

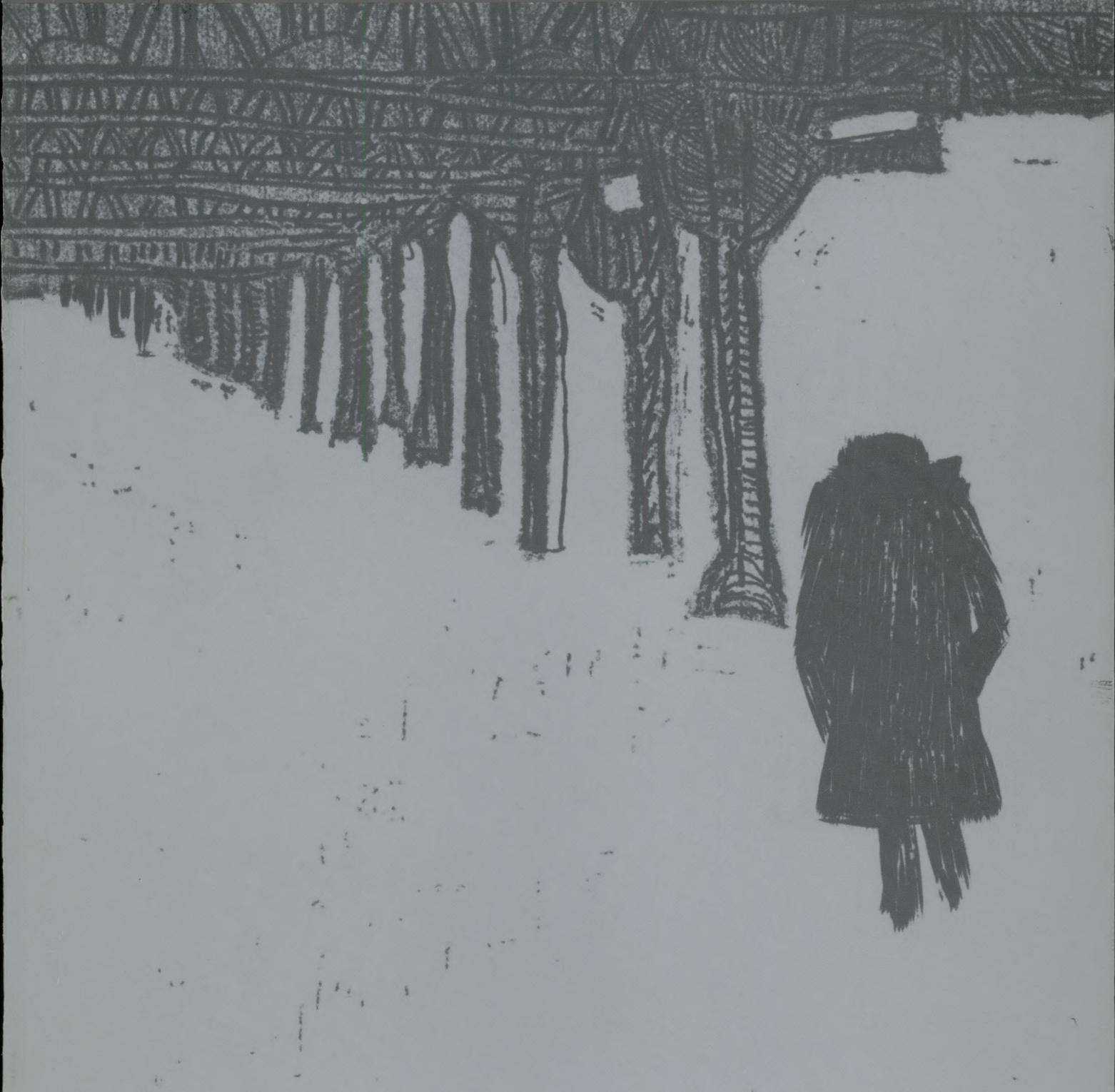


MONTHLY LABOR REVIEW

U.S. Department of Labor  
Bureau of Labor Statistics  
October 1988



*In this issue:*  
Prices in the first half of 1988  
Analysis of Industry Wage Surveys  
Dental benefits paid by employers







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**BUREAU OF LABOR STATISTICS**  
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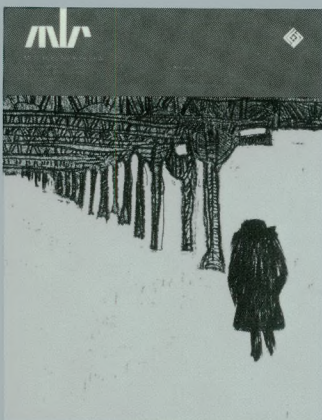
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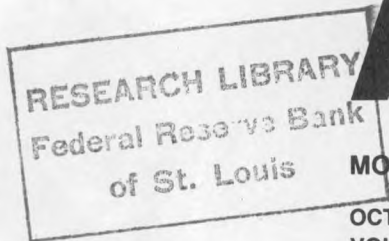
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Henry Lowenstern, Editor-in-Chief  
Robert W. Fisher, Executive Editor

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# Labor Month In Review



**WHITE-COLLAR SALARIES.** The Bureau of Labor Statistics released the results of its first nationwide white-collar pay survey of the private service industries.

Because past Professional, Administrative, Technical, and Clerical Pay surveys have included pay for jobs in other sectors of the economy, the results of this year's study—limited to the service sector—cannot be directly compared with previous surveys. Average salaries for 26 occupations and 93 work levels covered a broad range of duties and responsibilities.

Among the professional jobs studied, salaries averaged \$19,588 a year for beginning accountants and \$26,355 for beginning engineers, while senior levels of both jobs (level V) were approximately 50,000. The salary for engineer VIII—the top-level surveyed—averaged \$78,049.

Other types of jobs also had wide salary differences, such as \$10,338 to \$19,151 for general clerks and \$15,285 to \$29,014 for secretaries. Salaries of nursing assistants averaged \$8,558, \$10,872, and \$14,369, depending upon the employees' levels of responsibility.

The March 1987 survey reflects changes to broaden coverage of the Professional, Administrative, Technical, and Clerical Pay to more industries, including health care services, and to smaller establishments. The findings will be combined with updated information from nonservices establishments studied in 1986. The results will be used by the President's Pay Agent to make annual pay comparisons between Federal white-collar workers and their counterparts in private industry. Rotating industry coverage in different years allows the Bureau to obtain a broader scope of pay data within current budgetary limits.

**March 1987 salaries.** Annual salaries of accountants averaged from \$19,588 at level I to \$49,291 at level V. Sala-

ries of public accountants ranged from \$21,006 for new graduates at level I to \$33,989 for supervisors at level IV. The accountants, public accountants, and auditors included in the survey had at least bachelor's degrees in accounting or the equivalent in education and experience.

Programmer and programmer analyst trainees at level I averaged \$20,980 a year; this was approximately half the average of level V incumbents who plan and direct large computer programming projects or solve unusually complex computer programming problems.

Computer systems analysts at level I averaged \$28,607 a year. This level includes workers who are familiar with systems analysis procedures and are working independently on routine problems. Systems analysts at level V, the highest of six job levels for which statistically reliable data could be obtained, average \$59,841 a year. At this level, analysts are senior technicians or managers responsible for the development and maintenance of large and complex computer systems.

Attorneys included in the study (all having at least LL. B. degrees and bar membership) were employed in the legal departments of establishments other than law firms. Those attorneys performing work involving applicable precedents and established facts were classified at level II and averaged \$41,370 a year; those at level IV, with responsibility for resolving difficult legal problems, averaged \$63,711.

Personnel directors at level I, who administer conventional programs covering 250 to 1,000 workers, averaged \$35,167, compared with \$43,927 for level II, the highest publishable level out of five studied.

Annual salaries for the eight levels of engineers studied ranged from \$26,355 for recent graduates at level I to \$78,049 for senior engineering managers and researchers at level VIII.

Statistically reliable data on pay were obtained for three additional jobs in the nursing field. One of these, registered nurse, was the most numerous of the professional and administrative jobs studied. Over 80 percent of the nurses were at level II, which designates those who exercise considerable independence in difficult nursing situations. They averaged \$24,127 a year. The other two jobs, nursing assistant and licensed practical nurse, are included among the survey's technical support occupations. Nursing assistants had average salaries from \$8,558 for level I to \$14,369 for level III, the highest level for which pay data met Bureau publication standards. Of the three levels of licensed practical nurses, level II incumbents accounted for most of the licensed practical nurses covered, and their salaries averaged \$16,487 a year.

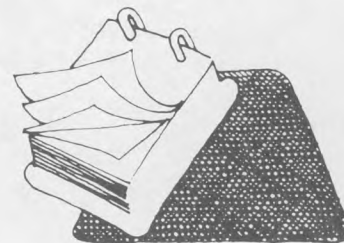
Among the 27 clerical levels for which data could be obtained, average yearly salaries ranged from \$10,338 for general clerks I to \$29,014 for secretaries V, the highest of a 5-level series. Averages for 8 of the clerical levels exceeded \$19,000; 7 ranged from \$15,000 to \$19,000; and 12 fell below \$15,000.

**Scope of survey.** The March 1987 survey covered those private industry establishments employing 20 workers or more which primarily provide personal, business, educational, health, legal, recreational, and technical services. A random sample of these establishments was selected for study to represent all metropolitan and nonmetropolitan areas of the United States except Alaska and Hawaii.

For additional details on the methods of the survey, see BLS Bulletin 2271, "National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1986," and the forthcoming 1987 bulletin. □



# Labor Month In Review



**JOBLESS INSURANCE.** Why does only about one in three unemployed persons receive unemployment insurance benefits? At a September 15 hearing of a House Ways and Means subcommittee, Mary Ann Wyrsh, director of the U.S. Labor Department's Unemployment Insurance Service, reported on a recent study by Mathematica Policy Research, Inc. of this problem. Here are highlights from her testimony:

After a series of discussions and a Congressional hearing in 1986, the Department initiated, in the same year, a study designed to develop an explanatory model of the ratio of insured to total unemployment. The study was based on statistical analyses of national data over the 1948-86 period, an in-depth analysis of more detailed data from all States over the 1971-86 period, and in-person interviews with key unemployment insurance officials in the largest States. The analysis in the report focused on the marked decline in the ratio of insured unemployment to total unemployment under *regular* State unemployment insurance programs. (While some aspects of the Extended Benefit program were examined in relation to its effects on the regular program, the basic analysis excluded extended benefits programs.) The ratio declined from a level of over 40 percent in the 1970's to a level of 35 percent in the 1980's (and 31 percent in 1987).

**Findings.** The researchers found that there was no single factor which explained the observed decline in the ratio of unemployment insurance claimants to the total number of unemployed during the 1971-86 period. Rather, the decline was caused by changes in the general labor market and by a number of policy changes at both the Federal and the State levels. This primary finding of the Mathematica study reinforced the preliminary conclusions of a previous study by the Brookings Institution, of the hearing before the Government Operations Committee, and of in-house Department examinations of the issue, that there were a number

of interacting factors affecting the insured unemployment rate-total civilian unemployment rate ratio.

The study assigned weights to a range of potential causes of the gap which fall into the following categories:

**Economic factors.** The decline in manufacturing unemployment relative to total unemployment during the 1980's accounted for between 4 and 18 percent of the observed decline in the proportion of the unemployed claiming unemployment insurance benefits, since it may be somewhat easier for manufacturing workers to apply for benefits than for other workers. Shifts in the geographic distribution of unemployment accounted for about 16 percent of the decline in the unemployment insurance claims ratio. During the 1980's, relatively more unemployment occurred in States with low claims ratios than in the 1970's.

**Federal policy.** The partial taxation of unemployment insurance benefits accounted for between 11 and 16 percent of the decline.

**State policy.** Increased monetary eligibility requirements for unemployment insurance and reduced maximum potential durations of benefits available under State programs accounted for between 8 and 15 percent of the decline; increases in disqualifying income denials (probably reflecting the pension offset provisions) accounted for about 10 percent of the decline; and changes in other nonmonetary eligibility requirements countered by some reductions in work test denials accounted for between 3 and 11 percent of the decline.

**Changes in total unemployment.** The improved coverage of Hispanics in the Current Population Survey, including a correction for undocumented aliens along with the way in which 1980 Census data were used

to adjust unemployment data for the 1970's, accounted for between 1 and 12 percent of the decline.

The Department is continuing its efforts on the "gap" issue by undertaking the following actions:

(1) On June 27, the first of a series of three seminars on Unemployment Insurance was held at the U.S. Department of Labor under the sponsorship of the Secretary. The subject of this first seminar was the widening gap between total and insured unemployment.

(2) The Unemployment Insurance Service is currently working with the Bureau of Labor Statistics to add to the Current Population Survey, on a special supplementary basis, specific questions for persons enumerated as unemployed. The questions, which will be asked on four occasions, will relate to the Unemployment Insurance program, unemployment insurance benefit eligibility, and reasons for not filing for unemployment insurance benefits.

(3) Because of a lack of up-to-date information on the experiences, behavior, and labor market characteristics of those who have exhausted their unemployment insurance benefits entitlement, the Department of Labor has recently signed a contract (also with Mathematica) to conduct a sample survey of unemployment insurance exhaustees to gather this information.

(4) The Department will urge the States to examine the unemployment insurance gaps in their own jurisdictions. The Mathematica study will be shared with the States and individual State-level analysis will be encouraged.

The study is available from the Employment and Training Administration, Unemployment Insurance Services, (202) 535-0620. □





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**ERRATUM: Page 2**

Please insert the "Labor Month in Review" appearing on the reverse to replace the August 1987 version erroneously republished on page 2.

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# Occupational tenure in 1987: many workers have remained in their fields

*Generally, men have been in their current occupations longer than have women, whites longer than blacks, and college graduates longer than those with less education; almost half of the 55- to 59-year-olds have been in their current occupations at least 20 years*

MAX L. CAREY

Information on tenure—the length of time worked in an occupation—can be useful to individuals, employers, and labor market researchers. Individuals planning their careers can use tenure information to help identify occupations having long- and short-term worker attachment. In career planning, knowledge of tenure can aid in evaluating job satisfaction, job security, and career potential. Employers can use occupational tenure information in a variety of personnel planning activities. Together with information on separations, tenure data can be used by employers to anticipate the number of workers they may be required to hire to replace workers who leave their firm. The data also can be used to compare the occupational tenure of a firm's employees with the work force as a whole. Researchers in Government agencies, universities, employer associations, professional associations, and unions can use tenure information to study labor market behavior of workers in specific occupations of interest as well as in the labor market in general.

The information presented in this article is based on data obtained from a supplement to the January 1987 Current Population Survey. In that supplement, occupational tenure was defined as the cumulative number of years a person worked in his or her current occupation, regardless of number of employers, interruptions in employment, or time spent in other occupations. For

example, a person who worked as a librarian for 2 years, as a teacher for the next 5 years, and then as a librarian for the last 2 years (their current job), would be classified as a librarian with 4 years of tenure. This measure should not be confused with employer tenure—the amount of time worked for the same employer—which was treated separately in the survey and is briefly discussed later in this article.

Median occupational tenure of the 109.1 million workers 16 years of age and older in January 1987 was 6.6 years. (For ease of reading, medians henceforth will be called averages in the text of this article.) Average tenure increased directly with age, rising from 1.9 years for workers ages 16–24 to 21.9 years for those 70 and over. (See table 1.) Most teenagers, of course, have not been in the labor force long enough to have much experience, and jobs held by students typically are temporary. Moreover, young high school and college graduates often try more than one occupation before deciding on a career, and entry into some fields is delayed until advanced degrees are completed. By the time they are in their late twenties or early thirties, however, many people have settled into a career path. Almost 47 percent of all workers 35 to 39 years of age had 10 years or more of tenure, while only 12 percent had less than 2 years.<sup>1</sup> A person who has accumulated a lengthy amount of tenure in an occupation often will try to remain in it until retirement, because a change in careers could require a change of employers and result in a loss of

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Max L. Carey is an economist in the Division of Economic Growth and Employment Projections, Bureau of Labor Statistics.

seniority and pension rights. About 46 percent of the workers ages 55 to 59 had 20 years of tenure or more.

While the survey did not indicate when the current occupation was first entered, the data suggest that some older people had been doing the same kind of work virtually all their adult lives. Almost one-fifth of the workers ages 65 to 69, for example, reported 40 years of tenure or more, which means they could have started before age 25

but not after age 29. Because tenure was measured cumulatively, some of these people may have first entered their occupation well before age 25, with time away for military service, family responsibilities, or other reasons.

In addition to being a function of age, occupational tenure varies by sex, race, education, and other demographic characteristics. Generally, men had more tenure than women, whites more than blacks and Hispanics, and col-

**Table 1. Occupational tenure of employed persons by age, sex, race, Hispanic origin, and employment status, January 1987**

| Characteristic                 | Total employed        |         | Tenure in current occupation (percent distribution) |           |           |           |                  |             |             |             |             |             |             |                  | Median tenure (in years) |
|--------------------------------|-----------------------|---------|---|-----------|-----------|-----------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|--------------------------|
|                                | Number (in thousands) | Percent | Less than 2 years                                   | 2-3 years | 4-5 years | 6-9 years | 10 years or more |             |             |             |             |             |             |                  |                          |
|                                |                       |         |   |           |           |           | Total            | 10-14 years | 15-19 years | 20-24 years | 25-29 years | 30-34 years | 35-39 years | 40 years or more |                          |
| Total, 16 years and older..... | 109,090               | 100.0   | 19.3  | 17.2      | 10.8      | 15.2      | 37.5             | 14.1        | 8.8         | 6.1         | 3.2         | 2.7         | 1.3         | 1.3              | 6.6                      |
| 16-24.....                     | 19,090                | 100.0   | 51.4  | 31.7      | 11.1      | 5.4       | .4               | .4          | —           | —           | —           | —           | —           | —                | 1.9                      |
| 25-29.....                     | 16,326                | 100.0   | 21.7  | 24.8      | 19.0      | 25.4      | 9.1              | 8.7         | .3          | —           | —           | —           | —           | —                | 4.4                      |
| 30-34.....                     | 15,833                | 100.0   | 14.8  | 16.5      | 13.2      | 24.3      | 31.3             | 25.4        | 3.6         | .3          | —           | —           | —           | —                | 6.9                      |
| 35-39.....                     | 14,674                | 100.0   | 12.3  | 13.3      | 10.1      | 17.7      | 46.6             | 23.3        | 18.2        | 4.8         | .3          | —           | —           | —                | 9.0                      |
| 40-44.....                     | 11,871                | 100.0   | 10.2  | 12.2      | 8.6       | 14.3      | 54.7             | 17.9        | 18.2        | 15.2        | 3.2         | .3          | —           | —                | 10.7                     |
| 45-49.....                     | 9,360                 | 100.0   | 8.6   | 9.9       | 7.3       | 12.1      | 62.2             | 15.4        | 14.7        | 16.5        | 11.0        | 4.3         | .3          | —                | 13.3                     |
| 50-54.....                     | 7,684                 | 100.0   | 7.9   | 8.9       | 7.6       | 10.5      | 65.2             | 14.0        | 12.7        | 12.3        | 12.1        | 11.0        | 2.7         | .3               | 15.2                     |
| 55-59.....                     | 6,914                 | 100.0   | 6.5   | 7.6       | 5.1       | 9.9       | 70.8             | 12.7        | 11.9        | 12.4        | 8.7         | 13.8        | 7.8         | 3.5              | 17.7                     |
| 60-64.....                     | 4,500                 | 100.0   | 5.9   | 6.9       | 5.0       | 9.6       | 72.6             | 12.8        | 10.4        | 10.9        | 7.5         | 10.8        | 9.7         | 10.5             | 19.4                     |
| 65-69.....                     | 1,692                 | 100.0   | 7.6   | 9.1       | 6.2       | 7.8       | 69.4             | 9.9         | 9.1         | 7.5         | 7.5         | 9.4         | 6.8         | 19.3             | 20.1                     |
| 70 and older.....              | 1,146                 | 100.0   | 4.7   | 6.2       | 5.8       | 8.6       | 74.7             | 10.9        | 7.8         | 7.7         | 4.4         | 6.7         | 4.2         | 32.9             | 21.9                     |
| Men, 16 years and older.....   | 60,242                | 100.0   | 16.9  | 15.3      | 10.0      | 14.6      | 43.3             | 14.6        | 9.7         | 7.2         | 4.2         | 3.8         | 1.8         | 1.9              | 7.9                      |
| 16-24.....                     | 9,820                 | 100.0   | 51.0  | 31.1      | 11.3      | 6.1       | .5               | .5          | —           | —           | —           | —           | —           | —                | 2.0                      |
| 25-29.....                     | 8,974                 | 100.0   | 20.0  | 24.2      | 18.8      | 26.5      | 10.5             | 10.0        | .4          | —           | —           | —           | —           | —                | 4.6                      |
| 30-34.....                     | 8,971                 | 100.0   | 12.4  | 15.0      | 12.6      | 25.1      | 34.9             | 28.0        | 6.4         | .5          | —           | —           | —           | —                | 7.6                      |
| 35-39.....                     | 8,109                 | 100.0   | 9.1   | 10.7      | 8.9       | 17.1      | 54.2             | 26.9        | 21.2        | 5.6         | .5          | —           | —           | —                | 10.4                     |
| 40-44.....                     | 6,463                 | 100.0   | 7.6   | 8.7       | 7.1       | 11.5      | 65.1             | 18.9        | 22.3        | 19.3        | 4.2         | .5          | —           | —                | 13.8                     |
| 45-49.....                     | 5,208                 | 100.0   | 6.3   | 7.1       | 6.2       | 8.6       | 71.7             | 12.4        | 16.6        | 21.7        | 14.8        | 5.8         | .4          | —                | 17.5                     |
| 50-54.....                     | 4,341                 | 100.0   | 6.0   | 6.8       | 5.4       | 8.9       | 72.8             | 11.7        | 11.2        | 14.5        | 17.2        | 14.4        | 3.3         | .5               | 20.0                     |
| 55-59.....                     | 4,006                 | 100.0   | 5.0   | 5.7       | 3.9       | 6.9       | 78.4             | 9.4         | 10.5        | 12.5        | 11.0        | 19.5        | 10.6        | 4.9              | 21.9                     |
| 60-64.....                     | 2,673                 | 100.0   | 5.0   | 6.5       | 3.6       | 7.3       | 77.6             | 10.3        | 7.9         | 9.9         | 7.8         | 14.1        | 13.9        | 13.6             | 23.9                     |
| 65-69.....                     | 1,000                 | 100.0   | 7.7   | 9.0       | 5.8       | 7.1       | 70.4             | 6.3         | 5.8         | 5.6         | 5.6         | 11.2        | 9.1         | 26.7             | 26.9                     |
| 70 and older.....              | 678                   | 100.0   | 3.3   | 6.0       | 6.4       | 8.3       | 76.0             | 8.2         | 6.5         | 5.2         | 3.6         | 6.1         | 4.4         | 42.1             | 30.5                     |
| Women, 16 years and older..... | 48,848                | 100.0   | 22.2  | 19.6      | 11.9      | 16.0      | 30.3             | 13.4        | 7.8         | 4.6         | 1.9         | 1.4         | .6          | .6               | 5.4                      |
| 16-24.....                     | 9,270                 | 100.0   | 51.7  | 32.3      | 11.0      | 4.7       | .3               | .3          | —           | —           | —           | —           | —           | —                | 1.9                      |
| 25-29.....                     | 7,353                 | 100.0   | 23.7  | 25.6      | 19.3      | 24.1      | 7.3              | 7.1         | .2          | —           | —           | —           | —           | —                | 4.1                      |
| 30-34.....                     | 6,863                 | 100.0   | 18.1  | 18.4      | 13.8      | 23.2      | 26.5             | 22.0        | 4.5         | .1          | —           | —           | —           | —                | 6.0                      |
| 35-39.....                     | 6,565                 | 100.0   | 16.3  | 16.4      | 11.6      | 18.4      | 37.3             | 18.9        | 14.6        | 3.7         | .1          | —           | —           | —                | 7.0                      |
| 40-44.....                     | 5,408                 | 100.0   | 13.3  | 16.3      | 10.5      | 17.6      | 42.2             | 16.6        | 13.3        | 10.3        | 1.9         | .1          | —           | —                | 8.0                      |
| 45-49.....                     | 4,152                 | 100.0   | 11.3  | 13.4      | 8.6       | 16.4      | 50.3             | 19.3        | 12.2        | 10.0        | 6.2         | 2.4         | .1          | —                | 10.0                     |
| 50-54.....                     | 3,343                 | 100.0   | 10.3  | 11.5      | 10.3      | 12.6      | 35.2             | 17.1        | 14.6        | 9.4         | 5.4         | 6.7         | 1.9         | —                | 10.8                     |
| 55-59.....                     | 2,908                 | 100.0   | 8.6   | 10.2      | 6.8       | 14.0      | 60.4             | 17.3        | 13.8        | 12.3        | 5.5         | 5.9         | 3.9         | 1.6              | 12.4                     |
| 60-64.....                     | 1,827                 | 100.0   | 7.3   | 7.5       | 7.0       | 13.0      | 65.3             | 16.5        | 14.0        | 12.3        | 7.1         | 6.0         | 3.4         | 6.0              | 14.5                     |
| 65-69.....                     | 692                   | 100.0   | 7.4   | 9.2       | 6.7       | 8.6       | 68.1             | 15.0        | 13.8        | 10.2        | 10.1        | 6.8         | 3.6         | 8.7              | 15.6                     |
| 70 and older.....              | 467                   | 100.0   | 6.8   | 6.5       | 5.0       | 9.1       | 72.7             | 14.8        | 9.6         | 11.4        | 5.7         | 7.5         | 4.0         | 19.6             | 18.8                     |
| White.....                     | 95,044                | 100.0   | 18.9  | 17.0      | 10.7      | 15.3      | 38.2             | 14.1        | 8.9         | 6.2         | 3.4         | 2.9         | 1.4         | 1.5              | 6.7                      |
| Men.....                       | 53,096                | 100.0   | 16.2  | 14.8      | 9.7       | 14.6      | 44.6             | 14.8        | 9.9         | 7.4         | 4.5         | 4.0         | 2.0         | 2.1              | 8.3                      |
| Women.....                     | 41,949                | 100.0   | 22.2  | 19.7      | 11.8      | 16.2      | 30.2             | 13.2        | 7.6         | 4.6         | 2.0         | 1.5         | .6          | .7               | 5.4                      |
| Black.....                     | 10,851                | 100.0   | 21.3  | 18.0      | 12.0      | 14.7      | 34.0             | 14.3        | 9.1         | 5.7         | 2.3         | 1.7         | .6          | .5               | 5.8                      |
| Men.....                       | 5,447                 | 100.0   | 22.1  | 17.6      | 11.8      | 14.1      | 34.5             | 13.1        | 8.9         | 6.1         | 2.8         | 2.2         | .6          | .6               | 5.8                      |
| Women.....                     | 5,404                 | 100.0   | 20.6  | 18.4      | 12.2      | 15.2      | 33.6             | 15.4        | 9.3         | 5.2         | 1.8         | 1.1         | .5          | .3               | 5.8                      |
| Hispanic origin.....           | 7,198                 | 100.0   | 24.3  | 23.0      | 11.8      | 15.9      | 25.1             | 12.2        | 6.1         | 3.2         | 1.7         | 1.3         | .3          | .3               | 4.5                      |
| Men.....                       | 4,408                 | 100.0   | 22.2  | 21.6      | 11.2      | 16.0      | 29.1             | 13.9        | 6.7         | 3.7         | 2.3         | 1.8         | .4          | .4               | 5.1                      |
| Women.....                     | 2,790                 | 100.0   | 27.6  | 25.2      | 12.7      | 15.8      | 18.7             | 9.7         | 5.2         | 2.4         | .6          | .5          | .2          | .1               | 3.7                      |
| Full-time workers.....         | 93,665                | 100.0   | 16.4  | 16.8      | 11.1      | 16.1      | 39.7             | 15.0        | 9.5         | 6.5         | 3.4         | 2.9         | 1.3         | 1.1              | 7.2                      |
| Men.....                       | 55,464                | 100.0   | 14.4  | 14.9      | 10.2      | 15.4      | 45.1             | 15.5        | 10.3        | 7.6         | 4.5         | 3.9         | 1.8         | 1.6              | 8.4                      |
| Women.....                     | 38,201                | 100.0   | 19.2  | 19.5      | 12.3      | 17.0      | 32.0             | 14.2        | 8.4         | 4.9         | 2.0         | 1.4         | .6          | .5               | 5.9                      |
| Part-time workers.....         | 15,425                | 100.0   | 36.9  | 19.9      | 9.5       | 10.0      | 23.6             | 8.6         | 4.8         | 3.1         | 1.8         | 1.8         | 1.0         | 2.5              | 3.1                      |
| Men.....                       | 4,778                 | 100.0   | 45.5  | 19.9      | 7.1       | 5.3       | 22.3             | 4.3         | 3.4         | 2.6         | 1.9         | 2.7         | 2.0         | 5.3              | 2.4                      |
| Women.....                     | 10,647                | 100.0   | 33.1  | 19.9      | 10.6      | 12.2      | 24.2             | 10.5        | 5.4         | 3.3         | 1.7         | 1.4         | .6          | 1.2              | 3.6                      |

NOTE: Dashes indicate less than 0.1 percent.



lege graduates more than individuals with less education. In addition, self-employed individuals had more tenure than wage and salary workers, and full-time workers more than those on part-time schedules. The average tenure in any particular occupation not only reflects the ages and other demographic characteristics of workers, but also employment trends in the occupation. If employment has declined, the lack of jobs for young entrants combined with the aging of the experienced workers will tend to raise average tenure. Conversely, very rapid employment growth that provides jobs for many new workers will tend to lower average tenure in the occupation.

Among the major occupational groups, average tenure ranged from 10.4 years for farming, forestry, and fishing workers to 4.1 years for service workers, reflecting differences in the demographic profiles and employment growth rates of the detailed occupations within the groups. Averages are similar when workers are young, but diverge with age. (See table 2.) Differences in average tenure among detailed occupations were much greater than among the major groups, ranging from 24.8 years for barbers to 1.5 years for food counter and fountain workers. The relationship between tenure and age in detailed occupations can be seen in table 3, which ranks 277 occupations having 50,000 or more workers by median tenure.

*Employment trends.* The number of persons in occupations with the greatest average tenure generally has been growing very slowly or declining, but these occupations have sufficient appeal in terms of earnings, lifestyle, and other considerations to encourage continued worker attachment. Farmers exemplify this type of occupation. Although a career in farming is attractive to some young people, opportunities for new owner/operators have been limited by the growing expense of land and equipment and the consequent merging of small farms into larger, more economically viable holdings. As a result, fewer young people have gone into this field and the farming work force has aged. Only 6 percent of all farmers had 3 years of tenure or less, while 57 percent had 20 years or more. Lack of employment growth also has contributed to high average tenure in many other occupations, including barbers, railroad conductors, clergy, and millwrights.

In contrast, some occupations that would be expected to have high worker attachment have comparatively low average tenure because they have emerged in recent years and are growing very rapidly. Such occupations have a large proportion of young people with relatively little work experience. Computer programmers exemplify this type of occupation. About 45 percent of the programmers had 3 years of tenure or less, while only 7 percent had 20 years or more. Because of the impact of employment growth on average tenure, when analyzing a specific occupation, it is important to know how the age distribution of its workers compares with that of other occupations.

**Table 2. Median years of tenure in current occupation, by major occupational group and age, January 1987**

| Occupational group                               | Total, 16 and older | Ages 16-24 | Ages 25-34 | Ages 35-44 | Ages 45-54 | Ages 55-64 | Ages 65 and older |
|--|---------------------|------------|------------|------------|------------|------------|-------------------|
| Total, age 16 and older .....                    | 6.6                 | 1.9        | 5.4        | 10.0       | 14.3       | 18.2       | 20.6              |
| Executive, administrative, and managerial ...    | 8.4                 | 2.4        | 5.6        | 10.1       | 15.1       | 17.9       | 26.3              |
| Professional speciality                          | 9.6                 | 2.0        | 5.7        | 12.0       | 18.2       | 25.6       | 36.2              |
| Technicians and related support .....            | 6.9                 | 2.2        | 5.7        | 10.9       | 17.7       | 20.8       | 22.2              |
| Sales occupations ....                           | 5.1                 | 1.7        | 4.7        | 7.7        | 10.5       | 15.5       | 21.6              |
| Administrative support, including clerical ..... | 5.4                 | 2.1        | 5.0        | 7.6        | 10.9       | 14.6       | 15.4              |
| Service occupations...                           | 4.1                 | 1.7        | 4.4        | 6.9        | 9.0        | 10.6       | 10.4              |
| Precision production, craft, and repair .....    | 9.3                 | 2.6        | 7.1        | 13.5       | 19.9       | 25.7       | 30.1              |
| Operators, fabricators, and laborers .....       | 5.5                 | 1.7        | 4.6        | 9.1        | 13.7       | 18.1       | 14.7              |
| Farming, forestry, and fishing .....             | 10.4                | 2.9        | 7.9        | 13.5       | 20.7       | 30.5       | 39.8              |

*Sex, race, and ethnicity.* Average occupational tenure was 7.9 years for men and 5.4 years for women. Although the difference in tenure by sex was not significant for young people, it increased steadily with age. Among workers ages 60 to 64, the average was 23.9 years for men, compared to only 14.5 years for women. Men had more tenure mainly because their labor force participation has been more continuous. Many women currently in the work force interrupted their careers for extended periods for home and family responsibilities and, moreover, some resumed work in a different career. At all but the youngest ages, they were more likely than men to have recently entered their occupation. The lower tenure of women also may reflect their underrepresentation in the higher paying managerial, professional, and craft jobs.

Men accounted for most of the employment in detailed occupations having the longest average tenure. They represented more than eight-tenths of the farmers and barbers, for example, and more than nine-tenths of the clergy and railroad conductors. Women with the greatest tenure generally were those who had pursued traditional careers, such as elementary school teachers, registered nurses, licensed practical nurses, and hairdressers and cosmetologists.

White men had greater tenure than other men, averaging 8.3 years, compared to 5.8 years for blacks, and 5.1 years for Hispanics. White males were more likely to have lengthy tenure because they were older, and had higher labor force participation rates and lower unemployment rates. They also had better jobs than other men, who tended to be concentrated in lower paying jobs in the service group and the operator, fabricator, and laborer group. Black women, however, had more tenure than other women and about as much as black men. Historically, black women have been more likely than white

Table 3. Ranking of occupations by years of tenure in occupation and selected characteristics, January 1987

| Occupation  | Total employed, January 1987 (thousands) | Median tenure (in years) | Percent of employees with— |                  |                    |                         | Median age | Percent of employees, ages— |       |       |              |
|---|--|--------------------------|----------------------------|------------------|--------------------|-------------------------|------------|-----------------------------|-------|-------|--------------|
|   |  |                          | 3 years or less tenure     | 4–9 years tenure | 10–19 years tenure | 20 or more years tenure |            | 16–24                       | 25–34 | 35–54 | 55 and older |
| Total, age 16 and older .....                                 | 109,090                                  | 6.6                      | 36.5                       | 26.0             | 22.9               | 14.6                    | 35.8       | 18.5                        | 29.4  | 39.1  | 13.1         |
| Barbers .....   | 88                                       | 24.8                     | 14.5                       | 9.4              | 10.9               | 65.2                    | 49.5       | 6.0                         | 13.4  | 47.1  | 33.5         |
| Farmers, except horticultural .....                           | 1,019                                    | 21.1                     | 6.3                        | 16.9             | 20.0               | 56.8                    | 50.1       | 4.4                         | 17.6  | 38.2  | 39.9         |
| Railroad conductors and yardmasters .....                     | 53                                       | 18.4                     | 7.5                        | 3.1              | 48.8               | 40.6                    | 44.3       | .3                          | 17.8  | 61.0  | 21.0         |
| Clergy .....  | 347                                      | 15.8                     | 14.4                       | 16.5             | 29.3               | 39.8                    | 44.8       | 2.2                         | 22.0  | 47.9  | 27.9         |
| Dentists .....  | 149                                      | 15.7                     | 9.3                        | 16.2             | 32.8               | 41.7                    | 43.2       | .5                          | 20.0  | 52.4  | 27.0         |
| Telephone line installers and repairers .....                 | 52                                       | 15.0                     | 8.9                        | 27.9             | 46.7               | 16.4                    | 36.6       | 5.8                         | 35.7  | 55.0  | 3.5          |
| Millwrights .....   | 101                                      | 14.8                     | 17.3                       | 14.2             | 40.9               | 27.6                    | 43.2       | 5.3                         | 22.0  | 55.8  | 16.9         |
| Locomotive operating occupations .....                        | 72                                       | 14.8                     | 7.4                        | 14.1             | 46.8               | 31.7                    | 39.3       | .4                          | 25.8  | 58.6  | 15.2         |
| Managers; farms, except horticultural .....                   | 132                                      | 14.4                     | 9.3                        | 22.1             | 29.6               | 39.0                    | 39.4       | 11.1                        | 29.6  | 37.2  | 22.1         |
| Telephone installers and repairers .....                      | 235                                      | 14.3                     | 13.2                       | 25.7             | 42.2               | 19.0                    | 38.0       | 5.6                         | 29.4  | 57.6  | 7.4          |
| Airplane pilots and navigators .....                          | 86                                       | 14.0                     | 3.0                        | 29.6             | 28.1               | 39.3                    | 41.6       | 1.3                         | 24.9  | 61.6  | 12.3         |
| Supervisors; police and detectives .....                      | 76                                       | 13.8                     | 9.2                        | 20.7             | 43.8               | 26.4                    | 42.1       | .4                          | 14.8  | 78.2  | 6.6          |
| Grader, dozer, and scraper operators .....                    | 75                                       | 13.3                     | 13.6                       | 17.2             | 39.0               | 30.2                    | 41.4       | 9.4                         | 28.5  | 44.5  | 17.6         |
| Tailors .....   | 51                                       | 13.3                     | 24.6                       | 12.4             | 24.1               | 38.9                    | 44.2       | 8.8                         | 18.2  | 48.4  | 24.5         |
| Civil engineers .....   | 237                                      | 13.0                     | 17.8                       | 19.7             | 28.9               | 33.5                    | 38.8       | 4.8                         | 32.8  | 46.5  | 16.0         |
| Crane and tower operators .....                               | 97                                       | 12.9                     | 10.8                       | 26.2             | 31.9               | 31.2                    | 41.6       | 4.4                         | 32.4  | 49.2  | 13.9         |
| Supervisors, n.e.c. ....                                      | 500                                      | 12.9                     | 12.2                       | 24.0             | 33.8               | 29.9                    | 39.1       | 5.7                         | 30.3  | 49.8  | 14.1         |
| Teachers, secondary school .....                              | 1,182                                    | 12.5                     | 14.9                       | 22.3             | 39.4               | 23.4                    | 39.8       | 3.7                         | 23.7  | 61.8  | 10.7         |
| Teachers, elementary school .....                             | 1,412                                    | 12.4                     | 14.3                       | 24.3             | 41.3               | 20.1                    | 39.0       | 4.7                         | 27.4  | 58.6  | 9.2          |
| Dental laboratory and medical appliance technicians .....     | 68                                       | 12.3                     | 14.3                       | 27.6             | 34.1               | 23.9                    | 35.0       | 11.9                        | 36.3  | 34.9  | 16.9         |
| Separating, filtering, and clarifying machine operators ..... | 59                                       | 12.1                     | 15.1                       | 27.3             | 41.0               | 16.5                    | 37.1       | 9.0                         | 33.7  | 48.6  | 8.8          |
| Tool and die makers .....                                     | 151                                      | 12.0                     | 17.8                       | 16.0             | 30.6               | 35.6                    | 39.8       | 8.2                         | 28.4  | 41.1  | 22.3         |
| Lathe and turning machine operators .....                     | 77                                       | 11.9                     | 32.8                       | 11.3             | 25.7               | 30.2                    | 34.1       | 13.4                        | 40.2  | 34.8  | 11.7         |
| Machinists .....  | 453                                      | 11.9                     | 17.2                       | 23.9             | 32.2               | 26.6                    | 36.9       | 12.4                        | 32.6  | 41.0  | 14.1         |
| Pharmacists .....   | 141                                      | 11.8                     | 17.9                       | 25.8             | 31.2               | 25.1                    | 38.1       | 5.7                         | 36.4  | 42.6  | 15.3         |
| Stationary engineers .....                                    | 93                                       | 11.7                     | 17.0                       | 24.7             | 31.2               | 27.0                    | 41.5       | 4.4                         | 29.0  | 46.2  | 20.4         |
| Mechanical engineers .....                                    | 288                                      | 11.4                     | 21.9                       | 23.7             | 24.2               | 30.2                    | 39.2       | 6.8                         | 33.1  | 45.0  | 15.1         |
| Chemists, except biochemists .....                            | 134                                      | 11.1                     | 14.5                       | 29.1             | 25.8               | 30.7                    | 37.7       | 6.8                         | 34.1  | 46.0  | 13.2         |
| Inspectors, testers, and graders .....                        | 103                                      | 11.0                     | 24.5                       | 23.4             | 29.5               | 22.6                    | 36.5       | 13.0                        | 32.1  | 43.8  | 11.1         |
| Electricians .....  | 656                                      | 11.0                     | 17.4                       | 24.5             | 36.8               | 21.3                    | 36.1       | 12.8                        | 33.6  | 42.5  | 11.2         |
| Operating engineers .....                                     | 173                                      | 11.0                     | 10.6                       | 28.6             | 31.9               | 28.8                    | 38.7       | 7.9                         | 31.8  | 48.6  | 11.8         |
| Radiologic technicians .....                                  | 127                                      | 10.9                     | 17.3                       | 28.8             | 30.9               | 22.9                    | 32.1       | 13.6                        | 44.9  | 35.7  | 5.7          |
| Electrical power installers and repairers .....               | 100                                      | 10.8                     | 17.7                       | 26.4             | 24.9               | 30.9                    | 37.5       | 7.3                         | 34.1  | 49.3  | 9.3          |
| Supervisors; mechanics and repairers .....                    | 241                                      | 10.7                     | 19.6                       | 25.7             | 30.7               | 24.1                    | 42.1       | 2.9                         | 23.5  | 58.2  | 15.4         |
| Heavy equipment mechanics .....                               | 158                                      | 10.7                     | 16.4                       | 30.2             | 31.6               | 21.8                    | 36.9       | 9.7                         | 32.8  | 46.4  | 11.0         |
| Bus, truck, and stationary engine mechanics .....             | 310                                      | 10.7                     | 21.5                       | 25.0             | 29.7               | 23.9                    | 35.3       | 15.1                        | 34.1  | 39.5  | 11.2         |
| Physicians .....  | 516                                      | 10.7                     | 20.5                       | 26.7             | 25.4               | 27.4                    | 40.3       | .8                          | 30.9  | 51.2  | 17.1         |
| Construction inspectors .....                                 | 66                                       | 10.7                     | 17.7                       | 23.3             | 41.2               | 17.7                    | 43.3       | 6.9                         | 16.9  | 55.2  | 21.0         |
| Cabinet makers and bench carpenters .....                     | 56                                       | 10.6                     | 17.6                       | 22.8             | 38.1               | 21.5                    | 34.6       | 19.9                        | 33.1  | 34.5  | 12.5         |
| Industrial machinery repairers .....                          | 484                                      | 10.6                     | 17.7                       | 25.7             | 36.7               | 20.0                    | 39.4       | 8.0                         | 28.2  | 49.5  | 14.3         |
| Automobile body and related repairers .....                   | 164                                      | 10.4                     | 22.0                       | 21.5             | 41.6               | 14.8                    | 33.2       | 20.3                        | 36.4  | 34.0  | 9.3          |
| Electrical and electronic engineers .....                     | 520                                      | 10.4                     | 18.2                       | 29.6             | 25.3               | 26.9                    | 36.3       | 9.3                         | 36.7  | 42.7  | 11.3         |
| Plumbers, pipefitters, and steamfitters .....                 | 477                                      | 10.4                     | 17.9                       | 29.1             | 31.2               | 21.8                    | 35.6       | 13.0                        | 35.0  | 40.9  | 11.1         |
| Licensed practical nurses .....                               | 408                                      | 10.3                     | 24.4                       | 22.6             | 36.3               | 16.7                    | 36.9       | 7.7                         | 35.4  | 46.7  | 10.1         |
| Brickmasons and stonemasons .....                             | 182                                      | 10.2                     | 27.0                       | 22.0             | 24.9               | 26.2                    | 35.1       | 15.5                        | 35.0  | 36.2  | 13.3         |
| Truck drivers, heavy .....                                    | 1,740                                    | 10.1                     | 24.7                       | 24.3             | 28.3               | 22.8                    | 38.0       | 10.5                        | 31.6  | 45.2  | 12.6         |
| Tile setters, hard and soft .....                             | 55                                       | 10.1                     | 25.1                       | 23.5             | 26.8               | 24.6                    | 32.3       | 19.8                        | 41.2  | 30.1  | 8.8          |
| Lawyers .....   | 659                                      | 10.1                     | 23.8                       | 25.5             | 30.0               | 20.7                    | 37.6       | 2.0                         | 37.8  | 45.9  | 14.3         |
| Supervisors; production occupations .....                     | 1,379                                    | 10.1                     | 24.4                       | 25.1             | 29.7               | 20.8                    | 40.6       | 5.9                         | 27.2  | 52.3  | 14.5         |
| Administrators, education and related fields .....            | 544                                      | 10.1                     | 22.9                       | 26.7             | 35.3               | 15.1                    | 43.5       | 3.6                         | 16.6  | 63.6  | 16.2         |
| Engineers, n.e.c. ....  | 269                                      | 10.0                     | 19.8                       | 30.0             | 25.5               | 24.6                    | 39.4       | 6.0                         | 30.3  | 46.8  | 16.9         |
| Excavating and loading machine operators .....                | 113                                      | 10.0                     | 22.8                       | 27.2             | 34.2               | 15.8                    | 36.3       | 11.1                        | 35.9  | 40.7  | 12.2         |
| Firefighting occupations .....                                | 167                                      | 10.0                     | 17.2                       | 32.9             | 38.0               | 11.9                    | 33.7       | 8.8                         | 46.7  | 39.5  | 5.0          |
| Aircraft engine mechanics .....                               | 125                                      | 10.0                     | 19.1                       | 31.0             | 17.6               | 32.3                    | 42.0       | 7.6                         | 25.2  | 55.2  | 12.0         |
| Police and detectives, public service .....                   | 474                                      | 9.7                      | 21.8                       | 29.0             | 34.6               | 14.6                    | 35.6       | 7.0                         | 41.0  | 48.5  | 3.5          |
| Counselors, educational and vocational .....                  | 196                                      | 9.7                      | 24.1                       | 27.7             | 33.2               | 14.9                    | 40.5       | 6.4                         | 21.1  | 59.8  | 12.6         |
| Architects .....  | 99                                       | 9.6                      | 12.8                       | 39.4             | 18.5               | 29.3                    | 36.1       | 7.6                         | 38.2  | 39.0  | 15.1         |
| Structural metal workers .....                                | 51                                       | 9.6                      | 20.5                       | 33.9             | 25.5               | 20.1                    | 35.2       | 11.2                        | 40.0  | 41.7  | 7.2          |
| Aerospace engineers .....                                     | 109                                      | 9.6                      | 22.8                       | 28.3             | 10.3               | 38.7                    | 43.1       | 6.2                         | 28.7  | 45.2  | 19.9         |
| Miscellaneous material moving equipment operators .....       | 62                                       | 9.4                      | 23.1                       | 31.6             | 34.2               | 11.1                    | 35.5       | 14.7                        | 34.5  | 41.9  | 8.9          |
| Dental hygienists .....                                       | 58                                       | 9.4                      | 11.1                       | 45.6             | 37.4               | 5.9                     | 30.2       | 20.7                        | 48.5  | 29.7  | 1.2          |
| Automobile mechanics .....                                    | 933                                      | 9.3                      | 26.6                       | 24.6             | 26.7               | 22.1                    | 32.1       | 22.3                        | 36.8  | 31.7  | 9.2          |
| Registered nurses .....                                       | 1,538                                    | 9.3                      | 20.7                       | 31.5             | 28.0               | 19.8                    | 36.5       | 6.8                         | 38.4  | 44.7  | 10.0         |
| Speech therapists .....                                       | 60                                       | 9.3                      | 22.3                       | 36.3             | 34.8               | 6.6                     | 33.2       | 5.9                         | 54.8  | 37.0  | 2.3          |
| Binding and twisting machine operators .....                  | 64                                       | 9.3                      | 30.0                       | 23.3             | 33.4               | 13.4                    | 38.1       | 12.9                        | 28.5  | 43.2  | 15.4         |
| Managers and administrators, n.e.c. ....                      | 6,562                                    | 9.1                      | 25.0                       | 27.3             | 27.4               | 20.4                    | 40.0       | 7.4                         | 26.9  | 49.9  | 15.8         |
| Personnel and labor relations managers .....                  | 125                                      | 9.0                      | 16.4                       | 35.1             | 32.1               | 16.3                    | 40.3       | 4.7                         | 23.5  | 59.1  | 12.7         |
| Office machine repairers .....                                | 74                                       | 9.0                      | 18.2                       | 40.1             | 21.4               | 20.3                    | 33.6       | 14.2                        | 43.0  | 38.1  | 4.8          |

See footnote at end of table.



Table 3. Continued—Ranking of occupations by years of tenure in occupation and selected characteristics, January 1987

| Occupation   | Total employed, January 1987 (thousands) | Median tenure (in years) | Percent of employees with— |                  |                    |                         | Median age | Percent of employees, ages— |       |       |              |
|--|--|--------------------------|----------------------------|------------------|--------------------|-------------------------|------------|-----------------------------|-------|-------|--------------|
|  |  |                          | 3 years or less tenure     | 4–9 years tenure | 10–19 years tenure | 20 or more years tenure |            | 16–24                       | 25–34 | 35–54 | 55 and older |
| Electronic repairers, commercial and industrial equipment .....    | 189                                      | 9.0                      | 24.4                       | 27.4             | 26.1               | 22.1                    | 35.1       | 16.3                        | 33.8  | 39.3  | 10.7         |
| Welders and cutters .....  | 566                                      | 9.0                      | 28.2                       | 23.3             | 30.0               | 18.6                    | 34.9       | 13.8                        | 36.7  | 40.9  | 8.6          |
| Punching and stamping press machine operators .....                | 139                                      | 9.0                      | 33.9                       | 19.5             | 28.1               | 18.4                    | 36.2       | 13.7                        | 31.6  | 45.1  | 9.6          |
| Sheet metal workers .....  | 119                                      | 8.9                      | 26.3                       | 26.0             | 30.2               | 17.6                    | 35.0       | 16.1                        | 34.8  | 38.4  | 10.6         |
| Administrators and officials, public administration .....          | 498                                      | 8.9                      | 24.8                       | 28.0             | 31.3               | 15.9                    | 43.0       | 2.6                         | 19.2  | 58.9  | 19.3         |
| Hairdressers and cosmetologists .....                              | 723                                      | 8.9                      | 30.3                       | 21.6             | 24.3               | 23.8                    | 35.5       | 21.7                        | 26.6  | 41.5  | 10.3         |
| Industrial engineers .....   | 213                                      | 8.9                      | 24.5                       | 29.0             | 24.6               | 21.9                    | 39.2       | 6.0                         | 32.0  | 46.7  | 15.2         |
| Librarians .....   | 217                                      | 8.8                      | 28.9                       | 27.9             | 29.1               | 14.2                    | 42.2       | 8.1                         | 17.6  | 53.8  | 20.5         |
| Inspectors and compliance officers, except construction .....      | 159                                      | 8.8                      | 31.0                       | 27.0             | 30.7               | 11.3                    | 40.9       | 4.0                         | 24.9  | 52.9  | 18.2         |
| Upholsterers .....   | 95                                       | 8.6                      | 38.7                       | 12.1             | 17.8               | 31.4                    | 38.1       | 15.9                        | 27.1  | 36.9  | 20.0         |
| Payroll and timekeeping clerks .....                               | 137                                      | 8.6                      | 24.3                       | 28.0             | 25.4               | 22.3                    | 38.1       | 12.2                        | 28.5  | 40.7  | 18.5         |
| Furnace, kiln, and oven operators, except food .....               | 97                                       | 8.6                      | 28.8                       | 31.8             | 24.4               | 14.9                    | 37.6       | 12.6                        | 30.3  | 40.7  | 16.3         |
| Surveying and mapping technicians .....                            | 57                                       | 8.6                      | 23.7                       | 31.7             | 25.1               | 19.4                    | 34.0       | 20.0                        | 31.5  | 41.8  | 6.8          |
| Chemical engineers .....   | 74                                       | 8.6                      | 25.6                       | 28.6             | 22.2               | 23.6                    | 33.9       | 9.3                         | 45.8  | 30.2  | 14.7         |
| Sheriffs, bailiffs, and other law enforcement officers .....       | 119                                      | 8.6                      | 31.0                       | 25.4             | 32.7               | 10.9                    | 36.8       | 4.7                         | 36.1  | 42.1  | 17.1         |
| Concrete and terrazzo finishers .....                              | 67                                       | 8.6                      | 35.7                       | 26.4             | 18.4               | 19.4                    | 32.6       | 19.6                        | 37.2  | 36.5  | 6.8          |
| Sales representatives, mining, manufacturing, and wholesale .....  | 1,354                                    | 8.6                      | 26.9                       | 29.4             | 27.2               | 16.6                    | 37.6       | 9.5                         | 32.8  | 43.8  | 13.9         |
| Supervisors; general office .....                                  | 465                                      | 8.6                      | 23.9                       | 33.5             | 24.0               | 18.6                    | 39.3       | 6.7                         | 28.4  | 51.7  | 13.2         |
| Specified mechanics and repairers, n.e.c. ....                     | 446                                      | 8.5                      | 31.4                       | 24.7             | 27.2               | 16.7                    | 36.7       | 15.8                        | 29.2  | 40.5  | 14.5         |
| Stenographers .....  | 57                                       | 8.5                      | 30.5                       | 24.3             | 31.7               | 13.5                    | 38.2       | 9.8                         | 30.9  | 36.3  | 23.0         |
| Typesetters and compositors .....                                  | 75                                       | 8.5                      | 24.2                       | 37.7             | 22.5               | 15.6                    | 34.7       | 19.1                        | 32.1  | 39.2  | 9.7          |
| Financial managers .....   | 438                                      | 8.4                      | 19.2                       | 37.9             | 28.7               | 14.2                    | 37.6       | 4.8                         | 35.4  | 48.7  | 11.1         |
| Psychologists .....  | 169                                      | 8.4                      | 23.2                       | 36.6             | 28.1               | 12.1                    | 40.3       | 3.1                         | 24.1  | 59.4  | 13.3         |
| Teachers; special education .....                                  | 225                                      | 8.4                      | 26.2                       | 31.6             | 33.8               | 8.3                     | 36.4       | 6.2                         | 38.2  | 46.5  | 9.1          |
| Statistical clerks .....   | 93                                       | 8.3                      | 29.2                       | 34.4             | 24.7               | 11.7                    | 37.5       | 15.5                        | 27.8  | 40.3  | 16.4         |
| Designers .....  | 549                                      | 8.3                      | 31.9                       | 24.4             | 25.9               | 17.8                    | 35.4       | 12.1                        | 36.2  | 40.8  | 10.9         |
| Water and sewage treatment plant operators .....                   | 52                                       | 8.3                      | 28.3                       | 41.7             | 23.8               | 6.2                     | 35.5       | 9.4                         | 42.1  | 35.2  | 13.3         |
| Printing machine operators .....                                   | 306                                      | 8.2                      | 33.3                       | 25.3             | 16.0               | 25.5                    | 33.0       | 22.0                        | 33.3  | 34.3  | 10.5         |
| Heating, air conditioning, and refrigeration mechanics .....       | 269                                      | 8.1                      | 29.5                       | 29.4             | 22.5               | 18.6                    | 34.8       | 17.6                        | 34.0  | 39.0  | 9.3          |
| Supervisors; distribution, scheduling, and adjusting clerks .....  | 164                                      | 8.1                      | 28.0                       | 25.5             | 26.9               | 19.7                    | 38.4       | 6.4                         | 31.5  | 48.0  | 14.1         |
| Insurance sales occupations .....                                  | 591                                      | 8.1                      | 31.0                       | 25.8             | 22.1               | 21.0                    | 39.7       | 7.9                         | 27.1  | 49.4  | 15.6         |
| Carpenters .....   | 1,222                                    | 8.0                      | 29.7                       | 26.7             | 26.6               | 17.0                    | 32.7       | 20.6                        | 36.9  | 31.9  | 10.6         |
| Public transportation attendants .....                             | 81                                       | 8.0                      | 45.5                       | 13.2             | 30.0               | 11.3                    | 33.7       | 12.3                        | 42.8  | 42.7  | 2.2          |
| Drafting occupations .....   | 281                                      | 8.0                      | 28.8                       | 29.9             | 19.1               | 22.2                    | 32.5       | 20.4                        | 35.6  | 31.8  | 12.2         |
| Butchers and meatcutters .....                                     | 275                                      | 8.0                      | 29.7                       | 29.0             | 18.9               | 22.5                    | 35.2       | 21.0                        | 29.0  | 36.1  | 13.9         |
| Miscellaneous electrical and electronic equipment repairers .....  | 82                                       | 7.9                      | 26.0                       | 28.6             | 26.4               | 19.0                    | 37.1       | 9.3                         | 34.8  | 41.6  | 14.3         |
| Dressmakers .....  | 94                                       | 7.9                      | 35.1                       | 17.2             | 18.0               | 29.7                    | 47.9       | 6.4                         | 15.7  | 40.5  | 37.4         |
| Musicians and composers .....                                      | 187                                      | 7.9                      | 21.9                       | 29.5             | 18.0               | 30.6                    | 33.7       | 15.7                        | 40.3  | 29.3  | 14.7         |
| Supervisors and proprietors; sales occupations .....               | 3,539                                    | 7.9                      | 30.3                       | 26.8             | 25.0               | 17.8                    | 38.3       | 10.3                        | 29.7  | 44.2  | 15.7         |
| Painters, sculptors, craft-artists, and artist printmakers .....   | 195                                      | 7.9                      | 32.3                       | 24.6             | 30.7               | 12.4                    | 36.4       | 9.7                         | 36.5  | 39.9  | 13.9         |
| Mechanics and repairers, not specified .....                       | 187                                      | 7.7                      | 25.0                       | 37.0             | 25.0               | 13.1                    | 37.3       | 11.6                        | 31.7  | 40.5  | 16.2         |
| Engineering technicians, n.e.c. ....                               | 205                                      | 7.7                      | 28.2                       | 30.5             | 29.5               | 11.7                    | 34.7       | 15.0                        | 36.5  | 37.7  | 10.8         |
| Clinical laboratory technologists and technicians .....            | 272                                      | 7.7                      | 29.9                       | 32.6             | 29.2               | 8.3                     | 32.4       | 12.8                        | 47.0  | 34.9  | 5.3          |
| Purchasing managers .....  | 130                                      | 7.7                      | 20.4                       | 33.7             | 27.2               | 18.7                    | 39.8       | 4.2                         | 26.4  | 56.2  | 13.2         |
| Purchasing agents and buyers, n.e.c. ....                          | 225                                      | 7.7                      | 30.3                       | 31.2             | 27.3               | 11.3                    | 38.6       | 8.3                         | 31.0  | 47.5  | 13.3         |
| Photographers .....  | 127                                      | 7.6                      | 26.7                       | 26.4             | 26.2               | 20.7                    | 35.2       | 19.3                        | 30.1  | 37.4  | 13.1         |
| Chemical technicians .....   | 86                                       | 7.6                      | 33.8                       | 24.3             | 18.3               | 23.6                    | 36.1       | 14.9                        | 31.7  | 44.0  | 9.5          |
| Managers; properties and real estate .....                         | 413                                      | 7.6                      | 28.5                       | 30.2             | 25.3               | 16.0                    | 42.8       | 7.3                         | 24.8  | 42.5  | 25.4         |
| Accountants and auditors .....                                     | 1,317                                    | 7.6                      | 29.6                       | 28.7             | 22.9               | 18.7                    | 35.0       | 12.4                        | 37.9  | 38.6  | 11.1         |
| Religious workers, n.e.c. ....                                     | 77                                       | 7.6                      | 39.7                       | 23.7             | 23.7               | 12.8                    | 42.5       | 7.4                         | 24.1  | 45.1  | 23.4         |
| Secretaries .....  | 3,897                                    | 7.5                      | 30.5                       | 29.3             | 26.5               | 13.7                    | 36.1       | 18.5                        | 28.5  | 41.4  | 11.6         |
| Social workers .....   | 496                                      | 7.5                      | 28.8                       | 32.8             | 31.7               | 6.6                     | 37.3       | 7.1                         | 34.6  | 48.9  | 9.4          |
| Operations and systems researchers and analysts .....              | 215                                      | 7.4                      | 26.6                       | 34.4             | 24.7               | 14.3                    | 37.5       | 5.3                         | 35.3  | 52.2  | 7.2          |
| Postal clerks, except mail carriers .....                          | 286                                      | 7.4                      | 32.5                       | 29.2             | 26.3               | 12.0                    | 37.2       | 7.3                         | 33.7  | 46.8  | 12.2         |
| Managers; marketing, advertising, and public relations .....       | 417                                      | 7.3                      | 28.8                       | 36.3             | 23.2               | 11.7                    | 37.9       | 5.3                         | 33.7  | 50.3  | 10.6         |
| Farm workers .....   | 703                                      | 7.3                      | 33.5                       | 27.5             | 23.8               | 15.2                    | 30.0       | 35.5                        | 25.0  | 26.1  | 13.4         |
| Managers; medicine and health .....                                | 130                                      | 7.2                      | 23.5                       | 35.3             | 26.3               | 14.8                    | 39.4       | 2.6                         | 30.4  | 54.7  | 12.4         |
| Data processing equipment repairers .....                          | 122                                      | 7.2                      | 18.7                       | 49.9             | 10.0               | 21.4                    | 33.0       | 16.5                        | 42.0  | 38.5  | 3.0          |
| Bookkeepers, accounting and auditing clerks .....                  | 2,110                                    | 7.1                      | 33.7                       | 26.5             | 22.9               | 16.9                    | 38.9       | 13.4                        | 26.8  | 41.5  | 18.3         |
| Grinding, abrading, buffing, and polishing machine operators ..... | 138                                      | 7.0                      | 34.0                       | 30.0             | 22.5               | 13.5                    | 36.5       | 14.7                        | 31.6  | 39.5  | 14.2         |
| Management related occupations, n.e.c. ....                        | 277                                      | 7.0                      | 28.4                       | 31.8             | 27.8               | 12.1                    | 36.1       | 11.2                        | 35.6  | 41.8  | 11.5         |
| Supervisors; cleaning and building service workers .....           | 152                                      | 7.0                      | 29.0                       | 27.1             | 29.5               | 14.3                    | 44.2       | 5.5                         | 20.0  | 52.3  | 22.2         |

See footnote at end of table.

