 12 | .15 | 69.88 | 68.81 | 68.65 |
| Pirefighters | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 19 | . 13 | . 05 |
| Guards | . 62 | . 51 | . 26 | . 13 | . 12 | . 15 | 61.99 | 63.48 | 65.84 |
| Police and detectives | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | 7.70 | 5.20 | 2.77 |
| Laborers, except farm | 1.17 | 1.29 | 1.56 | . 27 | . 22 | . 19 | . 48 | . 46 | . 49 |
| Animal caretakers, exc farm | . 42 | . 52 | . 60 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Carpenter helfers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | -00 | -00 | .00 |
| Constr labr,exc carpenter helpr | . 09 | . 09 | . 13 | . 00 | . 01 | . 00 | . 01 | . 00 | .01 |
| Freight and material handlers | . 16 | . 16 | . 22 | . 05 | . 04 | . 04 | . 00 | .00 | . 00 |
| Gardenrs,groundkeefers, exc farm | . 11 | . 14 | . 21 | . 01 | . 01 | . 01 | . 11 | . 07 | . 07 |
| Stock handlers | . 04 | . 05 | . 07 | . 11 | . 10 | - 11 | . 15 | . 18 | - 19 |
| Venicle washers,equif cleaners | . 10 | . 11 | . 14 | . 02 | . 02 | . 01 | . 11 | . 13 | . 15 |
| Warehouse labcrers, other | . 08 | . 07 | . 06 | . 02 | . 02 | .01 | .00 | . 00 | .00 |
| Other laborers | .17 | . 14 | . 13 | .05 | . 03 | .01 | .09 | .07 | .07 |

Table 1. Percent distribution of industry employment by occupation, 1970,1978 and projected 1990

|  | Employment, temporary help |  |  | Services to buildings |  |  | Other business services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| professional and technical | 29.74 | 32.23 | 27.79 | -48 | . 57 | - 56 | 9.64 | 10.32 | 8.82 |
| Engineers, technical | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 | 1.05 | 1.02 | 1.05 |
| Civil | . 00 | . 00 | .00 | -02 | . 01 | . 00 | . 06 | . 03 | . 00 |
| Electrical | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 52 | - 52 | . 48 |
| Industrial | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | -12 | -15 | . 22 |
| Mechanical | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 13 | . 11 | . 06 |
| Sales | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 |
| Other engincers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 18 | . 19 | . 28 |
| Life and physical scientists | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 11 | . 11 | . 10 |
| Chemists | . 00 | - 00 | . 00 | . 00 | . 00 | - 00 | .09 | . 09 | . 08 |
| Geologists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 02 |
| other life, physical scientists | .00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Engineering, science technicians | . 03 | . 04 | - 10 | . 05 | . 06 | - 10 | 2.09 | 1.91 | 1.84 |
| Chemical technicians | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 04 | . 06 | . 09 |
| Drafters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.38 | 1.12 | 1.13 |
| zlectrical and electronic | - 00 | . 00 | . 00 | . 02 | . 03 | . 05 | . 44 | . 49 | . 41 |
| Industrial engineering | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -03 | . 04 | . 04 |
| Surveyors | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other engineering, science tech | . 03 | . 04 | . 10 | . 02 | . 03 | . 05 | . 18 | . 19 | - 16 |
| Medical workers,exc technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Registered nurses | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | -03 | . 02 | . 01 |
| Therapists | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | .01 | . 01 |
| Health technolcgists, technicians | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | . 02 |
| Other health technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 03 | . 02 |
| Technicians, except health | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 23 | . 33 | . 39 |
| Airplane pilcts | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | -02 |
| hadio operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | -06 | . 04 |
| Tool programers,numerical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other technicians except healta | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .16 | . 23 | . 31 |
| Computer specialists | . 17 | - 21 | . 21 | . 00 | . 00 | . 00 | . 79 | 1.00 | . 68 |
| Computer programers | . 14 | . 17 | .17 | .00 | . 00 | . 00 | . 50 | . 57 | . 40 |
| Computer systems analysts | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 24 | . 34 | . 24 |
| Other computer specialists | . 01 | . 01 | .00 | .00 | . 00 | . 00 | . 05 | . 09 | . 05 |
| Social scientists | . 01 | . 04 | . 04 | . 00 | . 00 | . 00 | . 33 | . 52 | . 53 |
| cconomists | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | -31 | . 49 | . 51 |
| Psychologists | .01 | . 04 | . 04 | . 00 | . 00 | . 00 | .01 | . 02 | . 02 |
| Teachers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 06 | . 05 |
| Adult education | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | -02 | . 03 | .03 |
| Other teachers | . 00 | . 00 | .00 | .00 | . 00 | . 00 | . 06 | . 04 | . 02 |
| Writers, artists, entertainers | - 34 | . 43 | . 43 | - 04 | . 05 | . 06 | 2.96 | 3.09 | 2.41 |
| actors | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 01 | . 01 | . 01 |
| Athletes and kindred workers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 12 | . 13 | . 09 |
| Authors | . 03 | .04 | . 03 | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 |
| Designers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .25 | . 26 | . 18 |
| Editors and reforters | . 00 | . 00. | . 00 | - 00 | . 00 | . 00 | -60 | - 59 | . 35 |
| Musicians and composers | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 22 | . 23 | . 24 |
| Painters and sculftors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 54 | . 67 | . 66 |
| Photographers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | -49 | . 36 | - 18 |
| Public relaticns specialists | - 30 | . 38 | . 37 | . 04 | . 05 | . 06 | . 31 | . 40 | . 34 |
| Other writers,artists, entertain | . 00 | . 00 | .00 | . 00 | . 00 | .00 | -. 38 | . 40 | . 34 |


|  | Employment. temporary help |  |  | Services to buildings |  |  | other business services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technicai | 29.19 | 31.51 | 27.01 | . 34 | . 41 | .37 | 1.95 | 2.23 | 1.73 |
| accountants | . 79 | . 94 | 1.04 | . 12 | - 14 | . 14 | 1.01 | 1.13 | . 86 |
| Lawyers | . 05 | . 07 | . 04 | . 05 | . 08 | . 06 | . 10 | . 15 | -05 |
| mibrarians | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 04 | . 04 | . 04 |
| operations and systems research | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 13 | - 20 | . 20 |
| Personnel, labcr relations wkrs | 27.92 | 30.06 | 25.46 | . 17 | . 19 | .18 | -43 | . 46 | . 34 |
| other research workers | . 15 | - 15 | . 17 | . 00 | . 00 | . 00 | - 20 | . 19 | . 16 |
| Recreation workers | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 02 |
| Social workers | . 00 | . 00 | . 00 | - 00 | - 00 | . 00 | -02 | . 02 | -02 |
| Vocation, education counselors | . 27 | . 29 | . 31 | - 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Managers, officials, proprietors | 11.14 | 11.54 | 10.95 | 5.18 | 5.28 | 4.70 | 13.72 | 15.12 | 16.59 |
| Buyers, sales, lican managers | - 51 | . 53 | . 80 | . 28 | . 35 | . 64 | 1.71 | 1.60 | 1.98 |
| Bank, tinancial managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 19 | . 20 | . 20 |
| Credit managers | . 12 | -07 | . 04 | . 01 | -00 | - 00 | . 51 | -29 | . 24 |
| purchasing agents, buyers, other | . 04 | . 04 | . 08 | . 03 | . 03 | . 06 | . 40 | - 38 | . 56 |
| Sales manager, exc retail trade | .35 | . 42 | -68 | - 24 | - 32 | . 58 | . 62 | . 72 | - 99 |
| Other managers, officials, proprts. | 10.63 | 11.02 | 10.14 | 4.90 | 4.93 | 4.06 | 12.01 | 13.53 | 14.62 |
| Mgrs, superintendents, building | . 01 | . 02 | . 01 | . 08 | . 06 | . 05 | . 01 | . 02 | . 04 |
| office managers, other | 2.27 | 2.72 | 4.58 | . 25 | - 30 | . 54 | 1.16 | 1.35 | 1.94 |
| Resta urant, cafe, bar, managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other managers, administrators | 8.34 | 8.28 | 5.56 | 4.57 | 4.56 | 3.47 | 10.83 | 12.15 | 12.62 |
| Sales workers | 1.32 | 1.40 | 2.13 | . 97 | 1.12 | 1.89 | 4.74 | 4.33 | 5.42 |
| Advertising agents, sales worker | . 07 | . 08 | . 05 | .01 | . 01 | . 02 | . 10 | . 13 | . 10 |
| Auctioneers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 59 | . 40 | . 32 |
| Demonstrators | . 11 | . 09 | . 14 | . 00 | . 00 | . 00 | . 04 | . 05 | . 19 |
| Hucksters and peddlers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.03 | . 51 | . 16 |
| other sales workers | 1.14 | 1.24 | 1.94 | . 97 | 1. 11 | 1.88 | 2.98 | 3.23 | 4. 65 |
| Clerical workers | 53.40 | 50.77 | 54.76 | 3.90 | 3.75 | 4.01 | 46.51 | 46.21 | 46.75 |
| Stenoyraphrs,typists. secretaries | 31.23 | 29.51 | 31.78 | 1.78 | 1.78 | 2.20 | 12.87 | 11.79 | 12.40 |
| Legal secretaries | . 48 | . 42 | . 49 | . 00 | - 00 | . 00 | . 09 | . 09 | . 15 |
| Medical secretaries | . 08 | . 06 | . 13 | . 00 | . 00 | . 00 | . 04 | . 03 | . 05 |
| Other secretaries | 19.11 | 19.54 | 23.33 | 1.56 | 1.60 | 2.04 | 6.45 | 6.60 | 7.56 |
| Stenographers | . 80 | . 39 | . 07 | . 01 | . 01 | . 01 | . 97 | . 66 | . 94 |
| typists | 10.75 | 9.10 | 7.76 | . 21 | . 18 | . 14 | 5.32 | 4.41 | 3.71 |
| Office machine operators | 3.71 | 2. 85 | 1.74 | . 04 | . 03 | . 05 | 3.09 | 3.38 | 2.61 |
| Bockkeeping and billing | .31 | . 15 | . 09 | . 02 | .01 | . 03 | . 14 | . 09 | . 11 |
| calculating | .00 | . 00 | .00 | . 01 | . 01 | . 02 | - 13 | . 11 | . 14 |
| Computer and feripheral equip | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 49 | 1.09 | . 85 |
| Duplicating | . 07 | . 07 | . 10 | . 00 | - 00 | . 00 | .23 | . 21 | . 27 |
| Keypunch | 2.96 | 2.23 | 1.16 | . 00 | . 00 | -00 | 1.09 | . 83 | - 38 |
| Tabulating | . 00 | . 00 | . 00 | . 00 | -00 | . 00 | . 03 | . 01 | . 00 |
| Other office machine operators | .37 | . 40 | . 39 | . 01 | . 01 | . 01 | . 99 | 1.04 | . 85 |


|  | Employment, temporary help |  |  | Services to buildings |  |  | Other business services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 18.47 | 18.42 | 21.24 | 2.09 | 1.94 | 1. 76 | 30.55 | 31.05 | 31.74 |
| Billing clerks | . 33 | . 40 | . 73 | . 02 | . 03 | . 06 | . 36 | . 43 | . 67 |
| Bookicepers | 4.22 | 3. 98 | 3.48 | 1.13 | . 89 | . 42 | 3. 10 | 2.99 | 2.83 |
| Cashiers | . 18 | . 19 | . 24 | . 01 | . 02 | . 03 | .33 | . 37 | . 45 |
| clerical supervisors, other | . 43 | . 53 | . 76 | . 05 | . 09 | . 20 | . 65 | . 81 | . 97 |
| collectors, bill and account | . 03 | . 03 | . 02 | . 02 | . 03 | . 04 | 2.26 | 2.20 | 1.96 |
| Counter clerks,exc food | . 06 | . 07 | - 11 | . 02 | . 02 | . 04 | .76 | . 89 | 1. 28 |
| Dispatchers, starters, vehicle | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 | .17 | . 20 | . 29 |
| Enumerators and interviewers | . 27 | . 28 | . 45 | . 01 | . 01 | .00 | .19 | . 20 | . 35 |
| Estimators, investigators, other | . 39 | . 50 | . 59 | - 14 | . 18 | . 17 | 3.99 | 5.05 | 4.85 |
| Expediters, frcduction controlrs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 28 | . 34 | . 52 |
| File clerks | 2.56 | 2.21 | 2.40 | . 05 | . 04 | . 07 | 1.29 | 1.03 | . 67 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 37 | . 43 | - 10 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 02 |
| Mail handlers, exc post office | . 47 | . 46 | -47 | . 01 | . 01 | . 00 | 1.16 | 1.26 | 1.51 |
| Messengers and office helpers | . 22 | - 18 | . 06 | . 01 | . 01 | . 00 | 1.13 | . 98 | - 39 |
| payroll, timekeeping clerks | . 65 | . 65 | . 40 | . 14 | . 15 | - 15 | .19 | . 19 | . 13 |
| Real estate afpraisers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 10 | . 08 |
| Receptionists | 4.39 | 4.46 | 5.39 | . 11 | . 10 | . 08 | .67 | . 62 | . 46 |
| Shipping and receiving clerks | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 43 | . 37 | . 26 |
| Statistical clerks | . 61 | . 69 | . 70 | . 03 | . 02 | . 00 | . 60 | . 68 | . 63 |
| Stock clerks and store keepers | . 00 | . 00 | . 00 | .07 | .07 | . 09 | . 79 | . 68 | . 52 |
| Telegraph operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 04 | . 00 |
| Teleyhone operators | . 85 | . 52 | . 28 | . 03 | . 02 | . 01 | 3.39 | 2.19 | 1.33 |
| Weighers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 09 | .13 |
| Misc clerical workers | 2.83 | 3.28 | 5.18 | . 19 | . 22 | . 38 | 8.19 | 8.86 | 11.34 |
| Crafts and kindred workers | .00 | . 00 | . 00 | 3. 11 | 2.87 | 2.92 | 11.25 | 10.72 | 9. 86 |
| Construction crafts workers | .00 | . 00 | .00 | 1.04 | . 70 | . 29 | 1.48 | 1.29 | 1.05 |
| Carpenters and apprentices | . 00 | . 00 | . 00 | . 39 | .21 | . 02 | . 26 | . 21 | . 07 |
| Brick,stonemasons, apprentices | . 00 | . 00 | . 00 | .01 | . 01 | . 03 | . 01 | . 01 | . 01 |
| cement and concrete finishers | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 00 | . 00 | . 00 |
| zlectricians and apprentices | . 00 | . 00 | . 00 | . 13 | . 12 | .10 | .25 | . 23 | . 14 |
| Excavating.grading mach operatr | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 27 | . 26 | . 37 |
| rloor layers, exc tile setters | . 00 | . 00 | . 00 | . 03 | . 01 | . 00 | . 00 | . 00 | . 00 |
| painters and apprentices | . 00 | . 00 | . 00 | . 31 | . 24 | . 10 | - 33 | . 32 | . 36 |
| Plumbers, pipefitters,aprentices | . 00 | .00 | . 00 | . 11 | . 05 | . 00 | .33 | . 23 | . 07 |
| Structural metal craft workers | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | .03 | . 02 | . 04 |
| Tile setters | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | .00 |
| Blue collar worker supervisors | .00 | . 00 | . 00 | 1.07 | 1.37 | 2.23 | 1.20 | 1.31 | 1.25 |
| Metalworkg craft yrkrs, exc mech | .00 | . 00 | . 00 | . 07 | . 05 | . 02 | . 22 | . 20 | . 12 |
| Boilermakers | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | . 00 | .00 | . 00 |
| Machinists and apprentices | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | .17 | . 16 | . 09 |
| Millwrights | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Pattern and moldmakers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | .01 |
| Sheetmetal workers, apprentices | . 00 | . 00 | .00 | . 01 | .01 | . 00 | . 04 | . 03 | . 02 |
| Mechanics, repairers,installers |  |  |  | . 60 | . 56 | . 34 | 3.99 | 4.16 | 4. 50 |
| Air cond, heating, refrig mech | . 00 | . 00 | . 00 | . 10 | . 09 | . 03 | . 08 | . 11 | . 12 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 12 | . 09 | . 03 |
| Auto body repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 11 | . 08 | . 08 |
| Auto mechanics and apprentices | . 00 | . 00 | . 00 | . 07 | . 07 | . 11 | . 31 | . 29 | . 25 |
| Data processing mach repairers | . 00 | .00 | . 00 | . 01 | . 02 | . 02 | .31 | . 44 | . 64 |
| Farin implement mechanics | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 03 | . 05 |
| Heavy equip mech, incl diesel | . 00 | . 00 | . 00 | . 30 | . 28 | - 12 | 1.14 | 1.35 | 1.42 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 | . 29 | . 33 | .46 |
| Office machine repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 34 | . 24 | . 31 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 45 | - 29 | . 09 |
| other mechanics and apprentices | . 00 | . 00 | . 00 | .07 | . 06 | .03 | . 83 | . 90 | 1.04 |
| Printing trade crafts workers | .00 | . 00 | . 00 | . 01 | . 01 | . 00 | .35 | . 34 | . 24 |
| Bookbinders | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .03 | . 02 | . 01 |
| compositors and typesetters | . 00 | . 00 | -00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Enyravers exc photoengravers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Photoengravers, lithographers | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 05 | . 02 |
| Press, plate printers, aprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .23 | .25 | . 20 |
| Transport, public util craft wkrs | . 00 | . 00 | . 00 | .01 | . 01 | . 00 | . 20 | . 21 | . 21 |
| Elec pwr line instaler, repairer | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 02 | .02 | . 02 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .18 | . 19 | . 19 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Employment. temporary help |  |  | Services to buildings |  |  | other business services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 00 | .00 | . 00 | . 32 | . 17 | .04 | 3.82 | 3.21 | 2.49 |
| Carpet installers | . 00 | . 00 | .00 | . 01 | .01 | . 01 | . 01 | .01 | .01 |
| Crane, derrick, hoist operator | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 43 | . 33 | . 25 |
| Decorators, indow dressers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .32 | . 35 | . 16 |
| Furniture and wood finishers | . 00 | . 00 | .00 | . 00 | .00 | .00 | . 01 | . 01 | -01 |
| Inspectors, $10 g$ and lumber | . 00 | . 00 | .00 | - 00 | . 00 | . 00 | . 08 | . 05 | . 01 |
| Inspectors, other | . 00 | - 00 | .00 | . 09 | . 05 | . 00 | . 50 | -48 | . 21 |
| Jewelers and watchmakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Sign painters and letterers | . 00 | . 00 | . 00 | -00 | . 00 | . 00 | 2.18 | 1.75 | 1.60 |
| Stationary engineers | . 00 | . 00 | . 00 | . 19 | . 08 | . 00 | . 11 | . 07 | . 02 |
| Upholsterers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other crafts workers | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | -14 | . 14 | . 20 |
| operatives | . 00 | . 00 | .00 | 7.83 | 8.83 | 9.89 | 9.80 | 9.34 | 8.47 |
| operatives, except transport | . 00 | . 00 | . 00 | 7.43 | 8.46 | 9.52 | 7.19 | 7.23 | 7.16 |
| Semiskilled metalvocking | . 00 | . 00 | .00 | . 05 | . 04 | . 02 | . 15 | . 16 | . 15 |
| Solderers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Welders and flamecutters | . 00 | .00 | .00 | . 04 | . 03 | . 02 | . 14 | . 15 | . 14 |
| Semiskilled packing, inspectiny | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.30 | 1.16 | . 83 |
| Packer,wrapper, exc meat, prodce | .00 | . 00 | .00 | .00 | . 00 | . 00 | 1.30 | 1.16 | .83 |
| Other operatives, exc transport | .00 | . 00 | . 00 | 7.37 | 8.42 | 9.51 | 5.73 | 5.92 | 6.18 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 |
| cutting operatives, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 17 | . 20 | . 29 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 00 | -00 | . 00 | . 13 | . 14 | . 12 |
| Drillers, earth | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Filer, polisher, sarder, buffer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 |
| Garage urkr,gas station atten | . 00 | . 00 | . 00 | -02 | . 01 | . 00 | -18 | -14 | - 17 |
| La undry,dry cleang oprs,other | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 | . 01 | . 01 | .01 |
| Mixing operatives | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 0.04 | . 04 | . 06 |
| oilers,greasers,exc automodiles | . 00 | .00 | . 00 | . 01 | . 00 | . 00 | . .07 | . 05 | . 02 |
| Painters, mfg articles | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 05 | . 08 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 4.13 | 4.16 | 4.00 |
| Riveters and fasteners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 05 | . 08 |
| Furnace tendr, stokr,exc metal | . 00 | . 00 | . 00 | . 02 | .01 | . 01 | . 04 | . 02 | .01 |
| Miscellaneous machine operatves | . 00 | . 00 | .00 | . 04 | . 03 | . 00 | . 00 | -00 | . 00 |
| other operatives, exc transport | . 00 | . 00 | . 00 | 7.23 | 8.30 | 9.45 | . 79 | . 97 | 1.24 |
| Transport equipment operatives | . 00 | . 00 | . 00 | -41 | - 37 | . 37 | 2.62 | 2.10 | 1.31 |
| Bus drivers | . 00 | . 00 | . 00 | - 00 | -01 | . 00 | . 03 | . 03 | . 00 |
| Delivery and route workers | . 00 | . 00 | . 00 | - 12 | - 09 | . 05 | 1.28 | 1.08 | . 85 |
| Fork lift, tow motor operatives | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 14 | . 19 | . 26 |
| Parking attendants | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 03 | . 03 | . 03 |
| Taxicab drivers, chauffeurs | . 00 | . 00 | . 00 | . 02 | . 02 | . 00 | . 14 | . 09 | . 01 |
| Truck drivers | . 00 | . 00 | . 00 | . 22 | . 23 | .31 | 1.00 | . 67 | . 15 |
| Service workers | 4.15 | 3.82 | 4.06 | 77.34 | 76.36 | 74.28 | 1.50 | 1.35 | 1.12 |
| Cleaning service workers | 3.50 | 3.30 | 3.68 | 76.44 | 75.64 | 73.56 | . 77 | . 76 | . 73 |
| Lodging gtrs cleaners, exc privt | . 50 | . 29 | . 28 | . 49 | . 30 | . 54 | . 02 | . 01 | . 02 |
| Bldy interior cleaners, other | 1.82 | 1.93 | 2.33 | 62.58 | 61.67 | 54.81 | . 22 | . 24 | . 26 |
| Janitors and sextons | 1.12 | 1.08 | 1.07 | 13.38 | 13.68 | 18.21 | . 54 | . 51 | . 44 |
| Food service warkers | -00 | . 00 | . 00 | . 00 | . 00 | .00 | .03 | . 03 | . 05 |
| Other food serv wkrs, exc privt | . 00 | .00 | .00 | . 00 | . 00 | . 00 | .03 | .03 | . 05 |
| Health service workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 03 | . 03 | . 06 |
| Nursing aides and orderlies | . 00 | .00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 04 |
| Practical nurses | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Personal service workers | . 29 | . 22 | .21 | - 58 | . 46 | . 62 | . 27 | . 20 | . 14 |
| Attendants, personal serv, other | . 00 | . 00 | . 00 | .17 | . 15 | . 17 | . 04 | . 04 | . 04 |
| Baggage porters and bellhops | . 00 | . 00 | . 00 | . 02 | . 02 | . 21 | . 00 | .00 | . 00 |
| Child care workers, exc private | . 06 | . 04 | . 08 | . 01 | . 01 | .03 | . 01 | . 01 | . 01 |
| elevator operators | . 07 | . 05 | . 02 | . 28 | . 19 | . 03 | . 03 | . 02 | . 01 |
| Housekeepers, exc private homes | . 16 | - 12 | - 12 | . 10 | . 10 | . 19 | . 19 | . 14 | . 08 |
| Protective service workers | - 36 | - 31 | . 17 | - 30 | - 25 | .11 | . 40 | - 34 | . 15 |
| Firefighters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Guards | . 34 | - 29 | .15 | . 29 | . 24 | . 11 | .34 | -29 | . 14 |
| Police and detectives | . 02 | . 02 | . 02 | . 02 | . 01 | . 00 | . 05 | . 03 | . 00 |

Table 1. Percent distribution of industry employment by occupation,
Laborers, except farm
Carpenter helfers
Constr labr,exc carpenter helpr
Freight and material handers
Garbage collectors
Gardenrs, groundkeepers, exc farin
Timbercuttinge logging workers
Stock handlers
Vehicle washers, equip cleaners
Harehouse latcrers, other
Other laborers

| Employment, |
| :---: |
| temporary |
| help |

$1970 \quad 1978 \quad 1990$

| .26 | .24 | .32 |
| :--- | :--- | :--- |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .03 | .02 | .01 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .23 | .22 | .31 |

1970, 1978 and projected 1990

| Services to <br> buildings |  | Other <br> business <br> services |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
|  |  |  |  |  |  |
| 1.17 | 1.22 | 1.75 | 2.84 | 2.61 | 2.97 |
| .01 | .01 | .02 | .00 | .00 | .00 |
| .06 | .06 | .05 | .00 | .00 | .00 |
| .00 | .00 | .00 | .40 | .46 | .65 |
| .01 | .01 | .02 | .00 | .00 | .00 |
| .54 | .54 | .79 | .05 | .06 | .09 |
| .00 | .00 | .00 | .01 | .01 | .01 |
| .02 | .03 | .04 | .38 | .45 | .50 |
| .25 | .30 | .40 | .17 | .19 | .21 |
| .03 | .03 | .02 | .16 | .13 | .05 |
| .25 | .25 | .42 | 1.67 | 1.32 | 1.45 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Automobile services |  |  | Automobile repair |  |  | Automobile services. exc repair |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| retal all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.54 | 1. 14 | .90 | . 14 | - 16 | . 11 | 4.29 | 3.51 | 2.45 |
| Engineering, science technicians | . 01 | . 01 | . 02 | .01 | . 02 | .03 | . 01 | . 01 | . 01 |
| Chemical techricians | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| glectrical and electronic | .01 | . 01 | . 02 | . 01 | - 02 | .03 | . 00 | . 00 | . 00 |
| Technicians, except health | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 | . 04 | . 05 | . 03 |
| Airplane pilots | . 00 | - 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Radio operators | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Computer specialists | . 04 | . 05 | . 05 | . 00 | . 00 | . 00 | . 13 | . 16 | . 15 |
| Computer frogramers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 06 | . 07 | . 07 |
| computer systems analysts | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 05 | . 08 | . 07 |
| other computer specialists | . 00 | . 01 | -00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Teachers | . 94 | . 56 | . 39 | . 01 | . 01 | . 02 | 2.80 | 1.87 | 1.12 |
| Adult education | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Other teachers | . 94 | . 54 | .37 | .00 | . 00 | . 00 | 2.79 | 1.86 | 1.11 |
| Writers, artists, entertainers | . 07 | . 08 | . 08 | . 03 | . 03 | . 02 | - 17 | . 21 | - 19 |
| tditors and reforters | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Photographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| Public relaticns specialists | . 06 | . 08 | . 07 | .02 | . 03 | . 02 | . 15 | - 18 | . 17 |
| Other professicnal and technical | . 45 | . 42 | . 36 | . 10 | . 10 | . 05 | 1.14 | 1.21 | . 95 |
| accountants | . 30 | . 27 | . 25 | . 06 | . 06 | .03 | . 75 | . 79 | . 67 |
| Lawyers | . 03 | -03 | - 02 | . 00 | . 00 | . 00 | . 09 | . 11 | . 05 |
| operations and systems researca | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 | . 02 | .03 | - 03 |
| Personnel, labor relations wkrs | . 10 | . 09 | . 07 | . 03 | . 03 | . 02 | .23 | . 24 | - 18 |
| other research workers | . 01 | .01 | .01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Vocation, education counselors | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | -01 | . 01 |
| Managers, officials, proprietors | 9.71 | 11.44 | 11.45 | 6.66 | 8.90 | 8.38 | 15.73 | 17.62 | 17.47 |
| Buyers, sales, loan managers | . 31 | . 32 | . 38 | . 10 | . 12 | . 09 | . 73 | . 79 | . 96 |
| Credit managers | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 | . 08 | . 04 | . 03 |
| purchasing agents, buyers,other | . 08 | . 08 | . 08 | . 04 | . 04 | . 03 | . 18 | . 18 | . 19 |
| Sales manager, exc retail trade | . 20 | - 22 | . 28 | . 06 | . 07 | . 06 | . 48 | . 57 | .73 |
| Other managers, officials, proprts | 9.40 | 11.12 | 11.07 | 6.56 | 8.77 | 8.29 | 15.00 | 16.83 | 16.52 |
| Mgrs, superintendents, building | . 01 | . 01 | . 01 | - 00 | . 00 | - 00 | . 02 | . 02 | . 04 |
| office managers, other | . 35 | . 35 | . .46 | . 14 | . 15 | . 15 | . 77 | . 84 | 1.05 |
| Other managers, administrators | 9.05 | 10.77 | 10.60 | 6.42 | 8.62 | 8.14 | 14.22 | 15.97 | 15.42 |
| Sales workers | . 72 | . 74 | . 87 | . 55 | . 59 | . 43 | 1.05 | 1.11 | 1.71 |
| Other sales workers | . 71 | . 74 | . 87 | - 55 | . 59 | . 43 | 1.04 | 1.10 | 1.71 |
| Clerical workers | 9.24 | 8. 25 | 8.99 | 3.85 | 3.22 | 2. 14 | 19.88 | 20.47 | 22.41 |
| Stenographrs, typists, secretaries | 1.69 | 1.44 | 1.52 | . 79 | . 68 | . 40 | 3.45 | 3.31 | 3.70 |
| Legal secretaries | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 |
| Other secretaries | 1.39 | 1. 22 | 1.31 | .73 | . 62 | . 38 | 2.69 | 2.69 | 3.13 |
| Stenographers | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 05 | . 02 | . 01 |
| Typists | . 27 | . 20 | . 19 | . 07 | . 06 | . 02 | -66 | . 55 | . 51 |
| Office machine operators | . 14 | - 14 | . 12 | . 02 | . 04 | . 03 | . 38 | - 38 | . 32 |
| Bookkeeping and billing | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 04 | . 02 | . 03 |
| Calculating | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Computer and feripheral equip | .03 | . 07 | . 06 | . 01 | . 03 | . 03 | . 07 | . 15 | . 14 |
| Duplicating foriplater | . 00 | . 00 | . 01 | .00 | . 00 | . 00 | .01 | . 01 | . 03 |
| Keypunch | . 08 | . 05 | . 04 | . 00 | . 00 | .00 | . 24 | . 18 | . 11 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Automobile services |  |  | Automobile repair |  |  | Automobile services. exc repair |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 7.41 | 6.67 | 7.35 | 3.04 | 2.50 | 1.72 | 16.05 | 16.78 | 18.39 |
| Billing clerks | . 08 | . 08 | . 06 | . 04 | . 05 | . 05 | . 15 | . 17 | . 08 |
| Bookkeepers | 2.51 | 2.00 | 1.71 | 2.23 | 1.64 | 1.12 | 3.06 | 2.87 | 2.89 |
| Cashiers | 1.23 | 1. 14 | 1.66 | . 05 | . 04 | . 03 | 3.58 | 3.81 | 4.84 |
| Clerical supervisors, other | . 06 | .07 | .07 | . 01 | . 02 | . 02 | . 16 | . 19 | . 18 |
| Collectors, bill and account | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 06 | . 06 | . 07 |
| counter clerks,exc food | 1.51 | 1.40 | 1.83 | .03 | . 04 | . 03 | 4.44 | 4.68 | 5.37 |
| Dispatchers, starters, vehicle | . 14 | . 13 | - 18 | . 02 | . 02 | . 02 | . 37 | .41 | . 49 |
| Enumerators and intervievers | . 00 | . 00 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| estimators, investigators, other | . 59 | . 65 | -61 | . 06 | . 08 | . 04 | 1.65 | 2.02 | 1.72 |
| Expediters, frcauction controlrs | . 04 | . 04 | . 05 | .00 | . 00 | . 00 | . 11 | . 12 | . 15 |
| File clerks | . 11 | . 08 | . 09 | . 03 | . 02 | . 01 | . 26 | . 22 | . 24 |
| Insurance adjusters, examiners | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| mail handlers,exc post office | . 02 | . 02 | . 03 | . 01 | . 01 | . 02 | .05 | . 05 | . 07 |
| Messengers and office helpers | . 03 | . 03 | . 01 | . 04 | . 03 | . 00 | .03 | . 03 | . 02 |
| Payroll,timekeeping clerks | . 06 | . 05 | . 04 | . 01 | . 01 | . 01 | - 14 | - 14 | - 10 |
| Receptionists | . 19 | . 16 | . 14 | . 06 | . 06 | . 04 | . 43 | . 41 | - 34 |
| Shipping and receiving clerks | . 03 | . 02 | . 02 | . 03 | . 03 | . 01 | . 03 | . 02 | . 02 |
| Statistical clerks | . 08 | . 08 | . 12 | .00 | . 00 | . 00 | . 23 | . 26 | . 34 |
| Stock clerks and store keepers | . 16 | - 17 | - 12 | - 19 | . 21 | . 14 | . 09 | . 09 | - 10 |
| Telephone operators | .05 | . 03 | . 02 | . 01 | . 01 | . 01 | - 12 | . 07 | . 06 |
| Misc clerical workers | . 51 | . 50 | . 55 | . 22 | . 24 | . 17 | 1.07 | 1.13 | 1.30 |
| Crafts and kindred workers | 55.97 | 57.29 | 57.52 | 78.73 | 76.58 | 80.93 | 11.04 | 10.48 | 11.64 |
| Construction crafts workers | .41 | .47 | . 33 | . 51 | . 60 | . 43 | . 21 | . 17 | . 13 |
| Carpenters and apprentices | .03 | . 03 | . 01 | . 03 | . 03 | . 01 | . 04 | . 03 | . 01 |
| Electricians and apprentices | . 04 | . 03 | . 01 | .03 | .03 | . 00 | . 06 | . 05 | .03 |
| Painters and apprentices | . 32 | . 41 | - 30 | . 44 | . 54 | .41 | . 08 | . 08 | . 08 |
| Plumbers,pipefitters, aprentices | .01 | . 01 | .01 | .01 | . 01 | . 00 | . 03 | . 02 | . 02 |
| Blue collar worker superyisors | . 68 | . 65 | . 40 | . 57 | . 56 | . 26 | . 89 | . 86 | . 66 |
| Metalworkg craft uricrs, exc mech | . 16 | . 15 | . 08 | . 21 | . 20 | . 11 | . 05 | . 04 | . 03 |
| Blacksmiths | . 01 | .01 | .00 | .01 | . 01 | .00 | . 00 | .00 | . 00 |
| Machinists and apprentices | . 15 | - 15 | . 08 | . 20 | . 19 | .11 | . 05 | . 04 | . 03 |
| Bechanics, repairers, installers | 54.15 | 55.47 | 56.45 | 76.64 | 74.51 | 79.81 | 9.73 | 9.26 | 10.66 |
| Air cond, heating. refrig mech | . 03 | . 04 | . 03 | . 02 | . 03 | . 01 | . 05 | . 06 | . 06 |
| Aircraft mechanics | . 03 | . 02 | . 01 | .03 | . 02 | . 00 | . 02 | . 01 | . 01 |
| Auto accessories installers | . 45 | . 43 | . 23 | . 66 | . 60 | . 33 | . 04 | . 04 | . 03 |
| Auto body repairers | 15.29 | 14.37 | 14.78 | 22.74 | 20.10 | 22.06 | . 58 | . 46 | . 50 |
| Auto mechanics and apprentices | 37.83 | 39.96 | 40.70 | 52.69 | 53.12 | 56.83 | 8.50 | 8.04 | 9.09 |
| Farm implement mechanics | . 02 | . 02 | . 03 | . 01 | .01 | . 01 | . 03 | . 04 | . 05 |
| Heavy equip mech, incl diesel | . 35 | . 46 | . 55 | . 32 | . 45 | . 43 | . 41 | - 50 | . 78 |
| Household appliance mechanics | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 | . 02 | .02 | . 03 |
| Radio, teleyision repairers | . 02 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Hailroad, car shop repairers | .01 | .01 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other mechanics and apprentices | . 11 | . 12 | . 09 | . 12 | . 14 | . 10 | . 08 | . 08 | . 09 |
| Other crafts, kindred workers | . 58 | . 54 | - 27 |  | . 70 | . 32 | . 16 |  | . 16 |
| Decorators, window dressers | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Glaziers | . 29 | . 32 | . 11 | . 44 | . 45 | . 16 | . 01 | . 01 | . 01 |
| Inspectors, other | .01 | . 02 | - 02 | . 01 | . 01 | . 02 | . 02 | . 02 | . 01 |
| Sign painters and letterers | . 01 | . 01 | . 02 | -01 | . 01 | . 01 | . 02 | . 02 | . 03 |
| Stationary engineers | .01 | .01 | . 01 | .01 | . 00 | . 00 | .03 | . 02 | . 02 |
| 0 pholsterers | . 22 | - 16 | . 09 | .33 | . 22 | . 13 | . 02 | . 01 | . 02 |
| Other crafts workers | . 02 | . 02 | . 02 | . 01 | . 00 | . 00 | . 04 | . 04 | . 05 |
| operatives | 13.19 | 12.27 | 10.70 | 9.10 | 9.49 | 7.36 | 21.27 | 19.00 | 17.26 |
| operatives, except transport | 7.03 | 7. 25 | 6.04 | 8.36 | 8.80 | 6.93 | 4.41 | 3.48 | 4.30 |
| Semiskilled metaluorking Welders and flamecutters | $\begin{array}{r} .32 \\ .32 \end{array}$ | $\begin{array}{r} .30 \\ .30 \end{array}$ | $\begin{aligned} & .15 \\ & .15 \end{aligned}$ | $\begin{array}{r} .41 \\ .41 \end{array}$ | $\begin{array}{r} .37 \\ .37 \end{array}$ | .15 .15 | $\begin{aligned} & .15 \\ & .15 \end{aligned}$ | .15 .15 | .15 .15 |
| Semiskilled packing, inspecting Packer, wrapper,exc meat,prodce | $\begin{array}{r} .02 \\ .02 \end{array}$ | $\begin{array}{r} .02 \\ .02 \end{array}$ | $\begin{aligned} & .01 \\ & .01 \end{aligned}$ | $\begin{array}{r} .01 \\ .01 \end{array}$ | . 01 | . 01 | $\begin{array}{r} .03 \\ .03 \end{array}$ | $\begin{array}{r} .02 \\ .02 \end{array}$ | . 02 |

Table 1. Fercent distritution of industry empioyment by occupation, 1970, 1978 and projected 1990

|  | Automobile services |  |  | Automobile repair |  |  | Automobile services. exc repair |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Cther operatives, exc transpori | 6.69 | 6.93 | 5.88 | 7.93 | 8.42 | 6.78 | 4.23 | 3.31 | 4. 13 |
| Assemblers | . 05 | . 05 | . 03 | . 05 | . 06 | . 02 | . 05 | . 05 | . 06 |
| Cutting operatives, other | . 00 | . 01 | . 01 | . 01 | -01 | . 01 | . 00 | . 00 | . 00 |
| riler, polisher,sander, buffer | . 03 | . 04 | . 02 | . 05 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Garage wrkrsgas station atten | 2.74 | 2. 12 | 2.12 | 2.30 | 1.90 | 1.47 | 3.61 | 2.64 | 3.41 |
| Painters, mfg articles | 2.43 | 2.71 | 2.34 | 3.57 | 3.76 | 3.41 | -19 | . 17 | .23 |
| Photographic frocess workers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 03 |
| Furnace tendr, stokr, exc metal | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Miscellaneous machine operatves | . 78 | 1.11 | . 74 | 1.17 | 1.57 | 1. 12 | . 00 | . 00 | . 00 |
| other oferatives, exc transport | . 64 | -88 | .61 | . 79 | 1.07 | . 72 | .35 | . 41 | . 39 |
| Transport equipment operatives | 6.16 | 5.02 | 4.66 | . 74 | . 69 | . 43 | 16.86 | 15.53 | 12.97 |
| Bus drivers | . 01 | . 01 | . 00 | . 00 | .00 | .00 | . 04 | . 04 | . 00 |
| Delivery and route workers | .21 | - 16 | - 12 | - 14 | . 11 | . 06 | - 35 | . 28 | . 23 |
| pork lift,tow motor operatives | . 06 | . 07 | . 09 | . 02 | . 03 | . 02 | . 13 | . 15 | . 21 |
| Parking attendants | 3.64 | 3.45 | 3.45 | . 07 | . 07 | . 01 | 10.70 | 11.64 | 10.19 |
| Taxicab drivers, chauffeurs | . 63 | . 33 | . 16 | . 06 | -04 | . 00 | 1.76 | 1.03 | . 46 |
| Truck drivers | 1.67 | 1.01 | . 85 | -46 | . 45 | - 33 | 3.88 | 2.38 | 1.88 |
| Service workers | . 74 | .66 | . 59 | - 38 | - 37 | - 19 | 1.45 | 1.36 | 1.37 |
| Cleaning service workers | - 58 | - 53 | . 44 | . 29 | - 30 | - 16 | 1.13 | 1.09 | 1.00 |
| Bldy interior cleaners, other | . 19 | . 19 | . 18 | . 05 | . 06 | . 03 | . 48 | . 50 | . 48 |
| Janitors and sextons | . 38 | . 35 | .26 | . 25 | . 24 | . 12 | . 65 | . 59 | -53 |
| Pood service workers |  | . 01 | . 02 | . 00 | . 00 | . 00 | . 03 |  | . 07 |
| Waiters' assistants | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Pood counter,tountain workers | .01\% | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Personal service workers | . 06 | . 05 | . 02 | . 06 | . 04 | .00 | . 07 | . 06 | . 05 |
| Attendants. personal secv,other | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| cilevator cperators | .01 | . 01 | . 00 | . 00 | - 00 | .00 | . 03 | . 02 | . 01 |
| Hairdressers and cosmetologists | . 04 | .03 | . 00 | . 06 | . 04 | . 00 | . 00 | -00 | . 00 |
| Housekeepers, exc private homes | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Protective service workers | .09 | . 06 | . 10 |  | . 02 | . 03 |  | .17 | . 24 |
| Guards | . 08 | . 06 | - 10 | . 02 | . 02 | . 03 | - 20 | .16 | . 24 |
| Police ana detectives | .01 | . 00 | . 00 | .00 | - 00 | . 00 | . 02 | .01 | . 01 |
| Laborers, except farm | 8.90 | 8.22 | 8.98 | . 60 | . 70 | . 46 | 25.29 | 26.47 | 25.69 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Constr labr,exc carfenter helpr | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 03 | . 03 | .03 |
| Garbage collectors | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Gardenrs,groundkeepers, exc farin | . 01 | . 01 | .01 | . 00 | -00 | . 00 | . 03 | . 03 | . 04 |
| Stock handlers | . 03 | . 04 | . 05 | -03 | -04 | . 04 | . 04 | . 05 | . 07 |
| Vehicle washers, equip cleaners | 8.67 | 8.01 | 8.73 | - 50 | - 59 | - 36 | 24.81 | 26.02 | 25.12 |
| Warehouse labcrers, otier | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| other laborers | - 16 | - 14 | . 16 | .07 | . 07 | . 06 | .33 | . 30 | . 37 |