Table 3. Continued—Ranking of occupations by years of tenure in occupation and selected characteristics, January 1987

| Occupation  | Total employed, January 1987 (thousands) | Median tenure (in years) | Percent of employees with— |                  |                    |                         | Median age | Percent of employees, ages— |       |       |              |
|---|--|--------------------------|----------------------------|------------------|--------------------|-------------------------|------------|-----------------------------|-------|-------|--------------|
|   |  |                          | 3 years or less tenure     | 4–9 years tenure | 10–19 years tenure | 20 or more years tenure |            | 16–24                       | 25–34 | 35–54 | 55 and older |
| Management analysts .....   | 218                                      | 7.0                      | 30.5                       | 28.0             | 22.5               | 19.0                    | 42.2       | 5.0                         | 24.7  | 47.5  | 22.8         |
| Science technicians, n.e.c. ....                                  | 79                                       | 7.0                      | 29.7                       | 30.7             | 29.2               | 10.3                    | 32.4       | 20.4                        | 39.0  | 33.9  | 6.8          |
| Mail carriers, postal service .....                               | 284                                      | 7.0                      | 34.6                       | 25.9             | 27.1               | 12.4                    | 38.7       | 6.4                         | 31.2  | 46.5  | 15.9         |
| Knitting, looping, taping, and weaving machine operators .....    | 54                                       | 6.9                      | 34.3                       | 18.2             | 35.8               | 11.8                    | 37.2       | 14.8                        | 29.1  | 48.8  | 7.2          |
| Electrical and electronic technicians .....                       | 294                                      | 6.9                      | 33.7                       | 26.6             | 25.7               | 14.0                    | 32.9       | 15.9                        | 39.5  | 36.7  | 8.0          |
| Painting and paint spraying machine operators .....               | 185                                      | 6.9                      | 38.5                       | 26.8             | 22.3               | 12.4                    | 32.5       | 25.3                        | 33.6  | 32.8  | 8.2          |
| Postsecondary teachers, subject not specified .....               | 192                                      | 6.8                      | 35.5                       | 29.3             | 23.7               | 11.5                    | 38.5       | 11.6                        | 29.0  | 43.5  | 15.9         |
| Crossing guards .....   | 67                                       | 6.8                      | 37.2                       | 28.2             | 28.9               | 5.7                     | 51.5       | 2.6                         | 10.8  | 39.1  | 47.5         |
| Inhalation therapists .....                                       | 78                                       | 6.7                      | 17.4                       | 50.3             | 30.4               | 2.0                     | 32.4       | 8.1                         | 55.3  | 35.5  | 1.1          |
| Carpet installers .....   | 123                                      | 6.7                      | 38.1                       | 21.9             | 20.7               | 19.2                    | 30.3       | 24.5                        | 44.6  | 24.4  | 6.5          |
| Computer systems analysts and scientists .....                    | 433                                      | 6.6                      | 31.5                       | 33.9             | 25.8               | 8.9                     | 34.9       | 9.6                         | 41.1  | 45.6  | 3.7          |
| Other financial officers .....                                    | 594                                      | 6.6                      | 32.0                       | 31.9             | 25.0               | 11.2                    | 36.8       | 8.3                         | 34.8  | 45.6  | 11.4         |
| Industrial truck and tractor equipment operators .....            | 402                                      | 6.6                      | 33.0                       | 27.6             | 29.6               | 9.8                     | 33.9       | 18.8                        | 35.5  | 38.3  | 7.4          |
| Textile sewing machine operators .....                            | 740                                      | 6.6                      | 35.5                       | 27.9             | 23.1               | 13.5                    | 37.8       | 12.3                        | 29.8  | 43.4  | 14.4         |
| Correctional institution officers .....                           | 190                                      | 6.5                      | 37.4                       | 29.0             | 24.5               | 9.1                     | 33.8       | 12.1                        | 42.8  | 36.1  | 9.0          |
| Teachers, prekindergarten and kindergarten .....                  | 418                                      | 6.4                      | 36.5                       | 27.3             | 28.0               | 8.1                     | 35.9       | 13.4                        | 34.1  | 46.2  | 6.3          |
| Supervisors; financial records processing .....                   | 89                                       | 6.4                      | 26.7                       | 43.5             | 27.8               | 2.0                     | 40.0       | 4.8                         | 32.0  | 48.3  | 14.9         |
| Miscellaneous textile machine operators .....                     | 69                                       | 6.4                      | 33.9                       | 31.0             | 26.2               | 8.8                     | 31.7       | 22.7                        | 34.9  | 30.0  | 12.4         |
| Production inspectors, checkers, and examiners .....              | 632                                      | 6.3                      | 38.5                       | 25.1             | 25.2               | 11.2                    | 39.3       | 10.1                        | 27.8  | 46.2  | 15.8         |
| Actors and directors .....  | 87                                       | 6.3                      | 30.3                       | 30.4             | 25.8               | 13.5                    | 33.2       | 13.6                        | 44.8  | 35.2  | 6.4          |
| Health technologists and technicians, n.e.c. ....                 | 186                                      | 6.3                      | 40.0                       | 28.7             | 23.4               | 7.9                     | 31.3       | 22.3                        | 43.2  | 29.9  | 4.7          |
| Miscellaneous machine operators, n.e.c. ....                      | 927                                      | 6.2                      | 42.0                       | 22.0             | 26.5               | 9.4                     | 36.0       | 14.9                        | 32.8  | 41.6  | 10.6         |
| Private household cleaners and servants .....                     | 481                                      | 6.2                      | 40.0                       | 20.4             | 22.9               | 16.7                    | 45.9       | 11.5                        | 16.1  | 41.8  | 30.7         |
| Buyers, wholesale and retail trade, excluding farm products ..... | 205                                      | 6.0                      | 40.4                       | 20.5             | 23.8               | 15.3                    | 35.7       | 10.1                        | 38.2  | 39.0  | 12.7         |
| Real estate sales occupations .....                               | 726                                      | 6.0                      | 37.4                       | 27.1             | 24.8               | 10.7                    | 43.5       | 4.3                         | 21.4  | 50.6  | 23.7         |
| Electrical and electronic equipment assemblers .....              | 377                                      | 6.0                      | 40.1                       | 27.2             | 24.6               | 8.1                     | 34.9       | 18.5                        | 31.1  | 39.5  | 10.8         |
| Bus drivers .....   | 421                                      | 6.0                      | 37.5                       | 27.0             | 25.5               | 10.0                    | 41.6       | 7.6                         | 23.7  | 49.4  | 19.2         |
| Editors and reporters .....                                       | 228                                      | 6.0                      | 36.8                       | 28.0             | 21.0               | 14.2                    | 33.6       | 14.0                        | 40.8  | 33.5  | 11.7         |
| Laundering and dry cleaning machine operators .....               | 184                                      | 6.0                      | 45.3                       | 19.6             | 20.9               | 14.1                    | 39.1       | 18.6                        | 25.8  | 33.4  | 22.2         |
| Meter readers .....   | 50                                       | 5.9                      | 42.2                       | 23.4             | 28.0               | 6.4                     | 32.3       | 20.6                        | 38.5  | 31.4  | 9.5          |
| Painters, construction and maintenance .....                      | 440                                      | 5.9                      | 37.3                       | 28.9             | 21.3               | 12.5                    | 32.5       | 23.3                        | 33.3  | 33.3  | 10.1         |
| Driver-sales workers .....  | 300                                      | 5.9                      | 34.1                       | 30.7             | 19.6               | 15.5                    | 34.4       | 13.7                        | 38.3  | 39.0  | 9.0          |
| Teachers, n.e.c. ....   | 475                                      | 5.9                      | 36.1                       | 28.5             | 18.3               | 17.0                    | 36.8       | 15.1                        | 29.2  | 39.7  | 16.0         |
| Order clerks .....  | 257                                      | 5.8                      | 35.9                       | 33.6             | 24.2               | 6.3                     | 34.0       | 15.3                        | 38.6  | 37.1  | 9.0          |
| Physicians' assistants .....                                      | 79                                       | 5.8                      | 28.0                       | 52.4             | 17.4               | 2.2                     | 31.3       | 14.2                        | 53.9  | 28.4  | 3.5          |
| Billing clerks .....  | 145                                      | 5.8                      | 40.3                       | 32.6             | 18.1               | 9.0                     | 34.6       | 20.4                        | 31.1  | 37.9  | 10.6         |
| Drywall installers .....  | 154                                      | 5.7                      | 39.4                       | 21.9             | 21.2               | 17.6                    | 30.1       | 24.5                        | 43.4  | 28.7  | 3.4          |
| Construction trades, n.e.c. ....                                  | 196                                      | 5.7                      | 41.7                       | 26.1             | 16.7               | 15.5                    | 31.9       | 28.7                        | 29.0  | 30.7  | 11.5         |
| Telephone operators .....   | 232                                      | 5.7                      | 41.8                       | 25.4             | 25.6               | 7.2                     | 35.8       | 18.8                        | 28.6  | 37.8  | 14.9         |
| Authors .....   | 100                                      | 5.6                      | 36.1                       | 24.4             | 17.0               | 22.5                    | 42.5       | 2.3                         | 19.1  | 52.9  | 25.7         |
| Nursing aides, orderlies, and attendants .....                    | 1,283                                    | 5.6                      | 41.0                       | 28.9             | 23.3               | 6.8                     | 36.5       | 19.3                        | 27.0  | 39.8  | 13.9         |
| Dental assistants .....   | 185                                      | 5.6                      | 36.3                       | 35.8             | 19.0               | 8.9                     | 28.0       | 35.0                        | 39.9  | 22.4  | 2.8          |
| Timber cutting and logging occupations .....                      | 65                                       | 5.5                      | 40.1                       | 19.5             | 16.8               | 23.6                    | 35.5       | 21.8                        | 28.6  | 39.1  | 10.5         |
| Molding and casting machine operators .....                       | 95                                       | 5.5                      | 46.3                       | 22.3             | 19.0               | 12.4                    | 34.3       | 18.6                        | 33.6  | 37.4  | 10.4         |
| Miscellaneous hand-working occupations .....                      | 78                                       | 5.5                      | 39.2                       | 24.8             | 30.1               | 5.9                     | 36.4       | 20.9                        | 26.4  | 34.1  | 18.6         |
| Production coordinators .....                                     | 195                                      | 5.5                      | 35.1                       | 31.3             | 25.1               | 8.5                     | 36.6       | 8.4                         | 35.2  | 46.8  | 9.6          |
| Public relations specialists .....                                | 120                                      | 5.5                      | 36.5                       | 24.2             | 31.5               | 7.9                     | 37.8       | 11.0                        | 28.3  | 47.8  | 12.8         |
| Personnel clerks, except payroll and timekeeping .....            | 63                                       | 5.4                      | 44.7                       | 26.5             | 15.3               | 13.5                    | 37.7       | 14.3                        | 28.3  | 40.6  | 16.8         |
| Assemblers .....  | 1,033                                    | 5.4                      | 43.6                       | 23.6             | 21.8               | 10.9                    | 34.6       | 19.0                        | 32.7  | 37.2  | 11.1         |
| Securities and financial services sales occupations .....         | 354                                      | 5.4                      | 36.2                       | 35.4             | 20.2               | 8.2                     | 35.5       | 9.3                         | 38.7  | 40.3  | 11.6         |
| Salesworkers, furniture and home furnishings .....                | 194                                      | 5.4                      | 42.2                       | 21.9             | 19.1               | 16.8                    | 38.1       | 18.0                        | 25.1  | 39.0  | 17.9         |
| Insurance adjusters, examiners, and investigators .....           | 237                                      | 5.3                      | 42.3                       | 34.6             | 12.5               | 10.6                    | 32.9       | 17.7                        | 38.1  | 33.9  | 10.3         |
| Pressing machine operators .....                                  | 126                                      | 5.3                      | 45.8                       | 25.8             | 15.3               | 13.2                    | 37.3       | 19.2                        | 26.0  | 40.0  | 14.8         |
| Roofers .....   | 143                                      | 5.3                      | 36.4                       | 29.8             | 16.4               | 17.4                    | 28.9       | 30.1                        | 37.0  | 28.1  | 4.7          |
| Graders and sorters, except agricultural .....                    | 105                                      | 5.3                      | 45.6                       | 24.0             | 23.5               | 6.9                     | 33.6       | 22.6                        | 33.0  | 34.5  | 9.9          |
| Supervisors; related agricultural occupations .....               | 72                                       | 5.2                      | 34.9                       | 26.0             | 21.0               | 18.1                    | 31.6       | 25.7                        | 33.2  | 30.8  | 10.4         |
| Typists .....   | 829                                      | 5.2                      | 43.0                       | 29.1             | 18.8               | 9.2                     | 32.8       | 25.6                        | 30.2  | 34.2  | 10.0         |
| Supervisors; motor vehicle operators .....                        | 68                                       | 5.2                      | 44.0                       | 36.1             | 7.4                | 12.5                    | 36.2       | 17.8                        | 29.9  | 40.0  | 12.3         |
| Personnel, training, and labor relations specialists .....        | 323                                      | 5.2                      | 42.9                       | 34.0             | 17.6               | 5.5                     | 38.2       | 6.9                         | 31.8  | 49.7  | 11.6         |
| Legal assistants .....  | 191                                      | 5.2                      | 44.0                       | 28.6             | 17.3               | 10.1                    | 31.5       | 21.3                        | 38.9  | 34.5  | 5.4          |
| Physical therapists .....   | 76                                       | 5.2                      | 46.4                       | 33.4             | 15.1               | 5.2                     | 33.2       | 11.4                        | 45.2  | 39.3  | 4.2          |
| Advertising and related sales occupations .....                   | 153                                      | 5.1                      | 38.4                       | 30.9             | 20.5               | 10.1                    | 33.2       | 15.5                        | 40.3  | 32.5  | 11.6         |
| Records clerks .....  | 149                                      | 5.1                      | 42.6                       | 32.0             | 20.4               | 5.0                     | 35.7       | 19.9                        | 28.4  | 35.8  | 16.0         |
| Economists .....  | 104                                      | 5.1                      | 42.2                       | 32.9             | 18.1               | 6.7                     | 36.0       | 9.6                         | 38.8  | 42.8  | 8.8          |
| Technicians, n.e.c. ....  | 252                                      | 5.0                      | 42.5                       | 33.4             | 10.2               | 13.9                    | 33.8       | 16.7                        | 37.6  | 36.6  | 9.1          |
| Expeditors .....  | 118                                      | 5.0                      | 36.5                       | 29.5             | 23.6               | 10.4                    | 34.9       | 21.2                        | 28.1  | 35.6  | 15.1         |
| Sales occupations, other business services .....                  | 505                                      | 4.9                      | 43.7                       | 31.3             | 16.4               | 8.5                     | 34.8       | 18.8                        | 32.0  | 38.8  | 10.4         |
| Computer operators .....  | 859                                      | 4.8                      | 44.3                       | 31.7             | 18.4               | 5.5                     | 31.3       | 26.8                        | 33.9  | 33.2  | 6.1          |

See footnote at end of table.



Table 3. Continued—Ranking of occupations by years of tenure in occupation and selected characteristics, January 1987

| Occupation   | Total employed, January 1987 (thousands) | Median tenure (in years) | Percent of employees with— |                  |                    |                         | Median age | Percent of employees, ages— |       |       |              |
|--|--|--------------------------|----------------------------|------------------|--------------------|-------------------------|------------|-----------------------------|-------|-------|--------------|
|  |  |                          | 3 years or less tenure     | 4–9 years tenure | 10–19 years tenure | 20 or more years tenure |            | 16–24                       | 25–34 | 35–54 | 55 and older |
| Computer programmers .....                                   | 471                                      | 4.8                      | 45.2                       | 33.5             | 14.2               | 7.1                     | 30.8       | 20.9                        | 45.2  | 31.2  | 2.7          |
| Investigators and adjusters, except insurance .....          | 461                                      | 4.8                      | 45.3                       | 25.4             | 23.1               | 6.2                     | 33.2       | 20.6                        | 34.7  | 37.0  | 7.7          |
| Underwriters .....   | 86                                       | 4.8                      | 45.2                       | 28.0             | 19.7               | 7.0                     | 31.8       | 9.4                         | 54.0  | 30.5  | 6.1          |
| Salesworkers, parts .....                                    | 183                                      | 4.8                      | 43.3                       | 29.4             | 18.3               | 8.9                     | 29.1       | 31.6                        | 36.2  | 23.9  | 8.3          |
| Artists, performers, and related workers, n.e.c. ....        | 89                                       | 4.8                      | 42.3                       | 26.4             | 25.0               | 6.3                     | 35.1       | 17.8                        | 32.4  | 39.4  | 10.4         |
| Teachers' aides .....  | 429                                      | 4.6                      | 46.9                       | 25.4             | 25.2               | 2.5                     | 39.4       | 12.9                        | 20.7  | 54.4  | 11.9         |
| Maids and housemen .....                                     | 617                                      | 4.6                      | 46.7                       | 27.4             | 17.4               | 8.5                     | 38.2       | 16.3                        | 27.3  | 38.9  | 17.5         |
| Sawing machine operators .....                               | 74                                       | 4.6                      | 44.6                       | 21.4             | 22.0               | 12.0                    | 31.3       | 22.9                        | 34.8  | 30.8  | 11.5         |
| Machine operators, not specified .....                       | 325                                      | 4.5                      | 46.9                       | 26.6             | 17.8               | 8.6                     | 34.9       | 18.3                        | 32.1  | 38.9  | 10.8         |
| Weighers, measurers, and checkers .....                      | 53                                       | 4.5                      | 47.6                       | 17.5             | 17.4               | 17.5                    | 37.0       | 21.6                        | 23.4  | 39.6  | 15.4         |
| Traffic, shipping, and receiving clerks .....                | 466                                      | 4.5                      | 46.9                       | 28.7             | 18.5               | 5.9                     | 32.3       | 23.6                        | 33.6  | 32.5  | 10.3         |
| Salesworkers, hardware and building supplies .....           | 204                                      | 4.5                      | 46.8                       | 23.2             | 21.0               | 8.9                     | 32.7       | 27.6                        | 30.3  | 23.5  | 18.6         |
| Biological technicians .....                                 | 64                                       | 4.4                      | 45.6                       | 35.0             | 4.6                | 14.9                    | 33.8       | 19.5                        | 35.7  | 34.8  | 10.0         |
| Athletes .....   | 68                                       | 4.4                      | 48.4                       | 14.8             | 27.4               | 9.4                     | 29.3       | 36.9                        | 33.3  | 22.7  | 7.1          |
| Bill and account collectors .....                            | 103                                      | 4.4                      | 45.8                       | 32.8             | 12.4               | 9.0                     | 33.8       | 16.3                        | 37.2  | 34.3  | 12.2         |
| Taxicab drivers and chauffeurs .....                         | 186                                      | 4.4                      | 48.1                       | 26.2             | 18.7               | 7.1                     | 38.2       | 13.8                        | 29.8  | 35.4  | 21.0         |
| Slicing and cutting machine operators .....                  | 161                                      | 4.3                      | 48.6                       | 26.2             | 16.9               | 8.3                     | 34.0       | 23.3                        | 29.4  | 33.5  | 13.9         |
| Administrative support occupations, n.e.c. ....              | 939                                      | 4.3                      | 48.2                       | 28.3             | 16.2               | 7.3                     | 35.5       | 18.3                        | 30.2  | 38.8  | 12.6         |
| Mixing and blending machine operators .....                  | 97                                       | 4.3                      | 49.1                       | 23.2             | 20.2               | 7.4                     | 33.5       | 19.9                        | 35.7  | 35.8  | 8.5          |
| Waiters and waitresses .....                                 | 1,303                                    | 4.2                      | 48.3                       | 30.3             | 15.8               | 5.5                     | 25.9       | 46.0                        | 28.9  | 19.7  | 5.3          |
| Janitors and cleaners .....                                  | 2,073                                    | 4.2                      | 48.8                       | 25.7             | 17.8               | 7.8                     | 38.5       | 21.4                        | 21.8  | 34.8  | 22.0         |
| Production helpers .....                                     | 54                                       | 4.1                      | 49.1                       | 30.8             | 18.2               | 1.9                     | 29.0       | 38.2                        | 28.6  | 24.5  | 8.7          |
| General office clerks .....                                  | 695                                      | 4.0                      | 49.9                       | 21.0             | 17.4               | 11.7                    | 35.1       | 24.4                        | 25.4  | 35.7  | 14.4         |
| Machine feeders and offbearers .....                         | 100                                      | 3.9                      | 50.7                       | 24.0             | 19.6               | 5.7                     | 31.9       | 23.9                        | 35.3  | 31.8  | 8.9          |
| Interviewers .....   | 142                                      | 3.9                      | 50.3                       | 29.8             | 16.1               | 3.8                     | 34.3       | 23.9                        | 28.2  | 36.6  | 11.3         |
| Bartenders .....   | 354                                      | 3.9                      | 50.8                       | 27.4             | 15.8               | 6.1                     | 32.1       | 22.2                        | 36.5  | 33.0  | 8.3          |
| Eligibility clerks, social welfare .....                     | 58                                       | 3.9                      | 51.4                       | 10.6             | 24.6               | 13.5                    | 38.4       | 8.7                         | 23.5  | 55.9  | 11.9         |
| Bank tellers .....   | 450                                      | 3.8                      | 52.1                       | 28.2             | 15.7               | 3.9                     | 28.4       | 35.4                        | 30.6  | 28.5  | 5.5          |
| Cooks, except short-order .....                              | 1,596                                    | 3.8                      | 51.7                       | 24.3             | 17.0               | 6.9                     | 29.3       | 39.7                        | 21.5  | 26.2  | 12.7         |
| Health aides, except nursing .....                           | 388                                      | 3.7                      | 53.2                       | 24.9             | 14.4               | 7.4                     | 32.3       | 25.5                        | 31.8  | 34.2  | 8.6          |
| Laborers, except construction .....                          | 1,161                                    | 3.7                      | 52.2                       | 22.2             | 17.8               | 7.8                     | 31.3       | 28.3                        | 31.5  | 29.4  | 10.7         |
| Welfare service aides .....                                  | 116                                      | 3.7                      | 55.7                       | 33.5             | 9.5                | 1.3                     | 44.6       | 12.1                        | 15.5  | 44.6  | 27.8         |
| Salesworkers, motor vehicles and boats .....                 | 346                                      | 3.7                      | 52.7                       | 22.3             | 11.6               | 13.4                    | 36.5       | 15.8                        | 29.4  | 39.8  | 15.0         |
| Cost and rate clerks .....                                   | 94                                       | 3.6                      | 52.8                       | 30.2             | 10.6               | 6.4                     | 35.8       | 22.0                        | 26.5  | 40.2  | 11.3         |
| Construction laborers .....                                  | 616                                      | 3.6                      | 52.7                       | 22.5             | 15.5               | 9.2                     | 29.3       | 34.6                        | 30.5  | 26.6  | 8.3          |
| Stock and inventory clerks .....                             | 628                                      | 3.6                      | 54.0                       | 20.5             | 16.1               | 9.5                     | 34.1       | 22.8                        | 29.7  | 36.2  | 11.3         |
| Groundskeepers and gardeners, except farm .....              | 425                                      | 3.6                      | 54.4                       | 22.8             | 14.8               | 8.0                     | 29.6       | 36.6                        | 25.0  | 22.8  | 15.6         |
| Hand packers and packagers .....                             | 299                                      | 3.5                      | 54.7                       | 21.3             | 16.8               | 7.2                     | 33.0       | 25.3                        | 29.1  | 34.4  | 11.2         |
| Transportation ticket and reservation agents .....           | 109                                      | 3.5                      | 55.9                       | 26.2             | 6.4                | 11.6                    | 33.5       | 18.1                        | 35.5  | 39.0  | 7.4          |
| Animal caretakers, except farm .....                         | 88                                       | 3.5                      | 53.7                       | 19.6             | 20.6               | 6.1                     | 29.5       | 35.6                        | 27.6  | 26.7  | 10.1         |
| Photographic process machine operators .....                 | 101                                      | 3.5                      | 55.6                       | 22.7             | 15.4               | 6.4                     | 30.3       | 30.8                        | 38.0  | 21.8  | 9.3          |
| Freight, stock, and material movers, hand, n.e.c. ....       | 636                                      | 3.4                      | 56.4                       | 19.8             | 15.2               | 8.6                     | 28.9       | 34.4                        | 32.3  | 26.6  | 6.8          |
| Data-entry keyers .....                                      | 323                                      | 3.4                      | 56.8                       | 20.9             | 19.1               | 3.2                     | 31.7       | 25.5                        | 32.7  | 35.3  | 6.4          |
| Bakers .....   | 111                                      | 3.4                      | 55.9                       | 18.7             | 16.7               | 8.7                     | 33.1       | 26.6                        | 29.0  | 32.1  | 12.2         |
| Dispatchers .....  | 207                                      | 3.3                      | 57.1                       | 29.6             | 10.2               | 3.1                     | 34.0       | 18.1                        | 35.3  | 34.7  | 11.9         |
| Guards and police, except public service .....               | 623                                      | 3.3                      | 55.7                       | 25.5             | 13.3               | 5.5                     | 38.6       | 19.8                        | 24.1  | 32.0  | 24.1         |
| Packaging and filling machine operators .....                | 339                                      | 3.3                      | 55.9                       | 19.4             | 15.8               | 8.9                     | 35.0       | 21.7                        | 28.6  | 38.7  | 11.0         |
| Receptionists .....  | 766                                      | 3.3                      | 58.2                       | 25.3             | 12.5               | 4.1                     | 31.4       | 32.5                        | 25.4  | 29.9  | 12.3         |
| Library clerks .....   | 150                                      | 3.3                      | 58.0                       | 21.5             | 18.3               | 2.2                     | 28.9       | 43.4                        | 16.2  | 27.3  | 13.2         |
| Truckdrivers, light .....                                    | 674                                      | 3.2                      | 56.0                       | 20.4             | 14.2               | 9.5                     | 30.2       | 31.1                        | 32.8  | 25.5  | 10.6         |
| Salesworkers, radio, television, hi-fi, and appliances ..... | 170                                      | 3.2                      | 57.7                       | 19.5             | 15.4               | 7.4                     | 30.1       | 32.6                        | 31.1  | 28.4  | 7.9          |
| Salesworkers, apparel .....                                  | 390                                      | 3.1                      | 56.1                       | 24.9             | 9.4                | 9.6                     | 27.2       | 45.6                        | 14.2  | 22.0  | 18.2         |
| Sales counter clerks .....                                   | 207                                      | 3.1                      | 62.3                       | 26.9             | 6.7                | 4.2                     | 29.7       | 38.5                        | 20.3  | 26.3  | 15.0         |
| Salesworkers, other commodities .....                        | 1,484                                    | 3.1                      | 57.1                       | 21.6             | 13.3               | 8.0                     | 31.6       | 36.4                        | 20.0  | 26.6  | 17.0         |
| Small engine repairers .....                                 | 53                                       | 3.1                      | 58.3                       | 11.3             | 22.0               | 8.4                     | 32.4       | 24.1                        | 33.4  | 30.7  | 11.8         |
| Supervisors, food preparation and service occupations .....  | 315                                      | 3.0                      | 56.8                       | 23.8             | 12.1               | 7.3                     | 28.8       | 39.6                        | 24.0  | 27.8  | 8.6          |
| Health record technologists and technicians .....            | 53                                       | 2.9                      | 51.3                       | 20.3             | 11.0               | 17.4                    | 35.3       | 18.5                        | 28.3  | 38.6  | 14.6         |
| Helpers, construction trades .....                           | 141                                      | 2.9                      | 58.5                       | 27.6             | 7.9                | 6.0                     | 24.9       | 51.1                        | 27.1  | 17.5  | 4.2          |
| Attendants, amusement and recreation facilities .....        | 114                                      | 2.8                      | 63.9                       | 17.5             | 15.1               | 3.6                     | 26.9       | 46.4                        | 22.0  | 22.6  | 9.0          |
| Street and door-to-door salesworkers .....                   | 270                                      | 2.7                      | 59.9                       | 20.6             | 12.7               | 6.8                     | 35.8       | 18.5                        | 29.6  | 35.7  | 16.2         |
| Child-care workers, private household .....                  | 422                                      | 2.7                      | 67.3                       | 24.8             | 3.9                | 4.0                     | 21.9       | 59.2                        | 15.2  | 15.1  | 10.5         |
| Child-care workers, except private household .....           | 779                                      | 2.7                      | 62.1                       | 25.6             | 10.2               | 2.0                     | 34.2       | 19.4                        | 33.8  | 34.2  | 12.6         |
| Information clerks, n.e.c. ....                              | 257                                      | 2.7                      | 62.3                       | 20.0             | 7.6                | 10.1                    | 33.6       | 29.9                        | 23.2  | 33.1  | 13.8         |
| Hotel clerks .....   | 78                                       | 2.7                      | 57.1                       | 29.0             | 8.2                | 5.7                     | 27.7       | 36.6                        | 28.8  | 23.8  | 10.8         |
| Personal service occupations, n.e.c. ....                    | 83                                       | 2.7                      | 63.1                       | 22.0             | 11.8               | 3.0                     | 33.8       | 35.2                        | 17.8  | 26.1  | 20.9         |
| Salesworkers, shoes .....                                    | 102                                      | 2.6                      | 72.8                       | 9.9              | 13.7               | 3.6                     | 22.3       | 62.4                        | 13.6  | 12.4  | 11.7         |
| Garage and service station related occupations .....         | 246                                      | 2.6                      | 68.2                       | 15.6             | 11.9               | 4.4                     | 23.8       | 54.1                        | 17.6  | 17.9  | 10.3         |
| Short-order cooks .....                                      | 104                                      | 2.5                      | 60.2                       | 24.1             | 11.5               | 4.2                     | 20.9       | 63.9                        | 17.6  | 14.6  | 3.9          |
| File clerks .....  | 289                                      | 2.5                      | 66.7                       | 17.3             | 13.4               | 2.6                     | 28.5       | 40.4                        | 23.4  | 24.1  | 12.1         |
| Cashiers .....   | 2,123                                    | 2.4                      | 65.9                       | 19.8             | 11.3               | 3.0                     | 24.4       | 52.2                        | 20.5  | 20.1  | 7.2          |
| Mail clerks, except postal service .....                     | 181                                      | 2.3                      | 67.0                       | 13.1             | 15.5               | 4.4                     | 29.8       | 32.7                        | 28.5  | 25.8  | 13.0         |

See footnote at end of table.

Table 3. Continued—Ranking of occupations by years of tenure in occupation and selected characteristics, January 1987

| Occupation  | Total employed, January 1987 (thousands) | Median tenure (in years) | Percent of employees with— |                  |                    |                         | Median age | Percent of employees, ages— |       |       |              |
|---|--|--------------------------|----------------------------|------------------|--------------------|-------------------------|------------|-----------------------------|-------|-------|--------------|
|   |  |                          | 3 years or less tenure     | 4–9 years tenure | 10–19 years tenure | 20 or more years tenure |            | 16–24                       | 25–34 | 35–54 | 55 and older |
| Miscellaneous food preparation occupations .....      | 653                                      | 2.3                      | 65.3                       | 20.8             | 10.6               | 3.4                     | 29.5       | 42.2                        | 17.0  | 26.5  | 14.2         |
| News vendors .....                                    | 101                                      | 2.3                      | 67.9                       | 30.0             | 2.1                | .0                      | 26.4       | 46.3                        | 23.9  | 19.8  | 10.0         |
| Vehicle washers and equipment cleaners .....          | 232                                      | 2.3                      | 69.2                       | 18.0             | 7.0                | 5.8                     | 26.7       | 43.1                        | 27.3  | 22.4  | 7.3          |
| Messengers .....                                      | 149                                      | 2.3                      | 69.1                       | 18.6             | 10.4               | 1.8                     | 30.3       | 35.6                        | 25.3  | 23.4  | 15.8         |
| Kitchen workers, food preparation .....               | 107                                      | 2.1                      | 72.3                       | 13.7             | 11.1               | 2.9                     | 27.2       | 43.6                        | 21.2  | 24.8  | 10.3         |
| Stock handlers and baggers .....                      | 933                                      | 1.9                      | 71.4                       | 16.7             | 7.2                | 4.7                     | 21.1       | 67.5                        | 16.6  | 11.3  | 4.6          |
| Waiters' and waitresses' assistants .....             | 323                                      | 1.7                      | 79.1                       | 13.6             | 5.0                | 2.4                     | 20.3       | 68.9                        | 13.7  | 10.8  | 6.6          |
| Food counter, fountain, and related occupations ..... | 310                                      | 1.5                      | 88.1                       | 7.7              | 3.4                | .8                      | 18.8       | 80.7                        | 9.6   | 6.9   | 2.8          |

n.e.c. = not elsewhere classified.

women to head families without husbands and, thus, have had a greater need for employment. Moreover, black wives were more likely than white wives to continue working after having children, compelled, in part, by the relatively greater labor force difficulties of black husbands, compared with white husbands.<sup>2</sup>

*Full- and part-time workers.* Average occupational tenure was 7.2 years for the 93.7 million full-time workers in January 1987, compared to only 3.1 years for the 15.4 million part-time workers.<sup>3</sup> Many part-time workers do not have a strong attachment to their occupation and are more likely than others to change jobs, become unemployed, or leave the labor force, thereby slowing their accumulation of experience in any particular occupation. Almost seven-tenths of all part-time workers were women, many of whom were employed in administrative support occupations. Some mothers prefer shorter hours or fewer workdays per week which allows them to schedule their jobs around family responsibilities. Almost 23 percent of the part-time workers were teenagers, compared with less than 3 percent of the full-time workers. Retail sales and food service occupations are major sources of jobs for teenagers who are in school and want to work part time.

Differences in the age distribution and gender of part-time workers affected tenure. Interestingly, men in part-time jobs had higher tenure than women at most ages, but their overall average was lower because a disproportionately large number were young; relatively few were of prime working age (25 to 54). More than one-half of the men in part-time jobs were under 25 years of age, compared with less than one-third of the women. Men in part-time jobs also were more likely to be older workers—15 percent were age 65 and older, compared with about 6 percent of the women.

Many older part-time workers had lengthy tenure. About 35 percent of those ages 60 to 64 and 45 percent of those ages 65 to 69 had at least 20 years of tenure in their

current occupation. Many of these workers probably accumulated the bulk of the years while previously employed full time in that occupation, and then decided to reduce their hours or days of work, rather than retire altogether.

*Education and training.* The strength of a person's attachment to a specific occupation usually is dependant on his or her investment in it in terms of education and training. The greater the investment, the more likely a person will remain in the occupation, because starting another career can result in loss of earnings and related benefits. An additional investment in training may also be required to change careers. Therefore, tenure tends to be lengthy for individuals in occupations that require lengthy education, such as physicians, lawyers, engineers, and teachers. Similarly, tenure tends to be long for workers in skilled crafts that require several years of on-the-job or apprenticeship training, such as machinists, electricians, and plumbers. Some occupations that can be entered without specialized education and training also have long tenure, including police and firefighters, whose job attachment is influenced by liberal retirement benefits.

Among workers under age 35, individuals who had been in their current occupation the longest usually were not those with the most education. In fact, young college graduates frequently had less tenure than their high school classmates who entered the work force earlier. However, tenure for college educated workers was greater than for other workers at age 35 and over, and increased directly with the years of college completed. At ages 55 to 59, for example, average tenure was 22.3 years for workers with 5 or more years of college, 20.6 years for those with 4 years of college, and 16.6 years for those with 1 to 3 years. (See table 4.) As a group, workers with no more than 8 years of (elementary) school had high average tenure because a disproportionate number of them were older workers, but at most age levels, they had somewhat less tenure than individuals who attended or completed high school.



*Self-employment.* Average occupational tenure was 10.6 years for self-employed individuals and 6.2 years for wage and salary workers. The self-employed generally have greater flexibility in adjusting their work schedules to suit their needs and, thus, are more likely than others to continue working beyond customary retirement age. More than 8 percent of them were age 65 and older, compared to only 2 percent of the wage and salary workers. Self-employment was prevalent in many occupations having the greatest tenure, including dentist, farmer, and barber. Working beyond age 65, however, also contributed to the high average tenure in some jobs having relatively few self-employed people, such as clergy and farm managers.

*Earnings.* CPS data on earnings for wage and salary workers who usually work full time indicate that occupations with high earnings have longer tenure than those with low earnings.<sup>4</sup> Average (median) weekly earnings of workers in more than one-half of the occupations in table 3 were greater than the \$358 total for all wage and salary employees who usually worked full time in 1986. In almost four-fifths (112) of these occupations, average tenure also was greater than the 6.6-year total for all workers in January 1987. Similarly, about four-fifths of the occupations with less than average earnings had less than average tenure.

The wage and salary workers with the greatest earnings were concentrated in professional speciality and managerial occupations. People usually enter professional specialty occupations soon after college and many remain in their chosen field until retirement, particularly if they have advanced degrees or highly specialized education. Almost seven-tenths of the workers in the professional specialty group who were ages 45 to 54 had been in their occupation 20 years or more, and the proportion was about nine-tenths among physicians and lawyers. How-

**Table 4. Median years of tenure in current occupation by years of school completed and age, January 1987**

| Years of school completed        | Total employed (in thousands) | Total age 16 and older | Ages 16 to 24 | Ages 25 to 29 | Ages 30 to 34 | Ages 35 to 39 | Ages 40 to 44 | Ages 45 to 49 | Ages 50 to 54 | Ages 55 to 59 | Ages 60 to 64 | Age 65 and older |
|----------------------------------|-------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|
| Total ...                        | 109,090                       | 6.6                    | 1.9           | 4.4           | 6.9           | 9.0           | 10.7          | 13.3          | 15.2          | 17.7          | 19.4          | 20.6             |
| Elementary 8 years or less ..... | 5,633                         | 8.9                    | 1.7           | 3.6           | 5.2           | 7.2           | 8.5           | 11.0          | 14.5          | 17.2          | 15.5          | 18.4             |
| High school 1 to 3 years ....    | 12,050                        | 4.2                    | 1.4           | 4.3           | 5.7           | 7.5           | 10.0          | 12.7          | 15.1          | 17.7          | 16.8          | 20.2             |
| 4 years ...                      | 43,827                        | 6.4                    | 2.1           | 5.0           | 7.2           | 8.5           | 10.4          | 12.2          | 14.0          | 16.0          | 17.1          | 18.1             |
| College 1 to 3 years ....        | 22,669                        | 6.0                    | 2.2           | 4.6           | 7.3           | 9.3           | 10.6          | 12.9          | 15.4          | 16.6          | 20.7          | 21.8             |
| 4 years ...                      | 14,679                        | 6.8                    | 1.9           | 4.0           | 6.9           | 9.7           | 10.8          | 13.8          | 16.6          | 20.6          | 22.2          | 25.4             |
| 5 years or more ....             | 10,231                        | 10.1                   | 2.1           | 3.4           | 6.4           | 10.2          | 13.1          | 16.5          | 18.6          | 22.3          | 25.2          | 33.8             |

ever, many managerial workers have been promoted into their occupations after years of working in other jobs and, thus, have not had time to accumulate much tenure. Nevertheless, almost one-half of the managerial workers ages 55 to 64 had been in their jobs 20 years or more.

A large proportion of the wage and salary workers with the lowest earnings were in food preparation and service occupations and in retail sales jobs such as cashier and counter clerk. Many others were child-care workers, stock handlers and baggers, and garage and service station workers. The occupations with the lowest earnings usually can be entered by individuals who have little, if any, previous training or work experience, and who want a job as an immediate source of income rather than a long-term career commitment. Consequently, large numbers of people enter these jobs but few stay very long. For example, 88 percent of the food counter and fountain workers had 3 years of tenure or less, while only 1 percent had 20 years or more.

**Table 5. Percent distribution of workers by years of tenure in current occupation and years of tenure with current employer, January 1987**

| Tenure in current occupation  | Total employed        |         | Tenure with current employer |         |         |           |           |             |             |             |                  |
|-------------------------------|-----------------------|---------|------------------------------|---------|---------|-----------|-----------|-------------|-------------|-------------|------------------|
|                               | Number (in thousands) | Percent | Less than 2 years            | 2 years | 3 years | 4-5 years | 6-9 years | 10-14 years | 15-19 years | 20-24 years | 25 years or more |
| Total, age 16 and older ..... | 109,090               | 100.0   | 28.8                         | 11.4    | 8.6     | 10.8      | 13.8      | 10.8        | 6.6         | 4.1         | 5.2              |
| Less than 2 years .....       | 21,022                | 100.0   | 88.4                         | 2.7     | 1.7     | 1.9       | 2.0       | 1.4         | .8          | .6          | .4               |
| 2 years .....                 | 10,404                | 100.0   | 20.7                         | 66.8    | 2.6     | 2.2       | 3.0       | 2.2         | 1.1         | .8          | .6               |
| 3 years .....                 | 8,361                 | 100.0   | 19.3                         | 7.5     | 60.7    | 3.8       | 3.0       | 2.8         | 1.4         | .6          | .8               |
| 4-5 years .....               | 11,831                | 100.0   | 19.2                         | 8.6     | 7.2     | 54.0      | 4.4       | 2.8         | 1.8         | .8          | 1.2              |
| 6-9 years .....               | 16,598                | 100.0   | 15.5                         | 6.9     | 6.2     | 8.7       | 55.8      | 3.1         | 2.0         | .8          | .9               |
| 10-14 years .....             | 15,343                | 100.0   | 12.7                         | 6.5     | 5.1     | 8.9       | 11.6      | 49.6        | 2.5         | 1.4         | 1.6              |
| 15-19 years .....             | 9,649                 | 100.0   | 9.4                          | 5.0     | 4.3     | 6.6       | 11.0      | 10.8        | 47.9        | 2.6         | 2.5              |
| 20-24 years .....             | 6,608                 | 100.0   | 9.7                          | 4.2     | 3.8     | 7.2       | 9.8       | 11.3        | 9.5         | 41.3        | 3.3              |
| 25 years or more .....        | 9,272                 | 100.0   | 7.4                          | 3.7     | 3.3     | 5.5       | 8.0       | 8.3         | 7.2         | 8.4         | 48.3             |

NOTE: Occupational tenure is in cumulative years, whereas employer tenure is in continuous (uninterrupted) years.

### Employer tenure

Data on occupational tenure and employer tenure differ because the former is measured in cumulative years and the latter is measured in continuous (uninterrupted) years. Nevertheless, as can be seen in table 5, there is a link between the two. A change in occupations usually means a change in employers. Of the 21 million workers who had less than 2 years of cumulative tenure in their occupation, about 88 percent also had less than 2 years of continuous tenure with their employer and most of the remainder had less than 10 years. Movement of workers from occupation to occupation usually occurred between, rather than within, employing organizations, except in the case of advancement to managerial and supervisory positions.

As expected, the probability of a change in employers tended to diminish as occupational tenure increased. Of the 9.3 million workers who had been in their occupation for 25 years or more, almost one-half also had 25 years or more continuous tenure with their employer and another one-fourth had 10 to 24 years. A disproportionate number of workers who had lengthy tenure in both categories were in occupations that (a) have high concentrations of self-employed workers, such as farmers and physicians, or (b) are restricted or limited as to type of employer, such as

postal service mail carriers and firefighters. Only one-fifth of the individuals with 25 years or more tenure in their occupation had been with their employer 5 years or less. Many of them were accountants, engineers, registered nurses, automobile mechanics, carpenters, and heavy-truck drivers.

### Trends

Occupational tenure has increased in recent years and further increases seem likely. Average years of tenure rose from 5.7 in 1983 to 6.6 in 1987, as the work force aged.<sup>5</sup> The increase, however, was more than just a reflection of an older population, as men and women at almost every age had been working in their occupation longer in 1987 than in 1983. Young people entering the labor force in recent years may eventually accumulate even more tenure than their parents. Unlike their mothers 20 or 30 years ago, young women today are more likely to remain in the labor force for a large part of their adult lives and to work even when they have infants and toddlers at home.<sup>6</sup> Another factor that may eventually increase tenure among both sexes is the changing occupational structure of employment. Occupations that require the most education—and thus, have the strongest worker attachment—are projected to increase as a proportion of total employment.<sup>7</sup> □

#### —FOOTNOTES—

<sup>1</sup>The amount of tenure reported by respondents was rounded to the nearest year, or to zero if less than 6 months. In the tabulations, the category, "less than 2 years," actually consists of all workers who had up to 1½ years of tenure, including those with less than 6 months. The category, "2 to 3 years," consists of all workers with more than 1½ years, but less than 3½ years, and so forth.

<sup>2</sup>See Howard Hayghe, "Rise in mothers' labor force activity includes those with infants," *Monthly Labor Review*, February 1986, pp. 43–45.

<sup>3</sup>Part-time work is defined as less than 35 hours per week. Persons who usually work 35 hours or more per week, but for economic reasons worked fewer hours during the survey week, were classified as full-time workers. See Thomas H. Nardone, "Part-time workers: who are they?" *Monthly Labor Review*, February 1986, pp. 13–19.

<sup>4</sup>The data on earnings are limited to wage and salary workers who usually work full time, and consequently are not strictly comparable to

the tenure data presented in this article, which also include self-employed workers as well as those on part-time schedules.

<sup>5</sup>Prior to January 1987, occupational tenure was measured in supplements to the January 1983 and January 1981 Current Population Surveys. The economic recovery may have contributed to the increase in age-specific tenure between 1983 and 1987. The results of the two most recent surveys were difficult to compare with those from the January 1981 survey, because the latter used broader intervals to measure the amount of time the worker had accumulated in the current occupation and obtained the data only for workers who had not changed occupations between January 1980 and January 1981.

<sup>6</sup>See Susan E. Shank, "Women and the labor market: the link grows stronger," *Monthly Labor Review*, March 1988, pp. 3–8.

<sup>7</sup>See George T. Silvestri and John M. Lukasiewicz, "A look at occupational employment trends to the year 2000," *Monthly Labor Review*, September 1987, pp. 46–63.



# Inflation holds steady during the first half

*Increase in Consumer Price Index remains unchanged at 4.4 percent, as a downturn in energy component is offset by acceleration in prices for food and apparel*

ROBERT A. KUEMMERLING AND PATRICIA HANSON

During the first 6 months of 1988, the Consumer Price Index for All Urban Consumers rose at a seasonally adjusted annual rate of 4.4 percent, the same as that for the 12 months ended in December 1987. While overall rates for the two periods were identical, the composition of price change was different. The energy component turned down slightly in the first half, after partially rebounding in 1987 from the effect of the 1986 oil glut. Shelter costs advanced at virtually the same rate as in 1986 and 1987. But food prices surged in the second quarter, pushing their year-to-date annual rate above 4 percent.

The index for all items excluding food, shelter, and energy rose at an annual rate of 4.9 percent in the first half, the largest increase since the first half of 1984. Within this group, prices for both commodities and services accelerated. The sharp increase in apparel prices accounted for more than 40 percent of the 1988 increase, but most other commodity components also rose faster than in 1987. All service groups other than apparel services accelerated in the first half of 1988. (See table 1.)

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## Current developments

*Food.* Effects of the drought of '88 in the Nation's Farm Belt have evoked comparisons to the Dust Bowl of the 1930's, or to the 1970's when double-digit inflation was preceded by commodity-price shocks. The comparisons are illustrative but not necessarily predictive. Through the first half of 1988, at least, the hot and dry weather has had a minimal effect on food prices.

During the first 6 months of 1988, grocery store food prices increased at an annual rate of 3.9 percent. Although the increase was slightly higher than the 3.5-percent increase in 1987, the composition of the change was different. For example, prices of fresh fruit and vegetables increased a strong 12.8 percent in 1987 because of a combination of strong demand, erratic weather, and a virus which seriously damaged the winter lettuce crop, causing prices to double. In contrast, over the first 6 months of 1988, fresh fruit and vegetable prices declined at a 13.6-percent rate as there were no major disruptions of supplies of potatoes, tomatoes, and seasonal fruits such as peaches, melons, and cherries. Lettuce production rebounded substantially from levels of late 1987 and prices plummeted. However, prices for selected fruits in short supply, such as apples, bananas, and oranges, jumped in the first half of

1988. Prices for processed fruits rose mainly because of production shortfalls of orange concentrate in Brazil.

The index for meats, poultry, fish, and eggs also displayed a wide year-to-year disparity—climbing at a brisk 10.7-percent rate in the first half of 1988 compared with a modest 1.1-percent increase in 1987. Beef and veal prices rose sharply because, early in the year, ranchers held cattle from slaughter in an attempt to build up depleted herds. But, as a direct result of the drought, grazing pastures became parched and feed grain supplies tightened and rose abruptly in price. Cattlemen without the financial wherewithal to survive these conditions were forced to cull their herds by sending beef cows and steers to slaughter. At the Producer Price Index (PPI) level, cattle prices declined sharply in June; lower prices at the meat market counter are likely to follow. But meat prices eventually are expected to turn higher, as supplies are reduced while ranchers rebuild their culled herds.

Prices for pork rose during the first 6 months of 1988, partially in sympathy with beef prices. Higher feed grain prices, because of the drought, were depleting breeding-hog inventories. Fewer hogs for slaughter in the future will result in higher retail prices. Poultry prices soared 24.1 percent in the first half because of increased exports, production cutbacks, and strong incremental demand. For fish and seafood, as with poultry, increased per-capita consumption by health-conscious consumers at a time of relatively static supply resulted in higher prices. The hot weather and rising feed costs led to decreased egg production, causing prices to shoot up at a 29.6-percent annual rate.

Several other food groups contributed to the acceleration in the food index during the 6-month period ending June. Prices for cereals and bakery products rose at a 7.0-

percent annual rate with anticipatory price increases for drought-impacted grains partly responsible. The index for alcoholic beverages rose at a 5.8-percent annual rate, while food away from home rose at a 4.4-percent rate. Finally, two groups that helped to moderate the food price increase were nonalcoholic beverages and dairy products—up 1.5 and 0.9 percent, respectively.

*Shelter.* Shelter costs increased at an annual rate of 4.7 percent during the first half of 1988, about the same as in all of 1987. Renters' costs rose at a 6.0-percent annual rate during the 6-month period after moving up 3.9 percent during 1987. The acceleration in renters' costs resulted from large increases in the index for out-of-town lodging, which advanced at a 12.0-percent annual rate in the first 6 months of 1988, dramatically higher than the 3.9-percent rise in 1987. The 3.4-percent rate of increase for house or apartment rents during the first 6 months of 1988 followed a 4.0-percent rise for 1987. Similarly, the index for homeowners' equivalent rent, up at a 4.4-percent rate during the first half of 1988, rose less than in 1987 when prices increased 4.8 percent. The index for household maintenance and repairs advanced at an annual rate of 2.5 percent in the first 6 months of 1988, compared with a 3.3-percent increase in 1987.

*Energy.* During the first half, energy prices declined at an annual rate of 0.4 percent, in contrast to the 8.2-percent rise in the index during 1987. The drop in the index can be linked to the continuing disarray within the Organization of Petroleum Exporting Countries (OPEC). Despite short-lived price surges resulting from attempts by OPEC to curb overproduction, the Producer Price Index for crude petroleum fell at an annual rate of 12.2 percent in the first 6 months of 1988. The index had soared 28.8 percent in 1987.

The drop in crude oil prices resulted in moderate 6-month index changes for fuel oil and gasoline in the CPI. Fuel oil rose at a modest annual rate of 1.8 percent, after advancing 17.9 percent in 1987. Gasoline prices dropped at an annual rate of 2.2 percent, after an 18.7-percent increase in 1987. The current surge in fuel consumption has restrained any additional decrease in gasoline prices; there are more cars on the road, being driven longer distances, more often. Both indexes remained below the peak levels reached in early 1981. Energy services (gas and electricity) advanced at the same rate as in 1987, up 0.2 percent. Charges for natural gas dropped at a rate of 0.4 percent, partially offsetting a 0.7-percent increase in the index for electricity.

*Services less food, shelter, and energy.* The index for services excluding food, shelter, and energy rose at an annual rate of 5.6 percent in the first half of 1988, compared with a 4.3-percent increase in all of 1987. (See table 2.) Most ser-

**Table 1. Percentage changes for major categories of the Consumer Price Index, 1982-June 1988**

| Expenditure category                             | Percent changes, 12 months ended December |      |      |      |       |      | 6 months ended June 1988 <sup>1</sup> |
|--|---|------|------|------|-------|------|---------------------------------------|
|  | 1982                                      | 1983 | 1984 | 1985 | 1986  | 1987 |                                       |
| All Items.....                                   | 3.8                                       | 3.8  | 3.9  | 3.8  | 1.1   | 4.4  | 4.4                                   |
| Energy .....                                     | 1.3                                       | -.5  | .2   | 1.8  | -19.7 | 8.2  | -.4                                   |
| Energy commodities .....                         | -5.0                                      | -3.2 | -1.8 | 3.4  | -30.5 | 17.8 | -1.2                                  |
| Energy services .....                            | 14.1                                      | 4.1  | 3.5  | -.6  | -3.3  | .2   | .2                                    |
| All Items less energy ..                         | 4.2                                       | 4.5  | 4.4  | 4.0  | 3.8   | 4.1  | 4.7                                   |
| Food .....                                       | 3.1                                       | 2.7  | 3.8  | 2.6  | 3.8   | 3.5  | 4.2                                   |
| Shelter .....                                    | 2.4                                       | 4.7  | 5.2  | 6.0  | 4.6   | 4.8  | 4.7                                   |
| All Items less food, shelter, and energy ..      | 6.1                                       | 5.0  | 4.3  | 3.7  | 3.3   | 3.8  | 4.9                                   |
| Commodities less food, shelter, and energy ..... | 5.5                                       | 5.0  | 3.1  | 2.2  | 1.4   | 3.5  | 4.3                                   |
| Services less food, shelter, and energy ..       | 7.3                                       | 4.9  | 6.0  | 5.4  | 5.6   | 4.3  | 5.6                                   |

<sup>1</sup>Seasonally adjusted annual rates.



**Table 2. Price changes for consumer services other than food, shelter, and energy, December 1982–June 1988**

[In percent]

| Consumer service category                                     | December 1982 to December 1983 | December 1983 to December 1984 | December 1984 to December 1985 | December 1985 to December 1986 | December 1986 to December 1987 | December 1987 to June 1988 <sup>1</sup> |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---|
| Services less food, shelter, and energy .....                 | 4.9                            | 6.0                            | 5.4                            | 5.6                            | 4.3                            | 5.6                                     |
| Other utilities and public services .....                     | 4.8                            | 8.1                            | 5.0                            | 3.7                            | 1.9                            | 2.3                                     |
| Telephone services .....                                      | 3.6                            | 9.2                            | 4.7                            | 2.7                            | -1.3                           | .2                                      |
| Water and sewerage maintenance .....                          | 8.5                            | 5.5                            | 5.5                            | 5.4                            | 5.2                            | 7.2                                     |
| Cable television .....  | ( <sup>2</sup> )               | 6.1                            | 6.0                            | 3.8                            | 9.5                            | 3.2                                     |
| Refuse collection .....                                       | ( <sup>2</sup> )               | 3.2                            | 6.4                            | 9.4                            | 10.2                           | 8.1                                     |
| Housekeeping services .....                                   | 2.5                            | 2.4                            | 3.9                            | 1.8                            | 1.8                            | 6.2                                     |
| Apparel services .....  | 5.0                            | 4.9                            | 4.9                            | 3.9                            | 3.9                            | 2.1                                     |
| Transportation services .....                                 | 3.8                            | 6.2                            | 4.9                            | 5.8                            | 4.3                            | 4.9                                     |
| Automobile maintenance and repair .....                       | 3.8                            | 3.2                            | 3.3                            | 3.7                            | 3.8                            | 4.8                                     |
| Other private transportation services .....                   | 3.8                            | 7.6                            | 5.3                            | 6.8                            | 5.4                            | 6.1                                     |
| Automobile insurance .....                                    | 9.1                            | 7.9                            | 12.0                           | 11.8                           | 5.8                            | 9.2                                     |
| Automobile finance charges .....                              | -7.9                           | 6.8                            | -8.3                           | -7.3                           | 5.9                            | -2.6                                    |
| Automobile registration, licensing, and inspection fees ..... | 7.8                            | 8.5                            | 2.1                            | 3.4                            | 1.7                            | 10.8                                    |
| Public transportation .....                                   | 3.8                            | 6.4                            | 5.1                            | 6.0                            | 1.8                            | 1.8                                     |
| Airline fares .....   | 4.8                            | 6.5                            | 6.3                            | 5.3                            | 1.6                            | .2                                      |
| Other intercity public transportation .....                   | 7.0                            | 10.7                           | 6.4                            | 4.9                            | 2.0                            | 10.9                                    |
| Intracity public transportation .....                         | 2.1                            | 5.9                            | 3.6                            | 6.8                            | 2.4                            | 2.0                                     |
| Medical care services .....                                   | 6.2                            | 5.8                            | 6.8                            | 7.9                            | 5.6                            | 7.5                                     |
| Professional medical services .....                           | 7.6                            | 6.3                            | 6.5                            | 6.3                            | 6.3                            | 7.7                                     |
| Hospital and related services .....                           | 10.4                           | 7.6                            | 5.0                            | 7.2                            | 7.0                            | 10.9                                    |
| Entertainment services .....                                  | 5.4                            | 5.7                            | 4.4                            | 5.4                            | 4.3                            | 4.9                                     |
| Personal and educational services .....                       | 9.9                            | 9.2                            | 8.1                            | 8.0                            | 6.5                            | 8.5                                     |
| Tuition and other school fees .....                           | 9.4                            | 10.1                           | 8.4                            | 7.9                            | 7.6                            | 9.1                                     |
| Personal expenses (legal, financial, and funeral) ..          | 12.2                           | 6.5                            | 6.1                            | 9.0                            | 4.4                            | 6.3                                     |

<sup>1</sup>Seasonally adjusted annual rates.

<sup>2</sup>Data not available.

vice categories experienced more rapid price increases in the first half of 1988. The medical care services component advanced at an annual rate of 7.5 percent in the first half, following a 5.6-percent increase during 1987. The acceleration reflected larger increases for both professional medical services and hospital and related services.

Transportation services increased at a 4.9-percent rate during the first 6 months of 1988, after advancing 4.3 percent in 1987. Automobile insurance costs rose at a 9.2-percent annual rate during the first 6 months, up from the 5.8-percent rise in 1987, but still slightly below the double-digit increases of both 1985 and 1986. The index for automobile registration, licensing, and inspection, which had increased only 1.7 percent in 1987, moved up at an annual rate of 10.8 percent in the first half. Partially offsetting these larger increases was a decline at an annual rate of 2.6 percent in automobile finance charges. Public transportation costs rose at a 1.8-percent rate in 1988, the same as in 1987. Increases in fares for airlines and intracity mass transit slowed in 1988 but were offset by a sharp advance in other intercity transportation costs, up at a 10.9-percent annual rate.

The index for personal and educational services advanced at an 8.6-percent rate in the first 6 months of 1988. Charges for tuition and other fees continued to advance sharply—up at a 9.1-percent rate. The index for personal

expenses accelerated, reflecting a jump in charges for personal financial services, which include banking and accounting expenses.

Among the non-shelter housing services, the index for housekeeping services accelerated, largely as a result of the April increase in postage rates by the U.S. Postal Service—the first increase since February 1985. Charges for other utilities and public services continued to register moderate increases despite a 7.2-percent rise in the water and sewerage maintenance index. This advance reflected general sewer rate increases and special “drought rates” to promote water conservation.

Within the entertainment services component, which rose at an annual rate of 4.9 percent, the index for club membership fees jumped 10.9 percent in the first half, after rising only 1.7 percent in 1987. The only major service group to decelerate, apparel services, increased at a 2.1-percent rate, after advancing 3.9 percent in 1987. Smaller increases in charges for laundry and drycleaning services were responsible for the slowdown.

*Commodities less food, shelter, and energy.* Several groups of commodities have a high proportion of imports in market sales. (See table 3.) It follows that these groups are susceptible to price acceleration after a sustained period of decline in the value of the dollar exchange rate

such as occurred between early 1985 and the end of 1987. For example, prices for apparel commodities rose at an accelerated clip during the first half, 7.6 percent, compared with 7.4 percent for the same period last year and 4.9 percent for all of 1987. The introduction of substantially higher-priced spring and summer merchandise was consistent throughout the apparel group. Especially sharp rates of increase were displayed by women's and girls' apparel (10.5 percent) and men's and boys' apparel (5.7 percent). It is probable that for all of 1988 the increase in apparel commodities will surpass the gain for 1987 (the largest on record). Major clothing manufacturers have already indicated that, due to sharp increases in their costs for imported wool and other fabrics, prices will be commensurately higher when the fall and winter merchandise is unveiled.

Another import-sensitive commodity, new cars, provides an example of market conditions overriding the effects of exchange rate movements. The index for new cars increased at a modest 1.6-percent annual rate during the first half of 1988, compared with a 1.8-percent increase in 1987. While new cars sold at a slightly higher rate this year as opposed to 1987, the manufacturers and dealers had a difficult time weaning consumers from incentive packages. Although prices of imported cars increased more than prices of domestic models, the rise was below expectations based on the lengthy appreciation of the currencies of the exporters. There are several explanations. First, manufacturers of foreign cars displayed a willingness to sacrifice profit margins in the short run rather than experience an erosion of market share. Second, dealers, who had previously added substantial surcharges to the sticker price of imports in short supply, were cutting or eliminating entirely these markups. In-

deed, some imports, especially the luxury European models, were marketed with incentive packages comparable to those of their domestic counterparts. Finally, the distinction between an import and a domestic automobile was becoming blurred as several "foreign" model nameplates are now wholly or partially manufactured in the United States.

Among groups of commodities insulated from the gyrations of the dollar and imports, price movements were disparate. Tobacco and smoking products rose at a 9.9-percent annual rate in the first 6 months of 1988 compared with a 7.9-percent increase in 1987. Late last year, the manufacturers of tobacco products raised wholesale prices which the retailers quickly passed on to the consumer. And the prospect is for more increases in the price of tobacco products for the remainder of 1988 because the manufacturers again raised their wholesale prices in June. The index for medical care commodities, consisting of both prescription and nonprescription drugs, rose at a slightly slower pace during the first half of 1988 than during 1987—5.7 percent versus 7.1 percent. Finally, the index for used cars displayed a complete turnaround from 1987, when prices rose 8.9 percent. In contrast, in the first half of 1988, used car prices declined at a 1.5-percent annual rate. The surprisingly good pattern of new car sales this year resulted in a surfeit of late-model used cars on dealer lots. Hence there was dealer reluctance to bid aggressively at the wholesale auto auctions for anything but clean, ready-to-sell cars.