Table 1. Percent distribution of industry employment by occupation, 1970 , 1978 and projected 1990

|  | Other repair services |  |  | $\begin{gathered} \text { Electrical } \\ \text { repair } \\ \text { services } \end{gathered}$ |  |  | $\begin{aligned} & \text { Oth repair. } \\ & \text { except } \\ & \text { electrical } \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 1.27 | 1.32 | 1.48 | 1.99 | 2. 11 | 2.51 | . 79 | . 99 | . 87 |
| Engineers, technical | . 29 | . 20 | .25 | . 73 | . 67 | . 68 | . 00 | . 00 | . 00 |
| Electrical | . 16 | . 11 | . 10 | . 41 | . 36 | . 27 | . 00 | . 00 | .00 |
| Industrial | . 01 | . 01 | . 03 | . 03 | . 04 | . 08 | . 00 | . 00 | . 00 |
| Mechanical | .06 | . 04 | . 05 | . 16 | . 14 | . 13 | . 00 | . 00 | . 00 |
| other engineers | . 05 | . 04 | . 08 | - 13 | . 12 | .21 | .00 | .00 | . 00 |
| Life and physical scientists | .01 | .01 | . 01 | .01 | . 01 | . 00 | . 01 | . 01 | . 02 |
| Biological | .00 | . 01 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Engineering, science technicians | . 33 | . 31 | .53 | . 72 | . 84 | 1.26 | . 08 | . 09 | . 10 |
| Drafters | . 06 | . 05 | . 03 | . 09 | . 07 | . 05 | . 04 | . 04 | . 03 |
| tlectrical and electronic | . 22 | . 20 | . 38 | . 56 | . 68 | 1.02 | .00 | . 00 | . 00 |
| Industrial engineering | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Mechanical engineering | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| other engineering, science tecn | . 04 | . 05 | . 10 | . 06 | . 08 | - 19 | . 02 | . 03 | . 05 |
| Medical workers, exc tecanicians | . 00 | . 00 | .01 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Registered nurses | .00 | . 00 | .01 | .01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Technicians, except health | .19 | . 25 | . 20 | . 06 | .09 | . 12 | . 28 | . 32 | . 24 |
| Other technicians except health | . 19 | - 25 | . 20 | . 06 | . 09 | - 12 | -28 | - 32 | . 24 |
| Teachers | . 03 | . 03 | . 05 | . 04 | . 05 | . 07 | . 02 | . 03 | . 04 |
| Adult educaticn | . 03 | . 03 | .05 | . 04 | . 05 | . 07 | . 02 | . 03 | . 04 |
| writers, artists, entertainers | .16 | . 23 | .23 | . 10 | - 12 | . 14 | . 20 | . 28 | . 29 |
| Designers | . 06 | . 07 | . 06 | . 06 | . 07 | . 07 | . 05 | . 06 | . 05 |
| painters and sculptors | . 08 | - 13 | . 13 | . 00 | . 00 | . 00 | . 13 | . 19 | . 21 |
| Other writers,artists, entertain | . 02 | . 03 | . 04 | . 03 | . 04 | . 07 | . 02 | . 03 | . 03 |
| Other professional and technical | . 26 | . 28 | . 20 | .33 | . 33 | . 22 | . 22 | .27 | . 19 |
| Accountants | . 18 | - 19 | . 12 | . 23 | . 22 | . 13 | . 15 | . 18 | - 11 |
| personnel, labor relations wkrs | . 08 | . 09 | . 08 | - 10 | . 11 | . 09 | . 07 | . 09 | . 08 |
| Managers, officials, proprietors | 6.67 | 8.00 | 7.29 | 6.92 | 7.81 | 5.91 | 6.51 | 8.07 | 8.10 |
| Buyers, sales, lcan managers | . 26 | . 27 | .37 | . 34 | . 34 | -48 | . 20 | . 24 | . 31 |
| Credit managers | . 02 | .01 | . 01 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 |
| Purchasing agents, buyers,other | - 10 | - 10 | . 12 | . 12 | - 11 | . 13 | . 09 | . 09 | .11 |
| Sales manager, exc retail trade | . 14 | - 16 | . 25 | . 19 | . 21 | .34 | . 11 | . 14 | -19 |
| Other managers,officials, proprts | 6.42 | 7.73 | 6.91 | 6.58 | 7.48 | 5.43 | 6.31 | 7.83 | 7. 79 |
| Mgrs, superintendents, building | . 04 | . 06 | . 06 | . 00 | . 00 | . 00 | . 07 | . 09 | - 10 |
| Office managers, other | . 32 | . 33 | . 41 | . 45 | . 46 | . 61 | . 24 | . 28 | . 28 |
| other managers, administrators | 6.05 | 7.33 | 6.45 | 6. 14 | 7.02 | 4.81 | 5.99 | 7.46 | 7.42 |
| Sales workers | 1.08 | 1.08 | 1.15 | 1.12 | 1. 10 | 1.28 | 1.06 | 1.07 | 1.07 |
| Other sales warkers | 1.08 | 1.07 | 1.15 | 1.11 | 1.10 | 1.28 | 1.05 | 1.07 | 1.07 |
| Clerical workers | 7.62 | 6.96 | 6.85 | 9.87 | 8.70 | 8.00 | 6.15 | 6.25 | 6.17 |
| Stenographrs,typists, secretarıes | 2.24 | 2.02 | 2.00 | 3.03 | 2.68 | 2.47 | 1.72 | 1.74 | 1.71 |
| other secretaries | 1.82 | 1.66 | 1.67 | 2.48 | 2.26 | 2.17 | 1.38 | 1.42 | 1.38 |
| Stenographers | .03 | . 02 | . 01 | . 04 | . 02 | .01 | . 02 | . 01 | . 01 |
| Typists | . 39 | .34 | . 32 | . 52 | . 40 | . 30 | - 31 | -31 | . 33 |
| office machine operators | .06 | . 05 | . 05 | . 07 | . 04 | . 03 | . 05 | . 05 | . 07 |
| Bookkeeping and billing | . 03 | . 02 | . 02 | . 04 | . 02 | . 01 | . 02 | . 02 | . 03 |
| Calculating | . 02 | . 01 | .01 | . 02 | . 02 | . 02 | . 01 | .01 | . 01 |
| Other office machine operators | . 01 | .01 | .01 | .00 | . 00 | . 00 | . 01 | . 02 | . 02 |


|  | other repair services |  |  | $\begin{aligned} & \text { Electrical } \\ & \text { repair } \\ & \text { services } \end{aligned}$ |  |  | oth repair. except electrical |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1390 | 1970 | 1978 | 1990 |
| Other clerical workers | 5.33 | 4.90 | 4.80 | 6.78 | 5. 99 | 5.50 | 4.37 | 4.45 | 4.39 |
| Billing clerks | . 10 | . 10 | . 14 | . 14 | . 15 | . 24 | . 08 | . 08 | . 08 |
| Bookneepers | 2.31 | 1. 84 | 1.36 | 2.99 | 2.40 | 1.22 | 1.86 | 1.61 | 1.45 |
| Cashiers | . 11 | - 13 | . 13 | .11 | . 11 | . 08 | . 11 | . 14 | . 16 |
| clerical supervisors, other | . 05 | . 07 | . 09 | . 02 | . 02 | . 02 | . 06 | . 09 | . 13 |
| collectors, bill and account | . 02 | . 03 | . 04 | .01 | .01 | . 01 | . 02 | . 04 | . 06 |
| Counter clerks,exc food | . 17 | . 20 | . 28 | . 16 | . 18 | . 29 | . 18 | . 21 | . 28 |
| Dispatchers, starters, vehicle | . 08 | . 08 | -13 | - 16 | - 17 | . 24 | .03 | . 05 | . 07 |
| Estimators, investiyators, other | . 32 | . 44 | .29 | . 12 | . 15 | . 15 | . 45 | . 56 | . 37 |
| Expediters, production controlrs | . 07 | . 08 | . 12 | . 11 | . 12 | . 17 | . 04 | . 06 | .09 |
| File clerks | - 11 | - 10 | -11 | . 16 | . 13 | . 11 | . 08 | . 08 | . 10 |
| Insurance adjusters, examiners | . 06 | . 11 | . 04 | . 00 | . 00 | - 00 | - 10 | . 16 | . 07 |
| Mail handlers, exc fost ofrice | . 04 | . 04 | . 05 | . 02 | . 02 | . 02 | . 04 | . 05 | . 06 |
| Messengers and office helpers | . 03 | . 03 | . 02 | . 03 | . 03 | . 02 | . 04 | . 04 | . 02 |
| Payroll, timekeeping clerks | .0s | . 06 | . 04 | . 04 | . 04 | . 02 | . 05 | . 07 | . 06 |
| keal estate appraisers | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 01 | . 03 | . 07 |
| Heceptionists | . 29 | . 25 | . 26 | . 44 | . 39 | . 42 | .19 | . 18 | . 17 |
| Shipping and receiving clerks | . 18 | . 14 | . 08 | . 27 | . 21 | - 13 | . 12 | -11 | . 05 |
| stock clerks and store keepers | .21 | - 19 | . 20 | . 29 | - 26 | . 30 | . 16 | . 16 | . 14 |
| Telephone operators | . 12 | . 06 | . 02 | . 18 | . 10 | . 03 | . 08 | . 04 | . 01 |
| Misc clerical workers | 1.00 | . 94 | 1.36 | 1.53 | 1.53 | 2.04 | . 65 | . 70 | . 95 |
| Crafts and kinared workers | 61.22 | 58.33 | 61.51 | 75.59 | 75.72 | 76.72 | 51.80 | 51.16 | 52.51 |
| Construction crafts workers | 1.83 | 1.72 | 1.52 | 2.51 | 2. 35 | 1.81 | 1.39 | 1.46 | 1. 35 |
| Carpenters and apprentices | . 30 | . 35 | . 21 | . 09 | . 09 | . 07 | . 44 | . 45 | . 30 |
| Brick, stonemasons, apprentices | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Bulldozer operators | . 02 | . 03 | . 05 | . 00 | . 00 | - 00 | . 03 | . 04 | . 07 |
| Cement and concrete finishers | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| electricians and apprentices | .97 | . 73 | . 68 | 2.21 | 2.07 | 1.52 | . 15 | . 17 | . 18 |
| Excavating.grading mach operatr | . 10 | - 13 | . 16 | . 00 | . 00 | . 00 | . 17 | . 18 | . 26 |
| Painters and apprentices | . 25 | . 29 | . 27 | - 11 | - 12 | . 15 | .34 | . 37 | . 34 |
| Plumbers, pi pefitters, aprentices | . 14 | - 15 | . 13 | . 09 | - 07 | . 06 | . 18 | - 19 | .17 |
| Structural metal craft workers | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Tile setters | . 00 | . 00 | .01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Blue collar worker supervisors | . 85 | . 90 | . 55 | . 84 | . 75 | . 40 | . 85 | .95 | . 64 |
| Metalworkg craft wrkrs, exc mech | 2.61 | 2.89 | 2.41 | . 47 | - 46 | . 48 | 4.01 | 3.89 | 3.54 |
| Blacksmiths | 1.40 | 1.44 | .96 | . 00 | . 00 | . 00 | 2.32 | 2.03 | 1.53 |
| Boilermakers | . 34 | . 43 | . 41 | . 00 | . 00 | . 00 | . 56 | . 61 | . 65 |
| Heat treaters, annealers | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Porge and hamiter operators | . 02 | . 03 | .03 | . 00 | . 00 | . 00 | . 03 | . 04 | . 04 |
| Job and die setters, metal | . 02 | . 03 | . 02 | - 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Machinists and apprentices | . 52 | . 66 | . 81 | - 40 | - 40 | . 44 | . 60 | . 76 | 1.02 |
| Millwrights | . 07 | . 08 | . 04 | . 03 | . 02 | . 01 | . 09 | . 10 | . 06 |
| Pattern and mcldmakers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Sheetmetal workers, appreatices | . 07 | . 06 | . 03 | . 05 | . 03 | - 02 | . 08 | . 07 | . 03 |
| Tool and dienakers, apprentices | . 17 | . 17 | . 09 | . 00 | . 00 | . 00 | . 28 | . 23 | . 15 |
| Mechanics, repairers, installers | 43.95 | 41.63 | 47.03 | 71.34 | 71.77 | 73.71 | 25.98 | 29.19 | 31.25 |
| Air cond, heating, refrig mech | 4.85 | 4. 90 | 4.15 | 9.98 | 11.86 | 8.13 | 1.48 | 2.02 | 1.79 |
| Aircraft mechanics | . 18 | - 24 | . 25 | . 09 | . 05 | . 00 | .25 | . 31 | . 40 |
| Auto accessories installers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | .01 |
| Auto body repairers | . 14 | . 14 | . 11 | . 02 | . 02 | . 01 | . 21 | . 19 | . 18 |
| Auto mechanics and apprentices | 1.28 | 1.48 | 1.54 | . 47 | . 45 | . 53 | 1.81 | 1.90 | 2.14 |
| Data processing mach repairers | . 07 | . 94 | 1.31 | . 79 | 1.02 | 1.63 | . 59 | . 91 | 1.13 |
| Farm implement mechanics | 1.58 | 2.25 | 2.66 | . 07 | . 08 | . 12 | 2.57 | 3.15 | 4.17 |
| deavy equip mech, incl diesel | 3.88 | 5.44 | 6.48 | 2.11 | 2.61 | 3.72 | 5.04 | 6.61 | 8. 10 |
| Household appliance mechanics | 5.13 | 4. 38 | 6.11 | 12.04 | 13.38 | 15.30 | . 60 | . 67 | . 68 |
| Loom fixers | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Office machine repairers | 2.29 | 1.99 | 2.14 | . 56 | . 41 | . 66 | 3.42 | 2.65 | 3.02 |
| Hadio, television repairers | 15.26 | 10.18 | 13.34 | 37.92 | 34.04 | 35.58 | . 41 | . 32 | . 18 |
| Railroad, car shop repairers | . 04 | . 05 | . 07 | . 03 | . 02 | . 03 | . 04 | . 06 | . 10 |
| other mechanics and apprentices | 8.64 | 9.63 | 8.84 | 7.24 | 7.82 | 7.97 | 9.56 | 10.38 | 9.35 |
| Transport, public util craft wxrs | . 13 | - 12 | - 14 | . 26 | . 26 | - 28 | . 05 | . 06 | . 05 |
| Elec pwr line instaler, repairer | .03 | . 03 | . 03 | . 06 | . 06 | . 07 | . 01 | . 01 | . 01 |
| Telephone installers, repairers | . 09 | . 08 | . 09 | . 16 | . 16 | . 16 | . 04 | . 05 | . 04 |
| Telephone line instalr,splicers | . 01 | .01 | .02 | . 03 | . 04 | . 05 | .00 | . 00 | . 00 |


|  | other repair services |  |  | $\begin{gathered} \text { Electrical } \\ \text { repair } \\ \text { services } \end{gathered}$ |  |  | Oth repair. except electrical |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 11.86 | 11.09 | 9.87 | .17 | . 12 | . 04 | 19.52 | 15.61 | 15.68 |
| Cabinetrakers | . 98 | - 99 | . 41 | . 00 | . 00 | . 00 | 1.63 | 1.40 | . 65 |
| Carpet installers | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 02 | .03 | . 06 |
| Crane, derrick, hoist operator | . 03 | . 03 | . 02 | . 01 | . 01 | -00 | . 05 | . 04 | .03 |
| decorators, window dressers | . 01 | . 02 | .01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| Furniture and wood finishers | 1.13 | 1.35 | 1.29 | . 00 | . 00 | . 00 | 1.87 | 1.91 | 2.06 |
| Glaziers | . 04 | . 04 | .03 | . 00 | . 00 | . 00 | . 06 | . 06 | . 05 |
| Inspectors, other | . 04 | . 05 | . 02 | . 01 | . 01 | . 01 | . 06 | . 06 | . 03 |
| Jewelers and watchmakers | 2.12 | 2.17 | 1.61 | . 06 | . 04 | .01 | 3.47 | 3.05 | 2.55 |
| Opticians,lens grinder, folisher | .01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Piano,organ tuners, repairers | 1.47 | 1.28 | 1.20 | . 00 | . 00 | . 00 | 2.44 | 1.81 | 1.91 |
| Sign painters and letterers | . 02 | . 02 | .00 | . 00 | . 00 | . 00 | .03 | . 02 | .01 |
| Stationary engineers | . 07 | . 04 | . 01 | . 05 | . 03 | .01 | . 08 | . 04 | . 00 |
| Upholsterers | 5.32 | 4.32 | 4.58 | . 02 | . 01 | .01 | 8.79 | 6.10 | 7.28 |
| other crafts workers | . 61 | . 73 | . 65 | . 02 | . 02 | .01 | . 99 | 1.03 | 1.03 |
| Operatives | 17.58 | 19.69 | 17.34 | 3.80 | 3. 85 | 4.67 | 26.62 | 26.23 | 24.83 |
| Operatives, except transport | 16.68 | 18.78 | 16.50 | 2.97 | 3. 13 | 3.93 | 25.68 | 25.24 | 23.92 |
| Semiskilled metalworking | 13.22 | 14.78 | 12.04 | - 28 | - 27 | . 25 | 21.71 | 20.77 | 19.01 |
| prill press oferatives | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Furnace tendrs, smeltrs, pourers | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 03 | . 04 | . 07 |
| Grinding machine operatives | . 82 | . 77 | .51 | . 01 | .01 | .01 | 1.35 | 1.08 | . 81 |
| Lathe, milling mach operatives | . 08 | . 08 | . 07 | . 00 | . 00 | . 00 | . 13 | . 12 | . 12 |
| Metal platers | . 02 | . 04 | . 04 | . 00 | . 00 | . 00 | . 04 | . 05 | . 06 |
| Other precision mach operators | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 |
| Punch, stamping press operatives | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | .03 | . 04 | . 07 |
| Solderers | . 03 | . 02 | . 01 | . 03 | . 02 | .01 | . 03 | . 02 | . 01 |
| Welders and flamecutters | 12.20 | 13.77 | 11.27 | . 24 | - 23 | . 23 | 20.04 | 19.36 | 17.80 |
| Semiskilled packing, inspecting | . 05 | . 04 | . 01 | . 06 | . 04 | . 02 | . 04 | .03 | . 01 |
| Packer,wrapper, exc meat, prodce | . 05 | . 04 | .01 | . 06 | . 04 | . 02 | . 04 | . 03 | .01 |
| Other operatives, exc transport | 3.41 | 3.97 | 4.45 | 2.63 | 2.82 | 3.66 | 3.93 | 4.44 | 4.91 |
| Asbestos, insulation workers | . 00 | . 00 | .01 | . 01 | . 01 | .02 | . 00 | . 00 | . 00 |
| Assemolers | .18 | . 19 | . 17 | . 23 | . 23 | . 22 | . 14 | . 17 | . 14 |
| Cutting operatives, other | . 03 | . 06 | . 09 | . 00 | . 00 | . 00 | . 05 | . 08 | . 14 |
| Dressmakers, exc factory | . 24 | . 29 | . 20 | . 00 | . 00 | - 00 | . 40 | -41 | . 32 |
| Drillers, eartn | . 01 | - 01 | . 01 | . 01 | . 01 | . 01 | . 01 | -01 | . 01 |
| Filer, polisher, sander, buffer | . 34 | . 42 | . 41 | . 00 | . 00 | . 00 | . 57 | - 59 | . 66 |
| Garage wrig.gas station atten | . 04 | . 03 | . 03 | . 03 | . 02 | . 02 | . 04 | . 04 | . 04 |
| Mixing operatives | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| oilers,greasers,exc automobiles | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Painters, rfg articles | . 08 | - 10 | . 15 | . 02 | . 02 | . 00 | . 12 | . 14 | . 23 |
| Photographic frocess workers | .03 | . 03 | .01 | . 02 | . 02 | . 01 | . 04 | . 04 | . 02 |
| Riveters and fasteners | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Sawyers | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 |
| sewers and stitchers | .18 | . 22 | .38 | . 00 | . 00 | . 00 | . 31 | . 31 | . 60 |
| Furnace tendr,stokr, exc metal | . 02 | . 01 | .01 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| winding operatives, other | . 63 | - 53 | . 84 | 1.38 | 1.46 | 2.04 | -13 | - 15 | .13 |
| Miscellaneous machine oferatves | . 30 | . 37 | . 39 | - 18 | . 20 | . 25 | . 37 | . 45 | . 47 |
| other operatives, exc transport | 1.31 | 1.68 | 1.73 | . 74 | -86 | 1.09 | 1.69 | 2.01 | 2. 11 |
| Transport equipment operatives | . 90 | . 91 | .85 | . 83 | . 72 | . 74 | . 94 | . 99 | - 91 |
| Delivery and route workers | .36 | . 32 | . 29 | -45 | . 37 | - 35 | . 30 | - 30 | . 25 |
| Fork lift,tow motor operatives | . 03 | . 04 | . 04 | . 03 | . 03 | . 05 | . 03 | . 04 | . 04 |
| Rail vehicle cperators, other | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Parking attendants | . 01 | . 02 | . 01 | . 00 | . 00 | - 00 | . 02 | . 03 | . 02 |
| Taxicab drivers, chauffeurs | . 03 | . 02 | .01 | . 02 | . 02 | . 01 | . 04 | . 03 | . 01 |
| Truck drivers | -46 | . 51 | . 49 | .33 | . 30 | . 32 | . 55 | - 59 | . 59 |
| Service workers | 1.17 | . 88 | . 87 | . 34 | . 32 | .33 | 1.72 | 1.11 | 1.19 |
| Cleaning service workers | . 52 | . 63 | . 62 | - 31 | . 29 | . 30 | . 67 | .76 | . 81 |
| Bldg interior cleaners, other | . 11 | . 15 | . 14 | . 05 | . 05 | . 05 | -15 | - 18 | . 19 |
| Janitors and sextons | . 41 | . .48 | . 48 | . 26 | - 24 | . 25 | . 51 | . 58 | . 62 |
| food service wcrkers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Bartenders | . 01 | .01 | . 01 | .00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Heaitn service workers | . 01 | . 01 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 00 |


|  | $\begin{gathered} \text { other } \\ \text { repair } \\ \text { services } \end{gathered}$ |  |  | $\begin{gathered} \text { Electrical } \\ \text { repair } \\ \text { services } \end{gathered}$ |  |  | oth repair. except electrical |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Eersonal service workers | .57 | . 17 | . 23 | .01 | .01 | . 02 | . 93 | . 24 | . 35 |
| Attendants, personal serv,other | . 02 | . 02 | . 02 | . 00 | .00 | . 00 | . 03 | . 03 | .03 |
| Baggage porters and bellhops | .01 | . 01 | . 07 | . 00 | . 00 | . 00 | . 01 | . 01 | . 11 |
| Barbers | . 44 | . 07 | . 07 | -00 | . 00 | . 00 | . 73 | . 09 | .10 |
| Child care workers, exc private | . 07 | . 04 | . 05 | . 00 | . 00 | . 00 | - 12 | . 06 | . 08 |
| Elevator operators | . 01 | . 02 | .01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Housekeepers, exc private homes | . 02 | . 01 | . 01 | .01 | . 01 | . 02 | .02 | .01 | . 01 |
| Erotective service vorkers | . 07 | . 07 | . 02 | . 02 | . 02 | .01 | - 10 | . 09 | . 03 |
| Guards | . 07 | . 07 | . 02 | . 02 | . 02 | .01 | . 09 | .09 | .03 |
| Laborers, except farm | 3.39 | 3. 75 | 3.53 | . 38 | -40 | . 58 | 5.37 | 5.13 | 5.27 |
| Carpenter belfers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Constr labr, exc carcenter helpr | . 10 | - 12 | . 09 | . 00 | . 00 | . 00 | . 16 | .17 | . 15 |
| Preight and material handlers | . 09 | - 10 | - 15 | . 10 | . 11 | . 19 | . 08 | . 10 | . 12 |
| Gardenrs,groundkeepers, exc farm | . 07 | . 09 | - 12 | . 04 | . 05 | . 06 | . 09 | .11 | . 16 |
| Stock handlers | . 06 | . 07 | - 10 | . 09 | . 11 | . 16 | . 04 | . 06 | -06 |
| Teamsters | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Vehicle washers,equip cleaners | . 22 | . 29 | . 26 | . 05 | . 06 | . 09 | . 32 | .39 | . 36 |
| warehouse latcrers, cther | . 01 | - 01 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other laborers | 2.83 | 3.04 | 2.79 | . 07 | . 06 | . 08 | 4.64 | 4.27 | 4.40 |

Table 1. Yercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Motion pictures. theaters |  |  | $\begin{gathered} \text { Misc } \\ \text { entertain- } \\ \text { ment } \end{gathered}$ |  |  | Bowling alleys, billards |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 31.29 | 35.08 | 35.96 | 19.04 | 20.01 | 18.73 | 2.42 | 3.15 | 2.78 |
| Engineers, technical | . 34 | . 31 | . 39 | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Electrical | . 24 | . 22 | . 28 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Industrial | . 02 | . 02 | . 04 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Mechanical | . 04 | . 02 | . 01 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| uther engineers | .05 | . 05 | . 07 | .01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Life and chysical scientists | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Chemists | .03 | . 03 | . 03 | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 |
| Engineering, science technicians | . 71 | . 77 | . 99 | . 10 | . 13 | . 13 | . 00 | . 00 | . 00 |
| drafters | .06 | . 06 | . 09 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Electrical anc electronic | . 51 | . 55 | -65 | . 07 | . 09 | . 08 | - 00 | . 00 | . 00 |
| Industrial engineering | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| surveyors | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| other engineering, science tech | - 12 | - 14 | . 21 | .01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Medical workers,exc tecnnicians | . 02 | . 02 | . 01 | . 09 | - 15 | . 30 | . 00 | - 00 | . 00 |
| Dentists | . 00 | . 00 | .00 | . 01 | . 02 | .06 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 00 | . 00 | . 00 | . 01 | . 03 | . 14 | . 00 | . 00 | . 00 |
| Registered nurses | . 02 | . 01 | . 01 | . 03 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Therapists | . 00 | . 00 | .00 | . 03 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Veterinarians | . 00 | .00 | . 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Health technolcgists, tecmnicians | . 03 | . 04 | . 03 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Dental hygienists | . 00 | . 00 | .00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other health technicians | . 02 | . 04 | .03 | . 00 | .00 | .00 | . 00 | . 00 | . 00 |
| Technicians, except health | . 25 | . 34 | . 43 | .03 | . 05 | . 07 | . 00 | . 00 | . 00 |
| airplane pilots | . 01 | . 02 | . 04 | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 |
| badio operators | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other technicians except healta | .23 | .31 | .39 | . 02 | . 02 | . 02 | . 00 | .00 | . 00 |
| Computer specialists | . 12 | . 13 | .17 | . 01 | . 02 | . 02 | . 00 | .00 | . 00 |
| computer programers | . 08 | . 09 | . 11 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Computer systems analysts | . 04 | . 05 | . 06 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Social scientists | . 03 | . 05 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Economists | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Psycnologists | . 00 | . 01 | -02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sociologists | . 00 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Teachers | . 51 | - 34 | - 10 | 5.07 | 2.72 | 1.36 | . 04 | . 03 | . 01 |
| Adult education | . 01 | . 02 | . 02 | . 06 | . 07 | . 03 | . 00 | . 00 | . 00 |
| preschool and kindergarten | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 04 | . 03 | .01 |
| Other teachers | . 50 | .31 | . 08 | 4.97 | 2.62 | 1.32 | . 00 | . 00 | . 00 |
| Writers, artists, entertainers | 28.01 | 31.70 | 32.43 | 9.86 | 11.88 | 10.85 | 2.00 | 2. 57 | 2.35 |
| Actors | 3.40 | 4.47 | 4.46 | . 05 | . 06 | . 03 | . 00 | . 00 | . 00 |
| Athletes and kindred workers | . 06 | . 07 | . 07 | 6.92 | 8.37 | 7.75 | 1.45 | 1.86 | 1.74 |
| Authors | . 23 | . 29 | -40 | . 01 | . 02 | . 06 | . 00 | . 00 | . 00 |
| Dancers | . 94 | .71 | . 73 | . 12 | - 11 | . 10 | . 01 | . 01 | . 00 |
| Designers | . 34 | .42 | . 52 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Editors and reforters | 1.89 | 2. 11 | 2.74 | . 05 | . 07 | . 12 | . 00 | . 00 | . 00 |
| Musicians and composers | 16.43 | 18.10 | 18.33 | . 74 | - 80 | . 66 | . 16 | . 17 | . 12 |
| Painters and sculptors | .69 | . 85 | . 80 | . 07 | . 09 | . 08 | . 00 | . 00 | . 00 |
| Photographers | . 91 | . 93 | 1.12 | . 04 | . 04 | . 06 | . 00 | . 00 | . 00 |
| public relations specialists | . 51 | . 64 | . 71 | . 35 | - 50 | . 44 | . 33 | -46 | . 41 |
| Badio and tv announcers | . 02 | . 02 | . 05 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| other writers,artists, entertain | 2.60 | 3.09 | 2.51 | 1.48 | 1.77 | 1.51 | . 05 | . 07 | .09 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Motion pictures, theaters |  |  | $\begin{aligned} & \text { Misc } \\ & \text { entertain- } \\ & \text { ment } \end{aligned}$ |  |  | Bowling <br> alleys. billards |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professicnal and technical | 1.25 | 1. 35 | 1.30 | 3.85 | 5.05 | 5.96 | - 39 | . 55 | . 41 |
| Accountants | . 68 | . 69 | . 72 | . 36 | - 50 | - 57 | . 09 | . 11 | - 12 |
| Architects | . 02 | . 02 | .02 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| teligious workers, except clergy | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Poresters and conservationists | . 00 | . 00 | .00 | . 02 | . 02 | - 02 | . 00 | .00 | . 00 |
| Lavyers | . 14 | - 18 | . 16 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Librarians | . 06 | . 05 | . 04 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Personnel, labcr relations wkrs | . 17 | - 19 | . 19 | -15 | . 17 | . 12 | . 07 | . 08 | . 07 |
| Other research workers | . 07 | . 05 | . 08 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Hecreation workers | .11 | . 18 | . 11 | 3.25 | 4.26 | 5.16 | - 22 | . 36 | . 23 |
| Social workers | .00 | . 00 | . 00 | . 04 | . 05 | . 03 | . 00 | . 00 | . 00 |
| Vocation, education counselors | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Vanagers, officials, proprietors | 15.73 | 18.86 | 22.59 | 12.26 | 14.26 | 16.31 | 18.58 | 22.53 | 23.86 |
| Buyers, sales, lcan managers | . 42 | . 40 | . 47 | - 30 | - 32 | . 35 | . 30 | .31 | . 26 |
| Bank, financial managers | . 00 | . 00 | -00 | . 09 | . 09 | . 07 | . 18 | . 18 | - 10 |
| Credit managers | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Purchasing agents, buyers, other | .17 | . 14 | . 16 | .13 | . 14 | - 15 | . 03 | . 03 | . 04 |
| Sales manager, exc retail trade | .24 | . 25 | . 31 | -08 | - 10 | .13 | . 08 | . 09 | . 12 |
| Other managers,officials, proprts | 15.31 | 18.46 | 22.11 | 11.95 | 13.93 | 15.96 | 18.28 | 22.22 | 23. 59 |
| Mgrs, superintendents, building | .03 | . 03 | . 04 | . 15 | .21 | . 28 | . 07 | . 09 | . 12 |
| Office managers, other | . 40 | -37 | . 39 | - 26 | - 31 | . 36 | . 18 | . 23 | . 30 |
| Officers, pilots, pursers,suip | . 00 | . 00 | . 00 | . 18 | . 17 | - 23 | -00 | . 00 | . 00 |
| mestaurant, cate, bar,managers | . 06 | . 04 | . 03 | . 28 | . 23 | . 10 | . 27 | . 21 | . 09 |
| Other managers, administrators | 14.83 | 18.01 | 21.65 | 11.08 | 13.01 | 15.00 | 17.76 | 21.69 | 23.08 |
| Sales workers | 3.20 | 2.25 | 1.28 | 1.21 | 1. 15 | . 75 | . 71 | . 52 | . 12 |
| Advertising agents, sales worker | . 06 | . 09 | . 16 | . 02 | . 05 | .09 | . 00 | . 00 | . 00 |
| Other sales workers | 3.14 | 2. 16 | 1.12 | 1.19 | 1.11 | . 66 | . 71 | . 52 | . 12 |
| Clerical workers | 18.64 | 17.32 | 16.96 | 12.27 | 13.41 | 14.51 | 13. 19 | 15.37 | 16.00 |
| Stenographrs,typists,secretaries | 4.77 | 4.41 | 4.53 | 2.76 | 3.11 | 4.04 | 1.69 | 1.93 | 1.88 |
| Legal secretaries | . 08 | . 07 | . 10 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other secretaries | 4.01 | 3.81 | 3.97 | 2.35 | 2.75 | 3.64 | 1.38 | 1.62 | 1.58 |
| Stenographers | . 06 | . 03 | . 01 | . 04 | . 02 | . 01 | . 02 | . 01 | . 01 |
| Typists | -62 | . 51 | . 45 | . 38 | . 35 | . 39 | . 30 | - 30 | - 30 |
| Office machine operatcrs | - 39 | - 36 | -31 | - 14 | - 15 | - 12 | . 00 | . 00 | . 00 |
| Bookkeeping and billing | . 05 | - 02 | . 02 | . 03 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Calculating | .03 | . 02 | . 01 | -00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| computer and feripheral equip | . 07 | - 14 | . 15 | . 02 | - 05 | . 04 | -00 | . 00 | . 00 |
| Duplicating | . 03 | . 03 | . 03 | . 01 | . 01 | -01 | . 00 | . 00 | . 00 |
| Keypunch | . 17 | - 13 | .09 | . 04 | . 03 | .01 | . 00 | . 00 | - 00 |
| Other office rachine operators | . 03 | . 03 | . 02 | . 04 | . 05 | . 04 | . 00 | . 00 | . 00 |


|  | Motion pictures. theaters |  |  | Misc entertainment |  |  | Bowling alleys. billards |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 13.47 | 12.54 | 12.11 | 9.38 | 10. 15 | 10.35 | 11.50 | 13.44 | 14.12 |
| Billing clerks | . 10 | . 10 | . 16 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Bookkeepers | 1.72 | 1.49 | 1.31 | 1.94 | 2.04 | 2.01 | 2.02 | 2.25 | 1.96 |
| Casiners | 8.64 | 8.04 | 7.77 | 3.87 | 4.49 | 4.81 | 3.49 | 4.19 | 4.11 |
| Clerical supervisors, other | - 10 | . 11 | - 11 | . 05 | . 07 | . 08 | . 02 | . 02 | - 02 |
| collectors, bill and account | . 01 | . 00 | . 00 | . 02 | . 02 | . 01 | . 02 | .01 | . 00 |
| Counter clerks,exc food | . 27 | . 28 | . 35 | 1.22 | 1. 11 | 1.03 | 4.40 | 5.20 | 5.96 |
| Dispatchers, starters, vehicle | - 02 | - 03 | . 04 | . 03 | . 03 | . 05 | . 01 | . 01 | .01 |
| Estimators, investigators, other | . 10 | . 11 | . 09 | . 06 | . 08 | . 07 | . 00 | . 00 | . 00 |
| Exfediters, production controirs | . 29 | . 29 | . 35 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| File clerks | . 16 | . 13 | . 15 | . 07 | . 07 | .11 | . 07 | . 06 | - 10 |
| Library attendants, assistants | . 05 | . 05 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | . 24 | . 35 | . 25 | . 05 | . 05 | . 04 | . 03 | . 03 | . 03 |
| Messengers and office helpers | . 11 | - 10 | - 10 | . 09 | . 09 | . 16 | . 08 | . 09 | . 86 |
| Payroll,timekeeping clerks | - 17 | -19 | . 23 | . 12 | - 15 | . 13 | . 08 | - 10 | . 09 |
| Receptionists | . 28 | . 23 | .17 | . 62 | . 64 | . 48 | . 21 | .21 | . 18 |
| Shipping and receiving clerks | . 27 | . 23 | . 28 | . 03 | . 04 | . 05 | . 01 | . 01 | . 01 |
| Statistical clerks | . 09 | . 09 | . 07 | . 16 | . 20 | .21 | . 17 | - 21 | - 18 |
| Stock clerks and store keepers | - 12 | . 09 | . 08 | . 12 | - 11 | . 09 | . 04 | . 02 | . 01 |
| Telephone operators | . 21 | - 14 | . 15 | . 23 | -19 | - 20 | . 02 | . 01 | . 01 |
| Weighers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Misc clerical workers | . 55 | . 51 | . 43 | .67 | .72 | . 78 | -87 | 1.03 | . 62 |
| crafts and kindred workers | 8.81 | 7. 34 | 5.99 | 5.78 | 5.99 | 6.33 | 10.67 | 11.85 | 12.19 |
| Construction crafts workers | 1.23 | 1. 16 | 1.16 | 1. 10 | 1.29 | 1.65 | - 20 | . 15 | . 05 |
| carpenters and apprentices | . 56 | - 62 | .71 | . 44 | - 56 | . 71 | -11 | . 07 | . 01 |
| Brick, stonemasons, apprentices | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Bulldozer operators | . 00 | . 00 | . 00 | . 11 | - 13 | .21 | . 00 | . 00 | . 00 |
| electricians and apprentices | . 47 | . 37 | . 31 | . 17 | . 22 | - 32 | . 04 | . 03 | . 01 |
| Excavating, grading mach operatr | . 00 | . 00 | . 00 | . 03 | -03 | . 03 | . 00 | . 00 | . 00 |
| Ploor layers, exc tile setters | .00 | . 00 | . 00 | . 07 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Painters and apprentices | . 17 | - 14 | - 10 | -27 | . 27 | . 22 | . 03 | . 03 | . 02 |
| plasterers and apprentices | . 01 | . 01 | . 00 | . 01 | . 01 | . 03 | - 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | .03 | . 03 | . 04 | . 06 | . 07 | . 12 | . 01 | . 01 | . 01 |
| Blue collar worker supervisors | .40 | . 43 | . 55 | . 48 | . 58 | . 82 | - 20 | . 24 | . 25 |
| Metalworkg craft wrkrs,exc mech | . 13 | - 15 | -26 | . 10 | - 11 | - 13 | . 14 | . 16 | . 18 |
| Blacksmiths | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | - 00 |
| Machinists and apprentices | -11 | - 12 | - 20 | . 07 | . 09 | - 12 | -14 | . 16 | . 18 |
| Pattern and moldmakers | .01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetai workers, apprentices | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mechanics, repairers,installers | . 49 | . 51 | -58 | 3.74 | 3.59 | 3.20 | 10.02 | 11.20 | 11.58 |
| air cond, heating, refrig mecn | . 04 | . 05 | . 05 | . 03 | . 06 | . 10 | . 02 | .03 | . 05 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 02 | . 03 | . 08 | . 00 | . 00 | . 00 |
| Auto body repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | .05 | . 05 | . 04 | . 16 | - 16 | . 14 | . 03 | . 02 | . 04 |
| deavy equip mech, incl diesel | . 14 | - 16 | . 28 | . 65 | . 82 | 1.04 | 1.02 | 1.45 | 2.04 |
| Household appliance mechanics | . 01 | . 01 | . 01 | . 01 | - 01 | . 02 | . 01 | . 01 | . 01 |
| Radio, television repairers | . 09 | - 09 | - 11 | . 02 | - 03 | . 05 | . 01 | .01 | -01 |
| Railroad, car shop repairers | . 00 | . 00 | -00 | . 01 | . 01 | . 02 | . 00 | . 00 | .00 |
| other mechanics and apprentices | .16 | - 15 | . 09 | 2.84 | 2.46 | 1.75 | 8.95 | 9.68 | 9.43 |
| Printing trade crafts workers |  | . 06 | - 10 | . 04 | . 07 |  | . 01 | . 00 | . 00 |
| Bookbinders | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Compositors and typesetters | . 03 | - 03 | . 05 | . 02 | . 03 | . 04 | . 01 | - 00 | . 00 |
| Engravers exc photoengravers | . 00 | -00 | . 00 | . 00 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Photoengravers. lithographers | . 01 | -01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Press, plate printers,aprentices | . 02 | . 03 | . 05 | .01 | . 02 | . 04 | . 00 | . 00 | . 00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | motion pictures, theaters |  |  | Misc entertainment |  |  | Bowling alleys, billards |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 6.50 | 5.03 | 3.34 | . 31 | . 35 | . 40 | . 10 | . 10 | - 13 |
| Bakers | . 00 | . 00 | . 00 | - 10 | - 12 | . 14 | .01 | . 00 | . 00 |
| Cabinetmakers | . 02 | . 02 | . 03 | . 01 | . 01 | . 02 | . 01 | . 00 | . 00 |
| Crane, derrick,hoist operator | . 02 | . 02 | . 03 | . 01 | .01 | . 02 | .00 | . 00 | .00 |
| Decorators, window dressers | . 06 | . 08 | . 06 | . 02 | . 04 | . 09 | . 00 | . 00 | . 00 |
| Inspectors, other | . 02 | . 02 | . 01 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Motion picture projectionists | 0.19 | 4. 74 | 3.12 | . 02 | .01 | . 00 | .00 | . 00 | . 00 |
| Piano,organ tuners, repairers | . 01 | . 01 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Sign pairiters and letterers | . 03 | - 02 | . 00 | . 01 | . 01 | . 00 | . 01 | . 01 | . 00 |
| Stationary engineers | . 09 | . 06 | -02 | . 08 | . 08 | . 05 | . 01 | .01 | .01 |
| Tailors | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 00 | .00 | . 00 |
| Upholsterers | .01 | . 01 | . 01 | . 00 | . 00 | -00 | . 00 | . 00 | . 00 |
| other crafts workers | . 04 | . 04 | . 04 | . 05 | . 04 | . 04 | . 05 | . 07 | - 12 |
| Operatives | 3.36 | 3.20 | 3.22 | 1.20 | 1.33 | 1.35 | . 37 | -45 | . 34 |
| Cperatives, except transport | 2.73 | 2. 61 | 2.49 | . 46 | . 52 | . 60 | . 21 | . 26 | - 26 |
| Semiskilled metalworking | . 03 | . 03 | . 05 | . 04 | . 06 | . 10 | . 01 | . 02 | . 02 |
| Welders and tlamecutters | . 03 | . 03 | . 05 | . 04 | . 06 | - 10 | . 01 | . 02 | . 02 |
| Semiskilled packing, inspectiny | . 05 | . 05 | . 09 | -01 | .01 | . 02 | .00 | . 00 | . 00 |
| Packer,wrapper, exc meat, prodce | . 05 | . 05 | . 09 | - 01 | . 01 | . 02 | . 00 | .00 | -00 |
| Other operatives, exc transport | 2.66 | 2. 53 | 2.35 | . 41 | . 45 | . 48 | . 19 | . 24 | . 24 |
| Clothing ircners and pressers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| dressmakers, exc factory | . 08 | . 07 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 01 | . 01 | .01 |
| Laundry, dry cleang oprs,otner | . 01 | . 01 | . 01 | . 04 | . 05 | . 03 | . 00 | . 00 | . 00 |
| Meat cutters, ${ }^{\text {dutchers, }}$ exc mfy | .00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 00 | . 00 | . 00 |
| Photographic erocess workers | 2.33 | 2.23 | 2.12 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Sailors and deckhands | . 00 | - 00 | . 00 | . 06 | . 07 | . 14 | . 00 | . 00 | . 00 |
| furnace tendr,stokr, exc metal | . 02 | . 01 | .01 | . 03 | . 02 | . 03 | .00 | . 00 | . 00 |
| Other operatives, exc transport | - 20 | . 21 | . 19 | -20 | . 23 | . 20 | . 19 | .23 | . 23 |
| Transport equifment oferatives | . 62 | - 59 | . 73 | . 74 | . 81 | .76 | .16 | - 20 | . 08 |
| soat operators | . 00 | - 00 | . 00 | . 09 | . 10 | . 11 | . 00 | . 00 | .00 |
| Bus drivers | . 02 | . 03 | . 02 | . 07 | . 11 | . 05 | . 10 | - 13 | . 02 |
| Delivery and route workers | . 12 | . 11 | - 17 | . 08 | - 10 | . 16 | . 01 | . 01 | . 01 |
| Fork lift, tow motor cjeratives | . 00 | - 00 | . 00 | . 02 | . 03 | . 05 | . 01 | . 02 | . 03 |
| Parking atterdants | . 07 | . 07 | . 06 | . 27 | . 28 | . 25 | .03 | . 03 | . 01 |
| Taxicab drivers. chauffeurs | . 13 | - 12 | -09 | . 05 | . 05 | - 04 | . 00 | -00 | . 00 |
| Truck drivers | . 28 | - 26 | . 39 | . 16 | . 15 | . 11 | . 02 | . 02 | . 01 |
| Service workers | 16.83 | 14.00 | 12.01 | 38.28 | 31.76 | 28.52 | 53.21 | 45.27 | 43.91 |
| Cleaning service workers | 3.73 | 3.06 | 2.48 | 6.02 | 5.62 | 4.79 | 9.11 | 9.21 | 8.58 |
| Lodging qtrs cleaners, exc privt | . 05 | . 02 | . 01 | . 17 | . 08 | . 04 | . 14 | . 05 | . 01 |
| Bldy interior cleaners, other | 1.05 | -85 | . 68 | 1.72 | 1.65 | 1.03 | 2.57 | 2.63 | 2.31 |
| Janitors and sextons | 2.62 | 2.20 | 1.79 | 4.13 | 3.89 | 3.72 | 6.40 | 6.52 | 6.26 |
| Food service wcrkers | 2.16 | 1.77 | 2.27 | 16.42 | 13.18 | 12.57 | 18.96 | 15.44 | 15.55 |
| Bartenders | . 08 | . 06 | . 09 | 2.20 | 1.86 | 1.30 | 2.72 | 2.35 | 1.80 |
| waiters' assistants | . 04 | . 03 | . 02 | 1.09 | 1.29 | 1.85 | . 31 | . 30 | . 21 |
| Cooks, exc private households | . 47 | - 39 | . 54 | 2.93 | 2.58 | 2.44 | 3.03 | 2.69 | 2.64 |
| Dishwashers | . 02 | -02 | . 02 | . 89 | . 61 | . 47 | . 45 | . 30 | . 29 |
| Food counter, fountain workers | . 71 | . 78 | 1.15 | . 83 | . 88 | 1.20 | 1.99 | 2.50 | 3.90 |
| Waiters | . 75 | - 43 | . 41 | 7.30 | 4.92 | 4.42 | 10.07 | 7.00 | 6.54 |
| other food serv whrs,exc privt | . 10 | . 06 | . 05 | 1.19 | 1.04 | . 90 | . 38 | . 29 | . 18 |
| Health service workers | . 01 | . 02 | . 03 | . 07 | . 06 | . 09 | .03 | . 03 | . 05 |
| Dental assistants | . 00 | . 00 | . 00 | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Nursing aides and orderlies | . 01 | -02 | . 03 | . 03 | . 03 | . 07 | . 02 | . 02 | . 03 |
| Practical nurses | . 00 | . 00 | . 00 | .01 | . 00 | . 00 | .01 | . 01 | . 01 |

Table 1. Percent distribution or industry employment by occupation, 1970, 1978 and projected 1990

|  | Motion pictures, theaters |  |  | Misc entertainment |  |  | Bowling alleys, billards |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 10.52 | 8.74 | 6.66 | 14.67 | 11.80 | 10.45 | 24.97 | 20.45 | 19.62 |
| Flight attendants | . 02 | . 02 | . 05 | . 03 | . 05 | . 08 | . 00 | . 00 | . 00 |
| Attendants, recreation, amusement | 3.20 | 2.42 | 1.82 | 10.15 | 8.75 | 7.93 | 16.45 | 15. 16 | 14.03 |
| Attendants, personal serv,other | . 63 | . 39 | - 14 | 1.33 | 1.14 | . 74 | - 15 | . 13 | . 08 |
| Baggage porters and bellhops | . 00 | . 00 | . 00 | . 02 | . 02 | . 11 | . 01 | - 01 | . 11 |
| Barbers | . 06 | .01 | . 02 | . 18 | . 03 | . 03 | . 12 | . 02 | . 00 |
| Bootblacks | . 00 | . 00 | . 00 | . 03 | . 01 | . 02 | . 03 | . 02 | . 03 |
| Child care workers, exc private | . 03 | . 02 | . 04 | 1.99 | - 87 | . 75 | 8.12 | 5.05 | 5.34 |
| Elevator operators | . 04 | . 03 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 01 |
| Hairdressers and cosmetologists | . 28 | - 30 | . 40 | . 07 | - 10 | . 09 | . 01 | - 00 | . 00 |
| Housekeepers, exc private homes | - 10 | . 06 | . 03 | . 57 | . 46 | . 26 | . 08 | . 05 | . 02 |
| Ushers, recreation and amusement | 6.15 | 5. 50 | 4.15 | . 27 | . 35 | . 44 | . 00 | . 00 | . 00 |
| Protective service workers | . 41 | . 41 | . 57 | 1.10 | 1.10 | . 62 | . 14 | . 14 | . 12 |
| Firefighters | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | - 00 | .00 | . 00 |
| Guards | . 39 | - 39 | - 56 | 1.01 | 1.03 | . 59 | .13 | . 14 | . 12 |
| Police and detectives | . 01 | . 01 | . 00 | . 08 | . 06 | .01 | . 01 | . 00 | . 00 |
| Laborers, except famm | 2.15 | 1. 97 | 2.01 | 9.97 | 12.09 | 13.49 | . 86 | . 85 | . 80 |
| Animal caretakers, exc farm | . 03 | . 03 | . 04 | 1.09 | 1.55 | 1.50 | . 00 | . 00 | . 00 |
| Carpenter helfers | . 02 | . 02 | . 05 | . 04 | . 05 | . 08 | . 00 | . 00 | . 00 |
| Constr labr, exc carpenter helpr | . 05 | . 04 | . 03 | - 10 | . 09 | . 05 | . 02 | . 02 | . 01 |
| Freight and material handlers | 1.64 | 1.47 | 1.43 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Gardenrs, groundkeepers, exc farm | . 22 | . 24 | -28 | 7.55 | 9.25 | 10.85 | . 18 | -19 | . 21 |
| Stock handlers | . 05 | . 05 | . 05 | . 05 | . 06 | . 03 | . 05 | . 06 | . 05 |
| Teamsters | .01 | .01 | . 03 | . 01 | . 01 | . 02 | . 00 | - 00 | . 00 |
| Vehicle washers, equip cleaners | . 00 | . 00 | . 00 | . 05 | . 04 | . 01 | . 07 | . 07 | . 02 |
| , arehouse labcrers, other | . 02 | . 02 | . 05 | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 |
| Other laborers | .12 | . 09 | . 06 | 1.04 | 1.01 | . 89 | . 53 | . 52 | . 52 |


| $\begin{gathered} \text { Other } \\ \text { entertainmt } \end{gathered}$ |  |  | Medical and othr health services |  |  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { physicians } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 |  |



| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 23.64 | 22.93 | 20.64 | 33.21 | 35.08 | 30.78 |
| . 01 | . 02 | . 04 | . 10 | . 10 | - 12 |
| . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| .00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| . 00 | . 00 | . 00 | . 02 | . 02 | - 02 |
| . 01 | . 02 | . 04 | .03 | . 03 | . 02 |
| . 00 | . 00 | . 00 | . 35 | . 53 | -53 |
| .00 | . 00 | . 00 | .21 | . 37 | . 33 |
| .00 | . 00 | . 00 | . 12 | . 15 | . 18 |
| . 00 | .00 | . 00 | . 02 | . 02 | . 02 |
| . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| . 00 | .00 | . 00 | . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 | . 02 | . 03 | . 04 |
| . 13 | . 15 | . 15 | . 13 | . 16 | . 18 |
| .00 | . 00 | . 00 | . 02 | . 03 | . 02 |
| . 00 | . 00 | . 00 | . 02 | .03 | . 03 |
| . 02 | . 02 | . 01 | .01 | . 01 | .01 |
| . 09 | - 10 | .09 | . 02 | . 02 | . 03 |
| . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| . 02 | . 02 | . 02 | . 07 | . 08 | . 08 |
| . 12 | . 17 | .33 | 24.87 | 24.09 | 21.02 |
| . 00 | . 00 | . 00 | . 35 | . 27 | . 19 |
| .01 | . 02 | . 07 | 1.99 | 1.75 | 1.39 |
| . 00 | . 00 | -00 | . 52 | . 42 | . 37 |
| .00 | . 00 | . 00 | .36 | . 27 | . 21 |
| . 00 | . 00 | . 00 | . 28 | . 26 | . 26 |
| . 02 | .04 | . 16 | 5.96 | 5.34 | 4.31 |
| . 00 | . 00 | . 00 | . 15 | . 12 | . 11 |
| . 04 | . 04 | . 05 | 13.92 | 13.75 | 12.37 |
| . 03 | . 05 | . 04 | 1.31 | 1.79 | 1.71 |
| . 01 | .01 | . 02 | . 02 | . 02 | . 01 |
| . 00 | . 01 | . 00 | . 02 | . 10 | .09 |
| .01 | . 02 | . 02 | 5.28 | 6.85 | 5.58 |
| . 00 | .00 | . 00 | 2.66 | 3.11 | 2.28 |
| . 01 | . 01 | . 02 | . 33 | . 50 | .57 |
| . 00 | . 00 | - 00 | . 25 | . 23 | . 18 |
| . 00 | . 00 | . 00 | 1.11 | 1.53 | 1.27 |
| . 00 | . 00 | . 00 | . 07 | . 10 | . 09 |
| . 00 | . 00 | . 00 | . 87 | 1.38 | 1.19 |
| . 04 | .06 | . 08 | . 04 | . 07 | . 08 |
| . 01 | . 02 | . 05 | . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 02 | . 03 | . 03 | . 04 | . 07 | . 08 |
| . 02 | . 02 | . 02 | . 08 | . 12 | . 15 |
| . 01 | . 02 | . 02 | . 05 | . 07 | . 08 |
| . 00 | . 00 | . 00 | . 02 | . 04 | . 05 |
| . 00 | . 00 | . 00 | . 01 | -01 | . 02 |
| . 00 | . 00 | . 00 | . 30 | . 79 | . 84 |
| . 00 | .00 | .00 | . 28 | . 77 | . 82 |
| 6.46 | 3.18 | 1.52 | . 40 | .29 | . 18 |
| . 07 | . 08 | . 03 | . 02 | . 04 | . 03 |
| . 04 | . 02 | . 01 | . 01 | . 01 | . 03 |
| 6.34 | 3.08 | 1.47 | . 37 | . 24 | . 12 |

$100.00 \quad 100.00 \quad 100.00$

| 48.68 | 45.74 | 42.56 |
| ---: | ---: | ---: |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
|  |  |  |
| .06 | .08 | .06 |
| .04 | .06 | .04 |
| .02 | .02 | .02 |
| .00 | .00 | .00 |
|  |  |  |
| .01 | .01 | .02 |
| .01 | .01 | .02 |
| .00 | .00 | .00 |
|  |  |  |
| .02 | .02 | .02 |
| .01 | .01 | .01 |
| .01 | .01 | .01 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |


| 44.07 | 39.72 | 36.46 |
| ---: | ---: | ---: |
| .04 | .00 | .00 |
| .14 | .06 | .05 |
| .03 | .02 | .01 |
| .10 | .08 | .09 |
| .12 | .07 | .14 |
| 32.72 | 29.18 | 27.39 |
| .07 | .04 | .02 |
| 10.45 | 9.74 | 8.20 |
| .39 | .52 | .55 |
| .00 | .00 | .00 |
| .01 | .01 | .00 |
| 3.66 | 4.92 | 4.60 |
| 1.57 | 1.92 | 2.03 |
| .03 | .04 | .05 |
| .03 | .02 | .02 |
| 1.64 | 2.21 | 1.87 |
| .01 | .02 | .08 |
| .39 | .71 | .56 |
| .20 | .36 | .52 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .20 | .36 | .52 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
|  |  |  |
| .20 | .26 | .48 |
| .20 | .26 | .48 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| 00 |  |  |


|  | other <br> entertainmt |  |  | Medical and othr health services |  |  | $\begin{gathered} \text { offices } \\ \text { of } \\ \text { physicians } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | 12.04 | 13.49 | 11.86 | . 15 | .19 | . 18 | .03 | .01 | . 00 |
| Actors | . 06 | . 07 | . 03 | . 03 | . 01 | .00 | . 00 | . 00 | .00 |
| Athletes and kindred workers | 8.43 | 9.50 | 8.46 | . 01 | -01 | . 01 | . 00 | . 00 | . 00 |
| Authors | . 01 | . 02 | . 06 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Dancers | . 15 | - 12 | . 11 | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 |
| Designers | . 03 | . 04 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Editors and reforters | . 07 | .09 | . 13 | . 01 | . 02 | . 02 | .00 | . 00 | . 00 |
| Musicians and composers | -90 | . 90 | . 73 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 09 | . 11 | . 08 | . 01 | . 01 | . 02 | . 00 | - 00 | . 00 |
| Photographers | . 05 | . 05 | . 06 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Public relations specialists | . 36 | . 51 | . 45 | . 05 | . 09 | . 10 | .00 | .00 | .00 |
| Radio and tv announcers | . 02 | . 02 | . 02 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| other writers,artists, entertain | 1.87 | 2.07 | 1.68 | . 02 | . 02 | . 01 | -03 | . 01 | . 00 |
| Other professicnal and technical | 4.81 | 5.82 | 6.63 | 1.50 | 1.88 | 1.89 | -42 | . 37 | . 40 |
| Accountants | . 43 | . 57 | . 62 | . 26 | . 31 | . 36 | . 11 | - 13 | . 17 |
| Architects | . 01 | - 01 | -02 | . 00 | . 00 | . 01 | . 00 | .00 | .00 |
| cleryy | . 00 | . 00 | .00 | . 06 | . 05 | . 06 | .00 | - 00 | . 00 |
| Religious workers.except cleryy | . 01 | . 01 | . 02 | . 07 | . 06 | - 15 | . 00 | . 00 | . 00 |
| Foresters and conservationists | . 03 | . 02 | . 02 | . 01 | - 00 | . 00 | . 01 | . 00 | - 00 |
| Lawyers | . 01 | . 03 | . 02 | . 07 | . 07 | . 05 | . 06 | . 04 | . 05 |
| Librarians | . 01 | . 01 | . 02 | . 02 | . 03 | . 03 | .00 | . 00 | . 00 |
| operations and systems research | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | .00 |
| Personnel, labcr celations whis | . 17 | - 19 | . 12 | . 19 | . 20 | . 14 | .11 | . 06 | . 07 |
| Other research workers | . 00 | . 00 | . 00 | .13 | . 13 | . 11 | . 05 | . 05 | . 05 |
| Hecreation workers | 4.09 | 4.93 | 5.75 | . 10 | - 17 | - 20 | . 00 | . 00 | . 00 |
| Social workers | . 05 | . 05 | . 03 | . 53 | .75 | . 71 | . 09 | . 07 | .06 |
| Vocation, education counselors | . 01 | . 01 | . 02 | . 05 | . 08 | . 07 | .00 | . 00 | . 00 |
| Managers, officials, proprietors | 10.51 | 12.82 | 15.41 | 2.90 | 3.67 | 3.56 | 1.03 | 1.16 | 1.25 |
| Buyers, sales, lcan manayers | .31 | . 33 | . 36 | . 27 | - 26 | . 37 | . 00 | . 00 | . 00 |
| Bank, financial managers | . 06 | . 07 | . 07 | . 07 | . 08 | . 09 | . 00 | . 00 | . 00 |
| Credit managers | . 01 | - 00 | . 00 | -04 | . 03 | . 04 | . 00 | - 00 | . 00 |
| Purchasing agents, buyers,other | . 16 | . 16 | . 16 | - 16 | - 15 | - 22 | . 00 | - 00 | . 00 |
| Sales manager, exc retail trade | .08 | - 10 | .13 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Administrators, public inspectors | . 00 | . 00 | . 00 | 2.16 | 2.75 | 2.58 | . 00 | . 00 | . 00 |
| Healtil administrators | . 00 | . 00 | .00 | 2.16 | 2.75 | 2.58 | . 00 | . 00 | . 00 |
| Other managers,officials, proprts | 10.20 | 12.50 | 15.05 | -47 | - 66 | -62 | 1.03 | 1.16 | 1.25 |
| Mgrs, superintendents, building | - 18 | . 24 | . 30 | . 02 | . 02 | . 03 | -01 | . 01 | . 01 |
| office managers, other | . 28 | . 32 | . 36 | - 25 | - 32 | - 38 | . 82 | . 95 | 1.11 |
| officers, pilots, pursers,ship | . 23 | . 20 | . 25 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,managers | . 28 | . 23 | . 11 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| other managers, administrators | 9.23 | 11.50 | 14.03 | . 18 | . 30 | . 20 | . 19 | . 20 | . 14 |
| Sales workers | 1.35 | 1. 26 | . 83 | . 06 | . 08 | - 10 | . 00 | . 00 | . 00 |
| Advertising agents, sales worker | . 03 | . 05 | . 10 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Other sales wcrkers | 1.32 | 1. 21 | . 73 | . 06 | - 08 | - 10 | . 00 | .00 | . 00 |
| Clerical workers | 12.02 | 13.07 | 14.33 | 17.45 | 17.90 | 19.80 | 35.64 | 35.82 | 36.01 |
| Stenographrs,typists, secretaries | 3.05 | 3.32 | 4.29 | 6.76 | 6.72 | 8.23 | 16.89 | 16.15 | 17.74 |
| Legal secretaries | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 | . 15 | . 17 | . 28 |
| Medical secretaries | . 00 | - 00 | . 00 | 1.58 | 1. 17 | 1.57 | 6.94 | 5.32 | 5.99 |
| Other secretaries | 2.61 | 2.94 | 3.88 | 3.73 | 4.27 | 5.30 | 8.61 | 9.59 | 10.58 |
| Stenographers | . 04 | - 02 | . 01 | . 15 | . 09 | . 03 | -10 | . 05 | . 01 |
| Typists | . 40 | . 36 | . 40 | 1.26 | 1.15 | 1.25 | 1.09 | 1.02 | . 89 |
| Office machine operators | . 17 | - 18 | - 13 | . 32 | - 35 | . 32 | . 06 | . 04 | . 06 |
| Bookkeeping and billing | . 03 | . 02 | . 01 | . 07 | . 04 | . 04 | . 05 | . 03 | . 05 |
| Calculating | . 01 | . 01 | . 02 | -00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Computer and feripheral equip | . 02 | . 05 | . 04 | . 07 | . 16 | . 17 | . 00 | . 00 | . 00 |
| Duplicating | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 | . 00 | - 00 | . 00 |
| Keypunch | . 05 | . 04 | . 01 | . 14 | . 11 | .07 | . 00 | . 00 | . 00 |
| other office machine operators | . 05 | . 06 | . 04 | .03 | . 03 | .02 | .01 | .01 | . 01 |


|  | other entertaingt |  |  | Hedical and othr health services |  |  | $\begin{gathered} \text { offices } \\ \text { of } \\ \text { physicians } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 8.79 | 9.58 | 9.91 | 10.37 | 10.84 | 11.25 | 18.69 | 19.63 | 18.21 |
| Billing clerks | . 03 | . 04 | . 06 | . 18 | . 22 | . 33 | . 17 | . 22 | . 32 |
| Bookkeepers | 1.91 | 2.01 | 2.02 | 1.38 | 1.47 | 1. 51 | 3.47 | 3.53 | 3.32 |
| Cashiers | 3.98 | 4.54 | 4.89 | . 30 | . 32 | . 46 | . 05 | . 06 | . 08 |
| clerical assistant, soc welfare | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Clerical supervisors, other | . 06 | . 08 | . 08 | - 18 | . 20 | -23 | . 08 | - 10 | . 11 |
| collectors, bill and account | . 02 | . 02 | . 01 | . 02 | . 03 | . 04 | . 02 | . 02 | . 03 |
| counter clerks,exc food | . 34 | . 40 | . 45 | . 06 | . 07 | . 11 | . 00 | . 00 | -00 |
| Dispatchers, starters, vehicle | . 03 | - 04 | . 06 | . 01 | . 01 | -02 | - 00 | - 00 | . 00 |
| Estimators, investigators, other | . 08 | - 10 | . 08 | . 12 | - 15 | . 14 | . 11 | . 14 | - 15 |
| File clerks | . 07 | . 07 | . 11 | . 36 | . 31 | - 29 | . 48 | -44 | . 36 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 | .01 | . 01 | . 02 |
| Library attendants, assistants | . 00 | . 00 | . 00 | . 05 | . 05 | -05 | . 00 | -00 | . 00 |
| Mail handlers, exc fost office | . 05 | . 05 | . 04 | . 09 | - 10 | - 11 | . 09 | - 10 | . 11 |
| Messengers and office helpers | . 09 | . 09 | . 07 | . 09 | . 11 | - 12 | . 02 | . 02 | . 01 |
| Payroll, timekeeping clerks | -13 | . 16 | . 13 | . 13 | . 16 | . 23 | . 01 | . 01 | . 01 |
| Receptionists | . 73 | . 71 | -51 | 3.73 | 4.13 | 3.49 | 12.40 | 13.06 | 11.46 |
| Shipping and receiving clerks | . 04 | . 05 | . 06 | . 05 | . 06 | . 09 | . 00 | . 00 | . 00 |
| Statistical clerks | . 16 | . 20 | .21 | . 35 | -40 | . 47 | . 15 | .18 | - 20 |
| Stock clerks and store keepers | . 15 | -13 | - 10 | - 36 | - 34 | - 44 | - 02 | . 02 | . 04 |
| Telephone operators | . 28 | . 22 | . 22 | . 53 | . 38 | -46 | - 10 | . 07 | . 03 |
| Weighers | . 01 | . 01 | . 02 | . 00 | - 00 | - 00 | . 00 | . 00 | . 00 |
| Misc clerical workers | . 61 | . 67 | . 80 | 2.36 | 2.31 | 2.64 | 1.53 | 1.66 | 1.97 |
| crafts and kindred workers | 4.43 | 4.98 | 5.63 | 2.37 | 2. 51 | 3.10 | - 22 | . 18 | . 19 |
| Construction crafts workers | 1.35 | 1.49 | 1.84 | . 74 | . 73 | . 97 | . 04 | . 02 | . 02 |
| Carpenters and apprentices | . 53 | . 64 | . 79 | .21 | . 22 | . 26 | . 02 | . 01 | . 01 |
| Brick,stonemasons, apprentices | . 02 | . 02 | . 01 | . 02 | . 01 | . 01 | -00 | . 00 | . 00 |
| Bulldozer operators | . 15 | . 15 | . 24 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| ilectricians and apprentices | . 20 | . 25 | -36 | - 15 | . 15 | - 21 | . 00 | . 00 | . 00 |
| Excavating, grading macn operatr | . 04 | . 03 | . 04 | . 00 | . 00 | -00 | . 00 | . 00 | . 00 |
| painters and apprentices | . 33 | . 31 | . 25 | . 22 | . 22 | .32 | . 02 | .01 | . 02 |
| Plasterers and apprentices | . 01 | . 01 | . 03 | -01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Plumbers, pipefitters, aprentices | . 07 | . 08 | . 13 | . 11 | . 11 | . 15 | .00 | .00 | . 00 |
| Blue collar worker supervisors | . 56 | . 64 | . 89 | . 17 | . 20 | . 28 | . 00 | . 00 | . 00 |
| Metalworkg craft wrkrs,exc meca | . 09 | - 10 | . 13 | . 04 | . 04 | . 10 | . 00 | . 00 | . 00 |
| Blacksmiths | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Boilermakers | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 | . 00 | .00 | . 00 |
| Machinists and apprentices | . 06 | . 07 | . 12 | .01 | . 02 | . 06 | . 00 | .00 | . 00 |
| Mechanics, refairers, installers | 2.00 | 2.27 | 2.20 | . 29 | . 36 | . 59 | . 00 | .00 | . 00 |
| Air cond, beating, refrig mech | . 04 | . 06 | .11 | . 06 | . 09 | . 13 | . 00 | . 00 | . 00 |
| aircraft mechanics | . 02 | . 04 | . 0.8 | -00 | - 00 | -00 | .00 | . 00 | .00 |
| Auto body repairers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | -19 | . 18 | - 15 | . 03 | . 03 | . 07 | . 00 | . 00 | .00 |
| Heavy equip mech, incl diesel | . 55 | . 71 | -92 | - 14 | -17 | . 30 | . 00 | . 00 | . 00 |
| Household apyliance mechanics | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Radio, television repairers | . 03 | . 03 | . 05 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Railroad, car shop repairers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| other mechanics and apprentices | 1.15 | 1.21 | . 84 | .04 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Printing trade crafts workers | . 05 | . 08 | . 15 | . 03 | . 05 | . 09 | . 00 | . 00 | . 00 |
| Bookbinders | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| Compositors and typesetters | . 02 | . 03 | . 04 | . 02 | . 03 | . 05 | . 00 | -00 | . 00 |
| Engravers exc photoengravers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Press, plate printers,aprentices | . 02 | . 03 | . 05 | . 01 | . 02 | . 04 | .00 | .00 | . 00 |
| transport, public util craft wkrs | .01 | . 01 | .00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |

Table 1. Percent distripution of industry employment by occupation, 1970, 1978 and projected 1990

|  | other <br> entertainat |  |  | Medical and othr health services |  |  | $\begin{gathered} \text { offices } \\ \text { of } \\ \text { physicians } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | .37 | . 39 | . 43 | 1. 10 | 1.13 | 1.07 | .17 | - 15 | . 17 |
| Bakers | . 12 | . 14 | . 16 | . 07 | . 06 | . 07 | .00 | . 00 | . 00 |
| Cabinetmakers | .01 | . 01 | .03 | . 01 | . 01 | . 01 | . 01 | . 00 | . 01 |
| Crane, derrick, hoist operator | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Decorators, window dressers | . 02 | . 05 | - 11 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Dental laboratory technicians | . 00 | . 00 | . 00 | . 58 | . 63 | . 58 | . 04 | . 03 | . 09 |
| Inspectors, other | . 01 | . 02 | . 02 | . 11 | . 12 | . 10 | . 00 | . 00 | . 00 |
| Motion picture projectionists | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | .00 | - 00 | . 00 |
| Opticians,lens grinder, folisher | . 00 | -00 | . 00 | . 04 | - 07 | . 07 | . 13 | - 12 | . 07 |
| Sign painters and letterers | .01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 10 | . 09 | . 06 | . 26 | . 21 | . 21 | . 00 | . 00 | . 00 |
| Tailors | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| other crafts morkers | . 04 | . 04 | .03 | .01 | . 01 | .01 | . 00 | .00 | . 00 |
| Operatives | 1.43 | 1.48 | 1.47 | 1.88 | 1.88 | 2.75 | . 14 | . 15 | - 14 |
| Operatives, except transport | . 53 | . 56 | . 64 | 1.56 | 1.54 | 2.48 | . 09 | . 10 | . 11 |
| Semiskilled metalworking | . 05 | . 06 | -11 | . 01 | . 01 | . 01 | . 00 | .00 | .00 |
| Welders and flamecutters | .05 | . 06 | .11 | . 01 | .01 | .01 | .00 | .00 | . 00 |
| Semiskilled facking, inspectiny | . 02 | . 02 | . 02 | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 |
| Packer, wrapper, exc meat, prodce | . 02 | . 02 | . 02 | . 02 | . 03 | .02 | . 00 | . 00 | . 00 |
| Other operatives, exc transport | . 47 | . 48 | . 51 | 1.53 | 1.50 | 2.45 | . 09 | . 10 | . 11 |
| clothing ironers and pressers | .01 | . 01 | . 02 | . 13 | . 12 | . 21 | . 00 | . 00 | . 00 |
| Cutting operatives, other | . 01 | . 01 | . 02 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dressmakers, exc facticy | . 00 | . 00 | . 00 | . 05 | . 05 | . 05 | . 00 | . 00 | . 00 |
| Garage wrkr,gas station atten | . 02 | . 02 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Laundry, dry cleang ofrs,other | . 06 | . 05 | - 04 | . 86 | . 85 | 1.61 | . 01 | . 01 | . 01 |
| Meat cutters, tutchers, exc mry | . 04 | . 03 | . 01 | . 03 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Photographic frocess vorkers | . 01 | . 01 | . 02 | . 04 | . 05 | . 06 | . 03 | .03 | . 02 |
| Sailors and deckhands | . 08 | . 09 | . 15 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 09 | . 09 | . 17 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | . 04 | . 03 | . 04 | .16 | . 10 | . 09 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | . 05 | . 07 | . 09 | . 00 | . 00 | . 00 |
| other operatives, exc transport | . 20 | . 23 | . 20 | . 11 | . 14 | . 15 | . 05 | . 06 | . 09 |
| Transport equipment operatives | . 90 | . 92 | . 84 | . 32 | . 35 | .27 | . 05 | . 05 | . 03 |
| Boat operators | . 12 | . 12 | . 12 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Bus drivers | . 06 | - 11 | . 05 | . 01 | . 02 | .01 | . 00 | . 00 | . 00 |
| Delivery and route workers | - 10 | . 11 | . 17 | . 06 | . 09 | .07 | .01 | .01 | .01 |
| Fork lift, tow motor operatives | . 02 | .03 | . 05 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Parking attendants | .34 | . 32 | . 28 | . 01 | . 01 | . 00 | . 01 | .01 | . 01 |
| Taxicab drivers, chauffeurs | . 06 | . 06 | . 04 | . 15 | . 14 | . 09 | . 03 | . 02 | . 01 |
| Truck drivers | - 20 | . 17 | . 13 | . 08 | . 09 | - 10 | .00 | . 00 | . 00 |
| Service workers | 34.15 | 29.42 | 26.68 | 41.47 | 38.19 | 39.08 | 14.08 | 16.83 | 19.69 |
| Cleaning secvice workers | 5.17 | 5.00 | 4.34 | 5.06 | 4.69 | 5.09 | 3. 16 | 3.23 | 3.39 |
| Lodging qtrs cleaners, exc privt | -18 | 5.09 | . 04 | . 58 | . 28 | . 36 | . 23 | . 13 | -14 |
| Bldg interior cleaners, other | 1.49 | 1.48 | . 88 | 2.78 | 2.78 | 2.83 | 1.84 | 2.01 | 2. 12 |
| Janitors and sextons | 3.50 | 3.44 | 3.42 | 1.69 | 1.63 | 1.90 | 1.10 | 1.09 | 1. 14 |
| Food service workers | 15.72 | 12.79 | 12.22 | 4.90 | 3.62 | 4.33 | .00 | . 00 | . 00 |
| Bartenders | 2.06 | 1. 78 | 1.24 | . 00 | .00 | . 00 | .00 | . 00 | . 00 |
| waiters' assistants | 1.30 | 1.46 | 2.04 | . 03 | . 03 | . 07 | .00 | . 00 | .00 |
| Cooks, exc private households | 2.90 | 2.56 | 2.42 | 1.74 | 1.28 | 1.16 | . 00 | . 00 | . 00 |
| Dishwashers | 1.01 | . 66 | . 49 | . 44 | . 31 | . 75 | . 00 | . 00 | . 00 |
| Pood counter, fountain workers | . 51 | . 60 | -87 | . 22 | - 20 | - 19 | .00 | . 00 | . 00 |
| Waiters | 6.54 | 4.56 | 4.17 | . 34 | . 16 | . 06 | . 00 | . 00 | - 00 |
| Other food serv wkrs,exc privt | 1.41 | 1. 17 | . 99 | 2.13 | 1.64 | 2.10 | .00 | . 00 | . 00 |
| Health service workers | . 08 | . 07 | - 10 | 29.57 | 28.28 | 27.62 | 10.75 | 13.47 | 16. 14 |
| Dental assistants | . 03 | . 02 | . 00 | 2.11 | 2.21 | 2.04 | . 33 | . 12 | . 10 |
| Health aides, except nursing | . 01 | . 01 | . 02 | 2.73 | 3.53 | 4.42 | 6.96 | 9.47 | 11.44 |
| Health trainees | .00 | . 00 | . 00 | . 41 | . 20 | . 09 | .00 | . 00 | . 00 |
| Lay midwives | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Nursing aides and orderlies | . 03 | . 03 | . 07 | 17.25 | 15.03 | 13.72 | . 87 | . 80 | . 90 |
| Practical nurses | . 00 | . 00 | . 00 | 7.06 | 7.29 | 7.33 | 2.58 | 3.09 | 3.70 |

Table 1. Percent distribution or industry employment by ccopation, 1970, 1978 and projected 1990

|  | other entertainat |  |  | Medical anở othr health services |  |  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { physicians } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Fersonal service workers | 11.82 | 10.30 | 9.36 | 1.57 | 1.22 | 1.50 | . 14 | . 12 | . 14 |
| Plight attendants | . 04 | . 05 | . 09 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| Attendants, recreation, amusemeat | 8.41 | 7.64 | 7.20 | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 |
| Attendants, personal serv,other | 1.66 | 1. 32 | . 82 | . 06 | . 05 | . 08 | . 02 | . 02 | . 02 |
| Baggage forters and bellhops | .03 | . 02 | . 11 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Barbers | . 20 | . 03 | . 04 | . 09 | .01 | . 02 | . 00 | . 00 | .00 |
| Bootblacks | . 03 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Child care workers, exc private | . 30 | . 15 | . 20 | . 69 | . 45 | .48 | .03 | .01 | . 05 |
| Elevator operators | . 03 | . 03 | . 02 | . 08 | . 05 | . 01 | .01 | .01 | . 01 |
| Hairdressers and cosmetologists | . 08 | - 12 | - 10 | . 13 | . 15 | . 20 | .00 | .00 | . 00 |
| Housekeepers, exc private homes | . 71 | . 53 | .29 | . 49 | . 41 | . 60 | . 08 | .06 | . 05 |
| Ushers, recreation and amusement | . 34 | . 41 | .49 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Welfare service aides | . 00 | . 00 | . 00 | .01 | . 08 | . 05 | .00 | .01 | . 00 |
| Protective service workers | 1.36 | 1. 27 | . 68 | . 38 | . 38 | . 54 | . 02 | . 02 | . 03 |
| Crossing guards, iridgetenders | . 00 | . 00 | .00 | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Firefighters | . 02 | . 01 | . 01 | .01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Guards | 1.25 | 1. 19 | . 65 | . 34 | . 35 | . 50 | . 02 | . 02 | . 03 |
| Police and detectives | . 10 | . 07 | . 01 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Laborers, except farm | 12.48 | 14.04 | 15.00 | . 66 | . 68 | . 84 | . 23 | . 13 | . 15 |
| Animal caretakers, exc farm | 1.39 | 1.82 | 1.68 | . 05 | . 07 | . 08 | . 00 | .00 | . 00 |
| Carpenter helfers | . 05 | . 05 | . 09 | .01 | . 01 | . 03 | .00 | .00 | . 00 |
| Constr labr, exc carpenter heipr | . 13 | - 10 | . 05 | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Fishers, hunters,trappers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Freight and material handers | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | 9.59 | 10.82 | 12.12 | . 29 | . 28 | .37 | .21 | . 12 | - 14 |
| Stock handlers | . 05 | . 06 | . 03 | . 18 | - 19 | - 23 | . 00 | .00 | . 00 |
| Teamsters | . 01 | . 01 | . 02 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Vehicle washers,equip cleaners | . 05 | . 04 | . 01 | . 04 | . 04 | . 05 | . 02 | . 01 | . 02 |
| warehouse labcrers, other | . 03 | . 03 | . 06 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Other laborers | 1.19 | 1. 10 | .94 | . 02 | . 02 | . 02 | .00 | .00 | .00 |


|  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { dentists } \end{gathered}$ |  |  | offices of chiroprctrs |  |  | Hospitals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 41.04 | 38.22 | 36.80 | 71.92 | 44.25 | 69.12 | 31.54 | 34.43 | 31.49 |
| engineers, technical | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 10 | . 10 | . 13 |
| Civil | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Electrical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .03 |
| Industrial | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .03 | . 04 |
| Mecannical | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Other engineers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| Life and physical scientists | . 00 | . 00 | . 04 | . 00 | . 00 | . 18 | . 34 | -49 | . 62 |
| Biological | . 00 | . 00 | . 00 | .00 | . 00 | . 02 | . 20 | . 34 | . 41 |
| Chemists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 12 | - 13 | . 19 |
| Physicists and astronomers | . 00 | . 00 | . 04 | . 00 | . 00 | . 16 | . 02 | . 02 | . 02 |
| Mathematical sfecialists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Statisticians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Engineering, science technicians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 16 | . 18 | . 23 |
| Agricultural, biolgcl, exc health | . 00 | - 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 03 |
| Chemical technicians | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Drafters | . 00 | . 00 | .00 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Electrical and electronic | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| other engineering, science tech | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 08 | . 09 | . 12 |
| Medical workers, exc technicians | 35.10 | 29.11 | 25.98 | 71.35 | 42.63 | 68.84 | 22.20 | 22.64 | 20.22 |
| Chiropractors | -. 00 | . 00 | . 00 | 69.91 | 40.02 | 66.99 | . 00 | . 00 | . 00 |
| Dentists | 34.52 | 28.58 | 25.51 | . 00 | . 00 | . 00 | .09 | . 08 | . 10 |
| Dietitians | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 70 | . 61 | . 54 |
| Pharmacists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 40 | . 42 | . 44 |
| physicians and osteopaths | . 00 | . 00 | . 00 | . 22 | . 00 | . 00 | 2.91 | 2.86 | 2.12 |
| Podiatrists | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| megistered nurses | . 58 | - 53 | . 47 | . 68 | 1.87 | 1.37 | 16.53 | 16.72 | 15.04 |
| Therapists | . 01 | - 00 | . 00 | . 53 | . 75 | . 48 | 1.53 | 1.91 | 1.95 |
| Veterinarians | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Other medical and health teca | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 00 |
| Health , technolcgists, technicians | 5.75 | 8.54 | 10.41 | . 30 | . 95 | . 10 | 6.13 | 7.74 | 7.13 |
| Clinical lab technologists, teca | . 05 | . 07 | . 03 | . 08 | . 21 | . 07 | 3.31 | 3.68 | 3.19 |
| Dental hygienists | 5.37 | 7.98 | 10.06 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Health record technclogist, tech | . 04 | . 03 | . 01 | . 03 | . 05 | . 03 | . 38 | . 37 | . 32 |
| kadiologic technologists, tech | . 19 | . 34 | . 24 | . 19 | -69 | . 00 | 1.29 | 1.90 | 1.79 |
| therapy assistants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | .11 | - 10 |
| other health technicians | . 11 | - 12 | . 07 | . 00 | . 00 | . 00 | 1.07 | 1.69 | 1.72 |
| Technicians, except health | . 03 | . 04 | . 00 | .10 | . 16 | . 00 | . 01 | .01 | .01 |
| other technicians except health | .03 | . 04 | .00 | . 10 | . 16 | . 00 | . 01 | .01 | .01 |
| Computer specialists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .10 | . 15 | . 23 |
| Computer programers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | . 09 | -13 |
| Computer systems analysts | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 05 | . 07 |
| other computer specialists | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| Social scientists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 31 | .76 | . 64 |
| Psychologists | .00 | . 00 | . 00 | .00 | .00 | .00 | .30 | . 75 | . 64 |
| Teachers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 52 | .35 | . 20 |
| Adult education | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 04 |
| Other teachers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 50 | . 32 | . 14 |
| Mriters,artists,entertainers | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 15 | - 18 | - 19 |
| Editors and reforters | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | .01 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Photographers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 |
| Puolic relaticns specialists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 09 | . 12 |
| other writers,artists, entertain | . 00 | . 00 | .00 | . 00 | .00 | . 00 | . 01 | . 01 | .01 |

Table 1. Percent distribution of industry employment by cccupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { dentists } \end{gathered}$ |  |  | $\begin{aligned} & \text { offices } \\ & \text { of } \\ & \text { chiroprctrs } \end{aligned}$ |  |  | Hospitals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and technical | . 75 | . 53 | .37 | . 18 | . 51 | . 00 | 1. 50 | 1.80 | 1. 85 |
| Accountants | . 09 | . 08 | . 05 | .11 | . 15 | . 00 | . 32 | -38 | . 48 |
| clergy | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | . 07 | . 08 |
| keligious workers, except cleryl | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Lawyers | . 05 | . 44 | . 30 | . 07 | . 36 | . 00 | .01 | . 02 | . 02 |
| Librarians | .00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| Operations and systems research | . 00 | -00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| Personnel, labcr relations wkrs | . $\cup 1$ | . 00 | . 00 | . 00 | - 00 | . 00 | . 23 | . 24 | . 16 |
| Other research workers | . 01 | . 02 | . 02 | . 00 | - 00 | . 00 | . 13 | - 12 | - 10 |
| Recreation workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | - 10 | . 09 |
| Social vorkers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 58 | . 78 | . 80 |
| Vocation, education counselors | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 03 | . 04 | . 04 |
| Managers, officials, proprietors | . 93 | . 98 | 1.11 | . 38 | 1.11 | . 23 | 2.65 | 3.10 | 3.19 |
| Buyers, sales, lcan managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 38 | - 37 | . 54 |
| Bank, iinancial managers | . 00 | . 00 | .00 | . 00 | . 00 | .00 | . 09 | . 10 | . 14 |
| Credit managers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .07 | . 05 | .07 |
| Purchasing agents, buyecs, other | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 22 | . 22 | .33 |
|  | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | 2.09 |  |  |
| Health administrators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.09 | $2.54$ | $2.39$ |
| Other managers,officials, proprts | . 93 | . 98 | 1.11 | . 38 | 1.11 | . 23 | - 18 | - 19 | - 26 |
| Mgrs, superintendents, building | . 00 | . 01 | . 00 | . 00 | - 00 | . 00 | . 03 | . 03 | . 02 |
| Office managers, other | . 64 | .83 | 1.02 | . 32 | . 98 | . 23 | . 12 | . 14 | . 21 |
| Restaurant, cafe, bar, manayers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Otner managers, administrators | .29 | . 15 | . 09 | . 06 | . 14 | . 00 | . 00 | . 00 | .00 |
| Sales workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 06 | . 07 |
| Other sales workers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 06 | . 07 |
| Clerical workers | 15.85 | 19.46 | 17.51 | 21.71 | 41.01 | 22. 18 | 16.10 | 16.12 | 21.42 |
| Stenographrs,typists, secretaries | 3.91 | 5.10 | 6.20 | 3.60 | 7.21 | 3.58 | 5.68 | 5.43 | 7.89 |
| Legal secretaries | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Medical secretaries | . 57 | . 52 | . 59 | .18 | . 28 | . 21 | 1.02 | . 74 | 1.47 |
| other secretaries | 3.11 | 4. 30 | 5.42 | 2.85 | 5.96 | 3.15 | 3.05 | 3.26 | 4.69 |
| Stenografbers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 16 | . 09 | . 04 |
| Typists | . 22 | . 27 | . 18 | . 57 | . 97 | . 22 | 1.43 | 1.31 | 1.64 |
| Office machine operators | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 43 | . 49 | . 48 |
| Bookkeefing and billing | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 05 | . 06 |
| Computer and feripheral equip | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 10 | . 24 | . 27 |
| Duplicating | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Keypuncin | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 19 | . 15 | . 11 |
| other office machine operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | .04 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { offices } \\ \text { of } \\ \text { dentists } \end{gathered}$ |  |  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { chiroprctrs } \end{gathered}$ |  |  | Hospitals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 11.94 | 14. 35 | 11.31 | 18.11 | 33.81 | 18.60 | 10.00 | 10.20 | 13.05 |
| Billing clerks | . 05 | . 06 | . 06 | . 08 | . 20 | . 16 | . 22 | . 26 | . 47 |
| Bookkeepers | 2.73 | 2.55 | 1.74 | 1.18 | 2.23 | 1.65 | . 90 | . 91 | 1.05 |
| Cashiers | .01 | . 02 | . 01 | -00 | . 00 | . 00 | . 45 | . 53 | . 83 |
| Clerical supervisors, other | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | -21 | . 25 | . 36 |
| Collectors, bill and account | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 |
| Counter clerks,exc food | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 09 | . 10 | . 17 |
| Dispatchers, starters, vehicle | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 03 |
| Estimators, investigators, other | .01 | . 01 | . 01 | -00 | . 00 | -00 | . 14 | . 18 | - 20 |
| File clerks | .11 | - 10 | . 07 | . 06 | . 09 | . 03 | . 41 | . 35 | . 38 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 02 |
| Library attendants, assistants | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 07 | .07 | . 08 |
| Mail handlers, exc fost office | .00 | . 00 | . 00 | . 08 | - 17 | - 09 | . 11 | . 11 | . 14 |
| Messengers and office helpers | . 05 | . 03 | . 02 | . 00 | . 00 | . 00 | . 12 | - 14 | . 21 |
| Payroll,timekeeping clerks | .01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 18 | . 23 | - 37 |
| heceptionists | 8.54 | 11.02 | 8.74 | 15.74 | 28.92 | 15.56 | 2.08 | 2.06 | 2.27 |
| Shipping and receiving clerks | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 07 | . 14 |
| statistical clerks | . 04 | . 08 | . 09 | . 00 | . 00 | . 00 | . 45 | . 53 | . 68 |
| Stock clerks and store keepers | . 00 | .00 | . 00 | .00 | . 00 | . 00 | . 52 | . 50 | . 69 |
| Telephone operators | . 01 | . 01 | .01 | . 03 | . 04 | . 01 | . 77 | - 59 | . 81 |
| Misc clerical workers | . 36 | . 43 | . 52 | . 95 | 2.17 | 1.11 | 3.17 | 3.26 | 4.11 |
| Crafts and kindred workers | 2.08 | 1.89 | 2.90 | .15 | .42 | . 00 | 2.31 | 2.52 | 3.70 |
| Construction crafts workers | . 14 | . 06 | . 03 | . 15 | . 42 | . 00 | 1.05 | 1.10 | 1.54 |
| Carpenters and apprentices | . 14 | . 06 | . 03 | . 15 | . 42 | . 00 | . 29 | . 32 | . 42 |
| Brick,stonemasons, apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Eiectricians and apprentices | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 22 | - 24 | . 36 |
| painters and apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | - 31 | . 32 | . 44 |
| plasterers and apprentices | .00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| plumbers, pipefitters, aprentices | . 00 | . 00 | .00 | . 00 | - 00 | . 00 | . 17 | . 17 | . 26 |
| Structural metal craft workers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Blue collar worker supervisors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .21 | - 25 | . 39 |
| Metaluorkg craft wrkrs,exc mech | . 00 | . 00 | . 00 | .00 | . 00 | - 00 | . 06 | . 07 | - 19 |
| Boilermakers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 06 |
| Machinists and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | . 02 | . 04 | - 12 |
| Sheetmetal workers, apprentices | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Mechanics, repairers, installers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 39 | . 51 | - 84 |
| Air cond, heating, refrig meca | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | - 14 | - 23 |
| Auto mechanics and apprentices | .00 | . 00 | .00 | . 00 | . 00 | - 00 | . 04 | . 04 | . 07 |
| Heavy equip mech, incl diesel | . 00 | . 00 | .00 | -00 | . 00 | . 00 | -19 | . 24 | . 41 |
| Household appliance mechanics | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | - 02 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Other mechanics and apprentices | .01 | .01 | . 01 | . 00 | . 00 | - 00 | . 06 | . 06 | . 07 |
| Printing trade crafts workers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 06 | .16 |
| Compositors and typesetters | . 00 | . 00 | .00 | . 00 | - 00 | - 00 | -03 | -04 | . 10 |
| Press, plate printers, aprentices | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 02 | . 02 | . 06 |
| Other crafts, kindred workers | 2.53 | 1.81 | 2.86 | . 00 | . 00 | . 00 | - 55 | . 51 | . 59 |
| Bakers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | - 10 | . 09 | . 12 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 00 | . 00 | -00 | . 01 | .01 | . 01 |
| Dental laboratory technicians | 2.53 | 1.81 | 2.86 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Inspectors, other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| opticians, iens grinder, polisner | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Stationary engineers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 38 | - 34 | - 37 |
| Upholsterers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Other crafts workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Operatives | .09 | . 08 | . 03 | . 09 | . 13 | . 01 | 2.36 | 2.30 | 3.23 |
| Operatives, except transport | .07 | . 06 | . 03 | . 07 | - 10 | . 01 | 2.00 | 1.94 | 2.83 |
| Semisicilled metalworking | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Helders and flamecutters | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| Semiskilled packing, inspecting | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | -01 | . 01 | . 01 |
| Packer,wrapper, exc meat, prodce | .00 | . 00 | .00 | .00 | . 00 | .00 | .01 | .01 | . 01 |


|  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { dentists } \end{gathered}$ |  |  | $\begin{gathered} \text { Offices } \\ \text { of } \\ \text { chiroprctrs } \end{gathered}$ |  |  | Hospitals |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | . 07 | . 06 | . 03 | . 07 | . 10 | .01 | 1.97 | 1.91 | 2.80 |
| clothing ircners and pressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .18 | . 17 | . 28 |
| Dressmakers, exc factory | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 07 | . 07 |
| Laundry, dry cleang oprs, other | . 01 | . 01 | . 00 | .03 | . 04 | .01 | 1.07 | 1.06 | 1.58 |
| Meat cutters, butchers, exc mfg | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | .03 | . 01 |
| Photographic frocess workers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | .05 | . 06 | . 10 |
| Sewers and stitchers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 14 | . 15 | . 32 |
| Furnace tendr,stokr,exc metal | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 24 | .16 | . 14 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 08 | . 12 |
| Otner operatives, exc transport | . 06 | . 04 | . 02 | . 04 | . 06 | .00 | . 11 | .13 | . 19 |
| Transport equifment operatives | . 02 | . 02 | . 00 | . 02 | . 03 | .00 | .36 | . 36 | . 40 |
| Bus drivers | . 00 | . 00 | .00 | .00 | . 00 | . 00 | .01 | . 02 | . 00 |
| Delivery and coute workers | .01 | . 01 | .00 | . 02 | . 03 | . 00 | . 05 | . 04 | . 07 |
| Parking attencants | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | .00 |
| Taxicab drivers, chauffeurs | .00 | .01 | . 00 | . 00 | . 00 | . 00 | .19 | . 19 | .16 |
| Truck drivers | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 10 | . 10 | . 17 |
| Service workers | 38.50 | 39.25 | 41.59 | 5.65 | 12.83 | 8.32 | 44.19 | 40.60 | 35.81 |
| Cleaning service workers | 1.54 | 1. 90 | 1.82 | 1.33 | 3.17 | 1.48 | 5.82 | 5.32 | 4.96 |
| Lodqing gtrs cleaners, exc privt | - 12 | . 10 | . 17 | . 08 | -10 | - 11 | . 71 | . 32 | .21 |
| Bidg interior cleaners, otiar | -91 | 1. 16 | 1.02 | . 94 | 2.41 | . 94 | 3.20 | 3.15 | 2.75 |
| Janitors and sextons | . 52 | . 64 | . 62 | .31 | . 66 | .43 | 1.91 | 1.85 | 2.00 |
| Food service workers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | 5.45 | 4.00 | 3.56 |
| Waiters' assistants | . 00 | . 00 | .00 | .00 | .00 | .00 | . 03 | . 03 | . 04 |
| Cooks, exc private housenolds | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.69 | 1.20 | . 78 |
| Dishwashers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 48 | . 34 | . 55 |
| Food counter, fountain workers | .00 | . 00 | . 00 | .00 | . 00 | . 00 | - 33 | . 31 | . 30 |
| waiters | . 00 | .00 | . 00 | . 00 | .00 | . 00 | . 31 | . 16 | . 06 |
| Uther food serv wkrs,exc privt | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.60 | 1.95 | 1.84 |
| Health service workers | 36.92 | 37.31 | 39.71 | 4. 12 | 9.36 | 6.80 | 30.81 | 29.54 | 25.01 |
| Dental assistants | 36.01 | 35.85 | 38.05 | . 00 | . 00 | . 00 | . 07 | . 08 | .09 |
| Health aides, except nursing | .53 | 1.01 | 1.26 | 3.67 | 8.54 | 6.20 | 2.49 | 3.10 | 4.42 |
| Health trainees | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 64 | . 35 | . 17 |
| Nursing aides and orderlies | . 26 | .28 | . 19 | .37 | . 66 | . 60 | 19.37 | 17.11 | 11.74 |
| Practical nurses | . 13 | - 18 | . 21 | . 08 | . 16 | .00 | 8.23 | 8.90 | 8.59 |
| Personal service workers | .03 | . 03 | . 06 | . 20 | . 30 | . 04 | 1.60 | 1.17 | 1.39 |
| Attendants, recreation, amusement | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | .03 |
| Attendants, fersonal serv,other | . 00 | . 00 | . 00 | . 18 | . 27 | .03 | . 04 | . 03 | .01 |
| Barders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .13 | . 02 | .03 |
| Child care workers, exc private | . 02 | . 02 | . 04 | .00 | . 00 | . 00 | . 66 | . 40 | . 51 |
| Elevator operators | . 00 | . 00 | .00 | . 00 | .00 | .00 | .11 | . 08 | . 02 |
| Hairdressers and cosmetoloyists | . 00 | .00 | . 00 | . 00 | . 00 | .00 | -11 | . 13 | -15 |
| Housekeepers, exc private homes | . 01 | .01 | . 01 | .03 | . 04 | . 01 | .53 | . 44 | . 59 |
| Welfare service aides | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 05 | . 05 |
| Protective service workers |  | . 00 | . 00 | . 00 | . 00 | . 00 | . 52 | . 56 | . 88 |
| Crossing guards,bridgetenders | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | . 03 |
| Firefighters | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | - 02 | . 02 | . 01 |
| Guards | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 46 | . 51 | . 82 |
| Police and detectives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 |
| Laborers, except farm | . 31 | . 12 | . 06 | . 10 | . 24 | . 14 | . 80 | . 88 | 1.09 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 07 | . 10 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 02 | . 04 |
| Constr labr, exc carpenter helpr | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 |
| Freight and material handlers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 |
| Gardenrs, groundkeepers, exc farm | . 31 | . 12 | . 06 | . 10 | . 24 | .14 | .31 | . 33 | . 39 |
| Stock handlers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 27 | - 31 | . 40 |
| Vehicle wasbers,equip cleaners | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 |
| Warehouse labcrers, other | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 02 | . 02 | .03 |
| Other laborers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

$1970 \quad 1978 \quad 1990$

$1970 \quad 1978 \quad 1990$

## other <br> health <br> services

19701978
1990

Total all occupations
Professional and technical
Engineers, technica
Chemical
Civil
Electrical
Industrial
Mechanical
Other engineers
Life and physical scientists
Agricultural
Biological
Chemists
Geologists
Physicists and astronomers
Other life, physical scientists

Mathematical specialists
Mathematicians
Statisticians
Engineering, science technicians
Agricultural, $\mathrm{tiolgcl}, \mathrm{exc}$ healtn
Chemical techricians
Drafters
Electrical and electronic
Industrial engineering
Surveyors
Other engineering. science tech
Medical workecs, exc technicians
Chiropractors
Dentists
Dietitians
optometrists
Pharmacists
Physicians and osteofaths
Podiatrists
Hegistered nurses
Therapists
Veterinarians
Other medical and health tech
Health technolcgists, technicians
Clinical lab technologists, tech
Dental hygienists
Health record technologist, tech
Radiologic technologists, tech
Therapy assistants
Other health technicians
Technicians, except health
other technicians except nealth
Computer specialists
Computer programers
Computer systems analysts
Other computer specialists
Social scientists
Economists
Psychologists
Sociologists
Urban and regional planners
Other social scientists

Teachers
Adult educaticn
Preschool and kindergarten
other teachers
$100.00 \quad 100.00 \quad 100.00$ $12.46 \quad 13.52 \quad 12.25$






$$
62.26 \quad 52.27 \quad 52.01
$$

| .00 | .00 | .00 |
| :---: | :---: | :---: |
| .00 | .00 | . 00 |
| .00 | - 00 | . 00 |
| -00 | - 00 | . 00 |
| .00 | .00 | . 00 |
| . 00 | - 00 | . 00 |
| .00 | - 00 | - 00 |
| .01 | . 02 | . 00 |
| .00 | . 00 | . 00 |
| .01 | . 02 | . 00 |
| .00 | .00 | . 00 |
| .00 | .00 | . 00 |
| . 00 | . 00 | - 00 |
| .00 | . 00 | - 00 |
| . 00 | - 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | .00 | . 00 |
| - 00 | .00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | - 00 | - 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | - 00 | .00 |

$100.00 \quad 100.00 \quad 100.00$

| 41.85 | 46.74 | 47.23 |
| :---: | :---: | :---: |
| . 57 | .36 | .51 |
| . 02 | .01 | .00 |
| . 26 | . 13 | - 19 |
| . 05 | .04 | . 07 |
| .07 | .07 | - 12 |
| . 04 | .02 | . 04 |
| .13 | .09 | .09 |
| 2.01 | 2.30 | 2. 22 |
| .01 | .01 | .00 |
| 7. 23 | 1. 60 | 1. 20 |
| . 68 | .63 | .88 |
| . 01 | .01 | .03 |
| . 08 | . 04 | .08 |
| .02 | .01 | . 02 |
| - 20 | . 14 | . 19 |
| . 02 | .01 | .00 |
| .18 | .13 | . 19 |
| .53 | .55 | .66 |
| .10 | .10 | .07 |
| .10 | - 13 | . 22 |
| .03 | .02 | .04 |
| .05 | . 07 | - 14 |
| .01 | .01 | .04 |
| . 02 | .01 | . 00 |
| .21 | .20 | . 15 |
| 22.85 | 23.62 | 27.30 |
| .00 | .00 | .00 |
| .38 | . 30 | . 44 |
| .23 | . 14 | . 06 |
| . 02 | .02 | .01 |
| . 07 | . 05 | - 10 |
| 1.56 | 1.74 | 1. 58 |
| . 01 | . 01 | . 00 |
| 17.10 | 16.78 | 21.27 |
| 3.40 | 4.48 | 3.74 |
| . 07 | . 03 | .02 |
| .01 | .07 | . 07 |
| 8.81 | 10.80 | 6.97 |
| 5.71 | 7.03 | 4.00 |
| . 38 | . 27 | . 62 |
| . 05 | . 04 | . 07 |
| .83 | 1.09 | - 58 |
| .13 | . 26 | - 17 |
| 1.71 | 2. 11 | 1. 54 |
| $.08$ | $.08$ | . 09 |
| .07 | .08 | .09 |
| .27 | .25 | - 20 |
| . 17 | . 16 | . 13 |
| .09 | .09 | .06 |
| .01 | .01 | . 02 |
| 1.01 | 2.67 | 4.20 |
| .04 | . 05 | . 08 |
| . 92 | 2.55 | 3.95 |
| .02 | .03 | .09 |
| .01 | .02 | .01 |
| .03 | .03 | .07 |
| .59 | . 50 | . 32 |
| .14 | - 19 | - 16 |
| . 02 | .02 | .02 |
| .43 | . 28 | . 15 |