### Current outlook

During the past 6 years, particularly if the volatile energy component is excluded, the movement of consumer prices has been relatively stable. Recent concerns, how-

**Table 3. Seasonally adjusted annual rates of change for Consumer Price Indexes for certain commodities with higher-than-average import proportions, selected periods, December 1982–June 1988**  
[In percent]

| Category   | December 1982 to December 1983 | December 1983 to March 1985 | March 1985 to June 1986 | June 1986 to December 1986 | December 1986 to December 1987 | December 1987 to June 1988 |
|--|--------------------------------|-----------------------------|-------------------------|----------------------------|--------------------------------|----------------------------|
| Commodities less food, shelter, and energy.....              | 5.0                            | 3.5                         | 0.7                     | 2.0                        | 3.5                            | 4.3                        |
| Wine at home .....   | -1.5                           | .7                          | 2.6                     | -1.3                       | 3.8                            | 3.8                        |
| Whiskey at home .....  | 1.5                            | 1.3                         | 7.8                     | .2                         | 1.3                            | 2.1                        |
| Alcoholic spirits, excluding whiskey .....                   | 1.0                            | 2.0                         | 9.7                     | -.3                        | .9                             | 2.1                        |
| TV and sound equipment .....                                 | -2.2                           | -4.1                        | -5.1                    | -3.0                       | -3.7                           | -.5                        |
| Clocks, lamps, and decor items .....                         | 2.4                            | 1.0                         | 1.6                     | -5.8                       | 1.7                            | 6.1                        |
| Tableware, serving pieces, and nonelectric kitchenware ..... | 1.6                            | .5                          | 2.2                     | .9                         | 1.3                            | 5.3                        |
| Lawn equipment, power tools, other hardware .....            | 2.3                            | 1.9                         | -1.9                    | 1.8                        | 1.3                            | -2.9                       |
| Men's and boys' apparel .....                                | 2.3                            | 2.3                         | 1.3                     | .9                         | 3.1                            | 5.7                        |
| Women's and girls' apparel .....                             | 3.3                            | 2.5                         | -2.3                    | 5.0                        | 5.9                            | 10.5                       |
| Infants' and toddlers' apparel .....                         | 3.5                            | 5.5                         | 4.6                     | -4.3                       | 2.4                            | 3.5                        |
| Jewelry and luggage .....                                    | 3.4                            | .3                          | -1.1                    | 5.1                        | <sup>1</sup> 11.5              | 6.4                        |
| Footwear .....   | 1.0                            | 2.0                         | -1.4                    | 3.9                        | 3.8                            | 3.8                        |
| New vehicles .....   | 3.3                            | 3.0                         | 4.1                     | 5.8                        | 1.8                            | 1.4                        |

<sup>1</sup>Jewelry only.



ever, are that the rate of inflation is accelerating. Most private and public sector estimates of consumer price change for the second half of 1988 and for 1989 show an upward drift. We will examine some of the factors on which these forecasts are based.

The most direct, and highly publicized, influence on prices in the next 18 months will come from this summer's heat and drought. While the economic consequences of the drought will be serious, particularly for farm incomes, the effect on the overall CPI is not generally anticipated to be that large. The consensus forecast, after consideration of the drought, has added 0.1 percentage point to the 1988 estimate of the change in the CPI and 0.2 to 0.3 percentage point to the 1989 estimate. The shortages of crops have both a direct and an indirect effect on the food component of the CPI. The crop failure of durum wheat (for which there are no carryover reserves) used to make pasta is an example of a food component which will be directly affected. More important to food prices, however, are the indirect effects of the failure of the feed grain crops. As noted, higher priced feed is pressuring ranchers to send their livestock to slaughter sooner. The temporary oversupply will lead to lower meat prices. However, the need to rebuild the herds will likely result in higher prices next year.

A second inflationary factor cited revolves around the delayed impact of the long decline in the exchange value of the dollar, that is, the prices of imports will inevitably rise further. The recent U.S. experience was discussed above in the section on commodities less food, shelter, and energy. The evidence suggested that recent exchange rate movements did not consistently portend the magnitude or duration of price movements. Other competitive forces such as the desire to retain market share or the availability of substitute products often mitigated the effects of currency gyrations. Barring a further substantial decline in the value of the dollar (the dollar appreciated slightly over the first half of 1988), there is no reason to believe that any future impact will be significant.

Of greater concern are the inflationary implications of the current stage of the business cycle, typified by high industrial capacity utilization, low unemployment, and accelerating material costs. Through June, the current expansion had lasted 68 months, which exceeded in length 7 out of the 8 post-World War II expansions—the exception being the 106-month period from February 1961 to December 1969. It is usually during the advanced stage of an economic recovery that prices begin to accelerate.<sup>1</sup> Although fears of impending recession persist, the current expansion does not yet appear to have run its course. And the behavior of several statistical series do

seem to harbingers upward pressure on prices in the months ahead.

The 14-year low in the civilian unemployment rate achieved during the first half of 1988 has stirred concern about rising wages and their impact on prices. Civilian worker compensation is measured by the Employment Cost Index. During the second quarter of 1988, the annual rate of change in this index rose above 4 percent for the first time since early 1986. But, while rising wage costs usually correlate to rising prices in the long run, advances in productivity can offset this upward pressure. Another indicator influenced by rising wages is the index of unit labor costs, which are the labor compensation costs incurred in the production of a unit of output (and are derived by dividing compensation by output). The unit labor cost index has averaged an annual increase of 2.2 percent during the current expansion. The index rose 3.0 percent, however, between the second quarters of 1987 and 1988. Nevertheless, this should be contrasted to the last 2 years of the 1961–69 business cycle, when unit labor costs rose at a 7.1-percent rate.

An additional characteristic of the latter stages of an expansion is an acceleration of material costs. In good part this can be tied to the fact that the U.S. factory utilization rate during the second quarter rose to its highest level in more than 8 years. The best measure of accelerating material costs is the finished goods component of the Producer Price Index, which rose at a 3.6-percent annual rate in the first half of 1988, following a 2.2-percent increase for all of 1987. While some of the acceleration in the PPI was because of rising food prices, this was partially offset by the downturn in energy prices. Finished goods less food and energy rose at a 3.9-percent annual rate over the first half, almost twice the 2.1-percent rate of last year.

In summary, the drought and the delayed impact of the deterioration of the exchange value of the dollar are likely to have only a small effect on the CPI in the next 18 months. The recent acceleration in labor and material costs will probably put the most pressure on consumer prices. However, even these cost increases, when viewed with a historical perspective, are consistent only with a gradual drift upwards from the 4-percent inflation level of the past 6 years. □

—FOOTNOTE—

<sup>1</sup>See John F. Early, Mary Lynn Schmidt, and Thomas J. Mosimann, "Inflation and the business cycle during the postwar period," *Monthly Labor Review*, November 1984, pp. 3–7.

# Employer-sponsored dental insurance eases the pain

*Dental care plans grew in prominence from 1980 to 1986; plan cost control measures, as well as plan benefits, kept pace with the rising cost of dental care*

RITA S. JAIN

In recent decades, dental insurance plans have been one of the fastest-growing items on the employee benefits scene. Between 1967 and 1985, the number of persons in the United States with dental coverage grew from 4.6 million to nearly 100 million,<sup>1</sup> largely because of the adoption of worksite-based group plans. In 1986, 68 percent of all full-time employees in medium and large firms participated in dental plans financed wholly or partially by their employers.

These plans provide a variety of services, ranging from routine examinations to more expensive treatments such as orthodontia and restorative procedures. But more often emphasis is on preventive care.

This article examines several key features of dental plan design, including benefits provided, methods of reimbursement, funding arrangements, and employee contributions to plan premiums. It is based on data from the Bureau of Labor Statistics' 1980–86 surveys of benefits for full-time

employees in medium and large firms. The 1986 survey studied a sample of 1,500 establishments, which represented approximately 46,000 business establishments employing 24 million workers; the coverage of the 1980–85 surveys was virtually the same.<sup>2</sup> Data were tabulated for three broad occupational groups: professional and administrative workers, technical and clerical workers, and production workers. The first two groups are considered white-collar workers, in contrast to blue-collar or production workers.

The 1986 survey studied approximately 1,900 plans providing dental benefits. (Plans with dental benefits limited to oral surgery or other services necessitated by accidental injury were not classified as dental plans.) Included in the study were both comprehensive plans combining dental and other health benefits and dental plans that were independent of plans providing hospital, surgical, medical, and related health benefits. In 1986, five-eighths of the participants had dental coverage that was separate from their main health insurance plan.

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## Dental plan participation: 1980-86

According to the 1986 Employee Benefits Survey, dental coverage, wholly or partially financed by the employer, was available to 71 percent of full-time employees with health insurance in medium and large firms—a 27-percent increase in the proportion recorded for 1980. Coverage rose 28 percent for white-collar workers and 21 percent for blue-collar workers.

However, the rise in dental plan participation was uneven throughout the 1980-86 period. Participation grew gradually, reaching a peak in 1984; since then, there has been a small decline for all occupational groups. The slowdown in the growth of dental insurance participation may be traced to several factors. Employment declines in some industries, such as basic steel, which traditionally provided dental benefits, affected overall participation rates. Efforts to control health care costs have caused some companies to reconsider expanding their benefit programs to include dental care. Additionally, flexible benefits programs enabled employees to switch insurance plans in favor of other benefits. The following tabulation shows the percent of full-time health insurance participants with dental benefits in medium and large firms during the 1980-86 period:

| Years | All participants | Professional and administrative | Technical and clerical | Production |
|-------|------------------|---------------------------------|------------------------|------------|
| 1980  | 56               | 60                              | 55                     | 56         |
| 1981  | 61               | 67                              | 60                     | 59         |
| 1982  | 68               | 76                              | 68                     | 64         |
| 1983  | 74               | 79                              | 72                     | 72         |
| 1984  | 77               | 79                              | 75                     | 76         |
| 1985  | 76               | 79                              | 76                     | 73         |
| 1986  | 71               | 75                              | 72                     | 68         |

## Extent of coverage

In 1986, 98 percent of the participants were in dental plans with provisions that covered all family members. Employees were more likely to share in plan costs if coverage was extended to their dependents. One percent were in plans that covered the employee only; an additional 1 percent had coverage for only the employee and the spouse. Less than 0.5 percent of the participants were in plans providing dental benefits only for dependent children.

Nearly all dental plans covered a wide range of services, including preventive care, such as examinations and x rays; restorative procedures, such as fillings, inlays, and crowns; dental surgery; and periodontal care (treatment of tissues and bones supporting the teeth). Plans paying all or part of the cost of orthodontic services, at least for dependent children, covered 75 percent of dental participants in 1986, up from 62 percent in 1980. Aside from the growth in orthodontic benefits, there was little change in the incidence of

**Table 1. Percent of full-time participants in dental plans with scheduled cash allowances by maximum payable for selected dental procedures, medium and large firms, 1986**

| Procedure   | All participants | Professional and administrative participants | Technical and clerical participants | Production participants |
|---|------------------|--|-------------------------------------|-------------------------|
| <b>Examinations:</b>                                      |                  |  |                                     |                         |
| Total   | 100              | 100  | 100                                 | 100                     |
| \$10 and under  | 2                | —  | 1                                   | 5                       |
| \$11-15   | 5                | 2  | 2                                   | 9                       |
| \$16-20   | 14               | 10   | 6                                   | 21                      |
| \$21-25   | 19               | 19   | 23                                  | 16                      |
| \$26-30   | 11               | 8  | 6                                   | 17                      |
| \$31-35   | 15               | 17   | 20                                  | 11                      |
| \$36-40   | 9                | 9  | 11                                  | 9                       |
| \$41-50   | 22               | 31   | 30                                  | 11                      |
| More than \$50  | 1                | 1  | 2                                   | ( <sup>1</sup> )        |
| Not determinable  | 1                | 2  | ( <sup>1</sup> )                    | ( <sup>1</sup> )        |
| <b>Fillings:</b>  |                  |  |                                     |                         |
| Total   | 100              | 100  | 100                                 | 100                     |
| \$10 and under  | 14               | 10   | 6                                   | 21                      |
| \$11-15   | 36               | 37   | 34                                  | 36                      |
| \$16-20   | 42               | 42   | 51                                  | 36                      |
| \$21-25   | 7                | 8  | 6                                   | 6                       |
| More than \$25  | 1                | 1  | 1                                   | 1                       |
| Not determinable  | 1                | 2  | ( <sup>1</sup> )                    | 1                       |
| <b>Dental surgery to repair fracture of the mandible:</b> |                  |  |                                     |                         |
| Total   | 100              | 100  | 100                                 | 100                     |
| \$25 and under  | 6                | 4  | 3                                   | 8                       |
| \$26-50   | 13               | 12   | 10                                  | 16                      |
| \$51-75   | 22               | 28   | 25                                  | 16                      |
| \$76-100  | 11               | 11   | 11                                  | 11                      |
| \$101-125   | 24               | 21   | 33                                  | 22                      |
| \$126-150   | 4                | 5  | 6                                   | 4                       |
| \$151-175   | 4                | 4  | 3                                   | 4                       |
| \$176-200   | 2                | 3  | 2                                   | —                       |
| More than \$200   | 9                | 6  | 4                                   | 15                      |
| Not determinable  | 5                | 6  | 3                                   | 9                       |
| <b>Crowns:</b>  |                  |  |                                     |                         |
| Total   | 100              | 100  | 100                                 | 100                     |
| \$100 and under   | 6                | 4  | 6                                   | 8                       |
| \$101-150   | 22               | 18   | 13                                  | 29                      |
| \$151-200   | 31               | 32   | 31                                  | 30                      |
| \$201-300   | 40               | 44   | 48                                  | 32                      |
| \$301-400   | 1                | 1  | 1                                   | ( <sup>1</sup> )        |
| Not determinable  | 1                | 2  | ( <sup>1</sup> )                    | ( <sup>1</sup> )        |

<sup>1</sup>Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate no employees in these categories.

services covered during the period studied. The following tabulation is illustrative:

| Procedure    | Percent of plan participants |      |      |
|--------------|------------------------------|------|------|
|              | 1980                         | 1983 | 1986 |
| Examinations | 100                          | 99   | 100  |
| Fillings     | 100                          | 100  | 100  |
| Crowns       | 97                           | 99   | 98   |
| Orthodontia  | 62                           | 73   | 75   |

## Methods of reimbursement

Dental plans pay for covered services in one of four ways: (1) full or partial payment of usual, customary, and reasonable charges (UCR)<sup>3</sup>; (2) payment according to a schedule (list) of cash allowances; (3) incentive payment schedules; and (4) copayment methods. The methods used varied somewhat in 1986 by the type of dental proce-

dures, as the following tabulation shows:

*Percent of plan participants covered for procedure*

| Procedure          | Total | UCR | Schedule           |                    |                  |
|--------------------|-------|-----|--------------------|--------------------|------------------|
|                    |       |     | of cash allowances | Incentive schedule | Copayment method |
| Examinations ..... | 100   | 80  | 17                 | 3                  | *                |
| Fillings .....     | 100   | 69  | 27                 | 3                  | 1                |
| Crowns .....       | 100   | 70  | 27                 | 1                  | 2                |
| Orthodontia .....  | 100   | 77  | 20                 | —                  | 3                |

\* Less than 0.5 percent.

Dash indicates no participants in this category.

Over the 1980–86 period, little change was noted in the prevalence of the reimbursement methods.

For all procedures examined, the most common type of reimbursement was through the UCR method. However, the portion of UCR charges paid for by dental plans often varied by the type of procedure. To encourage preventive care, less costly diagnostic and preventive procedures were usually covered at 80 percent or 100 percent. (It is assumed that participants who seek preventive care are less likely to require more expensive restorative work in the future.) Fillings, surgery, and periodontal care were most likely to be covered at 80 percent; while the most costly procedures—inlays, crowns, and orthodontia—were often reimbursed at 50 percent of UCR charges. The following tabulation shows reimbursements for 1986:

*Percent of plan participants*

| Procedure          | Total | Charges covered at |     |      |         |
|--------------------|-------|--------------------|-----|------|---------|
|                    |       | 50%                | 80% | 100% | Other % |
| Examinations ..... | 100   | 1                  | 23  | 71   | 5       |
| Fillings .....     | 100   | 6                  | 55  | 13   | 26      |
| Crowns .....       | 100   | 50                 | 18  | 6    | 26      |
| Orthodontia .....  | 100   | 81                 | 5   | 5    | 9       |

During the 1980–86 period, there was little change in the proportion of UCR charges paid for by the plans studied.

In 1986, about one-fourth of the dental plan participants were reimbursed based on a schedule of cash allowances. In this arrangement, dental services are paid for up to a maximum dollar amount specified for each procedure. Restorative procedures, such as fillings, dental surgery, and crowns, were more likely to be subject to this type of schedule than preventive procedures (examinations and x rays).

Table 1 shows the range of cash allowances that plans had specified for selected dental procedures. In 1986, plans typically paid from \$15 to \$50 for most routine dental examinations, while simple fillings were seldom reimbursed for more than \$25. However, coverage for dental surgery to repair a fracture of the mandible (jaw) usually allowed payments up to \$125; and payments for more expensive crowns commonly ranged from \$150 to \$300.

Unlike the UCR reimbursement method, scheduled allowances do not automatically change in tandem with prices for dental services. However, survey data reveal that plan spon-

sors revise scheduled allowances, on average, to reflect increases in the price of dental care. The following tabulation shows that, for selected procedures, average allowances increased 11 to 49 percent from 1983 to 1986. During this period, the dental services component of the Consumer Price Index for All Urban Consumers rose 19 percent.

| Procedure   | Average maximum benefit payment |      | Percent increase |
|---|---------------------------------|------|------------------|
|   | 1983                            | 1986 |                  |
| Examinations .....                                      | \$27                            | \$30 | 11               |
| Fillings .....  | 13                              | 15   | 15               |
| Dental surgery to repair fracture of the mandible ..... | 81                              | 121  | 49               |
| Crowns .....  | 166                             | 194  | 17               |

Three percent of dental plan participants had services covered by an incentive schedule in 1986. To encourage participants to seek preventive care, under this method of reimbursement the percentage of dental expenses paid by the plan increases each year if the participant is examined regularly by a dentist. For this reason, preventive procedures were more likely to be subject to incentive schedules than complex restorative and orthodontic procedures.

**Table 2. Percent of full-time participants in dental plans by type of deductible and method of reimbursement, medium and large firms, 1986**

| Method of reimbursement <sup>1</sup> | Total | With dental deductibles — |          |                         | No deductible |
|--------------------------------------|-------|---------------------------|----------|-------------------------|---------------|
|                                      |       | Separate deductible       |          | Overall plan deductible |               |
|                                      |       | Annual                    | Lifetime |                         |               |
| <b>Examinations:</b>                 |       |                           |          |                         |               |
| Total .....                          | 100   | 15                        | 2        | 4                       | 79            |
| Scheduled cash allowance .....       | 100   | 7                         | 1        | 1                       | 92            |
| UCR .....                            | 100   | 17                        | 2        | 4                       | 77            |
| Incentive schedule .....             | 100   | 6                         | 25       | —                       | 70            |
| <b>Fillings:</b>                     |       |                           |          |                         |               |
| Total .....                          | 100   | 54                        | 7        | 3                       | 35            |
| Scheduled cash allowance .....       | 100   | 44                        | 17       | 1                       | 38            |
| UCR .....                            | 100   | 60                        | 2        | 5                       | 32            |
| Incentive schedule .....             | 100   | 22                        | 25       | —                       | 53            |
| <b>Dental surgery:</b>               |       |                           |          |                         |               |
| Total .....                          | 100   | 55                        | 7        | 3                       | 35            |
| Scheduled cash allowance .....       | 100   | 47                        | 19       | 1                       | 34            |
| UCR .....                            | 100   | 59                        | 2        | 4                       | 34            |
| Incentive schedule .....             | 100   | 25                        | 28       | —                       | 47            |
| <b>Crowns:</b>                       |       |                           |          |                         |               |
| Total .....                          | 100   | 58                        | 5        | 4                       | 33            |
| Scheduled cash allowance .....       | 100   | 46                        | 16       | 1                       | 37            |
| UCR .....                            | 100   | 65                        | 1        | 5                       | 29            |
| Incentive schedule .....             | 100   | 38                        | 30       | —                       | 32            |
| <b>Orthodontia:</b>                  |       |                           |          |                         |               |
| Total .....                          | 100   | 24                        | 13       | 3                       | 61            |
| Scheduled cash allowance .....       | 100   | 22                        | 19       | —                       | 58            |
| UCR .....                            | 100   | 25                        | 11       | 4                       | 60            |
| Incentive schedule .....             | —     | —                         | —        | —                       | —             |

<sup>1</sup>Services reimbursed through the copayment method were not subject to deductibles.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate no employees in these categories.



**Table 3. Percent of full-time participants in dental plans with deductibles by type of deductible, medium and large firms, 1986**

| Type of deductible                      | Preventive, restorative, and orthodontic | Preventive and restorative | Restorative and orthodontia | Preventive only  | Restorative only | Orthodontia only |
|---|--|----------------------------|-----------------------------|------------------|------------------|------------------|
| Subject to basic dental deductible..... | 10                                       | 26                         | 24                          | ( <sup>1</sup> ) | 43               | 10               |
| Yearly deductible:                      |  |                            |                             |                  |                  |                  |
| Total .....                             | 9  | 23                         | 18                          | ( <sup>1</sup> ) | 41               | 1                |
| Under \$25 .....                        | ( <sup>1</sup> )                         | 1                          | —                           | —                | —                | —                |
| \$25 .....                              | 4  | 7                          | 6                           | ( <sup>1</sup> ) | 18               | —                |
| \$26-49 .....                           | ( <sup>1</sup> )                         | 1                          | ( <sup>1</sup> )            | —                | ( <sup>1</sup> ) | —                |
| \$50 .....                              | 5  | 12                         | 11                          | ( <sup>1</sup> ) | 20               | 1                |
| \$51-99 .....                           | ( <sup>1</sup> )                         | ( <sup>1</sup> )           | 1                           | —                | 1                | —                |
| \$100 .....                             | ( <sup>1</sup> )                         | 1                          | 1                           | —                | 1                | —                |
| More than \$100.....                    | —  | ( <sup>1</sup> )           | —                           | —                | ( <sup>1</sup> ) | —                |
| Lifetime deductible:                    |  |                            |                             |                  |                  |                  |
| Total .....                             | ( <sup>1</sup> )                         | 3                          | 6                           | —                | 2                | 9                |
| Under \$25 .....                        | —  | ( <sup>1</sup> )           | —                           | —                | —                | —                |
| \$25 .....                              | —  | ( <sup>1</sup> )           | —                           | —                | —                | —                |
| \$26-49 .....                           | —  | —                          | —                           | —                | —                | —                |
| \$50 .....                              | ( <sup>1</sup> )                         | ( <sup>1</sup> )           | 6                           | —                | 2                | 8                |
| \$51-99 .....                           | —  | 2                          | —                           | —                | —                | 1                |
| \$100 .....                             | —  | ( <sup>1</sup> )           | —                           | —                | —                | ( <sup>1</sup> ) |
| More than \$100.....                    | —  | —                          | —                           | —                | —                | ( <sup>1</sup> ) |
| Subject to both .....                   | —  | —                          | —                           | —                | ( <sup>1</sup> ) | —                |

<sup>1</sup>Less than 0.5 percent.

NOTE: Because of rounding and the existence of multiple deductibles in a plan, sums of individual items may not equal totals. Dashes indicate no employees in these categories.

One to three percent of dental plan participants in 1986 were required to make copayments, a reimbursement method that was not found in the 1980 survey. Under this arrangement, the employee pays a specified amount (such as \$10) for a dental procedure, and the plan pays the balance. It is essentially the opposite of the scheduled cash allowance method. Restorative procedures and more expensive procedures, such as orthodontia, were more likely to be paid for under this method than were preventive procedures.

### Deductible requirements

Participants were commonly required to pay a specified amount of dental expenses (deductible) before the plan paid any benefits. The most common requirement was a \$25 or \$50 deductible each year. However, some plans called for the participant to pay a "lifetime" deductible (usually \$50) only once while a member of the plan, rather than every year. White-collar workers were more likely than blue-collar workers to have plans with deductible requirements, a pattern that has remained essentially the same since first studied in 1980.

Deductibles were found in combined hospital-medical-dental plans and also in separate dental plans. In the combined plans, the deductible almost always applied specifically to dental charges and not to all health care expenses.

Four percent of dental plan participants were subject to overall health insurance plan deductibles. In these plans, dental expenses were included along with other types of medical expenses in meeting an overall deductible. For ex-

ample, if the health insurance plan deductible was \$200, the participant would have to pay \$200 in dental or other medical care expenses before the plan would pay any benefits.

The following tabulation shows that separate dental deductibles have become somewhat more common since 1980. However, the amounts of the deductibles have changed little: in all 3 years, annual deductibles were evenly divided between \$25 and \$50 amounts, while \$50 was the most common lifetime deductible. This is in marked contrast to the rise in overall health insurance deductibles.<sup>4</sup> The data exclude separate deductibles for orthodontic procedures.

| Deductible requirement                                  | Percent of plan participants |      |      |
|---|------------------------------|------|------|
|   | 1980                         | 1983 | 1986 |
| Deductible applies only to dental expenses .....        | 53                           | 61   | 63   |
| Deductible applies to medical and dental expenses ..... | 5                            | 8    | 4    |
| Without deductible.....                                 | 42                           | 32   | 32   |

When dental deductibles were specified, they did not necessarily apply to all procedures. As shown in table 2, only 17 percent of participants in 1986 had to satisfy a separate dental deductible before receiving reimbursement for preventive care, compared with about 60 percent for more expensive treatments—fillings, dental surgery, and crowns. Deductibles are less commonly applied to preventive procedures to avoid discouraging participants from getting regular checkups.<sup>5</sup>

Orthodontic services, which are likely to be the most costly dental procedures, were subject to separate dental

deductibles for nearly two-fifths of the participants. Because orthodontic work often continues beyond 1 year and is not likely to recur, lifetime—rather than annual—deductibles were more common than for other procedures. For the same reasons, deductibles—which are designed to eliminate multiple small claims—are often not applied to orthodontic expenses.<sup>6</sup>

Table 2 also shows the relationship between the method of reimbursement and deductibles. Except for examinations, there was no appreciable difference in the incidence of deductibles among plans basing payments on the UCR and scheduled allowances methods; in UCR-based plans, lifetime deductibles were less likely to appear than in plans based on scheduled allowances.

Deductible expenses, for the most part, apply to groups of dental expenses rather than to all procedures or to each separate procedure. Table 3 examines the relationship between the type and amount of deductibles and the dental procedures to which they applied. Deductibles were most commonly applied to restorative care alone, and were evenly split between \$25 and \$50 annual amounts. In plans in which either preventive or orthodontic expenses were included under the same deductible, an amount of at least \$50 was specified more frequently. When a separate deductible applied to orthodontic expenses, it was usually a single lifetime deductible of \$50 per individual.

### Maximum benefit limits

Nearly all participants in 1986 were in plans with a ceiling on total payments for dental care. Maximum limits on nonorthodontic care were applied on a yearly basis, while orthodontia was subject to separate lifetime limits.<sup>7</sup>

In 1986, maximum annual limits for nonorthodontic services applied to 88 percent of dental plan participants. The most common limit was \$1,000; few exceeded \$1,500. The trend since 1980, however, has been to raise the annual ceilings. Ceilings greater than \$1,000 applied to 19

percent of plan participants in 1986, up from 11 percent in 1983, and 6 percent in 1980.<sup>8</sup>

Orthodontic care was usually subject to a separate lifetime cap on payments from the plan. In 1986, maximum lifetime limits applied to 94 percent of participants in plans that covered orthodontia. The most common lifetime ceiling was \$1,000. Over the 1980–86 period, orthodontic maximums increased significantly. Limits of \$1,000 or more applied to 17 percent of participants in 1980, 35 percent in 1983, and 50 percent in 1986.

### Funding arrangements

Considerable change has taken place since 1980 in the financial arrangements for providing dental care. As the following tabulation shows, there has been a marked shift from providing benefits through commercial insurance carriers to self-funded arrangements. Commercial carriers provided benefits to half of the participants in 1986, down from three-quarters in 1980; while the incidence of self-funded plans (those self-insured by employers) more than doubled, covering two-fifths of the participants in 1986, up from one-fifth in 1980. Coverage through Blue Cross-Blue Shield plans was relatively unchanged; but other arrangements for providing dental care, such as health maintenance organizations (HMO's), preferred provider organizations (PPO's), and dental societies, increased their share of participants during the period studied.<sup>9</sup> This parallels the shift to providing medical services through self-funded arrangements, HMO's, and PPO's.<sup>10</sup>

| Funding medium               | Percent of plan participants |      |      |
|------------------------------|------------------------------|------|------|
|                              | 1980                         | 1983 | 1986 |
| Total .....                  | 100                          | 100  | 100  |
| Blue Cross-Blue Shield ..... | 5                            | 5    | 6    |
| Commercial carrier .....     | 77                           | 66   | 48   |
| Self-funded .....            | 18                           | 23   | 39   |
| HMO and other .....          | 2                            | 5    | 8    |

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 4. Percent of full-time participants in separate dental plans by provisions for deductibles and employee contributions, medium and large firms, 1986**

| Employee contributions                      | Percent of participants, 1986 |                       |                   |      |       |       |                     |               |
|---|-------------------------------|-----------------------|-------------------|------|-------|-------|---------------------|---------------|
|   | Total                         | Total with deductible | Yearly deductible |      |       |       | Lifetime deductible | No deductible |
|   |                               |                       | \$25              | \$50 | \$100 | Other |                     |               |
| Noncontributory plans <sup>1</sup> .....    | 100                           | 65                    | 24                | 28   | 2     | 2     | 16                  | 35            |
| Contributory plans <sup>2</sup> .....       | 100                           | 88                    | 28                | 45   | 4     | 7     | 11                  | 12            |
| Monthly employee contribution: <sup>3</sup> |                               |                       |                   |      |       |       |                     |               |
| Less than \$1.99 .....                      | 100                           | 90                    | 33                | 54   | —     | —     | 3                   | 10            |
| \$2–3.99 .....                              | 100                           | 87                    | 23                | 29   | 11    | 23    | 24                  | 13            |
| \$4–5.99 .....                              | 100                           | 97                    | 33                | 59   | 2     | 3     | —                   | 3             |
| More than \$5.99 .....                      | 100                           | 64                    | 7                 | 57   | —     | —     | —                   | 36            |

<sup>1</sup>Premiums are fully financed by the employer.

<sup>2</sup>Employees are required to contribute toward plan premiums.

<sup>3</sup>Monthly premiums are shown only where fixed monthly rates applied.

NOTE: Because annual and lifetime deductibles sometimes existed in the same plan, sums of deductibles may exceed 100 percent. Dashes indicate no employees in these categories.

The growth in participation in HMO's has not, however, had as large an effect on how dental services are financed as it has had on other types of medical services. The main reason for this is that only 7 percent of the HMO enrollees studied in 1986 were in plans that also provided dental care and, when dental care was covered under HMO's, it was almost always limited to preventive services (examinations and x rays). The most common practice for HMO's (as well as for fee-for-service medical plans) is to be supplemented by separate employer-financed dental plans.<sup>11</sup>

### Employee contributions to plan premiums

A majority of the participants in dental insurance plans in 1986 received coverage paid for entirely by their employers. (See table 4.) The incidence of these fully paid plans was greater for three-eighths of participants in combined hospital-medical-dental plans than for the five-eighths in separate dental plans. (All told, 99 percent of the dental plan participants also had health insurance coverage.)

For participants in comprehensive health insurance plans, employee premium payments were usually specified for the health care plan as a whole, and it was not possible to determine the portion intended to help finance dental benefits. Total employee contributions in these plans, on average, differed little when plans with dental care benefits were compared to those without such benefits (table 5).<sup>12</sup>

Among the employees who were covered by separate dental care plans, about one-fourth contributed to the cost of their own coverage and nearly one-half helped finance

**Table 5. Percent of full-time participants in dental plans by provisions for employee contributions, medium and large firms, 1986**

| Item   | Regular health plan     |                      | Separate dental plans |
|--|-------------------------|----------------------|-----------------------|
|  | Without dental benefits | With dental benefits |                       |
| <b>Individual coverage</b>                               |                         |                      |                       |
| Percent of participants in—                              |                         |                      |                       |
| Contributory plans <sup>1</sup> .....                    | 42                      | 34                   | 27                    |
| Noncontributory plans <sup>2</sup> .....                 | 58                      | 66                   | 73                    |
| Average employee monthly contribution <sup>3</sup> ..... | \$13                    | \$13                 | \$3                   |
| <b>Family coverage</b>                                   |                         |                      |                       |
| Percent of participants in—                              |                         |                      |                       |
| Contributory plans <sup>1</sup> .....                    | 63                      | 46                   | 45                    |
| Noncontributory plans <sup>2</sup> .....                 | 37                      | 54                   | 55                    |
| Average employee monthly contribution <sup>3</sup> ..... | \$42                    | \$37                 | \$10                  |

<sup>1</sup>Employees are required to contribute toward plan premiums.

<sup>2</sup>Premiums are fully financed by the employer.

<sup>3</sup>Average monthly contributions were computed only for plans that specified a fixed monthly premium.

family coverage. Monthly contributions for individual coverage averaged about \$3, while contributions for family coverage averaged about \$10.

The relationship of employee premium payments and dental plan deductibles was also studied. Both ways encourage employees to share plan costs. As shown in table 4, noncontributory plans were less likely to apply deductibles than contributory plans. Among contributory plans, deductibles of \$50 or more tended to be more prevalent—compared to \$25 deductibles—as the employee's monthly premium increased. Thus, both methods of cost-sharing exist in tandem, rather than to substitute for each other. □

### FOOTNOTES

<sup>1</sup>See *1986-1987 Source Book of Health Insurance Data* (Washington, Health Insurance Association of America, 1987), table 1.6.

<sup>2</sup>*Employee Benefits in Medium and Large Firms, 1986*, Bulletin 2281 (Bureau of Labor Statistics, 1987). The 1980-85 survey results are reported in the following bulletins: 1980 survey (Bulletin 2107); 1981 survey (Bulletin 2140); 1982 survey (Bulletin 2176); 1983 survey (Bulletin 2213); 1984 survey (Bulletin 2237); 1985 survey (Bulletin 2262).

<sup>3</sup>The usual, customary, and reasonable rate (UCR) is a rate that is not more than the dentist's usual charge; within the customary range of fees in the locality; and is reasonable, considering the circumstances.

<sup>4</sup>The proportion of major medical insurance plan participants subject to deductibles of \$150 or more rose from 8 percent in 1980 to 36 percent in 1986. During the same years, the proportion of participants with major medical deductibles of \$50 or less declined from 28 percent to 12 percent. See *Employee Benefits, 1986*, p. 28. For details on dental deductibles, see *Employee Benefits, 1980*, p. 20; *Employee Benefits, 1983*, p. 36; and *Employee Benefits, 1986*, p. 44.

<sup>5</sup>See, for example, Ronald L. Huling and John T. Lynch, "Dental Plan Design," in Jerry S. Rosenbloom, ed., *The Handbook of Employee Benefits: Design, Funding, and Administration* (Homewood, IL., Dow Jones-Irwin, 1984), p. 190.

<sup>6</sup>Huling and Lynch, pp. 189-90.

<sup>7</sup>Nonorthodontic services were rarely subject to lifetime limits; similarly, yearly limits were infrequently observed for orthodontic charges, usually only when one maximum limit applied to all types of dental services.

<sup>8</sup>*Employee Benefits, 1980*, p. 21; *Employee Benefits, 1983*, p. 36; and *Employee Benefits, 1986*, p. 44.

<sup>9</sup>Health Maintenance Organizations provide comprehensive health care on a prepayment rather than fee-for-service basis. Preferred Provider Organizations are groups of hospitals, physicians, and dentists who contract to provide comprehensive health care services. To encourage the use of these provider members, the PPO limits reimbursement rates when participants use nonmember services.

<sup>10</sup>For example, HMO's provided hospital care to 13 percent of health care participants in 1986, up from 2 percent in 1980. For further details, see *Employee Benefits, 1980*, p. 23; and *Employee Benefits, 1986*, p. 48.

<sup>11</sup>For additional information on HMO's, see Allan Blostin and William Marclay, "HMO's and other health plans: coverage and employee premiums," *Monthly Labor Review*, June 1983, pp. 28-33.

<sup>12</sup>Of course, other variables, such as the plan sponsor's policy towards cost control and differences in coverage of the underlying health insurance plan could account for these relationships. These variables, however, were not examined in this study.



# Evaluation of mean wage estimates in the Industry Wage Survey program

*Variances and wage distribution data provide the basis for evaluating the reliability of mean wage estimates: sampling size, worker counts, and wage dispersion were found to affect relative standard errors*

PENNY L. ASBURY AND CARL BARSKY

The first annual report of the Commissioner of Labor, published in 1886, included the results of an occupational wage survey conducted by what is now the Bureau of Labor Statistics (BLS).<sup>1</sup> The results, taken from payroll records of 582 establishments in about 40 mostly manufacturing industries, contained daily mean wage rates by occupation, industry, and State.

Since that first report, the BLS has continued the study of occupational wages by industry. This Industry Wage Survey program now includes approximately 25 manufacturing and 15 nonmanufacturing studies, which represent a total of about 65 industries. About eight surveys per year are conducted. Most surveys are done on either a 3- or a 5-year cycle. For each survey, average (mean) wages and wage distributions for workers in selected occupations are published on a national, regional, or locality basis.

For any statistical survey program such as the Industry Wage Survey, a measure of the sampling error should be available for each mean wage estimate derived from the survey sample to provide an indication of the quality of the survey data. Sampling errors occur because the estimates are based on observations from a subset of the population rather than from the entire population. The particular sample selected for a survey is one of a large number of possible random samples of the same size that could have been selected.

The most commonly used measure of sampling errors is the variance. Accordingly, this article discusses a variance estimation procedure used in five manufacturing and two nonmanufacturing surveys from the 1985 and 1986 Industry Wage Survey program. In general, it was found that most of the variances were at the acceptable level of below 3 percent. The variances increased inversely with the sample size of the survey and with the number of workers in an occupation. However, they varied directly with the dispersion of wage rates in an occupation.

## Uses of variance estimates

The purposes of calculating variances for the Industry Wage Survey program are 1) to evaluate the quality of survey data, 2) to publish information on the reliability of the survey estimates, and 3) to improve the efficiency of sample allocations. By evaluating the variances of mean wages among occupations, the BLS can improve its sampling procedures by determining the conditions under which the sample size for a given occupation or industry should be increased or decreased to provide the desired overall precision.

For the surveys discussed in this article, relative standard error, a form of variance, is used as a measure of survey reliability. A calculation of variance is converted into a relative standard error by dividing the square root of the variance by the mean wage estimate. The relative standard error is used because it measures the precision of an estimate, while eliminating the level differences caused by the different mean wage estimates among occupations. Relative standard errors permit a comparison of the reli-

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ability of mean wage estimates between different occupations or geographic areas.

For example in the Industry Wage Survey of hospitals, the mean wage for the occupation head nurse can be compared across all metropolitan areas studied. In Oakland, CA, the mean wage was \$17.53 an hour and in Buffalo–Niagara Falls, NY, it was \$11.89 an hour. The relative standard errors were 0.94 for Oakland, and 0.92 for Buffalo–Niagara Falls. The relative standard errors show that for both areas the mean wage estimates, although different, are equally reliable. When comparing two estimates, a smaller relative standard error indicates greater precision.

The estimated relative standard errors can also be used to calculate a 95-percent confidence interval around the mean wage estimate. A 95-percent confidence interval means that if similar samples were repeatedly drawn from the same population, and estimates of the mean wage and its relative standard error were computed for each sample, then the true population mean would be included in the confidence interval for approximately 95 percent of these samples.

A 95-percent confidence interval has a lower limit equal to the estimated mean wage minus 2 times the relative standard error times the estimated mean wage, and an upper limit equal to the estimated mean wage plus 2 times the relative standard error times the estimated mean wage. For example, the nationwide estimated mean wage for production workers in the survey of the petroleum refining industry was \$14.20 in 1986, with a relative standard error of 0.23 percent. Therefore, a 95-percent confidence interval for the estimate is from \$14.13 to \$14.27. (The lower confidence limit is \$14.20 minus 2 times 0.0023 times \$14.20, or \$14.20 minus \$0.07. The upper limit is \$14.20 plus \$0.07.)

### Characteristics of evaluated surveys

The surveys covered by the variance estimation procedure discussed in this article were mostly in manufacturing: cotton and manmade textiles, synthetic fibers, petroleum refining, industrial chemicals, and glassware. There were more than 100 establishments in the sample for all manufacturing surveys except that for synthetic fibers which, because of the industry's size, included only 37 establishments. The surveys provided mean wage estimates on a national or regional basis with industrial chemicals and cotton and manmade textiles also providing some locality estimates.

The two nonmanufacturing surveys, hospitals and nursing homes, had sample sizes of around 500 establishments each, and provided estimates for approximately two dozen metropolitan areas.<sup>2</sup>

These seven surveys were chosen to evaluate the general Industry Wage Survey program because of their varying

degrees of statistical complexity. The hospitals and nursing homes surveys involved simple sample designs which provided mean wage estimates only by locality. More complex sample designs, such as those used in the surveys of the cotton and manmade textiles and industrial chemicals industries, provided estimates not only at the locality level, but also at regional and national levels. The industrial chemicals survey also produced separate estimates for the inorganic and organic chemicals subclassifications.

Because sample designs vary by survey, the variance estimation procedure must be modified for each survey in the Industry Wage Survey program. For locality surveys, the procedure is straightforward. However, for surveys involving national, regional, and locality estimates, the procedure must be adapted for each level of estimation.

### Sampling design

The variance estimation procedure used to compute relative standard errors for any survey depends on the sampling design of the survey and the estimator. For sampling, the establishments in the Industry Wage Survey are separated by the characteristics associated with wage differences, such as geography and number of employees. Then, a simple random sample is chosen from each group (or cell) of establishments with similar characteristics. The assumption is that occupational wages and benefits tend to be similar among establishments with similar characteristics.

The number of sample establishments in each cell chosen for a survey is based on the proportion of employment in that cell to the employment of establishments within the scope of the industry. In practice, because the sampling design assumes that variance is proportional to the number of workers in an establishment, the usual consequence of this is that a cell which contains 10 percent of the total industry employment is allocated approximately 10 percent of the total sample establishments. There are two additional constraints that are imposed on the sample allocation procedure to reduce variance and to ensure minimum bias in sampling and nonresponse adjustment procedures:<sup>3</sup>

- 1) All establishments with 2,500 employees or more are included in a survey sample; and
- 2) Minimum sample sizes are required for each cell based on the total number of establishments in the cell.<sup>4</sup>

Industry Wage Survey samples would ideally be designed so that estimates of average wages have relative standard errors no greater than 7.5 percent. However, the Unemployment Insurance file, which serves as the source for the survey universe of establishments in an industry, does not include any information on wages. (A universe is a list of all eligible establishments from which a sample is chosen.) Employment size is the only measure

of establishment characteristics available from the Unemployment Insurance file. Therefore, sample size and sample allocation for the surveys have been determined under the requirement that estimates of total employment have relative standard errors no greater than 7.5 percent. The validity of this approach to Industry Wage Survey sample design rests on the assumptions that wages are less variable than establishment size in terms of number of employees and that the number of workers in the occupations studied is directly proportional to establishment size.

As the relative standard errors are calculated for the different Industry Wage Surveys, they will be compared from occupation to occupation to determine whether the sampling design requirements are fulfilled. After evaluation, it may be determined that some occupations will need more observations in future surveys to obtain the required precision, while the number of observations may be decreased for others.

**Variance estimation procedure**

For the surveys evaluated in this article two variance estimation procedures were considered. The first was a replication technique.<sup>5</sup> In this procedure, the survey is divided into subsamples (replicates) in accordance with the sampling design, and estimates of mean wages are computed for each. Then, the sample variance among the several mean wage estimates is computed. This is a relatively simple procedure, and with large sample sizes produces an accurate estimate of variance.

The estimation procedure which was actually used in calculating the variances is an approximation of the formulas used to produce the survey mean wage estimates.<sup>6</sup> Although it is more involved than the replication technique, it provides more reliable estimates of variances for the wage surveys which have relatively small sample sizes.

Implementing the variance estimation procedure is difficult because it must be modified for each survey. Any sample cell with only one establishment must be combined with another cell with similar characteristics, because the procedure does not allow for the computation of a relative standard error for a cell with one establishment.

Each survey also must be evaluated for sampling areas that overlap. For example, in industrial chemicals, the data used to produce locality estimates for Philadelphia, Newark, and Buffalo must be combined with the data for the rest of the Middle Atlantic region to compute regional estimates.

Relative standard errors are calculated on mean wage estimates for each occupation in each published tabulation. In the industrial chemicals survey, for example, wage estimates are published not only for the overall industrial chemicals classification, but also for the organic and inorganic chemicals industries. These figures include

estimates for the Nation, and for nine economic regions. Estimates also are published for the overall industrial chemicals classification for eight localities of industry concentration. The 35 occupations for each industry sector and geographic tabulation in the survey result in 1,330 possible mean wage estimates for which relative standard errors can be computed.

In the less complicated nursing homes industry survey, estimates are published for three categories (all workers, full-time, and part-time) in 15 professional and technical occupations in 22 localities for a possible total of 990 mean wage estimates. Because there are no overlapping areas, the relative standard errors are easier to compute.

**Analysis of relative standard errors**

For the surveys studied, 85 out of the possible 120 locality, regional, and national wage tabulations were analyzed.<sup>7</sup> As the following tabulation shows, of those relative standard errors that were calculated, most are under 3 percent:<sup>8</sup>

| <i>Relative standard error</i>        | <i>Percentage of occupations</i> |
|---------------------------------------|----------------------------------|
| Less than 1 percent .....             | 27                               |
| 1 and under 2 percent .....           | 36                               |
| 2 and under 3 percent .....           | 17                               |
| 3 percent or more .....               | 19                               |
| Total .....                           | 100*                             |
| Number of occupations evaluated ..... | 2,934                            |

\*Due to rounding, sums of individual items do not total 100.

In general, the relative standard errors for national estimates are lower than those for regional estimates which, in turn, are lower than those for locality estimates. Note from the tabulation below how the quality of the estimates improves as geographic areas become larger:

| <i>Relative standard error</i> | <i>National</i> | <i>Regional</i> | <i>Locality</i> |
|--------------------------------|-----------------|-----------------|-----------------|
| Less than 1 percent .....      | 45              | 35              | 21              |
| 1 and under 2 percent .....    | 30              | 28              | 41              |
| 2 and under 3 percent .....    | 11              | 16              | 19              |
| 3 percent or more .....        | 14              | 20              | 19              |
| Total .....                    | 100             | 100*            | 100             |
| Number of occupations .....    | 248             | 916             | 1,770           |

\*Due to rounding, sums of individual items do not total 100.

This pattern occurs because the relative standard error of an estimate generally varies inversely with the sample size of the survey. The national estimates have a larger number of establishments in their samples and smaller relative standard errors than the regional or locality estimates from the same survey. Because the hospitals and nursing home surveys are designed to obtain only locality estimates, their estimates are not as reliable as the other surveys, which provide mostly regional and national estimates.



The relative standard error can also vary inversely with the number of workers sampled in an occupation. This explains why the national mean wage estimates for occupations with large worker counts have smaller relative standard errors than the regional or locality wage estimates with their smaller worker counts. However, because of the sampling design it should be noted that relative standard errors are calculated on establishment wage means and not on wages for individual workers.

An inverse relationship was also found between relative standard error and occupation with different employment level, as the tabulation below shows:

| Relative standard error     | Percent of occupations with employment of— |                   |                   |                     |                |
|-----------------------------|--|-------------------|-------------------|---------------------|----------------|
|                             | Less than 100                              | 100 and under 250 | 250 and under 500 | 500 and under 1,000 | 1,000 and over |
| Less than 1 percent .....   | 22   | 24                | 27                | 32                  | 44             |
| 1 and under 2 percent ..... | 25   | 34                | 46                | 53                  | 46             |
| 2 and under 3 percent ..... | 21   | 23                | 17                | 8                   | 7              |
| 3 percent or more .....     | 33   | 18                | 10                | 7                   | 2              |
| Total .....                 | 100*                                       | 100               | 100               | 100                 | 100*           |
| Number of occupations ...   | 1,158                                      | 629               | 412               | 282                 | 453            |

\*Due to rounding, the sums of individual items do not total 100.

Nine-tenths of the occupations with 1,000 workers or more had relative standard errors of less than 2 percent, whereas slightly more than half of the occupations with fewer than 100 workers had relative standard errors exceeding 2 percent. For example, in the container segment of the glassware survey for the United States, the occupation batch mixer has 153 workers and a relative standard error of 1.50 percent, while mold metal maker, with 1,280 workers, has a relative standard error of 0.25 percent.

Thus, when an occupation has a large number of workers, the relative standard error of the estimate is lower. The "all production worker" estimate in manufacturing surveys is another good example. Because this broad employment category includes all production workers from each region, State, or locality, it has the largest number of workers contributing to a mean wage estimate, and should have a small relative standard error.

Of the 51 relative standard error estimates for the all production worker level in the five manufacturing surveys, half are less than 1 percent. Nine-tenths of these relative standard errors are under 2 percent. Similarly, the smallest relative standard errors in the hospitals and nursing homes surveys are in the occupations, such as licensed practical nurse and general duty nurse, which have the largest worker counts.

Relative standard errors are also directly related to the dispersion of wage rates in an occupation. A mean wage estimate for an occupation with a large dispersion of wage rates is more likely to have a large relative standard error

than an estimate for an occupation with less wage dispersion, unless the sample is extremely large.

To illustrate, in the industrial chemicals survey, relative standard errors are larger for the occupations in organic chemicals than for those in inorganic chemicals. A comparison is presented in the following tabulation:

| Relative standard error     | Percent of occupations |                   |
|-----------------------------|------------------------|-------------------|
|                             | Inorganic chemicals    | Organic chemicals |
| Less than 1 percent .....   | 38                     | 31                |
| 1 and under 2 percent ..... | 31                     | 22                |
| 2 and under 3 percent ..... | 15                     | 17                |
| 3 percent or more .....     | 15                     | 30                |
| Total .....                 | 100*                   | 100               |
| Number of occupations ..... | 124                    | 132               |

\*Due to rounding, sums of individual items do not total 100.

Organic chemicals has a wider variety of processes which creates a wider dispersion in occupational wage rates. Conversely, inorganic chemicals wages are less dispersed not only because the industry has few processes but also because it is highly unionized.

Another highly unionized industry, petroleum refining, has a narrow dispersion of wages and consequently the smallest relative standard errors of all industry surveys studied. Almost three-fourths of the relative standard errors for occupations in the petroleum refining survey are under 1 percent.

Occupations or industries with wide wage dispersions require larger sample sizes to generate acceptable relative standard errors. Conversely, selected occupational sampling (collecting wage data for particular selected occupations from only a subset of the sample) should be possible for those occupations with large worker counts and narrowly dispersed wage rates. A variance estimation procedure is necessary to identify the situations in which this is possible.

To illustrate this point, the occupation general duty nurse in the hospitals survey has comparatively small relative standard errors for mean wages in all areas surveyed, ranging from 0.54 percent to 1.01 percent. By contrast, if half of the sampled establishments were used for this occupation, then these relative standard errors would increase to only 0.57 percent and 1.85 percent. Thus, general duty nurses in the hospitals survey would be a valid candidate for selected occupational sampling.

### Wage distribution as assessment tool

The published releases and bulletins of the Industry Wage Survey contain data on the distribution of workers by straight-time hourly wages in selected occupations. These distributions can also be used to assess the reliability of survey data. Distributions around the mean wage rates show the dispersion of the data that relative stan-

standard errors measure. A small relative standard error reflects a small spread in the distribution of wages, or a large number of workers in the occupation, or both.

Relative standard errors provide convenient, reliable measures of variability. However, the published wage distribution tables can be used to explain the relative standard errors and to present more information as well. The wage distribution tables include not only the lowest and highest wage rates surveyed, but also the concentration of observations in between the extremes. The tables also provide estimates of the number of establishments and employment within the survey coverage along with the actual number of establishments in the survey sample.

Survey sample sizes give an additional indication of the quality of a mean wage estimate. Reliability of survey data is related to the sampling ratio. Thus, an estimate derived from 50 workers in a sample of 7 out of 8 establishments will probably be more accurate than an estimate calculated from 250 workers in a sample of 40 out of 80 establishments.

The effect of the distribution of wage rates on the variance calculation is evident for janitors in the petroleum refining survey. Two regions, Midwest I and Midwest II,<sup>9</sup> had similar sample sizes and sampling ratios. The wage spread in the Midwest II region, however, was larger than that in Midwest I. The larger relative standard error of 2.03 percent in the Midwest II region, compared to a relative standard error of 0.42 percent in Midwest I, is due to the larger wage spread. (See table 1.)

Occupations that have workers clustered at two or more points in the distribution usually have large relative standard errors. The mean wage falls between and poorly represents the wage clusters. In this situation, the mean, by itself, does not provide a clear indication of where wage rates are concentrated.

An example of this occurs for the occupation chemical operator II in the industrial chemicals survey in Newark, NJ. (See table 2.) In this locality, the wage spread for the occupation of electrician was more concentrated, with a

**Table 2. Wage distributions for selected occupations in industrial chemicals in Newark, NJ, June 1986**

| Chemical wage distribution                                  | Chemical operator II | Electrician |
|---|----------------------|-------------|
| Number of workers.....                                      | 207                  | 19          |
| Mean hourly wages.....                                      | \$13.46              | \$12.65     |
| Relative standard error (percent).....                      | .82                  | .25         |
| Percent of workers receiving straight-time hourly wages of— |                      |             |
| Less than \$11.75.....                                      | 11                   | —           |
| \$11.75 to \$12.00.....                                     | —                    | 37          |
| 12.00 to 12.25.....   | 37                   | 11          |
| 12.25 to 12.50.....   | —                    | 32          |
| 12.50 to 12.75.....   | —                    | —           |
| 12.75 to 13.00.....   | —                    | —           |
| 13.00 to 13.25.....   | —                    | —           |
| 13.25 to 13.50.....   | —                    | —           |
| 13.50 to 13.75.....   | 12                   | —           |
| 13.75 to 14.00.....   | —                    | —           |
| 14.00 to 14.25.....   | —                    | —           |
| 14.25 to 14.50.....   | 2                    | —           |
| 14.50 to 15.00.....   | 5                    | 21          |
| 15.00 to 15.50.....   | 3                    | —           |
| 15.50 to 16.00.....   | 30                   | —           |

large proportion of workers falling in a single wage interval, from \$11.75 to \$12.50. As expected, chemical operators II, with a concentration of wages at two levels, \$12 to \$12.25 and \$15.50 to \$16, had a larger relative standard error (0.82 percent) than electricians (0.25 percent).

In the cotton and manmade textile Industry Wage Survey, 7 out of 11 establishments were surveyed in Burlington, NC. The mean wage for the 202 loom fixers employed by these firms was \$8.65 an hour with a relative standard error of 0.73 percent. In Georgia, 40 out of 110 establishments were surveyed. The wages of 895 workers employed as loom fixers were \$8.29 an hour with a relative standard error of 1.32 percent. The relative standard error for Burlington is smaller for two reasons: the high sampling ratio and the greater concentration of the wage data. (See table 3.)

As discussed previously, worker counts also are related to the quality of the survey estimates. In the hospitals survey, the occupation of general duty nurse in Boston and Milwaukee has similar sample sizes and similar wage dispersions, but the relative standard error was 0.89 percent in Boston and 1.01 percent in Milwaukee. The slightly smaller relative standard error in Boston is due partly to the larger number of workers surveyed—8,260, compared to 2,680 in Milwaukee.

One cautionary note is necessary on the use of wage distribution data. As indicated earlier, relative standard errors are calculated on establishment wage means, not on wages for individual workers depicted in the wage distributions. Thus, a wide range of worker wages does not always yield a large relative standard error, even if the distribution is wide within each establishment. However, if the distribution of wages within each establishment is closely concentrated, but the establishment mean wage

**Table 1. Wage distributions for janitors in petroleum refining, selected regions, June 1985**

| Wage distribution   | Midwest I | Midwest II |
|---|-----------|------------|
| Number of workers.....                                      | 22        | 20         |
| Mean hourly wages.....                                      | \$13.20   | \$12.00    |
| Relative standard error (percent).....                      | .42       | 2.3        |
| Percent of workers receiving straight-time hourly wages of— |           |            |
| \$8.50 to \$9.00.....                                       | —         | 10         |
| 9.00 to 9.50.....   | —         | —          |
| 9.50 to 10.00.....  | —         | —          |
| 10.50 to 11.00.....   | —         | —          |
| 11.00 to 11.50.....   | —         | —          |
| 11.50 to 12.00.....   | —         | 40         |
| 12.00 to 12.50.....   | —         | 5          |
| 12.50 to 13.00.....   | 18        | 40         |
| 13.00 to 13.50.....   | 55        | 5          |
| 13.50 to 14.00.....   | 27        | —          |

varies substantially among establishments, a large relative standard error will result.

In the industrial chemicals survey, for example, the wages of the occupation instrument repairer range from \$11 to over \$20 with a mean of \$15.64. However, the relative standard error is only 1.07 percent. This comparatively small relative standard error results from establishment means which are closely concentrated, not from the actual wages of the repairers.

### Future possibilities

Although the variance estimation procedure has been successfully applied in a variety of Industry Wage Surveys, there are further projects that need to be undertaken. The relative standard errors and variance calculations could be programmed into the occupational wage survey computer system so that they can be published concurrently with the survey results.

Because of the number of different estimates produced in each Industry Wage Survey (and the sample design differences between surveys), computing and publishing the relative standard errors on a regular basis will require resource and publication trade-offs. The publication alternatives are to 1) provide the relative standard errors for all survey mean estimates; 2) provide a graph of computed generalized variances (a technique useful for surveys which publish a large amount of data); 3) provide frequency table distributions of the relative standard errors associated with the occupation means; or 4) publish only the mean wage estimates of those occupations which meet a specified precision.

The relative standard errors can also be used to evaluate and improve the efficiency of the Industry Wage

**Table 3. Wage distribution in cotton and manmade textiles for loom fixers, selected areas, June 1985**

| Textile wage distribution                                   | Burlington, NC | Georgia |
|---|----------------|---------|
| Number of workers .....                                     | 202            | 895     |
| Mean hourly wages .....                                     | \$8.65         | \$8.29  |
| Relative standard error (percent) .....                     | .73            | 1.32    |
| Percent of workers receiving straight-time hourly wages of— |                |         |
| Less than \$6.75 .....                                      | —              | 3       |
| \$6.75 to \$7.00 .....                                      | —              | 5       |
| 7.00 to 7.25 .....  | —              | 5       |
| 7.25 to 7.50 .....  | —              | 1       |
| 7.50 to 7.75 .....  | —              | —       |
| 7.75 to 8.00 .....  | —              | 11      |
| 8.00 to 8.25 .....  | —              | 14      |
| 8.25 to 8.50 .....  | 12             | 11      |
| 8.50 to 8.75 .....  | 72             | 40      |
| 8.75 to 9.00 .....  | 12             | 1       |
| 9.00 and over .....   | 4              | 8       |

Survey sample allocation procedure. By comparing the relative standard errors among the mean wage estimates for the different occupations in a survey, the Bureau of Labor Statistics will be able to evaluate the sample sizes for each survey and adjust them accordingly. It might be possible to sample selected occupations to reduce respondent burden when relative standard errors indicate that this is possible or revise the occupation list if the relative standard errors indicate a problem.

Finally, if possible, the relative standard errors will be computed using a replication technique. Computer simulation of this approach might be compared to the results obtained by the current procedure to determine if the results are similar. If the replication method gives comparable results, it might be chosen as a more efficient production method to obtain the relative standard error data. □

### FOOTNOTES

<sup>1</sup>For more detailed information on the early years of the Industry Wage Survey program, see H.M. Douty, "A century of wage statistics: the BLS contribution," *Monthly Labor Review*, November 1984, pp. 16-28.

<sup>2</sup>For detailed accounts of these surveys, see *Industry Wage Survey: Petroleum Refining, June 1985*, Bulletin 2255; *Industry Wage Survey: Textile Mills, June 1985*, Bulletin 2265; *Industry Wage Survey: Hospitals, August 1985*, Bulletin 2273; *Industry Wage Survey: Synthetic Fibers, September 1985*, Bulletin 2268; *Industry Wage Survey: Nursing and Personal Care, September 1985*, Bulletin 2275; *Industry Wage Survey: Pressed or Blown Glass and Glassware, June 1986*, Bulletin 2286; *Industry Wage Survey: Industrial Chemicals, June 1986*, Bulletin 2287 (Bureau of Labor Statistics).

<sup>3</sup>Nonresponse adjustment involves reweighting for those establishments for which no data were obtained.

<sup>4</sup>For a more complete description of the sampling design of the IWS program, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), ch. 6, pp. 41-48.

<sup>5</sup>Kirk M. Wolter, *Introduction to Variance Estimation* (New York, Springer-Verlag, 1985).

<sup>6</sup>William G. Cochran, *Sampling Techniques* (New York, John Wiley & Sons, 1977).

<sup>7</sup>Relative standard errors were not computed for all published tables, because the approximation used to develop the relative standard errors is only valid for sample sizes of 30 or more. For universes with smaller sample sizes and large sampling fractions (ratio of sample establishments to universe establishments), the relative standard errors can be used to evaluate the relative quality between two estimates. Confidence intervals, however, have little meaning because the normal theory assumptions on which they are based usually are not valid. Also, when the sample consists of almost all of the units in the universe, the relative standard errors are essentially meaningless because there is minimal variability associated with sampling.

<sup>8</sup>These relative standard error limits were chosen to correspond with the frequency table of the Bureau's National Survey of Professional, Administrative, Technical, and Clerical Pay (PATC). Occupational levels in the PATC are published only if their relative standard errors are smaller than 5 percent.

<sup>9</sup>The region Midwest I includes Illinois, Indiana, Kentucky, Michigan, Ohio, and Tennessee. Midwest II includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin.



# Variety stores experience shifting trend in productivity

*Output per hour of all persons decreased at an average annual rate of 0.5 percent during 1967–86; however, from 1977, productivity improved modestly, aided by technological innovations*

JAMES D. YORK

Productivity, as measured by output per hour of all persons, in the variety store industry<sup>1</sup> decreased at an average annual rate of 0.5 percent from 1967 to 1986, compared with an average annual rate of 1.0 percent for the total nonfarm business sector of the economy during the same period.<sup>2</sup> The overall decline in productivity reflects an average annual decrease in output of 2.6 percent and a slightly slower rate of decrease in hours of 2.1 percent. (See table 1.) The decline in industry productivity was not a steady, gradual decline, but reflected a sharp falloff from 1972 to 1977, with modest increases in both adjoining subperiods.