Iable 1. Fercent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Convalescnt institutns |  |  | $\begin{gathered} \text { Other } \\ \text { health } \\ \text { practitnrs } \end{gathered}$ |  |  | other health services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | . 08 | . 12 | . 17 | . 21 | . 09 | . 00 | . 56 | .63 | . 44 |
| Actors | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .03 | . 02 | . 00 |
| Athletes and kindred workers | . 03 | .05 | . 07 | . 00 | . 00 | . 00 | . 04 | . 04 | . 00 |
| Designers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Editors and reforters | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .11 | . 10 | . 10 |
| painters and sculptors | . 01 | . 02 | . 03 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| photographers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 06 | . 04 | . 04 |
| Public relaticns specialists | . 02 | .04 | . 06 | . 00 | . 00 | . 00 | . 22 | .33 | . 26 |
| Other writers,artists, entertana | . 01 | . 01 | . 01 | . 21 | . 09 | .00 | . 09 | . 08 | . 03 |
| Other professicnal and technical | 1.18 | 1.74 | 1.82 | 6.28 | 4.15 | 9.09 | 4.36 | 4.84 | 4.13 |
| accountants | . 13 | . 17 | . 20 | . 07 | . 06 | . 00 | . 43 | . 48 | . 46 |
| Architects | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 06 |
| clergy | . 06 | . 05 | . 07 | . 07 | . 02 | . 00 | . 03 | . 02 | . 01 |
| Religious workers, except cleryy | . 09 | . 08 | - 14 | 5.33 | 3.25 | 8.37 | . 01 | . 02 | . 03 |
| roresters and conservationists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 08 | .03 | . 01 |
| Home management advisors | . 00 | . 00 | . 00 | . 02 | . 02 | .00 | .02 | .01 | . 02 |
| Lawyers | . 04 | . 06 | . 05 | . 49 | . 54 | . 41 | . 19 | . 16 | . 04 |
| Librarians | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 05 | .06 | . 06 |
| operations and systems researca | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 05 | .06 | . 05 |
| Personnel, labcr relations wkrs | . 09 | . 12 | - 12 | . 03 | . 03 | . 00 | . 40 | . 37 | . 26 |
| other research workers | . 01 | . 01 | .01 | . 08 | . 08 | . 10 | . 56 | . 52 | . 48 |
| Becreation workers | . 43 | . 76 | . 70 | . 00 | . 00 | . 00 | . 11 | . 19 | . 13 |
| Social workers | . 27 | . 42 | . 46 | . 14 | .13 | . 18 | 1.94 | 2.36 | 2.08 |
| Vocation, education counselors | . 04 | . 05 | . 05 | . 05 | . 03 | .03 | . 47 | . 53 | . 43 |
| Managers, officials, proprieturs | 5.35 | 6.39 | 4.87 | . 58 | .60 | . 71 | 7.41 | 8.76 | 7.82 |
| Buyers,sales,lcan managers | . 09 | - 11 | - 21 | . 00 | . 00 | . 00 | . 31 | . 37 | . 42 |
| Bank, financial managers | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 | . 14 | . 18 | . 13 |
| Credit managers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 01 | . 00 |
| Purchasing agents, buyers, other | . 07 | . 08 | . 17 | . 00 | . 00 | . 00 | . 12 | .09 | . 14 |
| Sales manager, exc retail trade | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 09 | .15 |
| Administrators, public inspectors | 5.13 | 6. 11 | 4.35 | . 00 | . 00 | . 00 | 4.39 | 5.30 | 4.90 |
| Health administrators | 5.13 | 6.11 | 4.35 | .00 | . 00 | .00 | 4.39 | 5.30 | 4.90 |
| Otber managers, officials, proprts | . 13 | . 17 | -31 | . 58 | .61) | .71 | 2.70 | 3.10 | 2.50 |
| Mgrs, superintendents, buildiny | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | . 02 | . 03 | . 06 |
| Office managers, other | . 09 | . 12 | . 23 | .35 | . 42 | . 54 | . 37 | . 46 | . 38 |
| Resta urant, cafe, bar, managers | .01 | . 01 | -01 | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 |
| Other managers, administrators | . 00 | . 00 | . 00 | . 23 | . 18 | . 17 | 2.29 | 2.60 | 2.05 |
| Sales workers | .06 | . 08 | . 16 | . 07 | . 07 | . 00 | . 21 | . 33 | . 36 |
| other sales wrikers | . 06 | . 08 | -16 | . 07 | . 07 | . 00 | . 21 | . 32 | . 36 |
| Clerical workers | 3.84 | 4.38 | 6.52 | 30.10 | 36.62 | 34.67 | 18.55 | 18.11 | 19.39 |
| Stenographrs, typists,secretaries | 1.45 | 1.68 | 2.67 | 7.19 | 8.70 | 9.15 | 10.22 | 9.49 | 12.56 |
| Legal secretaries | . 03 | . 03 | . 04 | . 18 | . 16 | . 00 | . 10 | . 12 | . 08 |
| Medical secretaries | . 05 | . 05 | - 12 | . 50 | . 42 | . 42 | . 56 | . 57 | . 81 |
| Other secretaries | 1.14 | 1. 38 | 2.25 | 5.85 | 7.41 | 8.20 | 6.09 | 6.57 | 9.18 |
| Stenographers | . 02 | . 02 | . 01 | . 06 | . 04 | . 00 | . 59 | . 21 | . 05 |
| Typists | . 20 | . 21 | . 25 | .61 | . 68 | . 53 | 2.87 | 2.03 | 2.45 |
| Office machine operators | . 04 | . 05 | . 09 | . 00 | . 00 | . 00 | . 55 | . 54 | . 38 |
| Bookkeeping and billiny | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | -05 | . 04 | . 06 |
| Computer and feripheral equip | .01 | . 03 | .06 | . 00 | . 00 | . 00 | . 10 | . 21 | . 13 |
| Duplicating | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 04 |
| Keypunch | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 31 | . 22 | . 10 |
| Tabulating | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 00 | . 00 |
| Other office machine operators | . 00 | . 00 | .00 | . 00 | - 00 | .00 | . 04 | . 05 | . 05 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Convalescnt institutns |  |  | $\begin{gathered} \text { other } \\ \text { health } \\ \text { practitnrs } \end{gathered}$ |  |  | $\begin{gathered} \text { Other } \\ \text { health } \\ \text { services } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 2.35 | 2.65 | 3.76 | 22.91 | 27.92 | 25. 52 | 7.79 | 8.07 | 6.44 |
| Billing clerks | . 03 | . 04 | . 08 | . 07 | . 11 | . 20 | . 17 | . 25 | . 28 |
| Bookineepers | 1.02 | 1.11 | 1.48 | 2.32 | 2.71 | 2.35 | 1.58 | 1.85 | 1.90 |
| Cashiers | . 02 | . 03 | . 03 | . 00 | . 00 | . 00 | . 05 | .06 | . 07 |
| Clerical assistant.soc welfare | . 00 | .01 | . 00 | .00 | .00 | . 00 | . 01 | . 18 | . 08 |
| Clerical supervisors, other | . 05 | . 06 | -08 | . 01 | . 01 | . 01 | . 46 | - 33 | . 13 |
| Collectors, bill and account | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| counter clerks, exc food | . 02 | . 02 | . 04 | - 00 | . 00 | . 00 | .03 | . 05 | . 09 |
| Dispatchers,starters, venicle | . 00 | - 00 | -00 | . 00 | . 00 | . 00 | .01 | . 02 | . 04 |
| Estimators, investigators, other | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | .23 | . 27 | . 19 |
| File clerks | . 03 | . 03 | .03 | . 17 | . 17 | . 14 | . 50 | . 41 | . 40 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 04 | . 03 |
| Library attendants, assistants | . 02 | . 04 | . 03 | . 00 | . 00 | .00 | . 05 | . 05 | . 06 |
| Mail handlers,exc post office | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | .20 | . 20 | . 19 |
| Messengers and office helpers | . 02 | .01 | . 01 | . 02 | . 02 | .00 | .16 | .20 | . 08 |
| Paycoll,timekeeping clerks | . 06 | . 08 | .09 | . 02 | . 03 | . 01 | -11 | . 12 | . 09 |
| Eeceptionists | . 52 | -59 | . 89 | 18.71 | 22.91 | 20.41 | 1.61 | 1.75 | 1.00 |
| Shipping and receiving clerks | . 01 | . 01 | .01 | . 05 | . 04 | . 01 | . 11 | . 12 | . 08 |
| statistical clerks | . 07 | . 09 | . 15 | . 09 | . 14 | . 23 | .63 | . 54 | . 58 |
| Stock clerks and store keepers | . 08 | - 10 | - 16 | .03 | - 02 | . 00 | - 30 | - 31 | . 35 |
| Telephone operators | . 14 | - 10 | . 08 | . 00 | . 00 | . 00 | . 22 | . 15 | . 08 |
| Heighers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 04 |
| Misc clerical workers | . 24 | . 32 | . 55 | 1.42 | 1.77 | 2.16 | 1.34 | 1.14 | . 66 |
| Crafts and kindred yorkers | .86 | 1.02 | 1.48 | 2.25 | 3.44 | 4.03 | 10.18 | 7.27 | 7.03 |
| Construction crafts workers | . 38 | . 44 | . 60 | . 07 | . 04 | . 02 | . 30 | . 24 | . 20 |
| Carpenters and apprentices | - 12 | . 13 | - 12 | . 07 | . 04 | . 02 | . 09 | . 08 | . 04 |
| Brick,stonemasons, apprentices | . 00 | . 00 | - 00 | . 00 | .00 | . 00 | .01 | . 01 | . 02 |
| Electricians and apprentices | . 05 | . 05 | . 06 | .00 | . 00 | . 00 | . 05 | . 04 | .02 |
| Painters and apprentices | . 15 | - 20 | -39 | . 00 | . 00 | . 00 | . 09 | . 08 | . 11 |
| plumbers, pipefitters, aprentices | . 04 | - 04 | . 04 | . 00 | . 00 | . 00 | . 06 | .03 | . 01 |
| Blue collar worker supervisors | . 18 | .21 | . 21 | . 00 | . 00 | . 00 | .33 | . 33 | .29 |
| Mechanics, repairers, installers | . 16 | . 24 | . 51 | . 00 | . 00 | . 00 | . 30 | . 35 | . 49 |
| Aic cond, heating, refrig mech | . 01 | . 01 | .03 | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 |
| auto mechanics and apprentices | . 04 | . 05 | . 09 | . 00 | . 00 | . 00 | . 05 | . 06 | - 10 |
| Heavy equip mech, incl diesel | - 08 | . 13 | . 32 | . 00 | .00 | . 00 | . 11 | . 14 | - 19 |
| Household appliance mechanics | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | .03 |
| Office machine repairers | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 01 | . 02 |
| Radio, television repairers | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 02 | . 01 | . 01 |
| other mechanics and apprentices | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | . 05 | . 07 | . 09 |
| Printing trade crafts workers | .01 | . 01 | -00 | . 00 | . 00 | . 00 | . 08 | .08 | . 05 |
| Compositors and typesetters | . 00 | .00 | . 00 | . 00 | - 00 | . 00 | . 05 | . 05 | . 02 |
| Press,plate printers,aprentices | . 00 | .00 | . 00 | .00 | . 00 | .00 | . 02 | .03 | . 03 |
| Other crafts, kindred workers | . 14 | - 13 | $\therefore 16$ | 2.19 | 3.40 | 4.01 | 9.17 | 6.27 | 6.00 |
| Bakers | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Cabinetmakers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .01 | .01 | .03 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 |
| Dental laboratory technicians | . 00 | . 01 | . 07 | . 00 | . 00 | . 00 | 7.22 | 4.98 | 4.67 |
| Furniture and wood finishers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | . 03 |
| Glaziers | . 00 | - 00 | . 00 | .03 | . 03 | .01 | . 00 | . 00 | . 00 |
| Inspectors, other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.71 | 1.06 | 1.09 |
| opticians,lens grinder, golisher | . 00 | . 00 | . 00 | 2.12 | 3. 34 | 4.00 | . 04 | . 06 | .03 |
| Stationary engineers | . 07 | - 07 | . 05 | . 00 | - 00 | . 00 | . 09 | . 04 | .01 |
| Upholsterers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 01 | . 02 | . 03 |
| other crafts morkers | . 00 | . 00 | . 00 | . 04 | - 03 | . 01 | . 01 | . 02 | . 03 |
| Operatives | 2.07 | 2.43 | 4.35 | . 20 | . 17 | . 05 | 2. 10 | 2.25 | 1.39 |
| Operatives, except transport | 1.91 | 2. 27 | 4.29 | . 16 | - 12 | . 04 | 1.03 | 1.18 | . 92 |
| Semiskilled packing, inspecting | $.01$ | $.01$ | $.01$ | $.02$ | . 02 | -00 | . 20 | $.23$ | -14 |
| Packer,wrapper, exc meat, prodce |  | .01 | $.01$ | - 02 | . 02 | . 00 | . 20 | .23 | . 14 |


|  | convalescnt institutns |  |  | other health practitnrs |  |  | Other health services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other operatives, exc transport | 1.90 | 2. 26 | 4.27 | . 13 | . 10 | . 04 | . 84 | . 95 | . 78 |
| Clothing ircners and pressers | . 12 | - 14 | . 28 | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| Dressmakers, exc factory | . 03 | - 04 | . 05 | - 00 | . 00 | . 00 | . 06 | . 07 | . 06 |
| Garage wrkr,gas station atten | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 04 | . 05 | . 06 |
| Laundry,dry cleang oprs,other | 1.59 | 1.92 | 3.73 | . 01 | . 01 | . 01 | . 04 | . 06 | . 08 |
| Heat cutters, kutchers, exc mfy | . 02 | . 01 | .01 | . 00 | . 00 | - 00 | . 00 | . 00 | . 00 |
| Mixing operatives | . 00 | . 00 | . 00 | . 04 | .01 | . 00 | . 00 | . 00 | . 00 |
| Photographic frocess workers | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 06 | . 07 | . 08 |
| Furnace tendr,stokr, ${ }^{\text {ex }}$ metal | . 07 | . 06 | . 05 | . 00 | . 00 | - 00 | . 04 | . 02 | . 02 |
| Miscellaneous machine operatves | . 03 | . 04 | . 08 | . 05 | . 03 | . 03 | .11 | . 17 | . 13 |
| other oferatives, exc transport | . 03 | . 05 | . 08 | .03 | . 03 | -00 | . 47 | . 50 | . 32 |
| Transport equipment operatives | . 17 | . 16 | . 07 | . 04 | . 04 | . 01 | 1.07 | 1.07 | -47 |
| 3us drivers | . 01 | . 02 | . 01 | . 00 | . 00 | .00 | . 05 | . 08 | . 01 |
| Delivery and route workers | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 53 | . 63 | . 33 |
| Fork lift, tow motor operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Parking attendants | . 00 | - 00 | . 00 | - 00 | . 00 | . 00 | .01 | . 02 | . 00 |
| Taxicab drivers, chauffeurs | . 11 | - 10 | . 04 | . 03 | . 03 | . 01 | . 21 | - 13 | . 02 |
| Truck drivers | . 04 | . 03 | . 01 | . 01 | . 01 | . 00 | . 26 | . 22 | . 09 |
| Service workers | 74.80 | 71.52 | 69.46 | 4.52 | 6.81 | 8.50 | 18.98 | 15.87 | 16. 25 |
| cleaning service workers | 6.99 | 7.69 | 9.11 | . 83 | 1. 11 | 1. 18 | 1.52 | 1.43 | 1.18 |
| Lodging quts cleaners, exc privt | . 86 | . 55 | 1.06 | . 03 | . 02 | . 01 | . 08 | . 06 | . 08 |
| Bldg interior cleaners, other | 3.90 | 4.74 | 5.07 | . 43 | . 53 | . 47 | . 46 | - 50 | . 41 |
| Janitors and sextons | 2.23 | 2.40 | 2.98 | . 38 | - 56 | .71 | . 98 | . 87 | . 69 |
| Food service workers | 12.61 | 10.56 | 11.78 | . 00 | . 00 | . 00 | . 53 | . 44 | . 38 |
| maiters' assistants | . 05 | . 07 | . 23 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cooks, exc private households | 5.89 | 4.71 | 3.62 | . 00 | . 00 | - 00 | . 22 | . 17 | . 08 |
| Dishwashers | 1. 14 | . 94 | 2.19 | . 00 | . 00 | . 00 | . 06 | . 06 | .09 |
| Food counter, fountain workers | . 12 | - 13 | . 14 | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 |
| waiters | 1.24 | - 59 | .13 | - 00 | . 00 | . 00 | . 04 | . 02 | . 01 |
| Other food serv wkrs,exc privt | 4.15 | 4. 11 | 5.46 | . 00 | . 00 | . 00 | .18 | - 14 | . 14 |
| Health service workers | 51.15 | 49.93 | 45.23 | 3.39 | 5.53 | 7.06 | 14.85 | 12.30 | 13.40 |
| Dental assistants | . 03 | . 02 | . 01 | . 03 | . 00 | . 00 | . 83 | . 61 | . 72 |
| Health aides, except nursing | . 80 | 1. 16 | 2.00 | 3.11 | 5.24 | 6.83 | 1.95 | 2.70 | 2.56 |
| Lay midwives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 29 | . 12 | . 09 |
| Nursing aides and orderlies | 41.15 | 39.18 | 34.80 | . 05 | . 04 | . 00 | 3.92 | 3.11 | 2.95 |
| Practical nurses | 9.18 | 9.57 | 8.42 | . 21 | . 24 | . 23 | 7.86 | 5.76 | 7.09 |
| Personal service workers | 3.81 | 3.08 | 3.10 | . 29 | . 15 | . 25 | 1.77 | 1.49 | 1.15 |
| Attendants, recreaticn, amusement | . 05 | . 06 | . 12 | . 00 | . 00 | . 00 | . 02 | . 02 | . 06 |
| Attendants, fersonal serv,other | - 19 | - 19 | .31 | . 24 | - 10 | -19 | . 15 | - 10 | - 11 |
| Barbers | . 10 | . 02 | . 02 | - 00 | . 00 | - 00 | .01 | .00 | . 00 |
| Child care workers, exc private | 1.70 | 1. 06 | .67 | . 02 | . 02 | . 04 | 1.26 | -80 | . 71 |
| zlevator operators | . 03 | . 02 | . 01 | . 00 | - 00 | . 00 | . 03 | . 03 | . 01 |
| Hairdressers and cosmetologists | . 47 | . 55 | . 58 | . 00 | . 00 | . 00 | . 07 | . 04 | . 07 |
| Housekeefers, exc private homes | 1.27 | 1. 11 | 1.34 | . 03 | . 03 | . 02 | . 09 | . 08 | . 04 |
| Helfare service aides | . 01 | . 07 | . 06 | . 00 | . 00 | . 00 | . 14 | .42 | - 15 |
| Protective service workers | . 24 | . 26 | . 24 | . 02 | . 02 | .01 | . 32 | . 23 |  |
| Crossing guards,bridgetenders | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Guards | . 22 | . 24 | . 21 | . 02 | . 02 | .01 | -28 | . 21 | -14 |
| Police and detectives | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | .03 | . 02 | . 00 |
| Laborers, except farm | . 56 | . 66 | . 92 | . 02 | . 03 | . 03 | . 71 | . 67 | . 54 |
| animal caretakers, exc farm | . 01 | . 02 | . 04 | . 00 | . 00 | . 00 | . 28 | . 27 | . 21 |
| Carpenter helfers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | .03 |
| constr labr, exc carpenter belpr | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| Freight and material handlers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 06 | . 08 | . 06 |
| Gardenrs, groundkeepers, exc farn | . 42 | . 49 | . 68 | . 02 | . 03 | . 03 | . 13 | . 08 | . 04 |
| Stock handlers | . 02 | . 03 | . 06 | . 00 | . 00 | . 00 | . 04 | . 06 | . 09 |
| Vehicle washers, equip cleaners | . 05 | . 06 | . 09 | . 00 | . 00 | . 00 | . 07 | . 09 | . 05 |
| Warehouse laborers, other | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Other laborers | . 03 | . 03 | . 02 | . 00 | . 00 | . 00 | . 08 | . 05 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Legal services |  |  | Educational services |  |  | Elementary. secondary school |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total ali occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| professional and technical | 57.46 | 55.79 | 57.08 | 59.82 | 57.22 | 53.00 | 66.40 | 61.53 | 58.64 |
| kngineers, technical | .06 | . 02 | . 04 | - 16 | . 14 | . 14 | . 03 | . 03 | . 03 |
| Civil | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | . 01 | . 01 | . 00 |
| Electrical | . 00 | - 00 | . 00 | . 05 | . 05 | . 05 | . 01 | . 01 | . 01 |
| Industrial | . 03 | . 01 | . 02 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Mechanical | . 00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 01 | .01 | .01 |
| other engineers | . 03 | . 01 | . 02 | . 03 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Life and physical scientists | -00 | - 00 | . 00 | . 27 | . 32 | . 30 | . 00 | . 00 | . 00 |
| Agricultural | . 00 | . 00 | . 00 | . 04 | . 05 | . 05 | . 00 | . 00 | . 00 |
| Biological | . 00 | . 00 | . 00 | . 07 | . 11 | . 10 | . 00 | . 00 | . 00 |
| Chemists | . 00 | . 00 | . 00 | . 09 | . 09 | . 10 | . 00 | . 00 | . 00 |
| Geologists | . 00 | -00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Physicists and astronomers | . 00 | . 00 | . 00 | . 05 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Statisticians | . 00 | . 00 | . 00 | . 02 | -02 | . 02 | . 00 | . 00 | . 00 |
| Engineering.science technicians | . 03 | . 02 | . 01 | . 58 | - 56 | . 50 | . 02 | . 03 | . 04 |
| Agricultural, tiolgcl, exc nealta | . 00 | - 00 | . 00 | . 04 | . 04 | . 03 | . 00 | . 00 | . 00 |
| Chemical technicians | . 00 | . 00 | .00 | . 10 | . 10 | . 10 | . 00 | . 00 | . 00 |
| Drafters | .03 | . 02 | . 01 | . 04 | . 04 | . 04 | .01 | .01 | .01 |
| Electrical and electronic | . 00 | - 00 | .00 | . 07 | . 08 | . 09 | . 01 | .01 | . 02 |
| Other engineering, science teca | . 00 | . 00 | . 00 | . 32 | - 29 | . 23 | .01 | . 01 | . 01 |
| Medical workers.exc technicians | . 06 | .03 | . 04 | . 81 | . 99 | 1.10 | .76 | 1.00 | . 85 |
| Dentists | . 02 | . 01 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 |
| Dietitians | . 00 | . 00 | . 00 | . 06 | . 05 | . 03 | . 05 | . 04 | . 02 |
| optometrists | . 01 | . 00 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 01 | . 00 | . 00 | . 10 | - 10 | . 11 | . 02 | . 02 | . 02 |
| Registered nurses | .03 | . 02 | . 01 | . 41 | . 41 | - 59 | . 43 | . 46 | . 39 |
| Therapists | . 00 | . 00 | . 00 | . 23 | . 41 | . 36 | . 26 | -49 | . 43 |
| Veterinarians | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| Health technolcgists, technicians | . 00 | - 00 | . 00 | . 29 | . 42 | . 35 | . 02 | . 02 | . 03 |
| Clinical lab technologists, tech | . 00 | . 00 | . 00 | . 05 | . 05 | . 06 | . 00 | . 00 | . 00 |
| Dental hygienists | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | . 01 | . 02 | . 03 |
| Other heaith technicians | . 00 | . 00 | . 00 | . 22 | . 34 | . 25 | . 00 | . 00 | . 00 |
| Technicians, except health | . 00 | . 00 | . 00 | - 10 | . 15 | - 22 | . 02 | .03 | . 04 |
| Airplane pilots | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Other technicians except health | . 00 | .00 | .00 | . 07 | . 11 | . 16 | . 02 | . 03 | . 04 |
| Computer specialists | . 01 | . 01 | . 01 | . 26 | - 33 | . 38 | . 04 | . 06 | . 04 |
| Computer programers | . 01 | . 01 | . 01 | . 20 | . 24 | . 28 | . 03 | . 03 | . 02 |
| Computer systems analysts | . 00 | . 00 | .00 | . 05 | . 08 | . 09 | . 01 | . 02 | . 02 |
| Other computer specialists | . 00 | . 00 | . 00 | . 01 | . 02 | . 01 | . 00 | . 00 | - 00 |
| Social scientists | . 00 | . 00 | . 00 | . 21 | . 56 | .47 | .16 | . 50 | . 38 |
| Economists | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | . 00 | . 00 | . 00 |
| Psychologists | . 00 | . 00 | . 00 | . 17 | . 49 | . 39 | . 16 | . 50 | . 38 |
| Sociologists | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other social scientists | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Teachers | . 00 | . 00 | . 00 | 51.71 | 47.42 | 43.16 | 62.10 | 55.58 | 53.15 |
| adult education | . 00 | . 00 | . 00 | . 54 | . 76 | . 88 | . 20 | . 30 | . 27 |
| College and university | . 00 | . 00 | . 00 | 7.15 | 7.75 | 6.22 | . 00 | . 00 | . 00 |
| Elementary school | . 00 | . 00 | . 00 | 21.28 | 18.02 | 19.66 | 31.17 | 26.97 | 30.78 |
| Preschocl and kindergarten | . 00 | . 00 | . 00 | 2.63 | 2.94 | 3.15 | 3.82 | 4.35 | 4.88 |
| Secondary schcol | . 00 | . 00 | . 00 | 18.29 | 15.92 | 10.95 | 26.78 | 23.83 | 17.14 |
| Other teachers | . 00 | . 00 | . 00 | 1.82 | 2.02 | 2.29 | . 14 | - 13 | . 09 |
| Writers, artists, entertainers | . 04 | . 06 | . 05 | - 52 | . 65 | . 72 | .11 | . 19 | - 22 |
| actors | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 00 | . 00 | . 00 |
| Athletes and kindred workers | . 00 | . 00 | . 00 | . 04 | . 06 | . 06 | . 04 | . 06 | . 07 |
| Designers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Editors and reforters | .01 | . 02 | . 02 | . 11 | . 11 | - 10 | . 01 | . 01 | . 01 |
| Musicians and composers | . 00 | . 00 | . 00 | . 06 | . 07 | . 11 | . 02 | . 03 | . 05 |
| Painters and sculptors | . 00 | . 00 | . 00 | . 06 | . 10 | . 14 | . 01 | . 03 | . 04 |
| Photographers | . 00 | - 00 | . 00 | . 06 | . 05 | . 05 | . 00 | . 00 | . 00 |
| public relaticns specialists | . 01 | . 02 | . 02 | . 10 | . 12 | .13 | . 02 | . 03 | .03 |
| Other writers,artists, entertain | . 02 | . 02 | . 01 | . 06 | . 09 | . 10 | . 01 | . 02 | . 02 |


|  | Legal services |  |  | Educational services |  |  | Elementary. secondary school |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other professional and tecanical | 57.26 | 55.65 | 56.93 | 4.91 | 5.67 | 5.63 | 3.14 | 4.09 | 3.87 |
| Accountants | . 44 | . 49 | . 54 | - 22 | . 25 | . 28 | . 08 | . 11 | . 11 |
| Architects | - 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 01 | .01 | . 01 |
| Archivists and curators | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| clergy | . 00 | . 00 | . 00 | . 03 | - 02 | . 03 | . 01 | . 01 | . 01 |
| Religious workers, except clergy | .00 | . 00 | . 00 | . 03 | . 02 | . 02 | . 01 | .01 | . 02 |
| Farm management advisors | . 00 | . 00 | . 00 | . 10 | . 11 | . 10 | . 00 | . 00 | . 00 |
| Home management advisors | . 00 | . 00 | . 00 | . 04 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Lawyers | 56.47 | 54.88 | 55.99 | . 03 | . 05 | . 02 | . 01 | . 02 | . 01 |
| Librarians | . 22 | - 18 | .31 | 1.64 | 1.69 | 1.69 | 1.24 | 1.40 | 1.33 |
| operations and systems research | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 | . 01 | . 01 | . 01 |
| Personnel, labcr relations wiks | . 03 | . 03 | . 02 | - 15 | . 17 | . 15 | . 06 | . 08 | . 06 |
| other research workers | . 08 | . 05 | . 04 | . 70 | . 67 | . 69 | . 02 | . 02 | . 02 |
| kecreation workers | . 00 | . 00 | . 00 | . 11 | . 20 | . 18 | . 06 | . 13 | . 11 |
| Social workers | . 02 | . 03 | .03 | . 22 | . 34 | . 27 | . 25 | . 40 | . 33 |
| vocation, education counselors | . 00 | . 00 | . 00 | 1.59 | 2.03 | 2.06 | 1.39 | 1.87 | 1.85 |
| Managers, officials, proprietors | . 59 | . 53 | .30 | 5.43 | 6. 74 | 7.10 | 5.43 | 7.04 | 7.25 |
| Buyers, sales, loan managers | . 03 | . 03 | . 03 | . 15 | - 16 | . 27 | . 06 | . 08 | - 12 |
| Bank, financial managers | . 02 | . 02 | . 02 | . 04 | . 04 | . 05 | . 01 | . 01 | . 02 |
| Credit managers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Purchasing agents, buyers, other | . 00 | . 00 | . 00 | . 09 | . 11 | - 18 | . 05 | . 06 | - 10 |
| Sales manager, exc retail trade | . 00 | . 00 | .00 | .01 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Administrators, public inspectors | . 00 | . 00 | . 00 | 3.56 | 4.41 | 4.29 | 4.24 | 5.47 | 5.55 |
| School administrators, college | .00 | . 00 | . 00 | . 67 | . 75 | . 75 | . 00 | . 00 | . 00 |
| School admin, elem, secondary | . 00 | . 00 | . 00 | 2.89 | 3.66 | 3.55 | 4.24 | 5.47 | 5.55 |
| Other managers, officials, proprts | . 56 | - 50 | . 27 | 1.72 | 2.17 | 2.54 | 1.14 | 1.49 | 1.59 |
| Mgrs, superintendents, building | . 00 | . 00 | . 00 | . 03 | . 05 | . 07 | . 02 | . 03 | . 05 |
| Office managers, other | - 35 | - 37 | - 20 | . 07 | . 09 | - 12 | . 03 | . 04 | . 04 |
| Resta urant, cafe, bar, managers | . 00 | . 00 | . 00 | . 47 | . 52 | . 52 | . 64 | . 73 | . 75 |
| Other managers, administrators | . 21 | . 13 | . 07 | 1.14 | 1.51 | 1.83 | . 45 | .69 | . 75 |
| Sales workers | . 01 | . 01 | . 00 | . 12 | - 13 | - 22 | . 03 | . 04 | .07 |
| Other sales workers | . 01 | . 01 | .00 | .11 | - 13 | . 22 | . 03 | . 04 | . 07 |
| Clerical workers | 41.21 | 43.05 | 42.15 | 15.85 | 17.93 | 21.77 | 10.52 | 13.45 | 17.57 |
| Stenographrs,typists, secretaries | 36.60 | 38.45 | 39.06 | 6.57 | 6.57 | 7.39 | 4.07 | 4.22 | 4.68 |
| Legal secretaries | 21.49 | 23.62 | 24.63 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Medical secretaries | . 21 | . 10 | . 02 | . 03 | . 02 | . 04 | . 00 | . 00 | . 00 |
| other secretaries | 13.26 | 13.48 | 13.54 | 5.08 | 5.23 | 6.04 | 3.40 | 3.55 | 4.05 |
| Stenographers | . 70 | . 34 | . 09 | -13 | . 09 | . 06 | . 07 | . 04 | . 01 |
| Typists | . 94 | - 92 | . 79 | 1.33 | 1.22 | 1.25 | . 59 | . 63 | .63 |
| Office machine operators | . 11 | - 10 | . 09 | . 42 | - 54 | . 58 | -11 | - 14 | - 10 |
| Bookkeeping and billing | .01 | - 01 | . 01 | . 02 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Computer and feripheral equip | . 01 | . 02 | . 03 | -13 | . 30 | -28 | . 02 | . 06 | . 04 |
| Duplicating | . 04 | . 03 | . 04 | . 05 | . 05 | . 08 | . 01 | . 01 | . 02 |
| Keypunch | . 04 | . 03 | . 01 | . 18 | . 14 | . 15 | . 05 | . 04 | . 01 |
| Other office machine operators | .01 | . 01 | . 01 | . 04 | . 04 | . 05 | . 01 | . 01 | . 02 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Legal seryices |  |  | Educational services |  |  | Elementary. secondary school |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 4.50 | 4.50 | 3.00 | 8.87 | 10.82 | 13.81 | 6.35 | 9.10 | 12.78 |
| Billing clerks | . 02 | . 02 | . 02 | . 02 | . 02 | . 05 | . 01 | . 02 | . 03 |
| Bookkeepers | 1.33 | 1. 36 | . 85 | . 56 | . 57 | . 53 | . 41 | . 43 | . 35 |
| Cashiers | . 01 | . 02 | . 03 | . 50 | . 59 | . 72 | -43 | . 56 | -67 |
| Clerical supervisors, other | . 07 | . 08 | . 05 | . 11 | . 15 | -22 | .04 | . 05 | . 06 |
| Collectors, bill and account | . 03 | . 03 | . 03 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Counter clerks, exc food | . 00 | . 00 | . 00 | . 12 | . 14 | . 23 | . 01 | . 02 | . 03 |
| Dispatchers, starters, venicle | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 02 | . 02 | . 03 |
| Enumerators and interviewers | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 04 | . 03 | . 01 |
| Estimators, investigators, other | .17 | . 17 | . 04 | .03 | . 05 | . 06 | . 01 | . 02 | . 02 |
| File clerks | . 35 | . 31 | . 26 | . 24 | - 22 | . 26 | . 07 | . 07 | . 08 |
| Insurance adjusters, examiners | . 02 | . 03 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Litrary attendants, assistants | .03 | . 03 | . 05 | 1.76 | 2.03 | 2. 24 | . 45 | . 59 | . 68 |
| Mail handlers,exc post office | - 10 | . 09 | . 09 | . 17 | . 17 | . 21 | . 02 | . 03 | . 03 |
| Messengers and office helpers | . 30 | . 33 | . 20 | . 04 | . 04 | . 03 | . 01 | . 01 | . 01 |
| payroll, timekeeping clerks | . 02 | . 03 | . 02 | - 10 | - 11 | . 09 | . 07 | . 10 | . 08 |
| Receptionists | 1.17 | 1.26 | . 91 | . 57 | . 55 | . 64 | . 10 | . 11 | . 13 |
| Shipping and receiving clerks | . 01 | . 01 | . 02 | . 04 | . 03 | . 02 | . 01 | . 01 | . 01 |
| Statistical clerks | . 06 | . 06 | . 06 | . 19 | . 24 | . 34 | .08 | - 12 | . 16 |
| Stock clerks and store keepers | .03 | . 02 | . 01 | . 18 | . 20 | - 29 | . 08 | . 10 | . 13 |
| Teachers aides, exc monitors | . 00 | . 00 | . 00 | 3.11 | 4.50 | 6.42 | 4.09 | 6.24 | 9.64 |
| Telephone operators | .21 | . 15 | . 09 | . 23 | . 12 | . 08 | . 06 | . 04 | . 03 |
| Misc clerical workers | . 57 | .49 | . 27 | .87 | 1.06 | 1.35 | . 36 | . 52 | . 62 |
| Crafts and kindred yorkers | . 08 | . 10 | . 11 | 1.84 | 1.85 | 1.72 | 1.29 | 1.44 | 1.25 |
| Construction crafts workers | . 02 | . 02 | .03 | . 74 | . 72 | . 66 | . 50 | . 57 | . 52 |
| Carpenters and apprentices | . 01 | . 01 | . 02 | . 24 | - 22 | . 12 | . 18 | . 19 | . 14 |
| Brick, stonemasons, apprentices | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .01 | . 01 | . 01 |
| Bulldozer operators | . 00 | . 00 | . 00 | . 01 | . 01 | .03 | . 01 | . 01 | . 03 |
| Electricians and apprentices | . 00 | . 00 | . 00 | . 14 | . 13 | . 11 | .08 | . 09 | . 07 |
| painters and apprentices | . 01 | .01 | . 01 | - 19 | . 23 | . 30 | . 14 | . 18 | . 22 |
| Plumbers, pipefitters,aprentices | . 00 | . 00 | .00 | . 10 | . 08 | . 05 | . 07 | . 06 | . 03 |
| Structural metal craft workers | .00 | . 00 | .00 | .01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Blue collar worker superyisors | . 02 | . 03 | . 04 | .16 | . 17 | - 14 | . 09 | .11 | .11 |
| Metalworkg craft wrkrs, exc meca | .00 | . 00 | . 00 | .05 | . 06 | . 07 | . 03 | .04 | . 06 |
| Boilermakers | . 00 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Machinists and apprentices | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 | . 01 | . 02 | . 03 |
| Sheetmetal workers, apprentices | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | .01 | . 01 | .01 |
| Mechanics, repairers,installers | . 01 | . 01 | . 00 | -43 | . 49 | . 54 | . 32 | . 37 | . 33 |
| Air cond, heating, refrig meca | .00 | . 00 | . 00 | . 05 | . 07 | . 07 | . 02 | . 04 | . 04 |
| Aircraft mechanics | . 00 | . 00 | . 00 | .01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 00 | . 00 | . 00 | . 14 | . 15 | . 16 | . 16 | . 16 | - 15 |
| Heavy equip mech, incl diesel | . 00 | . 00 | .00 | . 09 | . 11 | . 13 | . 06 | . 07 | . 06 |
| office machine repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 01 |
| hadio, television repairers | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 | . 04 | . 04 | . 04 |
| Other mechanics and apprentices | . 00 | . 00 | . 00 | . 06 | . 07 | . 08 | .03 | . 04 | .03 |
| Printing trade crafts vorkers | . 02 | . 02 | . 03 | . 10 | . 09 | . 08 | .03 | . 02 | . 01 |
| Bookbinders | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Compositors and typesetters | . 01 | . 01 | . 03 | . 05 | . 04 | . 03 | . 01 | .01 | . 00 |
| Press,plate printers, aprentices | . 01 | . 01 | . 00 | .03 | . 04 | .03 | . 01 | . 01 | .01 |

Table 1. percent distribution of industry employment ty occupation. 1970 , 1978 and projected 1990

|  | Legal |
| :---: | :---: |
| services |  |
| 1970 | 1978 |


| Educational <br> services | Elementary, <br> secondary <br> school |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $1970 \quad 1990$ | 1970 | 1978 | 1990 |


Service workers
Cleaning service workers
Lodging gtrs cleaners, exc priv
Bldg interior cleaners, other
Janitors and sextons
Food service workers
waiters assistants
Cooks, exc private households
Dishwashers
Food counter, fountain workers
Waiters
other food serv wiss, exc privt
Health service workers
Dental assistants
Health aides, except nursing
Nursing aides and orderlies
Practical nutses
Personal service workers
Flight attendants
Attendants, recreation, amusement
Attendants, personal serv, otiner
Barbers
Child care workers, exc private
elevator operators
Hairdressers and cosinetologists
Housekeepers, exc frivate homes
School monitors
welfare service aides
Protective service workers
Crossing guards,bridgetenders
Guards
Police and detectives

| . 01 | . 02 | .02 | . 36 | .32 | .24 | . 33 | .33 | . 23 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| . 00 | - 00 | .00 | . 16 | . 15 | . 09 | . 19 | . 19 | . 13 |
| .00 | . 00 | .00 | .02 | . 01 | .00 | .01 | .01 | . 00 |
| - 00 | - 00 | . 00 | . 01 | . 01 | -01 | . 01 | . 01 | . 01 |
| . 01 | . 01 | .00 | . 02 | . 03 | . 02 | . 02 | . 02 | - 03 |
| .00 | . 00 | .00 | .11 | . 09 | .07 | . 08 | . 08 | .06 |
| .01 | .01 | . 02 | .01 | .01 | .01 | .00 | . 00 | . 00 |
| .06 | .05 | . 02 | 1.26 | 1.65 | 1.89 | 1.05 | 1.59 | 1.72 |
| .03 | . 02 | .01 | . 59 | .63 | . 81 | .22 | .24 | .27 |
| -00 | . 00 | .00 | . 02 | . 02 | . 02 | .01 | .01 | . 01 |
| . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | .01 | .01 | . 01 |
| .03 | . 02 | .01 | .55 | . 60 | .79 | . 20 | .23 | .26 |
| . 00 | - 00 | .00 | . 01 | - 01 | .01 | . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 | .01 | .01 | .01 | . 00 | . 00 | - 00 |
| .00 | . 00 | .00 | .07 | .07 | .09 | .04 | . 05 | . 07 |
| -00 | . 00 | .00 | - 03 | .01 | . 00 | . 00 | . 00 | . 00 |
| .01 | - 00 | .00 | . 03 | . 03 | . 03 | .01 | .01 | . 01 |
| - 00 | . 00 | .00 | .01 | . 02 | .04 | .01 | .01 | . 04 |
| . 00 | . 00 | .00 | .11 | . 07 | . 06 | .09 | . 06 | . 04 |
| - 00 | - 00 | .00 | .04 | . 06 | .09 | .02 | . 03 | .04 |
| . 02 | .01 | .01 | . 26 | - 32 | .45 | .03 | .05 | .07 |
| .03 | . 03 | .01 | . 68 | 1.02 | 1.08 | .83 | 1. 35 | 1.45 |
| . 00 | . 00 | . 00 | - 50 | . 84 | .87 | .71 | 1.22 | 1. 34 |
| . 00 | -00 | .00 | . 05 | .04 | .04 | .04 | . 04 | . 03 |
| .00 | - 00 | .00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| . 02 | . 02 | .01 | . 03 | . 02 | . 02 | . 02 | .02 | . 02 |
| . 00 | - 00 | .00 | . 09 | . 09 | - 15 | .06 | . 07 | . 06 |
| . 58 | . 46 | -32 | 14.91 | 13.51 | 13.03 | 14.86 | 14.32 | 12.80 |
| .35 | . 25 | .13 | 5.80 | 5. 55 | 4.64 | 5.85 | 5.92 | 4. 51 |
| .02 | . 01 | .01 | .44 | . 24 | . 32 | . 32 | . 20 | . 28 |
| . 17 | - 14 | . 07 | - 51 | . 57 | . 63 | .41 | . 50 | . 49 |
| .15 | . 09 | .05 | 4.85 | 4.74 | 3.70 | 5.12 | 5.22 | 3.74 |
| - 00 | - 00 | . 00 | 6.30 | 5.31 | 5.32 | 6.42 | 5.79 | 5.46 |
| .00 | - 00 | . 00 | . 07 | .09 | . 18 | .01 | .01 | . 03 |
| . 00 | . 00 | .00 | 2.42 | 1.87 | 1.07 | 3.02 | 2.43 | 1.41 |
| . 00 | . 00 | .00 | . 49 | . 33 | . 45 | .27 | . 20 | . 22 |
| . 00 | - 00 | .00 | 1. 19 | 1.28 | 1.48 | 1.10 | 1.26 | 1. 34 |
| .00 | - 00 | .00 | . 34 | - 16 | . 06 | .08 | . 04 | . 01 |
| .00 | . 00 | .00 | 1.78 | 1. 60 | 2. 10 | 1.94 | 1.85 | 2.45 |
| . 08 | . 07 | .06 | .21 | .21 | .36 | .16 | .17 | - 32 |
| -05 | . 03 | .01 | . 01 | . 01 | .01 | .00 | . 00 | . 00 |
| . 00 | - 00 | .00 | . 04 | . 05 | .07 | . 01 | . 02 | . 02 |
| -02 | . 03 | .04 | - 11 | . 10 | . 20 | . 10 | . 10 | . 22 |
| .01 | . 01 | .01 | . 05 | . 05 | .09 | .04 | .04 | .08 |
|  | . 04 |  | 2.25 | 2. 10 | 2.29 | 2.29 | 2.29 | 2. 30 |
| .01 | . 01 | . 01 | . 00 | .00 | . 00 | .00 | .00 | . 00 |
| . 00 | - 00 | .00 | . 13 | . 13 | . 23 | .06 | . 07 | - 12 |
| . 00 | - 00 | .00 | .15 | . 14 | . 17 | . 12 | .13 | . 16 |
| . 00 | - 00 | . 00 | .01 | . 00 | .00 | .00 | . 00 | .00 |
| . 01 | - 01 | .01 | 1.00 | .81 | . 86 | 1.20 | 1.03 | 1. 00 |
| .01 | . 01 | .01 | . 01 | .01 | .01 | .01 | . 01 | . 01 |
| .00 | . 00 | .00 | .01 | .01 | .01 | .01 | . 00 | . 00 |
| .01 | - 01 | .01 | .48 | . 38 | .41 | . 24 | - 20 | -14 |
| . 00 | . 00 | .00 | .44 | . 48 | .54 | . 63 | .69 | . 81 |
| .00 | .00 | .00 | .02 | . 13 | .05 | .02 | .15 | .07 |
| - 11 | - 11 | .10 | . 36 | . 34 | .42 | . 14 | . 15 | . 20 |
| .00 | . 00 | .00 | . 04 | . 04 | . 06 | .05 | .06 | . 09 |
| . 01 | - 01 | .01 | -26 | - 24 | . 32 | .08 | . 08 | . 12 |
| - 10 | - 10 | .08 | .06 | . 05 | .04 | .01 | . 01 | . 00 |

Table 1. Percent distribution of industry employment by occupation,
1970. 1978 and projected

## 1990

|  | Legal services |  |  | Educational services |  |  | Elementary, secondary school |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | . 02 | . 02 | . 02 | . 77 | . 98 | 1.27 | . 42 | . 60 | . 69 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 06 | . 08 | - 10 | . 00 | . 00 | - 00 |
| Carpenter helfers | . 00 | . 00 | . 00 | .03 | . 02 | . 02 | . 02 | . 01 | .01 |
| Constr labr, exc carpenter belpr | . 00 | . 00 | .00 | . 04 | . 04 | . 05 | . 02 | .03 | . 04 |
| preight and material handers | . 01 | . 00 | . 00 | . 04 | . 04 | . 07 | . 02 | . 02 | . 03 |
| Gardenrs, groundkeepers, exc farm | . 01 | - 01 | . 02 | - 50 | -67 | . 88 | . 31 | . 46 | . 53 |
| Stock handlers | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 | . 01 | . 02 | . 02 |
| Vehicle wasbers, equip cleaners | . 00 | - 00 | . 00 | . 02 | . 02 | . 03 | . 01 | . 01 | .01 |
| Warehouse labcrers, other | . 00 | . 00 | . 00 | . 02 | . 02 | .01 | . 02 | . 02 | . 01 |
| other laborers | . 00 | . 00 | . 00 | -04 | .04 | . 06 | . 02 | .03 | . 04 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
colleges
and
universites
$1970 \quad 1978 \quad 1990$

Libraries
Libraries
$1970 \quad 1978 \quad 1990$

Physicians and osteopaths Registered nurses Therapists Veterinarians

Health technologists, technicians Clinical lab technologists, tecn Dental hygienists
Health record technologist, tech kadiologic technologists, tech Therapy assistants other health technicians

Technicians, except health Airplane pilots Radio operators
Tool programers, numerical other technicians except nealth

Computer specialists
Computer programers
Computer systems analysts
Other computer specialists
Social scientists
Economists
Political scientists
psychologists
Sociologists
Urban and regional planners other social scientists

Teachers
Adult education
college and university
Preschool and kindergarten
other teachers
$100.00 \quad 100.00 \quad 100.00$
$43.66 \quad 46.74 \quad 40.45$

.51
.01
.02
.06
.03
.08

Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
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physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
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Chemists
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physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
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other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
Chemical
Civil
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other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
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physicists and astronomers
other life. physical scientists
Mathenatical specialists
Engineers, technical
Aeronautical
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Civil
Electrical
Industrial
Mechanical
Metallurgical
other engineers
Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
physicists and astronomers
other life. physical scientists
Mathematical sfecialists Mathematicians
Statisticians
Engineeriny, science technicians
Agricultural, tiolgcl, exc health
Chemical techricians
Drafters
Electrical and electronic Surveyors
other engineering, science tecn
Medical workers, exc technicians Dentists
Dietitians
pharmacists
4


51
.01
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$1.02 \quad 1.17 \quad 1.07$
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$100.00 \quad 100.00100 .00$
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$3.90 \quad 29.96 \quad 27.91$

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1990

Table 1. Percent distribution of inaustry employment by occupation, 1970, 1978 and projected 1990

|  | Colleges and universites |  |  | Libraries |  |  | Other educational services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | 1.43 | 1.57 | 1.50 | . 43 | .76 | . 94 | 1.47 | 1.77 | 2.27 |
| Actors | .04 | . 05 | . 04 | . 00 | . 00 | . 00 | . 02 | .03 | .04 |
| Atiletes and kindred workers | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 22 | . 27 | . 30 |
| Authors | .03 | . 03 | .01 | . 00 | . 00 | . 00 | . 02 | . 03 | . 04 |
| Designers | .07 | . 07 | .03 | . 02 | . 01 | . 00 | . 05 | . 05 | .01 |
| Editors and reforters | . 37 | - 32 | . 27 | - 19 | . 37 | . 28 | . 20 | - 19 | -13 |
| Musicians and composers | .11 | . 12 | - 14 | . 00 | . 00 | . 00 | . 32 | . 37 | . 59 |
| painters and sculptors | . 14 | . 22 | . 26 | . 07 | . 09 | - 19 | . 26 | . 39 | . 56 |
| Photographers | . 20 | - 17 | . 17 | .03 | . 03 | . 01 | . 05 | . 05 | . 06 |
| Public relations specialists | . 28 | . 32 | . 29 | . 06 | . 14 | . 31 | . 24 | . 28 | . 32 |
| Radio and tv announcers | . 02 | . 02 | - 02 | . 00 | . 00 | . 00 | .01 | . 01 | . 04 |
| Other writers,artists, entertain | . 18 | . 24 | -27 | . 06 | .13 | . 15 | . 09 | - 12 | . 18 |
| Other protessional and technical | 7.65 | 7. 91 | 8.04 | 33.14 | 28.66 | 25.70 | 7.46 | 8.36 | 6.81 |
| accountants | .51 | . 52 | . 67 | . 07 | . 07 | . 00 | .71 | . 74 | .39 |
| Architects | .06 | . 05 | . 08 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Archivists and curators | .07 | . 08 | . 08 | . 05 | . 09 | . 07 | . 00 | . 00 | . 00 |
| clergy | . 07 | . 05 | . 07 | . 00 | . 00 | . 00 | . 06 | . 04 | . 05 |
| Religious workers, except clergy | . 05 | . 03 | . 02 | . 00 | . 00 | . 00 | . 14 | . 11 | . 07 |
| Farm management advisors | . 37 | . 38 | . 35 | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 |
| Foresters and conservationists | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Home management advisors | . 13 | - 12 | - 12 | . 00 | . 00 | . 00 | . 04 | . 04 | . 02 |
| Lawyers | . 06 | . 09 | . 05 | - 33 | - 39 | - 10 | . 07 | . 09 | . 02 |
| Librarians | 1.29 | 1. 31 | 1.22 | 32.41 | 27.62 | 25.09 | . 41 | . 44 | . 40 |
| operations and systems researca | . 05 | . 08 | - 10 | . 01 | . 04 | . 03 | . 07 | - 10 | . 09 |
| Personnel, labcr relations wkrs | .31 | . 32 | . 26 | . 07 | - 10 | . 12 | . 64 | . 65 | . 50 |
| Otner research workers | 2.36 | 2.33 | 2.32 | - 20 | . 36 | . 29 | - 38 | - 36 | . 33 |
| gecreation workers | .21 | . 36 | . 35 | . 00 | . 00 | . 00 | . 22 | . 34 | . 24 |
| social workers | . 10 | . 12 | . 10 | . 00 | . 00 | .00 | . 61 | . 77 | . 58 |
| Vocation, education counselors | 1.81 | 2.05 | 2.25 | . 00 | . 00 | . 00 | 4.01 | 4.62 | 4.07 |
| Manayers, of ficials, proprietors | 5.47 | 6.14 | 6.76 | . 75 | 1.17 | 2.49 | 6.57 | 7.45 | 8.49 |
| Buyers,sales,lcan managers | .34 | - 33 | -49 | . 05 | . 08 | - 19 | . 44 | . 44 | . 83 |
| Bank, financial managers | . 11 | - 11 | -11 | . 00 | . 00 | .00 | . 07 | . 07 | . 08 |
| Credit managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| purchasing agents, buyers, other | .21 | . 21 | .36 | . 05 | . 08 | - 19 | - 12 | . 12 | . 22 |
| Sales manager, exc retail trade | .02 | . 02 | . 02 | . 00 | . 00 | .00 | .23 | . 24 | - 52 |
| Administrators public inspectors | 2.54 | 2. 79 | 2.66 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| School administrators, college | 2.54 | 2.79 | 2.66 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Other managers, officials, proprts | 2.59 | 3. 02 | 3.61 | . 70 | 1. 10 | 2.30 | 6.13 | 7.01 | 7.66 |
| Mgrs, superintendents, building | .09 | . 11 | - 15 | . 02 | . 02 | . 03 | . 01 | . 01 | . 03 |
| office managers, other | . 17 | . 18 | -23 | . 00 | . 00 | - 12 | . 23 | .23 | .38 |
| officers, pilots, pursers, snip | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | . 01 | . 01 | .03 |
| Restaurant, cafe, bar, manayers | . 10 | . 09 | .11 | . 00 | . 00 | . 00 | . 27 | . 24 | . 22 |
| Other manayers, administrators | 2.24 | 2.64 | 3.12 | . 68 | 1.08 | 2.16 | 5.62 | 6.52 | 7.00 |
| Sales workers | . 20 | . 21 | . 28 | - 00 | . 00 | . 00 | 1.08 | . 96 | 1.64 |
| Advertising agents, sales worker | . 01 | . 01 | -02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| other sales vcrkers | . 19 | . 19 | - 26 | . 00 | . 00 | . 00 | 1.06 | . 95 | 1.63 |
| Clerical workers | 27.10 | 26.81 | 29.22 | 61.63 | 64.72 | 61.54 | 17.69 | 17.28 | 19. 18 |
| Stenographrs, typists, secretaries | 12.85 | 12. 20 | 13.23 | 3.52 | 3.45 | 4.94 | 9.16 | 8.62 | 9.61 |
| Legal stcretaries | .01 | . 01 | . 01 | . 03 | . 02 | . 01 | . 01 | . 01 | . 02 |
| Medical secretaries | .11 | . 07 | . 13 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| other secretaries | 9.38 | 9.32 | 10.33 | 1.08 | 1.39 | 2.68 | 6.82 | 6.77 | 8.18 |
| Stenographers | . 24 | . 17 | -15 | . 03 | . 02 | . 01 | . 64 | . 44 | . 21 |
| Typists | 3.12 | 2.63 | 2.61 | 2.37 | 2.02 | 2.24 | 1.68 | 1.40 | 1.20 |
| Office machine operators | 1.17 | 1. 50 | 1.65 | . 22 | .39 | . 34 | . 88 | . 93 | . 67 |
| Bookkeeping and billing | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | .03 | . 01 | . 01 |
| Calculating | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Computer and feripheral equip | . 39 | . 86 | -83 | . 04 | - 20 | - 18 | . 20 | . 41 | . 31 |
| Duplicating | . 15 | - 14 | . 22 | . 05 | . 06 | . 08 | . 04 | . 04 | . 05 |
| Keypunch | .47 | . 36 | . 46 | . 06 | . 04 | .02 | . 50 | . 37 | - 19 |
| Tabulating | . 02 | . 01 | . 00 | . 01 | . 00 | . 00 | . 01 | . 00 | .01 |
| Other office machine operators | . 11 | . 10 | .10 | . 06 | . 10 | . 06 | . 08 | . 08 | . 08 |


|  | $\begin{gathered} \text { Colleges } \\ \text { and } \\ \text { universites } \end{gathered}$ |  |  | Libraries |  |  | Other educational services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 13.08 | 13.11 | 14.35 | 57.90 | 60.88 | 56.27 | 7.66 | 7.72 | 8.90 |
| Billing clerks | . 04 | . 05 | . 08 | . 00 | . 00 | . 12 | . 02 | . 02 | . 02 |
| Bookkeepers | . 87 | . 81 | . 84 | . 35 | . 33 | . 44 | 1.29 | 1.19 | 1.03 |
| Cashiers | .75 | . 76 | . 97 | . 03 | . 06 | . 13 | . 19 | . 19 | . 20 |
| Clerical supervisors, other | . 26 | . 33 | . 47 | . 29 | . 61 | . 99 | . 31 | .38 | . 52 |
| collectors, bill and account | . 01 | . 01 | . 02 | . 00 | . 00 | .00 | .01 | . 00 | . 00 |
| Counter clerks,exc food | . 42 | . 46 | .72 | . 00 | - 00 | . 00 | . 03 | . 04 | . 09 |
| Dispatchers, starters, vehicle | . 02 | . 02 | . 03 | .00 | . 00 | . 00 | .02 | . 02 | . 03 |
| Estimators, investigators, other | . 06 | . 07 | . 08 | . 00 | . 00 | . 21 | . 25 | . 31 | . 34 |
| File clerks | . 67 | . 55 | . 63 | . 75 | . 72 | 1.09 | . 28 | .23 | . 23 |
| Library attendants, assistants | 2.63 | 3.08 | 2.95 | 54.82 | 57.42 | 51.14 | . 29 | .31 | . 12 |
| Mail handlers,exc post office | . 52 | . 50 | -61 | - 10 | - 15 | . 26 | . 27 | . 26 | . 34 |
| Messengers and office helpers | . 12 | . 11 | . 09 | . 17 | - 12 | . 06 | . 03 | . 02 | .01 |
| Payroll,timekeeping clerks | . 15 | . 15 | . 10 | . 05 | - 06 | . 05 | . 08 | . 08 | . 04 |
| Receptionists | 1.79 | 1.60 | 1.76 | . 15 | . 18 | . 35 | . 87 | . 76 | 1.03 |
| Shipping and receiving clerks | . 10 | . 07 | . 04 | . 06 | . 06 | . 07 | . 09 | . 06 | . 02 |
| Statistical clerks | . 43 | . 49 | . 68 | - 12 | - 18 | . 33 | . 37 | . 45 | . 62 |
| Stock clerks and store keepers | . 45 | -45 | . 66 | . 07 | . 09 | . 16 | . 25 | . 25 | . 34 |
| Teachers aides, exc monitors | 1.08 | 1.07 | . 80 | . 00 | . 00 | . 00 | . 92 | . 92 | . 68 |
| Telephone operators | . 69 | . 33 | . 20 | . 06 | . 03 | . 01 | - 14 | . 07 | . 02 |
| Misc clerical workers | 2.01 | 2.21 | 2.62 | . 87 | .87 | . 85 | 1.93 | 2.16 | 3.24 |
| Crafts and kindred workers | 3.24 | 2.87 | 2.71 | . 51 | . 47 | . 49 | 2.47 | 2.29 | 2.38 |
| Construction crafts workers | 1.39 | 1. 14 | 1.00 | - 11 | . 08 | - 13 | . 69 | . 64 | . 64 |
| Carpenters and apprentices | . 43 | . 31 | . 09 | . 06 | . 04 | . 07 | . 23 | . 20 | . 12 |
| Brick,stonemasons, apprentices | . 04 | . 03 | . 05 | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Bulldozer oferators | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 |
| Electricians and apprentices | . 29 | - 24 | .21 | . 02 | - 01 | - 00 | - 10 | . 08 | . 03 |
| Excavating. grading mach operatr | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 01 | . 03 |
| Painters and apprentices | . 35 | . 37 | . 48 | . 04 | . 03 | . 07 | . 19 | .21 | . 31 |
| Plasterers and apprentices | . 01 | . 01 | . 00 | .00 | . 00 | . 00 | . 01 | .01 | . 00 |
| Plumbers, pipefitters, aprentices | . 20 | - 13 | . 10 | . 00 | - 00 | - 00 | . 09 | . 07 | . 04 |
| Roofers and slaters | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Structural metal craft workers | . 02 | . 01 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Blue collar worker supervisors | . 34 | . 29 | . 23 | . 09 | - 10 | . 11 | -35 | -31 | . 11 |
| Metalworkg craft wrkrs,exc mech | . 13 | - 11 | . 09 | . 00 | . 00 | . 00 | . 06 | . 06 | . 04 |
| Boilermakers | . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| Machinists and apprentices | - 10 | . 09 | . 07 | . 00 | . 00 | . 00 | . 05 | . 03 | . 01 |
| Sheetmetal workers, apprentices | . 03 | . 02 | .02 | . 00 | .00 | .00 | . 01 | . 01 | .00 |
| Mechanics, repairers,installers | . 66 | . 72 | . 88 | . 05 | . 06 | .05 | . 94 | . 91 | 1.28 |
| Air cond, aeating, refrig mech | . 12 | . 15 | . 13 | . 02 | . 04 | . 02 | . 03 | . 03 | . 01 |
| Aircraft mechanics | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 | . 24 | . 21 | . 32 |
| Auto body repairers | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 09 | . 07 | . 07 |
| Auto mechanics and apprentices | . 10 | . 10 | .13 | . 01 | . 01 | . 02 | . 25 | . 26 | . 38 |
| Data processing mach repairers | . 01 | . 01 | .01 | . 00 | - 00 | . 00 | . 02 | . 03 | . 08 |
| Heavy equip mech, incl diesel | . 18 | . 22 | . 30 | . 00 | . 00 | . 00 | . 10 | . 13 | . 17 |
| Household appliance mechanics | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | . 00 | . 00 |
| Office machine repairers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .05 | . 03 | . 04 |
| Radio, television repairers. | . 08 | . 06 | . 04 | . 00 | . 00 | - 00 | . 06 | . 05 | . 04 |
| other mechanics and apprentices | . 13 | . 15 | . 19 | . 01 | . 01 | . 01 | . 10 | . 11 | . 16 |
| Printing trade crafts workers | . 26 | . 25 | . 23 | . 21 | . 19 | . 19 | . 14 | . 13 | . 10 |
| Bookbinders | . 04 | . 03 | . 03 | - 13 | - 10 | . 07 | . 02 | . 01 | . 00 |
| Compositors and typesetters | - 13 | - 13 | . 10 | . 03 | . 02 | - 00 | . 06 | . 05 | . 02 |
| Photoengravers. lithographers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 |
| press, plate printers, aprentices | . 09 | .09 | . 07 | . 05 | . 08 | . 11 | . 05 | . 06 | .06 |
| Transport, public util craft wkrs | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Telephone installers, repairers | . 01 | . 01 | . 01 | .00 | .00 | .00 | . 02 | .01 | .01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Colleges and universites |  |  | Libraries |  |  | other educational services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred morkers | . 45 | - 35 | . 28 | . 06 | . 04 | . 01 | .27 | . 23 | . 20 |
| Bakers | .11 | . 07 | . 03 | .00 | . 00 | . 00 | . 05 | . 04 | . 02 |
| Cabinetmakers | . 02 | . 02 | . 01 | - 00 | - 00 | - 00 | -01 | -01 | . 00 |
| Crane,derrick, hoist operator | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Dental laboratory technicians | . 02 | . 01 | .01 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Glaziers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Inspectors, other | . 04 | . 04 | . 02 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Motion picture projectionists | .01 | . 02 | . 02 | . 02 | - 01 | .01 | .01 | .01 | . 01 |
| Piano,organ tuners, repairers | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | .02 | .01 | .01 |
| Shoe repairers | . 00 | - 00 | . 00 | - 00 | - 00 | . 00 | -01 | . 01 | . 02 |
| Sign painters and letterers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stationary engineers | . 19 | . 13 | .11 | . 04 | . 02 | .01 | .09 | .07 | .03 |
| Tailors | . 00 | -00 | .00 | . 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| 0 pholsterers | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | .01 | . 01 | . 03 |
| Other crafts workers | . 03 | . 03 | .03 | . 00 | . 00 | . 00 | .01 | . 01 | . 03 |
| Operatives | 1.83 | 1. 91 | 2.38 | . 86 | 1. 14 | 3.01 | 1.25 | 1.21 | 1.11 |
| Operatives, except transport | 1.49 | 1.56 | 1.98 | .43 | . 57 | 1.10 | . 98 | .93 | . 97 |
| Semiskilled metalworking | . 04 | . 03 | . 02 | . 00 | . 00 | . 00 | . 11 | . 10 | . 06 |
| Welders and flamecutters | . 04 | . 03 | . 02 | . 00 | . 00 | .00 | .11 | - 10 | . 06 |
| Semiskilled packing, inspecting | . 02 | . 01 | . 00 | .00 | . 00 | .00 | . 07 | .05 | . 02 |
| Packer, wrapper, exc meat,prodce | . 02 | . 01 | . 00 | . 00 | .00 | . 00 | .07 | .05 | . 02 |
| Other operatives, exc transport | 1.44 | 1. 52 | 1.95 | . 43 | . 57 | 1.10 | . 80 | . 78 | . 89 |
| clothing ironers and pressers | . 03 | . 02 | . 04 | . 00 | .00 | . 00 | . 04 | . 04 | . 06 |
| Cutting operatives, other | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 01 | . 02 | . 03 |
| Dressmakers, exc factory | . 03 | - 03 | . 02 | . 00 | . 00 | . 00 | . 06 | .07 | . 06 |
| Garage wrkr,gas station atten | . 01 | . 01 | .01 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Laundry, dry cleang oprs, other | . 13 | - 13 | . 15 | . 00 | . 00 | . 00 | . 12 | . 12 | . 13 |
| Meat cutters, butchers, exc mfy | .03 | . 02 | . 01 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Photographic process yorkers | . 07 | . 07 | . 05 | . 06 | . 09 | - 13 | . 04 | . 04 | . 04 |
| Severs and stitchers | . 02 | . 02 | . 05 | . 00 | . 00 | .00 | . 05 | . 05 | . 08 |
| Furnace tendr,stokr,exc metal | . 16 | .11 | .11 | . 01 | .01 | .01 | .11 | . 07 | . 03 |
| Miscellaneous machine operatves | . 11 | - 13 | . 20 | . 00 | . 00 | .00 | . 08 | . 08 | . 08 |
| Other operatives, exc transport | .83 | .97 | 1.31 | .36 | .48 | . 96 | . 22 | . 25 | . 38 |
| Transport equifment operatives | . 34 | - 35 | . 40 | . 43 | . 57 | 1.91 | .27 | . 28 | - 14 |
| Bus drivers | . 04 | . 07 | . 03 | . 00 | . 00 | . 00 | . 09 | . 12 | .03 |
| Delivery and route workers | . 08 | . 06 | . 05 | . 04 | . 04 | .07 | .03 | . 02 | .01 |
| Fork lift,tow motor operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 02 | .01 |
| Parking attendants | . 06 | . 06 | . 06 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 00 | . 00 | . 00 | . 06 | . 04 | .01 |
| Truck drivers | . 13 | . 14 | . 26 | .39 | . 54 | 1.84 | . 08 | . 07 | . 08 |
| Service workers | 16.71 | 13.27 | 15.40 | 2. 18 | 2. 31 | 4. 18 | 8.59 | 6.93 | 7. 31 |
| cleaning service workers | 6.39 | 5.45 | 5.60 | 1.86 | 1. 86 | 3.42 | 2.41 | 2.18 | 1.99 |
| Lodging gtrs cleaners, exc privt | . 85 | . 40 | . 48 | . 00 | . 00 | . 00 | . 06 | . 03 | . 05 |
| Bldg interior cleaners, other | . 78 | . 77 | -94 | . 34 | . 35 | . 57 | . 44 | . 47 | . 59 |
| Janitors and sextons | 4.76 | 4.28 | 4.18 | 1.52 | 1.51 | 2.84 | 1.91 | 1.69 | 1. 35 |
| Pood service vorkers | 6.86 | 5.02 | 6.14 | .02 | . 02 | . 03 | 2.63 | 1.91 | 1.74 |
| Bartenders | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 01 | . 01 | .01 |
| Waiters' assistants | . 27 | . 29 | . 54 | . 00 | . 00 | . 00 | .02 | . 02 | . 08 |
| Cooks, exc private households | 1.13 | . 75 | . 50 | . 00 | . 00 | . 00 | 1.31 | . 85 | - 36 |
| Dishwashers | 1.17 | . 72 | 1.08 | . 00 | .00 | . 00 | . 16 | . 09 | . 09 |
| Pood counter, fountain workers | 1.64 | 1.57 | 2.13 | .01 | . 01 | . 03 | . 28 | . 29 | . 38 |
| Haiters | 1.04 | . 46 | . 17 | . 01 | . 00 | .00 | . 17 | . 09 | .03 |
| Other food serv wirs, exc privt | 1.61 | 1.22 | 1.72 | .00 | .00 | . 00 | . 69 | . 57 | .79 |
| Health service vorkers | . 29 | - 27 | . 42 | .00 | . 00 | . 00 | . 55 | . 49 | . 65 |
| Dental assistants | . 04 | . 03 | . 02 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Health aides, except nursing | - 10 | - 12 | . 18 | . 00 | . 00 | . 00 | . 05 | . 06 | . 07 |
| Nursing aides and orderlies | . 10 | . 07 | . 13 | . 00 | . 00 | .00 | .31 | . 25 | .33 |
| Practical nurses | . 06 | . 05 | . 09 | . 00 | .00 | .00 | . 18 | . 16 | . 24 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Colleges and universites |  |  | Libraries |  |  | other educational services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service vorkers | 2.22 | 1. 73 | 2.31 | . 05 | . 07 | . 07 | 2.67 | 2.05 | 2.70 |
| Attendants, recreation, amusement | . 33 | - 32 | . 57 | . 00 | . 00 | .00 | . 02 | . 02 | . 03 |
| Attendants, personal serv, other | . 23 | . 18 | . 18 | . 02 | . 02 | . 03 | . 17 | . 15 | . 27 |
| Barbers | . 03 | . 00 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Caild care workers, exc private | . 38 | - 24 | . 39 | . 00 | . 00 | . 00 | 1.87 | 1.18 | 1.82 |
| Elevator operators | . 03 | . 02 | . 01 | . 03 | . 05 | . 04 | . 01 | . 01 | . 01 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | - 00 | . 00 | - 00 | . 15 | . 17 | . 18 |
| Housekeepers, exc private hones | 1.17 | - 89 | 1.10 | - 00 | . 00 | . 00 | -33 | . 24 | . 20 |
| School monitors | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 | . 06 | .06 | . 08 |
| Welfare service aides | . 02 | . 05 | . 02 | . 00 | . 00 | . 00 | -04 | -21 | . 13 |
| Protective service workers | . 94 | - 80 | . 93 | -25 | - 36 | . 67 | - 32 | . 30 | . 24 |
| Crossing guards,bridgetenders | . 01 | -01 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Firefighters | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Guards | .72 | . 62 | . 77 | . 25 | . 36 | . 67 | -28 | . 27 | . 21 |
| Police and detectives | - 21 | - 16 | . 13 | . 00 | - 00 | . 00 | . 02 | . 02 | .00 |
| Laborers, except farm | 1.78 | 2.07 | 2.81 | - 17 | . 22 | -39 | . 41 | - 42 | - 55 |
| Animal caretakers, exc farm | . 22 | . 29 | .34 | . 00 | - 00 | . 00 | . 00 | - 00 | . 00 |
| Carpenter helfers | . 05 | . 04 | . 04 | . 00 | . 00 | . 00 | . 03 | . 02 | . 03 |
| Constr labr, exc carpenter helpr | . 09 | - 08 | . 08 | .00 | -00 | . 00 | . 05 | . 05 | . 04 |
| Freight and material handlers | - 10 | -10 | . 16 | . 00 | - 00 | - 00 | . 05 | . 06 | . 13 |
| Garbage collectors | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | 1.08 | 1.31 | 1.86 | . 09 | - 11 | -19 | . 17 | -19 | .21 |
| Stock handlers | . 08 | . 09 | -13 | . 04 | . 04 | . 09 | . 02 | . 02 | . 03 |
| Vehicle washers, equip cleaners | . 06 | . 06 | . 07 | . 00 | - 00 | . 00 | -03 | . 03 | . 03 |
| Warehouse labcrers, other | . 02 | -01 | . 01 | . 00 | . 00 | . 00 | -00 | . 00 | . 00 |
| Other laborers | . 08 | . 08 | . 10 | . 04 | . 07 | .10 | . 06 | . 06 | . 08 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Museums, art galleries, zoos |  |  | Nonprofit organizatns |  |  | Religious organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Erofessional and technical | 27.51 | 29.13 | 26.27 | 40.89 | 41.17 | 36.66 | 56.97 | 54.76 | 53.63 |
| Engineers, technical | . 20 | . 17 | - 16 | . 18 | . 17 | - 24 | . 00 | . 00 | . 00 |
| Cnemical | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Civil | . 00 | . 00 | . 00 | . 05 | . 04 | . 08 | . 00 | . 00 | . 00 |
| Electrical | . 09 | . 08 | . 08 | . 03 | . 03 | . 03 | . 00 | - 00 | . 00 |
| Industrial | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Mechanical | . 06 | . 05 | . 02 | . 03 | . 03 | . 04 | .00 | . 00 | . 00 |
| other engineers | . 05 | . 05 | . 06 | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 |
| life and physical scientists | 1.53 | 1. 88 | 1.35 | . 02 | .03 | . 03 | . 00 | . 00 | . 00 |
| agricultural | . 14 | . 16 | . 14 | .01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Biclogical | . 96 | 1. 38 | . 88 | . 00 | . 01 | . 00 | . 00 | . 00 | - 00 |
| Chemists | . 14 | . 11 | . 11 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 |
| Geologists | . 19 | . 15 | . 14 | . 00 | .00 | - 00 | . 00 | .00 | .00 |
| Marine | . 10 | . 10 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | .01 | . 01 | . 02 | .05 | . 05 | . 06 | . 01 | . 01 | . 01 |
| Statisticians | .01 | .01 | . 02 | . 05 | . 04 | . 06 | . 01 | . 01 | . 01 |
| Engineering, science technicians | .47 | . 47 | . 65 | .17 | . 15 | - 15 | . 00 | . 00 | . 00 |
| Agricultural, biolgcl, exc nealtn | . 07 | . 07 | . 08 | . 06 | . 05 | . 03 | . 00 | - 00 | - 00 |
| Chemical technicians | . 06 | . 06 | . 06 | .00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dratters | .00 | . 00 | . 00 | . 08 | . 06 | . 07 | . 00 | . 00 | .00 |
| Electrical and electronic | . 10 | . 11 | . 13 | .01 | . 01 | .01 | . 00 | - 00 | .00 |
| Mechanical engineering | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Surveyors | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Other engineering, science tech | . 22 | . 21 | . 35 | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Medical workers, exc technicians | . 24 | . 21 | . 39 | . 65 | . 65 | . 72 | . 26 | - 26 | - 20 |
| Dentists | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Dietitians | . 05 | . 03 | . 01 | . 04 | . 03 | . 03 | . 04 | . 04 | .03 |
| Physicians and osteopaths | . 02 | . 02 | . 04 | . 08 | . 09 | - 14 | . 07 | . 07 | . 07 |
| Registered nurses | . 10 | . 07 | . 03 | . 35 | . 28 | . 27 | .13 | . 12 | . 08 |
| Therapists | . 00 | . 00 | . 00 | . 16 | . 23 | . 23 | . 02 | . 03 | . 03 |
| Veterinarians | . 08 | - 10 | . 31 | . 01 | . 01 | . 03 | . 00 | - 00 | . 00 |
| Health technologists, technicians | . 08 | . 11 | .14 | . 06 | . 07 | . 08 | . 00 | . 00 | . 00 |
| Clinical lab technologists, teca | . 07 | . 08 | . 12 | . 03 | . 03 | . 06 | -00 | . 00 | . 00 |
| Other health technicians | . 02 | . 03 | . 01 | . 02 | - 02 | . 02 | .00 | . 00 | . 00 |
| Technicians, except health | . 40 | . 54 | . 69 | . 03 | . 03 | . 03 | . 00 | . 00 | . 00 |
| airplane pilots | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Badio operators | .00 | . 00 | . 00 | . 02 | . 02 | .01 | . 00 | . 00 | . 00 |
| Other technicians except nealta | . 40 | . 54 | . 69 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Computer specialists | . 07 | .09 | . 09 | .11 | . 13 | . 13 | . 00 | . 00 | . 00 |
| Computer programers | . 06 | . 06 | . 07 | . 07 | . 08 | . 08 | . 00 | . 00 | . 00 |
| Computer systems analysts | . 02 | .03 | . 02 | .03 | . 05 | . 04 | .00 | - 00 | . 00 |
| Other computer specialists | . 00 | . 00 | -00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Social scientists | .48 | . 56 | . 73 | .22 | . 36 | . 43 | . 04 | . 07 | . 09 |
| Economists | . 00 | . 00 | . 00 | . 06 | . 08 | . 08 | . 00 | . 00 | . 00 |
| Political scientists | . 00 | . 00 | . 00 | . 03 | .03 | . 0.3 | . 00 | . 00 | . 00 |
| Psychologists | . 00 | . 00 | . 00 | . 08 | - 18 | . 26 | . 00 | .00 | . 00 |
| Sociologists | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 01 | . 02 | . 02 |
| Urban and regional planners | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| other social scientists | . 48 | . 56 | . 73 | . 02 | . 03 | . 04 | . 03 | . 04 | . 06 |
| Teachers | 3.04 | 1. 90 | 1.48 | 1.39 | 1.27 | 1.29 | 1.79 | 2.04 | 2.62 |
| Adult education | . 12 | . 15 | . 12 | . 12 | . 13 | . 12 | . 06 | . 08 | . 06 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 59 | .67 | . 83 | 1.20 | 1.52 | 2.23 |
| Other teachers | 2.92 | 1.75 | 1.35 | .69 | . 48 | . 34 | . 52 | . 44 | . 32 |
| writers,artists, entertainers | 7.84 | 8.98 | 9.99 | 3.95 | 4.63 | 4.35 | 6.36 | 8.28 | 9.64 |
| Actors | . 02 | . 03 | . 02 | . 00 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Athletes and kindred vorkers | . 11 | . 11 | . 16 | . 49 | . 52 | . 44 | . 03 | . 04 | . 05 |
| Authors | .07 | . 05 | . 09 | . 03 | . 04 | . 07 | . 02 | . 01 | . 00 |
| Designers | . 41 | . 43 | . 34 | . 02 | . 02 | . 03 | . 01 | . 01 | . 02 |
| uditors and reporters | . 46 | . 46 | . 35 | .30 | . 31 | . 26 | . 21 | . 24 | . 17 |
| Musicians and composers | . 04 | . 04 | . 04 | 2.43 | 2.96 | 2.98 | 5.84 | 7.61 | 9.06 |
| Painters and sculptors | 4.24 | 5. 18 | 6.88 | . 05 | . 06 | . 06 | . 05 | . 08 | . 11 |
| Photographers | - 33 | . 37 | . 28 | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Public relations specialists | .72 | . 85 | .71 | . 52 | . 58 | .41 | . 14 | . 19 | . 14 |
| Other writers,artists,entertain | 1.24 | 1.47 | 1.16 | .11 | . 12 | . 09 | . 06 | . 09 | .08 |

Table 1. Percent distribution of industry employment by occupation. 1970, 1978 and projected 1990


|  | Museums, art galleries, zoos |  |  | Honprofit organizatns |  |  | Religious organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 9.36 | 9. 16 | 9.59 | 8.75 | 9.99 | 11.00 | 3.80 | 4.12 | 3.93 |
| Billing clerks | . 00 | . 00 | . 00 | . 03 | . 04 | . 08 | . 01 | . 02 | . 04 |
| Bookk eepers | 1.39 | 1. 28 | 1.28 | 2.25 | 2.03 | 1.91 | 1.32 | 1.37 | 1.08 |
| Cashiers | 1.58 | 1.72 | 2.09 | . 26 | . 27 | . 34 | . 03 | . 04 | . 04 |
| Clerical assistant,soc welfare | . 00 | . 00 | . 00 | - 10 | 1.89 | 1.69 | . 00 | . 00 | . 00 |
| Clerical supervisors, other | . 18 | - 19 | . 26 | -45 | - 50 | . 79 | . 09 | - 12 | . 15 |
| collectors, bill and account | . 00 | . 00 | - 00 | . 01 | . 01 | . 02 | .00 | . 00 | . 00 |
| Counter clerks,exc food | .13 | . 15 | . 19 | - 17 | . 17 | . 21 | .03 | . 04 | . 05 |
| Dispatchers, starters, vehicle | . 00 | . 00 | . 00 | . 05 | . 04 | . 05 | . 00 | . 00 | . 00 |
| Enumerators and intervievers | . 00 | . 00 | . 00 | . 10 | . 09 | . 14 | . 02 | . 02 | . 04 |
| Estimators, investigators, other | . 04 | . 04 | . 04 | - 26 | - 30 | . 26 | . 02 | .03 | - 03 |
| File clerks | . 34 | . 28 | . 34 | . 51 | . 40 | . 46 | . 18 | .16 | . 14 |
| Insurance adjusters, examiners | . 00 | . 00 | . 00 | .01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Library attendants, assistants | . 54 | . 57 | -21 | . 10 | - 10 | . 04 | -11 | . 13 | . 05 |
| Mail handlers,exc fost office | . 27 | . 27 | . 35 | . 24 | - 24 | . 27 | .19 | . 22 | . 26 |
| Messengers and office helpers | . 08 | . 07 | . 04 | . 05 | . 04 | . 02 | . 01 | . 01 | . 00 |
| Payroll,timekeeping clerks | . 10 | . 10 | . 06 | . 13 | - 12 | .11 | . 02 | . 02 | .01 |
| Receptionists | 2.03 | 1.91 | 1.98 | 1.27 | 1. 12 | 1.10 | . 54 | - 58 | - 56 |
| Shipping and receiving clerks | . 15 | . 12 | . 06 | . 06 | . 05 | . 06 | . 03 | . 03 | . 01 |
| Statistical clerks | . 37 | . 40 | . 43 | . 38 | . 41 | . 57 | . 13 | . 17 | - 19 |
| Stock clerks and store keepers | .22 | - 17 | - 14 | -15 | - 12 | - 18 | . 03 | . 03 | . 04 |
| Teachers aides, exc monitors | . 12 | - 14 | . 15 | . 09 | -09 | . 06 | . 07 | . 08 | -05 |
| Telephone oferators | . 29 | . 18 | .13 | -30 | . 18 | . 13 | . 11 | . 07 | . 02 |
| Misc clerical workers | 1.55 | 1.58 | 1.85 | 1.77 | 1.76 | 2.49 | . 86 | . 99 | 1. 19 |
| crafts and kindred workers | 5.56 | 4.71 | 2.92 | 1.79 | 1.75 | 2.02 | . 94 | . 92 | .75 |
| Construction crafts workers | 2.86 | 2. 14 | . 95 | . 99 | - 99 | 1.22 | . 46 | . 46 | - 36 |
| Carpenters and apprentices | 1.95 | 1. 36 | . 37 | - 42 | . 41 | - 39 | . 24 | . 21 | . 07 |
| Brick, stonemasons, apprentices | . 02 | . 02 | .01 | . 01 | . 01 | . 02 | . 03 | . 03 | . 04 |
| cement and concrete finishers | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Electricians and apprentices | . 27 | . 25 | . 19 | - 19 | . 22 | . 34 | . 03 | .03 | . 01 |
| painters and apprentices | . 52 | . 44 | . 36 | . 16 | .17 | - 21 | . 13 | - 15 | - 21 |
| Plasterers and apprentices | . 01 | . 01 | . 01 | - 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| plumbers, pipefitters, aprentices | . 07 | . 05 | . 01 | . 16 | . 15 | . 21 | . 03 | . 03 | .03 |
| Structural metal craft workers | . 02 | . 02 | . 01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Blue collar worker supervisors | . 60 | . 57 | . 36 | . 25 | . 25 | . 24 | . 09 | . 09 | . 04 |
| Setalworkg craft mrirs, exc mech | . 07 | . 05 | . 03 | . 00 | . 00 | . 00 | .00 | .00 | .00 |
| Blacksmiths | . 02 | . 01 | . 00 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Machinists and apprentices | . 04 | . 03 | . 01 | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 |
| Sheetmetal workers, apprentices | . 01 | . 01 | .01 | . 00 | . 00 | .00 | . 00 | . 00 | .00 |
| Hechanics, repairers,installers | . 83 | . 84 | . 79 | . 19 | - 21 | . 31 | . 10 | . 13 | . 23 |
| Air cond, heating, refrig mech | . 13 | -16 | .19 | . 02 | . 03 | . 04 | . 01 | . 01 | . 02 |
| Aircraft mechanics | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto accessories installers | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto body repairers | . 03 | . 02 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Auto mechanics and apprentices | . 08 | . 06 | . 06 | -04 | . 04 | . 05 | . 03 | . 03 | . 07 |
| Heavy equip mech, incl diesel | . 26 | . 29 | . 28 | -06 | . 07 | . 12 | . 04 | . 06 | . 10 |
| Household appliance mechanics | . 01 | . 01 | . 01 | -02 | . 02 | . 03 | . 01 | . 01 | . 02 |
| Office machine repairers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Hadio, television repairers | . 04 | . 03 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Railroad, car shop repairers | . 02 | . 03 | . 02 | .00 | .00 | . 01 | . 01 | .01 | . 02 |
| other mechanics and apprentices | . 22 | . 21 | . 19 | . 02 | . 02 | . 04 | . 01 | . 01 | . 02 |
| Printing trade crafts workers | . 15 | - 12 | . 05 | -13 | . 13 | - 12 | . 14 | . 13 | . 05 |
| Bookbinders | . 03 | .01 | . 01 | .01 | .00 | . 00 | . 01 | . 01 | . 00 |
| Compositors and typesetters | . 07 | . 05 | . 01 | . 07 | . 06 | . 06 | . 08 | . 07 | . 02 |
| Engravers exc photoengravers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| Photoengravers, lithographers | . 02 | . 02 | .01 | .00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Press, plate frinters,aprentices | .01 | . 01 | . 01 | . 06 | . 06 | . 06 | . 05 | . 05 | . 03 |


|  | Huseums. art galleries, zoos |  |  | Nonprofit organizatns |  |  | Religious organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | 1.06 | . 98 | . 76 | .22 | .17 | . 12 | . 15 | . 12 | . 06 |
| Bakers | . 00 | . 00 | . 00 | . 04 | . 03 | .01 | . 06 | .05 | . 02 |
| Cabinetmakers | . 24 | . 17 | . 05 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Decorators, window dressers | . 19 | - 24 | . 08 | . 00 | . 00 | . 01 | . 00 | .00 | . 00 |
| Purniture and wood finishers | . 08 | . 08 | - 10 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Glaziers | .01 | . 01 | .01 | . 00 | . 00 | .01 | . 00 | . 00 | . 00 |
| Inspectors, other | .03 | . 03 | . 02 | . 03 | . 02 | . 01 | -01 | . 01 | . 02 |
| Jewelers and watchmakers | . 02 | . 02 | . 01 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| Motion picture projectionists | . 03 | . 02 | . 00 | . 01 | . 01 | .01 | . 01 | . 00 | . 00 |
| Sign painters and letterers | . 02 | . 02 | . 01 | . 00 | - 00 | . 00 | . 00 | .00 | . 00 |
| Stationary engineers | . 30 | . 26 | -25 | . 08 | - 06 | . 03 | .06 | . 05 | . 02 |
| Opholsterers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Other crafts yorkers | .14 | . 14 | -23 | .01 | .01 | .01 | .00 | -00 | . 00 |
| operatives | 1.87 | 1.79 | 1.61 | 1.46 | 1.35 | 1.70 | .62 | . 67 | . 70 |
| operatives, except transport | 1.18 | 1. 21 | 1.30 | . 90 | . 89 | 1.29 | . 45 | . 48 | . 63 |
| Semiskilled metalworking | . 06 | . 05 | . 04 | . 07 | . 07 | . 10 | . 00 | . 00 | . 00 |
| Welders and flamecutters | . 06 | . 05 | . 04 | . 07 | . 07 | . 10 | .00 | . 00 | .00 |
| Semiskilled packing, inspecting | . 18 | . 14 | . 07 | . 07 | . 05 | . 03 | . 04 | .03 | .01 |
|  | . 18 | . 14 | . 07 | . 07 | . 05 | .03 | . 04 | .03 | .01 |
| Other operatives, exc transport | . 95 | 1.02 | 1.19 | . 76 | . 76 | 1. 16 | -41 | . 45 | . 62 |
| Asbestos.insulation workers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | .00 | . 00 |
| clothing ironers and pressers | . 00 | . 00 | . 00 | . 03 | . 03 | - 07 | . 03 | . 03 | . 06 |
| Dressmakers, exc factory | .01 | . 02 | . 01 | .07 | . 07 | .07 | . 07 | . 08 | . 06 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | .01 | . 02 | . 02 | . 00 | .00 | . 00 |
| Laundry,dry cleang oprs,other | . 02 | . 02 | . 02 | . 12 | - 12 | . 22 | - 12 | . 13 | . 18 |
| Meat cutters, tutchers, exc mfg | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 01 | . 00 | . 00 |
| Photographic frocess workers | . 09 | . 07 | . 04 | . 01 | .01 | . 01 | .01 | .01 | . 02 |
| Sailors and deckhands | . 00 | . 00 | -00 | . 01 | . 01 | . 02 | . 00 | . 00 | .00 |
| Sawyers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | -00 | -00 | . 00 |
| Sewers and stitchers | . 00 | . 00 | . 00 | . 07 | . 06 | . 14 | . 08 | . 08 | . 17 |
| Furnace tendr,stokr,exc metal | . 05 | . 02 | . 01 | . 05 | . 03 | . 03 | . 03 | . 02 | . 01 |
| Miscellaneous machine operatves | . 29 | . 32 | . 45 | . 07 | . 07 | . 09 | . 04 | . 05 | . 05 |
| Other operatives, exc transport | .47 | . 55 | . 66 | . 30 | . 30 | . 45 | .04 | .05 | .08 |
| Transport equipment operatives | . 68 | . 58 | . 31 | . 56 | . 47 | . 41 | . 18 | -20 | . 07 |
| Bus drivers | . 02 | . 02 | . 00 | . 06 | . 07 | . 01 | . 07 | . 11 | . 02 |
| Delivery and route workers | .11 | . 10 | . 07 | . 05 | . 04 | . 05 | . 02 | .01 | . 01 |
| Fork lift,tow motor operatives | . 02 | . 02 | . 02 | . 01 | . 02 | . 02 | . 00 | .00 | . 00 |
| Parking attendants | . 14 | . 16 | . 10 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 |
| Taxicab drivers, chauffeurs | . 04 | . 03 | . 01 | . 11 | . 08 | . 04 | . 05 | . 03 | . 01 |
| Truck drivers | .35 | . 25 | .10 | .31 | - 24 | . 28 | .04 | .03 | . 01 |
| Service workers | 21.37 | 18.35 | 15.90 | 18.82 | 18.27 | 19.39 | 20.20 | 19.90 | 20.69 |
| Cleaning service workers | 6.09 | 5.80 | 5.56 | 7.84 | 7.68 | 7.04 | 13.72 | 14.96 | 15.00 |
| Lodging qtrs cleaners, exc privt | . 02 | . 01 | . 02 | . 36 | -18 | . 19 | . 54 | -29 | . 26 |
| Bldg interior cleaners, other | 1.35 | 1.41 | 1.46 | 1.64 | 1.71 | 1.67 | 2.59 | 3.01 | 3.06 |
| Janitors and sextons | 4.71 | 4.37 | 4.07 | 5.84 | 5.79 | 5.18 | 10.59 | 11.66 | 11.69 |
| Food service workers | 1.46 | 1.10 | 1.19 | 3.67 | 2.49 | 2.00 | 1.89 | 1.45 | . 95 |
| Bartenders | . 01 | .01 | . 01 | . 54 | . 43 | . 39 | . 00 | . 00 | . 00 |
| Waiters' assistants | .21 | - 26 | . 60 | .13 | . 11 | . 10 | . 01 | . 02 | . 03 |
| Cooks, exc private households | . 26 | . 17 | . 05 | 1.31 | . 93 | . 58 | 1.39 | 1.04 | -47 |
| Dishwashers | . 04 | . 03 | . 02 | . 31 | - 18 | . 20 | . 09 | . 07 | . 12 |
| Food counter, fountain workers | .21 | - 19 | . 14 | . 06 | - 06 | . 05 | . 03 | . 03 | . 03 |
| Waiters | . 42 | . 18 | . 02 | . 96 | . 51 | . 30 | . 12 | . 07 | . 02 |
| Other food serv wkrs,exc privt | .32 | - 26 | . 33 | . 36 | - 27 | . 38 | .24 | . 22 | - 29 |
| Health service workers | .07 | . 07 | .13 | . 60 | - 53 | 1.34 | .17 | . 14 | . 22 |
| Dental assistants | . 00 | . 00 | .00 | . 01 | - 01 | . 01 | .00 | . 00 | .00 |
| Health aides, except nursing | .01 | . 01 | . 02 | . 05 | . 05 | . 10 | .01 | .01 | . 02 |
| Nursing aides and orderlies | . 06 | . 06 | .11 | . 40 | . 34 | . 89 | . 10 | . 09 | . 14 |
| Practical nurses | .00 | .00 | . 00 | . 15 | - 13 | -35 | .05 | . 05 | . 06 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
$\left.\begin{array}{llllllllll}\text { Religious } \\ \text { organizatns }\end{array}\right)$
rable 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

| Helfare <br> services | 1990 | Residential <br> welfare <br> services |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1970 | 1978 | 1990 |


| Nonprofit <br> membership <br> organizatns |  |  |  |
| :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 |  |