In the 1967–72 period, productivity in the variety store industry advanced at a rate of 1.7 percent. Output rose at a rate of 2.7 percent and hours increased at a rate of 1.0 percent. Productivity and output both peaked in 1972. However, from 1972 to 1977, productivity declined at an annual rate of 4.3 percent, output declined at a rate of 7.1 percent, and hours declined at a 2.9-percent rate. It was the only sustained drop experienced by the industry and accounted for the overall decline in industry productivity. Within this period, the two largest declines were 13.0 and 6.5 percent, which occurred in 1976 and 1977. In those years, output fell by 14.7 and 6.7 percent, respectively, while hours dropped by only 2.0 and 0.3 percent.

Productivity turned around in 1978, increasing by 0.5 percent. This increase continued in 5 of the next 8 years. In the third subperiod, 1977 to 1986, productivity rose at

an average annual rate of 1.4 percent. Output fell at a rate of 1.4 percent, but this was more than offset by the rate of decrease in hours of 2.7 percent. In contrast to the first subperiod, productivity in the 1977–86 subperiod grew in the face of declining output. In the first subperiod, both output and hours were advancing.

Productivity in this latter period was quite volatile, declining in 1982, 1985, and 1986, and increasing substantially (10.3 percent) in 1981 as output declined by 0.5 percent and hours fell by 9.9 percent.

Unlike most of the industries examined by the Bureau of Labor Statistics, there is little correlation between output movements and changes in the business cycle for variety stores. Since the early 1970's, demand for variety store products has been adversely affected by increasing competition from drug stores, supermarkets, discount stores, and specialty stores. This has been a crucial factor in the average annual output decline of 3.4 percent since 1972. A major industry retailer declared bankruptcy in 1972. The vacuum left by this bankruptcy was not completely filled by other variety store operators and, as a result, industry output suffered.

## Industry structure and employment

As their name suggests, variety stores offer the consumer a broad selection of merchandise. Sales of apparel constitute the largest category as a proportion of total sales. Other major categories include kitchenware and home furnishings; drugs, health, and beauty aids; sewing, knitting, and needlework goods; stationery and school supplies; toys; and curtains, draperies, and dry goods. The

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industry is characterized by moderate-size establishments. Almost half of the industry's sales are transacted in establishments with 20 to 99 paid employees. By contrast, only about 7 percent of sales took place in stores with more than 100 employees in 1982. This is a very different situation from department stores, which are also general merchandise stores. They transacted 84 percent of their sales in stores with more than 100 employees in 1982.

As is the case with sales, about 54 percent of all paid employees worked in establishments with 20 to 99 employees in 1982. This proportion has remained relatively steady over time.

From 1967 to 1972, the number of establishments increased slightly—from 21,046 to 21,852. However, the total number of establishments in the industry has declined since 1972. Most of the industry's sales are transacted by large chains. In 1982, about three-fourths of all sales took place in firms with 100 establishments or more. There were 12 such firms and they operated about 46 percent of the industry's establishments.

Between 1967 and 1986, the number of persons working in the variety store industry decreased by 18.0 percent, from 306,200 to 251,200. This represents an average annual rate of decrease of 1.8 percent. The total hours of all persons declined at an average annual rate of 2.1 percent. This reflects a decline in the average weekly hours of nonsupervisory employees of 4.2 percent—from 30.7 to 29.4—and a rise in part-time workers.

The work force of the variety stores industry consists of nonsupervisory employees, supervisory workers, partners and proprietors, and unpaid family workers. Nonsupervisory employees make up the largest group, representing about nine-tenths of all variety store personnel in 1967. Their proportion of the total remained relatively constant throughout the period and stood at 87 percent in 1986. The number of self-employed workers fluctuated throughout the period but declined overall, from 12,000 in 1967 to 9,000 in 1986.

Marketing and sales occupations accounted for the bulk of the industry's work force. In 1984, they represented about 67 percent of the total. The largest group is represented by salespersons, accounting for 40 percent of the industry total. Cashiers accounted for nearly 16 percent and sales floor stock clerks for 6 percent. Managerial and management related occupations were the next largest category and accounted for more than 14 percent of the total. Administrative support occupations, including clerical, were the third largest group and accounted for about 12 percent of the total. This group is largely dominated by various types of clerical workers.<sup>3</sup>

### Factors affecting productivity

Productivity growth has been hindered by a number of factors. Declining industry output has contributed to the

**Table 1. Variety stores indexes of output per hour of all persons and related data, 1967-86**  
(1977=100)

| Year  | Output per hour of all persons | Output per person | Output | Hours of all persons | All persons |
|---|--------------------------------|-------------------|--------|----------------------|-------------|
| 1967 .....                                  | 113.2                          | 117.9             | 121.8  | 107.6                | 103.3       |
| 1968 .....                                  | 119.2                          | 122.3             | 127.4  | 106.9                | 104.2       |
| 1969 .....                                  | 121.2                          | 124.1             | 129.3  | 106.7                | 104.2       |
| 1970 .....                                  | 126.1                          | 131.5             | 136.4  | 108.2                | 103.7       |
| 1971 .....                                  | 118.1                          | 124.9             | 133.1  | 112.7                | 106.6       |
| 1972 .....                                  | 126.7                          | 134.0             | 141.1  | 111.4                | 105.3       |
| 1973 .....                                  | 121.2                          | 126.8             | 139.4  | 115.0                | 109.9       |
| 1974 .....                                  | 119.7                          | 122.5             | 132.5  | 110.7                | 108.2       |
| 1975 .....                                  | 122.9                          | 128.4             | 125.7  | 102.3                | 97.9        |
| 1976 .....                                  | 106.9                          | 109.6             | 107.2  | 100.3                | 97.8        |
| 1977 .....                                  | 100.0                          | 100.0             | 100.0  | 100.0                | 100.0       |
| 1978 .....                                  | 100.5                          | 98.6              | 98.6   | 98.1                 | 100.0       |
| 1979 .....                                  | 102.1                          | 103.7             | 101.2  | 99.1                 | 97.6        |
| 1980 .....                                  | 107.3                          | 107.9             | 94.5   | 88.1                 | 87.6        |
| 1981 .....                                  | 118.4                          | 116.3             | 94.0   | 79.4                 | 80.8        |
| 1982 .....                                  | 112.5                          | 113.0             | 90.6   | 80.5                 | 80.2        |
| 1983 .....                                  | 119.7                          | 121.9             | 91.2   | 76.2                 | 74.8        |
| 1984 .....                                  | 123.7                          | 124.8             | 94.6   | 76.5                 | 75.8        |
| 1985 .....                                  | 114.3                          | 114.8             | 91.7   | 80.2                 | 79.9        |
| 1986 .....                                  | 101.2                          | 102.0             | 86.5   | 85.5                 | 84.8        |
| Average annual rates of change (in percent) |                                |                   |        |                      |             |
| 1967-86 ..                                  | -0.5                           | -0.7              | -2.6   | -2.1                 | -1.8        |
| 1981-86 ..                                  | -2.0                           | -1.7              | -1.0   | 1.0                  | 0.7         |

overall poor performance of productivity. Output peaked in 1972 and has been falling since. Although larger firms in the industry have been introducing and using sophisticated electronic technology, many firms cannot afford such investments and therefore have been unable to utilize computer technology to improve the efficiency of store operations. Also, this technology has been entering the industry more in recent years, so it would have had a limited effect in the earlier years of this study.

Because variety stores handle such a wide assortment of merchandise, they face tough competition from other retailers. Many competitors have expanded their merchandise offerings, limiting the available market and possible scale economies for the variety store industry. Drug stores have provided competition in toiletries and non-prescription drugs. Supermarkets have expanded their general merchandise items and traditional department stores, discount stores, and specialty stores all offer alternatives to the consumer. The low prices offered by many competitors have further held down variety store revenues and reduced the capital available for investment in computer technology.

Variety stores have also been adversely affected by the inability to locate in high sales volume areas. They have generally been unable to afford the rents associated with major shopping mall locations. Consequently, they have been unable to take advantage of the heavy shopper traffic which flows through these malls and shopping centers. This has had a negative effect on their merchandise turn-

over. Lower merchandise turnover has resulted in a reduced ability to utilize the benefits of economies of scale.

Mergers within the industry have led to increased concentration and the market share held by the largest chains has continued to increase. By 1982, the sales of the four largest firms were up to 61 percent from 51 percent in 1972. The economies of scale and greater financial strength of the largest chains has facilitated the introduction and utilization of computer technology. With all their retail outlets, they are better able to justify the investment in modern point-of-sale technology. However, the effect of this technology on the industry has been limited because many firms, especially smaller ones, are unable to afford the high cost of much of this equipment.

Many firms in the industry have not utilized the advantages of computer technology, but firms which could afford the investment in computers and point-of-sale technology have been able to derive a number of benefits. Inventory and the stocking of shelves can be controlled by computer technology.<sup>4</sup> Coded information attached to merchandise can be picked up by optical character reading devices at checkout registers or manually entered into the computer, thereby keeping track of sales volume.<sup>5</sup> The computer can alert the appropriate personnel when the supply of certain items is getting low. In addition to eliminating employee time required for monitoring shelf stocks, a computer system can avert the loss of sales by monitoring inventory.

The use of optical character recognition equipment in conjunction with computers or other memory-equipped devices removes the need to update price labels on individual products. Price information for all items can be entered into the system's memory. The point-of-sale equipment reads the coded information on the product labels and the appropriate price to charge the customer can then be retrieved from the system's memory. As prices change, information in the memory is updated, alleviating the need to reprice items on the shelves. Unfortunately, financial and other factors have limited the adoption of this equipment.

Because of their capability to store information and make it readily accessible, computers have been used to perform recordkeeping and administrative functions and thus greatly reduce the amount of worktime required for these tasks. They can handle the payroll, accounts payable, and accounts receivable. The word-processing ability of computers can reduce time spent on correspondence. Computers have also helped store operators increase sales

by providing the necessary information to determine the best selling items so that ordering can focus on a more optimal product mix.

### Outlook for productivity

Industry productivity growth should gain some benefit from continued diffusion of computers and wand reading or other such scanning equipment. The development of more affordable personal computers should lead to more widespread adoption of computer technology within the variety stores industry.<sup>6</sup> Increasing industry concentration should also serve to make new technology more affordable to firms and thus hasten its adoption. Point-of-sale technology should become more widely used. This technology permits optical character recognition equipment to be connected to computers so that information from coded merchandise can be automatically fed into a computer. In addition to the advantages of eliminating the need to update price stickers on merchandise, the marketing information gathered as a byproduct of merchandise sales should be helpful in boosting sales volume.

In addition to the expansion of current uses for computers, new uses may also be developed. One possibility would be the use of computer-aided design to lay out stores more efficiently. Because store design and layout can influence merchandise turnover, the use of computers to help with this sort of planning is a definite possibility. Computers make it easier for planners to produce solutions to "what if" questions. Among other things, a planner can input whatever restrictions there will be in a given store and use the computer generated information to help in developing an optimum layout.<sup>7</sup>

Although these technologies are available to increase sales per employee in the industry, their diffusion will depend on improved sales and capital expenditures. Declining demand has, to a large extent, limited productivity growth in the variety stores industry and this may be an important determinant of future trends in output per hour. Declining demand means smaller revenues to support investments in productivity enhancing equipment. Even available technologies will probably continue to be adopted very slowly and often on a limited basis. Declining demand also means a reduced ability to utilize the advantages of economies of scale. These problems may well continue to limit any future improvements in productivity if the industry cannot halt the decline in its market. □

### FOOTNOTES

<sup>1</sup>The variety stores industry is designated as Standard Industrial Classification (SIC) 5331. It consists of establishments primarily engaged in the retail sales of a variety of merchandise in the low and popular price ranges. Sales usually are made on a cash-and-carry basis, with the open

selling method of display and customer selection of merchandise. These stores generally do not carry a complete line of merchandise, are not departmentalized, do not carry their own charge service, and do not deliver merchandise.



<sup>2</sup>All average rates of change are based on the linear least squares trends of the logarithms of the index numbers.

<sup>3</sup>Data for 1984-95 are from the Bureau of Labor Statistics, National Industry Occupational Matrix.

<sup>4</sup>See "Variety Stores," *U.S. Industrial Outlook* (U.S. Department of Commerce, 1987), pp. 56-58. Also see *Chain Store Age* (General Merchandise Ed.), April 1981, p. 17.

<sup>5</sup>See Judith Morrison Lipton, "OCR—An Update," *Stores*, July 1981, pp. 46-48.

<sup>6</sup>See Jules Abend, "PC's," *Stores*, October 1983, pp. 58, 61, 64, 68, and 72; and "PC's, Easier Software," *Stores*, August 1985, pp. 25, 26, 27, 29, and 30.

<sup>7</sup>See David P. Schulz, "Computer-Aided Design," *Stores*, March 1985, pp. 47, 48, 74.1.

## APPENDIX: Measurement techniques and limitations

Indexes of output per hour of all persons measure changes in the relationship between the output of an industry and hours expended on that output. An index of output per hour is derived by dividing an index of output by an index of industry hours.

The preferred output index for retail trade industries would be obtained from data on quantities of the various goods sold by the industry, each weighted (that is, multiplied) by the employee hours required to sell one unit of each good in some specified base period. This concept also embodies the services associated with moving the goods from the retail establishment to the consumer. Thus, those goods which require more retail labor are given more importance in the output index.

Data on the quantities of goods sold usually are not available for trade industries, including variety stores. Therefore, real output was estimated by removing the effects of changing price levels from the current dollar value of sales. Because an adjustment for changing price levels usually lowers the dollar value, such a series is usually referred to as a deflated value measure.

Output measures based on deflated value have two major characteristics. First, they can reflect shifts in sales among products of different value which have the same unit labor requirements. (For example, if customers begin to purchase more unadvertised brands instead of "nationally advertised" brands, dollar sales will decrease if the unadvertised brand is priced lower.) Thus, a change can occur in the output per hour index even if the labor required to sell the merchandise does not change.

Second, the sales level, both in current and constant dollars, reflects differences in unit values for identical products sold in different types of establishments. For example, the unit value associated with a product sold in a self-service "discount" store may be lower than the unit value associated with the same product sold in a store that provides many sales clerks and delivery service. The output measure, therefore, reflects changes in the level of service provided to customers insofar as differences in unit values reflect the differences in service among the various types of establishments.

In addition to the deflated value technique, weights relating to labor importance were used to combine segments of the output index into a total output measure. The weights used were gross margin weights. These weights, calculated for each merchandise line category, represent the percentage markup provided by the variety store industry. Gross margins are used in place of labor importance weights which are unavailable for this industry. These procedures result in a final output index that is closer, conceptually, to the preferred output measure.

The index of hours for the variety store industry is for all persons, that is, hours for paid employees, partners and proprietors, and unpaid family workers. As in all of the output per hour measures published by the Bureau of Labor Statistics, hours and employment in variety stores are each considered homogeneous and additive. Adequate information does not exist to weight the various types of labor separately.

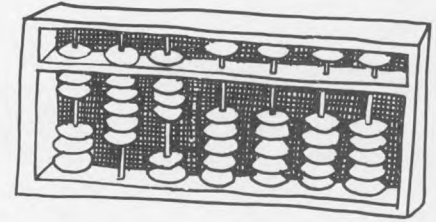
The indexes of output per hour relate total output to one input—labor time. The indexes do not measure the specific contribution of labor, capital, or any other single factor. Rather, they reflect the joint effect of many inter-related influences such as changes in technology, capital investment, capacity utilization, store design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

No explicit adjustments were made to the measure for variety stores to take into account increases or decreases in some services provided to the consumer. Data are not available to measure the effect of any such changes.

The basic sources for the output series for this measure consist of the total sales data and sales by merchandise line data reported by the U.S. Department of Commerce. The deflators were developed using various Consumer Price Indexes published by the Bureau of Labor Statistics. The gross margin weights were developed from data reported by the U.S. Department of Commerce.

The basic sources for the all person hour series consist of data on employment and hours published by the Bureau of Labor Statistics and the Bureau of the Census, supplemented by data compiled for the Bureau of Labor Statistics by the Bureau of the Census.

# Technical Notes



## Adjusting the CPI shelter index to compensate for effect of depreciation

WALTER F. LANE, WILLIAM C. RANDOLPH,  
AND STEPHEN A. BERENSON

Beginning with the Consumer Price Index (CPI) for January 1988, the Bureau of Labor Statistics (BLS) introduced an adjustment into the CPI shelter indexes for the phenomenon known as "age bias." The need to correct the shelter indexes (the rent index and the owners' equivalent rent index) arises from the need to keep the quality of consumer items in the CPI market basket constant over the period for which price change is observed.

The CPI measures price changes for urban consumers in the United States.<sup>1</sup> It does this by following the prices of a sample of consumer goods and services called the CPI market basket. Using longitudinal surveys, the CPI tracks the prices of consumer goods and services in the market basket, comparing their current prices to those previously observed. The percent change in the CPI is an average of these price changes. For this to be an accurate measure of price change, it is critically important that the quality of the goods and services be identical in both periods for which prices are observed.

The CPI measures price change for both renter-occupied and owner-occupied housing with a longitudinal survey of housing units. The residential rent index, which is the measure of the change in the cost of renter-occupied shelter, is based on the movement of rents in the survey. Since 1983, the Bureau has also used the changes in the rents of rental units in the survey to estimate the change in the owners' equivalent rent index, which measures the change in the cost of owner-occupied shelter.<sup>2</sup> Currently, the Bureau does this by imputing an implicit rent for each owner-occupied unit in the survey from an initial estimate obtained at the first interview with the unit's owner, and then periodically adjusting this estimate with the average rent change of similar renter-occupied housing units

nearby. BLS agents ask for rent information from the rental units in the survey every 6 months. At each interview they obtain the rent and services provided for the rent. BLS computes the rent change for each sample unit and then averages the rent change. Following the same units—which provide services that rarely change—and computing the average rent change from the individual units' rent changes avoids most apparent problems with quality changes between periods of rent comparison.

Consequently, a large proportion of the sample appears to be of "constant quality." In other words, the services offered in exchange for rent are the same at successive interviews. However, the Bureau has procedures to estimate the value of and adjust for common changes in the services offered. For example, if an apartment's owner stops providing electricity as part of the rental services, the BLS estimates its value and adds it to the rent for the current month. The estimated value depends on the electrical appliances and size of the unit, and the climate and price of electricity in that area. Currently, BLS does not estimate the value of changes such as the addition of a room or a bathroom. When a rental unit in the sample experiences such a change, the Bureau leaves it out of the CPI calculation for one period.

Because quality changes of the types mentioned above occur quite rarely in the housing survey, there are relatively few problems with them. However, following the same units over time introduces the possibility of a subtle but potentially significant quality change. Even though BLS surveys the same set of housing units in successive periods, the quality of the units is not exactly the same because in the later period they are older and their quality is slightly lower. Of course, some housing units receive maintenance that slows and can even prevent them from wearing out. However, because most housing eventually wears out and is torn down or is closed down for complete rehabilitation, the housing stock as a whole—and therefore the average housing unit—clearly depreciates. Empirical estimates of the physical depreciation show that it is small but significant.

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## Measuring the age bias

The question of how much housing depreciates during each period must be answered empirically. To do this, BLS researchers<sup>3</sup> used a hedonic regression model in which the logarithm of the rent of a housing unit is a function of (1) its structural characteristics—such as number of rooms, (2) its location, (3) services, such as utilities, included in the rent, (4) neighborhood characteristics, such as percent of the population with some college education, and (5) a set of six “depreciation” variables. The depreciation variables are the only variables in the model that depend directly on the age of the dwelling. The first two depreciation variables are (1) the age, (2) the age squared divided by 2. The others are variables interacting with age, namely: (3) age times a dummy for detached housing, (4) age times a rent control dummy, (5) age times the number of rooms, and (6) age times a dummy variable for very old units (built before 1900). (Table 1 lists all the variables, except the location variables, which are very numerous.)

BLS economists used data from the CPI housing survey and the 1980 Census of Housing to estimate the model. The data for the structural characteristics, location, services included in the rent, age, and other data needed for the depreciation variables came from the CPI survey. Neighborhood characteristics data came from the smallest published geographic levels of the 1980 census (usually the census block) containing the housing unit. The Census Bureau defined these areas to be relatively homogeneous with respect to population characteristics, economic status, and living conditions.<sup>4</sup> BLS accounted for location by letting all regression parameters vary over the four census

regions and letting many of them vary across CPI pricing areas within regions.

The model was estimated both with maximum likelihood and with ordinary least squares regression methods. The maximum likelihood estimates are slightly more efficient; however, the ordinary least squares estimates are much easier to obtain and they are unbiased. For this reason, the least squares method was chosen for computing the aging adjustments for the shelter indexes.

To provide lower variance depreciation estimates for individual CPI areas, the Bureau uses a composite estimation procedure<sup>5</sup> that combines the regional depreciation estimate with that of the local area. Similar procedures are used elsewhere in the CPI—most notably in the calculation of base-period expenditure weights—to reduce variance.

The hedonic regression model can be summarized with the following expression:

$$(1) \text{ Log (rent) } = f(\text{13 structural characteristics variables, various location and survey variables, 13 neighborhood characteristics variables, 7 dummy variables for services provided with rent, 6 depreciation variables, and a random error term})$$

The function is linear in most of these variables. After BLS estimated the coefficients using the data and the hedonic regression techniques, this function became a formula that can project the log of rent for any unit for which the values of the explanatory variables are known. In addition, a coefficient estimated for a variable in such a semilog function (the log is taken of the dependent variable only) can be interpreted as an approximation of the expected percentage change in the dependent variable (here, the rent) that will result from a unit change in the explanatory variable. For example, the national average of the coefficients for the structural characteristic variable “more than one bathroom” is about 0.099, which implies that a housing unit with an additional bathroom would have a rent about 10 percent higher than another housing unit in which all else was the same. Table 1 provides estimates in percentage terms of the effect of the regression variables on rent.

Depreciation is the effect of aging on the quality of a housing unit. The partial derivative of the full equation with respect to age provides a formula for depreciation, which can be interpreted as the approximate percent change in rent (net of inflation) as the rental unit ages 1 year. Note that the only variables in the formula that contain age are the depreciation variables. When the partial derivative is taken, the other terms drop out, leaving only the depreciation terms. Keep in mind that the inclusion of other variables influences the estimates of the depreciation variables’ coefficients.

**Table 1. National averages of parameter estimates in age bias adjustment model for selected variables (multiplied by 100)**

| Item                              | Average | Item   | Average |
|-----------------------------------|---------|--|---------|
| <b>Depreciation</b>               |         | <b>Continued—Services included in rent</b>       |         |
| Age .....                         | -0.48   | Fuel oil .....                                   | 2.3     |
| Age*Rent control .....            | -.026   | Parking .....                                    | 3.5     |
| Age*Old .....                     | .06     | Furnishings .....                                | -2.6    |
| Age*Detached .....                | -.37    | Swimming pool .....                              | 4.3     |
| Age*Rooms .....                   | .05     | Other recreation .....                           | 1.7     |
| <b>Structural characteristics</b> |         | <b>Neighborhood characteristics (by percent)</b> |         |
| Detached .....                    | 16.0    | Renters .....                                    | -.05    |
| Bedrooms .....                    | 14.6    | White .....                                      | .11     |
| Other rooms .....                 | 3.1     | Large buildings .....                            | .08     |
| Complete kitchen .....            | 7.3     | Two or more autos .....                          | -.036   |
| Dishwasher .....                  | 11.0    | Without complete plumbing .....                  | -.63    |
| Washer/dryer .....                | 6.6     | Air conditioned .....                            | -.065   |
| Oil heat .....                    | -.21    | Children age 6 to 18 .....                       | -.13    |
| Electric heat .....               | .57     | College students .....                           | -.04    |
| Central air conditioning .....    | 10.9    | Families below poverty level .....               | -.15    |
| Window air conditioning .....     | 4.2     | Elderly over 65 .....                            | .12     |
| Extra bathroom .....              | 9.9     | Mobile homes .....                               | -.17    |
| Rent control .....                | -7.5    | Unemployment .....                               | -.32    |
| <b>Services included in rent</b>  |         | With college education ..                        | .46     |
| Gas .....                         | 4.2     |  |         |
| Electric .....                    | 7.3     |  |         |



We can obtain depreciation as:

(2)

$$\text{depreciation} = \frac{\partial \log(\text{rent})}{\partial \text{age}} = g(\text{depreciation variables})$$

Depreciation, or the amount of quality change lost because the sample does not keep the age constant, can be found from this simpler formula.

To derive the depreciation formula explicitly, we can rewrite equation (1), the hedonic regression for the logarithm of rent, as:

(3)

$$\begin{aligned} \log(\text{rent}) = & aX + b_1 \text{age} + b_2 (\text{age}^2) + b_3 \text{age (number} \\ & \text{of rooms)} \\ & + b_4 \text{age (very old unit)} + b_5 \text{age (de-} \\ & \text{tached housing)} \\ & + b_6 \text{age (rent control),} \end{aligned}$$

where  $X$  is a vector of the variables that do not measure depreciation and  $a$  is the vector of regression coefficients for the variables in vector  $X$ . The depreciation variables, which are all functions of the age of the housing unit, are listed individually. The derivative provides an explicit version of equation (2):

(4)

$$\frac{\partial \log(\text{rent})}{\partial \text{age}} = b_1 + 2b_2(\text{age}) + b_3(\text{rooms}) + b_4(\text{very old unit}) + b_5(\text{detached}) + b_6(\text{rent control})$$

Because none of the variables in vector  $X$  depends directly on the age of the unit, those variables do not appear in the derivative.

### Vintage effects

The results from this approach to measuring the age bias are subject to possible error caused by vintage (or year built) effects. The regression coefficient estimates for the age variables (the depreciation variables) may reflect something other than the effect of aging. If the housing units built in a certain year are consistently better or worse than those built in years before or since, the regression would not be able to separate the effect of depreciation from the effect of vintage on the rent of a housing unit. For example, older homes that still survive may have been more soundly constructed, have more mature landscaping, or be in better locations than newer homes. On the other hand, newer homes may have better floor plans, insulation, appliances, equipment, wiring, and plumbing. To the degree that the market values newer houses more highly or less highly than older ones, the regression equation estimating the effect of age on the rent may be distorted. However, BLS research<sup>6</sup> on the subject indicates that the regression, by including structural and neighborhood variables, accounts for most vintage effects or that vintage effects that favor older housing are offset by other vintage effects favoring newer housing. The

model used to adjust the shelter indexes for depreciation ultimately rests on the assumption that, when the regression contains such variables, vintage effects are negligible. In light of empirical evidence, such an assumption is preferable to assuming—as the CPI implicitly did before aging adjustments began—that housing does not depreciate and that depreciation effects can be ignored.

### Results

Equation (4) provides a way to estimate the depreciation of housing units for the CPI housing index and also provides adjustments for the CPI rent and owners' equivalent rent indexes. To minimize the variance that this new procedure introduces, BLS uses the same adjustment for all housing units in a CPI area. To obtain the adjustment for each area, BLS estimates the area's average value for the depreciation variables with equation (4). The Bureau then uses the composite estimation procedure that combines the adjustments estimated at the regional level with those from the local level to obtain the final local values. Table 2 gives the estimates of the corrections for the largest CPI areas. These are the annualized values, in percentage terms, of the corrections introduced in January 1988. They will be recomputed yearly using the same (or improved) methods with newer data. BLS makes the adjustments by adding the estimated percent change from depreciation to the percent change in rent for each shelter index in each of the 85 CPI pricing areas. For example, if an area has an annual adjustment of, say, 0.3 percent, one-twelfth that amount (0.025) would be added to the percent increase for the rent and owners' equivalent rent indexes in each month of the year. In the future, BLS may apply the corrections at smaller geographic levels, possibly as low as the sample unit level.

The adjustments in table 2 show relatively little variation in housing depreciation by region. This is a result of the composite estimation process described on the preceding

**Table 2. Age bias adjustments for selected metropolitan areas**  
[In percent]

| Pricing area       | Annual adjustment | Pricing area         | Annual adjustment |
|--------------------|-------------------|----------------------|-------------------|
| <b>Northeast</b>   |                   | <b>South</b>         |                   |
| New York .....     | 0.36              | Washington, DC ..... | 0.17              |
| Philadelphia ..... | .36               | Dallas .....         | .14               |
| Boston .....       | .36               | Baltimore .....      | .17               |
| Pittsburgh .....   | .36               | Houston .....        | .11               |
| Buffalo .....      | .35               | Atlanta .....        | .17               |
|                    |                   | Miami .....          | .16               |
| <b>Midwest</b>     |                   | <b>West</b>          |                   |
| Chicago .....      | .22               | Los Angeles .....    | .22               |
| Detroit .....      | .24               | San Francisco .....  | .23               |
| St. Louis .....    | .21               | Seattle .....        | .25               |
| Cleveland .....    | .24               | San Diego .....      | .21               |
| Minneapolis .....  | .21               | Portland, OR .....   | .24               |
| Milwaukee .....    | .22               | Honolulu .....       | .22               |
| Cincinnati .....   | .24               | Anchorage .....      | .19               |
| Kansas City .....  | .23               | Denver .....         | .24               |

page. Among the regions, the Northeast has the highest depreciation rates and therefore requires the largest adjustment. This may reflect the effects of the severe climate, but it also results from the prevalence of rent control and multi-unit housing in that region. The lower rates in the South result from the milder climate, more detached housing, and less rent control. □

—FOOTNOTES—

<sup>1</sup>For a complete description of the Consumer Price Index, see chapter 19 of the *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, April 1988).

<sup>2</sup>Rental equivalence is described in the *BLS Handbook of Methods*, and in more detail in "Changing the Homeownership Component of the CPI to Rental Equivalence," *CPI Detailed Report*, January 1983, pp. 7-11.

<sup>3</sup>The full development of the aging adjustment is described in William C. Randolph, "Housing Depreciation and Aging Bias in the Consumer Price Index," *Journal of Business and Economic Statistics*, July 1988, pp. 359-71.

<sup>4</sup>See *Census of Population and Housing Technical Documentation* (Bureau of the Census, 1982), p. 221.

<sup>5</sup>For a complete development of the composite estimation procedure, see William C. Randolph and Kimberly D. Zieschang, "Aggregation Consistent Restriction Based Improvement of Local Area Estimators," *Proceedings of the Business and Economics Section* (American Statistical Association, January 1988).

<sup>6</sup>For a full development of the vintage effect question, see William C. Randolph, "Estimation of Housing Depreciation: Short-Term Quality Change and Long Term Vintage Effects," *Journal of Urban Economics*, March 1988, pp. 162-78.

## Establishment survey incorporates March 1987 employment benchmarks

JOHN B. FARRELL

With the release of data for May 1988, the Bureau of Labor Statistics introduced its annual revision of national estimates of employment, hours, and earnings from the monthly survey of establishments. The revision uses employment counts for March 1987 as a benchmark. As part of the annual benchmarking process, the Bureau also revised seasonally adjusted series for the past 5 years, and computed new seasonal adjustment factors.

### Adjustment procedure

Monthly estimates from the Current Employment Statistics (CES) survey are based on information collected from a sample of approximately 300,000 establishments. To help improve their accuracy, the Bureau adjusts CES estimates each year to new benchmarks. Benchmarks are

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comprehensive counts of employment based primarily on mandatory unemployment insurance reports filed by employers with the State employment security agencies.

The current revisions are based on March 1987 benchmarks and affect all unadjusted series from April 1986 forward. As is the usual practice with the introduction of new benchmarks, the Bureau has also revised the seasonally adjusted series from January 1983 forward and has published new seasonal adjustment factors to be used for the coming year.

**Current revisions.** The March 1987 benchmark level for total nonagricultural employment—100.4 million—was only 35,000, or 0.04 percent, below the corresponding sample-based estimate, resulting in one of the survey's smallest benchmark revisions. The pattern of revisions was mixed across industry divisions, with downward revisions in the goods-producing industries (-0.7 percent) being about offset by upward revisions in the service-producing industries (0.2 percent). Table 1 provides the revisions for March 1987 by industry division.

New estimates were computed for April 1987 forward, based on the new March 1987 benchmark levels and recomputed seasonal adjustment and bias factors. In addition, the sample was redistributed into estimating cells that reflect their March 1987 employment size, and sample reports were added that had been received since the original estimates were made. The combined effect of the new benchmark level, recomputed seasonal and bias factors, the resized sample, and added late reporters resulted in the new estimates generally showing larger over-the-month employment gains than previously reported. The cumulative effect on the survey estimate from April 1987 through February 1988 was the addition of

**Table 1. Differences between nonagricultural employment benchmarks and estimates, by industry division, March 1987**

[Numbers in thousands]

| Industry                                     | Benchmark | Estimate | Difference |                  |
|--|-----------|----------|------------|------------------|
|  |           |          | Number     | Percent          |
| Total nonagricultural ..                     | 100,427   | 100,462  | -35        | ( <sup>1</sup> ) |
| Total private .....                          | 83,173    | 83,152   | 21         | ( <sup>1</sup> ) |
| Mining .....                                 | 696       | 718      | -22        | -3.2             |
| Construction .....                           | 4,531     | 4,599    | -68        | -1.5             |
| Manufacturing .....                          | 18,810    | 18,897   | -87        | -0.5             |
| Transportation and<br>public utilities ..... | 5,274     | 5,275    | -1         | ( <sup>1</sup> ) |
| Wholesale trade .....                        | 5,763     | 5,725    | 38         | .7               |
| Retail trade .....                           | 17,902    | 17,737   | 165        | .9               |
| Finance, insurance,<br>and real estate ..... | 6,443     | 6,478    | -35        | -0.5             |
| Services .....                               | 23,754    | 23,723   | 31         | .1               |
| Government .....                             | 17,254    | 17,310   | -56        | -0.3             |
| Federal .....                                | 2,916     | 2,916    | 0          | 0                |
| State .....                                  | 4,050     | 4,036    | 14         | .3               |
| Local .....                                  | 10,288    | 10,358   | -70        | -0.7             |

<sup>1</sup>Less than 0.05 percent.

364,000 workers to the estimate of total nonagricultural employment. (See table 2.)

*Sources of the differences.* Differences between the benchmark totals and the sample-based estimates are caused by both sampling and nonsampling error. Sampling error occurs whenever inferences are drawn from a sample about its universe.

Nonsampling error in the CES survey has three major sources: (1) new firm bias, (2) procedures for handling changes in industrial classification, and (3) other errors of coverage, response, processing, and collection. New firm bias is attributed to the fact that the sample does not readily capture new firms, nor the employment growth from these firms. The survey's sample design also places a higher probability of selection on firms with greater employment. This too creates bias problems, because small, newer firms tend to be responsible for an important portion of the overall employment growth.

*Revisions to other data.* Benchmarks are not available for the series on women, production or nonsupervisory workers, and hours and earnings. Women and production workers series are revised by applying the sample-derived ratio to the revised employment estimate at the basic cell level. These revisions are then summarized to the broader industry groupings. Production and nonsupervisory worker employment estimates are used as weights in the estimation of hours and earnings at aggregate industry levels. Benchmark revisions to employment may cause shifts in these weights, affecting summary level estimates of hours and earnings.

*Seasonal adjustment.* Each year, employment, hours, and earnings data from the new benchmark are incorporated into the calculation of new seasonal adjustment factors. These new seasonal factors are applied to the

**Table 2. Differences in seasonally adjusted levels and over-the-month changes, total nonagricultural employment, April 1987-February 1988**

[Numbers in thousands]

| Month          | Levels     |                         |            | Over-the-month changes |                         |            |
|----------------|------------|-------------------------|------------|------------------------|-------------------------|------------|
|                | As revised | As previously published | Difference | As revised             | As previously published | Difference |
| <b>1987</b>    |            |                         |            |                        |                         |            |
| April .....    | 101,615    | 101,598                 | 17         | 355                    | 269                     | 86         |
| May .....      | 101,829    | 101,708                 | 121        | 214                    | 110                     | 104        |
| June .....     | 102,078    | 101,818                 | 260        | 249                    | 110                     | 139        |
| July .....     | 102,430    | 102,126                 | 304        | 352                    | 308                     | 44         |
| August .....   | 102,672    | 102,275                 | 397        | 242                    | 149                     | 93         |
| September ..   | 102,906    | 102,434                 | 472        | 234                    | 159                     | 75         |
| October .....  | 103,371    | 102,983                 | 388        | 465                    | 549                     | -84        |
| November ...   | 103,678    | 103,285                 | 393        | 307                    | 302                     | 5          |
| December ...   | 104,001    | 103,612                 | 389        | 323                    | 327                     | -4         |
| <b>1988</b>    |            |                         |            |                        |                         |            |
| January .....  | 104,262    | 103,827                 | 435        | 261                    | 215                     | 46         |
| February ..... | 104,729    | 104,365                 | 364        | 467                    | 538                     | -71        |

unadjusted monthly estimates to produce seasonally adjusted estimates for the period April 1988 through March 1989. The Bureau uses the X-11 ARIMA seasonal adjustment method, an adaptation of the standard ratio-to-moving average method, which provides for "moving" adjustment factors to take changing seasonal patterns into account.

*Publication of revised estimates.* Revised estimates for all CES series appear in the June issue of *Employment and Earnings*, along with a more complete explanation of the benchmarking procedure and the new seasonal adjustment factors. Revisions to historical series appear in the *Supplement to Employment and Earnings*, published in August. Estimates reflecting the new benchmarks appear in the Current Labor Statistics section of the *Monthly Labor Review* beginning with the July issue. □





# Research Summaries

## White-collar pay in nonservice industries, March 1988

C. JOSEPH COOPER, JR.

White-collar workers employed in mining and utilities typically earn more, on average, than their counterparts in such industry sectors as construction, manufacturing, trade, and finance. This is one of many findings from the Bureau of Labor Statistics' March 1988 survey of white-collar pay in private nonservice industries.<sup>1</sup> (See table 1 for examples of pay relationships in selected occupations and industry divisions covered.) The study, commonly referred to as the PATC survey, yielded average salary information for workers in 28 occupations (112 work levels) spanning a broad range of duties and responsibilities. The results, however, cannot be compared with those from last year's survey, which was limited to private service industries.<sup>2</sup>

The March 1988 survey also reflects changes introduced in 1986 to broaden coverage of the white-collar pay survey to more industries and to smaller establishments by conducting the survey in two segments: The private service industries in 1987 and the private nonservice industries in 1988.<sup>3</sup> The 1988 survey findings will be combined with updated information from the services establishments studied in 1987 to permit annual pay comparisons between Federal white-collar workers and their counterparts in private industry. Rotating industry coverage in alternate years allows

BLS to obtain a broader scope of pay data within current budgetary limits.

While the type of business that a firm performs influences salaries to a large extent, skill and experience continue to be primary determinants of white-collar pay levels, as can be seen in table 2. Engineers, the survey's most populous occupational group, demonstrate the effect of rising skill levels on pay: recent engineering graduates (level I) averaged \$29,592 annually in March 1988, while engineers responsible for highly complex engineering programs (level VIII) averaged \$87,914.<sup>4</sup> Likewise, salaries for accountants ranged from \$22,198 for beginners (level I) to \$68,270 for those responsible for developing complex accounting systems (level VI).

In clerical and technical jobs, differing skill levels also contributed to wide variations in pay. Salaries for four levels of general clerks ranged from \$11,150 a year for clerks who follow detailed procedures in performing simple and repetitive tasks (level I) to \$20,642 for those who use knowledge and judgment to complete various nonroutine assignments (level IV). Pay for five levels of secretaries ranged from \$17,577 to \$30,823.

Computer operators are classified on the basis of responsibility for problem solving, variability of assignments, and scope of authority for corrective actions. Level I operators, whose work assignments consist of on-the-job training, averaged \$15,039 a year. The largest group surveyed, level II, averaged \$18,452; the highest publishable level (V) recorded \$30,900.

Drafters averaged between \$16,676 at level II (those who prepare simple, easily visualized drawings from sketches or marked-up prints) and \$32,567 at level V

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**Table 1. Relative pay levels by type of nonservice industry and selected occupations, March 1988**

[All industries=100]

| Selected occupations           | Mining | Construction | Manufacturing | Public utilities | Wholesale trade | Retail trade | Finance, insurance, and real estate |
|--------------------------------|--------|--------------|---------------|------------------|-----------------|--------------|-------------------------------------|
| Accountants III .....          | 110    | 103          | 101           | 104              | 98              | 95           | 94                                  |
| Buyers II .....                | 120    | 104          | 99            | 110              | 104             | 102          | 98                                  |
| Computer programmers III ..... | 111    | 97           | 101           | 103              | 100             | 99           | 97                                  |
| Systems analysts II .....      | 109    | 90           | 100           | 105              | 96              | 99           | 98                                  |
| Drafters III .....             | 123    | 86           | 98            | 116              | 95              | 92           | 99                                  |
| Computer operators II .....    | 103    | 95           | 102           | 115              | 96              | 90           | 96                                  |
| Accounting clerks II .....     | 114    | 97           | 101           | 120              | 100             | 93           | 95                                  |
| Key entry operators I .....    | 113    | 125          | 103           | 124              | 98              | 93           | 95                                  |
| Secretaries III .....          | 106    | 93           | 102           | 109              | 100             | 90           | 92                                  |
| General clerks III .....       | 112    | 93           | 101           | 115              | 96              | 88           | 91                                  |

**Table 2. Average salaries in selected occupations, national survey of professional, administrative, technical, and clerical pay in the private nonservice industries, March 1988**

| Occupation and class                   | Number of employees <sup>1</sup> | Average annual salaries <sup>2</sup> | Occupation and class                             | Number of employees <sup>1</sup> | Average annual salaries <sup>2</sup> |
|--|----------------------------------|--------------------------------------|--|----------------------------------|--------------------------------------|
| <b>Professional and administrative</b> |                                  |                                      | <b>Continued—Professional and administrative</b> |                                  |                                      |
| Accountants I .....                    | 15,209                           | \$22,198                             | Registered nurses I .....                        | 1,601                            | \$23,443                             |
| Accountants II .....                   | 33,353                           | 27,093                               | Registered nurses II .....                       | 4,220                            | 28,545                               |
| Accountants III .....                  | 45,508                           | 33,293                               | Registered nurses III .....                      | 184                              | 35,059                               |
| Accountants IV .....                   | 23,190                           | 42,140                               | <b>Technical support</b>                         |                                  |                                      |
| Accountants V .....                    | 7,506                            | 53,453                               | Licensed practical nurses II .....               | 352                              | 19,640                               |
| Accountants VI .....                   | 1,448                            | 68,270                               | Engineering technicians I .....                  | 3,930                            | 17,879                               |
| Auditors I .....                       | 1,423                            | 23,473                               | Engineering technicians II .....                 | 13,496                           | 21,317                               |
| Auditors II .....                      | 2,452                            | 28,359                               | Engineering technicians III .....                | 28,498                           | 25,028                               |
| Auditors III .....                     | 3,418                            | 34,753                               | Engineering technicians IV .....                 | 31,375                           | 30,043                               |
| Auditors IV .....                      | 1,869                            | 42,434                               | Engineering technicians V .....                  | 17,341                           | 34,742                               |
| Chief accountants I .....              | 940                              | 40,691                               | Drafters II .....                                | 9,375                            | 16,676                               |
| Chief accountants II .....             | 1,028                            | 53,316                               | Drafters III .....                               | 16,971                           | 21,345                               |
| Chief accountants III .....            | 500                              | 69,316                               | Drafters IV .....                                | 15,097                           | 26,535                               |
| Chief accountants IV .....             | 110                              | 88,608                               | Drafters V .....                                 | 8,749                            | 32,567                               |
| Attorneys I .....                      | 1,310                            | 34,073                               | Computer operators I .....                       | 6,635                            | 15,039                               |
| Attorneys II .....                     | 3,432                            | 42,539                               | Computer operators II .....                      | 30,874                           | 18,452                               |
| Attorneys III .....                    | 4,625                            | 55,362                               | Computer operators III .....                     | 23,538                           | 22,846                               |
| Attorneys IV .....                     | 4,407                            | 70,231                               | Computer operators IV .....                      | 6,480                            | 27,040                               |
| Attorneys V .....                      | 2,116                            | 87,595                               | Computer operators V .....                       | 1,001                            | 30,900                               |
| Attorneys VI .....                     | 676                              | 110,162                              | Photographers II .....                           | 671                              | 24,620                               |
| Buyers I .....                         | 8,421                            | 22,170                               | Photographers III .....                          | 664                              | 29,164                               |
| Buyers II .....                        | 23,555                           | 27,999                               | Photographers IV .....                           | 358                              | 33,844                               |
| Buyers III .....                       | 17,656                           | 36,088                               | <b>Clerical</b>                                  |                                  |                                      |
| Buyers IV .....                        | 5,125                            | 43,620                               | Accounting clerks I .....                        | 34,867                           | 13,505                               |
| Computer programmers I .....           | 8,770                            | 22,531                               | Accounting clerks II .....                       | 136,952                          | 15,544                               |
| Computer programmers II .....          | 29,726                           | 26,422                               | Accounting clerks III .....                      | 77,406                           | 18,865                               |
| Computer programmers III .....         | 37,369                           | 31,440                               | Accounting clerks IV .....                       | 25,149                           | 22,906                               |
| Computer programmers IV .....          | 17,593                           | 37,396                               | File clerks I .....                              | 15,068                           | 11,082                               |
| Computer programmers V .....           | 6,986                            | 45,536                               | File clerks II .....                             | 9,695                            | 13,113                               |
| Systems analysts I .....               | 20,895                           | 31,380                               | File clerks III .....                            | 2,278                            | 16,452                               |
| Systems analysts II .....              | 42,898                           | 37,848                               | Key entry operators I .....                      | 59,276                           | 13,817                               |
| Systems analysts III .....             | 26,377                           | 44,214                               | Key entry operators II .....                     | 29,675                           | 18,434                               |
| Systems analysts IV .....              | 8,021                            | 52,054                               | Messengers .....                                 | 8,068                            | 12,952                               |
| Systems analysts V .....               | 827                              | 65,388                               | Personnel clerks/assistants I .....              | 3,165                            | 14,399                               |
| Systems analyst managers I .....       | 6,131                            | 49,164                               | Personnel clerks/assistants II .....             | 4,936                            | 17,761                               |
| Systems analyst managers II .....      | 4,931                            | 55,735                               | Personnel clerks/assistants III .....            | 3,599                            | 21,178                               |
| Systems analyst managers III .....     | 1,882                            | 65,056                               | Personnel clerks/assistants IV .....             | 1,559                            | 24,713                               |
| Systems analyst managers IV .....      | 228                              | 75,579                               | Purchasing clerks/assistants I .....             | 4,524                            | 14,518                               |
| Job analysts II .....                  | 418                              | 25,957                               | Purchasing clerks/assistants II .....            | 7,178                            | 18,245                               |
| Job analysts III .....                 | 755                              | 32,958                               | Purchasing clerks/assistants III .....           | 4,047                            | 23,398                               |
| Job analysts IV .....                  | 495                              | 41,904                               | Purchasing clerks/assistants IV .....            | 1,033                            | 31,292                               |
| Directors of personnel I .....         | 1,717                            | 42,091                               | Secretaries I .....                              | 47,787                           | 17,577                               |
| Directors of personnel II .....        | 2,421                            | 50,589                               | Secretaries II .....                             | 55,333                           | 19,640                               |
| Directors of personnel III .....       | 1,042                            | 70,900                               | Secretaries III .....                            | 105,161                          | 22,530                               |
| Directors of personnel IV .....        | 301                              | 87,696                               | Secretaries IV .....                             | 41,150                           | 25,858                               |
| Chemists I .....                       | 2,304                            | 26,616                               | Secretaries V .....                              | 11,788                           | 30,823                               |
| Chemists II .....                      | 5,526                            | 31,013                               | Stenographers I .....                            | 4,354                            | 21,345                               |
| Chemists III .....                     | 7,775                            | 38,113                               | Stenographers II .....                           | 2,901                            | 22,691                               |
| Chemists IV .....                      | 8,033                            | 45,812                               | Typists I .....                                  | 15,880                           | 13,538                               |
| Chemists V .....                       | 4,292                            | 54,971                               | Typists II .....                                 | 7,520                            | 17,702                               |
| Chemists VI .....                      | 1,469                            | 66,011                               | General clerks I .....                           | 16,138                           | 11,150                               |
| Chemists VII .....                     | 370                              | 79,759                               | General clerks II .....                          | 70,787                           | 13,543                               |
| Engineers I .....                      | 29,607                           | 29,592                               | General clerks III .....                         | 74,803                           | 16,723                               |
| Engineers II .....                     | 65,445                           | 33,278                               | General clerks IV .....                          | 37,957                           | 20,642                               |
| Engineers III .....                    | 121,166                          | 38,353                               |  |                                  |                                      |
| Engineers IV .....                     | 134,682                          | 45,777                               |  |                                  |                                      |
| Engineers V .....                      | 89,649                           | 55,194                               |  |                                  |                                      |
| Engineers VI .....                     | 36,607                           | 65,710                               |  |                                  |                                      |
| Engineers VII .....                    | 9,360                            | 75,594                               |  |                                  |                                      |
| Engineers VIII .....                   | 1,542                            | 87,914                               |  |                                  |                                      |

<sup>1</sup>Occupational employment estimates relate to the total in all establishments within scope of the survey and not to the number actually surveyed.

<sup>2</sup>Excludes premium pay for overtime and for work on weekends, holidays, and late shifts. Also excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or yearend bonuses, and other nonproduction bonuses. Cost-of-living allowances and incentive payments,

however, are included.

NOTE: The following occupational levels were surveyed but insufficient data were obtained to warrant publication: chief accountant V; job analyst I; director of personnel V; chemist VIII; registered nurse IV; licensed practical nurse I and III; nursing assistant I-IV; civil engineering technician I-V; drafter I; computer operator VI; photographer I and V; and personnel clerk/assistant V.

(work closely with designers preparing unusual, complex, or original designs).

In contrast to contributing to wide variations in pay within a single profession, skill levels can also act as a source of pay uniformity for the same level of work among different occupations. The following tabulation shows a relatively narrow (8-percent) spread separated the highest and lowest paid of six equivalent work levels in the survey:

| Work level                      | Annual salary level |
|---------------------------------|---------------------|
| Director of personnel III ..... | \$70,900            |
| Attorney IV .....               | 70,231              |
| Chief accountant III .....      | 69,316              |
| Accountant VI .....             | 68,270              |
| Chemist VI .....                | 66,011              |
| Engineer VI .....               | 65,710              |

Unequal market demands, however, can nullify equivalent skill level pay consistency, especially in entry level professional positions. Average pay for beginning engineers in the survey, for example, was well above that of entry level accountants.

A DETAILED ANALYSIS of white-collar salaries and complete results of this year's survey are forthcoming in the bulletin, *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1988*. It will include salary distributions by occupational work level, tabulations by establishment size, and relative employment and salary levels by nonservice industry division, such as manufacturing, utilities, and trade. □

#### FOOTNOTES

<sup>1</sup>The white-collar survey (National Survey of Professional, Administrative, Technical, and Clerical Pay—PATC) is conducted by the Bureau of Labor Statistics, but survey occupations and coverage such as establishment size and the private industries to be included are determined by the President's Pay Agent—the Secretary of Labor and the Directors of the Office of Management and Budget and the Office of Personnel Management. This arrangement reflects the use of PATC findings in the pay setting process for Federal employees. The role of the PATC survey is described in George L. Stelluto's, "Federal pay comparability: facts to temper the debate," *Monthly Labor Review*, June 1979, pp. 18–28.

The 1988 survey covered establishments employing 50 or more workers and primarily engaged in the following activities: Mining; construction; manufacturing; public utilities (transportation, communications, electric, gas, and sanitary services); wholesale trade; retail trade; and finance, insurance, and real estate.

<sup>2</sup>See C. Joseph Cooper, Jr., "White collar salaries vary widely in the service industries," *Monthly Labor Review*, November 1987, pp. 21–23.

<sup>3</sup>See John D. Morton, "BLS prepares to broaden scope of its white-collar pay survey," *Monthly Labor Review*, March 1987, pp. 3–7.

<sup>4</sup>In the survey coding structure, the level designations among various occupations are not synonymous: for example, the first level of attorneys is comparable to the third level of engineers, accountants, and most other professional and administrative occupations. Classification of employees in the occupations and work levels surveyed is based on factors detailed in definitions which are available upon request.

## BLS sizes up pay and benefits in men's shirt factories

Individual earnings of production and related workers in men's and boys' shirt and nightwear manufacturing plants varied substantially in June 1987, ranging from \$3.35 an hour to more than \$8 an hour. The index of wage dispersion, a statistical measure of such variation, was 43—among the highest recorded in the Bureau of Labor Statistics' industry wage program.<sup>1</sup> Contributing to this factor were the low incidence of single-rate pay systems (about 5 percent of the workers) and the relatively high incidence of incentive systems (80 percent).

Production workers averaged \$4.91 an hour in June 1987, according to a study by the Bureau of Labor Statistics.<sup>2</sup> This represents a 5-percent increase in earnings since a similar survey was conducted in May 1984.<sup>3</sup> By comparison, the wage and salary component of the Bureau's Employment Cost Index for nondurable goods manufacturing industries rose 12 percent between the second quarters of 1984 and 1987.

Wages for a substantial portion of the industry's work force also reflect a continued attachment to the Federal minimum wage. One-fourth of the workers earned \$3.75 per hour or less in June 1987, within 40 cents of the Federal minimum hourly wage of \$3.35.

Average hourly earnings for the seven regions studied separately were between \$5.83 in New England and \$4.58 in the Pacific States, a spread of 27 percent. In the Southeast, where nearly three-fourths of the production workers were employed, hourly earnings averaged \$4.79.

Twenty-three jobs representing the production process, from the cutting of the fabric to the pressing and boxing of the finished garment, were selected for separate study. Plantwide, hourly averages ranged from \$8.02 for sewing-machine repairers to \$4.04 for thread trimmers. (See table 1.)

The shirtmaking process begins in the cutting room where workers mark, spread out, or cut fabric using a power-cutting machine. Assemblers, who gather bundles of garment parts for distribution to sewing units, were the most numerous of the five jobs studied in this department. They averaged \$4.93 an hour. Machine cutters were the highest paid workers in the department, averaging \$6.36 an hour.

Sewing department operations involve joining various garment sections, attaching buttons, or sewing button-holes (sewing-machine operator); loading machines that automatically sew garment parts (machine loader); and inspecting the quality of work during shirt assembly (intermediate inspector). Sewing-machine operators were the largest occupational group, constituting nearly three-fifths of the industry's production work force. They



averaged \$4.83 an hour. Occupational averages for other jobs in this department were between \$4.86 (underpressers) and \$5.28 (collar-top trimmers).

Finishing operations include inspection, repair, and preparation of completed garments for sale. Averages for the seven jobs studied in the finishing department ranged from \$4.04 for thread trimmers to \$5.01 for garment folders.

Nationwide, four-fifths of the workers were employed under incentive pay systems, typically individual piece rates. Among the one-fifth usually paid time rates were janitors, sewing-machine repairers, work distributors, and workers in cutting room occupations.

Virtually all workers were in establishments with weekly work schedules of 40 hours. One-third of the work-

ers were in plants reporting provisions for late-shift work; however, less than 5 percent actually were employed on late shifts at the time of the survey.

Almost all production workers were in establishments providing paid holidays and vacations. Two-thirds of the workers received 5 to 8 holidays annually, while nearly one-fifth—mostly workers covered by Amalgamated Clothing and Textile Workers Union (ACTWU) contracts—were entitled to 11 paid holidays. Typical vacation provisions included 1 week of pay after 1 year of service and 2 or more weeks' pay after 3 years; a third week after 10 years covered about two-fifths of the workers. The most liberal vacation plans were reported for workers in plants covered by ACTWU agreements. They consist of a two-tier system that provides 3 to 4 weeks' vacation pay to workers hired prior to September 1, 1985, and 1 to 3 weeks for workers hired on or after that date. Under the latter arrangement, employees received 1 week of vacation pay after 1 year of service, 2 weeks after 2 years, and 3 weeks after 3 years.

About nine-tenths of the workers were in establishments providing at least part of the cost of life insurance and a variety of basic health benefits. Shirt factories providing insurance protection against large annual medical expenses (major medical insurance) and accidental death or dismemberment employed about seven-tenths of the workers. Slightly over two-fifths were protected, in part, against temporary income loss attributable to illness or an accident. Dental plans, however, covered about one-fifth of the workers. Retirement plans, usually financed wholly by employers, applied to three-fifths of the workers.

Other common employer-provided benefits included pay adjustments for incentive workers whose production is halted because of a machine breakdown or other factors beyond a worker's control (nine-tenths of the workers); minimum daily reporting pay (for example, 4 hours' pay) for employees who report to work as scheduled, but have no work available (two-thirds of the workers); and automatic adjustment of all job pay rates when there is a change in the Federal minimum wage (just over three-fifths of the workers).

A comprehensive report on the survey, *Industry Wage Survey: Men's and Boys' Shirts and Nightwear, June 1987* (Bulletin 2304), may be purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, or from the Bureau of Labor Statistics, Publications Sales Center, P.O. Box 2145, Chicago, IL 60690. The bulletin provides additional information on occupational pay, and on the incidence of employee benefits. □

**Table 1. Number of workers and average straight-time hourly earnings, men's and boys' shirt and nightwear manufacturing plants, selected occupations, United States and Southeast region, June 1987**

| Department and occupation                     | United States <sup>1</sup> |                                      | Southeast <sup>2</sup> |                                      |
|---|----------------------------|--------------------------------------|------------------------|--------------------------------------|
|   | Number of workers          | Average hourly earnings <sup>3</sup> | Number of workers      | Average hourly earnings <sup>3</sup> |
| All production workers <sup>4</sup> .....     | 59,383                     | \$4.91                               | 43,312                 | \$4.79                               |
| Men .....                                     | 5,327                      | 5.50                                 | 3,474                  | 5.59                                 |
| Women .....                                   | 54,056                     | 4.86                                 | 39,838                 | 4.72                                 |
| <b>Cutting room</b>                           |                            |                                      |                        |                                      |
| Assemblers .....                              | 786                        | 4.93                                 | 611                    | 4.95                                 |
| Clicker-machine operators .....               | 177                        | 5.93                                 | 110                    | 5.73                                 |
| Cutters, machine .....                        | 655                        | 6.36                                 | 478                    | 6.19                                 |
| Markers .....                                 | 212                        | 5.50                                 | 175                    | 5.25                                 |
| Spreaders .....                               | 758                        | 5.24                                 | 571                    | 5.01                                 |
| <b>Sewing department</b>                      |                            |                                      |                        |                                      |
| Collar pointers .....                         | 284                        | 5.16                                 | 205                    | 4.90                                 |
| Collar top trimmers .....                     | 105                        | 5.28                                 | 66                     | 4.97                                 |
| Inspectors, intermediate .....                | 570                        | 5.04                                 | 394                    | 4.94                                 |
| Loaders, machine .....                        | 1,600                      | 5.10                                 | 1,390                  | 5.13                                 |
| Sewing-machine operators <sup>5</sup> .....   | 33,397                     | 4.83                                 | 25,141                 | 4.69                                 |
| Dress and sport shirts .....                  | 30,683                     | 4.80                                 | 23,323                 | 4.68                                 |
| Underpressers .....                           | 270                        | 4.86                                 | 150                    | 4.39                                 |
| <b>Finishing department</b>                   |                            |                                      |                        |                                      |
| Baggers and boxers .....                      | 1,261                      | 4.78                                 | 891                    | 4.75                                 |
| Folders, garment <sup>5</sup> .....           | 2,012                      | 5.01                                 | 1,594                  | 4.97                                 |
| Hand .....                                    | 1,224                      | 5.02                                 | 1,021                  | 4.97                                 |
| Garment repairers .....                       | 392                        | 4.99                                 | 259                    | 4.88                                 |
| Inspectors, final (inspect only) ...          | 443                        | 4.90                                 | 343                    | 4.91                                 |
| Inspectors, final (and thread trimmers) ..... | 2,179                      | 4.80                                 | 1,530                  | 4.51                                 |
| Pressers, finish <sup>5</sup> .....           | 1,348                      | 4.78                                 | 836                    | 4.53                                 |
| Hand .....                                    | 867                        | 4.70                                 | 541                    | 4.45                                 |
| Thread trimmers .....                         | 170                        | 4.04                                 | 124                    | 3.83                                 |
| <b>Miscellaneous</b>                          |                            |                                      |                        |                                      |
| Janitors .....                                | 566                        | 4.43                                 | 437                    | 4.36                                 |
| Repairers, sewing machine .....               | 607                        | 8.02                                 | 486                    | 8.05                                 |
| Shipping clerks .....                         | 340                        | 5.22                                 | 233                    | 5.13                                 |
| Stock clerks .....                            | 203                        | 5.22                                 | 146                    | 5.04                                 |
| Work distributors .....                       | 1,463                      | 4.78                                 | 1,051                  | 4.78                                 |

<sup>1</sup>Includes data for regions in addition to the Southeast region shown separately.  
<sup>2</sup>The Southeast region, as defined for this study, includes Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee.  
<sup>3</sup>Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.  
<sup>4</sup>Includes data for workers in occupations in addition to those shown separately.  
<sup>5</sup>Overall occupation includes data for subclassifications not shown separately.

FOOTNOTES

<sup>1</sup>The index of dispersion is computed by dividing the interquartile range (the difference between the third and first quartiles) by the median (the second quartile) and multiplying by 100. For a detailed analysis by industry of wage dispersion, see Carl B. Barsky and Martin E. Personick, "Meas-

uring wage dispersion: pay ranges reflect industry traits," *Monthly Labor Review*, April 1981, pp. 35-41.

<sup>2</sup>Wage data are straight-time hourly earnings, excluding premium pay for overtime and for work on weekends, holidays, and late shifts. Cost-of-living increases (but not bonuses) were included as part of the workers' regular pay. Excluded were performance bonuses and lump-sum payments, as well as profit-sharing payments, attendance bonuses, Christmas or yearend

bonuses, and other nonproduction bonuses.

The survey included establishments engaged primarily in manufacturing men's, youths', and boys' shirts (including polo and sport shirts) and nightwear, cut and sewn from purchased woven or knit fabric.

<sup>3</sup>For a discussion of the earlier survey, see *Industry Wage Survey: Men's and Boys' Shirts and Nightwear, May 1984*, Bulletin 2232 (Bureau of Labor Statistics, 1985).

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### **MLR staff positions**

The *Monthly Labor Review* would like to hear from persons interested in future staff positions. Applicants should describe editing and economics skills and submit U.S. Form 171 to the editor-in-chief.

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### **A note on communications**

The *Monthly Labor Review* welcomes communications that supplement, challenge, or expand on research published in its pages. To be considered for publication, communications should be factual and analytical, not polemical in tone. Communications should be addressed to the Editor-in-Chief, *Monthly Labor Review*, Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC 20212.

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# Major Agreements Expiring Next Month



This list of selected collective bargaining agreements expiring in November is based on information collected by the Bureau's Office of Compensation and Working Conditions. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

| Industry or activity           | Employer and location   | Labor organization <sup>1</sup>          | Number of workers |
|--------------------------------|---|--|-------------------|
| <b>Private</b>                 |   |  |                   |
| Construction .....             | Heavy-Highway Labor Relations Council of Iowa (Iowa) .....                                  | Operating Engineers .....                | 1,200             |
| Food products .....            | John Morrell & Co. (Sioux Falls, SD) .....  | Food and Commercial Workers .....        | 2,700             |
|                                | Chicago Midwest Meat Association (Chicago, IL) .....  | Food and Commercial Workers .....        | 3,000             |
|                                | Greater New York Milk Dealers Association (New York, NY) .....                              | Teamsters .....                          | 3,000             |
| Apparel .....                  | American Schiffli Embroiderers Association (New Jersey) .....                               | Textile Workers .....                    | 2,000             |
| Furniture .....                | Industrial Relations Council of Furniture Manufacturers of Southern California (California) | Carpenters .....                         | 1,000             |
| Primary metals .....           | McLouth Steel Corp. (Michigan) .....  | Steelworkers .....                       | 2,000             |
| Machinery .....                | Carrier Corp. (Syracuse, NY) .....  | Sheet Metal Workers .....                | 2,200             |
| Electrical products .....      | Hughes Aircraft Co. (Los Angeles, CA) .....   | Carpenters .....                         | 12,000            |
|                                | Bendix Corp., Autolite Division (Fostoria, OH) .....  | Auto Workers .....                       | 1,150             |
| Transportation equipment ..... | United Technologies Corp., Pratt and Whitney Division (Connecticut) ..                      | Machinists .....                         | 16,000            |
| Communication .....            | General Telephone Co. of Illinois (Illinois) .....  | Electrical Workers (IBEW) .....          | 1,400             |
| Utilities .....                | Michigan Consolidated Gas Co. (Michigan) .....  | Service Employees .....                  | 1,000             |
| Retail trade .....             | Food Employers Council, Inc. (Southern California) .....                                    | Food and Commercial Workers .....        | 10,000            |
| Real estate .....              | Chicago walk-up apartments (Illinois) .....   | Service Employees .....                  | 4,900             |
|                                | Chicago fireproof buildings (Illinois) .....  | Service Employees .....                  | 2,600             |
| Hotels .....                   | Greater Boston Hotel Association (Massachusetts) .....                                      | Hotel Employees and Restaurant Employees | 3,400             |
| Services .....                 | Associated Press (Interstate) .....   | Newspaper Guild .....                    | 1,400             |
| Hospitals .....                | Johns Hopkins University Hospital (Baltimore, MD) .....                                     | Hospital and Health Care Employees ..    | 1,400             |
|                                | Youngstown Hospital Association (Youngstown, OH) .....                                      | Service Employees .....                  | 1,100             |
| <b>Public</b>                  |   |  |                   |
| Education .....                | California: San Diego Board of Education, teachers .....                                    | Education Association (Ind.) .....       | 6,000             |
| Services .....                 | Ohio: State lottery and liquor store clerks .....   | Food and Commercial Workers .....        | 1,250             |
| General government .....       | Pennsylvania: Allegheny County Port Authority .....   | Transit Union .....                      | 2,600             |

<sup>1</sup>Affiliated with AFL-CIO except where noted as independent (Ind.).



# Developments In Industrial Relations



## McCarthy selected to head Teamsters

Jackie Presser, who had led the Teamsters union since 1983, died July 9. Presser had been on leave from the presidency of the 1.6-million member union since early May, when declining health forced him to turn over his duties to secretary-treasurer Weldon Mathis.

Presser's death came in the midst of developments that promised to thoroughly test the leadership of William J. McCarthy, who was selected by the union's general executive board to complete the 3 remaining years of Presser's term of office. Prior to the closed meeting of the board, Mathis was generally expected to be selected for the job, but McCarthy prevailed by a reported 9-to-7 vote. One of the major issues that presumably influenced the selection was dissatisfaction of the union's leaders and rank-and-file members over the recently negotiated trucking contract which Mathis—with Presser's assent—had declared to be ratified, although almost two-thirds of the voting employees had opposed it. Mathis and Presser contended the action was permitted under the union's constitution. (See *Monthly Labor Review*, July 1988, pp. 39-40.) McCarthy, 69, a vice president of the union and leader of its New England Conference for more than 20 years, was among the union officials opposing Mathis' decision.

Another difficulty facing the union was a civil lawsuit filed by the Federal Government in late June. In the suit, filed under provisions of the Racketeer Influenced and Corrupt Organizations Act, the Federal Government charged that "for decades . . . the IBT's [Teamsters] leadership had permitted La Cosa Nostra figures to dominate and corrupt important Teamsters locals, joint councils, and benefit funds." Named as defendants were Presser and the union's 17 top officials, along with 26 alleged organized crime figures. According to U.S. Attorney Rudolph W. Giuliani who filed the suit, the Government was using the anti-racketeering law to "take back the union from the Mafia," rather than "to take over the union."

Teamsters leader McCarthy, who was among those named in the suit, said there were a lot of "insinuations" against the union, but that he was confident "we will

come out just as clear as we were [before the suit] and have been."

Other labor leaders joined McCarthy in denouncing the Government's action. AFL-CIO President Lane Kirkland called the suit a "clear abuse of the government's prosecutorial power." He contended that if the Justice Department has sufficient evidence that union officers have violated laws, it "should proceed against those individuals directly under laws which forbid convicted criminals from holding union office."

An early development in the case came in July when Federal Judge David Edelstein denied a Government request for the appointment of a liaison officer to oversee operation of the union. Judge Edelstein said that it would be imprudent to grant the Government's request until he hears further evidence at the trial, scheduled to begin February 27, 1989.

## New United Motors, UAW settlement

New United Motors Manufacturing Inc. and the Auto Workers (UAW) extended their peaceful collective bargaining relationship, but the contract settlement was clouded when General Motors Corp. (GM) later announced it would cease producing its Nova cars at the Fremont, CA, plant, which is jointly owned by GM and Toyota Motors Corp. GM said that the decision was forced by slow sales of the Nova car model. The company indicated it was satisfied with the improvements in product quality and productivity resulting from the joint venture, which utilizes Toyota's personnel and production approaches. GM also indicated that it was planning to begin manufacturing its new Geo Prism model in the plant. Toyota indicated that it would continue manufacturing its own models in the plant.

The new 3-year contract provides for only one specified wage increase—3 percent—in July 1990, but the 2,200 employees will continue to be the highest paid in the industry, according to the union. After the increase, the nearly 2,000 assemblers will be paid \$15.46 an hour, and the 200 skilled trades workers will be paid \$18.39, including an 85-cent-an-hour cost-of-living allowance and 88 cents resulting from a change in the lunch period. By comparison, UAW members at one GM plant in Detroit currently make \$14.39 an hour, according to the union.

"Developments in Industrial Relations" is prepared by George Ruben of the Division of Developments in Labor-Management Relations, Bureau of Labor Statistics, and is largely based on information from secondary sources.

Other pay provisions include continuation of quarterly cost-of-living pay reviews, using the same formula as in GM's wholly owned plants; an immediate \$750 payment for signing the contract, followed in July 1989 by a payment equal to 3 percent of the employee's earnings during the preceding 12 months; and a 10-cent-an-hour increase in the 50-cent premium paid to production team leaders, effective in July 1989.

Other terms included—

- Continuation of the policy adopted in the initial contract (negotiated in 1985) of guaranteeing jobs for the employees, except in severe economic downturns.
- A shift to a pension plan providing defined benefits, from a plan providing for a defined company payment.
- Improved health and dental benefits.
- Establishment of a joint committee to determine if a child care plan is needed, and if so, to negotiate the types of services to be provided.

### **Textile Workers negotiate benefit gains at Bibb Co.**

In the textile industry, 2,600 workers in Roanoke Rapids, NC, were covered by a settlement between the Bibb Co. and the Amalgamated Clothing and Textile Workers. The seven plants had been owned by J.P. Stevens & Co., which sold them to Bibb earlier in the year. At that time, Stevens' other plants—which are generally nonunion—were acquired by West Point-Pepperel Inc. and Odyssey Partners (a New York investment firm). Each company had been attempting to acquire all of Stevens' operations.

Clyde Bush, an official of the union, described the Bibb agreement as important "in this age of takeovers and mergers in the textile industry" because the accord provided for an overall gain in benefits. The gains included a new pension plan providing for a benefit rate ranging from \$7 a month for each year in which an employee earns \$10,000–\$11,000 to \$9 a month for each year in which earnings are \$16,000 or more. Previously, rates ranged from \$5 to \$7 a month.

The new contract expires on March 31, 1991, but Bush said he expected that bargaining on wages and benefits would start in a few months, triggered by changes expected to be announced by nonunion companies. The first action occurred in August, when Spring Mills (a nonunion company) announced a 4.1-percent pay increase for its employees.

### **Program will upgrade skills at General Dynamics**

More than 6,000 workers engaged in building armored vehicles for the Armed Forces were covered by a settlement between General Dynamics Corp.'s Land Systems Division and the Auto Workers. The workers are located at plants in Warren and Sterling Heights, MI; Lima, OH; and Scranton, PA.

The 3-year agreement does not provide for specified wage changes, but does call for an immediate lump-sum payment consisting of a \$1,500 ratification bonus and an amount equal to 3 percent of the employee's earnings during the preceding 12 months. In July of 1989 and 1990, the workers will receive additional payments, using the 3-percent formula. In addition, the provision for automatic quarterly cost-of-living reviews was continued.

General Dynamics also agreed to fund a \$2 million joint training program to upgrade the skills of current employees and those laid off since January 1, 1988, to prepare them for new jobs in the company.

### **Lockheed Corp. to close Los Angeles plant**

Lockheed Corp. announced the closing of its defense products plant in the Watts-Willowbrook section of Los Angeles. The plant, which manufactures subassemblies for Air Force C-5B cargo planes, was opened in 1970 to provide jobs to the minority community. Lockheed said that the closing was part of a 9,500-worker cutback at various plants resulting from the winding down of its contract to produce the C-5B.

The Watts venture aided thousands of black and Hispanic residents in the area by providing training that enabled them to obtain jobs with Lockheed and other defense contractors in the region. Under the closing plan announced by Lockheed, the lease on the plant was to be transferred to DV Industries Inc., a defense contractor that shares the industrial park with the Lockheed plant.

In conjunction with the closing announcement, Lockheed established a placement service which placed 22 of the employees with McDonnell Douglas Corp. DV Industries said it expected to hire a "few" of the workers when it takes over the facility in October.

### **New York, Pennsylvania employees settle**

New York State concluded a round of bargaining with various unions when it settled with the Public Employees Federation for 57,000 employees. The settlement ended a month-long impasse that was triggered by the State's demand that members of the union pay more of their health insurance costs than members of some other unions. According to the State, the change was warranted because members of the unit have higher salaries and higher plan utilization rates than the other workers. To some extent, the State was successful on this issue, as the employees will begin paying \$8 toward the cost of visits to doctors' offices and hospital outpatient units, and for some other services. Employees are now also required to pay a larger share of premiums for health maintenance organizations.

In the salary area, the workers received a 5-percent increase in June, followed by a 5-percent increase in April 1989 and 5.5 percent in April 1990. Prior to the settlement, the average salary reportedly was \$35,000 a year for

the professional, scientific, and technical employees in the unit. The contract also extends overtime and standby pay to 12,000 more employees, beginning in 1990, and provides for a study of job stress and for several types of child care benefits, financed by the State up to about \$5 million.

Another settlement, which occurred a month earlier, involved 18,000 faculty and other professional employees of the State University of New York. This 3-year contract also provided for 5-, 5-, and 5.5-percent salary increases in the respective contract years.

Elsewhere, the State of Pennsylvania and the State, County, and Municipal Employees settled for 47,000 of the 80,000 employees in the State's executive branch. Pay, which averaged \$19,481 according to the State, was increased by 5 percent on July 1 in each of the three contract years and by 1 percent on January 1, 1991.

Other major provisions called for a cut in the 32 pay ranges to 14; a plan to reduce the 3,200 job classifications by an expected 33 percent; reductions in entry level pay rates to bring them into line with similar jobs in private industry; an 8-cent-an-hour increase in the State's financing of health and welfare benefits; and up to 6 months' unpaid leave for mothers or fathers at the birth or adoption of a child (previously, only mothers were eligible, and only for births).

#### **New York City links nurses' pay to private sector**

Efforts to overcome a growing shortage of nurses led New York City's Health and Hospital Corp. to agree to a contract provision linking the public nurses' salaries to those of nurses employed by 14 private hospitals in the city. Under the new 37-month contract with the New York State Nurses Association, the minimum starting salary was raised to \$27,000 a year retroactive to February 1, 1988, and to \$28,235 on July 1, 1988, from \$25,036. Under the new comparability provision, the city nurses' pay could be raised at 6-month intervals, based on the outcome of surveys of salaries paid in the private hospitals. The pay guarantees are 90 percent of private salaries for staff nurses and assistant head nurses, 95 percent for head nurses, and 100 percent for supervising nurses.

Robert W. Linn, head of the city's Office of Municipal Labor Relations, said the new approach was vital to "attract and retain a nursing staff." He also said that the city had been losing 100 nurses a month and that nearly 40

percent of new staff nurses were not even completing their first year of service.

At the time of settlement, there were about 6,500 nurses in the bargaining unit, ministering to about 100,000 patients, compared with 6,800 nurses in February 1988 and 7,400 in August 1986.

The contract, running to December 31, 1990, also provides for larger length-of-service salary step increases, raises shift differentials, and allows nurses to be credited with up to 5 years' service outside the public hospital system. Previously, new nurses started at the minimum salary, regardless of previous experience.

#### **Grocery accord reached in St. Louis**

More than 11,000 employees of grocery stores in the St. Louis, MO, area were covered by a settlement, preserving a 54-year history of never having engaged in a general work stoppage. The workers, who are represented by the United Food and Commercial Workers, are employed in about 100 stores owned by the Schnucks, National, and Dierbergs chains of stores.

Jack Valenti, president of Local 655 of the union, described the 3-year contract as "reasonable," noting that the employees had gained back some of the wage cut they had accepted in 1985.

The contract terms include—

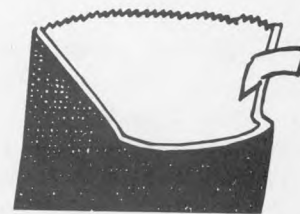
- Restoration of a 65-cent-an-hour wage cut that senior clerks had taken in 1985. They will also receive two \$500 lump-sum payments.
- Pay increases totaling 89 cents an hour for part-time employees and 25 to 50 cents for others.
- Lump-sum payments of \$750 for some employees.
- A clause permitting drug and alcohol testing only in cases where the employer can produce evidence of "just cause." The clause also requires that drug tests must be repeated at least once to assure accuracy.

Gains for the employers include provisions:

- Allowing stores to remain open until 8 p.m. (formerly 6 p.m.) on New Year's Eve.
- Requiring new employees to work 6 months (formerly 4) before they become eligible for paid holidays.
- Raising the eligibility requirement for full-time status to 34 hours of work (formerly 30) per week.
- Extending the period new employees must work before becoming eligible for health and pension benefits.



# Book Reviews



## An authoritative perspective

*Innovating to Compete: Lessons for Diffusing and Managing Change in the Workplace.* By Richard E. Walton. San Francisco, CA, Jossey-Bass, Inc., Publishers, 1987. 361 pp.

In recent years, the need for nations, industries, and firms to be "competitive" in an expanding global economy has captured the imagination of writers, politicians, business leaders, economists, and others who study or are affected by domestic and international competition. For some, competitiveness means the ability to sell or produce effectively in world markets, as in the auto industry. For others, the term has become synonymous with the need to reduce labor costs which often is manifested in worker give-backs or concessions. Some think of competitiveness in the context of product quality. All agree, however, that failure to be and remain competitive can lead to economic distress.

The author believes that one of the major needs for strong competitors is to be innovative, and to implement change and innovation as effectively and as quickly as possible. His thesis, presented in a model, is that certain essential propositions, or components, strongly influence the development, diffusion, and management of change. The first component is a "guiding model," which is an expression of the vision brought to bear regarding innovation and change in general. For example, a model that does not take into account the interests and needs of all stakeholders that would be affected by the innovation or change will undoubtedly fail.

The second component, "economic necessity," and the third, "social context," are the forces that motivate interested parties to innovate and adapt to change. Without strong economic pressures, change comes slowly, if at all. Innovation and change also require a commonality of social values before effective innovation can be attempted. Stakeholders must believe that the social effects of innovation are worth the effort, and in their best interests. The fifth is "competence," or the capacity to implement and manage the innovation process. Here, the notion is that the best innovations will fail to be implemented unless there is competent management of the process. These

propositions or components constitute the framework for the author's model(s) but are not equal in all situations. They can or should be weighted to give more attention and analytical value to the ones that are most important in a given situation.

The author tested his model using the shipping industry which is and has been an important international industry dominated by several countries, including the United States. The eight countries analyzed in the study varied with respect to their capacity to innovate, depending upon the degree to which they felt economic pressure, the influences of social systems and values they had developed over time, and the institutional arrangements they had lived under, such as labor unions, government agencies involved in shipping regulation, government financial support, shipboard staffing rules, and so forth.

Application of the model, no matter which components were used or which weights were applied, saw Norway, Holland, and Japan as *High Innovators*, the United Kingdom, Sweden, and West Germany as only *Moderate Innovators*, and Denmark and the United States as *Low Innovators*. The United States was lowest of all, mainly because of weaknesses in certain key areas. One, "economic necessity" as a motivator, was very weak in the United States because of government subsidy of the industry and the move to extensive "Re-Flagging," or the use of foreign flagged vessels to ship products to and from the United States.

Institutionally, the U.S. maritime industry deals with several unions with considerable power. Work rules have kept work crews larger than for most countries, and there are requirements that only U.S. seamen may be hired for certain types of commercial shipping. The fact is that, except for social context, the United States is more influenced than all of the other countries by negative factors which work against innovation and change.

While this analytical framework was tested retrospectively, the model(s) are certainly applicable to current or future considerations. If one were interested in determining the degree to which a firm, an industry, a plant, a country, or any other entity could be expected to innovate and implement changes that are required, this model would be most helpful.

Finally, while competence in managing the process is clearly essential to effective implementation of innovation and change, there is another competence that the author sees as essential. He calls it "metacompetence," or the ability to manage the context for innovative change. This capacity operates outside the "tactical" aspects of management; it is the "strategic" focus of being able to modify the basic components set forth in the model "to influence future activity." In other words, to see the need for and help shape policies and legislation, develop incentives, shape values and beliefs, and work towards establishing institutional changes to facilitate innovation and change.

This is an interesting and useful book. It provides an analytical framework that is usable, understandable, and makes good sense. It adds a significant dimension to the body of knowledge concerning readiness for innovation and change, and the essentials of effective implementation.

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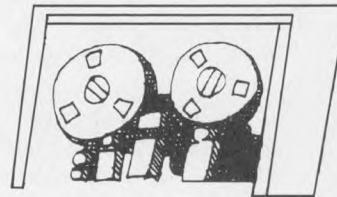
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# Current Labor Statistics



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**Schedule of release dates for BLS statistical series**

| Series                                    | Release date | Period covered | Release date | Period covered | Release date | Period covered | MLR table number |
|---|--------------|----------------|--------------|----------------|--------------|----------------|------------------|
| Employment situation .....                | October 7    | September      | November 4   | October        | December 2   | November       | 1; 4-21          |
| Producer Price Index .....                | October 14   | September      | November 10  | October        | December 16  | November       | 2; 33-35         |
| Consumer Price Index .....                | October 21   | September      | November 22  | October        | December 20  | November       | 2; 30-32         |
| Real earnings .....                       | October 21   | September      | November 22  | October        | December 20  | November       | 14-17            |
| Employment Cost Index .....               | October 25   | 3rd quarter    | .....        | .....          | .....        | .....          | 1-3; 22-24       |
| Major Collective Bargaining Settlements   | October 26   | 1st 9 months   | .....        | .....          | .....        | .....          | 3; 25-28         |
| U.S. Import and Export Price Indexes ...  | October 27   | 3rd quarter    | .....        | .....          | .....        | .....          | 36-41            |
| Productivity and costs:                   |              |                |              |                |              |                |                  |
| Nonfinancial corporations .....           | .....        | .....          | November 2   | 3rd quarter    | .....        | .....          | 2; 42-44         |
| Nonfarm business and manufacturing        | .....        | .....          | .....        | .....          | December 5   | 3rd quarter    | 2; 42-44         |
| Occupational illnesses and injuries ..... | .....        | .....          | November 15  | 1987           | .....        | .....          | 48               |

## NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force, employment, unemployment, collective bargaining settlements, consumer, producer, and international prices, productivity, international comparisons, and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described, key definitions are given, notes on the data are set forth, and sources of additional information are cited.

### General notes

The following notes apply to several tables in this section:

**Seasonal adjustment.** Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years. (Seasonally adjusted data appear in tables 1-3, 4-10, 13, 14, 17, and 18.) Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are seasonally adjusted with a procedure called X-11 ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at midyear for the July-December period. However, revisions of historical data continue to be made only at the end of each calendar year.

Seasonally adjusted labor force data in tables 1 and 4-10 were revised in the February 1988 issue of the *Review*, to reflect experience through 1987.

Annual revisions of the seasonally adjusted payroll data shown in tables 13, 14, and 18 were made in the July 1988 *Review* using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in table 42 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

**Adjustments for price changes.** Some data—such as the Hourly Earnings Index in table 17—are adjusted to eliminate the effect of

changes in price. These adjustments are made by dividing current dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of \$3 and a current price index number of 150, where 1977 = 100, the hourly rate expressed in 1977 dollars is \$2 ( $\$3 / 150 \times 100 = \$2$ ). The \$2 (or any other resulting values) are described as "real," "constant," or "1977" dollars.

### Additional Information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule preceding these general notes. More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in *Employment and Earnings*, a monthly publication of the Bureau. More data from the household survey are published in the data books—*Revised Seasonally Adjusted Labor Force Statistics*, Bulletin 2306, and *Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2307. More data from the establishment survey appear in two data books—*Employment, Hours, and Earnings, United States*, and *Employment, Hours, and Earnings, States and Areas*, and the supplements to these data books. More detailed information on employee compensation and collective bargaining settlements is published in the monthly periodical, *Current Wage Developments*. More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report*, and *Producer Price Indexes*. Detailed data on all of the series in this section are provided in the *Handbook of Labor Statistics*, which is published biennially by the Bureau. BLS bulletins are issued covering productivity, injury and illness, and other data in this section. Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

### Symbols

- p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
- r = revised. Generally, this revision reflects the availability of later data but may also reflect other adjustments.
- n.e.c. = not elsewhere classified.
- n.e.s. = not elsewhere specified.

## COMPARATIVE INDICATORS

(Tables 1-3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

**Labor market indicators** include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and

unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonagricultural payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.



Data on **changes in compensation, prices, and productivity** are presented in table 2. Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in: consumer prices for all urban consumers; producer prices by stage of processing; and the overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

**Alternative measures of wage and compensation rates of change**, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the

series, contribute to the variation in changes among the individual measures.

#### Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), as well as the additional bulletins, articles, and other publications noted in the separate sections of the *Review's* "Current Labor Statistics Notes." Users may also wish to consult *Major Programs, Bureau of Labor Statistics*, Report 718 (Bureau of Labor Statistics, 1985).

## EMPLOYMENT AND UNEMPLOYMENT DATA

(Tables 1; 4-21)

### Household survey data

#### Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 55,800 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

#### Definitions

**Employed persons** include (1) all civilians who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. Members of the Armed Forces stationed in the United States are also included in the employed total. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

**Unemployed persons** are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff or waiting to start new jobs within the next 30 days are also counted among the unemployed. The **overall unemployment rate** represents the number unemployed as a percent of the labor force, including the resident Armed Forces. The **civilian employment rate** represents the number unemployed as a percent of the civilian labor force.

The **labor force** consists of all employed or unemployed civilians plus members of the Armed Forces stationed in the United States. Persons **not in the labor force** are those not classified as employed or unemployed; this group includes persons who are retired, those engaged in their own housework, those not working while attending school, those unable to work because of long-term illness, those discouraged from seeking work because of personal or job-market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy, and members of the Armed Forces stationed in the United States. The **labor force participation rate** is the proportion of the noninstitutional population that is in the labor force. The **employment-**

**population ratio** is total employment (including the resident Armed Forces) as a percent of the noninstitutional population.

#### Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appear in the Explanatory Notes of *Employment and Earnings*.

Data in tables 4-10 are seasonally adjusted, based on the seasonal experience through December 1987.

#### Additional sources of information

For detailed explanations of the data, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). Historical unadjusted data from 1948 to 1987 are available in *Labor Force Statistics Derived from the Current Population Survey*, Bulletin 2307 (Bureau of Labor Statistics, 1988). Historical seasonally adjusted data appear in *Labor Force Statistics Derived from the Current Population Survey: A Data-book*, Vol. II, Bulletin 2096 (Bureau of Labor Statistics, 1982), and *Revised Seasonally Adjusted Labor Force Statistics, 1978-87*, Bulletin 2306 (Bureau of Labor Statistics, 1988).

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9-20.

### Establishment survey data

#### Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by more than 300,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This

largely accounts for the difference in employment figures between the household and establishment surveys.

## Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

**Employed persons** are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

**Production workers** in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12–17 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

**Earnings** are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries. Publication of the Hourly Earnings Index series shown in table 17 will be discontinued with the initial publication of December 1988 data in the February 1989 issue of the *Review*.

**Hours** represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index**, introduced in the May 1983 *Review*, represents the percent of 185 nonagricultural industries in which employment was rising over the indicated period. One-half of the industries with unchanged employment are counted as rising. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. The diffusion index is useful for measuring the dispersion of economic gains or losses and is also an economic indicator.

## Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of May 1988 data, published in the July 1988 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Unadjusted data have been revised back to April 1986; seasonally adjusted data have been revised back to January 1983. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1988). Unadjusted data from April 1987 forward, and seasonally adjusted data from January 1984 forward are subject to revision in future benchmarks.

In the establishment survey, estimates for the 2 most recent months are based on incomplete returns and are published as preliminary in the tables (13 to 18 in the *Review*). When all returns have been received, the estimates are revised and published as final in the third month of their appearance. Thus, August data are published as preliminary in October and November and as final in December. For the same reason, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, second-quarter data are published as preliminary in August and September and as final in October.

## Additional sources of information

Detailed national data from the establishment survey are published monthly in the BLS periodical, *Employment and Earnings*. Earlier comparable unadjusted and seasonally adjusted data are published in *Employment, Hours, and Earnings, United States, 1909–84*, Bulletin 1312–12 (Bureau of Labor Statistics 1985) and its annual supplement. For a detailed discussion of the methodology of the survey, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988).

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

## Unemployment data by State

### Description of the series

Data presented in this section are obtained from two major sources—the Current Population Survey (CPS) and the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act and the Public Works and Economic Development Act. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

### Notes on the data

Data refer to State of residence. Monthly data for 11 States—California, Florida, Illinois, Massachusetts, Michigan, New York, New Jersey, North Carolina, Ohio, Pennsylvania, and Texas—are obtained directly from the CPS, because the size of the sample is large enough to meet BLS standards of reliability. Data for the remaining 39 States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates for the 11 States are revised to new population controls. For the remaining States and the District of Columbia, data are benchmarked to annual average CPS levels.

## Additional sources of information

Information on the concepts, definitions, and technical procedures used to develop labor force data for States and sub-State areas as well as additional data on sub-States are provided in the monthly Bureau of Labor Statistics periodical, *Employment and Earnings*, and the annual report, *Geographic Profile of Employment and Unemployment* (Bureau of Labor Statistics). See also *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988).

## COMPENSATION AND WAGE DATA

(Tables 1-3; 22-29)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

## Employment Cost Index

## Description of the series

The **Employment Cost Index (ECI)** is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor. The index is not seasonally adjusted.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 3,400 private nonfarm establishments providing about 18,000 occupational observations and 700 State and local government establishments providing 3,500 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the indexes for civilian, private, and State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensation, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

## Definitions

**Total compensation** costs include wages, salaries, and the employer's costs for employee benefits.

**Wages and salaries** consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

**Benefits** include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

## Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series for changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981 = 100) of the quarterly rates of change are presented in the March issue of the BLS periodical, *Current Wage Developments*.

## Additional sources of information

For a more detailed discussion of the Employment Cost Index, see the *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), and the following *Monthly Labor Review* articles: "Employment Cost Index: a measure of change in the 'price of labor,'" July 1975; "How benefits will be incorporated into the Employment Cost Index," January 1978; "Estimation procedures for the Employment Cost Index," May 1982; and "Introducing new weights for the Employment Cost Index," June 1985.

Data on the ECI are also available in BLS quarterly press releases issued in the month following the reference months of March, June, September, and December; and from the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

## Collective bargaining settlements

## Description of the series

**Collective bargaining settlements** data provide statistical measures of negotiated adjustments (increases, decreases, and freezes) in compensation (wage and benefit costs) and wages alone, quarterly for private industry and semiannually for State and local government. Compensation measures cover all collective bargaining situations involving 5,000 workers or more and wage measures cover all situations involving 1,000 workers or more. These data, covering private nonagricultural industries and State and local governments, are calculated using information obtained from bargaining agreements on file with the Bureau, parties to the agreements, and secondary sources, such as newspaper accounts. The data are not seasonally adjusted.

Settlement data are measured in terms of future specified adjustments: those that will occur within 12 months of the contract effective date—first-year—and all adjustments that will occur over the life of the contract expressed as an average annual rate. Adjustments are worker weighted. Both first-year and over-the-life measures exclude wage changes that may occur under cost-of-living clauses that are triggered by future movements in the Consumer Price Index.

**Effective wage adjustments** measure all adjustments occurring in the reference period, regardless of the settlement date. Included are changes from settlements reached during the period, changes deferred from contracts negotiated in earlier periods, and changes under cost-of-living adjustment clauses. Each wage change is worker weighted. The changes are prorated over all workers under agreements during the reference period yielding the average adjustment.

## Definitions

**Wage rate changes** are calculated by dividing newly negotiated wages by the average straight-time hourly wage rate plus shift premium at the time the agreement is reached. Compensation changes are calculated by



dividing the change in the value of the newly negotiated wage and benefit package by existing average hourly compensation, which includes the cost of previously negotiated benefits, legally required social insurance programs, and average hourly earnings.

**Compensation changes** are calculated by placing a value on the benefit portion of the settlements at the time they are reached. The cost estimates are based on the assumption that conditions existing at the time of settlement (for example, methods of financing pensions or composition of labor force) will remain constant. The data, therefore, are measures of negotiated changes and not of total changes of employer cost.

**Contract duration** runs from the effective date of the agreement to the expiration date or first wage reopening date, if applicable. Average annual percent changes over the contract term take account of the compounding of successive changes.

### Notes on the data

Comparisons of major collective bargaining settlements for State and local government with those for private industry should note differences in occupational mix, bargaining practices, and settlement characteristics. Professional and white-collar employees, for example, make up a much larger proportion of the workers covered by government than by private industry settlements. Lump-sum payments and cost-of-living adjustment (COLA) clauses, on the other hand, are rare in government but common in private industry settlements. Also, State and local government bargaining frequently excludes items such as pension benefits and holidays, that are prescribed by law, while these items are typical bargaining issues in private industry.

### Additional sources of information

For a more detailed discussion on the series, see the *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). Comprehensive data are published in press releases issued quarterly (in January, April, July, and October) for private industry, and semiannually (in February and August) for State and local government. Historical data and additional detailed tabulations for the prior calendar year appear in the April issue of the BLS periodical, *Current Wage Developments*.

## Work stoppages

### Description of the series

Data on **work stoppages** measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

### Definitions

**Number of stoppages:** The number of strikes and lockouts involving 1,000 workers or more and lasting a full shift or longer.

**Workers involved:** The number of workers directly involved in the stoppage.

**Number of days idle:** The aggregate number of workdays lost by workers involved in the stoppages.

**Days of idleness as a percent of estimated working time:** Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

### Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

### Additional sources of information

Data for each calendar year are reported in a BLS press release issued in the first quarter of the following year. Monthly and historical data appear in the BLS periodical, *Current Wage Developments*. Historical data appear in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

## Other compensation data

Other BLS data on pay and benefits, not included in the Current Labor Statistics section of the *Monthly Labor Review*, appear in and consist of the following:

*Industry Wage Surveys* provide data for specific occupations selected to represent an industry's wage structure and the types of activities performed by its workers. The Bureau collects information on weekly work schedules, shift operations and pay differentials, paid holiday and vacation practices, and information on incidence of health, insurance, and retirement plans. Reports are issued throughout the year as the surveys are completed. Summaries of the data and special analyses also appear in the *Monthly Labor Review*.

*Area Wage Surveys* annually provide data for selected office, clerical, professional, technical, maintenance, toolroom, powerplant, material movement, and custodial occupations common to a wide variety of industries in the areas (labor markets) surveyed. Reports are issued throughout the year as the surveys are completed. Summaries of the data and special analyses also appear in the *Review*.

*The National Survey of Professional, Administrative, Technical, and Clerical Pay* provides detailed information annually on salary levels and distributions for the types of jobs mentioned in the survey's title in private employment. Although the definitions of the jobs surveyed reflect the duties and responsibilities in private industry, they are designed to match specific pay grades of Federal white-collar employees under the General Schedule pay system. Accordingly, this survey provides the legally required information for comparing the pay of salaried employees in the Federal civil service with pay in private industry. (See Federal Pay Comparability Act of 1970, 5 U.S.C. 5305.) Data are published in a BLS news release issued in the summer and in a bulletin each fall; summaries and analytical articles also appear in the *Review*.

*Employee Benefits Survey* provides nationwide information on the incidence and characteristics of employee benefit plans in medium and large establishments in the United States, excluding Alaska and Hawaii. Data are published in an annual BLS news release and bulletin, as well as in special articles appearing in the *Review*.

## PRICE DATA (Tables 2; 30-41)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a

base period (1982 = 100 for many Producer Price Indexes or 1982-84 = 100 for many Consumer Price Indexes, unless otherwise noted).

## Consumer Price Indexes

### Description of the series

The **Consumer Price Index (CPI)** is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all urban consumer index (CPI-U), introduced in 1978, is representative of the 1982-84 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 21,000 retail establishments and 60,000 housing units in 91 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 27 major urban centers are presented in table 31. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

### Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are measured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of homeownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

### Additional sources of information

For a discussion of the general method for computing the CPI, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). The recent change in the measurement of homeownership costs is discussed in Robert Gillingham and Walter Lane, "Changing the treatment of shelter costs for homeowners in the CPI," *Monthly Labor Review*, July 1982, pp. 9-14. An overview of the recently introduced revised CPI, reflecting 1982-84 expenditure patterns, is contained in *The Consumer Price Index: 1987 Revision*, Report 736 (Bureau of Labor Statistics, 1987).

Additional detailed CPI data and regular analyses of consumer price changes are provided in the *CPI Detailed Report*, a monthly publication of the Bureau. Historical data for the overall CPI and for selected groupings may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

## Producer Price Indexes

### Description of the series

**Producer Price Indexes (PPI)** measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,100 commodities and about 75,000 quotations per month selected to represent the movement of prices of all commodities produced in the manufacturing, agriculture, forestry, fishing, mining, gas and electricity, and public utilities sectors. The stage of processing structure of Producer Price Indexes organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1987, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1982. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

### Notes on the data

Beginning with the January 1986 issue, the *Review* is no longer presenting tables of Producer Price Indexes for commodity groupings, special composite groups, or SIC industries. However, these data will continue to be presented in the Bureau's monthly publication *Producer Price Indexes*.

The Bureau has completed the first major stage of its comprehensive overhaul of the theory, methods, and procedures used to construct the Producer Price Indexes. Changes include the replacement of judgment sampling with probability sampling techniques; expansion to systematic coverage of the net output of virtually all industries in the mining and manufacturing sectors; a shift from a commodity to an industry orientation; the exclusion of imports from, and the inclusion of exports in, the survey universe; and the respecification of commodities priced to conform to Bureau of the Census definitions. These and other changes have been phased in gradually since 1978. The result is a system of indexes that is easier to use in conjunction with data on wages, productivity, and employment and other series that are organized in terms of the Standard Industrial Classification and the Census product class designations.

### Additional sources of information

For a discussion of the methodology for computing Producer Price Indexes, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988).

Additional detailed data and analyses of price changes are provided monthly in *Producer Price Indexes*. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

## International Price Indexes

### Description of the series

The BLS **International Price Program** produces quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts: it includes corporations, businesses, and individuals but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents. With publication of an all-import index in February 1983 and an all-export index in February 1984, all U.S. merchandise imports and exports now are represented in these indexes. The reference period for the indexes is 1985=100, unless otherwise indicated.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected quarterly by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first 2 weeks of the third month of each calendar quarter—March, June, September, and December. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined by the 4- and 5-digit level of detail of the Standard Industrial Trade Classification System (SITC). The calculation of indexes by SITC category facilitates the comparison of U.S. price trends and sector production with similar data for other countries. Detailed indexes are also computed and published on a Standard Industrial Classification (SIC-based) basis, as well as by end-use class.

### Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within

each weight category and are then aggregated to the SITC level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1985.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's quarterly questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing basis is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f. (cost, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

Beginning in 1988, the Bureau has also been publishing a series of indexes which represent the price of U.S. exports and imports in foreign currency terms.

### Additional sources of information

For a discussion of the general method of computing International Price Indexes, see *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988).

Additional detailed data and analyses of international price developments are presented in the Bureau's quarterly publication *U.S. Import and Export Price Indexes* and in occasional *Monthly Labor Review* articles prepared by BLS analysts. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). For further information on the foreign currency indexes, see "BLS publishes average exchange rate and foreign currency price indexes," *Monthly Labor Review*, December 1987, pp. 47-49.

## PRODUCTIVITY DATA

(Tables 2; 42-44)

### U.S. productivity and related data

#### Description of the series

The productivity measures relate real physical output to real input. As such, they encompass a family of measures which include single factor productivity measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

#### Definitions

**Output per hour of all persons** (labor productivity) is the value of goods and services in constant prices produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the value of goods and services in constant dollars produced per unit of capital services input.

**Multifactor productivity** is output per unit of combined labor and capital inputs. Changes in this measure reflect changes in a number of factors which affect the production process such as changes in technology, shifts in the composition of the labor force, changes in



capacity utilization, research and development, skill and efforts of the work force, management, and so forth. Changes in the output per hour measures reflect the impact of these factors as well as the substitution of capital for labor.

**Compensation per hour** is the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, and the wages, salaries, and supplementary payments for the self-employed (except for nonfinancial corporations in which there are no self-employed)—the sum divided by hours paid for. **Real compensation per hour** is compensation per hour deflated by the Consumer Price Index for All Urban Consumers.

**Unit labor costs** are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current dollar value of output and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments *except* unit profits.

**Unit profits** include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

**Hours of all persons** are the total hours paid of payroll workers, self-employed persons, and unpaid family workers.

**Capital services** is the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

**Labor and capital inputs** combined are derived by combining changes in labor and capital inputs with weights which represent each component's share of total output. The indexes for capital services and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

### Notes on the data

Constant-dollar output for the **business sector** is equal to constant-dollar gross national product but excludes the rental value of owner-occupied dwellings, the rest-of-world sector, the output of nonprofit institutions, the output of paid employees of private households, general government, and the statistical discrepancy. Output of the **nonfarm business sector** is equal to business sector output less farming. The measures are derived from data supplied by the Bureau of Economic Analysis, U.S. Department of Commerce, and the Federal Reserve Board. Quarterly manufacturing output indexes are adjusted by the Bureau of Labor Statistics to annual measures of manufacturing output (gross product originating) from the Bureau of Economic Analysis. Compensation and hours data are developed from data of the Bureau of Labor Statistics and the Bureau of Economic Analysis.

The productivity and associated cost measures in tables 42–44 describe the relationship between output in real terms and the labor time and capital services involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input. Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and efforts of the work force.

### Additional sources of information

Descriptions of methodology underlying the measurement of output per hour and multifactor productivity are found in the *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). Historical data for selected industries are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

## INTERNATIONAL COMPARISONS

(Tables 45–47)

### Labor force and unemployment

#### Description of the series

Tables 45 and 46 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and six European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

#### Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on **EMPLOYMENT DATA: Household Survey Data**.

#### Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S.

standard of 16 years of age and over. Therefore, the adjusted statistics relate to the population age 16 and over in France, Sweden, and from 1973 onward, the United Kingdom; 16 and over in Canada, Australia, Japan, Germany, the Netherlands, and prior to 1973, the United Kingdom; and 14 and over in Italy. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their job are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries are, therefore, subject to revision whenever data from more current labor force surveys become available.

There are breaks in the date series for Germany (1983), Italy (1986), the Netherlands (1983), and Sweden (1986). For both Germany and the Netherlands, the breaks reflect the replacement of labor force survey results tabulated by the national statistical offices with those tabulated by the European Community Statistical Office (EUROSTAT). The Dutch figures for 1983 onward also reflect the replacement of man-year

employment data with data from the Dutch Survey of Employed Persons. The impact of the changes was to lower the adjusted unemployment rate by 0.3 percentage point for Germany and by about 2 percentage points for the Netherlands.

For Italy, the break in series reflects more accurate enumeration of time of last job search. This resulted in a significant increase in the number of people reported as seeking work in the past 30 days. The impact was to increase the Italian unemployment rates approximating U.S. concepts by about 1 percentage point.

Sweden introduced a new questionnaire. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes resulted in lowering Sweden's unemployment rate by 0.5 percentage point.

#### Additional sources of information

For further information, see *International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, 1978), Appendix B, and unpublished Supplements to Appendix B, available on request. The statistics are also analyzed periodically in the *Monthly Labor Review*. The latest article appears in the April 1988 *Review*. Additional historical data, generally beginning with 1959, are published in the *Handbook of Labor Statistics* and are available in unpublished statistical supplements to Bulletin 1979.

### Manufacturing productivity and labor costs

#### Description of the series

Table 47 presents comparative measures of manufacturing labor productivity, hourly compensation costs, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are limited to trend comparisons—that is, intercountry series of changes over time—rather than level comparisons because reliable international comparisons of the levels of manufacturing output are unavailable.

#### Definitions

**Output** is constant value output (value added), generally taken from the national accounts of each country. While the national accounting methods for measuring real output differ considerably among the 12 countries, the use of different procedures does not, in itself, connote

lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

**Hours** refer to all employed persons including the self-employed in the United States and Canada; to all wage and salary employees in the other countries. The U.S. hours measure is hours paid; the hours measures for the other countries are hours worked.

**Compensation (labor cost)** includes all payments in cash or kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. In addition, for some countries, compensation is adjusted for other significant taxes on payrolls or employment (or reduced to reflect subsidies), even if they are not for the direct benefit of workers, because such taxes are regarded as labor costs. However, compensation does not include all items of labor cost. The costs of recruitment, employee training, and plant facilities and services—such as cafeterias and medical clinics—are not covered because data are not available for most countries. Self-employed workers are included in the U.S. and Canadian compensation figures by assuming that their hourly compensation is equal to the average for wage and salary employees.

#### Notes on the data

For most of the countries, the measures refer to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (beginning 1959), Italy (beginning 1970), and the United Kingdom (beginning 1971), refer to manufacturing and mining less energy-related products and the figures for the Netherlands exclude petroleum refining from 1969 to 1976. For all countries, manufacturing includes the activities of government enterprises.

The figures for one or more recent years are generally based on current indicators of manufacturing output, employment, hours, and hourly compensation and are considered preliminary until the national accounts and other statistics used for the long-term measures become available.

#### Additional sources of information

For additional information, see the *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), and periodic *Monthly Labor Review* articles. Historical data are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). The statistics are issued twice per year—in a news release (generally in May) and in a *Monthly Labor Review* article.

### OCCUPATIONAL INJURY AND ILLNESS DATA

(Table 48)

#### Description of the series

The Annual Survey of Occupational Injuries and Illnesses is designed to collect data on injuries and illnesses based on records which employers in the following industries maintain under the Occupational Safety and Health Act of 1970: agriculture, forestry, and fishing; oil and gas extraction; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. Excluded from the survey are self-employed individuals, farmers with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies.

Because the survey is a Federal-State cooperative program and the data must meet the needs of participating State agencies, an independent sample is selected for each State. The sample is selected to

represent all private industries in the States and territories. The sample size for the survey is dependent upon (1) the characteristics for which estimates are needed; (2) the industries for which estimates are desired; (3) the characteristics of the population being sampled; (4) the target reliability of the estimates; and (5) the survey design employed.

While there are many characteristics upon which the sample design could be based, the total recorded case incidence rate is used because it is one of the most important characteristics and the least variable; therefore, it requires the smallest sample size.

The survey is based on stratified random sampling with a Neyman allocation and a ratio estimator. The characteristics used to stratify the establishments are the Standard Industrial Classification (SIC) code and size of employment.

## Definitions

**Recordable occupational injuries and illnesses** are: (1) occupational deaths, regardless of the time between injury and death, or the length of the illness; or (2) nonfatal occupational illnesses; or (3) nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid).

**Occupational injury** is any injury such as a cut, fracture, sprain, amputation, and so forth, which results from a work accident or from exposure involving a single incident in the work environment.

**Occupational illness** is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

**Lost workday cases** are cases which involve days away from work, or days of restricted work activity, or both.

**Lost workday cases involving restricted work activity** are those cases which result in restricted work activity only.

**Lost workdays away from work** are the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness.

**Lost workdays—restricted work activity** are the number of workdays (consecutive or not) on which, because of injury or illness: (1) the employee was assigned to another job on a temporary basis; or (2) the employee worked at a permanent job less than full time; or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

**The number of days away from work or days of restricted work activity** does not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

**Incidence rates** represent the number of injuries and/or illnesses or lost workdays per 100 full-time workers.

## Notes on the data

Estimates are made for industries and employment-size classes and for severity classification: fatalities, lost workday cases, and nonfatal cases without lost workdays. Lost workday cases are separated into

those where the employee would have worked but could not and those in which work activity was restricted. Estimates of the number of cases and the number of days lost are made for both categories.

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses, or lost workdays, per 100 full-time employees. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Only a few of the available measures are included in the *Handbook of Labor Statistics*. Full detail is presented in the annual bulletin, *Occupational Injuries and Illnesses in the United States, by Industry*.

Comparable data for individual States are available from the BLS Office of Safety, Health, and Working Conditions.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration, respectively. Data from these organizations are included in BLS and State publications. Federal employee experience is compiled and published by the Occupational Safety and Health Administration. Data on State and local government employees are collected by about half of the States and territories; these data are not compiled nationally.

## Additional sources of information

The Supplementary Data System provides detailed information describing various factors associated with work-related injuries and illnesses. These data are obtained from information reported by employers to State workers' compensation agencies. The Work Injury Report program examines selected types of accidents through an employee survey which focuses on the circumstances surrounding the injury. These data are not included in the *Handbook of Labor Statistics* but are available from the BLS Office of Safety, Health, and Working Conditions.

The definitions of occupational injuries and illnesses and lost workdays are from *Recordkeeping Requirements under the Occupational Safety and Health Act of 1970*. For additional data, see *Occupational Injuries and Illnesses in the United States, by Industry*, annual Bureau of Labor Statistics bulletin; BLS *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988); *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985), pp. 411-14; annual reports in the *Monthly Labor Review*; and annual U.S. Department of Labor press releases.



## 1. Labor market indicators

| Selected indicators   | 1986   | 1987    | 1986   |         | 1987    |         |         |         | 1988    |         |
|---|--------|---------|--------|---------|---------|---------|---------|---------|---------|---------|
|   |        |         | III    | IV      | I       | II      | III     | IV      | I       | II      |
| <b>Employment data</b>  |        |         |        |         |         |         |         |         |         |         |
| Employment status of the civilian noninstitutionalized population (household survey) <sup>1</sup> |        |         |        |         |         |         |         |         |         |         |
| Labor force participation rate .....  | 65.3   | 65.6    | 65.4   | 65.4    | 65.5    | 65.5    | 65.6    | 65.7    | 65.8    | 65.8    |
| Employment-population ratio .....   | 60.7   | 61.5    | 60.8   | 60.9    | 61.1    | 61.4    | 61.7    | 61.9    | 62.1    | 62.2    |
| Unemployment rate .....   | 7.0    | 6.2     | 7.0    | 6.8     | 6.6     | 6.3     | 6.0     | 5.9     | 5.7     | 5.5     |
| Men .....   | 6.9    | 6.2     | 7.0    | 6.9     | 6.6     | 6.3     | 5.9     | 5.8     | 5.7     | 5.4     |
| 16 to 24 years .....  | 13.7   | 12.6    | 13.9   | 13.4    | 13.3    | 12.9    | 12.2    | 11.9    | 11.9    | 11.1    |
| 25 years and over .....   | 5.4    | 4.8     | 5.4    | 5.4     | 5.1     | 4.9     | 4.6     | 4.4     | 4.4     | 4.1     |
| Women .....   | 7.1    | 6.2     | 7.0    | 6.8     | 6.6     | 6.2     | 6.1     | 6.0     | 5.8     | 5.6     |
| 16 to 24 years .....  | 12.8   | 11.7    | 12.7   | 12.5    | 12.5    | 11.8    | 11.4    | 11.1    | 11.0    | 10.8    |
| 25 years and over .....   | 5.5    | 4.8     | 5.4    | 5.3     | 5.0     | 4.7     | 4.7     | 4.7     | 4.4     | 4.3     |
| Unemployment rate, 15 weeks and over .....  | 1.9    | 1.7     | 1.9    | 1.9     | 1.8     | 1.7     | 1.6     | 1.5     | 1.4     | 1.3     |
| Employment, nonagricultural (payroll data), in thousands: <sup>1</sup>                            |        |         |        |         |         |         |         |         |         |         |
| Total .....   | 99,525 | 102,310 | 99,676 | 100,347 | 101,024 | 101,841 | 102,669 | 103,683 | 104,670 | 105,597 |
| Private sector .....  | 82,832 | 85,295  | 82,987 | 83,496  | 84,130  | 84,869  | 85,643  | 86,518  | 87,406  | 88,258  |
| Goods-producing .....   | 24,558 | 24,784  | 24,454 | 24,443  | 24,523  | 24,644  | 24,847  | 25,116  | 25,260  | 25,497  |
| Manufacturing .....   | 18,965 | 19,065  | 18,902 | 18,885  | 18,895  | 18,965  | 19,112  | 19,290  | 19,388  | 19,498  |
| Service-producing .....   | 74,967 | 77,525  | 75,222 | 75,904  | 76,500  | 77,196  | 77,782  | 78,567  | 79,410  | 80,100  |
| Average hours:  |        |         |        |         |         |         |         |         |         |         |
| Private sector .....  | 34.8   | 34.8    | 34.7   | 34.7    | 34.8    | 34.7    | 34.7    | 34.8    | 34.7    | 34.8    |
| Manufacturing .....   | 40.7   | 41.0    | 40.7   | 40.8    | 41.0    | 40.9    | 40.9    | 41.1    | 41.0    | 41.1    |
| Overtime .....  | 3.4    | 3.7     | 3.5    | 3.5     | 3.6     | 3.7     | 3.8     | 3.9     | 3.8     | 3.9     |
| <b>Employment Cost Index</b>  |        |         |        |         |         |         |         |         |         |         |
| Percent change in the ECI, compensation:  |        |         |        |         |         |         |         |         |         |         |
| All workers (excluding farm, household, and Federal workers) .....                                | 3.6    | 3.6     | 1.1    | .6      | .9      | .7      | 1.2     | .8      | 1.4     | 1.1     |
| Private industry workers .....  | 3.2    | 3.3     | .7     | .6      | 1.0     | .7      | 1.0     | .7      | 1.5     | 1.2     |
| Goods-producing <sup>2</sup> .....  | 3.1    | 3.1     | .6     | .5      | .5      | .7      | .8      | 1.0     | 1.8     | 1.1     |
| Service-producing <sup>2</sup> .....  | 3.2    | 3.7     | .8     | .6      | 1.3     | .7      | 1.0     | .5      | 1.3     | 1.4     |
| State and local government workers .....  | 5.2    | 4.4     | 2.8    | .8      | .8      | .3      | 2.3     | .9      | 1.3     | .3      |
| Workers by bargaining status (private industry):  |        |         |        |         |         |         |         |         |         |         |
| Union .....   | 2.1    | 2.8     | .5     | .3      | .5      | .5      | .6      | 1.1     | 1.6     | 1.0     |
| Nonunion .....  | 3.6    | 3.6     | .8     | .7      | 1.1     | .7      | 1.1     | .6      | 1.5     | 1.3     |

<sup>1</sup> Quarterly data seasonally adjusted.

<sup>2</sup> Goods-producing industries include mining, construction, and manufacturing. Service-

producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

| Selected measures  | 1986 | 1987 | 1986 |     | 1987 |     |     |      | 1988 |      |
|--|------|------|------|-----|------|-----|-----|------|------|------|
|  |      |      | III  | IV  | I    | II  | III | IV   | I    | II   |
| <b>Compensation data<sup>1, 2</sup></b>                          |      |      |      |     |      |     |     |      |      |      |
| Employment Cost Index--compensation (wages, salaries, benefits): |      |      |      |     |      |     |     |      |      |      |
| Civilian nonfarm .....   | 3.6  | 3.6  | 1.1  | 0.6 | 0.9  | 0.7 | 1.2 | 0.8  | 1.4  | 1.1  |
| Private nonfarm .....  | 3.2  | 3.3  | .7   | .6  | 1.0  | .7  | 1.0 | .7   | 1.5  | 1.2  |
| Employment Cost Index--wages and salaries:                       |      |      |      |     |      |     |     |      |      |      |
| Civilian nonfarm .....   | 3.5  | 3.5  | 1.1  | .6  | 1.0  | .5  | 1.3 | .7   | 1.0  | .9   |
| Private nonfarm .....  | 3.1  | 3.3  | .7   | .5  | 1.0  | .7  | 1.0 | .6   | 1.0  | 1.1  |
| <b>Price data<sup>1</sup></b>                                    |      |      |      |     |      |     |     |      |      |      |
| Consumer Price Index (All urban consumers): All items .....      | 1.1  | 4.4  | .6   | .3  | 1.4  | 1.2 | 1.3 | .3   | 1.0  | 1.3  |
| Producer Price Index:  |      |      |      |     |      |     |     |      |      |      |
| Finished goods .....   | -2.3 | 2.2  | -.7  | 1.1 | .8   | 1.2 | .2  | .1   | .5   | 1.5  |
| Finished consumer goods .....                                    | -3.5 | 2.6  | -.7  | .8  | .9   | 1.6 | .3  | -.2  | .4   | 1.6  |
| Capital equipment .....  | 2.1  | 1.3  | -.8  | 2.1 | .1   | .3  | -.2 | 1.1  | .7   | .9   |
| Intermediate materials, supplies, components .....               | -4.4 | 5.4  | -.2  | -.3 | 1.3  | 1.9 | 1.2 | .9   | 1.1  | 2.6  |
| Crude materials .....  | -8.9 | 8.9  | -.6  | .6  | 4.2  | 5.3 | .6  | -1.4 | -.3  | 4.4  |
| <b>Productivity data<sup>3</sup></b>                             |      |      |      |     |      |     |     |      |      |      |
| Output per hour of all persons:                                  |      |      |      |     |      |     |     |      |      |      |
| Business sector .....  | 2.2  | .8   | -1.4 | -.8 | .3   | 2.7 | 3.9 | .6   | 3.5  | -2.5 |
| Nonfarm business sector .....                                    | 2.0  | .8   | -1.5 | -.9 | .0   | 3.2 | 3.7 | .9   | 3.4  | -1.4 |
| Nonfinancial corporations <sup>4</sup> .....                     | 1.8  | 1.5  | 1.2  | 2.6 | -1.0 | 3.1 | 4.7 | -.1  | 4.3  | .4   |

<sup>1</sup> Annual changes are December-to-December change. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted and the price data are not compounded.  
<sup>2</sup> Excludes Federal and private household workers.  
<sup>3</sup> Annual rates of change are computed by comparing annual averages.

Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.  
<sup>4</sup> Output per hour of all employees.

3. Alternative measures of wage and compensation changes

| Components   | Quarterly average |     |     |     |      |     |     |     | Four quarters ended-- |     |     |     |      |  |
|--|-------------------|-----|-----|-----|------|-----|-----|-----|-----------------------|-----|-----|-----|------|--|
|  | 1987              |     |     |     | 1988 |     |     |     | 1987                  |     |     |     | 1988 |  |
|  | I                 | II  | III | IV  | I    | II  | I   | II  | III                   | IV  | I   | II  |      |  |
| <b>Average hourly compensation:<sup>1</sup></b>                              |                   |     |     |     |      |     |     |     |                       |     |     |     |      |  |
| All persons, business sector .....   | 2.5               | 3.6 | 4.6 | 6.2 | 3.7  | 4.7 | 3.8 | 3.8 | 3.9                   | 4.2 | 4.5 | 4.8 |      |  |
| All employees, nonfarm business sector .....                                 | 2.1               | 3.4 | 4.5 | 6.4 | 3.5  | 4.1 | 3.7 | 3.7 | 3.7                   | 4.1 | 4.4 | 4.6 |      |  |
| <b>Employment Cost Index--compensation:</b>                                  |                   |     |     |     |      |     |     |     |                       |     |     |     |      |  |
| Civilian nonfarm <sup>2</sup> .....  | .9                | .7  | 1.2 | .8  | 1.4  | 1.1 | 3.4 | 3.3 | 3.4                   | 3.6 | 4.1 | 4.6 |      |  |
| Private nonfarm .....  | 1.0               | .7  | 1.0 | .7  | 1.5  | 1.2 | 3.1 | 3.0 | 3.3                   | 3.3 | 3.9 | 4.5 |      |  |
| Union .....  | .5                | .5  | .6  | 1.1 | 1.6  | 1.0 | 1.6 | 1.9 | 2.0                   | 2.8 | 3.9 | 4.3 |      |  |
| Nonunion .....   | 1.1               | .7  | 1.1 | .6  | 1.5  | 1.3 | 3.6 | 3.4 | 3.7                   | 3.6 | 4.0 | 4.5 |      |  |
| State and local governments .....  | .8                | .3  | 2.3 | .9  | 1.3  | .3  | 5.0 | 4.7 | 4.2                   | 4.4 | 4.9 | 5.0 |      |  |
| <b>Employment Cost Index--wages and salaries:</b>                            |                   |     |     |     |      |     |     |     |                       |     |     |     |      |  |
| Civilian nonfarm <sup>2</sup> .....  | 1.0               | .5  | 1.3 | .7  | 1.0  | .9  | 3.5 | 3.2 | 3.4                   | 3.5 | 3.5 | 3.9 |      |  |
| Private nonfarm .....  | 1.0               | .7  | 1.0 | .6  | 1.0  | 1.1 | 3.2 | 3.0 | 3.3                   | 3.3 | 3.3 | 3.7 |      |  |
| Union .....  | .4                | .5  | .6  | 1.1 | .4   | .8  | 1.7 | 1.7 | 1.7                   | 2.6 | 2.6 | 2.9 |      |  |
| Nonunion .....   | 1.2               | .8  | 1.1 | .5  | 1.0  | 1.2 | 3.5 | 3.3 | 3.8                   | 3.6 | 3.5 | 4.0 |      |  |
| State and local governments .....  | .8                | .2  | 2.3 | .9  | .9   | .3  | 5.2 | 5.0 | 4.1                   | 4.2 | 4.4 | 4.4 |      |  |
| <b>Total effective wage adjustments<sup>3</sup></b>                          |                   |     |     |     |      |     |     |     |                       |     |     |     |      |  |
| From current settlements .....   | .4                | 1.0 | .9  | .8  | .4   | .8  | 2.0 | 2.2 | 2.6                   | 3.1 | 3.2 | 3.0 |      |  |
| From prior settlements .....   | ( <sup>i</sup> )  | .2  | .2  | .3  | .1   | .3  | .3  | .3  | .4                    | .7  | .8  | .9  |      |  |
| From cost-of-living provision .....  | .3                | .7  | .6  | .3  | .3   | .5  | 1.5 | 1.6 | 1.7                   | 1.8 | 1.8 | 1.6 |      |  |
| From negotiated wage adjustments from settlements: <sup>3</sup>              | .1                | .2  | .1  | .2  | .1   | .1  | .1  | .3  | .4                    | .5  | .5  | .5  |      |  |
| First-year adjustments .....   | .8                | 2.6 | 2.1 | 2.4 | 2.2  | 2.7 | 1.2 | 1.5 | 2.0                   | 2.2 | 2.4 | 2.4 |      |  |
| Annual rate over life of contract .....                                      | 1.6               | 2.9 | 2.0 | 1.8 | 2.3  | 2.2 | 1.8 | 2.0 | 2.2                   | 2.1 | 2.2 | 2.0 |      |  |
| <b>Negotiated wage and benefit adjustments from settlements:<sup>5</sup></b> |                   |     |     |     |      |     |     |     |                       |     |     |     |      |  |
| First-year adjustment .....  | 1.1               | 4.1 | 2.5 | 3.4 | 1.8  | 3.4 | 1.2 | 1.8 | 2.7                   | 3.0 | 3.1 | 3.1 |      |  |
| Annual rate over life of contract .....                                      | 2.1               | 3.9 | 2.1 | 2.4 | 1.8  | 2.4 | 1.7 | 2.1 | 2.6                   | 2.6 | 2.5 | 2.3 |      |  |

<sup>1</sup> Seasonally adjusted.  
<sup>2</sup> Excludes Federal and household workers.  
<sup>3</sup> Limited to major collective bargaining units of 1,000 workers or more. The most recent data are preliminary.

<sup>4</sup> Data round to zero.  
<sup>5</sup> Limited to major collective bargaining units of 5,000 workers or more. The most recent data are preliminary.