| 100.00 | 100. 00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 45.51 | 45.72 | 38.91 | 12.90 | 19.09 | 18.44 | 15.30 | 18.09 | 15. 30 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .65 | . 65 | . 97 |
| . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .04 |
| . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | .19 | . 17 | . 32 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | - 10 | - 14 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 09 | - 10 |
| . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 10 | -18 |
| . 00 | - 00 | . 00 | . 00 | . 00 | .00 | .01 | . 01 | . 02 |
| . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | .03 |
| . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 15 | . 14 | - 15 |
| . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 10 | . 10 |
| . 00 | - 00 | . 00 | .00 | . 00 | . 00 | . 03 | . 04 | - 05 |
| . 00 | . 00 | . 00 | . 00 | - 00 | - 00 | - 01 | . 02 | . 01 |
| . 00 | - 00 | . 00 | .00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| $; 00$ | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| . 09 | . 08 | . 10 | . 00 | . 00 | . 00 | . 07 | . 07 | . 06 |
| . 09 | . 08 | .10 | . 00 | . 00 | . 00 | .07 | . 06 | . 06 |
| . 04 | . 03 | . 03 | - 00 | - 00 | . 00 | . 58 | . 56 | . 55 |
| . 00 | . 00 | . 00 | - 00 | . 00 | . 00 | . 22 | . 21 | . 12 |
| - 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 25 | - 23 | . 27 |
| . 00 | - 00 | . 00 | . 00 | - 00 | . 00 | . 02 | . 02 | . 02 |
| . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 06 | . 06 | . 09 |
| . 00 | . 00 | .00 | . 00 | - 00 | . 00 | . 03 | . 04 | . 06 |
| 1.30 | 1. 13 | 1.09 | 1.79 | 1.96 | 1.11 | . 35 | . 44 | . 74 |
| . 01 | . 01 | . 02 | . 01 | . 02 | .01 | . 01 | . 02 | . 05 |
| . 04 | . 02 | . 01 | . 22 | . 20 | . 18 | . 02 | . 02 | . 02 |
| . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 11 | . 09 | . 14 | . 07 | . 07 | . 00 | . 08 | . 10 | . 27 |
| . 73 | -49 | . 45 | 1.17 | . 99 | . 27 | .14 | .16 | . 25 |
| -39 | - 50 | . 45 | . 32 | . 67 | . 65 | . 07 | . 10 | -06 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 10 |
| . 14 | - 14 | . 17 | . 05 | . 07 | . 03 | .06 | . 08 | . 05 |
| . 09 | . 08 | - 14 | .00 | . 00 | . 00 | . 03 | . 03 | .01 |
| . 00 | . 00 | .00 | . 00 | . 00 | . 00 | .01 | . 01 | . 02 |
| . 00 | . 00 | . 00 | . 03 | . 04 | . 00 | . 00 | . 00 | . 00 |
| . 04 | . 05 | . 04 | . 01 | . 03 | .03 | . 02 | . 03 | . 02 |
| .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 09 | . 13 | - 14 |
| . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 01 | . 02 | . 05 |
| . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 06 | . 07 | .03 |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 04 | . 06 |
| .18 | . 22 | . 19 | .00 | . 00 | . 00 | . 19 | . 24 |  |
| - 10 | . 11 | . 11 | . 00 | . 00 | . 00 | . 14 | . 16 | .17 |
| . 07 | . 09 | . 07 | . 00 | . 00 | .00 | . 04 | . 06 | . 05 |
| . 01 | . 02 | . 01 | . 00 | . 00 | .00 | . 01 | . 02 | . 02 |
| . 36 | . 59 | .77 | . 19 | . 53 | . 33 | . 31 | . 45 | . 39 |
| . 06 | . 08 | .12 | - 00 | . 00 | . 00 | . 15 | . 21 | . 13 |
| . 00 | - 00 | .00 | .00 | . 00 | . 00 | . 10 | . 11 | - 10 |
| . 23 | . 43 | . 60 | .17 | . 48 | . 30 | . 02 | . 05 | . 06 |
| . 01 | . 02 | .01 | . 01 | . 03 | . 02 | . 01 | . 03 | . 03 |
| . 05 | . 05 | . 03 | .01 | . 01 | . 0.1 | . 01 | . 02 | .01 |
| . 01 | . 01 | .01 | .00 | . 00 | .00 | .02 | . 03 | . 06 |
| 1.09 | . 72 | . 66 | 1.02 | 1.18 | 1.61 | 1.19 | . 87 | . 46 |
| . 20 | . 19 | . 18 | . 17 | . 29 | . 46 | -10 | . 09 | . 03 |
| . 23 | . 17 | . 18 | . 14 | . 20 | -56 | . 15 | . 13 | . 09 |
| . 67 | . 37 | . 31 | . 71 | . 68 | . 58 | . 95 | . 64 | .35 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Welfare services |  |  | Residential velfare services |  |  | Nonprofit membership organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Hriters,artists, entertainers | . 79 | . 68 | .61 | - 26 | . 40 | . 66 | 4.37 | 4.98 | 4.08 |
| Actors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Athletes and kindred workers | . 14 | - 12 | .14 | . 15 | . 27 | . 55 | 1.60 | 1.79 | 1.39 |
| Authors | . 00 | . 00 | . 00 | - 00 | . 00 | - 00 | . 07 | . 12 | .28 |
| Designers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 07 | . 10 |
| Editors and reforters | . 09 | . 07 | . 04 | .01 | . 01 | . 02 | .71 | . 77 | . 76 |
| Musicians and composers | .05 | . 04 | . 07 | . 03 | . 04 | . 04 | . 32 | . 31 | . 22 |
| painters and sculptors | . 02 | . 02 | . 02 | -00 | .00 | . 00 | . 08 | . 10 | . 07 |
| Photographers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 03 | . 05 |
| Public relations specialists | . 37 | -33 | . 26 | . 06 | . 06 | . 03 | 1.29 | 1.55 | 1.08 |
| Other writers,artists, entertain | . 10 | . 09 | . 07 | . 01 | . 02 | .03 | . 21 | .23 | . 12 |
| Other professicnal and technical | 41.50 | 42. 14 | 35.28 | 9.59 | 14.95 | 14.70 | 7.34 | 9.55 | 7.53 |
| Accountants | . 86 | . 75 | . 56 | . 08 | . 09 | . 07 | 1.13 | 1.42 | 1. 87 |
| Architects | . 02 | - 01 | . 02 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Archivists and curators | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 05 | . 06 | . 05 |
| Clergy | .41 | . 23 | . 31 | . 19 | . 18 | . 29 | . 32 | . 26 | . 29 |
| Religious workers, except clergy | . 08 | . 05 | . 03 | 1.00 | 1. 10 | 1.06 | . 17 | . 20 | . 32 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 03 |
| Home management advisors | . 06 | . 04 | -04 | . 00 | - 00 | . 00 | . 01 | . 01 | . 01 |
| Lawyers | . 44 | . 46 | . 09 | . 02 | . 03 | . 01 | . 32 | . 49 | . 22 |
| Librarians | . 06 | . 05 | . 04 | . 10 | . 13 | . 20 | . 27 | . 22 | . 06 |
| operations and systems research | . 06 | - 08 | -09 | -00 | - 00 | . 00 | . 04 | . 05 | . 04 |
| Personnel.labcr relations ukrs | .74 | . 62 | . 46 | . 11 | . 14 | . 15 | . 47 | . 53 | . 47 |
| other research workers | . 26 | . 18 | . 16 | . 07 | . 08 | . 13 | . 35 | .26 | . 10 |
| kecreation workers | . 94 | 1.08 | 1.96 | 1.03 | 2. 21 | 2. 57 | 3.41 | 5.11 | 3.38 |
| Social workers | 37.30 | 38. 33 | 31.25 | 6.57 | 10.38 | 9.58 | . 56 | . 72 | - 56 |
| Vocation, education counselors | . 28 | . 25 | . 26 | . 43 | . 61 | . 64 | . 14 | . 15 | . 10 |
| Managers, officials, proprietors | 8.71 | 7.87 | 8.50 | 3.97 | 5.23 | 4.98 | 24.89 | 25.40 | 23.73 |
| Buyers, sales ilcan managers | . 22 | . 16 | . 18 | . 18 | . 25 | - 58 | -49 | . 49 | . 54 |
| Bank, financial managers | . 13 | . 10 | . 08 | . 04 | . 05 | . 07 | .17 | . 17 | . 15 |
| Credit managers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 |
| Purchasing agents, buyers, other | . 07 | . 06 | . 08 | - 15 | . 20 | - 52 | .14 | .13 | . 14 |
| Sales manager, exc retail trade | . 02 | . 01 | . 02 | . 00 | . 00 | . 00 | - 16 | . 18 | . 23 |
| Other managers, officials, proprts | 8.49 | 7.71 | 8.33 | 3.79 | 4.99 | 4.40 | 24.40 | 24.91 | 23.19 |
| Mgrs, superintendents, building | . 03 | . 03 | . 05 | . 06 | . 11 | - 31 | . 09 | . 12 | . 17 |
| office managers, other | . 51 | . 42 | . 59 | - 10 | . 13 | . 24 | 1.25 | 1.30 | 1.46 |
| officers, pilots, pursers,ship | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 02 |
| Officials of lodges, unions | . 00 | - 00 | . 00 | -00 | . 00 | . 00 | 17.02 | 16.40 | 13.72 |
| Restaurant, cafe, bar, managers | . 01 | . 01 | . 01 | . 01 | . 02 | . 03 | 1.05 | . 85 | . 46 |
| other managers, administrators | 7.94 | 7.25 | 7.68 | 3.61 | 4.73 | 3.82 | 4.98 | 6.23 | 7.37 |
| Sales workers | . 64 | - 48 | . 73 | . 00 | . 00 | . 00 | 1.26 | 1.29 | 1. 59 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 04 | . 06 | . 10 |
| Other sales ycriers | . 64 | . 47 | .73 | . 00 | . 00 | . 00 | 1.21 | 1.23 | 1.49 |
| Clerical workers | 29.43 | 27.87 | 30.96 | 6.25 | 7. 59 | 11.01 | 32.90 | 32.87 | 37.37 |
| Stenographrs, typists, secretaries | 16.37 | 12.05 | 13.63 | 3.16 | 3.76 | 5.63 | 19.15 | 19.37 | 24.24 |
| Legal secretaries | . 08 | . 06 | . 08 | . 01 | . 01 | . 04 | . 05 | . 05 | . 08 |
| Medical secretaries | . 03 | . 02 | . 02 | .03 | . 03 | . 06 | . 06 | . 04 | . 05 |
| other secretaries | 8.36 | 6.58 | 8.31 | 2.29 | 2.89 | 4.67 | 15.70 | 16.30 | 20.58 |
| Stenographers | 1.25 | -61 | . 19 | -08 | . 04 | -01 | -38 | . 30 | . 43 |
| Typists | 6.64 | 4.78 | 5.03 | . 75 | . 79 | . 85 | 2.96 | 2.68 | 3.10 |
| office machine operators | .70 | . 58 | . 45 | . 11 | - 12 | . 25 | . 97 | . 96 | .67 |
| Bookkeeping and billing | . 05 | . 03 | . 04 | .01 | . 01 | . 01 | -11 | . 05 | . 03 |
| Calculating | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Computer and feripheral equip | . 11 | -19 | . 15 | . 00 | . 00 | . 00 | . 15 | . 33 | . 29 |
| Duplicating | .05 .37 | .03 .24 | . 05 | . 00 | .00 .04 | .00 .04 | . 08 | .06 .32 | .04 .19 |
| Keypunch | . 37 | .24 .01 | .12 .00 | .04 .00 | .04 .00 | . 04 | . 41 | . 32 | .19 .00 |
| Other office machine operators | .09 | . 07 | . 07 | . 06 | . 08 | . 20 | . 19 | . 18 | 12 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Welfare services |  |  | $\begin{gathered} \text { Residential } \\ \text { yelfare } \\ \text { services } \end{gathered}$ |  |  | Nonprofit membership organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 12.35 | 15. 25 | 16.88 | 2.98 | 3.71 | 5.13 | 12.79 | 12.55 | 12.46 |
| Billing clerks | . 05 | . 04 | . 10 | . 00 | . 00 | . 00 | . 06 | . 07 | - 12 |
| Bookkeepers | 2.34 | 1.73 | 1.88 | .95 | 1.13 | 1.28 | 3.69 | 3.51 | 3.18 |
| Cashiers | . 29 | . 24 | . 30 | . 02 | . 02 | . 02 | . 60 | .67 | . 87 |
| Clerical assistant, soc welfare | .34 | 5.65 | 4.47 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| clerical supervisors, other | 1.05 | 1. 04 | 1.62 | . 08 | . 14 | -28 | . 34 | . 40 | . 45 |
| collectors, bill and account | . 02 | . 02 | . 0.3 | .00 | . 00 | . 00 | . 02 | - 02 | . 02 |
| Counter clerks,exc food | . 07 | . 06 | . 09 | . 00 | . 00 | .00 | . 50 | . 53 | . 67 |
| Dispatchers,starters, vehicle | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 | . 14 | . 15 | . 18 |
| Enumerators and interviewers | . 24 | . 19 | . 32 | . 00 | - 00 | . 00 | . 08 | . 06 | . 02 |
| Estimators, investigators,other | . 31 | . 33 | -33 | . 02 | . 03 | . 03 | . 60 | . 69 | . 53 |
| File clerks | . 94 | . 62 | -67 | . 13 | . 14 | . 20 | . 56 | . 50 | . 63 |
| Insurance adjusters, examiners | .01 | .01 | . 02 | .00 | . 00 | . 00 | . 04 | . 07 | . 06 |
| Library attendants, assistants | . 06 | . 05 | . 03 | -01 | . 02 | . 01 | . 14 | . 14 | . 04 |
| Mail handlers,exc post office | .21 | - 18 | . 24 | . 11 | . 13 | . 22 | . 35 | . 35 | - 34 |
| Hessengers and of fice helpers | . 10 | . 07 | . 04 | .00 | . 00 | . 00 | . 07 | . 06 | . 02 |
| Payroll,timekeeping clerks | . 29 | . 24 | -18 | . 05 | . 07 | . 04 | . 12 | . 13 | . 14 |
| Real estate afpraisers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | .00 | . 00 |
| fecepticnists | 1.40 | 1.07 | 1.32 | . 47 | . 59 | . 87 | 2.30 | 2.05 | 1.50 |
| Shipping and receiving clerks | . 06 | . 04 | . 03 | . 02 | . 02 | .01 | . 10 | . 11 | . 17 |
| Statistical clerks | .70 | . 67 | 1.08 | .13 | . 19 | . 28 | .44 | . 46 | . 34 |
| stock clerks and store keepers | .29 | . 21 | . 32 | . 20 | . 27 | - 39 | . 16 | - 13 | . 08 |
| Teachers aides, exc monitors | . 19 | . 15 | .11 | . 06 | . 08 | . 05 | . 02 | . 02 | . 01 |
| Telephone operators | . 44 | . 18 | . 07 | . 27 | . 19 | . 07 | . 45 | . 33 | . 39 |
| Misc clerical workers | 2.94 | 2.44 | 3.60 | . 45 | -69 | 1.38 | 2.00 | 2.12 | 2.72 |
| Crafts and kindred workers | 1.21 | . 90 | . 88 | 1.84 | 2.17 | 2.20 | 3.70 | 4.02 | 5.40 |
| Construction crafts vorkers | .34 | . 25 | . 23 | . 81 | . 94 | . 97 | 2.52 | 2.77 | 3.93 |
| Carpenters and apprentices | . 16 | - 12 | . 07 | . 38 | . 38 | . 17 | . 99 | 1.09 | 1. 34 |
| Brick, stonemasons, apprentices | . 01 | . 01 | . 01 | . 00 | . 00 | - 00 | .00 | . 00 | . 00 |
| Cement and concrete tinishers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 06 | .07 | - 16 |
| Electricians and apprentices | . 04 | . 02 | . 02 | . 13 | . 16 | . 16 | . 61 | . 75 | 1. 30 |
| Excavating, grading mach operatr | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Ploor layers, exc tile setters | . 00 | . 00 | . 00 | .00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Painters and apprentices | - 10 | . 08 | . 11 | . 23 | . 32 | - 53 | . 28 | . 28 | - 32 |
| Plasterers and apprentices | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Plumbers, pipefitters, aprentices | . 02 | . 02 | .01 | . 06 | . 08 | . 11 | . 53 | . 53 | . 77 |
| Blue collar worker supervisors | . 39 | . 31 | . 26 | .27 | .33 | . 24 | . 35 | . 39 | . 46 |
| Mechanics, repairers,installers | .21 | - 17 | . 24 | .33 | . 50 | . 75 | . 29 | . 33 | .43 |
| Air cond, heating, refrig mech | . 02 | . 02 | . 02 | . 04 | . 06 | . 06 | . 03 | . 05 | . 08 |
| Auto mechanics and apprentices | . 04 | . 03 | . 04 | . 05 | . 06 | . 09 | . 06 | . 05 | . 04 |
| Data processing mach refairers | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 00 | .00 | . 00 | . 01 | .01 | . 02 |
| Heavy equip mech, incl diesel | . 04 | . 04 | . 08 | . 17 | - 26 | . 30 | . 10 | . 12 | . 18 |
| Household appliance mechanics | . 05 | . 04 | . 06 | . 00 | . 00 | . 00 | . 02 | .02 | . 01 |
| office machine repairers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 04 |
| Radio, television repairers | . 03 | . 02 | . 01 | - 00 | . 00 | . 00 | . 01 | .01 | . 02 |
| other mechanics and apprentices | .03 | .03 | . 03 | .06 | . 12 | . 30 | .03 | .03 | . 01 |
| Printing trade crafts workers | . 08 | . 06 | . 05 | . 01 | . 01 | . 02 | .19 | -23 | - 35 |
| Compositors and typesetters | . 04 | . 02 | . 01 | . 01 | . 01 | . 02 | . 09 | . 11 | . 20 |
| Press, plate printers, aprentices | .04 | . 03 | . 04 | .00 | .00 | .00 | .09 | . 11 | . 15 |
| Transport, public util craft wkrs | .00 | . 00 | .00 | . 00 | . 00 | .00 | . 03 | . 02 | . 02 |
| Elec pwr line instaler, repairer | .00 | . 00 | . 00 | .00 | . 00 | .00 | . 01 | .01 | .01 |
| Telephone installers, repairers | . 00 | . 00 | . 00 | .00 | .00 | . 00 | . 01 | .01 | .01 |


|  | Welfare services |  |  | $\begin{gathered} \text { Residential } \\ \text { velfare } \\ \text { services } \end{gathered}$ |  |  | Nomprofit membership organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other cratts, kindred workers | . 20 | - 12 | - 10 | . 43 | - 38 | . 23 | . 32 | .27 | . 21 |
| Bakers | . 00 | . 00 | . 00 | . 08 | . 06 | . 02 | . 03 | . 02 | . 01 |
| Cabinetmakers | . 04 | . 02 | . 01 | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 |
| Carpet installers | . 00 | - 00 | . 00 | . 00 | - 00 | - 00 | -01 | . 01 | . 02 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 00 | - 00 | . 00 | . 01 | . 02 | . 04 |
| Purniture and wood finishers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Glaziers | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 01 | . 01 | . 02 |
| Inspectors, other | . 03 | . 02 | . 01 | . 02 | . 02 | . 02 | . 06 | . 05 | . 01 |
| Motion picture projectionists | .01 | . 01 | . 01 | . 00 | - 00 | . 00 | . 02 | . 02 | . 01 |
| Shoe repairers | . 01 | . 00 | . 01 | . 01 | . 01 | . 03 | . 00 | .00 | . 00 |
| Stationary engineers | . 03 | . 02 | . 01 | . 30 | . 28 | . 12 | - 12 | . 08 | . 04 |
| Tailors | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Upholsterers | . 04 | . 02 | . 05 | . 01 | . 01 | . 02 | .01 | . 01 | . 01 |
| other crafts workers | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | .03 | . 04 |
| Operatives | 2.33 | 1. 66 | 1.77 | 2.54 | 2.98 | 4.29 | 1.59 | 1.74 | 2.31 |
| Operatives, except transport | 1.27 | 1.02 | 1.44 | 2.24 | 2.70 | 4.23 | 1.00 | 1.08 | 1.24 |
| Semiskilled metaluorking | $.00$ | $.00$ | $.00$ | . 00 |  | $.00$ | $.26$ | . 29 | . 40 |
| Welders and flamecutters | $.00$ | $.00$ | $.00$ | . 00 | $.00$ | $.00$ | . 26 | . 29 | .40 |
| Semiskilled packing, inspecting | . 14 | . 08 | . 03 | . 00 | . 00 | .03 | . 06 | . 05 | . 06 |
| Packer, wrapper, exc meat, prodce | . 14 | . 08 | . 03 | . 00 | . 00 | . 03 | . 06 | . 05 | . 06 |
| Other operatives, exc transport | 1.13 | . 94 | 1.41 | 2.24 | 2.70 | 4.21 | .69 | . 74 | . 78 |
| Asbestos,insulation workers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 06 | . 08 |
| Surveyors' helpers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 |
| Clothing ironers and pressers | . 05 | . 03 | . 05 | . 18 | . 22 | . 45 | . 01 | . 01 | . 02 |
| Dressmakers, exc factory | . 09 | . 08 | . 08 | . 24 | . 35 | -41 | . 02 | . 02 | . 01 |
| Dry wall installers, lathers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 08 | . 07 |
| Filer, polisher, sander, buffer | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Laundry,dry cleang oprs,other | . 06 | . 05 | . 08 | 1.21 | 1.46 | 2.30 | . 03 | .03 | . 01 |
| Meat cutters, butchers, exc mfy | . 01 | . 01 | . 01 | .03 | . 02 | . 01 | . 02 | . 02 | . 03 |
| Photographic process workers | . 01 | . 01 | . 01 | - 00 | - 00 | - 00 | . 01 | . 01 | -02 |
| Sailors and deckhands | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 04 | . 08 |
| Sewers and stitchers | . 08 | . 06 | . 13 | . 26 | - 30 | . 58 | . 02 | . 02 | . 02 |
| Furnace tendr, stokr,exc metal | . 03 | -02 | . 01 | . 18 | - 13 | . 04 | . 07 | . 06 | . 09 |
| Miscellaneous machine operatves | . 10 | . 08 | - 11 | . 04 | . 06 | . 12 | -09 | - 10 | . 09 |
| Other oferatives, exc transport | . 69 | . 60 | .95 | . 10 | . 17 | . 30 | . 27 | . 28 | . 21 |
| Transport equifment oferatives | 1.06 | . 64 | -33 | . 30 | . 28 | . 05 | -59 | - 66 | 1.07 |
| Bus drivers | . 07 | . 07 | . 01 | . 04 | . 05 | . 01 | . 02 | . 04 | . 02 |
| Delivery and route workers | . 08 | . 05 | . 04 | . 03 | . 02 | . 02 | . 07 | . 07 | . 11 |
| Fork lift,tow motor operatives | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 05 | . 07 |
| Parking attendants | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 |
| Taxicab drivers, chauffeurs | .21 | . 14 | . 05 | . 17 | . 15 | . 02 | . 08 | . 08 | . 08 |
| Truck drivers | . 69 | . 38 | . 22 | . 07 | . 06 | . 01 | .33 | . 38 | .78 |
| Service workers | 11.12 | 14.69 | 17.03 | 71.84 | 62.04 | 57.63 | 18.69 | 14.84 | 12.52 |
| Cleaning service workers | 2.71 | 1. 96 | 2.39 | 4.66 | 5.20 | 7.34 | 5.25 | 4.77 | 3.77 |
| Lodging gtrs cleaners, exc privt | . 19 | . 07 | . 08 | 1.15 | . 66 | . 68 | . 17 | . 10 | . 13 |
| Bldg interior cleaners, other | . 69 | . 55 | . 72 | 1.31 | 1.87 | 3.19 | 1.34 | 1.28 | . 99 |
| Janitors and sextons | 1.82 | 1.34 | 1.58 | 2.20 | 2.68 | 3.47 | 3.75 | 3.39 | 2.65 |
| Food service workers | . 84 | .43 | - 37 | 6.08 | 5.52 | 6.42 | 9.19 | 6.34 | 4.87 |
| Bartenders | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 2.02 | 1.68 | 1. 59 |
| Maiters' assistants | .01 | . 00 | . 00 | . 05 | . 08 | . 24 | . 46 | . 40 | . 32 |
| Cooks, exc private households | . 45 | . 22 | . 09 | 3.56 | 3.06 | 1.89 | 1.86 | 1.42 | 1.17 |
| Dishwashers | . 09 | . 04 | - 10 | - 38 | - 34 | - 83 | . 87 | . 49 | .33 |
| Pood counter, fountain workers | . 05 | . 04 | . 05 | . 09 | . 09 | . 01 | . 12 | . 11 | . 09 |
| waiters | . 11 | . 04 | .01 | .73 | . 50 | . 36 | 3.18 | 1.80 | 1. 11 |
| Other food serv wirs, exc privt | . 14 | .09 | . 13 | 1.27 | 1.45 | 3.10 | . 68 | . 45 | . 26 |
| Health service workers | 1.05 | . 72 | 1.00 | 5.53 | 6.13 | 14.85 | .13 | . 12 | . 22 |
| Dental assistants | . 02 | .01 | . 01 | . 02 | . 02 | . 01 | . 02 | . 01 | . 00 |
| Health aides, except nursing | . 09 | . 08 | . 10 | . 22 | . 38 | . 82 | . 03 | . 04 | . 06 |
| Nursing aides and orderlies | . 68 | . 45 | . 55 | 4.13 | 4.35 | 10.70 | . 06 | . 05 | . 14 |
| practical nurses | . 26 | . 18 | . 35 | 1.17 | 1.38 | 3.32 | . 03 | . 02 | . 02 |

Table 1. Percent distribution of industry employment by occupation. 1970, 1978 and projected 1990

|  | Melfare services |  |  | $\begin{gathered} \text { Residential } \\ \text { velfare } \\ \text { services } \end{gathered}$ |  |  | Nonprofit membership organizatns |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Personal service workers | 6.22 | 11. 40 | 13.19 | 54.99 | 44.60 | 28.82 | 3.72 | 3.20 | 3.14 |
| Pligit attendants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 07 |
| Attendants, recreation, amusement | . 19 | . 14 | .33 | - 10 | . 15 | . 33 | . 98 | . 85 | . 79 |
| attendants, personal serv,other | .13 | . 08 | . 08 | . 56 | . 60 | . 66 | . 66 | . 56 | . 55 |
| Baggage porters and bellhops | . 00 | . 00 | . 00 | . 00 | . 00 | .00 | . 03 | . 02 | . 11 |
| Barbers | . 02 | . 00 | . 01 | . 06 | . 01 | . 03 | . 09 | . 01 | . 01 |
| Child care workers, exc private | 2.53 | 1. 22 | 2.14 | 52.57 | 40.55 | 25.11 | 1.01 | . 59 | . 87 |
| Elevator operators | . 04 | . 02 | . 01 | . 02 | . 03 | . 03 | . 11 | . 09 | . 04 |
| Hairdressers and cosmetologists | . 15 | . 14 | . 13 | . 17 | . 27 | . 28 | . 04 | . 05 | . 07 |
| Housekeepers, exc private homes | . 22 | . 12 | . 07 | 1.15 | 1.04 | . 98 | . 66 | . 46 | . 30 |
| Welfare service aides | 2.93 | 9.68 | 10.42 | . 36 | 1.96 | 1.40 | . 12 | . 52 | . 32 |
| Protective service workers | . 31 | . 19 | . 08 | . 59 | . 59 | . 21 | . 40 | . 41 | . 53 |
| Firefighters | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .11 | . 10 | . 11 |
| Guards | .24 | . 15 | . 07 | - 55 | . 54 | . 19 | . 28 | . 30 | .41 |
| Police and detectives | . 07 | . 03 | . 01 | . 04 | . 04 | .01 | . 01 | . 01 | .01 |
| Laborers, except farm | 1.05 | . 81 | 1.23 | . 65 | . 90 | 1.45 | 1.67 | 1.75 | 1.78 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 04 | . 06 | - 10 | . 56 | .70 | .71 |
| Carpenter helfers | . 03 | . 02 | .03 | . 04 | . 04 | . 14 | . 10 | . 10 | .21 |
| Constr labrgexc carpenter helpr | . 03 | . 02 | . 02 | . 01 | . 01 | . 01 | . 34 | . 27 | . 13 |
| Freight and material handlers | . 54 | . 41 | - 70 | . 0.3 | . 04 | . 07 | . 20 | . 20 | . 23 |
| Garbaye collectors | . 01 | . 01 | . 02 | .00 | . 00 | .00 | - 00 | . 00 | . 00 |
| Gardenrs, groundkeepers, exc farm | . 14 | - 14 | . 22 | . 36 | . 52 | . 76 | . 21 | -25 | . 29 |
| Stock handlers | . 04 | . 03 | . 03 | . 01 | . 01 | . 02 | . 06 | . 06 | . 05 |
| Vehicle washers, equip cleaners | .01 | . 01 | . 01 | . 04 | . 05 | . 05 | . 02 | . 02 | . 01 |
| Warehouse laborers, other | . 06 | . 04 | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 | . 02 |
| Other laborers | .88 | . 13 | . 19 | . 11 | . 14 | . 28 | .16 | -14 | -14 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

$1970 \quad 1978 \quad 1990$
other
professnal.
related sry
197019781990

Engineerng, architectrl ser vices
$1970 \quad 19781990$

Total all occupations


Social scientists
Economists
Political scientists
Psychologists
Sociologists
Urban and regional planners
other social scientists

## Teachers

Adult educaticn
Preschool and kindergarten
other teachers
$100.00 \quad 100.00 \quad 100.00$

| 1. 61 | 2.01 | 1.72 |
| :---: | :---: | :---: |
| .00 | . 00 | .00 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
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| . 00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 01 | . 02 |
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| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| 1.06 | 1. 27 | 1.22 |
| . 00 | . 00 | . 01 |
| 1.05 | 1. 22 | 1.18 |
| . 01 | . 04 | . 02 |
| . 00 | - 00 | . 00 |
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| . 00 | - 00 | . 00 |
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| . 00 | . 01 | . 02 |
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| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .48 | . 58 | .33 |
| . 02 | . 05 | . 06 |
| . 06 | . 09 | . 06 |
| . 40 | . 44 | . 21 |

$100.00 \quad 100.00 \quad 100.00$

| 65.68 | 66.46 | 66.50 | 71.67 | 68.85 | 72.23 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 11.07 | 10. 10 | 10.22 | 24.46 | 22.70 | 23.36 |
| . 15 | . 15 | . 10 | . 15 | . 17 | . 17 |
| - 29 | - 30 | . 34 | . 54 | . 63 | . 84 |
| 3.83 | 3.05 | 3. 13 | 9.65 | 7.86 | 8. 10 |
| 2.01 | 1.97 | 1.65 | 3.86 | 3.88 | 3. 34 |
| . 44 | . 48 | . 50 | . 66 | . 78 | . 84 |
| 1.76 | 1.76 | 1.94 | 4.00 | 4.15 | 4.75 |
| . 06 | .06 | . 07 | . 09 | . 09 | - 10 |
| . 06 | . 06 | . 09 | . 15 | . 15 | . 24 |
| -06 | - 06 | . 08 | - 16 | . 15 | - 19 |
| . 07 | . 06 | . 06 | .17 | . 15 | . 16 |
| 2.35 | 2.15 | 2.26 | 5.03 | 4.69 | 4. 64 |
| 1.97 | 2. 15 | 2. 14 | . 42 | . 45 | - 58 |
| . 02 | . 02 | . 01 | . 00 | - 00 | . 00 |
| . 09 | . 19 | . 22 | . 00 | . 00 | . 00 |
| . 19 | . 25 | . 18 | . 00 | . 00 | . 00 |
| . 65 | . 63 | . 85 | . 15 | . 19 | - 29 |
| -40 | - 38 | . 37 | - 20 | - 19 | . 25 |
| . 09 | - 15 | . 13 | . 00 | .00 | . 00 |
| . 49 | . 50 | . 34 | . 05 | . 05 | . 03 |
| . 05 | . 04 | . 03 | . 02 | .02 | . 01 |
| .32 | . 36 | . 39 | . 07 | . 08 | . 08 |
| . 13 | . 17 | - 23 | . 00 | . 00 | . 00 |
| - 12 | - 12 | -06 | . 05 | . 06 | . 04 |
| . 06 | . 07 | - 10 | . 02 | . 02 | . 04 |
| 10.60 | 10.60 | 12.35 | 24.14 | 24. 10 | 26.40 |
| . 03 | . 03 | . 03 | - 00 | . 00 | . 00 |
| . 16 | . 16 | - 20 | . 08 | . 11 | - 16 |
| 6.53 | 6.10 | 6.48 | 16.35 | 15.62 | 16.52 |
| - 45 | . 57 | -63 | . 33 | . 49 | . 73 |
| . 01 | . 03 | . 06 | . 02 | . 04 | - 10 |
| . 00 | . 01 | . 02 | . 01 | .01 | . 04 |
| . 04 | . 05 | . 09 | . 02 | . 03 | . 05 |
| 2.61 | 2.70 | 3.10 | 6.65 | 7.00 | 7.96 |
| . 77 | - 96 | 1.76 | -68 | . 81 | - 86 |
| .24 | . 21 | .23 | . 01 | .01 | . 02 |
| -06 | . 05 | . 04 | . 00 | . 00 | . 00 |
| . 13 | . 11 | - 14 | . 01 | - 01 | . 02 |
| . 02 | . 03 | - 03 | . 00 | . 00 | . 00 |
| . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| - 19 | - 23 | - 24 | . 02 | . 04 | . 03 |
| . 06 | . 06 | - 10 | . 00 | . 00 | . 00 |
| . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 11 | . 15 | . 13 | . 02 | . 04 | .03 |
| . 26 | . 34 | . 45 | . 23 | . 32 | . 33 |
| . 02 | . 02 | . 02 | . 03 | . 04 | . 04 |
| . 01 | . 01 | .01 | . 01 | .01 | . 01 |
| .22 | . 30 | . 41 | . 19 | . 27 | . 28 |
| 1.74 | 2.29 | 2.04 | . 65 | . 93 | .77 |
| 1.06 | 1.22 | 1.05 | -41 | . 50 | . 34 |
| . 57 | . 86 | . 85 | . 17 | - 30 | .33 |
| . 12 | - 21 | . 14 | . 07 | . 13 | . 10 |
| -65 | 1. 23 | 1. 12 | . 35 | . 57 | . 41 |
| . 19 | . 29 | . 32 | . 16 | . 26 | . 27 |
| . 03 | -03 | -03 | -00 | - 00 | . 00 |
| . 30 | .71 | - 59. | . 01 | . 01 | . 00 |
| . 01 | . 03 | . 04 | . 00 | . 00 | . 00 |
| . 08 | . 12 | . 06 | . 19 | . 29 | . 14 |
| . 04 | . 05 | . 06 | . 00 | . 00 | . 00 |
| . 34 | . 28 | . 14 | . 01 | .01 | . 01 |
| . 04 | . 05 | . 03 | .01 | . 01 | . 01 |
| . 01 | . 01 | - 03 | . 00 | . 00 | . 00 |
| . 30 | . 22 | . 09 | . 00 | . 00 | . 00 |


|  | Private households |  |  | Other professnal. related srv |  |  | Engineerng, architectrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | . 05 | . 09 | . 06 | 10.43 | 13.88 | 10.36 | 4.93 | 6.03 | 4.40 |
| Actors | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | .00 | . 00 | . 00 |
| Athletes and kindred workers | . 01 | . 03 | . 01 | . 02 | . 02 | . 03 | .00 | . 00 | . 00 |
| Authors | . 00 | . 00 | . 00 | 1.55 | 2.05 | 1.53 | . 12 | . 16 | . 16 |
| Designers | .01 | . 01 | . 01 | 1.59 | 1.82 | 1.22 | 3.68 | 4.37 | 2.91 |
| Editors and reforters | .00 | . 00 | . 00 | .31 | . 28 | . 13 | . 12 | . 10 | . 02 |
| Musicians and composers | . 01 | . 01 | .01 | . 29 | . 35 | . 41 | . 00 | . 00 | . 00 |
| Painters and sculptors | . 01 | . 02 | . 01 | 4.69 | 6.90 | 5.35 | .40 | . 62 | . 69 |
| Photographers | .01 | . 01 | .01 | . 16 | . 13 | . 06 | . 11 | . 09 | . 04 |
| Public relations specialists | . 00 | . 00 | .00 | .17 | . 19 | . 18 | .15 | . 21 | -19 |
| Radio and ty announcers | . 00 | . 00 | . 00 | . 01 | . 01 | . 03 | . 00 | . 00 | -00 |
| other writers,artists, entertain | . 01 | . 01 | . 01 | 1.63 | 2.11 | 1.43 | .34 | .47 | .39 |
| Other professicnal and technical | . 02 | . 05 | . 08 | 27.88 | 24.81 | 26.83 | 16.38 | 13.62 | 15.85 |
| Accountants | . 01 | . 01 | . 01 | 19.88 | 18.19 | 19.24 | 1.10 | 1.29 | . 94 |
| Architects | .00 | . 00 | . 01 | 5.70 | 4.40 | 5.55 | 14.50 | 11.38 | 14. 19 |
| Archivists and curators | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Clergy | . 00 | . 01 | . 01 | . 10 | . 06 | . 06 | . 00 | . 00 | . 00 |
| Religious workers, except clergy | . 00 | . 01 | . 02 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 | . 02 | . 01 |
| Lawyers | . 00 | . 00 | . 00 | . 15 | . 20 | . 07 | . 04 | . 05 | . 01 |
| Librarians | . 00 | . 00 | . 00 | . 11 | . 11 | . 10 | . 08 | . 09 | . 05 |
| Operations and systems research | . 00 | . 00 | . 00 | . 19 | - 27 | . 28 | . 16 | . 26 | . 26 |
| Personnel, labor relations wkrs | . 00 | . 00 | . 00 | -28 | - 30 | . 22 | . 25 | . 30 | . 21 |
| Other research workers | . 00 | . 00 | . 01 | 1.19 | - 99 | 1.05 | . 21 | . 20 | . 17 |
| fecreation yorkers | . 00 | . 00 | . 00 | . 03 | . 05 | . 04 | .01 | . 02 | .01 |
| Social workers | . 01 | . 01 | . 01 | . 09 | - 10 | . 08 | . 00 | .00 | .00 |
| Vocation, education counselors | . 00 | .00 | . 01 | . 09 | . 09 | . 09 | .00 | .00 | .00 |
| Managers, officials, proprietors | . 02 | . 04 | . 05 | 5.27 | 5.72 | 5.46 | 6.19 | 7.34 | 6.00 |
| Buyers, sales, loan managers | . 00 | . 00 | . 01 | . 44 | . 45 | . 55 | . 53 | .61 | . 76 |
| Bank, financial managers | . 00 | . 00 | . 01 | . 14 | . 15 | . 14 | . 16 | .19 | .21 |
| Credit managers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 00 | . 01 |
| Purchasing agents, buyers, other | . 00 | -00 | . 00 | . 17 | - 18 | . 25 | . 26 | . 28 | . 39 |
| Sales manager. exc retail trade | . 00 | . 00 | . 00 | . 11 | - 12 | . 16 | .10 | . 13 | . 15 |
| Other managers,officials, proprts | . 02 | . 03 | . 04 | 4.83 | 5.27 | 4.91 | 5.66 | 6.73 | 5. 24 |
| Mgrs, superintendents, building | . 00 | . 01 | . 01 | . 01 | . 02 | . 03 | . 02 | . 02 | . 03 |
| office managers, other | . 00 | . 00 | . 01 | . 61 | . 66 | . 85 | . 70 | . 80 | . 89 |
| officers, pilots, pursers,ship | .01 | . 01 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | .01 |
| Restaurant, cafe, bar, managers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 |
| other managers, administrators | .01 | . 01 | . 01 | 4. 19 | 4.58 | 4.01 | 4.92 | 5.89 | 4.30 |
| Sales workers | . 01 | . 01 | . 02 | . 47 | . 46 | . 60 | -31 | . 38 | . 61 |
| Advertising agents, sales worker | . 00 | . 00 | . 00 | . 03 | . 03 | . 04 | .01 | . 02 | . 04 |
| other sales workers | . 01 | . 01 | . 02 | . 44 | . 42 | . 56 | .30 | . 36 | . 57 |
| Clerical workers | . 96 | .97 | 1.02 | 23.07 | 22.06 | 22.45 | 14.93 | 16.06 | 14.69 |
| Stenographrs,typists, secretaries | - 88 | . 79 | . 85 | 10.11 | 9.54 | 9.70 | 9.35 | 9.87 | 9.34 |
| Legal secretaries | . 00 | . 00 | . 00 | . 05 | . 04 | . 07 | . 01 | . 01 | . 01 |
| Medical secretaries | . 00 | . 00 | . 00 | . 04 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Other secretaries | . 82 | . 70 | . 79 | 7.91 | 7.77 | 8.20 | 8.19 | 8.83 | 8.56 |
| Stenographers | .00 | . 00 | . 01 | . 15 | . 09 | . 03 | . 16 | . 10 | . 04 |
| Typists | . 06 | .09 | . 05 | 1.96 | 1.62 | 1.36 | 1.00 | . 93 | .73 |
| office machine operators | . 00 | . 00 | . 00 | 2.67 | 3.18 | 2.54 | . 52 | .77 | . 63 |
| Bookkeeping and billing | . 00 | . 00 | . 00 | . 10 | . 05 | . 04 | . 01 | .01 | . 01 |
| Calculating | . 00 | . 00 | . 00 | . 07 | . 05 | . 04 | .01 | .01 | .01 |
| Computer and feripheral exuip | . 00 | . 00 | . 00 | . 80 | 1.80 | 1.45 | . 19 | .49 | . 46 |
| Duplicating | . 00 | . 00 | . 00 | . 09 | . 08 | . 05 | . 08 | . 06 | . 03 |
| Keypunch | . 00 | . 00 | . 00 | 1.51 | 1.14 | . 90 | .21 | . 18 | . 10 |
| Tabulating | .00 | - 00 | . 00 | . 03 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Other office machine operators | . 00 | .00 | .00 | . 06 | . 06 | . 05 | .02 | . 03 | .03 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 9990

> Private
> households
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## Crafts and kindred workers

## Construction crafts workers

 Carpenters and apprentices Brick,stonemasons, apprentices Bulldozer operatorsCement and concrete finisners
Electricians and apprentices Excavating, grading mach operatr Ploor layers, exc tile setters Painters and apprentices
Paper hangers
Plasterers and apprentices Plumbers, pipefitters, aprentices Boofers and slaters
Structural metal craft vorkers Tile setters

Blue collar worker supervisors
Metalworkg craft wrkrs,exc mech Machinists and apprentices Millurights
Pattern and moldmakers
Sheetmetal workers, apprentices
Tool and diemakers, apprentices
Mechanics, repairers, installers
air cond, heating, refrig mech Aircraft mechanics
Auto body repairers
Auto mechanics and apprentices
Data processing mach repairers
Heavy equip mech, incl diesel
Household afpliance mechanics
office machine repairers
Radio, television repairers
other mechanics and apprentices
Printing trade crafts workers
Compositors and typesetters
photoengravers, lithographers
Press,plate frinters,aprentices
Transport, public util craft uxes Elec pur line instaler, repairer Telephone installers, repairers Telephone line instalr, splicers
$1970 \quad 1978 \quad 1990$

## Engineerng, architectrl services

| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 1.46 | 1.57 | 1.64 | 2.41 | 2.50 | 2.14 | 3.54 | 3.88 | 3.40 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1.37 | 1.40 | 1.42 | . 45 | . 44 | . 41 | . 69 | . 72 | . 74 |
| 1.20 | 1.04 | 1.08 | . 09 | . 08 | . 03 | . 13 | . 13 | . 07 |
| . 02 | . 03 | . 02 | . 01 | . 01 | . 01 | . 01 | . 02 | . 03 |
| . 00 | - 00 | .00 | .01 | . 02 | . 05 | . 02 | . 04 | . 11 |
| . 00 | . 01 | . 01 | . 01 | . 01 | . 02 | . 01 | . 01 | . 04 |
| .01 | . 02 | .01 | . 14 | - 14 | . 08 | . 22 | . 23 | - 16 |
| . 00 | . 00 | .00 | . 03 | . 04 | . 07 | . 07 | . 08 | - 14 |
| .01 | . 01 | .01 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| . 11 | . 24 | . 19 | . 07 | . 08 | . 10 | . 06 | . 07 | .09 |
| .01 | .03 | . 03 | . 00 | . 00 | . 00 | - 01 | .01 | . 00 |
| .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 00 | .00 | . 00 |
| . 01 | . 02 | . 02 | . 07 | . 06 | . 02 | . 12 | . 10 | . 04 |
| . 00 | . 01 | . 02 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 | . 02 | . 02 | . 03 | . 04 | .04 | . 07 |
| .00 | . 01 | .01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| . 00 | . 01 | . 01 | -36 | . 36 | . 26 | . 52 | . 59 | .47 |
| . 00 | . 00 | . 00 | . 26 | . 27 | . 29 | . 35 | . 39 | . 50 |
| . 00 | . 00 | .00 | . 14 | . 16 | . 19 | .18 | . 22 | . 32 |
| . 00 | . 00 | -00 | . 02 | . 02 | . 02 | . 03 | . 04 | . 04 |
| . 00 | . 00 | . 00 | . 02 | . 02 | . 02 | . 03 | . 03 | .03 |
| . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 05 | . 04 | . 02 |
| .00 | . 00 | .00 | . 05 | . 04 | . 04 | . 07 | .07 | . 09 |
| . 06 | . 12 | .13 | . 56 | . 61 | . 60 | . 42 | . 47 | . 51 |
| . 00 | . 01 | .01 | . 03 | . 04 | . 03 | . 02 | . 03 | . 02 |
| . 00 | . 00 | .00 | . 02 | . 02 | .01 | . 02 | . 02 | .01 |
| . 00 | . 01 | . 01 | . 00 | . 00 | . 01 | . 01 | . 01 | . 02 |
| . 02 | . 05 | . 04 | . 04 | . 04 | . 04 | . 04 | . 04 | . 02 |
| . 00 | . 00 | . 00 | . 21 | . 24 | - 23 | . 04 | . 06 | . 11 |
| . 01 | . 01 | . 02 | -12 | - 14 | . 17 | .13 | . 17 | . 22 |
| . 01 | . 02 | .03 | .01 | . 01 | . 01 | .01 | . 01 | . 01 |
| . 00 | - 00 | .00 | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 |
| . 00 | . 01 | . 01 | -06 | . 04 | . 01 | . 10 | . 05 | . 00 |
| .01 | . 02 | .01 | . 07 | . 08 | .09 | -05 | . 07 | . 09 |
| .00 | . 00 | . 00 | . 14 | . 13 | . 07 | . 15 | . 16 | . 08 |
| . 00 | . 00 | . 00 | -06 | . 05 | . 02 | . 06 | . 06 | .03 |
| .00 | . 00 | . 00 | -01 | . 01 | .01 | . 01 | . 01 | . 02 |
| . 00 | . 00 | .00 | . 06 | . 06 | . 04 | . 08 | . 08 | . 03 |
| . 00 | . 00 | .00 | . 09 | . 09 | . 05 | .21 | . 23 | .13 |
| .00 | . 00 | .00 | . 02 | . 02 | . 01 | . 04 | . 04 | . 02 |
| . 00 | . 00 | . 00 | . 01 | -01 | . 00 | . 02 | . 02 | .01 |
| .00 | . 00 | .00 | . 06 | . 07 | . 04 | . 15 | . 17 | . 10 |


|  | Private house holds |  |  | other professnal. related sry |  |  | Engineerng, architectrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 03 | . 04 | . 08 | . 57 | . 60 | . 45 | 1.20 | 1.33 | .97 |
| Bakers | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Cabinetmakers | . 00 | . 01 | . 01 | .01 | .01 | . 02 | . 01 | .01 | . 04 |
| Carpet installers | . 00 | .01 | -01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Crane,derrick,hoist operator | . 00 | . 00 | . 00 | .03 | . 02 | . 03 | . 05 | . 05 | . 07 |
| Glaziers | . 00 | .00 | . 00 | . 01 | .01 | . 01 | . 00 | .00 | . 00 |
| Inspectors, other | . 00 | . 00 | . 00 | . 37 | . 40 | . 25 | . 89 | 1.01 | . 62 |
| Piano,organ tuners, repairers | . 01 | . 01 | . 02 | . 00 | . 00 | .00 | . 00 | .00 | . 00 |
| Stationary engineers | . 00 | . 00 | . 02 | . 12 | . 11 | .11 | . 22 | . 22 | . 24 |
| Other crafts workers | . 00 | . 01 | .01 | . 02 | .02 | . 02 | . 02 | . 02 | . 01 |
| operatives | . 38 | . 84 | . 80 | 1.31 | 1.27 | 1.08 | 2.25 | 2.32 | 1.90 |
| Operatives, except transport | . 14 | . 25 | . 24 | 1.14 | 1.13 | . 97 | 2.11 | 2.16 | 1.73 |
| Semiskilled metalworking | .00 | . 00 | . 00 | . 04 | . 03 | .03 | .00 | .00 | . 00 |
| Lathe,milling mach operatives | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | .00 | .00 | . 00 |
| Welders and flamecutters | . 00 | . 00 | .00 | . 02 | . 02 | . 01 | .00 | . 00 | . 00 |
| Semiskilled packing, inspecting | .00 | . 00 | . 01 | . 03 | . 02 | .01 | . 00 | . 00 | . 00 |
| Packer,wrapper,exc meat, prodce | . 00 | . 00 | . 01 | . 03 | . 02 | . 01 | .00 | . 00 | . 00 |
| Other operatives, exc transport | . 13 | . 25 | . 23 | 1.08 | 1.08 | . 94 | 2.11 | 2.16 | 1.73 |
| Surveyors' helpers | . 00 | . 00 | . 00 | . 59 | . 56 | .38 | 1.50 | 1.45 | . 97 |
| Clothing ironers and pressers | .07 | - 12 | . 09 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Dressmakers, exc factory | . 02 | . 04 | . 03 | . 00 | . 00 | . $00{ }^{\text { }}$ | .00 | . 00 | . 00 |
| Drillers, earth | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | .04 | .06 | . 10 |
| Filer, polisher, sander, buffer | . 00 | . 01 | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .00 |
| oilers, greasers, exc automobiles | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Photographic frocess vorkers | .00 | - 00 | . 00 | .18 | . 16 | . 10 | .27 | . 26 | . 15 |
| Sailors and deckhands | . 00 | . 00 | . 02 | .00 | .00 | . 00 | .00 | - 00 | . 00 |
| Sawyers | . 00 | . 00 | . 01 | .01 | . 00 | . 00 | . 01 | . 01 | .00 |
| Furnace tendr,stokr,exc metal | . 00 | . 00 | - 01 | . 02 | . 01 | . 01 | .01 | . 01 | . 01 |
| Miscellaneous machine operatves | . 02 | . 05 | . 03 | . 09 | . 11 | . 15 | .11 | . 16 | . 25 |
| Other operatives, exc transport | .01 | . 02 | . 01 | . 16 | . 19 | .24 | .15 | . 20 | . 26 |
| Transport equipment operatives | . 25 | - 59 | . 56 | . 17 | . 15 | - 10 | .15 | . 16 | . 16 |
| Delivery and route workers | . 00 | . 01 | . 02 | . 04 | . 03 | . 02 | . 03 | . 02 | . 02 |
| Pork lift, tow motor operatives | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | .01 | . 02 | . 04 |
| taxicab drivers, chauffeurs | . 22 | . 51 | . 46 | . 04 | . 03 | .01 | . 03 | . 03 | . 01 |
| Truck drivers | . 03 | . 07 | . 08 | . 07 | . 06 | . 06 | . 08 | . 08 | . 10 |
| Service workers | 85.28 | 85. 19 | 86.80 | 1.43 | 1. 16 | 1.34 | .71 | .77 | - 78 |
| Cleaning service workers | . 00 | . 00 | . 00 | . 64 | . 59 | . 67 | . 54 | . 60 | . 64 |
| Lodging qtrs cleaners, exc privt | .00 | . 00 | .00 | . 04 | . 02 | . 02 | .00 | .00 | . 00 |
| Bldg interior cleaners, other | . 00 | . 00 | .00 | . 13 | . 13 | . 16 | . 13 | . 15 | . 18 |
| Janitors and sextons | . 00 | . 00 | . 00 | . 47 | . 44 | .49 | . 41 | . 45 | . 46 |
| Food service workers | . 00 | . 00 | . 00 | - 13 | . 08 | . 10 | . 05 | . 04 | . 03 |
| Haiters' assistants | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | .00 | . 00 | . 00 |
| Cooks,exc private households | . 00 | . 00 | . 00 | . 04 | . 02 | . 02 | . 01 | . 01 | . 02 |
| Dishwashers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| paiters | . 00 | . 00 | . 00 | . 04 | . 02 | . 01 | . 03 | .02 | . 01 |
| Other food serv wkrs,exc privt | . 00 | . 00 | . 00 | . 03 | . 03 | .04 | .00 | .00 | . 00 |
| Health service workers | 2.44 | 1. 88 | 1.79 | .23 | . 16 | . 28 | .01 | . 02 | . 03 |
| Dental assistants | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 | .00 | .00 | . 00 |
| Health aides, except nursing | . 00 | . 00 | . 00 | .03 | . 03 | . 06 | . 01 | .01 | .03 |
| Nursing aides and orderlies | . 80 | . 62 | . 59 | .12 | . 07 | .13 | .00 | . 00 | . 00 |
| Practical nurses | 1.65 | 1. 26 | 1.20 | . 05 | . 04 | . 08 | .00 | . 00 | . 00 |
| Personal service workers | . 00 | . 00 | . 00 | . 27 | .21 | . 24 | . 02 | . 02 | . 02 |
| Attendants, recreation, amusement | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | .00 |
| attendants, fersonal serv,other | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 | .00 | .00 | . 00 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 18 | . 10 | . 15 | .00 | . 00 | . 00 |
| Housekeepers, exc private homes | .00 | . 00 | . 00 | . 02 | . 01 | . 01 | .01 | . 01 | . 02 |
| Welfare service aides | .00 | . 00 | .00 | .01 | . 05 | . 04 | . 00 | . 00 | . 00 |
| Protective service workers | . 00 | . 00 | . 00 | . 15 | . 13 | . 06 | . 10 | . 10 | . 06 |
| Guards | .00 | . 00 | . 00 | .13 | . 11 | . 05 | .10 | .10 | . 06 |
| Police and detectives | . 00 | . 00 | .00 | . 02 | .01 | .01 | .00 | . 00 | . 00 |
| Private househcld workers | 82.83 | 83.31 | 85.01 | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Child care workers | 31.28 | 34.81 | 31.94 | . 00 | . 00 | . 00 | .00 | . 00 | . 00 |
| Cooks | 2.19 | 1.58 | 2.51 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Housekeepers | 6.46 | 8.45 | 5.98 | . 00 | . 00 | . 00 | . 00 | .00 | .00 |
| baunderers | . 73 | . 50 | . 27 | . 00 | . 00 | .00 | . 00 | . 00 | . 00 |
| cleaners and servants | 42.18 | 37.97 | 44.31 | . 00 | . 00 | . 00 | .00 | . 00 | .00 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { Private } \\ \text { housebolds } \end{gathered}$ |  |  | Other professnal. related srv |  |  | Engineerng, architectrl services |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Laborers, except farm | 10.28 | 9. 37 | 7.95 | .36 | . 37 | . 44 | -40 | . 41 | . 40 |
| Animal caretakers, exc farm | . 03 | . 08 | . 07 | - 11 | - 12 | - 17 | . 00 | . 00 | . 00 |
| Carpenter helpers | . 01 | . 02 | . 02 | . 03 | . 02 | . 02 | . 06 | . 05 | . 04 |
| Constr labr,exc carpenter helpr | . 03 | . 05 | . 04 | . 06 | . 06 | . 07 | . 13 | . 14 | - 15 |
| Preight and material handlers | . 00 | . 00 | . 00 | . 02 | . 02 | . 05 | . 02 | . 03 | . 07 |
| Gardenrs, groundkeepers, exc farm | 10.14 | 9.06 | 7.63 | . 06 | . 07 | . 06 | -08 | -07 | . 06 |
| Timbercutting, logging workers | . 00 | . 00 | . 01 | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 |
| Stock handlers | . 00 | . 00 | . 00 | .01 | . 01 | . 02 | -01 | . 01 | . 04 |
| Vehicle washers,equip cleaners | . 01 | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 | . 02 | .01 |
| warehouse labcrers, other | . 00 | . 00 | . 00 | . 01 | . 01 | . 00 | . 01 | -00 | . 00 |
| Otier laborers | . 07 | . 15 | . 16 | . 05 | . 04 | . 04 | . 09 | .07 | . 04 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

| Accounting. auditing services |  |  | Misc professionl services |  |  | Government , total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |

rotal all occupations
Professional and technical
Engineers, technical
Aeronautical
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
Mining
Retroleum
Other engineers