#### 4. Employment status of the total population, by sex, monthly data seasonally adjusted

(Numbers in thousands)

| Employment status                                 | Annual average |         | 1987    |         |         |         |         |         | 1988    |         |         |         |         |         |         |
|---|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|   | 1986           | 1987    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    | Jan.    | Feb.    | Mar.    | Apr.    | May     | June    | July    |
| <b>TOTAL</b>                                      |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Noninstitutional population <sup>1, 2</sup> ..... | 182,293        | 184,490 | 184,605 | 184,738 | 184,904 | 185,052 | 185,225 | 185,370 | 185,571 | 185,705 | 185,847 | 185,964 | 186,088 | 186,247 | 186,402 |
| Labor force <sup>2</sup> .....                    | 119,540        | 121,602 | 121,610 | 122,042 | 121,706 | 122,128 | 122,349 | 122,472 | 122,924 | 123,084 | 122,639 | 123,055 | 122,692 | 123,157 | 123,357 |
| Participation rate <sup>3</sup> .....             | 65.6           | 65.9    | 65.9    | 66.1    | 65.8    | 66.0    | 66.1    | 66.1    | 66.2    | 66.3    | 66.0    | 66.2    | 65.9    | 66.1    | 66.2    |
| Total employed <sup>2</sup> .....                 | 111,303        | 114,177 | 114,359 | 114,786 | 114,615 | 114,951 | 115,259 | 115,494 | 115,878 | 116,145 | 115,839 | 116,445 | 115,909 | 116,703 | 116,732 |
| Employment-population ratio <sup>4</sup> .....    | 61.1           | 61.9    | 61.9    | 62.1    | 62.0    | 62.1    | 62.2    | 62.3    | 62.4    | 62.5    | 62.3    | 62.6    | 62.3    | 62.7    | 62.6    |
| Resident Armed Forces <sup>1</sup> .....          | 1,706          | 1,737   | 1,720   | 1,736   | 1,743   | 1,741   | 1,755   | 1,750   | 1,749   | 1,736   | 1,736   | 1,732   | 1,714   | 1,685   | 1,673   |
| Civilian employed .....                           | 109,597        | 112,440 | 112,639 | 113,050 | 112,872 | 113,210 | 113,504 | 113,744 | 114,129 | 114,409 | 114,103 | 114,713 | 114,195 | 115,018 | 115,059 |
| Agriculture .....                                 | 3,163          | 3,208   | 3,212   | 3,143   | 3,184   | 3,249   | 3,172   | 3,215   | 3,293   | 3,228   | 3,204   | 3,228   | 3,035   | 3,085   | 3,046   |
| Nonagricultural industries .....                  | 106,434        | 109,232 | 109,427 | 109,907 | 109,688 | 109,961 | 110,332 | 110,529 | 110,836 | 111,182 | 110,899 | 111,485 | 111,160 | 111,933 | 112,014 |
| Unemployed .....                                  | 8,237          | 7,425   | 7,251   | 7,256   | 7,091   | 7,177   | 7,090   | 6,978   | 7,046   | 6,938   | 6,801   | 6,610   | 6,783   | 6,455   | 6,625   |
| Unemployment rate <sup>5</sup> .....              | 6.9            | 6.1     | 6.0     | 5.9     | 5.8     | 5.9     | 5.8     | 5.7     | 5.7     | 5.6     | 5.5     | 5.4     | 5.5     | 5.2     | 5.4     |
| Not in labor force .....                          | 62,752         | 62,888  | 62,995  | 62,696  | 63,198  | 62,924  | 62,876  | 62,898  | 62,647  | 62,621  | 63,208  | 62,909  | 63,396  | 63,090  | 63,045  |
| <b>Men, 16 years and over</b>                     |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Noninstitutional population <sup>1, 2</sup> ..... | 87,349         | 88,476  | 88,534  | 88,598  | 88,683  | 88,756  | 88,849  | 88,924  | 89,033  | 89,099  | 89,168  | 89,225  | 89,287  | 89,367  | 89,445  |
| Labor force <sup>2</sup> .....                    | 66,973         | 67,784  | 67,671  | 67,937  | 67,776  | 67,947  | 68,019  | 68,030  | 68,243  | 68,343  | 68,148  | 68,445  | 68,318  | 68,429  | 68,521  |
| Participation rate <sup>3</sup> .....             | 76.7           | 76.6    | 76.4    | 76.7    | 76.4    | 76.6    | 76.6    | 76.5    | 76.6    | 76.7    | 76.4    | 76.7    | 76.5    | 76.6    | 76.6    |
| Total employed <sup>2</sup> .....                 | 62,443         | 63,684  | 63,711  | 63,916  | 63,949  | 64,048  | 64,174  | 64,245  | 64,396  | 64,636  | 64,332  | 64,892  | 64,583  | 64,934  | 65,002  |
| Employment-population ratio <sup>4</sup> .....    | 71.5           | 72.0    | 72.0    | 72.1    | 72.1    | 72.2    | 72.2    | 72.2    | 72.3    | 72.5    | 72.1    | 72.7    | 72.3    | 72.7    | 72.7    |
| Resident Armed Forces <sup>1</sup> .....          | 1,551          | 1,577   | 1,561   | 1,575   | 1,581   | 1,580   | 1,593   | 1,589   | 1,588   | 1,577   | 1,573   | 1,569   | 1,553   | 1,523   | 1,512   |
| Civilian employed .....                           | 60,892         | 62,107  | 62,150  | 62,341  | 62,368  | 62,468  | 62,581  | 62,656  | 62,808  | 63,059  | 62,759  | 63,323  | 63,030  | 63,411  | 63,490  |
| Unemployed .....                                  | 4,530          | 4,101   | 3,960   | 4,021   | 3,827   | 3,899   | 3,845   | 3,785   | 3,847   | 3,707   | 3,816   | 3,553   | 3,736   | 3,495   | 3,519   |
| Unemployment rate <sup>5</sup> .....              | 6.8            | 6.1     | 5.9     | 5.9     | 5.6     | 5.7     | 5.7     | 5.6     | 5.6     | 5.4     | 5.6     | 5.2     | 5.5     | 5.1     | 5.1     |
| <b>Women, 16 years and over</b>                   |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Noninstitutional population <sup>1, 2</sup> ..... | 94,944         | 96,013  | 96,071  | 96,140  | 96,221  | 96,295  | 96,376  | 96,446  | 96,538  | 96,606  | 96,679  | 96,739  | 96,801  | 96,880  | 96,957  |
| Labor force <sup>2</sup> .....                    | 52,568         | 53,818  | 53,939  | 54,105  | 53,930  | 54,181  | 54,330  | 54,442  | 54,681  | 54,740  | 54,491  | 54,610  | 54,374  | 54,728  | 54,836  |
| Participation rate <sup>3</sup> .....             | 55.4           | 56.1    | 56.1    | 56.3    | 56.0    | 56.3    | 56.4    | 56.4    | 56.6    | 56.7    | 56.4    | 56.5    | 56.2    | 56.5    | 56.6    |
| Total employed <sup>2</sup> .....                 | 48,861         | 50,494  | 50,648  | 50,870  | 50,666  | 50,903  | 51,085  | 51,249  | 51,482  | 51,509  | 51,507  | 51,553  | 51,327  | 51,769  | 51,730  |
| Employment-population ratio <sup>4</sup> .....    | 51.5           | 52.6    | 52.7    | 52.9    | 52.7    | 52.9    | 53.0    | 53.1    | 53.3    | 53.3    | 53.3    | 53.3    | 53.0    | 53.4    | 53.4    |
| Resident Armed Forces <sup>1</sup> .....          | 155            | 160     | 159     | 161     | 162     | 161     | 162     | 161     | 161     | 159     | 163     | 163     | 161     | 162     | 161     |
| Civilian employed .....                           | 48,706         | 50,334  | 50,489  | 50,709  | 50,504  | 50,742  | 50,923  | 51,088  | 51,321  | 51,350  | 51,344  | 51,390  | 51,166  | 51,607  | 51,569  |
| Unemployed .....                                  | 3,707          | 3,324   | 3,291   | 3,235   | 3,264   | 3,278   | 3,245   | 3,193   | 3,200   | 3,231   | 2,985   | 3,057   | 3,047   | 2,960   | 3,106   |
| Unemployment rate <sup>5</sup> .....              | 7.1            | 6.2     | 6.1     | 6.0     | 6.1     | 6.1     | 6.0     | 5.9     | 5.9     | 5.9     | 5.5     | 5.6     | 5.6     | 5.4     | 5.7     |

<sup>1</sup> The population and Armed Forces figures are not adjusted for seasonal variation.

<sup>2</sup> Includes members of the Armed Forces stationed in the United States.

<sup>3</sup> Labor force as a percent of the noninstitutional population.

<sup>4</sup> Total employed as a percent of the noninstitutional population.

<sup>5</sup> Unemployment as a percent of the labor force (including the resident Armed Forces).



5. Employment status of the civilian population, by sex, age, race and Hispanic origin, monthly data seasonally adjusted

(Numbers in thousands)

| Employment status                                 | Annual average |         | 1987    |         |         |         |         |         | 1988    |         |         |         |         |         |         |
|---|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|   | 1986           | 1987    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    | Jan.    | Feb.    | Mar.    | Apr.    | May     | June    | July    |
| <b>TOTAL</b>                                      |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 180,587        | 182,753 | 182,885 | 183,002 | 183,161 | 183,311 | 183,470 | 183,620 | 183,822 | 183,969 | 184,111 | 184,232 | 184,374 | 184,562 | 184,729 |
| Civilian labor force                              | 117,834        | 119,865 | 119,890 | 120,306 | 119,963 | 120,387 | 120,594 | 120,722 | 121,175 | 121,348 | 120,903 | 121,323 | 120,978 | 121,472 | 121,684 |
| Participation rate                                | 65.3           | 65.6    | 65.6    | 65.7    | 65.5    | 65.7    | 65.7    | 65.7    | 65.9    | 66.0    | 65.7    | 65.9    | 65.6    | 65.8    | 65.9    |
| Employed  | 109,597        | 112,440 | 112,639 | 113,050 | 112,872 | 113,210 | 113,504 | 113,744 | 114,129 | 114,409 | 114,103 | 114,713 | 114,195 | 115,018 | 115,059 |
| Employment-population ratio <sup>2</sup>          | 60.7           | 61.5    | 61.6    | 61.8    | 61.6    | 61.8    | 61.9    | 61.9    | 62.1    | 62.2    | 62.0    | 62.3    | 61.9    | 62.3    | 62.3    |
| Unemployed  | 8,237          | 7,425   | 7,251   | 7,256   | 7,091   | 7,177   | 7,090   | 6,978   | 7,046   | 6,938   | 6,801   | 6,610   | 6,783   | 6,455   | 6,625   |
| Unemployment rate                                 | 7.0            | 6.2     | 6.0     | 6.0     | 5.9     | 6.0     | 5.9     | 5.8     | 5.8     | 5.7     | 5.6     | 5.4     | 5.6     | 5.3     | 5.4     |
| Not in labor force                                | 62,752         | 62,888  | 62,995  | 62,696  | 63,198  | 62,924  | 62,876  | 62,898  | 62,647  | 62,621  | 63,208  | 62,909  | 63,396  | 63,090  | 63,045  |
| <b>Men, 20 years and over</b>                     |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 78,523         | 79,565  | 79,625  | 79,668  | 79,740  | 79,807  | 79,885  | 80,002  | 80,120  | 80,203  | 80,260  | 80,326  | 80,402  | 80,526  | 80,608  |
| Civilian labor force                              | 61,320         | 62,095  | 62,106  | 62,083  | 62,085  | 62,211  | 62,299  | 62,248  | 62,440  | 62,696  | 62,497  | 62,791  | 62,662  | 62,667  | 62,769  |
| Participation rate                                | 78.1           | 78.0    | 78.0    | 77.9    | 77.9    | 78.0    | 78.0    | 77.8    | 77.9    | 78.2    | 77.9    | 78.2    | 77.9    | 77.8    | 77.9    |
| Employed  | 57,569         | 58,726  | 58,783  | 58,825  | 58,967  | 59,037  | 59,164  | 59,185  | 59,287  | 59,625  | 59,407  | 59,883  | 59,590  | 59,797  | 59,954  |
| Employment-population ratio <sup>2</sup>          | 73.3           | 73.8    | 73.8    | 73.8    | 73.9    | 74.0    | 74.1    | 74.0    | 74.0    | 74.3    | 74.0    | 74.5    | 74.1    | 74.3    | 74.4    |
| Agriculture                                       | 2,292          | 2,329   | 2,333   | 2,289   | 2,345   | 2,343   | 2,297   | 2,298   | 2,323   | 2,280   | 2,253   | 2,255   | 2,181   | 2,208   | 2,247   |
| Nonagricultural industries                        | 55,277         | 56,397  | 56,450  | 56,536  | 56,622  | 56,694  | 56,867  | 56,887  | 56,964  | 57,344  | 57,154  | 57,627  | 57,409  | 57,588  | 57,706  |
| Unemployed  | 3,751          | 3,369   | 3,323   | 3,258   | 3,118   | 3,174   | 3,135   | 3,063   | 3,154   | 3,071   | 3,089   | 2,909   | 3,072   | 2,870   | 2,815   |
| Unemployment rate                                 | 6.1            | 5.4     | 5.4     | 5.2     | 5.0     | 5.1     | 5.0     | 4.9     | 5.1     | 4.9     | 4.9     | 4.6     | 4.9     | 4.6     | 4.5     |
| <b>Women, 20 years and over</b>                   |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 87,567         | 88,583  | 88,632  | 88,685  | 88,785  | 88,843  | 88,923  | 89,010  | 89,110  | 89,178  | 89,261  | 89,307  | 89,382  | 89,502  | 89,588  |
| Civilian labor force                              | 48,589         | 49,783  | 49,886  | 49,969  | 49,922  | 50,095  | 50,254  | 50,361  | 50,558  | 50,640  | 50,542  | 50,612  | 50,441  | 50,642  | 50,775  |
| Participation rate                                | 55.5           | 56.2    | 56.3    | 56.3    | 56.2    | 56.4    | 56.5    | 56.6    | 56.7    | 56.8    | 56.6    | 56.7    | 56.4    | 56.6    | 56.7    |
| Employed  | 45,556         | 47,074  | 47,206  | 47,308  | 47,251  | 47,480  | 47,634  | 47,750  | 47,977  | 48,005  | 48,132  | 48,170  | 47,960  | 48,169  | 48,199  |
| Employment-population ratio <sup>2</sup>          | 52.0           | 53.1    | 53.3    | 53.3    | 53.2    | 53.4    | 53.6    | 53.6    | 53.8    | 53.8    | 53.9    | 53.9    | 53.7    | 53.8    | 53.8    |
| Agriculture                                       | 614            | 622     | 620     | 609     | 600     | 636     | 636     | 643     | 646     | 654     | 656     | 692     | 587     | 616     | 542     |
| Nonagricultural industries                        | 44,943         | 46,453  | 46,586  | 46,699  | 46,651  | 46,844  | 46,998  | 47,107  | 47,331  | 47,351  | 47,476  | 47,478  | 47,373  | 47,553  | 47,657  |
| Unemployed  | 3,032          | 2,709   | 2,680   | 2,661   | 2,671   | 2,615   | 2,620   | 2,611   | 2,581   | 2,635   | 2,411   | 2,442   | 2,481   | 2,473   | 2,576   |
| Unemployment rate                                 | 6.2            | 5.4     | 5.4     | 5.3     | 5.4     | 5.2     | 5.2     | 5.2     | 5.1     | 5.2     | 4.8     | 4.8     | 4.9     | 4.9     | 5.1     |
| <b>Both sexes, 16 to 19 years</b>                 |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 14,496         | 14,606  | 14,628  | 14,649  | 14,637  | 14,661  | 14,663  | 14,609  | 14,592  | 14,588  | 14,591  | 14,598  | 14,590  | 14,534  | 14,533  |
| Civilian labor force                              | 7,926          | 7,988   | 7,998   | 8,254   | 7,956   | 8,081   | 8,041   | 8,113   | 8,177   | 8,011   | 7,865   | 7,919   | 7,875   | 8,163   | 8,141   |
| Participation rate                                | 54.7           | 54.7    | 54.0    | 56.3    | 54.4    | 55.1    | 54.8    | 55.5    | 56.0    | 54.9    | 53.9    | 54.2    | 54.0    | 56.2    | 56.0    |
| Employed  | 6,472          | 6,640   | 6,650   | 6,917   | 6,654   | 6,693   | 6,706   | 6,809   | 6,865   | 6,779   | 6,564   | 6,660   | 6,645   | 7,051   | 6,907   |
| Employment-population ratio <sup>2</sup>          | 44.6           | 45.5    | 45.5    | 47.2    | 45.5    | 45.7    | 45.7    | 46.6    | 47.0    | 46.5    | 45.0    | 45.6    | 45.5    | 48.5    | 47.5    |
| Agriculture                                       | 258            | 258     | 259     | 245     | 239     | 270     | 239     | 274     | 323     | 293     | 295     | 280     | 267     | 260     | 257     |
| Nonagricultural industries                        | 6,215          | 6,382   | 6,391   | 6,672   | 6,415   | 6,423   | 6,467   | 6,535   | 6,542   | 6,486   | 6,269   | 6,380   | 6,378   | 6,791   | 6,650   |
| Unemployed  | 1,454          | 1,347   | 1,248   | 1,337   | 1,302   | 1,388   | 1,335   | 1,304   | 1,312   | 1,232   | 1,301   | 1,259   | 1,230   | 1,112   | 1,234   |
| Unemployment rate                                 | 18.3           | 16.9    | 15.8    | 16.2    | 16.4    | 17.2    | 16.6    | 16.1    | 16.0    | 15.4    | 16.5    | 15.9    | 15.6    | 13.6    | 15.2    |
| <b>White</b>                                      |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 155,432        | 156,958 | 157,058 | 157,134 | 157,242 | 157,342 | 157,449 | 157,552 | 157,676 | 157,773 | 157,868 | 157,943 | 158,034 | 158,166 | 158,279 |
| Civilian labor force                              | 101,801        | 103,290 | 103,248 | 103,516 | 103,357 | 103,669 | 103,731 | 103,907 | 104,252 | 104,530 | 104,171 | 104,574 | 104,209 | 104,691 | 104,603 |
| Participation rate                                | 65.5           | 65.8    | 65.7    | 65.9    | 65.7    | 65.9    | 65.9    | 66.0    | 66.1    | 66.3    | 66.0    | 66.2    | 65.9    | 66.2    | 66.1    |
| Employed  | 95,660         | 97,789  | 97,917  | 98,181  | 98,069  | 98,317  | 98,492  | 98,779  | 99,044  | 99,474  | 99,274  | 99,751  | 99,297  | 99,932  | 99,725  |
| Employment-population ratio <sup>2</sup>          | 61.5           | 62.3    | 62.3    | 62.5    | 62.4    | 62.5    | 62.6    | 62.7    | 62.8    | 63.0    | 62.9    | 63.2    | 62.8    | 63.2    | 63.0    |
| Unemployed  | 6,140          | 5,501   | 5,331   | 5,335   | 5,288   | 5,352   | 5,239   | 5,128   | 5,208   | 5,056   | 4,897   | 4,824   | 4,913   | 4,759   | 4,878   |
| Unemployment rate                                 | 6.0            | 5.3     | 5.2     | 5.2     | 5.1     | 5.2     | 5.1     | 4.9     | 5.0     | 4.8     | 4.7     | 4.6     | 4.7     | 4.5     | 4.7     |
| <b>Black</b>                                      |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian noninstitutional population <sup>1</sup> | 19,989         | 20,352  | 20,373  | 20,396  | 20,426  | 20,453  | 20,482  | 20,508  | 20,539  | 20,569  | 20,596  | 20,622  | 20,650  | 20,683  | 20,715  |
| Civilian labor force                              | 12,654         | 12,993  | 13,039  | 13,150  | 13,028  | 13,152  | 13,193  | 13,215  | 13,222  | 13,168  | 13,098  | 13,078  | 13,069  | 12,989  | 13,293  |
| Participation rate                                | 63.3           | 63.8    | 64.0    | 64.5    | 63.8    | 64.3    | 64.4    | 64.4    | 64.4    | 64.0    | 63.6    | 63.4    | 63.3    | 62.8    | 64.2    |
| Employed  | 10,814         | 11,309  | 11,381  | 11,513  | 11,421  | 11,556  | 11,589  | 11,605  | 11,608  | 11,504  | 11,420  | 11,482  | 11,452  | 11,489  | 11,774  |
| Employment-population ratio <sup>2</sup>          | 54.1           | 55.6    | 55.9    | 56.4    | 55.9    | 56.5    | 56.6    | 56.6    | 56.5    | 55.9    | 55.4    | 55.7    | 55.5    | 55.5    | 56.8    |
| Unemployed  | 1,840          | 1,684   | 1,658   | 1,637   | 1,607   | 1,596   | 1,604   | 1,610   | 1,614   | 1,663   | 1,678   | 1,597   | 1,617   | 1,500   | 1,519   |
| Unemployment rate                                 | 14.5           | 13.0    | 12.7    | 12.4    | 12.3    | 12.1    | 12.2    | 12.2    | 12.2    | 12.6    | 12.8    | 12.2    | 12.4    | 11.5    | 11.4    |

See footnotes at end of table.

## 5. Continued— Employment status of the civilian population, by sex, age, race and Hispanic origin, monthly data seasonally adjusted

(Numbers in thousands)

| Employment status                                       | Annual average |        | 1987   |        |        |        |        |        | 1988   |        |        |        |        |        |        |
|---|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|   | 1986           | 1987   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Jan.   | Feb.   | Mar.   | Apr.   | May    | June   | July   |
| <b>Hispanic origin</b>                                  |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Civilian noninstitutional population <sup>1</sup> ..... | 12,344         | 12,867 | 12,887 | 12,925 | 12,965 | 13,003 | 13,043 | 13,082 | 13,115 | 13,153 | 13,192 | 13,230 | 13,268 | 13,306 | 13,344 |
| Civilian labor force .....                              | 8,076          | 8,541  | 8,447  | 8,549  | 8,581  | 8,654  | 8,763  | 8,772  | 8,879  | 9,017  | 8,803  | 8,828  | 8,859  | 9,027  | 8,984  |
| Participation rate .....                                | 65.4           | 66.4   | 65.5   | 66.1   | 66.2   | 66.6   | 67.2   | 67.1   | 67.7   | 68.6   | 66.7   | 66.7   | 66.8   | 67.8   | 67.3   |
| Employed .....  | 7,219          | 7,790  | 7,762  | 7,856  | 7,877  | 7,935  | 7,978  | 8,058  | 8,238  | 8,268  | 8,079  | 8,010  | 8,058  | 8,219  | 8,264  |
| Employment-population ratio <sup>2</sup> .....          | 58.5           | 60.5   | 60.2   | 60.8   | 60.8   | 61.0   | 61.2   | 61.6   | 62.8   | 62.9   | 61.2   | 60.5   | 60.7   | 61.8   | 61.9   |
| Unemployed .....  | 857            | 751    | 685    | 693    | 704    | 719    | 785    | 714    | 642    | 749    | 724    | 818    | 801    | 809    | 720    |
| Unemployment rate .....                                 | 10.6           | 8.8    | 8.1    | 8.1    | 8.2    | 8.3    | 9.0    | 8.1    | 7.2    | 8.3    | 8.2    | 9.3    | 9.0    | 9.0    | 8.0    |

<sup>1</sup> The population figures are not seasonally adjusted.

<sup>2</sup> Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals

because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

## 6. Selected employment indicators, monthly data seasonally adjusted

(In thousands)

| Selected categories                          | Annual average |         | 1987    |         |         |         |         |         | 1988    |         |         |         |         |         |         |
|--|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | 1986           | 1987    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    | Jan.    | Feb.    | Mar.    | Apr.    | May     | June    | July    |
| <b>CHARACTERISTIC</b>                        |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Civilian employed, 16 years and over .....   | 109,597        | 112,440 | 112,639 | 113,050 | 112,872 | 113,210 | 113,504 | 113,744 | 114,129 | 114,409 | 114,103 | 114,713 | 114,195 | 115,018 | 115,059 |
| Men .....                                    | 60,892         | 62,107  | 62,150  | 62,341  | 62,368  | 62,468  | 62,581  | 62,656  | 62,808  | 63,059  | 62,759  | 63,323  | 63,030  | 63,411  | 63,490  |
| Women .....                                  | 48,706         | 50,334  | 50,489  | 50,709  | 50,504  | 50,742  | 50,923  | 51,088  | 51,321  | 51,350  | 51,344  | 51,390  | 51,166  | 51,607  | 51,569  |
| Married men, spouse present ..               | 39,658         | 40,265  | 40,262  | 40,308  | 40,404  | 40,556  | 40,645  | 40,711  | 40,404  | 40,475  | 40,481  | 40,459  | 40,267  | 40,485  | 40,535  |
| Married women, spouse present .....          | 27,144         | 28,107  | 28,283  | 28,189  | 28,069  | 28,099  | 28,175  | 28,249  | 28,441  | 28,707  | 28,805  | 28,859  | 28,567  | 28,713  | 28,654  |
| Women who maintain families ..               | 5,837          | 6,060   | 6,033   | 6,107   | 6,151   | 6,178   | 6,237   | 6,227   | 6,168   | 6,157   | 6,160   | 6,055   | 5,957   | 6,085   | 6,145   |
| <b>MAJOR INDUSTRY AND CLASS OF WORKER</b>    |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Agriculture:                                 |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Wage and salary workers .....                | 1,547          | 1,632   | 1,625   | 1,591   | 1,624   | 1,705   | 1,595   | 1,599   | 1,666   | 1,677   | 1,648   | 1,678   | 1,526   | 1,562   | 1,539   |
| Self-employed workers .....                  | 1,447          | 1,423   | 1,424   | 1,393   | 1,415   | 1,430   | 1,407   | 1,450   | 1,454   | 1,414   | 1,423   | 1,385   | 1,346   | 1,359   | 1,346   |
| Unpaid family workers .....                  | 169            | 153     | 153     | 155     | 139     | 140     | 155     | 156     | 138     | 114     | 142     | 155     | 159     | 167     | 148     |
| Nonagricultural industries:                  |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Wage and salary workers .....                | 98,299         | 100,771 | 100,825 | 101,241 | 101,282 | 101,522 | 101,943 | 101,997 | 102,507 | 102,683 | 102,279 | 102,538 | 101,927 | 103,000 | 103,133 |
| Government .....                             | 16,342         | 16,800  | 16,876  | 16,794  | 16,928  | 17,033  | 17,118  | 17,064  | 17,197  | 16,948  | 16,908  | 17,015  | 16,887  | 17,064  | 16,959  |
| Private industries .....                     | 81,957         | 83,970  | 83,949  | 84,447  | 84,354  | 84,489  | 84,825  | 84,933  | 85,310  | 85,735  | 85,371  | 85,523  | 85,040  | 85,935  | 86,174  |
| Private households .....                     | 1,235          | 1,208   | 1,212   | 1,175   | 1,100   | 1,222   | 1,286   | 1,200   | 1,147   | 1,170   | 1,175   | 1,092   | 1,156   | 1,150   | 1,123   |
| Other .....                                  | 80,722         | 82,762  | 82,737  | 83,272  | 83,254  | 83,267  | 83,539  | 83,733  | 84,163  | 84,565  | 84,196  | 84,431  | 83,884  | 84,786  | 85,051  |
| Self-employed workers .....                  | 7,881          | 8,201   | 8,216   | 8,214   | 8,204   | 8,274   | 8,222   | 8,280   | 8,150   | 8,312   | 8,366   | 8,637   | 8,917   | 8,577   | 8,528   |
| Unpaid family workers .....                  | 255            | 260     | 266     | 248     | 297     | 242     | 235     | 248     | 237     | 228     | 248     | 281     | 307     | 301     | 255     |
| <b>PERSONS AT WORK PART TIME<sup>1</sup></b> |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| All industries:                              |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Part time for economic reasons ..            | 5,588          | 5,401   | 5,428   | 5,283   | 5,261   | 5,353   | 5,534   | 5,262   | 5,367   | 5,566   | 5,343   | 5,194   | 4,844   | 5,317   | 5,382   |
| Slack work .....                             | 2,456          | 2,385   | 2,429   | 2,468   | 2,213   | 2,377   | 2,408   | 2,284   | 2,396   | 2,478   | 2,520   | 2,236   | 2,227   | 2,364   | 2,490   |
| Could only find part-time work ..            | 2,800          | 2,672   | 2,683   | 2,526   | 2,683   | 2,655   | 2,696   | 2,638   | 2,640   | 2,598   | 2,535   | 2,502   | 2,315   | 2,637   | 2,581   |
| Voluntary part time .....                    | 13,935         | 14,395  | 14,437  | 14,573  | 14,415  | 14,488  | 14,523  | 14,711  | 14,571  | 14,572  | 14,603  | 15,016  | 14,790  | 14,507  | 15,070  |
| Nonagricultural industries:                  |                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Part time for economic reasons ..            | 5,345          | 5,122   | 5,154   | 5,016   | 4,986   | 5,067   | 5,241   | 5,004   | 5,145   | 5,254   | 5,106   | 4,924   | 4,623   | 5,076   | 5,185   |
| Slack work .....                             | 2,305          | 2,201   | 2,261   | 2,265   | 2,034   | 2,196   | 2,209   | 2,111   | 2,260   | 2,327   | 2,325   | 2,121   | 2,120   | 2,199   | 2,351   |
| Could only find part-time work ..            | 2,719          | 2,587   | 2,599   | 2,463   | 2,603   | 2,557   | 2,597   | 2,552   | 2,566   | 2,457   | 2,475   | 2,397   | 2,236   | 2,566   | 2,545   |
| Voluntary part time .....                    | 13,502         | 13,928  | 13,953  | 14,099  | 13,987  | 14,011  | 14,064  | 14,222  | 14,096  | 14,123  | 14,141  | 14,592  | 14,338  | 14,083  | 14,669  |

<sup>1</sup> Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

## 7. Selected unemployment indicators, monthly data seasonally adjusted

(Unemployment rates)

| Selected categories                                   | Annual average |      | 1987 |      |       |      |      |      | 1988 |      |      |      |      |      |      |
|---|----------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
|   | 1986           | 1987 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May  | June | July |
| <b>CHARACTERISTIC</b>                                 |                |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Total, all civilian workers .....                     | 7.0            | 6.2  | 6.0  | 6.0  | 5.9   | 6.0  | 5.9  | 5.8  | 5.8  | 5.7  | 5.6  | 5.4  | 5.6  | 5.3  | 5.4  |
| Both sexes, 16 to 19 years .....                      | 18.3           | 16.9 | 15.8 | 16.2 | 16.4  | 17.2 | 16.6 | 16.1 | 16.0 | 15.4 | 16.5 | 15.9 | 15.6 | 13.6 | 15.2 |
| Men, 20 years and over .....                          | 6.1            | 5.4  | 5.4  | 5.2  | 5.0   | 5.1  | 5.0  | 4.9  | 5.1  | 4.9  | 4.9  | 4.6  | 4.9  | 4.6  | 4.5  |
| Women, 20 years and over .....                        | 6.2            | 5.4  | 5.4  | 5.3  | 5.4   | 5.2  | 5.2  | 5.2  | 5.1  | 5.2  | 4.8  | 4.8  | 4.9  | 4.9  | 5.1  |
| White, total .....                                    | 6.0            | 5.3  | 5.2  | 5.2  | 5.1   | 5.2  | 5.1  | 4.9  | 5.0  | 4.8  | 4.7  | 4.6  | 4.7  | 4.5  | 4.7  |
| Both sexes, 16 to 19 years .....                      | 15.6           | 14.4 | 13.3 | 14.1 | 14.3  | 14.5 | 14.1 | 13.6 | 14.0 | 12.4 | 14.1 | 14.1 | 13.1 | 12.0 | 12.9 |
| Men, 16 to 19 years .....                             | 16.3           | 15.5 | 13.5 | 15.2 | 15.1  | 15.1 | 14.8 | 14.9 | 14.4 | 12.2 | 15.7 | 14.5 | 13.8 | 12.8 | 14.6 |
| Women, 16 to 19 years .....                           | 14.9           | 13.4 | 13.1 | 12.9 | 13.4  | 13.8 | 13.3 | 12.3 | 13.6 | 12.7 | 12.4 | 13.7 | 12.4 | 11.1 | 11.1 |
| Men, 20 years and over .....                          | 5.3            | 4.8  | 4.7  | 4.6  | 4.4   | 4.6  | 4.4  | 4.3  | 4.4  | 4.1  | 4.2  | 4.0  | 4.2  | 4.0  | 3.9  |
| Women, 20 years and over .....                        | 5.4            | 4.6  | 4.5  | 4.4  | 4.5   | 4.3  | 4.4  | 4.4  | 4.2  | 4.5  | 3.9  | 3.9  | 4.0  | 4.0  | 4.3  |
| Black, total .....                                    | 14.5           | 13.0 | 12.7 | 12.4 | 12.3  | 12.1 | 12.2 | 12.2 | 12.2 | 12.6 | 12.8 | 12.2 | 12.4 | 11.5 | 11.4 |
| Both sexes, 16 to 19 years .....                      | 39.3           | 34.7 | 32.7 | 30.6 | 30.8  | 33.8 | 33.9 | 33.4 | 35.0 | 38.3 | 36.9 | 31.4 | 34.8 | 28.4 | 31.1 |
| Men, 16 to 19 years .....                             | 39.3           | 34.4 | 32.4 | 33.7 | 31.5  | 32.5 | 32.2 | 33.5 | 35.1 | 42.0 | 39.0 | 27.6 | 33.3 | 30.4 | 30.4 |
| Women, 16 to 19 years .....                           | 39.2           | 34.9 | 33.1 | 27.1 | 30.0  | 35.2 | 35.8 | 33.4 | 34.9 | 34.7 | 35.0 | 35.5 | 36.6 | 25.9 | 31.8 |
| Men, 20 years and over .....                          | 12.9           | 11.1 | 11.2 | 10.7 | 10.1  | 9.8  | 10.2 | 10.1 | 10.1 | 11.3 | 11.4 | 10.6 | 10.8 | 10.0 | 9.5  |
| Women, 20 years and over .....                        | 12.4           | 11.6 | 11.4 | 11.3 | 11.7  | 11.0 | 10.8 | 10.9 | 11.1 | 10.4 | 10.9 | 11.3 | 10.6 | 10.7 | 10.4 |
| Hispanic origin, total .....                          | 10.6           | 8.8  | 8.1  | 8.1  | 8.2   | 8.3  | 9.0  | 8.1  | 7.2  | 8.3  | 8.2  | 9.3  | 9.0  | 9.0  | 8.0  |
| Married men, spouse present .....                     | 4.4            | 3.9  | 3.8  | 3.7  | 3.7   | 3.7  | 3.5  | 3.4  | 3.6  | 3.4  | 3.4  | 3.0  | 3.3  | 3.1  | 3.0  |
| Married women, spouse present .....                   | 5.2            | 4.3  | 4.2  | 4.3  | 4.2   | 4.2  | 4.2  | 4.3  | 4.2  | 4.1  | 4.0  | 3.8  | 3.9  | 3.7  | 4.1  |
| Women who maintain families .....                     | 9.8            | 9.2  | 9.3  | 9.0  | 8.8   | 8.9  | 8.5  | 8.4  | 8.9  | 8.3  | 7.5  | 8.7  | 8.4  | 7.8  | 8.6  |
| Full-time workers .....                               | 6.6            | 5.8  | 5.7  | 5.6  | 5.5   | 5.6  | 5.5  | 5.4  | 5.4  | 5.3  | 5.3  | 5.1  | 5.2  | 4.9  | 5.0  |
| Part-time workers .....                               | 9.1            | 8.4  | 8.1  | 8.2  | 8.4   | 8.3  | 8.2  | 8.0  | 8.3  | 7.9  | 7.7  | 7.4  | 7.7  | 7.8  | 8.1  |
| Unemployed 15 weeks and over .....                    | 1.9            | 1.7  | 1.6  | 1.6  | 1.5   | 1.5  | 1.5  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  | 1.3  | 1.2  | 1.3  |
| Labor force time lost <sup>1</sup> .....              | 7.9            | 7.1  | 6.9  | 6.9  | 6.8   | 6.8  | 6.8  | 6.6  | 6.6  | 6.6  | 6.5  | 6.2  | 6.4  | 6.3  | 6.4  |
| <b>INDUSTRY</b>                                       |                |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Nonagricultural private wage and salary workers ..... | 7.0            | 6.2  | 6.1  | 6.0  | 5.9   | 5.9  | 5.8  | 5.7  | 5.8  | 5.7  | 5.6  | 5.3  | 5.7  | 5.4  | 5.4  |
| Mining .....  | 13.5           | 10.0 | 7.9  | 8.6  | 7.4   | 8.3  | 7.0  | 8.0  | 7.7  | 7.8  | 7.9  | 8.4  | 10.4 | 6.7  | 5.3  |
| Construction .....                                    | 13.1           | 11.6 | 10.8 | 11.3 | 11.9  | 11.2 | 10.6 | 10.6 | 12.2 | 11.0 | 10.7 | 10.6 | 10.5 | 10.2 | 10.2 |
| Manufacturing .....                                   | 7.1            | 6.0  | 6.0  | 5.6  | 5.6   | 5.7  | 5.3  | 5.1  | 5.6  | 5.6  | 5.2  | 5.3  | 5.4  | 4.8  | 5.2  |
| Durable goods .....                                   | 6.9            | 5.8  | 6.0  | 5.5  | 5.4   | 5.2  | 4.8  | 4.8  | 5.5  | 5.9  | 5.2  | 4.8  | 4.9  | 4.4  | 5.0  |
| Nondurable goods .....                                | 7.4            | 6.3  | 5.9  | 5.8  | 5.9   | 6.5  | 5.9  | 5.6  | 5.8  | 5.3  | 5.3  | 6.0  | 6.0  | 5.4  | 5.6  |
| Transportation and public utilities .....             | 5.1            | 4.5  | 4.4  | 4.4  | 4.1   | 4.4  | 4.5  | 4.6  | 3.6  | 3.6  | 4.2  | 3.8  | 4.4  | 4.1  | 3.5  |
| Wholesale and retail trade .....                      | 7.6            | 6.9  | 6.8  | 7.0  | 6.4   | 6.5  | 6.8  | 6.2  | 6.1  | 6.4  | 6.8  | 5.9  | 6.3  | 5.9  | 6.2  |
| Finance and service industries .....                  | 5.5            | 4.9  | 5.1  | 4.7  | 4.8   | 4.7  | 4.8  | 4.8  | 4.9  | 4.5  | 4.2  | 4.1  | 4.6  | 4.6  | 4.5  |
| Government workers .....                              | 3.6            | 3.5  | 3.4  | 3.7  | 3.4   | 3.3  | 3.4  | 3.2  | 3.0  | 2.8  | 2.8  | 3.0  | 2.9  | 2.8  | 3.1  |
| Agricultural wage and salary workers .....            | 12.5           | 10.5 | 10.9 | 10.6 | 8.6   | 10.6 | 11.1 | 10.9 | 11.5 | 10.2 | 11.0 | 10.6 | 13.9 | 9.7  | 10.8 |

<sup>1</sup> Aggregate hours lost by the unemployed and persons on part time for economic reasons as a percent of potentially available labor force hours.



## 8. Unemployment rates by sex and age, monthly data seasonally adjusted

(Civilian workers)

| Sex and age                    | Annual average |      | 1987 |      |       |      |      |      |      | 1988 |      |      |      |      |      |  |
|--------------------------------|----------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|--|
|                                | 1986           | 1987 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May  | June | July |  |
| Total, 16 years and over ..... | 7.0            | 6.2  | 6.0  | 6.0  | 5.9   | 6.0  | 5.9  | 5.8  | 5.8  | 5.7  | 5.6  | 5.4  | 5.6  | 5.3  | 5.4  |  |
| 16 to 24 years .....           | 13.3           | 12.2 | 11.8 | 11.8 | 11.8  | 11.8 | 11.6 | 11.2 | 11.6 | 11.1 | 11.7 | 11.2 | 11.3 | 10.3 | 10.9 |  |
| 16 to 19 years .....           | 18.3           | 16.9 | 15.8 | 16.2 | 16.4  | 17.2 | 16.6 | 16.1 | 16.0 | 15.4 | 16.5 | 15.9 | 15.6 | 13.6 | 15.2 |  |
| 16 to 17 years .....           | 20.2           | 19.1 | 17.5 | 18.3 | 18.3  | 20.4 | 19.2 | 17.8 | 18.7 | 17.4 | 17.6 | 17.8 | 16.1 | 15.4 | 17.5 |  |
| 18 to 19 years .....           | 17.0           | 15.2 | 13.9 | 14.7 | 15.2  | 14.7 | 14.8 | 14.7 | 14.5 | 13.9 | 15.8 | 14.2 | 15.3 | 12.9 | 13.0 |  |
| 20 to 24 years .....           | 10.7           | 9.7  | 9.7  | 9.4  | 9.4   | 8.8  | 8.9  | 8.5  | 9.1  | 8.7  | 9.1  | 8.7  | 8.9  | 8.4  | 8.5  |  |
| 25 years and over .....        | 5.4            | 4.8  | 4.7  | 4.7  | 4.6   | 4.6  | 4.5  | 4.5  | 4.5  | 4.5  | 4.2  | 4.1  | 4.3  | 4.1  | 4.2  |  |
| 25 to 54 years .....           | 5.7            | 5.0  | 5.0  | 4.9  | 4.8   | 4.8  | 4.7  | 4.8  | 4.7  | 4.7  | 4.5  | 4.3  | 4.5  | 4.4  | 4.4  |  |
| 55 years and over .....        | 3.9            | 3.3  | 3.1  | 3.2  | 3.3   | 3.1  | 3.4  | 3.2  | 3.5  | 3.3  | 2.9  | 2.9  | 3.5  | 2.9  | 3.1  |  |
| Men, 16 years and over .....   | 6.9            | 6.2  | 6.0  | 6.1  | 5.8   | 5.9  | 5.8  | 5.7  | 5.8  | 5.6  | 5.7  | 5.3  | 5.6  | 5.2  | 5.3  |  |
| 16 to 24 years .....           | 13.7           | 12.6 | 11.9 | 12.5 | 12.1  | 12.1 | 12.0 | 11.7 | 12.2 | 11.3 | 12.1 | 11.2 | 11.6 | 10.5 | 11.3 |  |
| 16 to 19 years .....           | 19.0           | 17.8 | 15.9 | 17.8 | 17.3  | 17.4 | 17.2 | 17.2 | 16.4 | 15.6 | 17.8 | 15.8 | 16.2 | 14.7 | 16.6 |  |
| 16 to 17 years .....           | 20.8           | 20.2 | 17.1 | 20.5 | 19.7  | 20.9 | 20.4 | 19.3 | 19.4 | 16.9 | 18.5 | 17.2 | 16.7 | 17.0 | 17.9 |  |
| 18 to 19 years .....           | 17.7           | 16.0 | 13.7 | 15.9 | 15.9  | 14.8 | 14.8 | 15.3 | 14.9 | 14.7 | 17.3 | 14.7 | 15.8 | 14.2 | 14.7 |  |
| 20 to 24 years .....           | 11.0           | 9.9  | 9.9  | 9.6  | 9.3   | 9.2  | 9.2  | 8.7  | 9.9  | 9.0  | 9.1  | 8.8  | 9.1  | 8.2  | 8.4  |  |
| 25 years and over .....        | 5.4            | 4.8  | 4.7  | 4.7  | 4.5   | 4.5  | 4.4  | 4.4  | 4.4  | 4.3  | 4.3  | 4.1  | 4.3  | 4.1  | 3.9  |  |
| 25 to 54 years .....           | 5.6            | 5.0  | 4.9  | 4.9  | 4.7   | 4.8  | 4.6  | 4.6  | 4.5  | 4.5  | 4.5  | 4.2  | 4.4  | 4.2  | 4.1  |  |
| 55 years and over .....        | 4.1            | 3.5  | 3.4  | 3.4  | 3.2   | 3.1  | 3.5  | 3.2  | 4.0  | 3.4  | 3.4  | 3.1  | 3.7  | 3.2  | 3.1  |  |
| Women, 16 years and over ..... | 7.1            | 6.2  | 6.1  | 6.0  | 6.1   | 6.1  | 6.0  | 5.9  | 5.9  | 5.9  | 5.5  | 5.6  | 5.6  | 5.4  | 5.7  |  |
| 16 to 24 years .....           | 12.8           | 11.7 | 11.7 | 11.0 | 11.5  | 11.5 | 11.2 | 10.7 | 10.9 | 10.8 | 11.3 | 11.3 | 11.0 | 10.0 | 10.5 |  |
| 16 to 19 years .....           | 17.6           | 15.9 | 15.7 | 14.4 | 15.4  | 16.9 | 16.0 | 14.8 | 15.6 | 15.1 | 15.2 | 16.0 | 15.0 | 12.4 | 13.6 |  |
| 16 to 17 years .....           | 19.6           | 18.0 | 18.0 | 16.0 | 16.9  | 19.9 | 17.9 | 16.2 | 17.9 | 18.0 | 16.6 | 18.4 | 15.5 | 13.7 | 17.0 |  |
| 18 to 19 years .....           | 16.3           | 14.3 | 14.1 | 13.4 | 14.4  | 14.6 | 14.7 | 14.1 | 14.1 | 13.1 | 14.2 | 13.7 | 14.7 | 11.6 | 11.2 |  |
| 20 to 24 years .....           | 10.3           | 9.4  | 9.5  | 9.0  | 9.4   | 8.5  | 8.6  | 8.4  | 8.2  | 8.4  | 9.1  | 8.7  | 8.8  | 8.7  | 8.7  |  |
| 25 years and over .....        | 5.5            | 4.8  | 4.7  | 4.7  | 4.7   | 4.7  | 4.7  | 4.7  | 4.6  | 4.7  | 4.1  | 4.2  | 4.3  | 4.2  | 4.5  |  |
| 25 to 54 years .....           | 5.9            | 5.1  | 5.0  | 5.0  | 4.9   | 4.8  | 4.9  | 4.9  | 4.9  | 4.9  | 4.4  | 4.5  | 4.5  | 4.6  | 4.7  |  |
| 55 years and over .....        | 3.6            | 3.0  | 2.6  | 2.9  | 3.5   | 3.1  | 3.2  | 3.3  | 2.8  | 3.1  | 2.3  | 2.7  | 3.2  | 2.6  | 3.0  |  |

## 9. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

(Numbers in thousands)

| Reason for unemployment                | Annual average |       | 1987  |       |       |       |       |       |       | 1988  |       |       |       |       |       |  |
|--|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|  | 1986           | 1987  | July  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |  |
| Job losers .....                       | 4,033          | 3,566 | 3,529 | 3,389 | 3,313 | 3,388 | 3,307 | 3,200 | 3,209 | 3,207 | 3,139 | 2,916 | 3,236 | 3,059 | 3,087 |  |
| On layoff .....                        | 1,090          | 943   | 916   | 874   | 820   | 944   | 878   | 856   | 888   | 884   | 899   | 821   | 793   | 863   | 852   |  |
| Other job losers .....                 | 2,943          | 2,623 | 2,613 | 2,515 | 2,493 | 2,444 | 2,429 | 2,344 | 2,320 | 2,323 | 2,240 | 2,095 | 2,443 | 2,196 | 2,235 |  |
| Job leavers .....                      | 1,015          | 965   | 989   | 992   | 981   | 960   | 926   | 946   | 1,082 | 961   | 1,075 | 993   | 926   | 944   | 904   |  |
| Reentrants .....                       | 2,160          | 1,974 | 1,930 | 1,969 | 1,908 | 1,845 | 1,974 | 1,945 | 1,917 | 1,951 | 1,756 | 1,784 | 1,789 | 1,723 | 1,901 |  |
| New entrants .....                     | 1,029          | 920   | 844   | 855   | 882   | 914   | 855   | 909   | 885   | 864   | 887   | 915   | 807   | 777   | 776   |  |
| <b>PERCENT OF UNEMPLOYED</b>           |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| Job losers .....                       | 48.9           | 48.0  | 48.4  | 47.0  | 46.8  | 47.7  | 46.8  | 45.7  | 45.2  | 45.9  | 45.8  | 44.1  | 47.9  | 47.0  | 46.3  |  |
| On layoff .....                        | 13.2           | 12.7  | 12.6  | 12.1  | 11.6  | 13.3  | 12.4  | 12.2  | 12.5  | 12.7  | 13.1  | 12.4  | 11.7  | 13.3  | 12.8  |  |
| Other job losers .....                 | 35.7           | 35.3  | 35.8  | 34.9  | 35.2  | 34.4  | 33.5  | 32.7  | 33.3  | 32.7  | 31.7  | 36.2  | 33.8  | 33.5  |       |  |
| Job leavers .....                      | 12.3           | 13.0  | 13.6  | 13.8  | 13.8  | 13.5  | 13.1  | 13.5  | 15.3  | 13.8  | 15.7  | 15.0  | 13.7  | 14.5  | 13.6  |  |
| Reentrants .....                       | 26.2           | 26.6  | 26.5  | 27.3  | 26.9  | 26.0  | 28.0  | 27.8  | 27.0  | 27.9  | 25.6  | 27.0  | 26.5  | 26.5  | 28.5  |  |
| New entrants .....                     | 12.5           | 12.4  | 11.6  | 11.9  | 12.5  | 12.9  | 12.1  | 13.0  | 12.5  | 12.4  | 12.9  | 13.8  | 11.9  | 11.9  | 11.6  |  |
| <b>PERCENT OF CIVILIAN LABOR FORCE</b> |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| Job losers .....                       | 3.4            | 3.0   | 2.9   | 2.8   | 2.8   | 2.7   | 2.7   | 2.6   | 2.6   | 2.6   | 2.6   | 2.4   | 2.7   | 2.5   | 2.5   |  |
| Job leavers .....                      | .9             | .8    | .8    | .8    | .8    | .8    | .8    | .8    | .9    | .8    | .9    | .8    | .8    | .8    | .7    |  |
| Reentrants .....                       | 1.8            | 1.6   | 1.6   | 1.6   | 1.6   | 1.5   | 1.6   | 1.6   | 1.6   | 1.6   | 1.5   | 1.5   | 1.5   | 1.4   | 1.6   |  |
| New entrants .....                     | .9             | .8    | .7    | .7    | .7    | .8    | .7    | .8    | .7    | .7    | .7    | .8    | .7    | .6    | .6    |  |

## 10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

| Weeks of unemployment          | Annual average |       | 1987  |       |       |       |       |       |       | 1988  |       |       |       |       |       |  |
|--------------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|                                | 1986           | 1987  | July  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |  |
| Less than 5 weeks .....        | 3,448          | 3,246 | 3,186 | 3,203 | 3,220 | 3,223 | 3,218 | 3,229 | 3,089 | 3,084 | 3,009 | 3,125 | 3,075 | 3,066 | 2,965 |  |
| 5 to 14 weeks .....            | 2,557          | 2,196 | 2,144 | 2,142 | 1,949 | 2,093 | 2,029 | 1,968 | 2,263 | 2,145 | 2,101 | 1,956 | 2,110 | 1,890 | 2,078 |  |
| 15 weeks and over .....        | 2,232          | 1,983 | 1,920 | 1,896 | 1,904 | 1,801 | 1,834 | 1,791 | 1,733 | 1,740 | 1,722 | 1,540 | 1,609 | 1,512 | 1,629 |  |
| 15 to 26 weeks .....           | 1,045          | 943   | 945   | 834   | 917   | 844   | 899   | 892   | 839   | 841   | 887   | 725   | 784   | 727   | 838   |  |
| 27 weeks and over .....        | 1,187          | 1,040 | 975   | 1,062 | 987   | 957   | 935   | 899   | 894   | 899   | 835   | 816   | 825   | 785   | 791   |  |
| Mean duration in weeks .....   | 15.0           | 14.5  | 14.2  | 14.3  | 14.2  | 14.1  | 14.0  | 14.2  | 14.4  | 14.4  | 13.7  | 13.4  | 13.8  | 12.9  | 13.6  |  |
| Median duration in weeks ..... | 6.9            | 6.5   | 6.6   | 6.4   | 5.8   | 6.2   | 6.1   | 6.0   | 6.4   | 6.4   | 6.6   | 5.6   | 5.9   | 6.0   | 6.3   |  |

11. Unemployment rates of civilian workers by State, data not seasonally adjusted

| State                | June 1987 | June 1988 | State          | June 1987 | June 1988 |
|----------------------|-----------|-----------|----------------|-----------|-----------|
| Alabama              | 7.5       | 6.8       | Montana        | 7.0       | 6.4       |
| Alaska               | 11.0      | 8.7       | Nebraska       | 4.9       | 3.3       |
| Arizona              | 6.6       | 6.1       | Nevada         | 6.2       | 5.4       |
| Arkansas             | 8.0       | 7.8       | New Hampshire  | 2.6       | 2.0       |
| California           | 5.4       | 5.4       | New Jersey     | 4.1       | 3.6       |
| Colorado             | 7.6       | 6.2       | New Mexico     | 9.4       | 8.7       |
| Connecticut          | 3.3       | 3.0       | New York       | 4.6       | 3.4       |
| Delaware             | 3.0       | 3.0       | North Carolina | 4.9       | 3.5       |
| District of Columbia | 6.3       | 5.2       | North Dakota   | 4.7       | 3.9       |
| Florida              | 5.3       | 4.8       | Ohio           | 7.3       | 6.1       |
| Georgia              | 5.7       | 6.3       | Oklahoma       | 7.7       | 6.1       |
| Hawaii               | 4.3       | 3.1       | Oregon         | 5.5       | 5.8       |
| Idaho                | 7.2       | 5.6       | Pennsylvania   | 6.2       | 5.6       |
| Illinois             | 7.8       | 6.9       | Rhode Island   | 3.9       | 3.1       |
| Indiana              | 6.2       | 4.6       | South Carolina | 5.7       | 4.7       |
| Iowa                 | 5.3       | 4.0       | South Dakota   | 3.9       | 3.5       |
| Kansas               | 4.8       | 4.3       | Tennessee      | 6.5       | 5.4       |
| Kentucky             | 8.7       | 7.8       | Texas          | 9.6       | 8.0       |
| Louisiana            | 12.6      | 10.5      | Utah           | 6.5       | 4.7       |
| Maine                | 4.1       | 3.7       | Vermont        | 3.3       | 2.5       |
| Maryland             | 4.2       | 4.4       | Virginia       | 4.3       | 3.8       |
| Massachusetts        | 3.1       | 3.4       | Washington     | 7.2       | 5.9       |
| Michigan             | 8.9       | 7.1       | West Virginia  | 10.3      | 8.8       |
| Minnesota            | 5.2       | 3.4       | Wisconsin      | 5.8       | 4.0       |
| Mississippi          | 10.6      | 7.8       | Wyoming        | 7.7       | 4.8       |
| Missouri             | 6.1       | 5.1       |                |           |           |

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the database.

12. Employment of workers on nonagricultural payrolls by State, data not seasonally adjusted

(In thousands)

| State                | June 1987 | May 1988 | June 1988 <sup>p</sup> | State          | June 1987 | May 1988 | June 1988 <sup>p</sup> |
|----------------------|-----------|----------|------------------------|----------------|-----------|----------|------------------------|
| Alabama              | 1,506.6   | 1,527.2  | 1,542.2                | Nebraska       | 661.7     | 676.7    | 675.3                  |
| Alaska               | 219.1     | 209.6    | 216.4                  | Nevada         | 504.5     | 527.7    | 532.1                  |
| Arizona              | 1,370.3   | 1,420.2  | 1,394.5                | New Hampshire  | 519.1     | 530.3    | 538.6                  |
| Arkansas             | 837.7     | 860.7    | 861.9                  | New Jersey     | 3,638.5   | 3,672.1  | 3,720.0                |
| California           | 11,687.3  | 12,050.1 | 12,121.0               | New Mexico     | 530.8     | 540.0    | 542.5                  |
| Colorado             | 1,405.4   | 1,394.3  | 1,399.2                | New York       | 8,124.9   | 8,215.2  | 8,272.0                |
| Connecticut          | 1,663.3   | 1,670.9  | 1,686.9                | North Carolina | 2,872.4   | 2,941.5  | 2,962.1                |
| Delaware             | 326.0     | 332.0    | 338.3                  | North Dakota   | 255.4     | 257.4    | 258.5                  |
| District of Columbia | 658.5     | 668.2    | 673.4                  | Ohio           | 4,611.6   | 4,704.6  | 4,726.6                |
| Florida              | 4,841.3   | 5,093.8  | 5,082.3                | Oklahoma       | 1,114.3   | 1,103.3  | 1,108.2                |
| Georgia              | 2,779.8   | 2,792.8  | 2,800.9                | Oregon         | 1,109.2   | 1,134.3  | 1,148.3                |
| Hawaii               | 459.6     | 467.9    | 469.0                  | Pennsylvania   | 4,944.9   | 5,038.1  | 5,068.6                |
| Idaho                | 337.3     | 343.2    | 346.6                  | Rhode Island   | 455.7     | 459.6    | 460.3                  |
| Illinois             | 4,912.3   | 5,006.9  | 5,036.0                | South Carolina | 1,406.2   | 1,448.7  | 1,452.4                |
| Indiana              | 2,317.4   | 2,402.8  | 2,404.3                | South Dakota   | 261.3     | 262.6    | 266.0                  |
| Iowa                 | 1,115.4   | 1,149.2  | 1,148.0                | Tennessee      | 2,020.4   | 2,063.9  | 2,067.7                |
| Kansas               | 1,002.9   | 1,023.4  | 1,025.1                | Texas          | 6,483.8   | 6,587.3  | 6,592.3                |
| Kentucky             | 1,313.7   | 1,358.9  | 1,362.1                | Utah           | 642.2     | 649.8    | 653.2                  |
| Louisiana            | 1,482.5   | 1,498.3  | 1,501.9                | Vermont        | 246.0     | 248.0    | 249.2                  |
| Maine                | 511.3     | 520.6    | 534.7                  | Virginia       | 2,711.8   | 2,787.5  | 2,817.1                |
| Maryland             | 2,050.7   | 2,039.2  | 2,043.8                | Washington     | 1,864.3   | 1,921.9  | 1,941.7                |
| Massachusetts        | 3,091.2   | 3,124.4  | 3,154.4                | West Virginia  | 603.1     | 616.5    | 606.4                  |
| Michigan             | 3,732.3   | 3,766.0  | 3,778.7                | Wisconsin      | 2,105.5   | 2,145.2  | 2,181.1                |
| Minnesota            | 1,982.0   | 2,026.5  | 2,043.0                | Wyoming        | 186.2     | 178.2    | 183.7                  |
| Mississippi          | 860.5     | 888.0    | 884.3                  | Puerto Rico    | 788.1     | 788.4    | 821.3                  |
| Missouri             | 2,196.9   | 2,229.9  | 2,232.6                | Virgin Islands | 38.7      | 40.3     | 40.1                   |
| Montana              | 279.6     | 275.5    | 278.4                  |                |           |          |                        |

<sup>p</sup> = preliminary

NOTE: Some data in this table may differ from data published elsewhere

because of the continual updating of the database.

### 13. Employment of workers on nonagricultural payrolls by industry, monthly data seasonally adjusted

(In thousands)

| Industry   | Annual average |         | 1987    |         |         |         |         |         | 1988    |         |         |         |         |                   |                   |
|--|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|-------------------|
|  | 1986           | 1987    | July    | Aug.    | Sept.   | Oct.    | Nov.    | Dec.    | Jan.    | Feb.    | Mar.    | Apr.    | May     | June <sup>p</sup> | July <sup>p</sup> |
| <b>TOTAL</b> .....                               | 99,525         | 102,310 | 102,430 | 102,672 | 102,906 | 103,371 | 103,678 | 104,001 | 104,262 | 104,729 | 105,020 | 105,281 | 105,489 | 106,021           | 106,304           |
| <b>PRIVATE SECTOR</b> .....                      | 82,832         | 85,295  | 85,421  | 85,656  | 85,851  | 86,241  | 86,520  | 86,794  | 87,044  | 87,475  | 87,700  | 87,973  | 88,139  | 88,661            | 88,929            |
| <b>GOODS-PRODUCING</b> .....                     | 24,558         | 24,784  | 24,788  | 24,851  | 24,902  | 25,025  | 25,123  | 25,201  | 25,180  | 25,271  | 25,330  | 25,435  | 25,466  | 25,590            | 25,672            |
| <b>Mining</b> .....                              | 777            | 721     | 722     | 728     | 734     | 740     | 736     | 735     | 728     | 731     | 733     | 737     | 739     | 740               | 740               |
| Oil and gas extraction .....                     | 451            | 405     | 408     | 412     | 417     | 421     | 418     | 417     | 414     | 415     | 419     | 421     | 425     | 425               | 423               |
| <b>Construction</b> .....                        | 4,816          | 4,998   | 4,997   | 5,012   | 5,012   | 5,060   | 5,090   | 5,118   | 5,083   | 5,150   | 5,192   | 5,238   | 5,237   | 5,305             | 5,319             |
| General building contractors .....               | 1,291          | 1,326   | 1,320   | 1,326   | 1,328   | 1,340   | 1,348   | 1,352   | 1,365   | 1,377   | 1,383   | 1,400   | 1,394   | 1,411             | 1,389             |
| <b>Manufacturing</b> .....                       | 18,965         | 19,065  | 19,069  | 19,111  | 19,156  | 19,225  | 19,297  | 19,348  | 19,369  | 19,390  | 19,405  | 19,460  | 19,490  | 19,545            | 19,613            |
| Production workers .....                         | 12,877         | 12,995  | 13,006  | 13,038  | 13,075  | 13,118  | 13,175  | 13,215  | 13,225  | 13,249  | 13,251  | 13,280  | 13,302  | 13,341            | 13,406            |
| <b>Durable goods</b> .....                       | 11,230         | 11,218  | 11,190  | 11,246  | 11,269  | 11,315  | 11,355  | 11,390  | 11,393  | 11,404  | 11,411  | 11,459  | 11,477  | 11,514            | 11,573            |
| Production workers .....                         | 7,426          | 7,453   | 7,432   | 7,483   | 7,499   | 7,532   | 7,564   | 7,590   | 7,582   | 7,599   | 7,598   | 7,632   | 7,649   | 7,677             | 7,740             |
| Lumber and wood products .....                   | 710            | 740     | 740     | 739     | 744     | 744     | 750     | 754     | 754     | 756     | 755     | 758     | 757     | 758               | 755               |
| Furniture and fixtures .....                     | 498            | 518     | 524     | 524     | 526     | 529     | 531     | 533     | 536     | 535     | 534     | 535     | 537     | 537               | 543               |
| Stone, clay, and glass products .....            | 585            | 582     | 579     | 580     | 580     | 583     | 585     | 588     | 583     | 584     | 585     | 587     | 585     | 587               | 588               |
| Primary metal industries .....                   | 752            | 749     | 751     | 755     | 761     | 766     | 768     | 769     | 768     | 770     | 772     | 773     | 776     | 781               | 790               |
| Blast furnaces and basic steel products .....    | 274            | 269     | 272     | 274     | 276     | 278     | 279     | 279     | 279     | 280     | 281     | 281     | 281     | 282               | 283               |
| Fabricated metal products .....                  | 1,423          | 1,407   | 1,404   | 1,405   | 1,412   | 1,421   | 1,429   | 1,433   | 1,435   | 1,438   | 1,439   | 1,444   | 1,448   | 1,456             | 1,463             |
| Machinery, except electrical .....               | 2,053          | 2,023   | 2,020   | 2,031   | 2,039   | 2,049   | 2,062   | 2,074   | 2,085   | 2,091   | 2,099   | 2,111   | 2,121   | 2,135             | 2,159             |
| Electrical and electronic equipment .....        | 2,116          | 2,084   | 2,075   | 2,081   | 2,085   | 2,094   | 2,100   | 2,110   | 2,112   | 2,112   | 2,115   | 2,117   | 2,115   | 2,120             | 2,126             |
| Transportation equipment .....                   | 2,025          | 2,048   | 2,032   | 2,063   | 2,052   | 2,052   | 2,047   | 2,046   | 2,036   | 2,031   | 2,025   | 2,045   | 2,048   | 2,046             | 2,050             |
| Motor vehicles and equipment .....               | 872            | 865     | 842     | 874     | 860     | 859     | 854     | 851     | 839     | 837     | 835     | 848     | 851     | 849               | 856               |
| Instruments and related products .....           | 706            | 696     | 695     | 696     | 696     | 700     | 704     | 704     | 704     | 705     | 706     | 709     | 709     | 712               | 713               |
| Miscellaneous manufacturing industries .....     | 361            | 370     | 370     | 372     | 374     | 377     | 379     | 379     | 380     | 382     | 382     | 383     | 381     | 382               | 386               |
| <b>Nondurable goods</b> .....                    | 7,734          | 7,847   | 7,879   | 7,865   | 7,887   | 7,910   | 7,942   | 7,958   | 7,976   | 7,986   | 7,994   | 8,001   | 8,013   | 8,031             | 8,040             |
| Production workers .....                         | 5,450          | 5,543   | 5,574   | 5,555   | 5,576   | 5,586   | 5,611   | 5,625   | 5,643   | 5,650   | 5,653   | 5,648   | 5,653   | 5,664             | 5,666             |
| Food and kindred products .....                  | 1,609          | 1,624   | 1,629   | 1,625   | 1,627   | 1,630   | 1,636   | 1,638   | 1,647   | 1,649   | 1,647   | 1,648   | 1,643   | 1,648             | 1,645             |
| Tobacco manufactures .....                       | 59             | 54      | 55      | 54      | 53      | 52      | 54      | 54      | 55      | 54      | 54      | 54      | 52      | 53                | 53                |
| Textile mill products .....                      | 703            | 725     | 730     | 728     | 730     | 731     | 733     | 733     | 732     | 732     | 729     | 727     | 728     | 727               | 728               |
| Apparel and other textile products .....         | 1,101          | 1,100   | 1,116   | 1,098   | 1,104   | 1,106   | 1,110   | 1,106   | 1,105   | 1,104   | 1,106   | 1,100   | 1,100   | 1,096             | 1,089             |
| Paper and allied products .....                  | 674            | 679     | 678     | 680     | 682     | 682     | 683     | 684     | 685     | 686     | 687     | 687     | 689     | 691               | 691               |
| Printing and publishing .....                    | 1,459          | 1,507   | 1,510   | 1,514   | 1,518   | 1,522   | 1,528   | 1,532   | 1,538   | 1,544   | 1,548   | 1,554   | 1,559   | 1,564             | 1,568             |
| Chemicals and allied products .....              | 1,022          | 1,026   | 1,025   | 1,029   | 1,032   | 1,036   | 1,041   | 1,047   | 1,047   | 1,049   | 1,052   | 1,056   | 1,060   | 1,066             | 1,071             |
| Petroleum and coal products .....                | 169            | 165     | 165     | 165     | 166     | 167     | 167     | 167     | 166     | 165     | 164     | 165     | 166     | 166               | 167               |
| Rubber and misc. plastics products .....         | 790            | 823     | 824     | 827     | 830     | 839     | 845     | 851     | 854     | 856     | 860     | 864     | 870     | 874               | 884               |
| Leather and leather products .....               | 149            | 144     | 147     | 145     | 145     | 145     | 145     | 146     | 147     | 147     | 146     | 146     | 146     | 146               | 144               |
| <b>SERVICE-PRODUCING</b> .....                   | 74,967         | 77,525  | 77,642  | 77,821  | 78,004  | 78,346  | 78,555  | 78,800  | 79,082  | 79,458  | 79,690  | 79,846  | 80,023  | 80,431            | 80,632            |
| <b>Transportation and public utilities</b> ..... | 5,255          | 5,385   | 5,373   | 5,394   | 5,427   | 5,448   | 5,466   | 5,481   | 5,499   | 5,513   | 5,530   | 5,543   | 5,556   | 5,578             | 5,593             |
| Transportation .....                             | 3,058          | 3,166   | 3,151   | 3,171   | 3,201   | 3,214   | 3,231   | 3,244   | 3,261   | 3,272   | 3,285   | 3,298   | 3,308   | 3,328             | 3,342             |
| Communication and public utilities .....         | 2,197          | 2,218   | 2,222   | 2,223   | 2,226   | 2,234   | 2,235   | 2,237   | 2,238   | 2,241   | 2,245   | 2,245   | 2,248   | 2,250             | 2,251             |
| <b>Wholesale trade</b> .....                     | 5,753          | 5,872   | 5,874   | 5,892   | 5,914   | 5,935   | 5,958   | 5,984   | 6,010   | 6,035   | 6,061   | 6,089   | 6,115   | 6,145             | 6,169             |
| Durable goods .....                              | 3,383          | 3,449   | 3,450   | 3,463   | 3,478   | 3,498   | 3,514   | 3,536   | 3,555   | 3,573   | 3,591   | 3,610   | 3,635   | 3,658             | 3,682             |
| Nondurable goods .....                           | 2,370          | 2,423   | 2,424   | 2,429   | 2,436   | 2,437   | 2,444   | 2,448   | 2,455   | 2,462   | 2,470   | 2,479   | 2,480   | 2,487             | 2,487             |
| <b>Retail trade</b> .....                        | 17,930         | 18,509  | 18,543  | 18,569  | 18,605  | 18,705  | 18,761  | 18,784  | 18,927  | 19,045  | 19,050  | 19,093  | 19,130  | 19,213            | 19,295            |
| General merchandise stores .....                 | 2,366          | 2,432   | 2,437   | 2,449   | 2,457   | 2,489   | 2,495   | 2,494   | 2,526   | 2,561   | 2,543   | 2,546   | 2,541   | 2,546             | 2,549             |
| Food stores .....                                | 2,899          | 2,957   | 2,962   | 2,961   | 2,958   | 2,971   | 2,979   | 2,988   | 3,014   | 3,029   | 3,044   | 3,049   | 3,053   | 3,080             | 3,100             |
| Automotive dealers and service stations .....    | 1,944          | 2,004   | 2,007   | 2,010   | 2,015   | 2,026   | 2,026   | 2,033   | 2,038   | 2,047   | 2,055   | 2,064   | 2,070   | 2,076             | 2,092             |
| Eating and drinking places .....                 | 5,916          | 6,127   | 6,128   | 6,143   | 6,152   | 6,191   | 6,216   | 6,232   | 6,260   | 6,291   | 6,319   | 6,326   | 6,336   | 6,357             | 6,378             |
| <b>Finance, insurance, and real estate</b> ..... | 6,283          | 6,549   | 6,570   | 6,581   | 6,588   | 6,604   | 6,608   | 6,619   | 6,633   | 6,636   | 6,651   | 6,650   | 6,656   | 6,676             | 6,678             |
| Finance .....                                    | 3,149          | 3,275   | 3,288   | 3,289   | 3,292   | 3,295   | 3,299   | 3,301   | 3,308   | 3,305   | 3,306   | 3,302   | 3,299   | 3,305             | 3,302             |
| Insurance .....                                  | 1,939          | 2,022   | 2,024   | 2,029   | 2,032   | 2,043   | 2,042   | 2,049   | 2,052   | 2,053   | 2,060   | 2,065   | 2,067   | 2,072             | 2,071             |
| Real estate .....                                | 1,195          | 1,252   | 1,258   | 1,263   | 1,264   | 1,266   | 1,267   | 1,269   | 1,273   | 1,278   | 1,285   | 1,283   | 1,290   | 1,299             | 1,305             |
| <b>Services</b> .....                            | 23,053         | 24,196  | 24,273  | 24,369  | 24,415  | 24,524  | 24,604  | 24,725  | 24,795  | 24,975  | 25,078  | 25,163  | 25,216  | 25,459            | 25,522            |
| Business services .....                          | 4,799          | 5,172   | 5,179   | 5,212   | 5,233   | 5,282   | 5,287   | 5,306   | 5,321   | 5,385   | 5,405   | 5,420   | 5,443   | 5,477             | 5,492             |
| Health services .....                            | 6,536          | 6,828   | 6,836   | 6,875   | 6,894   | 6,928   | 6,962   | 6,995   | 7,019   | 7,056   | 7,088   | 7,126   | 7,153   | 7,206             | 7,252             |
| <b>Government</b> .....                          | 16,693         | 17,015  | 17,009  | 17,016  | 17,055  | 17,130  | 17,158  | 17,207  | 17,218  | 17,254  | 17,320  | 17,308  | 17,350  | 17,360            | 17,375            |
| Federal .....                                    | 2,899          | 2,943   | 2,941   | 2,943   | 2,962   | 2,966   | 2,974   | 2,980   | 2,973   | 2,972   | 2,970   | 2,963   | 2,957   | 2,951             | 2,947             |
| State .....                                      | 3,893          | 3,963   | 3,965   | 3,971   | 3,973   | 3,985   | 3,988   | 4,001   | 4,006   | 4,014   | 4,031   | 4,041   | 4,050   | 4,030             | 4,049             |
| Local .....                                      | 9,901          | 10,109  | 10,103  | 10,102  | 10,120  | 10,179  | 10,196  | 10,226  | 10,239  | 10,268  | 10,319  | 10,304  | 10,343  | 10,379            | 10,379            |

<sup>p</sup> = preliminary

NOTE: See notes on the data for a description of the most recent benchmark revision.



14. Average weekly hours of production or nonsupervisory workers on private nonagricultural payrolls by industry, monthly data seasonally adjusted

| Industry   | Annual average |      | 1987 |      |       |      |      |      | 1988 |      |      |      |      |                   |                   |
|--|----------------|------|------|------|-------|------|------|------|------|------|------|------|------|-------------------|-------------------|
|  | 1986           | 1987 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May  | June <sup>P</sup> | July <sup>P</sup> |
| <b>PRIVATE SECTOR</b> .....                      | 34.8           | 34.8 | 34.8 | 34.8 | 34.6  | 34.9 | 34.8 | 34.6 | 34.7 | 34.8 | 34.6 | 34.9 | 34.7 | 34.7              | 34.9              |
| <b>MANUFACTURING</b> .....                       | 40.7           | 41.0 | 41.0 | 41.0 | 40.6  | 41.2 | 41.2 | 41.0 | 41.1 | 41.0 | 40.9 | 41.2 | 41.0 | 41.1              | 41.1              |
| Overtime hours .....                             | 3.4            | 3.7  | 3.8  | 3.8  | 3.7   | 3.9  | 3.9  | 3.8  | 3.9  | 3.7  | 3.7  | 3.9  | 3.9  | 3.9               | 3.9               |
| <b>Durable goods</b> .....                       | 41.3           | 41.5 | 41.6 | 41.5 | 41.0  | 41.8 | 41.8 | 41.5 | 41.6 | 41.5 | 41.5 | 42.0 | 41.8 | 41.8              | 41.7              |
| Overtime hours .....                             | 3.5            | 3.8  | 3.8  | 3.9  | 3.7   | 4.0  | 4.0  | 3.9  | 4.0  | 3.8  | 3.8  | 4.2  | 4.2  | 4.1               | 4.0               |
| Lumber and wood products .....                   | 40.3           | 40.6 | 40.6 | 40.5 | 39.6  | 40.4 | 40.7 | 40.4 | 40.2 | 40.3 | 40.1 | 40.6 | 40.1 | 40.2              | 40.4              |
| Furniture and fixtures .....                     | 39.8           | 40.0 | 40.0 | 40.0 | 39.5  | 40.1 | 40.2 | 39.8 | 39.6 | 39.5 | 39.3 | 39.5 | 39.5 | 39.3              | 39.4              |
| Stone, clay, and glass products .....            | 42.2           | 42.3 | 42.3 | 42.2 | 42.0  | 42.5 | 42.4 | 42.5 | 42.0 | 42.3 | 42.3 | 42.5 | 42.3 | 42.4              | 42.2              |
| Primary metal industries .....                   | 41.9           | 43.1 | 43.2 | 43.3 | 43.2  | 43.6 | 43.5 | 43.4 | 43.4 | 43.1 | 43.3 | 43.5 | 43.6 | 43.6              | 43.4              |
| Blast furnaces and basic steel products .....    | 41.7           | 43.4 | 43.7 | 43.7 | 44.6  | 43.9 | 43.8 | 44.0 | 44.0 | 43.8 | 43.7 | 43.8 | 43.9 | 44.3              | 43.7              |
| Fabricated metal products .....                  | 41.3           | 41.5 | 41.5 | 41.5 | 40.9  | 41.9 | 42.1 | 41.7 | 41.8 | 41.6 | 41.6 | 42.0 | 41.9 | 42.0              | 41.6              |
| Machinery except electrical .....                | 41.6           | 42.2 | 42.5 | 42.3 | 41.7  | 42.6 | 42.7 | 42.6 | 42.7 | 42.6 | 42.5 | 42.8 | 42.6 | 42.4              | 42.9              |
| Electrical and electronic equipment .....        | 41.0           | 40.9 | 40.9 | 40.9 | 40.4  | 41.0 | 41.0 | 40.9 | 41.1 | 40.9 | 40.9 | 41.2 | 41.0 | 41.1              | 40.8              |
| Transportation equipment .....                   | 42.3           | 42.0 | 41.8 | 41.8 | 41.4  | 42.4 | 42.3 | 41.5 | 42.0 | 42.0 | 42.1 | 43.0 | 43.0 | 43.0              | 42.7              |
| Motor vehicles and equipment .....               | 42.6           | 42.2 | 41.8 | 41.9 | 41.5  | 42.8 | 42.9 | 41.4 | 42.1 | 42.3 | 42.3 | 44.1 | 44.0 | 44.3              | 43.0              |
| Instruments and related products .....           | 41.0           | 41.4 | 41.5 | 41.6 | 41.0  | 41.9 | 41.4 | 41.2 | 41.8 | 41.3 | 41.4 | 41.8 | 41.4 | 41.4              | 41.6              |
| Miscellaneous manufacturing .....                | 39.6           | 39.4 | 39.5 | 39.7 | 38.9  | 39.5 | 39.2 | 39.2 | 39.1 | 39.3 | 39.2 | 39.4 | 39.2 | 39.4              | 39.5              |
| <b>Nondurable goods</b> .....                    | 39.9           | 40.2 | 40.3 | 40.3 | 40.1  | 40.4 | 40.3 | 40.3 | 40.3 | 40.2 | 40.1 | 40.3 | 40.0 | 40.1              | 40.3              |
| Overtime hours .....                             | 3.3            | 3.6  | 3.7  | 3.7  | 3.6   | 3.8  | 3.7  | 3.7  | 3.8  | 3.6  | 3.6  | 3.6  | 3.6  | 3.6               | 3.8               |
| Food and kindred products .....                  | 40.0           | 40.2 | 40.1 | 40.2 | 40.2  | 40.4 | 40.4 | 40.5 | 40.6 | 40.3 | 40.1 | 40.1 | 40.1 | 40.4              | 40.6              |
| Textile mill products .....                      | 41.1           | 41.8 | 42.3 | 42.0 | 41.4  | 41.8 | 41.6 | 41.5 | 41.5 | 41.6 | 41.2 | 41.6 | 40.8 | 40.6              | 41.1              |
| Apparel and other textile products .....         | 36.7           | 37.0 | 37.2 | 37.2 | 36.4  | 37.3 | 37.1 | 37.1 | 36.8 | 37.0 | 37.0 | 37.4 | 36.8 | 37.0              | 37.2              |
| Paper and allied products .....                  | 43.2           | 43.4 | 43.5 | 43.4 | 43.7  | 43.6 | 43.5 | 43.3 | 43.4 | 43.3 | 43.2 | 43.3 | 43.3 | 43.1              | 43.3              |
| Printing and publishing .....                    | 38.0           | 38.0 | 38.1 | 38.1 | 38.1  | 38.1 | 38.0 | 38.0 | 38.1 | 38.1 | 38.1 | 38.2 | 37.7 | 38.0              | 38.0              |
| Chemicals and allied products .....              | 41.9           | 42.3 | 42.2 | 42.4 | 42.5  | 42.5 | 42.5 | 42.5 | 42.5 | 42.4 | 42.5 | 42.1 | 42.0 | 42.4              | 42.3              |
| Rubber and miscellaneous plastics products ..... | 41.3           | 41.6 | 41.6 | 41.6 | 41.3  | 41.8 | 41.8 | 41.6 | 41.7 | 41.6 | 41.7 | 42.0 | 41.7 | 41.6              | 41.9              |
| Leather and leather products .....               | 36.9           | 38.2 | 38.4 | 38.9 | 37.8  | 38.8 | 38.3 | 38.0 | 38.0 | 37.8 | 37.9 | 37.3 | 37.3 | 36.9              | 37.4              |
| <b>TRANSPORTATION AND PUBLIC UTILITIES</b> ..... | 39.2           | 39.2 | 39.3 | 39.3 | 39.1  | 39.3 | 39.2 | 39.1 | 39.5 | 39.1 | 38.8 | 39.5 | 39.4 | 39.3              | 39.4              |
| <b>WHOLESALE TRADE</b> .....                     | 37.7           | 37.5 | 38.1 | 38.2 | 38.0  | 38.2 | 38.2 | 38.0 | 38.1 | 38.2 | 38.1 | 38.3 | 38.0 | 38.0              | 38.2              |
| <b>RETAIL TRADE</b> .....                        | 29.2           | 29.2 | 29.3 | 29.4 | 29.5  | 29.2 | 29.2 | 28.8 | 29.0 | 29.1 | 29.0 | 29.2 | 29.0 | 29.1              | 29.3              |
| <b>SERVICES</b> .....                            | 32.5           | 32.5 | 32.5 | 32.5 | 32.5  | 32.6 | 32.6 | 32.5 | 32.6 | 32.7 | 32.4 | 32.7 | 32.5 | 32.5              | 32.7              |

<sup>P</sup> = preliminary

benchmark adjustment.

NOTE: See "Notes on the data" for a description of the most recent

**15. Average hourly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry**

| Industry   | Annual average |        | 1987   |        |        |        |        |        | 1988   |        |        |        |        |                   |                   |
|--|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------------|-------------------|
|  | 1986           | 1987   | July   | Aug.   | Sept.  | Oct.   | Nov.   | Dec.   | Jan.   | Feb.   | Mar.   | Apr.   | May    | June <sup>p</sup> | July <sup>p</sup> |
| <b>PRIVATE SECTOR</b> .....                      | \$8.76         | \$8.98 | \$8.90 | \$8.94 | \$9.05 | \$9.08 | \$9.13 | \$9.13 | \$9.18 | \$9.17 | \$9.18 | \$9.23 | \$9.26 | \$9.23            | \$9.25            |
| Seasonally adjusted .....                        | -              | -      | 8.96   | 9.01   | 9.02   | 9.07   | 9.10   | 9.11   | 9.14   | 9.13   | 9.16   | 9.23   | 9.27   | 9.28              | 9.32              |
| <b>MINING</b> .....                              | 12.46          | 12.52  | 12.41  | 12.40  | 12.50  | 12.42  | 12.54  | 12.60  | 12.77  | 12.71  | 12.59  | 12.60  | 12.54  | 12.55             | 12.61             |
| <b>CONSTRUCTION</b> .....                        | 12.48          | 12.69  | 12.60  | 12.68  | 12.79  | 12.82  | 12.83  | 12.81  | 12.99  | 12.82  | 12.87  | 12.88  | 12.87  | 12.87             | 12.94             |
| <b>MANUFACTURING</b> .....                       | 9.73           | 9.91   | 9.87   | 9.86   | 9.99   | 9.95   | 10.01  | 10.07  | 10.07  | 10.05  | 10.07  | 10.12  | 10.14  | 10.16             | 10.18             |
| <b>Durable goods</b> .....                       | 10.29          | 10.43  | 10.38  | 10.39  | 10.49  | 10.48  | 10.54  | 10.60  | 10.60  | 10.58  | 10.59  | 10.65  | 10.67  | 10.70             | 10.70             |
| Lumber and wood products .....                   | 8.34           | 8.40   | 8.45   | 8.48   | 8.46   | 8.42   | 8.47   | 8.43   | 8.51   | 8.53   | 8.45   | 8.50   | 8.54   | 8.59              | 8.64              |
| Furniture and fixtures .....                     | 7.46           | 7.67   | 7.66   | 7.74   | 7.74   | 7.71   | 7.71   | 7.78   | 7.80   | 7.74   | 7.76   | 7.81   | 7.87   | 7.89              | 7.94              |
| Stone, clay, and glass products .....            | 10.04          | 10.25  | 10.30  | 10.28  | 10.37  | 10.27  | 10.30  | 10.29  | 10.35  | 10.33  | 10.36  | 10.41  | 10.45  | 10.47             | 10.55             |
| Primary metal industries .....                   | 11.86          | 11.94  | 11.93  | 11.93  | 12.19  | 12.00  | 12.04  | 12.11  | 12.06  | 12.03  | 12.07  | 12.11  | 12.13  | 12.16             | 12.19             |
| Blast furnaces and basic steel products .....    | 13.73          | 13.78  | 13.63  | 13.74  | 14.12  | 13.88  | 13.89  | 13.93  | 13.82  | 13.89  | 13.89  | 13.94  | 13.96  | 13.97             | 14.00             |
| Fabricated metal products .....                  | 9.88           | 10.00  | 9.93   | 9.94   | 10.00  | 10.06  | 10.10  | 10.19  | 10.12  | 10.13  | 10.14  | 10.22  | 10.23  | 10.27             | 10.19             |
| Machinery, except electrical .....               | 10.57          | 10.70  | 10.67  | 10.70  | 10.74  | 10.79  | 10.83  | 10.89  | 10.85  | 10.82  | 10.84  | 10.88  | 10.90  | 10.93             | 10.94             |
| Electrical and electronic equipment .....        | 9.65           | 9.88   | 9.86   | 9.88   | 9.94   | 9.92   | 9.98   | 10.03  | 10.02  | 10.02  | 10.04  | 10.09  | 10.12  | 10.15             | 10.20             |
| Transportation equipment .....                   | 12.81          | 12.95  | 12.82  | 12.88  | 13.04  | 13.07  | 13.18  | 13.25  | 13.22  | 13.17  | 13.20  | 13.28  | 13.31  | 13.38             | 13.30             |
| Motor vehicles and equipment .....               | 13.45          | 13.55  | 13.35  | 13.40  | 13.64  | 13.69  | 13.79  | 13.87  | 13.94  | 13.85  | 13.93  | 14.09  | 14.10  | 14.17             | 13.94             |
| Instruments and related products .....           | 9.47           | 9.71   | 9.71   | 9.74   | 9.76   | 9.78   | 9.83   | 9.84   | 9.93   | 9.92   | 9.88   | 9.89   | 9.87   | 9.90              | 10.04             |
| Miscellaneous manufacturing .....                | 7.55           | 7.75   | 7.72   | 7.72   | 7.78   | 7.79   | 7.80   | 7.91   | 7.97   | 7.90   | 7.91   | 7.92   | 7.94   | 7.93              | 8.00              |
| <b>Nondurable goods</b> .....                    | 8.95           | 9.18   | 9.18   | 9.14   | 9.30   | 9.20   | 9.26   | 9.32   | 9.32   | 9.31   | 9.33   | 9.37   | 9.38   | 9.39              | 9.46              |
| Food and kindred products .....                  | 8.75           | 8.94   | 8.88   | 8.82   | 8.95   | 8.88   | 8.98   | 9.07   | 9.06   | 9.06   | 9.07   | 9.14   | 9.15   | 9.12              | 9.14              |
| Tobacco manufactures .....                       | 12.88          | 14.03  | 15.17  | 14.55  | 13.34  | 13.18  | 13.75  | 13.69  | 13.79  | 14.01  | 14.42  | 14.98  | 15.24  | 15.78             | 16.14             |
| Textile mill products .....                      | 6.93           | 7.17   | 7.13   | 7.16   | 7.23   | 7.24   | 7.29   | 7.31   | 7.34   | 7.30   | 7.31   | 7.35   | 7.31   | 7.33              | 7.30              |
| Apparel and other textile products .....         | 5.84           | 5.93   | 5.87   | 5.88   | 5.99   | 5.97   | 5.98   | 6.00   | 6.02   | 6.03   | 6.04   | 6.05   | 6.08   | 6.02              |                   |
| Paper and allied products .....                  | 11.18          | 11.43  | 11.49  | 11.41  | 11.66  | 11.46  | 11.49  | 11.53  | 11.54  | 11.50  | 11.52  | 11.60  | 11.64  | 11.63             | 11.74             |
| Printing and publishing .....                    | 9.99           | 10.28  | 10.24  | 10.32  | 10.48  | 10.41  | 10.39  | 10.43  | 10.38  | 10.40  | 10.45  | 10.40  | 10.43  | 10.44             | 10.47             |
| Chemicals and allied products .....              | 11.98          | 12.37  | 12.37  | 12.33  | 12.56  | 12.50  | 12.55  | 12.61  | 12.55  | 12.55  | 12.53  | 12.57  | 12.59  | 12.60             | 12.71             |
| Petroleum and coal products .....                | 14.19          | 14.59  | 14.51  | 14.54  | 14.74  | 14.66  | 14.77  | 14.73  | 14.89  | 14.96  | 14.98  | 15.00  | 14.93  | 15.04             | 15.24             |
| Rubber and miscellaneous plastics products ..... | 8.73           | 8.91   | 8.96   | 8.93   | 9.01   | 8.93   | 8.98   | 9.04   | 9.00   | 9.00   | 9.00   | 9.04   | 9.04   | 9.06              | 9.10              |
| Leather and leather products .....               | 5.92           | 6.08   | 5.99   | 6.04   | 6.13   | 6.12   | 6.15   | 6.16   | 6.16   | 6.19   | 6.23   | 6.29   | 6.27   | 6.27              | 6.26              |
| <b>TRANSPORTATION AND PUBLIC UTILITIES</b> ..... | 11.70          | 12.03  | 12.00  | 12.06  | 12.11  | 12.12  | 12.21  | 12.24  | 12.16  | 12.23  | 12.19  | 12.27  | 12.28  | 12.29             | 12.31             |
| <b>WHOLESALE TRADE</b> .....                     | 9.35           | 9.59   | 9.56   | 9.60   | 9.64   | 9.65   | 9.72   | 9.73   | 9.78   | 9.78   | 9.78   | 9.88   | 9.87   | 9.85              | 9.94              |
| <b>RETAIL TRADE</b> .....                        | 6.03           | 6.11   | 6.07   | 6.07   | 6.20   | 6.16   | 6.18   | 6.19   | 6.24   | 6.23   | 6.24   | 6.26   | 6.28   | 6.26              | 6.28              |
| <b>FINANCE, INSURANCE, AND REAL ESTATE</b> ..... | 8.36           | 8.73   | 8.63   | 8.74   | 8.73   | 8.76   | 8.89   | 8.81   | 8.96   | 9.02   | 8.97   | 9.03   | 9.09   | 8.96              | 9.00              |
| <b>SERVICES</b> .....                            | 8.18           | 8.48   | 8.34   | 8.40   | 8.54   | 8.61   | 8.71   | 8.73   | 8.81   | 8.81   | 8.80   | 8.82   | 8.84   | 8.78              | 8.80              |

- Data not available.  
<sup>p</sup> = preliminary

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry

| Industry   | Annual average |          | 1987     |          |          |          |          |          | 1988     |          |          |          |          |                   |                   |
|--|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------|-------------------|
|  | 1986           | 1987     | July     | Aug.     | Sept.    | Oct.     | Nov.     | Dec.     | Jan.     | Feb.     | Mar.     | Apr.     | May      | June <sup>p</sup> | July <sup>p</sup> |
| <b>PRIVATE SECTOR</b>                            |                |          |          |          |          |          |          |          |          |          |          |          |          |                   |                   |
| Current dollars .....                            | \$304.85       | \$312.50 | \$311.50 | \$314.69 | \$314.04 | \$316.89 | \$317.72 | \$317.72 | \$315.79 | \$316.37 | \$315.79 | \$320.28 | \$320.40 | \$323.05          | \$324.68          |
| Seasonally adjusted .....                        | -              | -        | 311.81   | 313.55   | 312.09   | 316.54   | 316.68   | 315.21   | 317.16   | 317.72   | 316.94   | 322.13   | 321.67   | 322.02            | 325.27            |
| Constant (1977) dollars .....                    | 171.07         | 169.28   | 168.47   | 169.28   | 168.12   | 169.19   | 169.45   | 169.54   | 167.97   | 168.01   | 167.08   | 168.57   | 167.92   | 168.61            | -                 |
| <b>MINING</b> .....                              | 525.81         | 530.85   | 521.22   | 529.48   | 528.75   | 532.82   | 534.20   | 543.06   | 537.62   | 531.28   | 527.52   | 539.28   | 529.19   | 534.63            | 532.14            |
| <b>CONSTRUCTION</b> .....                        | 466.75         | 479.68   | 486.36   | 489.45   | 466.84   | 497.42   | 475.99   | 481.66   | 466.34   | 462.80   | 481.34   | 488.15   | 491.63   | 498.07            | 498.19            |
| <b>MANUFACTURING</b>                             |                |          |          |          |          |          |          |          |          |          |          |          |          |                   |                   |
| Current dollars .....                            | 396.01         | 406.31   | 400.72   | 403.27   | 407.59   | 410.94   | 414.41   | 420.93   | 412.87   | 409.04   | 411.86   | 414.92   | 414.73   | 418.59            | 414.33            |
| Constant (1977) dollars .....                    | 222.23         | 220.10   | 216.72   | 216.93   | 218.20   | 219.40   | 221.02   | 224.62   | 219.61   | 217.23   | 217.92   | 218.38   | 217.36   | 218.47            | -                 |
| <b>Durable goods</b> .....                       | 424.98         | 432.85   | 425.58   | 429.11   | 431.14   | 438.06   | 442.68   | 449.44   | 440.96   | 436.95   | 440.54   | 444.11   | 444.94   | 448.33            | 440.84            |
| Lumber and wood products .....                   | 336.10         | 341.04   | 341.38   | 345.98   | 337.55   | 341.85   | 342.19   | 341.42   | 336.15   | 339.49   | 337.16   | 345.10   | 345.87   | 351.33            | 347.33            |
| Furniture and fixtures .....                     | 296.91         | 306.80   | 301.04   | 311.92   | 309.60   | 314.57   | 313.03   | 319.76   | 303.42   | 301.09   | 302.64   | 305.37   | 307.72   | 310.08            | 307.28            |
| Stone, clay, and glass products .....            | 423.69         | 433.58   | 438.78   | 437.93   | 440.73   | 441.61   | 436.72   | 435.27   | 423.32   | 426.63   | 435.12   | 442.43   | 447.26   | 448.12            | 448.38            |
| Primary metal industries .....                   | 496.93         | 514.61   | 510.60   | 511.80   | 526.61   | 520.80   | 526.15   | 534.05   | 524.61   | 519.70   | 523.84   | 526.79   | 527.66   | 531.39            | 524.17            |
| Blast furnaces and basic steel products .....    | 572.54         | 598.05   | 595.63   | 594.94   | 631.16   | 603.78   | 608.38   | 618.49   | 606.70   | 609.77   | 606.99   | 613.36   | 612.84   | 621.67            | 611.80            |
| Fabricated metal products .....                  | 408.04         | 415.00   | 405.14   | 410.52   | 410.00   | 422.52   | 428.24   | 435.11   | 423.02   | 418.37   | 421.82   | 426.17   | 426.59   | 432.37            | 416.77            |
| Machinery, except electrical .....               | 439.71         | 451.54   | 446.01   | 448.33   | 447.86   | 458.58   | 465.69   | 475.89   | 464.38   | 459.85   | 462.87   | 463.49   | 462.16   | 464.53            | 461.67            |
| Electrical and electronic equipment .....        | 395.65         | 404.09   | 397.36   | 402.12   | 401.58   | 406.72   | 413.17   | 421.26   | 413.83   | 406.81   | 410.64   | 411.67   | 411.88   | 417.17            | 410.04            |
| Transportation equipment .....                   | 541.86         | 543.90   | 525.62   | 528.08   | 535.94   | 551.55   | 560.15   | 565.78   | 560.53   | 553.14   | 561.00   | 569.71   | 572.33   | 575.34            | 555.94            |
| Motor vehicles and equipment .....               | 572.97         | 571.81   | 546.02   | 545.38   | 560.60   | 583.19   | 591.59   | 593.64   | 592.45   | 587.24   | 598.99   | 621.37   | 624.63   | 627.73            | 586.87            |
| Instruments and related products .....           | 388.27         | 401.99   | 396.17   | 402.26   | 400.16   | 407.83   | 410.89   | 415.25   | 415.07   | 408.70   | 411.01   | 410.44   | 406.64   | 410.85            | 410.64            |
| Miscellaneous manufacturing .....                | 298.98         | 305.35   | 299.54   | 304.94   | 304.20   | 311.60   | 309.66   | 316.40   | 310.03   | 307.31   | 310.07   | 309.67   | 309.66   | 312.44            | 310.40            |
| <b>Nondurable goods</b> .....                    | 357.11         | 369.04   | 367.20   | 369.26   | 374.79   | 372.60   | 375.96   | 381.19   | 374.66   | 370.54   | 373.20   | 373.86   | 374.26   | 377.48            | 378.40            |
| Food and kindred products .....                  | 350.00         | 359.39   | 355.20   | 358.09   | 365.16   | 360.53   | 365.49   | 372.78   | 366.93   | 358.78   | 359.17   | 361.03   | 366.92   | 368.45            | 370.17            |
| Tobacco manufactures .....                       | 481.71         | 547.17   | 565.84   | 549.99   | 534.93   | 545.65   | 562.38   | 554.45   | 540.57   | 540.79   | 566.71   | 576.73   | 601.98   | 628.04            | 629.46            |
| Textile mill products .....                      | 284.82         | 299.71   | 296.61   | 302.15   | 301.49   | 304.08   | 306.18   | 307.75   | 303.14   | 301.49   | 299.71   | 301.35   | 297.52   | 299.80            | 294.92            |
| Apparel and other textile products .....         | 214.33         | 219.41   | 216.60   | 219.32   | 217.44   | 223.88   | 223.65   | 225.60   | 220.33   | 220.93   | 223.11   | 222.27   | 222.64   | 226.78            | 222.14            |
| Paper and allied products .....                  | 482.98         | 496.06   | 496.37   | 492.91   | 514.21   | 500.80   | 503.26   | 509.63   | 501.99   | 494.50   | 494.21   | 498.80   | 501.68   | 500.09            | 504.82            |
| Printing and publishing .....                    | 379.62         | 390.64   | 388.10   | 394.22   | 403.48   | 397.66   | 397.94   | 403.64   | 392.36   | 393.12   | 399.19   | 395.20   | 391.13   | 392.54            | 395.77            |
| Chemicals and allied products .....              | 501.96         | 523.25   | 518.30   | 519.09   | 536.31   | 528.75   | 535.89   | 542.23   | 533.38   | 530.87   | 532.53   | 529.20   | 528.78   | 534.24            | 533.82            |
| Petroleum and coal products .....                | 621.52         | 641.96   | 651.50   | 633.94   | 648.56   | 645.04   | 651.36   | 655.49   | 658.14   | 647.77   | 654.63   | 666.00   | 658.41   | 676.80            | 688.85            |
| Rubber and miscellaneous plastics products ..... | 360.55         | 370.66   | 367.36   | 369.70   | 372.11   | 374.17   | 377.16   | 383.30   | 376.20   | 372.60   | 375.30   | 377.87   | 376.06   | 377.80            | 375.83            |
| Leather and leather products .....               | 218.45         | 232.26   | 231.81   | 235.56   | 231.71   | 237.46   | 236.16   | 237.78   | 231.62   | 227.79   | 233.00   | 232.73   | 235.75   | 237.63            | 236.00            |
| <b>TRANSPORTATION AND PUBLIC UTILITIES</b> ..... | 458.64         | 471.58   | 475.20   | 478.78   | 474.71   | 477.53   | 479.85   | 479.81   | 474.24   | 475.75   | 470.53   | 480.98   | 481.38   | 485.46            | 488.71            |
| <b>WHOLESALE TRADE</b> .....                     | 358.11         | 365.38   | 365.19   | 367.68   | 366.32   | 369.60   | 371.30   | 371.69   | 370.66   | 370.66   | 370.66   | 377.42   | 375.06   | 376.27            | 380.70            |
| <b>RETAIL TRADE</b> .....                        | 176.08         | 178.41   | 182.10   | 183.31   | 182.90   | 179.26   | 179.22   | 181.37   | 176.59   | 177.56   | 178.46   | 180.91   | 181.49   | 184.04            | 188.40            |
| <b>FINANCE, INSURANCE, AND REAL ESTATE</b> ..... | 304.30         | 316.90   | 312.41   | 318.14   | 314.28   | 317.11   | 322.71   | 317.16   | 324.35   | 328.33   | 321.13   | 326.89   | 325.42   | 321.66            | 325.80            |
| <b>SERVICES</b> .....                            | 265.85         | 275.60   | 273.55   | 276.36   | 276.70   | 279.83   | 283.08   | 282.85   | 285.44   | 287.21   | 284.24   | 287.53   | 286.42   | 287.11            | 290.40            |

- Data not available.  
<sup>p</sup> = preliminary

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.



**17. The Hourly Earnings Index for production or nonsupervisory workers on private nonagricultural payrolls by industry**

| Industry   | Not seasonally adjusted |          |                        |                        | Seasonally adjusted |           |           |          |                        |                        |
|--|-------------------------|----------|------------------------|------------------------|---------------------|-----------|-----------|----------|------------------------|------------------------|
|  | July 1987               | May 1988 | June 1988 <sup>a</sup> | July 1988 <sup>p</sup> | July 1987           | Mar. 1988 | Apr. 1988 | May 1988 | June 1988 <sup>a</sup> | July 1988 <sup>p</sup> |
| <b>PRIVATE SECTOR (in current dollars)</b> .....           | 172.6                   | 178.6    | 178.2                  | 178.9                  | 173.2               | 177.0     | 178.0     | 178.7    | 178.6                  | 179.5                  |
| Mining <sup>1</sup> .....                                  | 181.8                   | 184.2    | 184.5                  | 185.5                  | -                   | -         | -         | -        | -                      | -                      |
| Construction .....   | 154.0                   | 157.5    | 157.5                  | 158.2                  | 154.9               | 157.5     | 157.8     | 157.5    | 158.0                  | 159.2                  |
| Manufacturing .....  | 174.7                   | 178.5    | 178.7                  | 179.1                  | 174.5               | 177.3     | 177.9     | 178.4    | 178.8                  | 179.0                  |
| Transportation and public utilities .....                  | 174.9                   | 180.5    | 180.4                  | 180.6                  | 176.2               | 179.4     | 180.6     | 181.6    | 181.3                  | 181.9                  |
| Wholesale trade <sup>1</sup> .....                         | 176.5                   | 182.2    | 181.6                  | 183.1                  | -                   | -         | -         | -        | -                      | -                      |
| Retail trade .....   | 160.5                   | 165.8    | 165.6                  | 166.2                  | 161.1               | 163.8     | 164.8     | 165.4    | 165.7                  | 166.8                  |
| Finance, insurance, and real estate <sup>1</sup> .....     | 185.5                   | 195.9    | 193.7                  | 194.5                  | -                   | -         | -         | -        | -                      | -                      |
| Services .....   | 179.1                   | 189.5    | 188.4                  | 189.2                  | 180.9               | 186.9     | 188.3     | 189.9    | 189.3                  | 191.1                  |
| <b>PRIVATE SECTOR   in constant (1977) dollars  </b> ..... | 93.3                    | 93.6     | 93.0                   | -                      | 93.7                | 93.5      | 93.6      | 93.6     | 93.2                   | -                      |

<sup>1</sup> This series is not seasonally adjusted because the seasonal component is small relative to the trend-cycle, irregular components, or both, and consequently cannot be separated with sufficient precision.  
- Data not available.

<sup>p</sup> = preliminary.  
NOTE: See "Notes on the data" for a description of the most recent benchmark revision. Publication of the Hourly Earnings Index series will be discontinued with the initial publication of December 1988 data.

**18. Indexes of diffusion: industries in which employment increased, data seasonally adjusted**

(In percent)

| Time span and year         | Jan. | Feb. | Mar. | Apr. | May  | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|----------------------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| <b>Over 1-month span:</b>  |      |      |      |      |      |      |      |      |       |      |      |      |
| 1986 .....                 | 57.0 | 47.3 | 49.5 | 50.8 | 51.9 | 46.8 | 51.9 | 54.1 | 51.4  | 53.0 | 58.9 | 58.9 |
| 1987 .....                 | 50.8 | 59.2 | 61.1 | 62.4 | 62.4 | 61.6 | 70.8 | 62.2 | 68.1  | 67.3 | 67.8 | 68.4 |
| 1988 .....                 | 61.6 | 61.6 | 62.2 | 63.8 | 58.1 | 69.7 | 63.8 | -    | -     | -    | -    | -    |
| <b>Over 3-month span:</b>  |      |      |      |      |      |      |      |      |       |      |      |      |
| 1986 .....                 | 50.0 | 47.6 | 45.7 | 46.2 | 46.2 | 46.2 | 48.1 | 51.9 | 50.5  | 55.9 | 59.7 | 59.2 |
| 1987 .....                 | 57.6 | 57.0 | 65.1 | 69.2 | 68.1 | 71.9 | 73.8 | 76.8 | 74.1  | 76.5 | 78.1 | 73.0 |
| 1988 .....                 | 71.6 | 66.8 | 67.0 | 66.8 | 71.6 | 70.8 | -    | -    | -     | -    | -    | -    |
| <b>Over 6-month span:</b>  |      |      |      |      |      |      |      |      |       |      |      |      |
| 1986 .....                 | 48.1 | 47.3 | 43.8 | 42.7 | 43.2 | 47.0 | 46.5 | 50.0 | 55.9  | 53.2 | 55.9 | 58.4 |
| 1987 .....                 | 64.6 | 64.3 | 63.0 | 70.3 | 72.4 | 77.3 | 78.4 | 79.7 | 82.7  | 77.8 | 77.0 | 76.5 |
| 1988 .....                 | 73.5 | 70.3 | 70.5 | 73.8 | -    | -    | -    | -    | -     | -    | -    | -    |
| <b>Over 12-month span:</b> |      |      |      |      |      |      |      |      |       |      |      |      |
| 1986 .....                 | 42.2 | 41.6 | 43.8 | 44.9 | 45.7 | 48.6 | 46.8 | 48.6 | 51.6  | 53.8 | 56.5 | 57.8 |
| 1987 .....                 | 63.8 | 67.3 | 69.5 | 73.5 | 76.8 | 76.8 | 78.9 | 78.9 | 79.7  | 78.4 | 77.8 | 81.9 |
| 1988 .....                 | 78.6 | -    | -    | -    | -    | -    | -    | -    | -     | -    | -    | -    |

- Data not available.  
NOTE: Figures are the percent of industries with employment rising. (Half of the unchanged components are counted as rising.) Data are centered within the

spans. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

**19. Annual data: Employment status of the noninstitutional population**

(Numbers in thousands)

| Employment status                 | 1979    | 1980    | 1981    | 1982    | 1983    | 1984    | 1985    | 1986    | 1987    |
|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Noninstitutional population ..... | 166,460 | 169,349 | 171,775 | 173,939 | 175,891 | 178,080 | 179,912 | 182,293 | 184,490 |
| Labor force:                      |         |         |         |         |         |         |         |         |         |
| Total (number) .....              | 106,559 | 108,544 | 110,315 | 111,872 | 113,226 | 115,241 | 117,167 | 119,540 | 121,602 |
| Percent of population .....       | 64.0    | 64.1    | 64.2    | 64.3    | 64.4    | 64.7    | 65.1    | 65.6    | 65.9    |
| Employed:                         |         |         |         |         |         |         |         |         |         |
| Total (number) .....              | 100,421 | 100,907 | 102,042 | 101,194 | 102,510 | 106,702 | 108,856 | 111,303 | 114,177 |
| Percent of population .....       | 60.3    | 59.6    | 59.4    | 58.2    | 58.3    | 59.9    | 60.5    | 61.1    | 61.9    |
| Resident Armed Forces .....       | 1,597   | 1,604   | 1,645   | 1,668   | 1,676   | 1,697   | 1,706   | 1,706   | 1,737   |
| Civilian:                         |         |         |         |         |         |         |         |         |         |
| Total .....                       | 98,824  | 99,303  | 100,397 | 99,526  | 100,834 | 105,005 | 107,150 | 109,597 | 112,440 |
| Agriculture .....                 | 3,347   | 3,364   | 3,368   | 3,401   | 3,383   | 3,321   | 3,179   | 3,163   | 3,208   |
| Nonagricultural industries .....  | 95,477  | 95,938  | 97,030  | 96,125  | 97,450  | 101,685 | 103,971 | 106,434 | 109,232 |
| Unemployed:                       |         |         |         |         |         |         |         |         |         |
| Total (number) .....              | 6,137   | 7,637   | 8,273   | 10,678  | 10,717  | 8,539   | 8,312   | 8,237   | 7,425   |
| Percent of labor force .....      | 5.8     | 7.0     | 7.5     | 9.5     | 9.5     | 7.4     | 7.1     | 6.9     | 6.1     |
| Not in labor force (number) ..... | 59,900  | 60,806  | 61,460  | 62,067  | 62,665  | 62,839  | 62,744  | 62,752  | 62,888  |

**20. Annual data: Employment levels by industry**

(Numbers in thousands)

| Industry                                  | 1979   | 1980   | 1981   | 1982   | 1983   | 1984   | 1985   | 1986   | 1987    |
|---|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Total employment .....                    | 89,823 | 90,406 | 91,156 | 89,566 | 90,200 | 94,496 | 97,519 | 99,525 | 102,310 |
| Private sector .....                      | 73,876 | 74,166 | 75,126 | 73,729 | 74,330 | 78,472 | 81,125 | 82,832 | 85,295  |
| Goods-producing .....                     | 26,461 | 25,658 | 25,497 | 23,813 | 23,334 | 24,727 | 24,859 | 24,558 | 24,784  |
| Mining .....                              | 958    | 1,027  | 1,139  | 1,128  | 952    | 966    | 927    | 777    | 721     |
| Construction .....                        | 4,463  | 4,346  | 4,188  | 3,905  | 3,948  | 4,383  | 4,673  | 4,816  | 4,998   |
| Manufacturing .....                       | 21,040 | 20,285 | 20,170 | 18,781 | 18,434 | 19,378 | 19,260 | 18,965 | 19,065  |
| Service-producing .....                   | 63,363 | 64,748 | 65,659 | 65,753 | 66,866 | 69,769 | 72,660 | 74,967 | 77,525  |
| Transportation and public utilities ..... | 5,136  | 5,146  | 5,165  | 5,082  | 4,954  | 5,159  | 5,238  | 5,255  | 5,385   |
| Wholesale trade .....                     | 5,204  | 5,275  | 5,358  | 5,278  | 5,268  | 5,555  | 5,717  | 5,753  | 5,872   |
| Retail trade .....                        | 14,989 | 15,035 | 15,189 | 15,179 | 15,613 | 16,545 | 17,356 | 17,930 | 18,509  |
| Finance, insurance, and real estate ..... | 4,975  | 5,160  | 5,298  | 5,341  | 5,468  | 5,689  | 5,955  | 6,283  | 6,549   |
| Services .....                            | 17,112 | 17,890 | 18,619 | 19,036 | 19,694 | 20,797 | 22,000 | 23,053 | 24,196  |
| Government .....                          | 15,947 | 16,241 | 16,031 | 15,837 | 15,869 | 16,024 | 16,394 | 16,693 | 17,015  |
| Federal .....                             | 2,773  | 2,866  | 2,772  | 2,739  | 2,774  | 2,807  | 2,875  | 2,899  | 2,943   |
| State .....                               | 3,541  | 3,610  | 3,640  | 3,640  | 3,662  | 3,734  | 3,832  | 3,893  | 3,963   |
| Local .....                               | 9,633  | 9,765  | 9,619  | 9,458  | 9,434  | 9,482  | 9,687  | 9,901  | 10,109  |

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

**21. Annual data: Average hours and earnings of production or nonsupervisory workers on nonagricultural payrolls, by industry**

| Industry                                   | 1979   | 1980   | 1981   | 1982   | 1983   | 1984   | 1985   | 1986   | 1987   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Private sector</b>                      |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 35.7   | 35.3   | 35.2   | 34.8   | 35.0   | 35.2   | 34.9   | 34.8   | 34.8   |
| Average hourly earnings (in dollars) ..... | 6.16   | 6.66   | 7.25   | 7.68   | 8.02   | 8.32   | 8.57   | 8.76   | 8.98   |
| Average weekly earnings (in dollars) ..... | 219.91 | 235.10 | 255.20 | 267.26 | 280.70 | 292.86 | 299.09 | 304.85 | 312.50 |
| <b>Mining</b>                              |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 43.0   | 43.3   | 43.7   | 42.7   | 42.5   | 43.3   | 43.4   | 42.2   | 42.4   |
| Average hourly earnings (in dollars) ..... | 8.49   | 9.17   | 10.04  | 10.77  | 11.28  | 11.63  | 11.98  | 12.46  | 12.52  |
| Average weekly earnings (in dollars) ..... | 365.07 | 397.06 | 438.75 | 459.88 | 479.40 | 503.58 | 519.93 | 525.81 | 530.85 |
| <b>Construction</b>                        |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 37.0   | 37.0   | 36.9   | 36.7   | 37.1   | 37.8   | 37.7   | 37.4   | 37.8   |
| Average hourly earnings (in dollars) ..... | 9.27   | 9.94   | 10.82  | 11.63  | 11.94  | 12.13  | 12.32  | 12.48  | 12.69  |
| Average weekly earnings (in dollars) ..... | 342.99 | 367.78 | 399.26 | 426.82 | 442.97 | 458.51 | 464.46 | 466.75 | 479.68 |
| <b>Manufacturing</b>                       |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 40.2   | 39.7   | 39.8   | 38.9   | 40.1   | 40.7   | 40.5   | 40.7   | 41.0   |
| Average hourly earnings (in dollars) ..... | 6.70   | 7.27   | 7.99   | 8.49   | 8.83   | 9.19   | 9.54   | 9.73   | 9.91   |
| Average weekly earnings (in dollars) ..... | 269.34 | 288.62 | 318.00 | 330.26 | 354.08 | 374.03 | 386.37 | 396.01 | 406.31 |
| <b>Transportation and public utilities</b> |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 39.9   | 39.6   | 39.4   | 39.0   | 39.0   | 39.4   | 39.5   | 39.2   | 39.2   |
| Average hourly earnings (in dollars) ..... | 8.16   | 8.87   | 9.70   | 10.32  | 10.79  | 11.12  | 11.40  | 11.70  | 12.03  |
| Average weekly earnings (in dollars) ..... | 325.58 | 351.25 | 382.18 | 402.48 | 420.81 | 438.13 | 450.30 | 458.64 | 471.58 |
| <b>Wholesale trade</b>                     |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 38.8   | 38.5   | 38.5   | 38.3   | 38.5   | 38.5   | 38.4   | 38.3   | 38.1   |
| Average hourly earnings (in dollars) ..... | 6.39   | 6.96   | 7.56   | 8.09   | 8.55   | 8.89   | 9.16   | 9.35   | 9.59   |
| Average weekly earnings (in dollars) ..... | 247.93 | 267.96 | 291.06 | 309.85 | 329.18 | 342.27 | 351.74 | 358.11 | 365.38 |
| <b>Retail trade</b>                        |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 30.6   | 30.2   | 30.1   | 29.9   | 29.8   | 29.8   | 29.4   | 29.2   | 29.2   |
| Average hourly earnings (in dollars) ..... | 4.53   | 4.88   | 5.25   | 5.48   | 5.74   | 5.85   | 5.94   | 6.03   | 6.11   |
| Average weekly earnings (in dollars) ..... | 138.62 | 147.38 | 158.03 | 163.85 | 171.05 | 174.33 | 174.64 | 176.08 | 178.41 |
| <b>Finance, insurance, and real estate</b> |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 36.2   | 36.2   | 36.3   | 36.2   | 36.2   | 36.5   | 36.4   | 36.4   | 36.3   |
| Average hourly earnings (in dollars) ..... | 5.27   | 5.79   | 6.31   | 6.78   | 7.29   | 7.63   | 7.94   | 8.36   | 8.73   |
| Average weekly earnings (in dollars) ..... | 190.77 | 209.60 | 229.05 | 245.44 | 263.90 | 278.50 | 289.02 | 304.30 | 316.90 |
| <b>Services</b>                            |        |        |        |        |        |        |        |        |        |
| Average weekly hours .....                 | 32.7   | 32.6   | 32.6   | 32.6   | 32.7   | 32.6   | 32.5   | 32.5   | 32.5   |
| Average hourly earnings (in dollars) ..... | 5.36   | 5.85   | 6.41   | 6.92   | 7.31   | 7.59   | 7.90   | 8.18   | 8.48   |
| Average weekly earnings (in dollars) ..... | 175.27 | 190.71 | 208.97 | 225.59 | 239.04 | 247.43 | 256.75 | 265.85 | 275.60 |



22. Employment Cost Index, compensation,<sup>1</sup> by occupation and industry group

(June 1981 = 100)

| Series   | 1986  |       |       | 1987  |       |       |       | 1988  |       | Percent change |                 |     |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|-----------------|-----|
|  | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  | 3 months ended | 12 months ended |     |
|  |       |       |       |       |       |       |       |       |       | June 1988      |                 |     |
| <b>Civilian workers</b> <sup>2</sup>                   | 131.5 | 133.0 | 133.8 | 135.0 | 135.9 | 137.5 | 138.6 | 140.6 | 142.1 | 1.1            | 4.6             |     |
| Workers, by occupational group:                        |       |       |       |       |       |       |       |       |       |                |                 |     |
| White-collar workers                                   | 134.2 | 136.0 | 136.9 | 138.5 | 139.3 | 141.2 | 142.2 | 144.2 | 145.7 | 1.0            | 4.6             |     |
| Blue-collar workers                                    | 126.8 | 127.8 | 128.4 | 129.1 | 130.1 | 131.3 | 132.5 | 134.7 | 136.2 | 1.1            | 4.7             |     |
| Service occupations                                    | 133.7 | 135.4 | 136.6 | 138.0 | 138.5 | 139.9 | 140.8 | 142.9 | 144.3 | 1.0            | 4.2             |     |
| Workers, by industry division:                         |       |       |       |       |       |       |       |       |       |                |                 |     |
| Goods-producing  | 128.1 | 128.8 | 129.5 | 130.2 | 131.1 | 132.2 | 133.5 | 135.8 | 137.3 | 1.1            | 4.7             |     |
| Manufacturing  | 128.7 | 129.3 | 130.1 | 130.7 | 131.5 | 132.7 | 134.1 | 136.8 | 138.1 | 1.0            | 5.0             |     |
| Service-producing                                      | 133.7 | 135.6 | 136.5 | 138.1 | 138.9 | 140.8 | 141.7 | 143.6 | 145.1 | 1.0            | 4.5             |     |
| Services   | 139.4 | 142.4 | 143.6 | 145.2 | 145.8 | 149.2 | 150.6 | 152.8 | 153.8 | .7             | 5.5             |     |
| Health services  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.4             | 5.1 |
| Hospitals  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.4             | 5.7 |
| Public administration <sup>3</sup>                     | 138.0 | 140.6 | 141.6 | 144.1 | 144.7 | 146.4 | 148.1 | 150.3 | 151.2 | .6             | 4.5             |     |
| Nonmanufacturing                                       | 132.8 | 134.6 | 135.4 | 136.9 | 137.8 | 139.6 | 140.5 | 142.3 | 143.9 | 1.1            | 4.4             |     |
| <b>Private industry workers</b>                        | 129.9 | 130.8 | 131.6 | 132.9 | 133.8 | 135.1 | 136.0 | 138.1 | 139.8 | 1.2            | 4.5             |     |
| Workers, by occupational group:                        |       |       |       |       |       |       |       |       |       |                |                 |     |
| White-collar workers                                   | 132.5 | 133.5 | 134.3 | 136.1 | 137.0 | 138.5 | 139.3 | 141.2 | 143.0 | 1.3            | 4.4             |     |
| Professional specialty and technical occupations       | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.2             | 5.0 |
| Executive, administrative, and managerial occupations  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.1             | 3.9 |
| Sales occupations                                      | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 2.3             | 3.4 |
| Administrative support occupations, including clerical | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.0             | 4.9 |
| Blue-collar workers                                    | 126.3 | 127.2 | 127.8 | 128.4 | 129.5 | 130.6 | 131.8 | 134.1 | 135.6 | 1.1            | 4.7             |     |
| Precision production, craft, and repair occupation     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.0             | 4.3 |
| Machine operators, assemblers, and inspectors          | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.2             | 5.2 |
| Transportation and material moving occupations         | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.7             | 4.7 |
| Handlers, equipment cleaners, helpers, and laborers    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | .7              | 4.9 |
| Service occupations                                    | 131.1 | 132.3 | 133.5 | 134.7 | 135.2 | 135.9 | 136.7 | 138.6 | 140.1 | 1.1            | 3.6             |     |
| Workers, by industry division:                         |       |       |       |       |       |       |       |       |       |                |                 |     |
| Goods-producing  | 127.8 | 128.6 | 129.2 | 129.9 | 130.8 | 131.9 | 133.2 | 135.6 | 137.1 | 1.1            | 4.8             |     |
| Construction   | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.3             | 4.1 |
| Manufacturing  | 128.7 | 129.3 | 130.1 | 130.7 | 131.5 | 132.7 | 134.1 | 136.8 | 138.1 | 1.0            | 5.0             |     |
| Durables   | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.0             | 5.0 |
| Nondurables  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | .9              | 4.9 |
| Service-producing                                      | 131.6 | 132.7 | 133.5 | 135.3 | 136.3 | 137.7 | 138.4 | 140.2 | 142.1 | 1.4            | 4.3             |     |
| Transportation and public utilities                    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.0             | 3.1 |
| Transportation   | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.7             | 3.4 |
| Public utilities                                       | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | .3              | 2.6 |
| Wholesale and retail trade                             | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.9             | 4.0 |
| Wholesale trade  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.8             | 4.0 |
| Retail trade   | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.9             | 4.0 |
| Finance, insurance, and real estate                    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.5             | 3.1 |
| Service  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | .9              | 5.5 |
| Health services  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.7             | 5.3 |
| Hospitals  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | 1.5             | 5.9 |
| Nonmanufacturing                                       | 130.6 | 131.7 | 132.4 | 134.1 | 135.1 | 136.4 | 137.1 | 138.9 | 140.8 | 1.4            | 4.2             |     |
| <b>State and local government workers</b>              | 139.7 | 143.6 | 144.7 | 145.9 | 146.3 | 149.7 | 151.1 | 153.1 | 153.6 | .3             | 5.0             |     |
| Workers, by occupational group:                        |       |       |       |       |       |       |       |       |       |                |                 |     |
| White-collar workers                                   | 140.5 | 145.0 | 146.0 | 147.2 | 147.5 | 151.2 | 152.7 | 154.8 | 155.2 | .3             | 5.2             |     |
| Blue-collar workers                                    | 136.3 | 138.5 | 139.5 | 140.8 | 141.3 | 143.3 | 144.3 | 145.9 | 145.9 | .0             | 3.3             |     |
| Workers, by industry division:                         |       |       |       |       |       |       |       |       |       |                |                 |     |
| Services   | 140.8 | 145.5 | 146.6 | 147.3 | 147.6 | 151.8 | 153.1 | 155.2 | 155.6 | .3             | 5.4             |     |
| Hospitals and other services <sup>4</sup>              | 137.9 | 139.4 | 141.1 | 142.5 | 143.3 | 145.1 | 146.3 | 150.3 | 150.4 | .1             | 5.0             |     |
| Health services  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -              | .4              | 4.8 |
| Schools  | 141.7 | 147.6 | 148.4 | 148.9 | 149.1 | 154.1 | 155.5 | 156.8 | 157.3 | .3             | 5.5             |     |
| Elementary and secondary                               | 143.2 | 149.4 | 150.3 | 150.5 | 150.7 | 156.5 | 157.8 | 158.9 | 159.4 | .3             | 5.8             |     |
| Public administration <sup>1</sup>                     | 138.0 | 140.6 | 141.6 | 144.1 | 144.7 | 146.4 | 148.1 | 150.3 | 151.2 | .6             | 4.5             |     |

<sup>1</sup> Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

<sup>2</sup> Consist of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

<sup>3</sup> Consist of legislative, judicial, administrative, and regulatory activities.

<sup>4</sup> Includes, for example, library, social, and health services.

- Data not available.