Life and physical scientists
Agricultural
Atmospheric and space
Biological
Chemists
Geologists
Marine
Physicists and astronomers
other life, fhysical scientists
Mathematical sfecialists
actuaries
Mathematicians
Statisticians
Engineering, science technicians
Agricultural, tiolgcl,exc healta
Chemical techricians
Drafters
Electrical and electronic
Industrial engineering
Mathematical technicians
Mechanical engineering
Surveyors
other engineering, science teca
Medical workers, exc technicians Chiropractors
Dentists
Dietitians
optoinetrists
Eharmacists
Physicians and osteopatins
Registered nurses
Therapists
Veterinarians
Health technologists,technicians Clinical lab technclogists, tech Radiologic technologists, teca other health technicians

Technicians, except health airplane pilots
Air traffic controllers Flight enginecrs Radio operators
Tool programers,numerical
Other technicians except healta
Computer specialists
Computer programers
Computer systems analysts
Other computer specialists
Social scientists
Economists
Political scientists
Psychologists
Sociologists
Urban and regional planners
other social scientists

$100.00 \quad 100.00100 .00$ $57.90 \quad 57.32 \quad 58.22$ .77
.00
.00
.04
.08
.36
.02
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.00
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.27 .00
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 .10
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.70
.47
6
$67.73 \quad 74.43 \quad 69.22$
.70
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$\begin{array}{rr}.21 & .00 \\ & .16\end{array}$
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.00

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$\begin{array}{ccc}.02 & .03 & .02 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .02 & .03 & .02 \\ 3.10 & 4.34 & 3.63 \\ 1.81 & 2.22 & 1.83 \\ 1.10 & 1.77 & 1.60 \\ .19 & .35 & .20 \\ & & \\ .15 & .23 & .15 \\ .15 & .23 & .15 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00 \\ .00 & .00 & .00\end{array}$
$100.00 \quad 100.00 \quad 100.00$

$$
16.78 \quad 19.26 \quad 21.30
$$

| 16.78 | 19.26 | 21.30 |
| :---: | :---: | :---: |
| 2.53 | 2.16 | 2.44 |
| . 13 | .14 | . 23 |
| . 03 | . 03 | . 03 |
| . 68 | . 54 | . 55 |
| . 51 | . 44 | . 50 |
| . 44 | .41 | .42 |
| . 26 | .22 | . 25 |
| . 02 | . 02 | . 04 |
| .01 | . 01 | . 01 |
| .01 | .01 | . 00 |
| . 44 | .35 | .42 |
| .75 | . 85 | .96 |
| . 11 | . 14 | . 18 |
| . 09 | . 14 | . 11 |
| . 15 | . 23 | . 26 |
| . 18 | .16 | . 23 |
| . 06 | . 05 | . 06 |
| .03 | . 04 | . 05 |
| . 11 | . 09 | . 07 |
| .01 | .01 | .01 |
| . 22 | . 20 | .19 |
| . 00 | .00 | . 00 |
| . 07 | . 08 | .08 |
| .14 | . 12 | . 11 |
| 1.65 | 1.63 | 1. 84 |
| . 10 | . 10 | . 14 |
| .03 | . 03 | . 02 |
| . 38 | . 35 | . 50 |
| . 55 | . 57 | . 64 |
| . 02 | . 03 | . 04 |
| .01 | .01 | . 01 |
| . 01 | .01 | .01 |
| .21 | . 20 | . 11 |
| . 34 | .34 | .36 |
| .42 | . 49 | . 78 |
| . 00 | - 00 | . 00 |
| . 02 | . 02 | . 02 |
| . 02 | . 02 | . 04 |
| . 00 | .00 | . 00 |
| . 01 | .01 | . 05 |
| . 08 | . 09 | .21 |
| .17 | . 18 | . 22 |
| . 09 | . 13 | . 11 |
| . 03 | . 05 | . 13 |
| . 07 | . 08 | .24 |
| . 04 | .03 | . 07 |
| .00 | .01 | .00 |
| .02 | .03 | . 16 |
| 1.31 | 1.45 | 1.58 |
| . 06 | . 07 | . 14 |
| . 59 | . 54 | . 56 |
| .01 | . 00 | . 00 |
| . 41 | . 53 | . 74 |
| . 01 | . 01 | . 01 |
| . 25 | .29 | . 12 |
| . 75 | .93 | 1.21 |
| . 43 | . 49 | . 62 |
| . 29 | . 39 | . 51 |
| . 03 | . 04 | . 08 |
| . 56 | . 80 | . 89 |
| . 22 | . 30 | . 29 |
| .01 | . 02 | . 04 |
| . 05 | . 12 | . 14 |
| .01 | .02 | . 04 |
| . 15 | . 24 | . 31 |
| . 12 | . 10 | . 06 |

1.31


1970
$1978 \quad 1990$

|  | $\begin{aligned} & \text { Accounting, } \\ & \text { auditing } \\ & \text { services } \end{aligned}$ |  |  | Misc professionl services |  |  | Go vernment . total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Teachers | . 04 | . 05 | . 03 | 1.29 | . 92 | . 48 | . 30 | - 24 | . 13 |
| Adult education | .04 | . 05 | . 03 | . 08 | . 09 | . 06 | . 11 | - 11 | . 07 |
| Preschool and kindergarten | . 00 | . 00 | . 00 | . 02 | . 03 | - 10 | . 01 | .01 | . 02 |
| Other teachers | . 00 | . 00 | . 00 | 1.18 | . 80 | . 33 | .18 | . 11 | . 03 |
| Hriters,artists, entertainers | . 24 | - 28 | -19 | 33.59 | 41.29 | 32.51 | . 71 | . 86 | 1.38 |
| Actors | . 00 | . 00 | . 00 | . 04 | . 05 | . 05 | . 00 | . 00 | . 00 |
| Athletes and kindred workers | . 00 | . 00 | . 00 | . 08 | . 08 | . 10 | . 03 | . 04 | . 12 |
| Authors | . 02 | . 02 | . 02 | 5.97 | 7.12 | 5.53 | . 04 | . 06 | - 12 |
| Designers | . 07 | . 08 | . 04 | . 57 | . 49 | . 32 | . 04 | . 06 | - 12 |
| Editors and reforters | .07 | . 07 | . 05 | . 98 | . 79 | . 40 | . 17 | . 19 | . 23 |
| Musicians and compcsers | . 00 | . 00 | . 00 | 1.16 | 1.26 | 1.54 | . 01 | . 01 | . 01 |
| Painters and sculptors | . 00 | . 00 | . 00 | 18.04 | 23.93 | 19.21 | . 08 | . 09 | - 14 |
| Photographers | . 01 | . 01 | . 02 | . 44 | . 32 | . 13 | . 10 | -09 | . 14 |
| Pubiic relations specialists | . 04 | . 05 | . 05 | . 37 | - 34 | . 33 | . 15 | . 21 | - 36 |
| Fadio and ty announcers | . 00 | .00 | . 00 | . 04 | . 04 | . 09 | . 00 | . 00 | .00 |
| Other writers,artists, entertaln | . 04 | . 05 | . 02 | 5.92 | 6.88 | 4.81 | . 09 | . 11 | - 14 |
| Other professional and technical | 53.29 | 51.42 | 53.55 | 8.82 | 7.35 | 7.23 | 7.53 | 9.57 | 9.69 |
| Accountants | 52.57 | 50.55 | 52.99 | 1.48 | 1.45 | . 91 | 2.54 | 2.95 | 3.07 |
| Architects | . 08 | . 05 | . 04 | . 29 | . 23 | - 36 | . 09 | . 06 | . 13 |
| Archivists and curators | . 00 | . 00 | . 00 | . 04 | . 04 | . 06 | . 02 | . 02 | . 01 |
| cleryy | . 00 | . 00 | . 00 | . 39 | . 22 | . 23 | . 02 | . 02 | . 03 |
| Religious workers, except cleryy | . 00 | - 00 | . 00 | .10 | . 06 | . 03 | . 00 | - 00 | . 00 |
| Parm management advisors | . 00 | . 00 | . 00 | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Foresters and conservationists | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 31 | . 34 | . 40 |
| Home management advisors | .00 | .00 | .00 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 |
| Judges | . 00 | . 00 | .00 | . 00 | . 00 | . 00 | . 32 | . 37 | . 34 |
| Lawyers | . 20 | . 31 | . 16 | . 26 | . 27 | - 05 | -93 | 1.77 | 1. 81 |
| Librarians | . 04 | . 04 | . 04 | . 27 | - 22 | . 26 | - 10 | . 10 | - 10 |
| Operations and systems research | . 11 | . 16 | . 11 | . 34 | . 43 | . 53 | . 29 | . 34 | . 38 |
| Personnel, labor relations wirs | . 24 | - 26 | - 17 | . 40 | - 36 | . 30 | 1.38 | 1.54 | 1.76 |
| Other research workers | . 04 | . 04 | . 04 | 4.37 | 3.22 | 3.67 | . 32 | . 24 | . 08 |
| Hecreation workers | . 00 | . 00 | . 00 | . 11 | . 15 | . 15 | . 24 | . 44 | . 40 |
| Social workers | . 00 | . 00 | . 00 | .38 | . 36 | . 31 | . 79 | 1.19 | 1. 02 |
| Vocation, education counselors | . 00 | . 00 | . 00 | . 36 | - 32 | . 35 | . 17 | . 19 | - 15 |
| Managers, officials, proprietors | 3.95 | 4.56 | 5.13 | 5.75 | 4.95 | 5.12 | 11.08 | 10.69 | 10.63 |
| Buyers, sales lican managers | .31 | . 32 | - 27 | .47 | . 40 | . 63 | . 57 | . 49 | . 54 |
| Bank, financial managers | . 13 | . 13 | . 07 | . 14 | . 11 | . 14 | . 04 | . 04 | . 05 |
| Credit managers | . 02 | . 01 | . 01 | . 01 | . 00 | . 01 | . 00 | . 00 | . 00 |
| Purchasing agents, buyers, other | . 02 | . 02 | . 03 | . 24 | . 22 | . 33 | . 50 | . 42 | . 46 |
| sales manager, exc retail trade | . 14 | . 15 | . 16 | .09 | . 07 | - 15 | . 03 | . 03 | . 03 |
| Administrators, public inspectors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 10.19 | 9.83 | 9.58 |
| Assess, control, local pub admia | .00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 70 | . 76 | . 67 |
| Construction inspector, public | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 49 | . 40 | . 51 |
| Inspectors, exc construct, pubiic | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | 2.09 | 1.95 | 2.05 |
| ofricials, adrinistrators, public | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 6.09 | 6.12 | 5.68 |
| Postmasters,mail supervisors | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 82 | .61 | . 67 |
| Other managers, officialsproprts | 3.65 | 4. 24 | 4.86 | 5.28 | 4.56 | 4.49 | . 31 | . 37 | . 51 |
| Mgrs, superintendents, building | . 00 | - 00 | . 00 | . 03 | . 03 | . 05 | . 05 | . 07 | . 11 |
| office managers, other | . 67 | . 79 | 1.01 | .39 | - 31 | . 58 | . 24 | . 27 | -38 |
| Officers, pilots, pursers,ship | - 00 | . 00 | . 00 | . 02 | . 01 | . 02 | . 01 | . 01 | . 01 |
| Restaurant, cafe, bar, managers | . 01 | -.03 | . 01 | . 02 | . 02 | . 02 | . 01 | . 01 | . 00 |
| other managers, administrators | 2.97 | 3.44 | 3.84 | 4.83 | 4.19 | 3.82 | . 01 | . 01 | . 01 |
| Sales vorkers | . 48 | . 46 | . 34 | - 70 | . 55 | . 91 | . 10 | . 08 | . 03 |
| Advertising agents, sales worker | . 04 | . 05 | . 04 | . 04 | . 04 | . 04 | . 00 | . 00 | . 00 |
| other sales wrrkers | . 44 | . 41 | .31 | . 66 | . 51 | -87 | . 10 | . 08 | . 03 |
| Clerical workers | 36.32 | 36.21 | 35.17 | 16.44 | 12.85 | 16.78 | 39.26 | 35.46 | 33.73 |
| Stenographrs,typists, secretaries | 11.76 | 11. 59 | 10.46 | 8.90 | 6.56 | 9.22 | 9.84 | 9.33 | 10.96 |
| Legal secretaries | . 04 | . 04 | . 05 | . 13 | . 09 | -18 | . 15 | -14 | - 20 |
| Medical secretaries | . 01 | . 01 | . 02 | -14 | . 07 | . 15 | . 02 | . 01 | . 01 |
| Other secretaries | 8.32 | 8.70 | 8.37 | 6.90 | 5.18 | 7.46 | 4.55 | 4.76 | 7.03 |
| Stenographers | . 14 | . 08 | . 02 | . 16 | . 07 | . 02 | -91 | . 59 | . 40 |
| Typists | 3.25 | 2.77 | 2.01 | 1.57 | 1.15 | 1.41 | 4.21 | 3.83 | 3.33 |


|  | $\begin{aligned} & \text { Accounting, } \\ & \text { auditing } \\ & \text { services } \end{aligned}$ |  |  | Misc professionl services |  |  | Government, total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Office machine operators | 6.01 | 7.44 | 5.64 | 1.13 | 1. 23 | 1.19 | 1.41 | 1.56 | 1.35 |
| Bookkeefing and billing | . 25 | . 13 | . 09 | . 02 | -01 | . 01 | . 05 | . 03 | . 01 |
| Calculating | . 17 | - 13 | . 09 | . 01 | . 00 | -01 | . 02 | . 02 | . 01 |
| Computer and feripheral equip | 1.72 | 4. 15 | 3.14 | -41 | . 70 | . 66 | . 35 | . 74 | . 93 |
| Duplicating | . 11 | . 09 | . 05 | . 09 | . 08 | . 08 | . 04 | . 03 | . 02 |
| Keypunch | 3.58 | 2.81 | 2.17 | . 52 | - 38 | . 38 | . 82 | . 62 | . 26 |
| Tabulating | . 07 | . 02 | . 02 | . 02 | . 01 | . 00 | . 02 | -01 | . 00 |
| Other office machine operators | . 10 | . 11 | . 08 | . 07 | . 05 | . 05 | . 12 | . 12 | - 12 |
| Other clerical workers | 18.56 | 17. 17 | 19.07 | 6.41 | 5.06 | 6.37 | 28.01 | 24.57 | 21.42 |
| Billing clerks | . 11 | - 14 | - 19 | . 03 | . 03 | . 04 | . 06 | . 06 | . 08 |
| Bookkeepers | 13.78 | 12. 20 | 14.79 | 1.33 | -94 | . 94 | 1.67 | 1.72 | 1. 14 |
| Cashiers | . 03 | . 04 | . 05 | . 09 | . 07 | . 11 | . 26 | . 30 | . 31 |
| Clerical supervisors, other | .36 | -47 | - 50 | . 33 | - 35 | . 53 | 1.32 | 1.37 | -92 |
| Collectors, bill and account | . 01 | . 01 | . 02 | . 01 | . 01 | .01 | . 02 | . 02 | .01 |
| Counter clerks,exc food | . 03 | . 04 | . 03 | . 04 | . 04 | . 09 | . 06 | . 07 | - 11 |
| Dispatchers,starters, vehicle | .01 | . 02 | . 02 | . 01 | . 01 | .01 | . 12 | . 13 | . 13 |
| Enumerators and intervievers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 1.11 | . 93 | . 24 |
| Estimators, investigators, other | .37 | - 50 | . 45 | . 26 | . 26 | . 31 | 1.01 | 1.13 | 1.81 |
| Expediters, production controlrs | . 00 | . 00 | -00 | . 00 | . 00 | . 00 | .38 | . 36 | . 42 |
| Pile clerks | . 41 | - 33 | . 21 | . 24 | - 16 | - 20 | 1.12 | . 96 | - 90 |
| Insurance adjusters, examiners | .00 | . 00 | .00 | . 00 | . 00 | - 00 | . 04 | . 06 | . 06 |
| Library attendants, assistants | . 08 | . 09 | . 06 | . 24 | . 20 | . 09 | . 05 | . 07 | . 05 |
| Mail carriers, fost office | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 6.29 | 4.88 | 4.37 |
| Mail handlers,exc post office | . 14 | - 16 | . 18 | - 22 | . 18 | . 25 | . 30 | . 29 | . 26 |
| Messengers and office helpers | - 11 | - 09 | - 06 | . 06 | . 05 | . 03 | . 08 | . 08 | . 09 |
| Payroll, timekeeping clerks | . 20 | . 21 | .13 | - 10 | . 07 | . 03 | . 36 | -41 | . 46 |
| Postal clerks | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | 7. 39 | 5.18 | 3.53 |
| geal estate afpraisers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 12 | . 15 | .11 |
| Heceptionists | 1.20 | 1.17 | . 96 | . 68 | . 48 | . 74 | . 37 | . 38 | . 49 |
| Shipping and receiving clerks | . 03 | . 02 | . 02 | . 11 | - 06 | . 03 | . 18 | . 15 | . 13 |
| Statistical clerks | . 31 | . 36 | . 34 | . 55 | . 51 | . 69 | 1.12 | 1.30 | 1.33 |
| Stock clerks and store keepers | . 07 | . 07 | . 06 | -28 | . 26 | - 37 | 1.03 | . 77 | . 67 |
| Teachers aides, exc monitors | . 00 | . 00 | . 00 | . 07 | . 05 | . 04 | . 04 | .03 | . 02 |
| Telephone operators | . 11 | . 07 | . 03 | . 22 | . 09 | . 04 | . 27 | -18 | . 07 |
| Weighers | . 00 | .00 | . 00 | . 01 | . 01 | . 01 | . 03 | . 04 | . 04 |
| nisc clerical workers | 1.20 | 1. 19 | . 99 | 1.57 | 1. 24 | 1.81 | 3.24 | 3.55 | 3.71 |
| Crafts and kindred workers | . 86 | . 97 | .73 | 2.93 | 2.50 | 2.19 | 6.76 | 6.56 | 6.08 |
| Construction crafts workers | .01 | . 01 | .00 | .70 | . 57 | . 48 | 1.68 | 1.60 | 1.63 |
| Carpenters and apprentices | . 00 | . 00 | . 00 | - 15 | - 10 | . 03 | - 36 | . 37 | . 37 |
| Brick,stonemasons, apprentices | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 03 | . 02 | . 01 |
| Bulldozer oferators | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 08 | .07 | . 08 |
| Cement and concrete finishers | . 00 | . 00 | . 00 | . 01 | - 01 | . 01 | . 01 | .01 | . 02 |
| Electricians and apprentices | .01 | . 00 | . 00 | - 23 | . 18 | . 09 | . 48 | . 46 | . 44 |
| Excavating, grading mach operatr | . 00 | . 00 | . 00 | . 02 | . 03 | . 05 | . 15 | . 15 | . 24 |
| Painters and apprentices | . 00 | . 00 | . 00 | . 18 | . 17 | . 25 | . 34 | . 30 | -19 |
| Plumbers, pipefitters, aprentices | .00 | . 00 | .00 | . 09 | . 06 | . 03 | . 22 | . 21 | -27 |
| Blue collar worker supervisors | .17 | - 17 | - 10 | - 38 | - 30 | . 17 | -88 | 1.01 | . 87 |
| Hetalworkg craft wrkrs, exc mech | . 00 | . 00 | . 00 | . 50 | - 43 | . 39 | . 46 | . 39 | - 36 |
| Boilermakers | .00 | . 00 | . 00 | . 01 | . 00 | . 00 | . 01 | . 01 | . 00 |
| Job and die setters, metal | .00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Machinists and apprentices | . 00 | . 00 | . 00 | -29 | . 27 | . 27 | . 23 | . 21 | . 17 |
| Millurights | .00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 01 | . 01 | . 00 |
| Pattern and moldmakers | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 | . 02 | . 02 | . 06 |
| Sheetmetal workers, apprentices | . 00 | . 00 | . 00 | . 05 | . 04 | . 02 | .15 | . 11 | .11 |
| tool and diemakers, apprentices | . 00 | . 00 | .00 | . 08 | . 05 | . 04 | . 03 | . 02 | . 01 |
| Mechanics,repairers,installers | . 59 | . 69 | . 57 | . 74 | . 71 | . 77 | 3.09 | 2.95 | 2.58 |
| Air cond, heating, refrig mecn | . 00 | . 00 | .00 | . 07 | . 08 | . 07 | . 14 | . 19 | . 24 |
| Aircraft mechanics | . 00 | . 00 | . 00 | . 04 | . 03 | . 01 | . 77 | . 66 | . 30 |
| Auto body repairers | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | .01 | . 03 |
| Auto mechanics and apprentices | . 00 | . 00 | . 00 | . 07 | . 07 | - 12 | . 73 | . 67 | . 60 |
| Data processing mach repairers | . 50 | . 60 | . 51 | . 04 | . 04 | . 05 | . 03 | . 03 | . 06 |
| Farm implement mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Heavy eyuip mech, incl diesel | .03 | . 04 | . 03 | - 22 | - 22 | . 27 | . 56 | -67 | . 91 |
| Household appliance mechanics | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 06 | . 06 | . 04 |
| office machine repairers | .03 | . 02 | . 02 | . 01 | . 01 | - 01 | . 02 | . 02 | . 03 |
| Radio, television repairers | . 00 | . 00 | .00 | . 09 | . 07 | . 03 | . 37 | . 28 | . 14 |
| Other mechanics and apprentices | .01 | .01 | . 01 | .18 | . 18 | . 20 | . 39 | . 36 | . 24 |


|  | Accounting, auditing services |  |  | Hisc professionl seryices |  |  | Government, total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Printing trade crafts workers | . 08 | . 08 | -05 | . 20 | . 15 | . 09 | . 16 | .18 | . 24 |
| Bookbinders | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Compositors and typesetters | . 03 | . 02 | . 01 | -10 | . 06 | . 03 | . 06 | . 07 | . 13 |
| Engravers exc photoengravers | .00 | . 00 | . 00 | . 02 | . 02 | .01 | . 01 | .01 | .01 |
| Photoengravers, lithographers | . 00 | . 00 | .00 | .01 | . 01 | . 01 | . 01 | .01 | . 02 |
| press, plate frinters, aprentices | . 04 | . 05 | . 03 | . 07 | . 06 | . 04 | . 07 | . 09 | . 08 |
| Transport, public util craft wkrs | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 09 | . 08 | . 10 |
| Elec pur line instaler, repairer | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 02 | . 02 | . 02 |
| Power station operators | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | .01 | . 03 |
| Telephone installers, repairers | . 00 | .00 | . 00 | . 00 | . 00 | . 00 | . 05 | . 04 | . 04 |
| Other crafts, kindred workers | . 02 | . 02 | . 02 | -39 | . 32 | . 28 | . 41 | -35 | -29 |
| Bakers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | . 01 | .01 |
| Cabinetmakers | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 01 | . 01 | . 04 |
| crane, derrick, hoist operator | . 00 | . 00 | . 00 | . 02 | .02 | . 01 | .06 | . 05 | . 07 |
| Decorators, window dressers | . 00 | . 00 | . 00 | . 01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Dental laboratory technicians | . 00 | . 00 | . 00 | . 02 | . 01 | . 03 | . 01 | . 01 | . 01 |
| glaziers | . 00 | . 00 | . 00 | . 02 | . 02 | . 04 | . 00 | . 00 | - 00 |
| Inspectors, other | . 01 | . 01 | . 01 | -08 | . 06 | -03 | . 00 | . 00 | . 00 |
| Motion picture projectionists | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Opticians,lens grinder, polisher | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 02 | . 02 | .01 |
| Stationary engineers | . 01 | . 01 | . 01 | - 13 | - 10 | . 07 | . 22 | -18 | . 13 |
| other crafts workers | . 01 | - 00 | . 00 | . 04 | . 05 | . 04 | . 05 | .05 | . 01 |
| Operatives | .17 | . 17 | - 12 | 1.50 | 1.21 | 1.15 | 2.70 | 2.97 | 2.42 |
| Operatives, except transport | .09 | . 09 | . 08 | 1.18 | . 99 | 1.05 | 1.22 | 1.17 | .94 |
| Semiskilled metalworking | .00 | . 00 | . 00 | . 14 | - 12 | . 10 | . 21 | . 19 | . 20 |
| Lathe, milling mach operatives | . 00 | . 00 | . 00 | . 04 | . 03 | . 03 | . 02 | .01 | . 00 |
| Metal platers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -03 | .03 | . 02 |
| solderers | . 00 | . 00 | . 00 | . 01 | .01 | . 01 | . 01 | .01 | . 01 |
| Welders and flamecutters | .00 | .00 | . 00 | .07 | . 06 | . 04 | .14 | .14 | . 16 |
| Semiskilled packing, inspectiny | . 00 | . 00 | . 00 | . 11 | . 06 | .03 | . 19 | . 15 | - 16 |
| Packer,wrapper,exc meat, prodce | . 00 | . 00 | .00 | .11 | . 06 | . 03 | - 19 | . 15 | . 16 |
| Other operatives, exc transport | . 09 | . 09 | . 08 | .93 | -81 | -91 | . 83 | - 83 | - 58 |
| Asbestos, insulation workers | .00 | . 00 | . 00 | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Blasters | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Surveyors helpers | -00 | - 00 | . 00 | . 03 | . 03 | . 02 | -03 | . 03 | . 03 |
| Clothing ironers and pressers | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 | . 01 | . 01 | .00 |
| Dressmakers, exc factory | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | . 03 | . 02 | -01 |
| Garage wrkr,gas station atten | - 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 06 | . 04 | . 02 |
| Laundry, dry cleang oprs,other | . 00 | - 00 | .00 | . 02 | . 01 | . 02 | . 03 | . 02 | .01 |
| Meat cutters, tutchers, exc mfg | . 00 | - 00 | . 00 | . 00 | . 00 | . 00 | . 03 | . 03 | . 02 |
| oilers, greasers,exc automobiles | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 02 | . 02 | .02 |
| Painters, mfg articles | . 00 | . 00 | . 00 | .01 | . 01 | . 01 | . 00 | . 00 | . 01 |
| Photographic frocess workers | . 05 | . 04 | . 02 | . 24 | - 18 | -11 | . 06 | . 06 | . 07 |
| Sailors and deckhands | - 00 | . 00 | . 00 | . 01 | . 01 | . 01 | -01 | . 01 | - 01 |
| Sewers and stitchers | . 00 | . 00 | . 00 | .01 | . 01 | .01 | .01 | . 01 | . 01 |
| Furnace tendr, stokr, exc metal | .00 | - 00 | . 00 | . 06 | . 03 | .01 | -12 | . 13 | .05 |
| Miscellaneous machine operatves | . 00 | . 00 | . 00 | .17 | . 17 | . 22 | . 14 | . 15 | . 05 |
| Other operatives, exc transport | . 04 | . 05 | .06 | . 35 | . 34 | . 44 | -26 | .29 | . 25 |
| Transport equipment operatives | . 09 | . 08 | . 04 | . 32 | . 22 | . 10 | 1.48 | 1.80 | 1.49 |
| Bus drivers | . 00 | . 00 | . 00 | .03 | . 03 | .01 | . 05 | . 08 | .01 |
| Delivery and route workers | . 04 | . 04 | . 03 | . 07 | . 03 | . 02 | . 03 | . 02 | . 00 |
| Fork lift,tow motor operatives | -00 | . 00 | . 00 | . 01 | - 02 | . 02 | -15 | . 18 | . 18 |
| Parking attendants | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 02 | . 02 | .00 |
| raxicab drivers, chauffeurs | . 02 | . 02 | . 01 | . 08 | . 05 | .01 | . 16 | . 16 | . 09 |
| Truck drivers | . 02 | .02 | . 01 | . 13 | .09 | . 06 | 1.06 | 1.33 | 1.18 |
| Service workers | . 29 | . 29 | . 24 | 4.15 | 2.77 | 3.62 | 20.10 | 21.32 | 23.01 |
| Cleaning service workers | -21 | - 21 | - 16 | 1.42 | 1.03 | 1.37 | 2.41 | 2.44 | 2.25 |
| Lodging quts cleaners, exc privt | .00 | . 00 | . 00 | . 16 | . 05 | . 06 | . 03 | . 02 | . 02 |
| bldg interior cleaners, other | . 07 | - 07 | . 06 | . 23 | - 19 | . 25 | . 32 | . 35 | $\begin{array}{r}.43 \\ \hline 181\end{array}$ |
| Janitors and sextons | - 15 | . 14 | .11 | 1.03 | . 79 | 1.06 | 2.05 | 2.08 | 1.81 |


|  | Accounting. auditing services |  |  | Hisc professionl services |  |  | Government, total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Food service workers | . 04 | .03 | . 04 | . 41 | . 21 | . 30 | . 45 | - 35 | - 32 |
| Waiters' assistants | . 00 | -00 | . 00 | . 02 | - 02 | . 06 | .01 | . 01 | . 02 |
| Cooks, exc private households | . 01 | . 01 | . 01 | . 12 | . 05 | . 03 | . 23 | -19 | - 15 |
| Dishwashers | . 00 | .00 | . 00 | . 04 | . 02 | . 04 | . 02 | . 01 | . 01 |
| rood counter, fountain workers | . 00 | . 00 | . 00 | .01 | . 01 | . 03 | . 03 | . 03 | . 04 |
| Waiters | . 01 | . 01 | . 01 | . 10 | . 03 | . 01 | . 07 | . 05 | . 05 |
| other food serv whis, exc privt | .01 | . 01 | . 02 | . 12 | . 08 | . 14 | .09 | . 06 | .03 |
| Health service workers | . 02 | . 02 | . 02 | . 88 | . 54 | . 97 | . 17 | .16 | - 28 |
| Dental assistants | . 00 | . 00 | . 00 | .13 | . 07 | . 05 | . 01 | . 01 | . 01 |
| Health aides, except nursing | . 00 | - 00 | . 00 | . 12 | - 10 | . 16 | . 03 | .03 | . 03 |
| Nursing aides and orderlies | . 01 | . 01 | . 01 | .44 | . 24 | . 47 | . 09 | .09 | - 21 |
| Practical nurses | . 01 | . 01 | . 01 | - 20 | . 13 | . 28 | . 04 | . 04 | . 03 |
| Personal service workers | .01 | . 01 | . 00 | 1.03 | . 71 | . 87 | .57 | . 69 | . 87 |
| attendants, recreation, amusement | . 00 | . 00 | . 00 | . 06 | . 04 | . 04 | . 11 | . 11 | . 46 |
| Attendants, personal serv, other | . 00 | . 00 | . 00 | . 14 | . 11 | . 12 | . 06 | -05 | -09 |
| Barbers | . 00 | . 00 | . 00 | . 00 | - 00 | - 00 | . 03 | . 01 | . 02 |
| Child care workers, exc private | . 00 | . 00 | . 00 | . 70 | . 36 | . 56 | . 19 | . 14 | . 14 |
| Elevator operators | . 00 | . 00 | . 00 | . 01 | . 01 | .01 | . 07 | . 07 | . 05 |
| Hairdressers and cosmetologists | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 01 | . 01 |
| housekeepers, exc private homes | . 01 | . 00 | . 00 | . 08 | . 03 | . 02 | . 05 | . 04 | . 05 |
| Welfare service aides | . 00 | .00 | . 00 | . 05 | .17 | .13 | . 06 | . 27 | . 06 |
| Protective service workers | . 02 | . 02 | . 02 | . 41 | . 29 | . 12 | 16.50 | 17.69 | 19.29 |
| Crossing guards, bridgetenders | . 00 | . 00 | . 00 | . 00 | . 00 | - 00 | .86 | . 78 | . 71 |
| Firefighters | . 00 | . 00 | . 00 | .03 | . 02 | . 02 | 4.10 | 4.25 | 4.42 |
| Guards | . 01 | . 01 | . 01 | . 34 | . 23 | . 10 | 1.99 | 2.45 | 3. 35 |
| Marshals and constables | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 14 | -16 | -17 |
| Police and detectives | . 01 | .01 | . 01 | . 05 | . 03 | .01 | 8.48 | 8.85 | 9.39 |
| Sheriffs and tailiffs | . 00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 94 | 1.20 | 1.26 |
| Laborers, except farm | . 02 | . 03 | . 04 | . 80 | . 75 | 1.02 | 3.22 | 3.66 | 2.79 |
| Animal caretakers, exc farm | . 00 | . 00 | . 00 | . 44 | . 44 | . 64 | . 12 | . 16 | . 17 |
| Carpenter helfers | . 00 | . 00 | . 00 | . 01 | .01 | . 02 | . 02 | . 02 | . 04 |
| Constr labr, exc carpenter helpr | . 00 | . 00 | . 00 | . 04 | . 04 | . 04 | - 18 | . 18 | . 15 |
| Freight and material handlers | . 01 | . 01 | . 02 | . 02 | . 03 | . 05 | . 78 | . 99 | . 57 |
| Gardenrs, groundkeepers, exc farm | . 01 | . 01 | . 01 | - 13 | - 13 | . 14 | 1.38 | 1.64 | 1.41 |
| Longshore workers, stevedores | -00 | . 00 | . 00 | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Stock handlers | . 01 | .01 | . 01 | -03 | . 02 | . 02 | . 07 | . 06 | . 01 |
| Vehicle uashers,equip cleaners | . 00 | . 00 | -00 | . 02 | . 02 | . 03 | . 04 | . 04 | . 01 |
| Warehouse laborers, other | . 00 | . 00 | . 00 | . 03 | . 03 | . 01 | . 40 | . 36 | .17 |
| Other laborers | .00 | . 00 | . 00 | . 08 | . 05 | . 09 | -22 | . 20 | . 23 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990
Federal
public
administrtn
$1970 \quad 1978 \quad 1990$

|  | Postal |  |
| :---: | :---: | :---: |
| services |  |  |
| 1970 | 1978 | 199 |

Federal pub
admin, exc
post office
$1970 \quad 1978 \quad 1990$

Total all occupations

$100.00 \quad 100.00 \quad 100.00$

| 19.32 | 22.08 | 26.75 |
| :---: | :---: | :---: |
| 3.68 | 3. 54 | 4.55 |
| . 25 | . 30 | - 57 |
| . 05 | . 05 | . 07 |
| . 56 | -41 | . 47 |
| . 89 | . 88 | 1.10 |
| . 73 | - 79 | -94 |
| . 45 | -43 | .57 |
| . 03 | . 04 | - 10 |
| . 02 | . 02 | . 01 |
| . 01 | .01 | . 01 |
| . 68 | . 61 | . 73 |
| 1.11 | 1.40 | 1.59 |
| . 14 | - 19 | . 31 |
| .17 | . 30 | . 26 |
| . 16 | . 27 | . 34 |
| . 28 | . 27 | . 28 |
| . 08 | . 07 | .11 |
| . 06 | . 08 | - 10 |
| . 21 | . 20 | .17 |
| .01 | .01 | . 02 |
| . 34 | . 36 | -41 |
| . 13 | . 17 | - 20 |
| . 21 | . 20 | .21 |
| 2.14 | 2.36 | 3.16 |
| . 14 | . 17 | . 23 |
| . 03 | . 03 | . 02 |
| . 34 | - 31 | -45 |
| . 99 | 1. 18 | 1.56 |
| . 04 | . 06 | .09 |
| . 01 | . 01 | . 01 |
| . 01 | . 02 | . 02 |
| . 12 | . 11 | -11 |
| . 44 | . 48 | . 68 |
| . 40 | . 46 | . 92 |
| . 02 | . 01 | . 01 |
| . 02 | . 01 | . 05 |
| . 01 | .01 | . 07 |
| .10 | . 12 | -25 |
| . 17 | . 18 | -23 |
| . 03 | . 05 | . 04 |
| . 04 | . 08 | . 28 |
| . 09 | - 10 | . 06 |
| . 04 | . 04 | . 03 |
| .01 | . 01 | .01 |
| -01 | - 01 | . 00 |
| . 01 | -01 | . 01 |
| . 03 | . 04 | . 01 |
| 1.59 | 1.76 | 1.74 |
| . 07 | . 09 | . 22 |
| 1.11 | 1.20 | 1.39 |
| . 01 | . 00 | . 00 |
| . 05 | . 05 | . 04 |
| . 01 | . 01 | . 01 |
| . 35 | . 42 | . 07 |
| 1.03 | 1.34 | 1.63 |
| . 57 | .67 | . 81 |
| . 42 | . 61 | . 65 |
| . 04 | . 05 | . 17 |
| . 64 | . 85 | . 83 |
| . 34 | . 50 | . 50 |
| . 01 | . 03 | . 08 |
| . 05 | . 11 | . 09 |
| . 01 | . 01 | . 01 |
| . 02 | . 02 | . 09 |
| . 22 | . 18 | . 06 |

$100.00 \quad 100.00 \quad 100.00$

| .91 | 1.61 | 2.03 |
| :---: | :---: | :---: |
| . 12 | . 16 | .16 |
| .00 | .00 | .00 |
| .00 | .00 | .00 |
| . 01 | . 01 | .01 |
| . 02 | . 03 | .04 |
| . 05 | . 06 | . 03 |
| . 02 | .03 | . 04 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | . 03 | .04 |
| .00 | .00 | .00 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| .00 | . 00 | .00 |
| .00 | .00 | .00 |
| . 05 | . 08 | - 10 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | .00 |
| . 02 | . 03 | . 05 |
| . 02 | . 03 | . 01 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | .00 |
| . 00 | .00 | . 00 |
| . 01 | .02 | . 04 |
| . 05 | .09 | . 19 |
| . 00 | . 00 | . 00 |
| .00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 01 | . 02 | . 02 |
| . 04 | . 08 | . 17 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| .00 | . 00 | .00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .00 | . 00 |
| . 02 | . 03 | . 04 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | . 00 | . 00 |
| . 02 | .03 | . 04 |
| . 04 | . 09 | - 13 |
| . 02 | . 04 | . 07 |
| . 02 | . 05 | .07 |
| . 00 | .00 | . 00 |
| .01 | . 03 | . 03 |
| . 01 | . 02 | .01 |
| .00 | .00 | . 00 |
| . 00 | .00 | .00 |
| . 00 | .00 | . 00 |
| . 00 | . 00 | . 00 |
| . 00 | .01 | . 02 |

$100.00 \quad 100.00 \quad 100.00$

| 27.79 | 30.83 | 36.23 |
| :---: | :---: | :---: |
| 5.31 | 4.98 | 6.23 |
| . 36 | .43 | . 78 |
| . 08 | . 08 | . 10 |
| . 81 | - 58 | . 64 |
| 1.29 | 1.24 | 1.50 |
| 1.05 | 1.09 | 1.29 |
| . 65 | .61 | . 77 |
| . 05 | . 06 | . 13 |
| .03 | . 02 | .01 |
| . 02 | .01 | . 01 |
| . 99 | . 86 | 1.00 |
| 1.62 | 2.00 | 2.19 |
| . 21 | . 27 | . 42 |
| . 25 | . 43 | . 36 |
| . 24 | . 39 | . 47 |
| . 40 | . 38 | . 38 |
| . 12 | .10 | . 16 |
| .09 | . 12 | . 14 |
| .31 | -29 | - 24 |
| . 02 | . 02 | . 02 |
| . 50 | . 52 | . 57 |
| . 19 | . 24 | . 28 |
| . 30 | .28 | . 30 |
| 3.10 | 3.34 | 4.34 |
| .21 | . 24 | . 32 |
| . 05 | . 04 | . 03 |
| . 49 | . 43 | . 60 |
| 1.44 | 1.68 | 2.15 |
| . 06 | . 08 | . 12 |
| . 02 | . 02 | . 01 |
| . 02 | . 02 | . 03 |
| . 17 | . 15 | . 15 |
| .64 | . 68 | . 93 |
| . 55 | . 61 | 1. 20 |
| . 03 | . 02 | . 01 |
| . 03 | . 02 | . 07 |
| . 02 | . 02 | . 10 |
| - 14 | . 16 | . 34 |
| . 23 | . 22 | . 26 |
| . 05 | .07 | . 05 |
| . 06 | .11 | . 39 |
| . 13 | . 14 | . 08 |
| . 06 | . 06 | . 04 |
| . 01 | . 01 | . 01 |
| . 01 | .01 | . 00 |
| .01 | . 01 | . 01 |
| . 05 | . 06 | . 02 |
| 2.31 | 2.50 | 2.40 |
| . 10 | . 13 | . 31 |
| 1.61 | 1.71 | 1.93 |
| . 01 | .01 | . 01 |
| .07 | . 07 | . 06 |
| .01 | . 01 | . 01 |
| . 51 | . 59 | . 09 |
| 1.48 | 1.87 | 2. 20 |
| . 82 | . 94 | 1. 10 |
| . 61 | . 86 | . 87 |
| . 06 | . 07 | .23 |
| .93 | 1.21 | 1. 14 |
| . 48 | . 71 | . 68 |
| . 02 | . 04 | . 11 |
| . 07 | . 16 | - 13 |
| . 01 | .02 | . 02 |
| . 03 | . 03 | . 12 |
| . 32 | . 25 | . 08 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | Pederal public administrtn |  |  | $\begin{aligned} & \text { Postal } \\ & \text { services } \end{aligned}$ |  |  | Federal pub admin, exc post office |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Teachers | . 28 | . 26 | . 19 | . 03 | . 03 | . 02 | . 40 | . 35 | . 26 |
| Adult education | . 13 | . 16 | .14 | . 01 | . 02 | .01 | -19 | . 22 | . 18 |
| Preschool and kindergarten | . 01 | . 01 | . 02 | - 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Other teachers | . 14 | .09 | . 04 | - 02 | . 02 | .01 | .19 | . 11 | . 05 |
| Writers,artists, entertainers | . 89 | 1. 14 | 1.98 | . 03 | . 05 | .06 | 1.29 | 1.60 | 2.71 |
| Authors | . 08 | - 12 | . 30 | . 00 | . 00 | . 00 | . 11 | - 17 | . 42 |
| Designers | . 05 | . 07 | . 15 | . 00 | . 00 | . 00 | -07 | . 10 | . 20 |
| Editors and reforters | . 28 | . 33 | . 51 | . 00 | . 00 | . 00 | -41 | . 48 | .71 |
| Musicians and composers | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Painters and sculptors | . 11 | . 15 | . 15 | . 01 | . 01 | . 01 | .16 | . 20 | .21 |
| Photographers | . 12 | . 12 | . 14 | . 00 | .00 | . 00 | . 18 | . 16 | -19 |
| Public relaticns specialists | - 12 | - 16 | . 45 | . 02 | . 04 | . 05 | - 16 | . 21 | . 60 |
| Hadio and ty announcers | . 01 | . 01 | . 01 | - 00 | . 00 | . 00 | .01 | .01 | . 02 |
| Other writers,artists, entertain | . 12 | . 17 | . 27 | . 00 | . 00 | . 00 | -18 | .24 | . 37 |
| Other professional and technical | 7.14 | 8.52 | 9.69 | . 57 | 1. 04 | 1.29 | 10.17 | 11.71 | 12.92 |
| accountants | 3.00 | 3. 50 | 4.06 | . 25 | . 48 | . 68 | 4. 26 | 4.79 | 5.36 |
| Architects | . 09 | . 07 | . 08 | . 01 | . 01 | . 02 | .13 | . 10 | . 11 |
| Archivists and curators | .03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 04 | . 03 | .01 |
| clergj | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Farm management advisors | . 01 | -01 | -02 | . 00 | - 00 | . 00 | .01 | .01 | . 02 |
| Foresters and conservationists | . 37 | . 42 | . 73 | . 00 | . 00 | . 00 | . 53 | . 60 | 1.02 |
| Home management advisors | . 01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | .01 | . 01 |
| Judges | . 04 | . 04 | . 21 | . 00 | . 00 | . 00 | . 06 | . 06 | . 29 |
| Lawyers | . 83 | 1.36 | 1.36 | . 01 | . 02 | . 02 | 1.20 | 1.93 | 1.88 |
| Librarians | . 12 | - 12 | . 17 | . 00 | . 00 | . 00 | . 17 | . 17 | . 24 |
| Operations and systems researca | . 48 | . 63 | . 64 | . 03 | . 06 | . 06 | . 69 | . 87 | . 87 |
| Personnel, labcr relations wkrs | 1.25 | 1. 34 | 1.66 | .27 | . 46 | . 52 | 1.70 | 1.72 | 2.09 |
| Other research workers | . 45 | . 35 | -15 | . 00 | . 00 | -00 | . 65 | .51 | . 21 |
| Hecreation workers | . 05 | . 10 | .15 | . 00 | . 00 | . 00 | . 07 | - 14 | . 21 |
| Social workers | .33 | . 44 | . 23 | . 00 | - 00 | . 00 | . 48 | . 62 | . 32 |
| Vocation, education counselors | . 10 | . 11 | . 21 | -00 | . 00 | . 00 | .15 | . 16 | . 29 |
| Managers, officials, prcprietors | 10.53 | 10. 19 | 11.59 | 5.67 | 5.62 | 7.60 | 12.76 | 12.14 | 13.12 |
| Buyers, sales, loan managers | . 79 | . 74 | . 94 | .03 | .04 | . 04 | 1.14 | 1.03 | 1.29 |
| Bank, financial managers | . 06 | . 07 | . 12 | . 00 | . 00 | . 00 | . 09 | . 10 | . 16 |
| Purchasing agents,buyers, other | . 69 | . 62 | . 79 | . 03 | . 04 | . 04 | . 99 | . 87 | 1.07 |
| sales manager, exc retail trade | . 05 | . 05 | . 04 | . 00 | . 00 | . 00 | . 07 | .07 | . 06 |
| Administrators public inspectors | 9.47 | 9. 12 | 10.05 | 5.61 | 5.53 | 7.50 | 11.24 | 10.65 | 11.03 |
| Construction inspector, public | . 11 | . 08 | . 12 | . 00 | . 00 | . 00 | . 17 | . 12 | . 17 |
| Inspectors, exc construct, public | 2.31 | 2. 16 | 3.41 | . 18 | . 24 | . 68 | 3.30 | 2.98 | 4.45 |
| officials,administrators, gublic | 5.49 | 5. 54 | 4.84 | -52 | . 82 | . 77 | 7.78 | 7.56 | 6.40 |
| Postmasters,mail supervisors | 1.55 | 1. 34 | 1.68 | 4.91 | 4.47 | 6.05 | . 00 | . 00 | . 00 |
| Other managers, officials, proprts | . 27 | . 33 | .60 | . 03 | . 05 | . 06 | - 38 | . 45 | . 80 |
| Mgrs, superintendents, building | . 06 | . 09 | . 18 | . 01 | . 02 | . 02 | . 08 | - 12 | . 24 |
| office managers, other | . 19 | - 23 | -41 | . 02 | . 03 | . 05 | .27 | .31 | . 54 |
| officers, pilots,pursers,ship | . 01 | . 01 | -01 | . 00 | . 00 | . 00 | . 02 | . 02 | - 01 |
| Restaurant, cafe, bar, managers | .01 | . 01 | .01 | . 00 | . 00 | .00 | . 01 | .01 | .01 |
| Sales vorkers | $.12$ | $.11$ | . 04 | $.01$ | . 01 | . 02 | . 17 | . 15 | . 04 |
| Other sales workers | . 12 | . 11 | . 04 | . 01 | .01 | . 02 | .17 | . 15 | . 04 |
| Clerical workers | 51.54 | 47.85 | 42.87 | 84.54 | 78.55 | 75.34 | 36.37 | 34.73 | 30.41 |
| Stenographrs, typists, secretaries | 9.19 | 8.37 | 9.72 | . 64 | . 86 | . 94 | 13.12 | 11.58 | 13.08 |
| Legal secretaries | . 06 | . 06 | . 14 | .00 | . 00 | .00 | . 09 | . 09 | . 19 |
| Medical secretaries | . 02 | . 01 | . 02 | . 00 | - 00 | . 00 | . 03 | . 02 | . 03 |
| Other secretaries | 4.76 | 4.80 | 6.09 | . 25 | - 37 | . 44 | 6.84 | 6.69 | 8.26 |
| Stenographers | . 69 | . 34 | . 08 | .11 | . 13 | . 12 | . 96 | . 43 | . 06 |
| Typists | 3.66 | 3. 16 | 3.38 | -28 | - 36 | - 38 | 5.21 | 4.35 | 4.53 |
| Office machine operators | 1.36 | 1. 70 | 1.82 | . 06 | . 15 | . 17 | 1.95 | 2.36 |  |
| computer and feripheral equip | . 42 | . 91 | 1.26 | . 03 | . 11 | .13 | . 60 | 1.25 | 1.69 |
| Duplicating | . 03 | . 02 | . 03 | . 00 | . 00 | . 00 | . 04 | . 03 | . 04 |
| Keypunch | . 83 | . 69 | . 35 | . 03 | . 04 | . 04 | 1.20 | .97 | .47 |
| Tabulating | . 01 | . 00 | . 00 | . 00 | . 00 | . 00 | .01 | . 00 | . 00 |
| Other office machine operators | . 07 | . 08 | .18 | . 00 | . 00 | .00 | .11 | .11 | . 25 |


|  | Federal public administrtn |  |  | Postal services |  |  | Federal pub admin,exc post office |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other clerical workers | 41.00 | 37.78 | 31.34 | 83.83 | 77.54 | 74.23 | 21.30 | 20.80 | 14.89 |
| Billing clerks | . 03 | . 02 | -01 | . 00 | - 00 | . 00 | . 04 | . 03 | . 01 |
| Bookkeepers | 1.38 | 1.41 | - 21 | . 36 | . 60 | . 38 | 1.85 | 1.76 | . 14 |
| Cashiers | . 16 | . 18 | .23 | . 02 | . 04 | . 07 | -23 | . 24 | . 30 |
| Clerical supervisors, other | 1.92 | 2. 18 | 1.17 | . 10 | . 16 | . 14 | 2.75 | 3.04 | 1.57 |
| Counter clerks, exc food | . 06 | . 08 | - 17 | . 00 | . 00 | . 00 | . 09 | . 11 | . 23 |
| Dispatchers, starters, vehicle | . 11 | - 13 | - 11 | - 20 | - 29 | . 30 | . 06 | . 06 | . 04 |
| Enumerators and interviewers | 1.97 | 1.90 | . 36 | . 00 | . 00 | . 00 | 2.88 | 2.71 | - 50 |
| Estimators, investigat ors, other | 1.09 | 1. 28 | 2.58 | - 18 | - 30 | . 24 | 1.51 | 1.70 | 3.48 |
| Expediters, prcduction controirs | . 62 | . 67 | -92 | . 15 | . 21 | - 20 | . 83 | . 87 | 1.20 |
| Pile clerks | 1.26 | 1.09 | . 79 | - 21 | . 26 | . 40 | 1.75 | 1.44 | . 94 |
| Insurance adjusters, examiners | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | .03 | .01 |
| Library attendants, assistants | . 05 | . 06 | . 05 | . 00 | - 00 | .00 | . 07 | . 08 | . 07 |
| Mail carriers, fost office | 11.84 | 10.78 | 10.90 | 37.58 | 36.03 | 39.32 | . 00 | . 00 | . 00 |
| Mail handlers, exc post office | .36 | . 36 | . 26 | . 02 | . 02 | . 02 | . 52 | . 50 | . 35 |
| Messengers and office helpers | .07 | . 06 | . 02 | . 02 | . 03 | . 05 | . 10 | . 06 | . 01 |
| Payroll,timekeeping clerks | . 43 | . 49 | . 42 | . 36 | . 59 | . 64 | -47 | . 45 | . 33 |
| Postal clerks | 13.91 | 11.45 | 8.80 | 44. 16 | 38.24 | 31.76 | - 00 | - 00 | . 00 |
| Real estate appraisers | . 05 | . 07 | . 09 | . 00 | . 00 | - 00 | . 07 | - 10 | . 13 |
| receptionists | . 17 | -18 | - 26 | . 00 | . 00 | . 00 | . 25 | . 25 | . 35 |
| Shipping and receiving clerks | . 29 | . 27 | . 16 | . 00 | . 00 | . 00 | . 42 | . 39 | . 22 |
| Statistical clerks | . 85 | . 97 | 1.05 | - 19 | . 32 | . 15 | 1.16 | 1.25 | 1.40 |
| Stock clerks and store keepers | 1.67 | 1.43 | 1.43 | . 11 | . 13 | . 09 | 2.38 | 1.99 | 1.94 |
| reachers aides, exc monitors | . 03 | . 02 | . 00 | . 00 | . 00 | . 00 | . 04 | .03 | . 00 |
| Telephone operators | . 21 | . 11 | . 05 | . 03 | . 03 | . 03 | -29 | . 15 | . 05 |
| Weighers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Misc clerical vorkers | 2.47 | 2.57 | 1.28 | .17 | . 29 | . 44 | 3.53 | 3.55 | 1.61 |
| Crafts and kindred vorkers | 8.46 | 8.56 | 7.24 | 1.38 | 2.09 | 3.41 | 11.72 | 11.32 | 8.71 |
| Construction crafts workers | 1.77 | 1. 59 | 1.25 | . 09 | - 12 | . 10 | 2.53 | 2. 22 | 1.69 |
| Carpenters and apprentices | . 39 | . 35 | . 21 | . 02 | . 03 | . 02 | . 57 | . 49 | . 28 |
| Brick.stonemasons, apprentices | . 02 | - 02 | . 02 | . 00 | - 00 | . 00 | . 03 | . 03 | . 03 |
| Bulldozer operators | . 04 | . 03 | . 08 | . 00 | . 00 | . 00 | . 06 | . 05 | - 11 |
| cement and concrete finishers | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| slectricians and apprentices | . 62 | . 55 | . 37 | . 04 | . 06 | . 05 | . 89 | . 76 | . 50 |
| Excavating.grading mach operatr | . 08 | . 07 | . 10 | . 00 | - 00 | . 00 | . 12 | - 11 | . 14 |
| painters and apprentices | . 32 | -29 | -16 | . 02 | . 02 | . 02 | . 46 | . 41 | - 22 |
| plumbers, pipefitters, aprentices | . 28 | - 27 | . 29 | . 01 | . 01 | . 01 | -41 | . 38 | . 40 |
| Blue collar vorker supervisors | 1.00 | 1. 15 | . 65 | -49 | - 74 | . 69 | 1.23 | 1.32 | . 63 |
| Metaluorkg craft wrkrs,exc mecn | . 78 | . 73 | . 68 | . 00 | . 00 | .00 | 1.14 | 1.04 | . 94 |
| Boilermakers | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Machinists and apprentices | . 38 | - 38 | -27 | . 00 | - 00 | . 00 | - 55 | - 54 | . 38 |
| Millwrights | . 02 | . 02 | . 01 | - 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| pattern and moldmakers | . 04 | . 05 | . 15 | . 00 | . 00 | .00 | . 06 | . 07 | . 21 |
| Sheetmetal workers, apprentices | .27 | . 23 | . 23 | . 00 | . 00 | . 00 | . 40 | . 32 | . 32 |
| Tool and diemakers, apprentices | . 05 | . 05 | . 02 | . 00 | - 00 | . 00 | . 08 | . 07 | . 03 |
| Mechanics, repairers, installers | 4.14 | 4.32 | 3.83 | . 76 | 1. 17 | 2.55 | 5.69 | 5.67 | 4. 32 |
| Air cond, heating, refrig mech | . 22 | . 31 | . 39 | . 02 | . 04 | . 03 | . 31 | . 43 | . 53 |
| Aircraft mechanics | 1.38 | 1.35 | . 67 | . 00 | . 00 | . 00 | 2.02 | 1.92 | .93 |
| Auto body repairers | . 02 | . 02 | . 02 | . 01 | . 01 | . 02 | . 02 | . 02 | . 03 |
| Auto mechanics and apprentices | - 58 | . 57 | -60 | . 40 | . 52 | . 81 | -66 | - 59 | . 52 |
| Data processing mach repairers | . 05 | . 07 | . 15 | - 00 | . 00 | . 00 | . 07 | . 10 | . 21 |
| Heavy equip mech, incl diesel | . 69 | .87 | 1.19 | - 27 | . 51 | 1.63 | . 88 | 1.02 | 1.01 |
| Household appliance mechanics | . 02 | . 02 | . 02 | -00 | . 00 | . 00 | . 03 | . 03 | .03 |
| office machine repairers | . 02 | . 02 | . 04 | . 01 | . 01 | . 01 | . 03 | . 02 | . 05 |
| Radio, television repairers | -60 | -51 | -22. | . 00 | . 00 | . 00 | -88 | . 73 | . 31 |
| Railroad, car shop repairers | . 01 | -01 | . 01 | . 00 | . 00 | - 00 | . 02 | . 02 | . 01 |
| other mechanics and apprentices | . 55 | . 58 | .51 | . 05 | . 07 | . 05 | . 79 | . 80 | . 68 |
| Printing trade crafts workers | . 21 | . 24 | . 32 | . 01 | . 02 | . 02 | . 30 | . 34 | . 44 |
| Bookbinders | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Compositors and typesetters | .07 | . 09 | . 20 | . 00 | . 00 | . 00 | . 10 | . 12 | . 28 |
| Engravers exc photoengravers | . 01 | . 01 | . 02 | . 00 | - 00 | - 00 | -02 | . 02 | . 02 |
| Photoengravers, lithographers | .02 | . 02 | . 06 | . 00 | . 00 | . 00 | . 03 | . 02 | . 08 |
| press, plate printers, aprentices | . 10 | - 12 | . 03 | . 01 | . 02 | . 02 | . 14 | . 16 | . 04 |
| Transport, public util craft wkrs | . 13 | . 13 | -22 | . 00 | . 00 | . 00 | . 18 | . 18 | - 30 |
| Elec pur line instaler, repairer | .03 | . 02 | . 06 | . 00 | . 00 | . 00 | . 04 | . 03 | . 08 |
| Locomotive engineers | . 01 | . 02 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Power station operators | . 01 | . 01 | . 06 | . 00 | . 00 | . 00 | . 01 | . 01 | -08 |
| Telephone installers,repairers | . 07 | . 08 | . 09 | . 00 | . 00 | . 00 | .11 | . 11 | . 12 |
| Telephone line instalc,splicers | . 01 | . 01 | .00 | . 00 | . 00 | .00 | . 01 | .01 | . 01 |


|  | Pederal public administrtn |  |  | Postal services |  |  | Federal pub admin, exc post office |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 45 | . 40 | . 30 | . 04 | . 05 | . 06 | . 64 | . 55 | . 39 |
| Bakers | .01 | .01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Cabinetmakers | . 02 | . 02 | . 05 | . 00 | . 00 | . 00 | . 03 | . 02 | . 07 |
| Crane, derrick, hoist operator | .07 | . 06 | .03 | -00 | . 00 | . 00 | . 10 | . 09 | . 04 |
| Dental laboratocy technicians | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 02 | .01 | .01 |
| Jewelers and watchmakers | . 01 | .01 | . 01 | .00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Motion ficture projectionists | .01 | .01 | . 00 | . 00 | .00 | . 00 | . 01 | .01 | .01 |
| Opticians,lens grinder,folisner | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Shipfitters | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 02 | . 01 |
| Sign painters and letterers | .02 | . 02 | . 02 | .01 | . 01 | .01 | . 02 | . 02 | . 02 |
| Stationary engineers | . 21 | . 17 | . 13 | .03 | . 04 | . 04 | . 29 | . 23 | . 16 |
| Tailors | .01 | .01 | . 01 | .00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Upholsterers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | .01 | .01 |
| Other crafts workers | . 06 | . 07 | . 01 | . 00 | . 00 | . 00 | . 09 | . 10 | .01 |
| operatives | 2.91 | 3. 31 | 3.21 | 1.29 | 2.26 | 2. 97 | 3.65 | 3.75 | 3.31 |
| Operatives, except transfort | 1.50 | 1.51 | 1.33 | . 22 | . 28 | . 28 | 2.09 | 2.03 | 1.74 |
| Semiskilled metalworking | . 31 | . 29 | . 22 | . 02 | . 03 | . 02 | . 45 | . 40 | . 29 |
| Drill press oferatives | .01 | . 01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Grinding machine operatives | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Lathe, milling mach operatives | .03 | . 02 | . 01 | . 00 | . 00 | .00 | . 04 | . 02 | . 01 |
| Metal platers | . 05 | . 06 | . 04 | .00 | . 00 | .00 | .07 | . 09 | . 06 |
| other precisicn mach operators | .01 | . 01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 |
| Solderers | .01 | .01 | . 02 | .00 | . 00 | . 00 | . 02 | . 02 | .03 |
| Welders and flamecutters | . 20 | . 18 | . 12 | .01 | . 02 | . 01 | . 29 | . 25 | . 17 |
| Semiskilled packing, inspecting | . 34 | . 32 | . 35 | .01 | . 01 | . 02 | - 50 | . 44 | . 48 |
| Packer,wrapper, exc meat, prodce | . 34 | . 31 | . 34 | . 01 | .01 | . 02 | . 49 | .43 | . 47 |
| Produce grdr,fkrs, exc fact, farm | .01 | .01 | .01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Other operatives, exc transport | .85 | . 90 | . 76 | . 19 | . 24 | . 24 | 1.15 | 1.19 | .96 |
| Blasters | . 01 | .01 | . 01 | .01 | .01 | .01 | . 01 | .01 | .01 |
| Surveyors' helpers | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | .01 | .01 | . 01 |
| Clothing ironers and pressers | . 02 | . 01 | . 01 | .00 | . 00 | .00 | .03 | . 02 | . 01 |
| Dressmakers, exc factory | . 05 | . 04 | . 02 | . 00 | . 00 | . 00 | . 07 | . 06 | . 02 |
| Drillers, earth | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | .01 | .01 | .01 |
| Piler, polisher, sander, buffer | .01 | . 01 | . 02 | . 00 | . 00 | . 00 | .02 | . 02 | . 03 |
| Garage wrkregas station atten | . 05 | . 04 | . 02 | . 10 | . 09 | .01 | . 03 | . 02 | . 03 |
| Laundry,dry cleang oprs, other | . 04 | .03 | . 01 | . 00 | - 00 | . 00 | . 06 | . 04 | . 01 |
| Meat cutters, butchers, exc mig | . 05 | . 06 | . 03 | . 00 | . 00 | . 00 | . 08 | . 08 | . 04 |
| Oilers, greaserspexc automobiles | . 02 | . 02 | . 03 | .01 | . 02 | . 03 | . 02 | . 02 | .03 |
| Painters. mfg articles | .01 | . 01 | . 01 | .01 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Photographic frocess workers | . 05 | . 05 | . 07 | .00 | - 00 | . 00 | . 08 | . 08 | . 09 |
| Sailors and deckhands | . 02 | . 01 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | .01 |
| Sawyers | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Severs and stitchers | . 02 | . 02 | . 03 | . 01 | . 01 | .01 | . 03 | . 03 | . 04 |
| Furnace tendr, stokr,exc metal | . 01 | . 02 | . 04 | . 04 | . 07 | . 13 | . 00 | . 00 | . 00 |
| Miscellaneous machine operatves | . 19 | . 22 | . 03 | . 01 | . 02 | . 02 | . 28 | . 31 | . 03 |
| other oferatives, exc transport | .27 | . 31 | . 41 | . 01 | . 01 | . 02 | . 39 | . 44 | . 56 |
| Transport equifment operatives | 1.41 | 1. 80 | 1.88 | 1.08 | 1.98 | 2.69 | 1.56 | 1.72 | 1.57 |
| Boat operators | .01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 01 | . 01 | .01 |
| Bus drivers | . 08 | . 15 | . 03 | . 01 | . 04 | . 03 | . 11 | . 19 | . 02 |
| Delivery and route workers | . 05 | .04 | . 00 | . 00 | . 00 | . 00 | .07 | . 06 | . 00 |
| Fork lift, tow motor oferatives | . 26 | - 34 | . 41 | . 02 | . 04 | . 06 | . 37 | . 46 | . 55 |
| Railroad brake operators | . 01 | . 01 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Railroad suitch operators | . 01 | .01 | . 01 | .00 | . 00 | . 00 | . 01 | .01 | . 02 |
| Taxicab drivers, chauffeurs | -15 | - 15 | . 10 | . 01 | . .03 | . 02 | . 22 | . 20 | . 13 |
| truck drivers | . 85 | 1.11 | 1.31 | 1.03 | 1.88 | 2.58 | . 77 | . 78 | . 83 |
| Service workers | 4.39 | 4.49 | 5.84 | 2. 16 | 3.25 | 3.97 | 5.41 | 5.02 | 6.56 |
| Cleaning service workers | 1.73 | 1.92 | 2.10 | 1.91 | 2.83 | 3.26 | 1.64 | 1.53 | 1.65 |
| Lodging qutrs cleaners, exc privt | . 03 | . 02 | . 03 | .00 | . 00 | . 00 | . 04 | . 02 | . 04 |
| Bldg interior cleaners, other | . 24 | . 29 | . 31 | . 17 | . 29 | . 17 | . 27 | . 28 | . 37 |
| Janitors and sextons | 1.46 | 1. 62 | 1.75 | 1.73 | 2. 54 | 3.10 | 1.34 | 1.22 | 1.24 |
| Food service workers | . 51 | . 40 | . 32 | . 00 | . 00 | . 00 | .74 | . 58 | . 44 |
| Bartenders | .01 | .01 | .01 | . 00 | . 00 | .00 | . 01 | . 01 | . 01 |
| Waiters' assistants | . 01 | . 02 | . 05 | . 00 | . 00 | . 00 | . 02 | . 02 | . 07 |
| Cooks, exc private households | .23 | - 18 | . 06 | . 00 | . 00 | . 00 | .33 | . 26 | . 08 |
| Dishwashers | . 03 | . 02 | . 02 | . 00 | . 00 | . 00 | . 04 | . 02 | . 02 |
| Food counter, fountain workers | .03 | .03 | .03 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Waiters | .11 | . 09 | . 10 | . 00 | . 00 | . 00 | .16 | . 13 | - 14 |
| Other food serv whrs, exc privt | . 10 | . 07 | . 05 | .00 | . 00 | .00 | .14 | . 10 | . 08 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  |  | pederal public inist |  |  | $\begin{aligned} & \text { ?ostal } \\ & \text { ervice } \end{aligned}$ |  |  | eral min, $t$ of |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Health service workers | . 11 | .08 | . 24 | . 00 | . 00 | . 00 | . 15 | . 12 | . 33 |
| Dental assistants | . 02 | .01 | . 03 | . 00 | . 00 | .00 | . 03 | . 01 | . 04 |
| dealth aides, except nursing | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Nursing aides and orderlies | . 05 | . 04 | . 18 | . 00 | . 00 | .00 | . 07 | . 05 | - 25 |
| Practical nurses | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Personal service workers | .23 | . 27 | . 26 | . 06 | . 08 | .07 | . 31 | . 35 | . 33 |
| at tendants, recreation, a musement | . 01 | . 01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| Attendants, personal serv,other | .03 | . 02 | . 04 | . 00 | . 00 | . 00 | . 04 | . 04 | . 05 |
| Barbers | . 03 | . 01 | . 03 | . 00 | . 00 | .00 | . 04 | .01 | . 04 |
| Child care workers, exc private | .03 | . 02 | . 03 | . 00 | . 00 | . 00 | . 04 | . 02 | . 04 |
| Elevator operators | . 05 | . 06 | . 06 | . 06 | . 08 | . 07 | . 05 | . 05 | . 06 |
| Hairdressers and cosmetologists | . 01 | .01 | . 01 | . 00 | . 00 | . 00 | -01 | . 01 | .01 |
| housekeepers, exc private homes | . 03 | . 03 | . 05 | . 00 | . 00 | . 00 | . 05 | . 04 | . 07 |
| welfare service aides | . 04 | . 11 | . 03 | . 00 | .00 | . 00 | . 06 | . 16 | . 04 |
| Protective service workers | 1.82 | 1. 82 | 2.93 | . 20 | . 34 | . 64 | 2.56 | 2.45 | 3.81 |
| Crossing guards,bridgetenders | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 | . 02 | . 01 | . 01 |
| Firefighters | . 35 | . 30 | . 64 | . 00 | . 00 | . 00 | . 51 | . 43 | . 89 |
| Guards | . 65 | . 76 | 1.39 | . 16 | . 28 | . 58 | . 87 | . 97 | 1.71 |
| Marshals and constables | . 04 | . 05 | . 08 | . 00 | . 00 | . 00 | . 06 | . 08 | . 11 |
| Police and detectives | . 76 | . 68 | .79 | . 04 | .06 | . 06 | 1.08 | . 94 | 1.07 |
| Sheriffs and tailiffs | .01 | . 02 | . 02 | . 00 | . 00 | .00 | . 02 | . 02 | . 02 |
| Laborers, except farm | 2.73 | 3. 43 | 2.46 | 4.04 | 6.61 | 4.66 | 2.13 | 2.07 | 1.61 |
| Animal caretakers, exc farm | . 02 | . 02 | . 03 | . 00 | . 00 | . 00 | .03 | . 03 | . 04 |
| Carpenter helfers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 | . 02 | . 02 | . 03 |
| constr labr,exc carpenter helpr | .09 | . 06 | -10 | . 01 | . 01 | . 01 | . 13 | . 08 | . 13 |
| freight and material handlers | 1.41 | 2. 11 | 1.32 | 3.96 | 6.47 | 4.55 | - 24 | . 25 | . 08 |
| Garbage collectors | .01 | . 01 | . 01 | .00 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Gardenrs, groundkeepers, exc fara | . 18 | . 20 | . 54 | . 03 | . 05 | . 04 | . 25 | . 27 | . 74 |
| Stock handlers | - 10 | . 11 | . 02 | .01 | . 02 | . 01 | - 14 | . 15 | . 02 |
| Vehicle vashers,equif cleaners | .05 | . 06 | . 02 | . 00 | . 00 | . 00 | . 07 | . 09 | . 02 |
| Warehouse laborers, other | . 72 | . 74 | . 35 | .03 | . 06 | . 05 | 1.04 | 1.03 | . 46 |
| Other laborers | . 14 | - 10 | . 06 | .00 | . 00 | . 00 | . 20 | . 15 | . 09 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | State public administrtn |  |  | Loca 1 public administrtn |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Total all occupations | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Professional and technical | 23.62 | 27. 18 | 26.80 | 9.56 | 11.92 | 13.40 |
| Engineers, technical | 1.49 | 1.20 | 1.43 | 1.10 | . 94 | . 83 |
| Aeronautical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Chemical | . 01 | . 01 | . 01 | . 00 | . 00 | . 00 |
| Civil | .87 | . 63 | . 65 | . 79 | . 65 | . 58 |
| Electrical | . 10 | - 10 | . 13 | . 06 | . 07 | . 08 |
| Industrial | . 19 | - 18 | . 12 | . 06 | . 06 | . 04 |
| Mechanical | . 07 | . 07 | . 07 | . 04 | . 04 | . 04 |
| Mining | . 02 | . 02 | -01 | . 00 | . 00 | . 00 |
| Petroleum | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Other engineers | . 19 | - 17 | . 42 | . 15 | . 13 | . 10 |
| Life and physical scientists | . 86 | - 98 | .78 | . 09 | . 12 | .43 |
| Agricultural | . 16 | . 19 | . 18 | . 04 | . 05 | . 05 |
| Atmospheric and space | . 01 | . 03 | . 03 | . 00 | . 00 | . 00 |
| Biological | . 37 | . 50 | . 26 | . 02 | . 03 | - 18 |
| Chemists | . 18 | - 15 | .17 | . 03 | . 03 | - 20 |
| Geologists | . 11 | . 09 | . 09 | . 00 | .00 | . 00 |
| Marine | .01 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Mathematical sfecialists | .21 | - 19 | . 14 | . 02 | . 02 | . 00 |
| Actuaries | . 02 | . 02 | . 01 | . 00 | . 00 | . 00 |
| Mathematicians | .01 | . 01 | . 02 | . 00 | . 00 | . 00 |
| Statisticians | - 18 | . 16 | - 11 | . 02 | . 01 | .00 |
| Engineering, science technicians | 1.17 | 1.06 | . 95 | 1.06 | 1.01 | . 95 |
| Agricultural, biolgcl, exc health | . 12 | . 11 | . 06 | . 01 | . 01 | . 09 |
| Chemical technicians | . 03 | . 03 | . 03 | . 01 | . 01 | . 02 |
| Dratters | - 35 | - 31 | . 38 | . 45 | . 43 | . 61 |
| Electrical and electronic | . 10 | - 10 | . 07 | . 04 | . 04 | . 02 |
| Industrial engineering | . 01 | . 01 | .01 | . 00 | - 00 | - 00 |
| Mathematical technicians | .02 | . 02 | . 05 | . 00 | .00 | . 00 |
| Surveyors | . 24 | - 20 | . 16 | . 36 | . 32 | . 08 |
| other engineering, science tech | -30 | . 27 | . 19 | . 19 | - 20 | . 13 |
| Medical workers, exc technicians | 1.01 | 1. 14 | 1.31 | - 20 | - 22 | - 39 |
| Dentists | . 05 | . 05 | . 09 | . 00 | . 00 | . 00 |
| Dietitians | . 04 | . 04 | . 09 | . 01 | . 01 | . 02 |
| Pharinacists | . 02 | . 03 | . 09 | . 00 | . 00 | . 00 |
| Physicians and osteopaths | . 13 | . 16 | . 38 | . 02 | . 02 | . 10 |
| degistered nurses | - 30 | - 28 | . 32 | . 12 | . 12 | . 15 |
| Therapists | . 41 | . 50 | .24 | . 05 | . 06 | . 11 |
| Veterinarians | . 06 | . 07 | . 10 | . 00 | . 00 | . 00 |
| Health technologists, technicians | - 11 | - 12 | . 27 | . 03 | . 03 | -41 |
| Clinical lab technclogists, tech | .07 | . 07 | . 14 | . 01 | . 01 | . 08 |
| Other health technicians | .03 | . 04 | . 12 | . 01 | . 01 | . 33 |
| Technicians, except health | .89 | 1. 14 | . 79 | 1.03 | 1.22 | 1.78 |
| Airplane pilots | . 12 | . 17 | . 24 | . 01 | . 01 | . 02 |
| Radio operators | . 47 | . 54 | . 27 | . 97 | 1.13 | 1.65 |
| Tool programers, n ( ${ }^{\text {merical }}$ | .01 | . 01 | . 02 | . 00 | .00 | . 00 |
| Other technicians except heaita | . 29 | . 42 | . 25 | . 05 | . 08 | . 11 |
| Computer specialists | . 84 | 1. 11 | 1.74 | . 25 | - 34 | . 56 |
| Computer programers | . 52 | . 62 | . 76 | . 17 | . 21 | . 38 |
| Computer systems analysts | . 28 | . 42 | . 94 | . 07 | . 11 | . 17 |
| Other computer specialists | .04 | . 07 | . 04 | .01 | . 02 | .02 |
| Social scientists | . 51 | . 90 | 1.00 | . 44 | . 68 | . 89 |
| Economists | .21 | . 33 | . 35 | . 03 | . 04 | . 07 |
| Political scientists | . 02 | . 02 | . 04 | . 00 | . 00 | . 00 |
| Psychologists | . 12 | - 30 | . 28 | . 02 | . 05 | . 13 |
| Sociologists | . 02 | . 05 | . 15 | . 01 | . 02 | . 02 |
| Urban and regional planners | . 10 | . 15 | .09 | . 38 | . 55 | . 64 |
| other social scientists | . 04 | . 05 | - 10 | . 01 | . 02 | .03 |
| Teachers | . 63 | . 44 | .17 | . 18 | . 11 | . 04 |
| Adult education | .21 | - 19 | . 05 | . 02 | . 02 | .01 |
| Preschool and kindergarten | -01 | . 01 | . 04 | .01 | . 02 | . 02 |
| Other teachers | .41 | . 23 | .07 | . 14 | . 08 | . 01 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | $\begin{gathered} \text { State } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  | $\begin{gathered} \text { Local } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Writers, artists, entertainers | . 76 | . 93 | 1.03 | . 39 | - 50 | . 95 |
| athletes and kindred workers | . 04 | . 05 | . 05 | . 08 | . 09 | . 26 |
| Designers | .05 | . 05 | . 25 | . 03 | . 04 | .03 |
| Editors and reforters | .11 | . 13 | . 08 | . 02 | . 03 | . 03 |
| Musicians and composers | . 00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Painters and sculftors | . 06 | . 07 | . 02 | . 03 | . 04 | - 17 |
| Photographers | . 10 | . 11 | . 07 | . 05 | . 05 | . 18 |
| Public relations specialists | .33 | .43 | -48 | . 12 | -18 | . 23 |
| Other writers, artists, entertain | .07 | . 09 | . 08 | . 05 | . 06 | . 05 |
| Other professicnal and technical | 15.14 | 17.98 | 17.21 | 4.78 | 6.75 | 6.18 |
| Accountants | 4.27 | 4.96 | 5.66 | 1.03 | 1.28 | . 90 |
| Architects | . 12 | . 08 | - 16 | . 06 | . 04 | . 16 |
| Archivists and curators | . 06 | . 07 | . 05 | .01 | . 01 | . 00 |
| clergy | .07 | . 06 | . 10 | . 01 | . 01 | . 02 |
| Farm management advisors | .01 | . 01 | . 00 | .01 | . 01 | . 00 |
| Foresters and conservationists | . 64 | . 68 | . 35 | . 06 | . 07 | . 11 |
| Home management advisors | . 02 | .01 | . 01 | . 01 | . 01 | . 01 |
| Judges | 1.07 | 1.02 | . 67 | . 45 | . 45 | . 30 |
| Lawyers | 1.46 | 2.96 | 3.12 | . 85 | 1.69 | 1.64 |
| Librarians | . 11 | - 10 | . 07 | . 06 | . 07 | . 05 |
| operations and systems research | . 14 | . 19 | . 19 | . 04 | . 06 | . 21 |
| Personnel, labor relations wkrs | 4.24 | 4.44 | 4.25 | . 32 | . 36 | .71 |
| other research workers | . 48 | . 39 | . 06 | . 05 | - 04 | . 01 |
| Recreation workers | . 19 | . 26 | .13 | . 59 | . 96 | . 77 |
| Social workers | 1.57 | 2. 11 | 2.11 | 1.18 | 1.66 | 1.28 |
| Vocation, education counselors | . 70 | . 66 | . 31 | . 05 | . 05 | . 01 |
| Managers, officials, proprietors | 14.53 | 14.04 | 12.48 | 10.45 | 9.68 | 8.84 |
| Buyers, sales,loan managers | . 53 | - 45 | .41 | .23 | . 20 | - 20 |
| Bank, financial managers | . 04 | . 04 | . 01 | . 00 | . 00 | . 00 |
| purchasing agents, buyers, other | - 44 | . 36 | .33 | . 22 | - 20 | - 20 |
| Sales manager, exc retail trade | . 05 | . 05 | . 07 | .01 | . 00 | .00 |
| Administrators, public inspectors | 13.34 | 12.90 | 11.25 | 9.98 | 9.22 | 8.35 |
| Assess, control, local pub admin | . 00 | . 00 | . 00 | 2.17 | 2.05 | 1.64 |
| Construction inspector, public | . 32 | . 22 | . 33 | 1.19 | . 87 | . 96 |
| Inspectors, exc construct, public | 4.08 | 4.03 | 2.22 | . 83 | . 68 | . 64 |
| Officials, administrators, public | 8.94 | 8.65 | 8.70 | 5.78 | 5.61 | 5.10 |
| Other managers, officials, proprts | . 66 | . 69 | . 82 | . 24 | . 26 | . 28 |
| Mgrs, superintendents, building | . 07 | . 09 | - 10 | . 04 | . 05 | . 06 |
| Office managers. other | - 55 | . 57 | .70 | - 18 | . 19 | . 21 |
| officers, pilots, pursers,ship | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Restaurant, cafe, bar,managers | . 02 | . 02 | .01 | . 00 | . 00 | .00 |
| Other managers, administrators | .00 | . 00 | . 00 | . 02 | . 02 | .01 |
| Sales workers | . 13 | - 10 | . 04 | . 05 | . 04 | . 02 |
| Other sales workers | . 13 | - 10 | . 04 | . 05 | . 04 | . 02 |
| Clerical workers | 34.36 | 32. 74 | 35.33 | 21.30 | 21.54 | 24.03 |
| Stenographrs, typists, secretaries | 14.61 | 13.46 | 14.88 | 8.77 | 8.50 | 10.36 |
| Leyal secretaries | . 30 | . 24 | . 22 | . 22 | - 20 | . 24 |
| Medical secretaries | . 02 | . 01 | . 01 | . 01 | . 01 | . 00 |
| other secretaries | 5.75 | 5.97 | 8.21 | 3.67 | 4.11 | 7.39 |
| Stenographers | 1.91 | 1. 29 | 1.07 | -81 | . 56 | -39 |
| Typists | 6.63 | 5.95 | 5.38 | 4.05 | 3.63 | 2.33 |
| Office machine operators | 2.82 | 2.64 | 1.67 | . 87 | . 86 | . 74 |
| Bookkeeping and billing | - 15 | . 07 | . 03 | . 10 | . 04 | . 02 |
| Calculating | - 10 | . 05 | . 01 | . 03 | . 02 | . 01 |
| Computer and feripheral equip | . 51 | 1.12 | 1.09 | . 15 | . 36 | . 54 |
| Duplicating | -11 | . 08 | . 04 | . 03 | . 02 | . 01 |
| Keypunch | 1.65 | 1.10 | . 39 | -42 | - 30 | . 11 |
| Tabulating | . 06 | .01 | . 00 | . 02 | .01 | . 00 |
| other otfice machine operators | . 24 | - 22 | -12 | . 13 | - 12 | . 06 |


|  | $\begin{gathered} \text { State } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  | $\begin{gathered} \text { Local } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| other clerical workers | 16.94 | 16.64 | 18.78 | 11.67 | 12.18 | 12.93 |
| Billing clerks | . 05 | . 05 | . 08 | . 10 | - 12 | . 15 |
| Bookkeepers | 2.02 | 1. 94 | 3.08 | 2.00 | 2.00 | 1.16 |
| Cashiers | . 45 | . 50 | . 23 | . 33 | - 36 | . 41 |
| Clerical supervisors, other | 1.17 | 1.23 | 1.44 | . 39 | . 45 | . 42 |
| collectors, bill and account | . 02 | . 02 | .01 | . 04 | . 03 | . 03 |
| Counter clerks,exc food | . 07 | . 07 | . 08 | . 06 | . 06 | . 05 |
| Dispatchers,starters, vehicle | . 04 | . 04 | . 05 | - 18 | - 18 | - 17 |
| Enumerators and intervievers | . 24 | . 16 | . 06 | . 09 | - 11 | . 21 |
| Estimators, investigators, other | 1.84 | 1.90 | 1.93 | . 51 | . 56 | 1.00 |
| Expediters, froduction controlrs | . 14 | . 13 | .11 | - 10 | . 10 | . 06 |
| File clerks | 1.75 | 1.40 | 1.29 | . 61 | - 58 | . 83 |
| Insurance adjusters, examiners | . 16 | . 26 | . 29 | . 00 | . 00 | . 00 |
| Library attendants, assistants | . 07 | . 09 | . 06 | . 06 | . 07 | . 04 |
| Mail handlers,exc post office | . 57 | . 53 | .71 | . 09 | . 08 | . 06 |
| Messengers and office helpers | - 18 | - 19 | . 26 | . 04 | . 05 | . 06 |
| Payroll, timekeeping clerks | . 28 | . 33 | . 48 | - 27 | . 35 | -49 |
| Heal estate afpraisers | . 20 | . 21 | . 14 | . 20 | . 21 | . 12 |
| Receptionists | . 80 | . 70 | . 55 | . 50 | -48 | . 70 |
| Shipping and receiving clerks | . 09 | . 10 | . 19 | . 03 | . 04 | . 06 |
| Statistical clerks | 1.39 | 1.51 | 1.58 | 1.44 | 1.61 | 1.48 |
| Stock clerks and store keepers | . 52 | . 38 | . 40 | .21 | - 15 | . 06 |
| Teachers aides, exc monitors | . 10 | . 09 | . 05 | . 02 | . 02 | . 02 |
| Telephone operators | . 30 | . 20 | . 03 | . 35 | . 26 | -11 |
| weighers | . 15 | . 13 | . 13 | . 03 | . 03 | . 02 |
| Misc clerical workers | 4.35 | 4.46 | 5.55 | 4.01 | 4.30 | 5.23 |
| Crafts and kindred workers | 4.59 | 4. 57 | 4.21 | 4.95 | 5.06 | 5.81 |
| Construction crafts workers | 1.22 | 1.20 | . 94 | 1.74 | 1.81 | 2.32 |
| Carpenters and apprentices | . 36 | . 43 | . 33 | . 31 | . 37 | . 55 |
| Brick, stonemasons, apprentices | . 03 | . 02 | . 00 | . 04 | . 03 | . 00 |
| Bulldozer operators | . 08 | . 07 | . 05 | . 15 | . 12 | . 08 |
| Cement and concrete finishers | . 01 | . 01 | . 02 | . 01 | . 02 | . 04 |
| Electricians and apprentices | . 23 | . 26 | . 18 | . 37 | . 43 | . 64 |
| Excavating, grading mach operatr | . 12 | .08 | . 04 | . 28 | . 28 | . 46 |
| painters and apprentices | .26 | - 20 | . 09 | . 41 | - 37 | . 25 |
| plasterers and apprentices | . 00 | . 00 | . 00 | . 01 | . 01 | . 02 |
| Plumbers, pipefitters, aprentices | . 12 | . 13 | .23 | . 16 | . 17 | . 27 |
| Blue collar worker supervisors | . 92 | 1.07 | - 80 | -66 | - 80 | 1.13 |
| Metalworkg craft wrkrs, exc mech | .09 | . 12 | . 24 | . 09 | . 09 | . 11 |
| Blacksmiths | .01 | . 00 | . 00 | . 01 | . 01 | . 01 |
| Machinists and apprentices | .07 | . 09 | . 19 | . 05 | . 06 | . 07 |
| Sheetmetal warkers, apprentices | . 02 | . 02 | -06 | . 02 | - 02 | . 03 |
| Mechanics, repairers,installers | 1.75 | 1.61 | 1.41 | 1.98 | 1.93 | 1.90 |
| air cond, heating, refrig mech | . 07 | . 11 | .17 | . 05 | . 08 | . 12 |
| Aircraft mechanics | .26 | . 23 | . 08 | .01 | . 01 | .03 |
| Auto body repairers | . 01 | . 01 | . 07 | . 02 | . 01 | . 00 |
| Auto mechanics and apprentices | .61 | . 47 | -26 | 1.02 | . 88 | .76 |
| Heavy equip mech, incl diesel | . 35 | . 43 | . 66 | .43 | . 54 | . 76 |
| Household appliance mechanics | . 03 | . 03 | . 01 | . 15 | . 13 | . 06 |
| Oftice machine repairers | . 02 | . 02 | . 03 | . 01 | . 01 | - 02 |
| Radio, television repairers | . 17 | - 11 | . 05 | . 08 | . 08 | - 10 |
| Railroad, car shop repairers | . 01 | . 01 | . 03 | . 00 | . 00 | . 00 |
| other mechanics and apprentices | .21 | . 18 | . 07 | . 22 | . 18 | . 06 |
| Printing trade crafts workers | - 18 | . 22 | - 35 | . 07 | . 08 | - 11 |
| Bookbinders | . 00 | . 00 | . 00 | . 01 | .01 | . 01 |
| Compositors and typesetters | . 09 | - 11 | - 18 | . 03 | .03 | . 03 |
| press, plate printers, aprentices | . 08 | .11 | . 17 | . 03 | . 05 | . 07 |
| Transport, public util craft wkrs | . 03 | . 03 | - 04 | . 05 | . 04 | .03 |
| Elec pwr line instaler, repairer | . 01 | . 00 | . 00 | . 03 | . 02 | . 01 |
| Power station operators | . 01 | . 02 | . 03 | . 00 | . 00 | . 00 |
| Telephone installers,repairers | .01 | . 01 | . 01 | . 02 | . 02 | . 02 |


|  | $\begin{gathered} \text { State } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  | $\begin{gathered} \text { Local } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Other crafts, kindred workers | . 41 | . 32 | -43 | . 35 | . 29 | . 22 |
| Bakers | . 02 | . 03 | . 04 | . 00 | . 00 | . 00 |
| Cabinetmakers | .01 | . 01 | . 09 | . 01 | . 00 | . 00 |
| Crane, derrick, hoist operator | . 03 | . 04 | . 09 | . 06 | . 05 | . 09 |
| Dental laboratory technicians | . 01 | - 01 | . 01 | . 00 | . 00 | . 00 |
| Sign painters and letterers | . 01 | . 01 | . 00 | . 04 | . 03 | . 00 |
| Stationary engineers | - 24 | . 17 | . 15 | . 22 | . 19 | . 12 |
| Upholsterers | . 01 | .01 | . 02 | . 00 | . 00 | . 00 |
| Other crafts yorkers | . 07 | . 06 | .03 | . 02 | . 02 | .01 |
| Operatives | 1.49 | 1.57 | 1.79 | 2.90 | 3.23 | 1.95 |
| Operatives, except transport | . 80 | . 75 | . 64 | . 96 | . 96 | . 69 |
| Semiskilled metalworking | . 08 | . 09 | -15 | . 09 | . 11 | . 20 |
| Welders and flamecutters | . 07 | . 08 | . 15 | . 08 | . 11 | . 20 |
| Semiskilled packing, inspecting | . 03 | . 03 | . 06 | . 01 | . 01 | . 02 |
| Packer,wrapper,exc meat, prodce | . 03 | -03 | . 06 | . 01 | . 01 | . 02 |
| Other operatives, exc transport | . 69 | . 63 | . 44 | . 86 | . 84 | . 47 |
| Surveyors' helpers | . 02 | . 01 | .01 | . 06 | . 06 | . 06 |
| Dressmakers, ExC factory | . 00 | - 00 | .00 | . 01 | . 01 | . 02 |
| Drillers, earth | . 01 | . 01 | . 02 | . 00 | - 00 | . 00 |
| Garage urkr.gas station atten | .03 | . 02 | .01 | . 09 | . 06 | . 03 |
| Laundry,dry cleang oprs, other | . 05 | . 04 | . 02 | . 01 | .01 | . 01 |
| Oilers,greasers, exc automohiles | . 01 | . 01 | .01 | . 02 | . 02 | . 01 |
| Photographic frocess workers | . 05 | . 06 | . 08 | . 06 | . 07 | . 07 |
| Sailors and deckhands | . 02 | . 01 | .01 | . 00 | . 00 | . 00 |
| Sawyers | - 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Furnace tendr,stokr,exc metal | - 18 | - 14 | . 02 | - 28 | - 25 | . 09 |
| Miscellaneous machine operatves | . 10 | . 10 | .09 | .07 | . 07 | . 06 |
| Other operatives, exc transport | . 23 | . 23 | . 16 | . 25 | - 29 | . 13 |
| Transport equifment operatives | . 69 | . 81 | 1.15 | 1.94 | 2.27 | 1.26 |
| Boat operators | . 02 | . 02 | . 02 | . 00 | . 00 | . 00 |
| Bus drivers | . 00 | . 00 | .00 | . 03 | . 04 | .01 |
| Fork lift,tow motor operatives | .06 | . 08 | . 05 | . 02 | . 03 | .03 |
| Parking attendants | . 01 | -01 | .00 | . 04 | - 04 | . 00 |
| Taxicab drivers, chauffeurs | .11 | - 12 | . 02 | . 19 | . 19 | . 12 |
| Truck drivers | -49 | - 59 | 1.07 | 1.65 | 1.97 | 1.10 |
| Service workers | 19.14 | 17.70 | 18.34 | 46.27 | 43.83 | 42.01 |
| Cleaning service workers | 2.40 | 2.03 | 1.91 | 3.52 | 3.29. | 2.55 |
| Lodging gtrs cleaners, exc privt | . 04 | . 02 | .01 | . 04 | . 02 | . 01 |
| Bldg interior cleaners, other | . 41 | . 39 | . 67 | . 43 | . 41 | . 43 |
| Janitors and sextons | 1.94 | 1.62 | 1.24 | 3.06 | 2.87 | 2.12 |
| Food service workers | . 55 | . 43 | . 51 | . 31 | - 24 | - 23 |
| Waiters' assistants | . 01 | . 01 | .03 | . 00 | . 00 | . 00 |
| Cooks, exc private households | . 30 | . 25 | . 34 | . 20 | - 16 | . 16 |
| Dishwashers | . 02 | . 01 | . 01 | . 01 | . 01 | . 01 |
| Food counter, fountain workers | . 06 | . 06 | .10 | . 01 | . 02 | . 02 |
| Waiters | . 03 | . 02 | .01 | . 02 | . 02 | . 02 |
| Other food serv wirs, exc privt | .13 | . 08 | .03 | . 06 | . 04 | . 01 |
| Health service workers | . 45 | . 38 | . 31 | . 15 | . 14 | . 30 |
| Dental assistants | . 02 | .01 | . 00 | . 00 | . 00 | . 00 |
| Health aides, except nursing | . 05 | . 06 | .06 | . 03 | . 04 | . 03 |
| Nursing aides and orderlies | . 25 | - 22 | -19 | . 08 | -08 | . 25 |
| Practical nurses | . 13 | . 09 | . 07 | . 04 | . 03 | . 02 |
| Personal service workers | 1.54 | 1.33 | . 77 | .71 | . 89 | 1.52 |
| Attendants, recreation, amusement | . 15 | . 11 | .13 | . 23 | - 23 | 1.05 |
| Attendants, personal serv, other | .21 | - 12 | . 02 | . 06 | . 04 | - 17 |
| Baggage porters and bellhops | . 01 | . 01 | .01 | . 00 | . 00 | . 00 |
| Barbers | .05 | . 01 | . 02 | . 01 | . 00 | . 01 |
| Child care workers, exc private | . 75 | . 46 | .19 | . 20 | - 13 | . 22 |
| Elevator operators | . 08 | . 08 | . 06 | . 08 | . 07 | . 02 |
| Hairdressers and cosmetologists | .03 | . 04 | . 05 | . 01 | . 01 | - 00 |
| Housekeepers, exc private homes | . 18 | - 11 | . 13 | . 03 | - 02 | . 01 |
| Welfare service aides | .09 | . 41 | .17 | . 09 | . 41 | . 04 |

Table 1. Percent distribution of industry employment by occupation, 1970, 1978 and projected 1990

|  | state public administrtn |  |  | $\begin{gathered} \text { Local } \\ \text { public } \\ \text { administrtn } \end{gathered}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1970 | 1978 | 1990 | 1970 | 1978 | 1990 |
| Protective service vorkers | 14.21 | 13.55 | 14.83 | 41.58 | 39.26 | 37.41 |
| Crossing guards, bridgetenders | . 09 | . 07 | -07 | 2.59 | 2.07 | 1.69 |
| Firefighters | - 17 | . 15 | . 15 | 11.99 | 11.12 | 10.10 |
| Guards | 6.39 | 6.60 | 9.99 | 2.22 | 2.51 | 2.18 |
| Marshals and constables | . 05 | . 05 | . 05 | . 34 | . 35 | . 30 |
| Police and detectives | 7.34 | 6. 50 | 4.40 | 21.64 | 20.07 | 20.15 |
| Sheriffs and bailiffs | - 17 | . 18 | . 18 | 2.80 | 3.15 | 2.98 |
| Laborers, except farm | 2.15 | 2. 10 | 1.01 | 4.51 | 4.71 | 3.95 |
| Animal caretakers, exc farm | . 08 | . 09 | . 08 | . 30 | . 37 | . 34 |
| Carpenter helfers | . 04 | . 04 | . 07 | . 03 | . 03 | . 05 |
| Constr labrexc carpenter helpr | . 19 | . 13 | . 05 | . 34 | . 34 | - 26 |
| Freight and material handers | . 09 | . 08 | -08 | -07 | . 07 | . 06 |
| Gardenrs, groundkeepers, exc farm | 1.43 | 1.47 | . 46 | 3.31 | 3.49 | 2.70 |
| Longshore yorkers, stevedores | . 02 | . 03 | . 06 | .01 | . 01 | . 03 |
| Stock handlers | . 05 | - 04 | . 02 | . 02 | . 02 | . 01 |
| Vehicle washers,equip cleaners | - 00 | . 00 | . 00 | . 04 | . 04 | . 02 |
| Warehouse laborers, cther | . 06 | . 05 | . 04 | . 03 | . 03 | . 05 |
| other laborers | . 20 | .17 | .14 | . 38 | . 33 | -44 |

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[^0]:    IU.S. Census of Population: 1970 Occupation by Industry, Final Report PC(2)-7C (Bureau of the Census, October 1972).
    ${ }^{2}$ The Current Population Survey is generally used as a benchmark for total national employment.

[^1]:    ${ }^{3}$ A description of the CPS household survey and the establishment survey appears in the Explanatory Notes section of Employment and Earnings, published monthly by the Bureau of Labor Statistics.