## 23. Employment Cost Index, wages and salaries, by occupation and industry group

(June 1981 = 100)

| Series   | 1986      |       |       | 1987  |       |       | 1988  |       |       | Percent change |                 |
|--|-----------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|-----------------|
|  | June      | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  | 3 months ended | 12 months ended |
|  | June 1988 |       |       |       |       |       |       |       |       |                |                 |
| <b>Civilian workers</b> <sup>1</sup>                   | 129.3     | 130.7 | 131.5 | 132.8 | 133.5 | 135.2 | 136.1 | 137.4 | 138.7 | 0.9            | 3.9             |
| Workers, by occupational group:                        |           |       |       |       |       |       |       |       |       |                |                 |
| White-collar workers                                   | 132.4     | 134.1 | 135.0 | 136.6 | 137.3 | 139.4 | 140.2 | 141.5 | 143.0 | 1.1            | 4.2             |
| Blue-collar workers                                    | 124.1     | 125.0 | 125.6 | 126.2 | 127.1 | 128.3 | 129.4 | 130.4 | 131.6 | .9             | 3.5             |
| Service occupations                                    | 130.0     | 131.7 | 132.8 | 134.2 | 134.7 | 136.0 | 136.6 | 138.0 | 139.3 | .9             | 3.4             |
| Workers, by industry division                          |           |       |       |       |       |       |       |       |       |                |                 |
| Goods-producing  | 125.6     | 126.3 | 127.0 | 127.8 | 128.5 | 129.8 | 131.0 | 132.2 | 133.4 | .9             | 3.8             |
| Manufacturing  | 126.5     | 127.2 | 127.9 | 128.7 | 129.5 | 130.8 | 132.2 | 133.3 | 134.4 | .8             | 3.8             |
| Service-producing                                      | 131.5     | 133.4 | 134.2 | 135.8 | 136.5 | 138.5 | 139.2 | 140.5 | 141.9 | 1.0            | 4.0             |
| Services   | 137.0     | 139.9 | 141.1 | 142.7 | 143.4 | 146.8 | 148.2 | 149.5 | 150.4 | .6             | 4.9             |
| Health services  | -         | -     | -     | -     | -     | -     | -     | -     | -     | 1.6            | 4.9             |
| Hospitals  | -         | -     | -     | -     | -     | -     | -     | -     | -     | 1.5            | 5.6             |
| Public administration <sup>2</sup>                     | 134.6     | 137.5 | 138.1 | 140.5 | 141.0 | 142.6 | 143.8 | 145.5 | 146.4 | .6             | 3.8             |
| Nonmanufacturing                                       | 130.4     | 132.2 | 133.0 | 134.5 | 135.2 | 137.1 | 137.8 | 139.0 | 140.5 | 1.1            | 3.9             |
| <b>Private industry workers</b>                        | 127.9     | 128.8 | 129.5 | 130.8 | 131.7 | 133.0 | 133.8 | 135.1 | 136.6 | 1.1            | 3.7             |
| Workers, by occupational group:                        |           |       |       |       |       |       |       |       |       |                |                 |
| White-collar workers                                   | 131.1     | 132.0 | 132.7 | 134.6 | 135.4 | 137.0 | 137.6 | 139.0 | 140.8 | 1.3            | 4.0             |
| Professional specialty and technical occupations       | 134.0     | 135.4 | 136.4 | 138.4 | 139.1 | 141.2 | 142.6 | 144.0 | 145.8 | 1.3            | 4.8             |
| Executive, administrative, and managerial occupations  | 132.1     | 132.4 | 133.5 | 135.6 | 136.4 | 138.6 | 139.2 | 139.9 | 141.3 | 1.0            | 3.6             |
| Sales occupations                                      | 124.3     | 125.2 | 124.9 | 126.7 | 127.1 | 127.0 | 126.1 | 127.5 | 130.8 | 2.6            | 2.9             |
| Administrative support occupations, including clerical | 130.8     | 131.7 | 132.7 | 134.3 | 135.5 | 137.1 | 138.1 | 140.2 | 141.2 | .7             | 4.2             |
| Blue-collar workers                                    | 123.7     | 124.5 | 125.1 | 125.6 | 126.6 | 127.7 | 128.9 | 129.9 | 131.1 | .9             | 3.6             |
| Precision production, craft, and repair occupations    | 125.7     | 126.7 | 127.4 | 127.9 | 128.8 | 130.2 | 131.1 | 132.1 | 133.4 | 1.0            | 3.6             |
| Machine operators, assemblers, and inspectors          | 123.6     | 124.1 | 124.9 | 125.5 | 126.7 | 127.5 | 129.2 | 129.9 | 131.2 | 1.0            | 3.6             |
| Transportation and material moving occupations         | 118.9     | 119.8 | 120.1 | 120.5 | 121.5 | 122.3 | 122.9 | 123.7 | 125.4 | 1.4            | 3.2             |
| Handlers, equipment cleaners, helpers, and laborers    | 120.3     | 120.9 | 121.4 | 121.9 | 122.6 | 123.7 | 125.0 | 126.7 | 127.5 | .6             | 4.0             |
| Service occupations                                    | 128.0     | 128.9 | 130.1 | 131.4 | 131.9 | 132.6 | 133.2 | 134.5 | 135.8 | 1.0            | 3.0             |
| Workers, by industry division:                         |           |       |       |       |       |       |       |       |       |                |                 |
| Goods-producing  | 125.4     | 126.1 | 126.8 | 127.5 | 128.3 | 129.6 | 130.8 | 132.0 | 133.2 | .9             | 3.8             |
| Construction   | 119.8     | 120.5 | 120.8 | 121.7 | 122.7 | 123.8 | 124.7 | 125.9 | 127.6 | 1.4            | 4.0             |
| Manufacturing  | 126.5     | 127.2 | 127.9 | 128.7 | 129.5 | 130.8 | 132.2 | 133.3 | 134.4 | .8             | 3.8             |
| Durables   | 125.8     | 126.4 | 127.2 | 127.7 | 128.7 | 129.7 | 131.1 | 132.1 | 133.1 | .8             | 3.4             |
| Nondurables  | 127.9     | 128.5 | 129.3 | 130.5 | 131.0 | 132.8 | 134.1 | 135.6 | 136.7 | .8             | 4.4             |
| Service-producing                                      | 129.9     | 130.9 | 131.6 | 133.4 | 134.3 | 135.7 | 136.2 | 137.5 | 139.3 | 1.3            | 3.7             |
| Transportation and public utilities                    | 126.6     | 127.3 | 127.5 | 128.1 | 129.3 | 130.0 | 130.2 | 131.3 | 132.5 | .9             | 2.5             |
| Transportation   | -         | -     | -     | -     | -     | -     | -     | -     | -     | 1.1            | 2.1             |
| Public utilities                                       | -         | -     | -     | -     | -     | -     | -     | -     | -     | .6             | 2.7             |
| Wholesale and retail trade                             | 125.8     | 126.5 | 126.9 | 127.9 | 129.9 | 130.6 | 130.7 | 131.9 | 134.6 | 2.0            | 3.6             |
| Wholesale trade  | 131.2     | 131.8 | 133.1 | 134.8 | 137.2 | 137.8 | 138.5 | 139.0 | 141.7 | 1.9            | 3.3             |
| Retail trade   | 123.7     | 124.4 | 124.5 | 125.2 | 127.1 | 127.8 | 127.7 | 129.2 | 131.7 | 1.9            | 3.6             |
| Finance, insurance, and real estate                    | 128.0     | 129.0 | 130.0 | 133.5 | 131.5 | 131.8 | 131.6 | 132.9 | 134.9 | 1.5            | 2.6             |
| Services   | 136.9     | 138.2 | 139.5 | 141.8 | 142.8 | 145.9 | 147.1 | 148.6 | 149.8 | .8             | 4.9             |
| Health services  | -         | -     | -     | -     | -     | -     | -     | -     | -     | 1.9            | 5.2             |
| Hospitals  | -         | -     | -     | -     | -     | -     | -     | -     | -     | 1.6            | 5.8             |
| Nonmanufacturing                                       | 128.7     | 129.7 | 130.4 | 131.9 | 132.8 | 134.2 | 134.8 | 136.0 | 137.8 | 1.3            | 3.8             |
| <b>State and local government workers</b>              | 136.0     | 140.4 | 141.4 | 142.5 | 142.8 | 146.1 | 147.4 | 148.7 | 149.1 | .3             | 4.4             |
| Workers, by occupational group                         |           |       |       |       |       |       |       |       |       |                |                 |
| White-collar workers                                   | 137.0     | 141.8 | 142.8 | 143.9 | 144.1 | 147.7 | 149.3 | 150.5 | 150.8 | .2             | 4.6             |
| Blue-collar workers                                    | 131.9     | 134.5 | 135.1 | 136.3 | 136.9 | 139.0 | 139.6 | 141.1 | 141.1 | .0             | 3.1             |
| Workers, by industry division                          |           |       |       |       |       |       |       |       |       |                |                 |
| Services   | 137.1     | 142.1 | 143.3 | 143.9 | 144.2 | 148.2 | 149.5 | 150.7 | 151.1 | .3             | 4.8             |
| Hospitals and other services <sup>3</sup>              | 133.3     | 135.8 | 137.3 | 138.6 | 139.4 | 141.2 | 142.2 | 144.5 | 144.7 | .1             | 3.8             |
| Health services  | -         | -     | -     | -     | -     | -     | -     | -     | -     | .7             | 4.3             |
| Schools  | 138.2     | 144.1 | 145.1 | 145.5 | 145.6 | 150.3 | 151.8 | 152.6 | 153.0 | .3             | 5.1             |
| Elementary and secondary                               | 139.4     | 145.7 | 146.4 | 146.5 | 146.6 | 152.0 | 153.4 | 154.0 | 154.3 | .2             | 5.3             |
| Public administration <sup>2</sup>                     | 134.6     | 137.5 | 138.1 | 140.5 | 141.0 | 142.6 | 143.8 | 145.5 | 146.4 | .6             | 3.8             |

<sup>1</sup> Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

<sup>2</sup> Consists of legislative, judicial, administrative, and regulatory activities.

<sup>3</sup> Includes, for example, library, social and health services.

- Data not available.

24. Employment Cost Index, private nonfarm workers, by bargaining status, region, and area size

(June 1981 = 100)

| Series   | 1986  |       |       | 1987  |       |       |       | 1988  |       |                | Percent change  |  |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|-----------------|--|
|  | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  | 3 months ended | 12 months ended |  |
|  |       |       |       |       |       |       |       |       |       | June 1988      |                 |  |
| <b>COMPENSATION</b>                              |       |       |       |       |       |       |       |       |       |                |                 |  |
| <b>Workers, by bargaining status<sup>1</sup></b> |       |       |       |       |       |       |       |       |       |                |                 |  |
| Union .....                                      | 128.7 | 129.4 | 129.8 | 130.5 | 131.2 | 132.0 | 133.4 | 135.6 | 136.9 | 1.0            | 4.3             |  |
| Goods-producing .....                            | 126.7 | 127.3 | 127.5 | 128.0 | 128.7 | 129.5 | 131.3 | 134.1 | 135.3 | .9             | 5.1             |  |
| Service-producing .....                          | 131.9 | 132.8 | 133.4 | 134.4 | 135.2 | 135.9 | 136.7 | 138.0 | 139.4 | 1.0            | 3.1             |  |
| Manufacturing .....                              | 126.9 | 127.5 | 127.9 | 128.0 | 128.7 | 129.5 | 131.5 | 135.0 | 136.2 | .9             | 5.8             |  |
| Nonmanufacturing .....                           | 130.4 | 131.2 | 131.5 | 132.6 | 133.5 | 134.3 | 135.1 | 136.2 | 137.5 | 1.0            | 3.0             |  |
| Nonunion .....                                   | 130.2 | 131.2 | 132.1 | 133.6 | 134.6 | 136.1 | 136.9 | 138.9 | 140.7 | 1.3            | 4.5             |  |
| Goods-producing .....                            | 128.2 | 129.1 | 130.0 | 130.8 | 131.8 | 133.1 | 134.1 | 136.2 | 137.8 | 1.2            | 4.6             |  |
| Service-producing .....                          | 131.4 | 132.5 | 133.4 | 135.3 | 136.4 | 137.9 | 138.6 | 140.5 | 142.5 | 1.4            | 4.5             |  |
| Manufacturing .....                              | 129.7 | 130.4 | 131.4 | 132.2 | 133.2 | 134.6 | 135.6 | 137.8 | 139.2 | 1.0            | 4.5             |  |
| Nonmanufacturing .....                           | 130.4 | 131.6 | 132.5 | 134.3 | 135.3 | 136.8 | 137.5 | 139.4 | 141.5 | 1.5            | 4.6             |  |
| <b>Workers, by region<sup>1</sup></b>            |       |       |       |       |       |       |       |       |       |                |                 |  |
| Northeast .....                                  | 133.3 | 134.2 | 135.2 | 137.4 | 138.6 | 140.3 | 141.9 | 143.7 | 145.9 | 1.5            | 5.3             |  |
| South .....                                      | 129.6 | 130.7 | 131.4 | 132.1 | 133.2 | 134.2 | 135.4 | 137.1 | 139.3 | 1.6            | 4.6             |  |
| Midwest (formerly North Central) .....           | 126.2 | 127.3 | 128.1 | 129.1 | 130.2 | 131.2 | 131.7 | 134.4 | 135.5 | .8             | 4.1             |  |
| West .....                                       | 131.6 | 132.1 | 132.8 | 134.1 | 134.2 | 135.8 | 136.3 | 138.3 | 139.5 | .9             | 3.9             |  |
| <b>Workers, by area size<sup>1</sup></b>         |       |       |       |       |       |       |       |       |       |                |                 |  |
| Metropolitan areas .....                         | 130.5 | 131.4 | 132.2 | 133.5 | 134.4 | 135.8 | 136.7 | 138.9 | 140.5 | 1.2            | 4.5             |  |
| Other areas .....                                | 126.4 | 127.2 | 127.9 | 129.0 | 130.2 | 131.3 | 132.0 | 133.6 | 135.5 | 1.4            | 4.1             |  |
| <b>WAGES AND SALARIES</b>                        |       |       |       |       |       |       |       |       |       |                |                 |  |
| <b>Workers, by bargaining status<sup>1</sup></b> |       |       |       |       |       |       |       |       |       |                |                 |  |
| Union .....                                      | 126.1 | 126.9 | 127.2 | 127.7 | 128.3 | 129.1 | 130.5 | 131.0 | 132.0 | .8             | 2.9             |  |
| Goods-producing .....                            | 124.1 | 124.5 | 124.8 | 125.0 | 125.8 | 126.5 | 128.5 | 128.7 | 129.7 | .8             | 3.1             |  |
| Service-producing .....                          | 129.3 | 130.5 | 130.9 | 131.7 | 132.2 | 132.9 | 133.6 | 134.4 | 135.4 | .7             | 2.4             |  |
| Manufacturing .....                              | 124.6 | 125.0 | 125.5 | 125.6 | 126.2 | 127.0 | 129.3 | 129.6 | 130.4 | .6             | 3.3             |  |
| Nonmanufacturing .....                           | 127.4 | 128.5 | 128.7 | 129.5 | 130.1 | 130.8 | 131.5 | 132.1 | 133.3 | .9             | 2.5             |  |
| Nonunion .....                                   | 128.5 | 129.4 | 130.3 | 131.8 | 132.8 | 134.3 | 135.0 | 136.4 | 138.1 | 1.2            | 4.0             |  |
| Goods-producing .....                            | 126.1 | 127.0 | 127.8 | 128.8 | 129.6 | 131.1 | 132.1 | 133.6 | 135.0 | 1.0            | 4.2             |  |
| Service-producing .....                          | 129.9 | 130.8 | 131.7 | 133.6 | 134.6 | 136.2 | 136.7 | 138.0 | 140.0 | 1.4            | 4.0             |  |
| Manufacturing .....                              | 127.7 | 128.5 | 129.5 | 130.6 | 131.5 | 133.0 | 133.9 | 135.5 | 136.7 | .9             | 4.0             |  |
| Nonmanufacturing .....                           | 128.9 | 129.8 | 130.6 | 132.4 | 133.4 | 134.9 | 135.4 | 136.8 | 138.8 | 1.5            | 4.0             |  |
| <b>Workers, by region<sup>1</sup></b>            |       |       |       |       |       |       |       |       |       |                |                 |  |
| Northeast .....                                  | 131.3 | 132.3 | 133.1 | 135.4 | 136.6 | 138.3 | 139.7 | 140.9 | 142.9 | 1.4            | 4.6             |  |
| South .....                                      | 127.8 | 128.8 | 129.4 | 130.1 | 131.1 | 132.1 | 133.0 | 134.0 | 136.1 | 1.6            | 3.8             |  |
| Midwest (formerly North Central) .....           | 124.4 | 125.3 | 126.2 | 127.4 | 128.5 | 129.6 | 129.9 | 131.3 | 132.1 | .6             | 2.8             |  |
| West .....                                       | 128.9 | 129.3 | 130.1 | 131.2 | 131.1 | 133.1 | 133.5 | 134.9 | 136.0 | .8             | 3.7             |  |
| <b>Workers, by area size<sup>1</sup></b>         |       |       |       |       |       |       |       |       |       |                |                 |  |
| Metropolitan areas .....                         | 128.5 | 129.4 | 130.2 | 131.6 | 132.4 | 133.7 | 134.6 | 135.8 | 137.3 | 1.1            | 3.7             |  |
| Other areas .....                                | 124.5 | 125.0 | 125.6 | 126.6 | 127.8 | 129.1 | 129.8 | 130.9 | 133.0 | 1.6            | 4.1             |  |

<sup>1</sup> The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the

Monthly Labor Review Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.



**25. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more (in percent)**

| Measure   | Annual average |      | Quarterly average |     |                  |     |     |     |      |     |
|---|----------------|------|-------------------|-----|------------------|-----|-----|-----|------|-----|
|   | 1986           | 1987 | 1986              |     | 1987             |     |     |     | 1988 |     |
|   |                |      | III               | IV  | I                | II  | III | IV  | IP   | IIP |
| <b>Specified adjustments:</b>   |                |      |                   |     |                  |     |     |     |      |     |
| Total compensation <sup>1</sup> adjustments, <sup>2</sup> settlements covering 5,000 workers or more: |                |      |                   |     |                  |     |     |     |      |     |
| First year of contract .....  | 1.1            | 3.0  | 0.7               | 2.7 | 1.1              | 4.1 | 2.5 | 3.4 | 1.8  | 3.4 |
| Annual rate over life of contract .....   | 1.6            | 2.6  | 1.2               | 2.4 | 2.1              | 3.9 | 2.1 | 2.4 | 1.8  | 2.4 |
| Wage adjustments, settlements covering 1,000 workers or more:   |                |      |                   |     |                  |     |     |     |      |     |
| First year of contract .....  | 1.2            | 2.2  | .8                | 2.0 | .8               | 2.6 | 2.1 | 2.4 | 2.2  | 2.7 |
| Annual rate over life of contract .....   | 1.8            | 2.1  | 1.5               | 2.1 | 1.6              | 2.9 | 2.0 | 1.8 | 2.3  | 2.2 |
| <b>Effective adjustments:</b>   |                |      |                   |     |                  |     |     |     |      |     |
| Total effective wage adjustment <sup>3</sup> .....  | 2.3            | 3.1  | .5                | .5  | .4               | 1.0 | .9  | .8  | .4   | .8  |
| From settlements reached in period .....  | .5             | .7   | .1                | .2  | ( <sup>4</sup> ) | .2  | .2  | .3  | .1   | .3  |
| Deferred from settlements reached in earlier periods .....  | 1.7            | 1.8  | .5                | .2  | .3               | .7  | .6  | .3  | .3   | .5  |
| From cost-of-living-adjustments clauses .....   | .2             | .5   | ( <sup>4</sup> )  | .1  | .1               | .2  | .1  | .2  | .1   | .1  |

<sup>1</sup> Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.  
<sup>2</sup> Adjustments are the net result of increases, decreases, and no changes in compensation or wages.

<sup>3</sup> Because of rounding, total may not equal sum of parts.  
<sup>4</sup> Between -0.05 and 0.05 percent.  
P = preliminary.

**26. Average specified compensation and wage adjustments, major collective bargaining settlements in private industry situations covering 1,000 workers or more during 4-quarter periods (in percent)**

| Measure  | Average for four quarters ending-- |      |                  |      |                  |                  |                  |                  |
|--|------------------------------------|------|------------------|------|------------------|------------------|------------------|------------------|
|  | 1986                               |      | 1987             |      |                  |                  | 1988             |                  |
|  | III                                | IV   | I                | II   | III              | IV               | IP               | IIP              |
| <b>Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:</b> |                                    |      |                  |      |                  |                  |                  |                  |
| First year of contract .....   | 0.9                                | 1.1  | 1.2              | 1.8  | 2.7              | 3.0              | 3.1              | 3.1              |
| Annual rate over life of contract .....  | 1.4                                | 1.6  | 1.7              | 2.1  | 2.6              | 2.6              | 2.5              | 2.3              |
| <b>Specified wage adjustments, settlements covering 1,000 workers or more:</b>                               |                                    |      |                  |      |                  |                  |                  |                  |
| <b>All industries</b>  |                                    |      |                  |      |                  |                  |                  |                  |
| First year of contract .....   | 1.2                                | 1.2  | 1.2              | 1.5  | 2.0              | 2.2              | 2.4              | 2.4              |
| Contracts with COLA clauses .....  | 2.2                                | 1.9  | 2.0              | 1.8  | 2.1              | 2.3              | 2.2              | 2.4              |
| Contracts without COLA clauses .....   | .8                                 | .9   | .8               | 1.3  | 2.0              | 2.1              | 2.5              | 2.5              |
| Annual rate over life of contract .....  | 1.7                                | 1.8  | 1.8              | 2.0  | 2.2              | 2.1              | 2.2              | 2.0              |
| Contracts with COLA clauses .....  | 2.0                                | 1.7  | 1.8              | 1.7  | 1.7              | 1.5              | 1.4              | 1.5              |
| Contracts without COLA clauses .....   | 1.6                                | 1.8  | 1.8              | 2.1  | 2.5              | 2.5              | 2.7              | 2.6              |
| <b>Manufacturing</b>   |                                    |      |                  |      |                  |                  |                  |                  |
| First year of contract .....   | -1.0                               | -1.2 | -1.5             | -8   | 1.1              | 2.1              | 2.4              | 2.5              |
| Contracts with COLA clauses .....  | 1.1                                | 1.3  | 1.3              | 1.3  | 2.1              | 2.4              | 2.4              | 2.5              |
| Contracts without COLA clauses .....   | -2.0                               | -2.8 | -3.5             | -2.7 | -1               | 1.3              | 2.4              | 2.6              |
| Annual rate over life of contract .....  | .3                                 | .2   | ( <sup>2</sup> ) | .3   | 1.0              | 1.3              | 1.5              | 1.6              |
| Contracts with COLA clauses .....  | 1.1                                | .9   | .8               | .8   | 1.0              | 1.0              | 1.0              | 1.3              |
| Contracts without COLA clauses .....   | -1                                 | -2   | -6               | -2   | 1.2              | 2.1              | 2.7              | 2.6              |
| <b>Nonmanufacturing</b>  |                                    |      |                  |      |                  |                  |                  |                  |
| First year of contract .....   | 2.1                                | 2.0  | 2.2              | 2.3  | 2.4              | 2.3              | 2.3              | 2.3              |
| Contracts with COLA clauses .....  | 2.7                                | 2.1  | 2.2              | 2.1  | 2.1              | 1.9              | 1.6              | 2.2              |
| Contracts without COLA clauses .....   | 1.9                                | 2.0  | 2.1              | 2.3  | 2.6              | 2.4              | 2.5              | 2.4              |
| Annual rate over life of contract .....  | 2.3                                | 2.3  | 2.4              | 2.6  | 2.8              | 2.7              | 2.7              | 2.3              |
| Contracts with COLA clauses .....  | 2.5                                | 2.1  | 2.2              | 2.2  | 2.4              | 2.7              | 2.4              | 1.8              |
| Contracts without COLA clauses .....   | 2.2                                | 2.4  | 2.5              | 2.7  | 2.9              | 2.7              | 2.7              | 2.6              |
| <b>Construction</b>  |                                    |      |                  |      |                  |                  |                  |                  |
| First year of contract .....   | 2.3                                | 2.2  | 2.4              | 2.7  | 3.0              | 2.9              | 2.9              | 2.5              |
| Contracts with COLA clauses .....  | 1.4                                | 1.4  | 1.6              | 3.7  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |
| Contracts without COLA clauses .....   | 2.4                                | 2.3  | 2.4              | 2.7  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |
| Annual rate over life of contract .....  | 2.6                                | 2.5  | 2.5              | 2.9  | 3.2              | 3.1              | 3.1              | 2.7              |
| Contracts with COLA clauses .....  | 1.6                                | 1.6  | 1.4              | 3.8  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |
| Contracts without COLA clauses .....   | 2.6                                | 2.5  | 2.6              | 2.9  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |

<sup>1</sup> Data do not meet publication standards.  
<sup>2</sup> Between -0.05 and 0.05 percent.

P = preliminary.

**27. Average effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more during 4-quarter periods (in percent)**

| Effective wage adjustment                                 | Average for four quarters ending-- |      |     |     |     |                |                 |
|---|------------------------------------|------|-----|-----|-----|----------------|-----------------|
|   | 1986                               | 1987 |     |     |     | 1988           |                 |
|   | IV                                 | I    | II  | III | IV  | I <sup>P</sup> | II <sup>P</sup> |
| <b>For all workers:<sup>1</sup></b>                       |                                    |      |     |     |     |                |                 |
| Total .....   | 2.3                                | 2.0  | 2.2 | 2.6 | 3.1 | 3.2            | 3.0             |
| From settlements reached in period .....                  | .5                                 | .3   | .3  | .4  | .7  | .8             | .9              |
| Deferred from settlements reached in earlier period ..... | 1.7                                | 1.5  | 1.6 | 1.7 | 1.8 | 1.8            | 1.6             |
| From cost-of-living-adjustments clauses .....             | .2                                 | .1   | .3  | .4  | .5  | .5             | .5              |
| <b>For workers receiving changes:</b>                     |                                    |      |     |     |     |                |                 |
| Total .....   | 2.8                                | 2.4  | 2.8 | 3.2 | 3.6 | 3.8            | 3.7             |
| From settlements reached in period .....                  | 1.6                                | 1.1  | .9  | 1.8 | 2.9 | 2.9            | 2.9             |
| Deferred from settlements reached in earlier period ..... | 3.9                                | 3.7  | 3.5 | 3.3 | 3.3 | 3.3            | 3.2             |
| From cost-of-living-adjustments clauses .....             | 1.0                                | .6   | 1.8 | 2.3 | 2.6 | 2.7            | 2.3             |

<sup>1</sup> Because of rounding, total may not equal sum of parts.

<sup>P</sup> = preliminary.

**28. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, State and local government collective bargaining situations covering 1,000 workers or more (in percent)**

| Measure   | Annual average   |                  | First 6 months   |
|---|------------------|------------------|------------------|
|   | 1986             | 1987             | 1988             |
| <b>Specified adjustments:</b>   |                  |                  |                  |
| Total compensation <sup>1</sup> adjustments, <sup>2</sup> settlements covering 5,000 workers or more: |                  |                  |                  |
| First year of contract .....  | 6.2              | 4.9              | 6.3              |
| Annual rate over life of contract .....   | 6.0              | 4.8              | 5.5              |
| <b>Wage adjustments, settlements covering 1,000 workers or more:</b>                                  |                  |                  |                  |
| First year of contract .....  | 5.7              | 4.9              | 5.4              |
| Annual rate over life of contract .....   | 5.7              | 5.1              | 5.1              |
| <b>Effective adjustments:</b>   |                  |                  |                  |
| Total effective wage adjustment <sup>3</sup> .....  | 5.5              | 4.9              | .9               |
| From settlements reached in period .....  | 2.4              | 2.7              | .4               |
| Deferred from settlements reached in earlier periods .....  | 3.0              | 2.2              | .5               |
| From cost-of-living-adjustment clauses .....  | ( <sup>4</sup> ) | ( <sup>4</sup> ) | ( <sup>4</sup> ) |

<sup>1</sup> Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.

<sup>2</sup> Adjustments are the net result of increases, decreases, and no changes in compensation or wages.

<sup>3</sup> Because of rounding, total may not equal sum of parts.

<sup>4</sup> Less than 0.05 percent.

**29. Work stoppages involving 1,000 workers or more**

| Measure  | Annual totals |         | 1987  |       |         |       |       |       | 1988 <sup>P</sup> |       |       |       |       |       |                   |
|--|---------------|---------|-------|-------|---------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|
|  | 1986          | 1987    | July  | Aug.  | Sept.   | Oct.  | Nov.  | Dec.  | Jan.              | Feb.  | Mar.  | Apr.  | May   | June  | July <sup>P</sup> |
| <b>Number of stoppages:</b>                          |               |         |       |       |         |       |       |       |                   |       |       |       |       |       |                   |
| Beginning in period .....                            | 69            | 46      | 6     | 3     | 7       | 1     | 6     | 0     | 3                 | 5     | 1     | 0     | 3     | 3     | 4                 |
| In effect during period .....                        | 72            | 51      | 14    | 11    | 15      | 12    | 11    | 5     | 6                 | 8     | 6     | 6     | 8     | 10    | 12                |
| <b>Workers involved:</b>                             |               |         |       |       |         |       |       |       |                   |       |       |       |       |       |                   |
| Beginning in period (in thousands) .....             | 533.0         | 174.4   | 14.1  | 18.4  | 45.9    | 1.3   | 11.8  | .0    | 7.2               | 17.5  | 6.7   | .0    | 10.3  | 7.8   | 24.6              |
| In effect during period (in thousands) .....         | 899.5         | 377.7   | 31.1  | 36.0  | 71.9    | 53.7  | 22.2  | 8.9   | 10.8              | 21.1  | 24.2  | 14.9  | 18.2  | 20.0  | 36.4              |
| <b>Days idle:</b>                                    |               |         |       |       |         |       |       |       |                   |       |       |       |       |       |                   |
| Number (in thousands) .....                          | 11,861.0      | 4,455.6 | 457.8 | 361.4 | 1,143.1 | 353.3 | 222.9 | 159.4 | 36.6              | 337.0 | 203.6 | 207.9 | 271.4 | 264.5 | 605.0             |
| Percent of estimated working time <sup>2</sup> ..... | .05           | .02     | .02   | .02   | .05     | .02   | .01   | .01   | .01               | .01   | .01   | .01   | .01   | .01   | .02               |

<sup>1</sup> Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found

in "Total economy' measure of strike idleness," *Monthly Labor Review*, October 1968, pp. 54-56.

<sup>P</sup> = preliminary

**30. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group**

(1982-84=100, unless otherwise indicated)

| Series   | Annual average |       | 1987  |       |       |       |       |         | 1988  |       |       |       |       |       |       |
|--|----------------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|
|  | 1986           | 1987  | July  | Aug.  | Sept. | Oct.  | Nov.  | Dec.    | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |
|  |                |       |       |       |       |       |       |         |       |       |       |       |       |       |       |
| <b>CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:</b> |                |       |       |       |       |       |       |         |       |       |       |       |       |       |       |
| All items .....                                      | 109.6          | 113.6 | 113.8 | 114.4 | 115.0 | 115.3 | 115.4 | 115.4   | 115.7 | 116.0 | 116.5 | 117.1 | 117.5 | 118.0 | 118.5 |
| All items (1967=100) .....                           | 328.4          | 340.4 | 340.8 | 342.7 | 344.4 | 345.3 | 345.8 | 345.7   | 346.7 | 347.4 | 349.0 | 350.8 | 352.0 | 353.5 | 354.9 |
| Food and beverages .....                             | 109.1          | 113.5 | 113.7 | 113.8 | 114.2 | 114.3 | 114.3 | 114.8   | 115.7 | 115.8 | 116.0 | 116.7 | 117.1 | 117.6 | 118.8 |
| Food .....   | 109.0          | 113.5 | 113.7 | 113.8 | 114.1 | 114.3 | 114.2 | 114.7   | 115.7 | 115.7 | 115.9 | 116.6 | 117.0 | 117.6 | 118.8 |
| Food at home .....                                   | 107.3          | 111.9 | 112.1 | 112.1 | 112.4 | 112.4 | 112.1 | 112.8   | 114.1 | 113.9 | 113.9 | 114.6 | 115.1 | 115.8 | 117.3 |
| Cereals and bakery products .....                    | 110.9          | 114.8 | 115.2 | 115.3 | 115.4 | 115.6 | 116.2 | 116.8   | 118.1 | 118.7 | 118.9 | 119.8 | 120.3 | 120.8 | 122.1 |
| Meats, poultry, fish, and eggs .....                 | 104.5          | 110.5 | 111.4 | 111.9 | 112.7 | 112.0 | 111.2 | 110.3   | 111.0 | 110.6 | 111.2 | 111.5 | 112.1 | 114.6 | 116.5 |
| Dairy products .....                                 | 103.3          | 105.9 | 105.3 | 105.7 | 106.4 | 106.9 | 106.9 | 106.7   | 107.4 | 107.3 | 107.2 | 107.1 | 107.4 | 107.2 | 107.6 |
| Fruits and vegetables .....                          | 109.4          | 119.1 | 119.6 | 117.4 | 117.4 | 117.4 | 117.4 | 123.4   | 126.4 | 124.7 | 123.0 | 126.0 | 127.1 | 126.1 | 129.0 |
| Other foods at home .....                            | 109.4          | 110.5 | 110.0 | 110.4 | 110.3 | 110.6 | 110.2 | 110.0   | 111.3 | 111.8 | 112.0 | 112.1 | 112.3 | 112.4 | 113.1 |
| Sugar and sweets .....                               | 109.0          | 111.0 | 111.1 | 111.3 | 111.6 | 111.6 | 111.4 | 111.0   | 112.2 | 112.2 | 112.6 | 112.3 | 112.5 | 113.3 | 114.0 |
| Fats and oils .....                                  | 106.5          | 108.1 | 108.4 | 108.3 | 107.8 | 107.4 | 108.0 | 107.7   | 108.5 | 109.5 | 110.3 | 110.3 | 111.2 | 111.5 | 112.6 |
| Nonalcoholic beverages .....                         | 110.4          | 107.5 | 105.9 | 105.9 | 105.8 | 106.7 | 105.0 | 104.8   | 106.9 | 107.7 | 107.7 | 107.8 | 107.5 | 107.1 | 107.2 |
| Other prepared foods .....                           | 109.2          | 113.8 | 114.1 | 114.8 | 114.6 | 114.7 | 115.1 | 115.0   | 115.9 | 116.1 | 116.3 | 116.6 | 117.0 | 117.1 | 118.3 |
| Food away from home .....                            | 112.5          | 117.0 | 117.2 | 117.5 | 118.0 | 118.3 | 118.6 | 118.9   | 119.3 | 119.7 | 120.2 | 120.7 | 121.0 | 121.5 | 122.1 |
| Alcoholic beverages .....                            | 111.1          | 114.1 | 114.4 | 114.7 | 114.9 | 115.2 | 115.4 | 115.4   | 115.8 | 116.8 | 117.4 | 118.0 | 118.2 | 118.7 | 119.2 |
| Housing .....  | 110.9          | 114.2 | 114.7 | 115.4 | 115.6 | 115.5 | 115.5 | 115.6   | 116.2 | 116.6 | 117.0 | 117.3 | 117.7 | 118.6 | 119.1 |
| Shelter .....  | 115.8          | 121.3 | 121.3 | 122.2 | 122.5 | 123.2 | 123.4 | 123.7   | 124.6 | 125.0 | 125.6 | 125.8 | 126.2 | 126.6 | 127.4 |
| Renters' costs (12/82=100) .....                     | 121.9          | 128.1 | 129.3 | 130.1 | 129.8 | 129.4 | 129.2 | 129.1   | 130.8 | 131.3 | 132.9 | 132.9 | 133.1 | 133.7 | 134.7 |
| Rent, residential .....                              | 118.3          | 123.1 | 123.0 | 123.8 | 124.4 | 124.8 | 124.8 | 125.6   | 126.0 | 126.3 | 126.4 | 126.6 | 126.9 | 127.3 | 127.8 |
| Other renters' costs .....                           | 118.6          | 127.4 | 132.8 | 133.3 | 130.5 | 127.7 | 126.7 | 124.1   | 129.4 | 130.4 | 136.6 | 136.0 | 135.7 | 137.0 | 139.2 |
| Homeowners' costs (12/82=100) .....                  | 119.4          | 124.8 | 124.4 | 125.4 | 126.0 | 127.1 | 127.4 | 128.0   | 128.5 | 129.0 | 129.2 | 129.4 | 129.9 | 130.4 | 131.0 |
| Owners' equivalent rent (12/82=100) .....            | 119.4          | 124.8 | 124.4 | 125.4 | 126.0 | 127.2 | 127.5 | 128.0   | 128.6 | 129.0 | 129.2 | 129.5 | 130.0 | 130.4 | 131.1 |
| Household insurance (12/82=100) .....                | 119.2          | 124.0 | 124.5 | 125.1 | 125.5 | 125.8 | 125.9 | 126.2   | 126.9 | 127.1 | 127.8 | 128.2 | 128.2 | 128.9 | 129.7 |
| Maintenance and repairs .....                        | 107.9          | 111.8 | 113.2 | 112.9 | 112.7 | 112.8 | 113.5 | 113.3   | 113.7 | 114.3 | 113.3 | 115.3 | 114.3 | 114.7 | 114.5 |
| Maintenance and repair services .....                | 111.2          | 114.8 | 116.8 | 116.5 | 116.3 | 116.4 | 116.9 | 116.6   | 117.4 | 117.9 | 116.4 | 119.4 | 117.8 | 118.1 | 117.9 |
| Maintenance and repair commodities .....             | 103.7          | 107.8 | 108.4 | 108.2 | 107.8 | 108.1 | 108.9 | 109.1   | 108.7 | 109.5 | 109.2 | 109.7 | 109.8 | 110.1 | 110.1 |
| Fuel and other utilities .....                       | 104.1          | 103.0 | 105.0 | 105.9 | 105.5 | 103.2 | 102.4 | 102.0   | 102.4 | 102.8 | 102.7 | 102.8 | 103.5 | 105.9 | 106.0 |
| Fuels .....  | 99.2           | 97.3  | 100.4 | 101.4 | 101.0 | 96.9  | 95.5  | 95.1    | 95.6  | 96.0  | 95.8  | 95.7  | 96.5  | 100.8 | 100.8 |
| Fuel oil, coal, and bottled gas .....                | 77.6           | 77.9  | 77.1  | 77.8  | 77.6  | 78.5  | 80.3  | 80.5    | 80.8  | 80.9  | 80.5  | 80.2  | 80.0  | 79.1  | 76.9  |
| Gas (piped) and electricity .....                    | 105.7          | 103.8 | 107.6 | 108.7 | 108.2 | 103.3 | 101.4 | 100.9   | 101.5 | 101.9 | 101.7 | 101.6 | 102.6 | 107.8 | 108.1 |
| Other utilities and public services .....            | 117.9          | 120.1 | 120.5 | 121.1 | 120.8 | 121.2 | 121.3 | 120.9   | 121.3 | 121.8 | 121.7 | 122.3 | 122.6 | 122.3 | 122.4 |
| Household furnishings and operations .....           | 105.2          | 107.1 | 107.2 | 107.3 | 107.5 | 107.4 | 107.4 | 107.3   | 107.5 | 107.7 | 108.3 | 109.1 | 109.3 | 109.6 | 109.8 |
| Housefurnishings .....                               | 102.2          | 103.6 | 103.6 | 103.8 | 103.9 | 103.6 | 103.6 | 103.3   | 103.5 | 103.7 | 104.7 | 104.9 | 104.9 | 105.3 | 105.5 |
| Housekeeping supplies .....                          | 108.2          | 111.5 | 111.7 | 111.5 | 111.8 | 112.3 | 112.4 | 112.5   | 113.1 | 113.2 | 112.9 | 113.8 | 114.1 | 114.7 | 115.2 |
| Housekeeping services .....                          | 108.5          | 110.6 | 110.8 | 110.9 | 111.0 | 111.2 | 111.2 | 111.4   | 111.5 | 111.6 | 111.7 | 114.7 | 114.8 | 114.8 | 115.0 |
| Apparel and upkeep .....                             | 105.9          | 110.6 | 107.3 | 109.4 | 113.3 | 115.4 | 115.4 | 112.7   | 110.4 | 110.2 | 114.3 | 117.0 | 116.3 | 114.6 | 112.7 |
| Apparel commodities .....                            | 104.2          | 108.9 | 105.3 | 107.6 | 111.8 | 114.0 | 114.0 | 111.0   | 108.6 | 108.3 | 112.7 | 115.5 | 114.8 | 112.9 | 110.8 |
| Men's and boys' apparel .....                        | 106.2          | 109.1 | 107.8 | 108.3 | 110.6 | 112.0 | 112.5 | 110.7   | 109.0 | 109.1 | 111.6 | 112.9 | 113.6 | 112.5 | 111.9 |
| Women's and girls' apparel .....                     | 104.0          | 110.4 | 104.2 | 108.4 | 115.3 | 118.3 | 117.7 | 112.6   | 108.2 | 107.8 | 115.3 | 119.6 | 117.3 | 114.1 | 109.8 |
| Infants' and toddlers' apparel .....                 | 111.8          | 112.1 | 107.7 | 109.0 | 112.1 | 116.2 | 116.7 | 114.5   | 113.6 | 111.4 | 114.0 | 117.1 | 117.7 | 116.5 | 116.2 |
| Footwear .....                                       | 101.9          | 105.1 | 103.4 | 104.2 | 105.7 | 107.3 | 108.0 | 107.2   | 106.1 | 105.8 | 107.3 | 109.4 | 109.7 | 109.2 | 108.2 |
| Other apparel commodities .....                      | 101.7          | 108.0 | 108.2 | 109.3 | 110.3 | 110.7 | 110.7 | 111.3   | 112.9 | 113.1 | 113.6 | 114.6 | 114.9 | 114.6 | 116.5 |
| Apparel services .....                               | 115.1          | 119.6 | 120.0 | 119.8 | 119.9 | 120.8 | 121.1 | 121.4   | 121.6 | 122.0 | 122.2 | 122.6 | 122.8 | 123.1 | 123.4 |
| Transportation .....                                 | 102.3          | 105.4 | 106.0 | 106.5 | 106.6 | 107.1 | 107.8 | 107.6   | 107.1 | 106.8 | 106.5 | 107.2 | 108.1 | 108.5 | 108.9 |
| Private transportation .....                         | 101.2          | 104.2 | 104.9 | 105.4 | 105.4 | 106.0 | 106.8 | 106.5   | 106.0 | 105.7 | 105.4 | 106.0 | 107.0 | 107.4 | 107.8 |
| New vehicles .....                                   | 110.6          | 114.4 | 114.4 | 114.0 | 113.8 | 115.0 | 116.3 | 116.4   | 116.1 | 116.0 | 115.7 | 115.6 | 115.9 | 116.1 | 116.1 |
| New cars .....                                       | 110.6          | 114.6 | 114.7 | 114.4 | 114.1 | 115.2 | 116.6 | 116.6   | 116.2 | 116.2 | 116.0 | 115.9 | 116.3 | 116.5 | 116.5 |
| Used cars .....                                      | 108.8          | 113.1 | 115.4 | 115.5 | 116.0 | 116.2 | 116.5 | 116.3   | 116.0 | 116.0 | 116.1 | 116.6 | 117.0 | 117.6 | 117.9 |
| Motor fuel .....                                     | 77.1           | 80.2  | 82.2  | 84.3  | 84.0  | 83.2  | 83.2  | 82.0    | 79.7  | 78.3  | 77.5  | 79.4  | 81.4  | 81.4  | 82.3  |
| Gasoline .....                                       | 77.0           | 80.1  | 82.1  | 84.3  | 84.0  | 83.1  | 83.1  | 81.8    | 79.5  | 78.1  | 77.3  | 79.2  | 81.3  | 81.3  | 82.3  |
| Maintenance and repair .....                         | 110.3          | 114.8 | 114.5 | 115.1 | 115.7 | 116.1 | 116.5 | 116.9   | 117.2 | 117.7 | 118.5 | 118.8 | 119.3 | 119.7 | 120.0 |
| Other private transportation .....                   | 115.1          | 120.8 | 120.8 | 120.7 | 121.1 | 122.8 | 123.8 | 124.7   | 125.0 | 124.9 | 125.0 | 126.3 | 127.2 | 127.5 |       |
| Other private transportation commodities .....       | 96.3           | 96.9  | 96.3  | 96.8  | 97.6  | 98.0  | 97.6  | 97.5    | 98.2  | 98.1  | 98.3  | 98.2  | 98.9  | 98.8  | 98.2  |
| Other private transportation services .....          | 118.8          | 125.6 | 125.7 | 125.5 | 125.8 | 127.8 | 129.2 | 129.2   | 130.1 | 130.6 | 130.3 | 130.5 | 132.0 | 133.1 | 133.7 |
| Public transportation .....                          | 117.0          | 121.1 | 120.2 | 121.5 | 122.1 | 121.2 | 122.0 | 122.1   | 121.8 | 120.8 | 121.4 | 122.4 | 122.4 | 123.2 | 123.7 |
| Medical care .....                                   | 122.0          | 130.1 | 130.7 | 131.2 | 131.7 | 132.3 | 132.8 | 133.1   | 134.4 | 135.5 | 136.3 | 136.9 | 137.5 | 138.2 | 139.3 |
| Medical care commodities .....                       | 122.8          | 131.0 | 131.6 | 132.2 | 132.7 | 133.5 | 134.2 | 134.9   | 135.4 | 136.1 | 137.0 | 138.1 | 139.0 | 139.4 | 140.5 |
| Medical care services .....                          | 121.9          | 130.0 | 130.4 | 131.0 | 131.5 | 132.0 | 132.5 | 132.7   | 134.1 | 135.3 | 136.1 | 136.6 | 137.2 | 137.9 | 139.0 |
| Professional services .....                          | 120.8          | 128.8 | 129.5 | 130.0 | 130.7 | 131.2 | 131.5 | 131.8   | 133.2 | 134.5 | 135.4 | 136.0 | 136.4 | 137.5 | 138.4 |
| Hospital and related services .....                  | 123.1          | 131.6 | 132.0 | 133.0 | 133.3 | 134.2 | 135.4 | 135.9   | 137.6 | 139.0 | 140.0 | 140.7 | 141.8 | 142.1 | 144.3 |
| Entertainment .....                                  | 111.6          | 115.3 | 115.4 | 115.6 | 116.1 | 116.9 | 117.3 | 117.4   | 118.1 | 118.3 | 119.0 | 119.6 | 119.7 | 120.1 | 120.5 |
| Entertainment commodities .....                      | 107.9          | 110.5 | 110.7 | 110.6 | 110.7 | 111.2 | 112.2 | 112.6   | 112.9 | 112.9 | 113.4 | 114.2 | 114.5 | 114.8 | 115.3 |
| Entertainment services .....                         | 116.8          | 122.0 | 122.0 | 122.5 | 123.5 | 124.5 | 124.3 | 124.3   | 125.4 | 125.7 | 126.5 | 127.0 | 126.9 | 127.3 | 127.7 |
| Other goods and services .....                       | 121.4          | 128.5 | 128.0 | 128.5 | 131.1 | 131.6 | 131.8 | 132.1   | 133.4 | 134.2 | 134.6 | 134.8 | 135.1 | 135.5 | 136.5 |
| Tobacco products .....                               | 124.7          | 136.6 | 135.0 | 135.3 | 135.9 | 136.3 | 136.5 | 137.0</ |       |       |       |       |       |       |       |



30. Continued— Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

(1982-84=100, unless otherwise indicated)

| Series   | Annual average |       | 1987  |       |       |       |       |       | 1988  |       |       |       |       |       |       |
|--|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | 1986           | 1987  | July  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |
|  |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| All items .....  | 109.6          | 113.6 | 113.8 | 114.4 | 115.0 | 115.3 | 115.4 | 115.4 | 115.7 | 116.0 | 116.5 | 117.1 | 117.5 | 118.0 | 118.5 |
| Commodities .....  | 104.4          | 107.7 | 107.6 | 108.2 | 108.9 | 109.3 | 109.5 | 109.3 | 109.2 | 109.1 | 109.8 | 110.7 | 111.1 | 111.1 | 111.5 |
| Food and beverages .....   | 109.1          | 113.5 | 113.7 | 113.8 | 114.2 | 114.3 | 114.3 | 114.8 | 115.7 | 115.8 | 116.0 | 116.7 | 117.1 | 117.6 | 118.8 |
| Commodities less food and beverages .....                                | 101.4          | 104.0 | 103.8 | 104.6 | 105.5 | 106.1 | 106.5 | 105.7 | 105.1 | 105.0 | 105.9 | 106.9 | 107.2 | 107.1 | 107.0 |
| Nondurables less food and beverages .....                                | 97.8           | 101.1 | 100.6 | 102.0 | 103.5 | 104.2 | 104.3 | 103.1 | 102.1 | 101.9 | 103.4 | 105.0 | 105.4 | 104.9 | 104.7 |
| Apparel commodities .....  | 104.2          | 108.9 | 105.3 | 107.6 | 111.8 | 114.0 | 114.0 | 111.0 | 108.6 | 108.3 | 112.7 | 115.5 | 114.8 | 112.9 | 110.8 |
| Nondurables less food, beverages, and apparel .....                      | 95.9           | 99.5  | 100.5 | 101.5 | 101.6 | 101.5 | 101.8 | 101.5 | 101.2 | 101.0 | 110.7 | 115.5 | 114.8 | 112.9 | 110.8 |
| Durables .....   | 106.6          | 108.2 | 108.4 | 108.3 | 108.3 | 108.8 | 109.6 | 109.5 | 109.4 | 109.4 | 109.5 | 109.7 | 109.9 | 110.2 | 110.3 |
| Services .....   | 115.4          | 120.2 | 120.5 | 121.2 | 121.7 | 121.9 | 122.0 | 122.2 | 122.9 | 123.4 | 123.8 | 124.1 | 124.6 | 125.5 | 126.1 |
| Rent of shelter (12/82=100) .....  | 120.2          | 125.9 | 126.0 | 126.9 | 127.2 | 128.0 | 128.1 | 128.5 | 129.4 | 129.8 | 130.4 | 130.6 | 131.0 | 131.5 | 132.3 |
| Household services less rent of shelter (12/82=100) .....                | 112.8          | 113.1 | 115.1 | 115.8 | 115.5 | 113.5 | 112.6 | 112.3 | 112.7 | 113.1 | 113.0 | 113.7 | 114.3 | 116.6 | 116.9 |
| Transportation services .....  | 116.3          | 121.9 | 121.7 | 122.0 | 122.5 | 123.4 | 124.5 | 124.6 | 125.1 | 125.2 | 125.4 | 125.8 | 126.7 | 127.6 | 128.1 |
| Medical care services .....  | 121.9          | 130.0 | 130.4 | 131.0 | 131.5 | 132.0 | 132.5 | 132.7 | 134.1 | 135.3 | 136.1 | 136.6 | 137.2 | 137.9 | 139.0 |
| Other services .....   | 119.4          | 125.7 | 125.1 | 125.6 | 127.9 | 128.7 | 128.8 | 129.0 | 129.6 | 130.2 | 130.7 | 131.0 | 131.1 | 131.6 | 131.9 |
| Special indexes:   |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| All items less food .....  | 109.8          | 113.6 | 113.8 | 114.5 | 115.1 | 115.5 | 115.7 | 115.5 | 115.7 | 116.0 | 116.6 | 117.2 | 117.6 | 118.1 | 118.4 |
| All items less shelter .....   | 108.0          | 111.6 | 111.8 | 112.3 | 113.0 | 113.2 | 113.3 | 113.2 | 113.3 | 113.5 | 114.0 | 114.7 | 115.2 | 115.7 | 116.1 |
| All items less homeowners' costs (12/82=100) .....                       | 111.2          | 115.1 | 115.3 | 115.9 | 116.5 | 116.6 | 116.8 | 116.6 | 116.9 | 117.1 | 117.7 | 118.4 | 118.8 | 119.3 | 119.8 |
| All items less medical care .....  | 108.8          | 112.6 | 112.7 | 113.3 | 113.9 | 114.2 | 114.4 | 114.3 | 114.6 | 114.8 | 115.3 | 115.9 | 116.3 | 116.8 | 117.2 |
| Commodities less food .....  | 101.7          | 104.3 | 104.1 | 104.9 | 105.7 | 106.3 | 106.7 | 106.0 | 105.5 | 105.4 | 106.3 | 107.3 | 107.6 | 107.4 | 107.4 |
| Nondurables less food .....  | 98.5           | 101.8 | 101.3 | 102.6 | 104.0 | 104.6 | 104.8 | 103.7 | 102.8 | 102.7 | 104.1 | 105.6 | 106.0 | 105.5 | 105.4 |
| Nondurables less food and apparel .....                                  | 96.9           | 100.3 | 101.1 | 102.0 | 102.2 | 102.1 | 102.4 | 101.9 | 101.9 | 101.9 | 101.9 | 102.9 | 103.8 | 104.0 | 104.8 |
| Nondurables .....  | 103.5          | 107.5 | 107.3 | 108.1 | 109.0 | 109.4 | 109.5 | 109.1 | 109.1 | 109.0 | 109.8 | 111.0 | 111.4 | 111.4 | 111.9 |
| Services less rent of shelter (12/82=100) .....                          | 118.7          | 123.1 | 123.7 | 124.2 | 124.9 | 124.6 | 124.6 | 124.6 | 125.3 | 125.8 | 126.0 | 126.5 | 127.1 | 128.4 | 128.9 |
| Services less medical care .....   | 114.6          | 119.1 | 119.4 | 120.1 | 120.6 | 120.8 | 120.8 | 121.0 | 121.7 | 122.1 | 122.4 | 122.8 | 123.2 | 124.1 | 124.7 |
| Energy .....   | 88.2           | 88.6  | 91.1  | 92.7  | 92.3  | 89.8  | 89.0  | 88.3  | 87.4  | 87.0  | 86.5  | 87.3  | 88.7  | 91.0  | 91.4  |
| All items less energy .....  | 112.6          | 117.2 | 117.1 | 117.6 | 118.3 | 118.9 | 119.2 | 119.2 | 119.7 | 120.0 | 120.6 | 121.2 | 121.5 | 121.8 | 122.3 |
| All items less food and energy .....                                     | 113.5          | 118.2 | 118.0 | 118.6 | 119.4 | 120.1 | 120.5 | 120.4 | 120.8 | 121.1 | 121.9 | 122.4 | 122.7 | 123.0 | 123.3 |
| Commodities less food and energy .....                                   | 108.6          | 111.8 | 111.2 | 111.8 | 112.9 | 113.7 | 114.1 | 113.5 | 113.2 | 113.3 | 114.6 | 115.5 | 115.5 | 115.4 | 115.2 |
| Energy commodities .....   | 77.2           | 80.2  | 81.8  | 83.8  | 83.5  | 82.9  | 83.1  | 82.0  | 80.0  | 78.8  | 78.0  | 79.7  | 81.4  | 81.4  | 81.9  |
| Services less energy .....   | 116.5          | 122.0 | 122.0 | 122.7 | 123.2 | 123.9 | 124.2 | 124.4 | 125.2 | 125.7 | 126.1 | 126.5 | 126.9 | 127.4 | 128.0 |
| Purchasing power of the consumer dollar:                                 |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1982-84=\$1.00 .....   | 91.3           | 88.0  | 87.8  | 87.3  | 86.9  | 86.7  | 86.5  | 86.6  | 86.4  | 86.2  | 85.8  | 85.4  | 85.1  | 84.7  | 84.4  |
| 1967=\$1.00 .....  | 30.5           | 29.4  | 29.3  | 29.2  | 29.0  | 29.0  | 28.9  | 28.9  | 28.8  | 28.8  | 28.7  | 28.5  | 28.4  | 28.3  | 28.2  |
| <b>CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:</b> |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| All items .....  | 108.6          | 112.5 | 112.7 | 113.3 | 113.8 | 114.1 | 114.3 | 114.2 | 114.5 | 114.7 | 115.1 | 115.7 | 116.2 | 116.7 | 117.2 |
| All items (1967=100) .....   | 323.4          | 335.0 | 335.6 | 337.4 | 339.1 | 340.0 | 340.4 | 340.2 | 341.0 | 341.6 | 343.0 | 344.7 | 346.1 | 347.6 | 349.1 |
| Food and beverages .....   | 108.9          | 113.3 | 113.5 | 113.6 | 114.0 | 114.1 | 114.1 | 114.5 | 115.4 | 115.5 | 115.7 | 116.3 | 116.8 | 117.4 | 118.5 |
| Food .....   | 108.8          | 113.3 | 113.5 | 113.6 | 114.0 | 114.1 | 114.0 | 114.5 | 115.4 | 115.4 | 115.6 | 116.2 | 116.7 | 117.3 | 118.5 |
| Food at home .....   | 107.1          | 111.7 | 111.9 | 111.9 | 112.2 | 112.2 | 111.9 | 112.5 | 113.7 | 113.5 | 113.5 | 114.2 | 114.7 | 115.5 | 116.9 |
| Cereals and bakery products .....  | 110.9          | 114.8 | 115.2 | 115.3 | 115.4 | 115.7 | 116.2 | 116.9 | 118.1 | 118.8 | 118.9 | 119.9 | 120.4 | 120.8 | 122.1 |
| Meats, poultry, fish, and eggs .....                                     | 104.4          | 110.4 | 111.3 | 111.8 | 112.7 | 112.0 | 111.2 | 110.1 | 110.8 | 110.5 | 111.1 | 111.4 | 112.0 | 114.5 | 116.3 |
| Dairy products .....   | 103.2          | 105.7 | 105.1 | 105.5 | 106.2 | 106.7 | 106.7 | 106.4 | 107.1 | 107.0 | 106.9 | 106.9 | 107.2 | 107.0 | 107.3 |
| Fruits and vegetables .....  | 109.4          | 118.8 | 119.6 | 117.3 | 117.1 | 117.5 | 117.4 | 123.0 | 125.7 | 124.0 | 122.2 | 125.2 | 126.4 | 125.5 | 128.4 |
| Other foods at home .....  | 109.1          | 110.4 | 109.9 | 110.3 | 110.2 | 110.5 | 110.1 | 109.8 | 111.3 | 111.7 | 111.9 | 112.0 | 112.2 | 112.3 | 113.0 |
| Sugar and sweets .....   | 109.0          | 110.9 | 111.0 | 111.3 | 111.5 | 111.6 | 111.2 | 110.9 | 112.1 | 112.1 | 112.4 | 112.2 | 112.4 | 113.1 | 113.9 |
| Fats and oils .....  | 106.4          | 107.9 | 108.2 | 108.1 | 107.6 | 107.3 | 107.9 | 107.6 | 108.4 | 109.5 | 110.3 | 110.2 | 111.0 | 111.4 | 112.5 |
| Nonalcoholic beverages .....   | 110.0          | 107.5 | 105.9 | 106.0 | 106.0 | 106.9 | 105.2 | 104.9 | 107.2 | 107.9 | 108.0 | 107.9 | 107.7 | 107.3 | 107.4 |
| Other prepared foods .....   | 109.0          | 113.6 | 113.9 | 114.6 | 114.4 | 114.5 | 114.9 | 114.8 | 115.7 | 115.8 | 116.0 | 116.4 | 116.8 | 116.9 | 118.1 |
| Food away from home .....  | 112.5          | 116.9 | 117.0 | 117.4 | 117.9 | 118.2 | 118.5 | 118.8 | 119.1 | 119.6 | 120.0 | 120.6 | 120.9 | 121.4 | 122.0 |
| Alcoholic beverages .....  | 111.1          | 113.9 | 114.2 | 114.4 | 114.6 | 114.9 | 115.2 | 115.1 | 115.6 | 116.6 | 117.3 | 117.9 | 118.0 | 118.4 | 118.9 |
| Housing .....  | 109.7          | 112.8 | 113.2 | 114.0 | 114.1 | 114.0 | 113.9 | 114.1 | 114.6 | 115.0 | 115.4 | 115.6 | 116.0 | 116.9 | 117.4 |
| Shelter .....  | 113.5          | 118.8 | 118.8 | 119.6 | 120.0 | 120.7 | 120.9 | 121.2 | 121.9 | 122.4 | 122.9 | 123.0 | 123.4 | 123.9 | 124.5 |
| Renters' costs (12/84=100) .....   | 109.5          | 114.6 | 115.3 | 116.0 | 116.2 | 116.0 | 115.9 | 115.9 | 116.9 | 117.3 | 118.4 | 118.4 | 118.6 | 119.3 | 120.0 |
| Rent, residential .....  | 118.2          | 122.9 | 122.8 | 123.6 | 124.2 | 124.5 | 124.6 | 125.3 | 125.7 | 126.1 | 126.2 | 126.3 | 126.6 | 126.9 | 127.5 |
| Other renters' costs .....   | 119.1          | 128.2 | 133.6 | 134.2 | 132.2 | 129.3 | 128.1 | 124.5 | 129.2 | 130.0 | 136.9 | 136.1 | 136.2 | 138.8 | 140.8 |
| Homeowners' costs (12/84=100) .....                                      | 108.8          | 113.8 | 113.4 | 114.3 | 114.8 | 115.9 | 116.2 | 116.6 | 117.1 | 117.6 | 117.8 | 118.0 | 118.4 | 118.8 | 119.4 |
| Owners' equivalent rent (12/84=100) .....                                | 108.8          | 113.7 | 113.4 | 114.3 | 114.8 | 115.9 | 116.2 | 116.6 | 117.1 | 117.6 | 117.8 | 118.0 | 118.5 | 118.8 | 119.5 |
| Household insurance (12/84=100) .....                                    | 109.4          | 114.1 | 114.6 | 115.1 | 115.5 | 115.8 | 115.9 | 116.1 | 116.7 | 116.7 | 117.2 | 117.3 | 117.3 | 118.0 | 118.6 |
| Maintenance and repairs .....  | 107.7          | 111.3 | 112.6 | 112.4 | 112.1 | 112.2 | 112.7 | 112.5 | 113.0 | 113.6 | 112.8 | 114.7 | 113.7 | 113.9 | 113.8 |
| Maintenance and repair services .....                                    | 110.5          | 114.7 | 116.9 | 116.6 | 116.4 | 116.0 | 116.5 | 115.9 | 117.1 | 117.6 | 116.6 | 119.8 | 117.6 | 117.9 | 117.6 |
| Maintenance and repair commodities .....                                 | 103.1          | 106.0 | 106.3 | 106.2 | 105.8 | 106.3 | 106.9 | 107.1 | 106.9 | 107.5 | 107.1 | 107.5 | 107.9 | 107.9 | 108.0 |
| Fuel and other utilities .....   | 103.9          | 102.7 | 104.7 | 105.6 | 105.2 | 102.8 | 102.0 | 101.7 | 102.0 | 102.5 | 102.3 | 102.5 | 103.0 | 105.5 | 105.6 |
| Fuels .....  | 99.2           | 97.1  | 100.2 | 101.3 | 100.8 | 96.5  | 95.1  | 94.8  | 95.2  | 95.6  | 95.4  | 95.4  | 96.1  | 100.5 | 100.5 |
| Fuel oil, coal, and bottled gas .....                                    | 77.8           | 77.6  | 76.9  | 77.5  | 77.3  | 78.2  | 80.1  | 80.2  | 80.4  | 80.6  | 80.2  | 79.9  | 79.7  | 78.9  | 76.7  |
| Gas (piped) and electricity .....  | 105.7          | 103.6 | 107.4 | 108.6 | 108.1 | 103.0 | 101.1 | 100.7 | 101.2 | 101.6 | 101.4 | 101.4 | 102.2 | 107.5 | 107.8 |
| Other utilities and public services .....                                | 117.7          | 120.1 | 120.4 | 121.0 | 120.7 | 121.  |       |       |       |       |       |       |       |       |       |

**30. Continued— Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group**

(1982-84=100, unless otherwise indicated)

| Series  | Annual average |       | 1987  |       |       |       |       |       | 1988  |       |       |       |       |       |       |
|---|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 1986           | 1987  | July  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |
|   |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Apparel commodities .....                                 | 104.2          | 108.8 | 105.3 | 107.4 | 111.5 | 113.9 | 113.9 | 111.1 | 108.6 | 108.3 | 112.4 | 114.9 | 114.3 | 112.6 | 110.6 |
| Men's and boys' apparel .....                             | 105.9          | 108.5 | 106.9 | 107.7 | 109.8 | 111.5 | 112.0 | 110.4 | 108.6 | 108.7 | 111.1 | 112.2 | 113.0 | 112.1 | 111.5 |
| Women's and girls' apparel .....                          | 103.8          | 110.3 | 104.4 | 108.2 | 115.2 | 118.2 | 117.6 | 112.6 | 108.2 | 107.9 | 114.9 | 118.8 | 116.7 | 113.5 | 109.5 |
| Infants' and toddlers' apparel .....                      | 113.5          | 114.0 | 109.7 | 110.6 | 113.9 | 118.6 | 118.7 | 116.4 | 115.2 | 113.3 | 116.0 | 119.1 | 119.7 | 118.8 | 118.6 |
| Footwear .....  | 102.1          | 105.5 | 103.9 | 104.7 | 106.0 | 107.9 | 108.6 | 108.0 | 106.8 | 106.4 | 107.7 | 109.6 | 109.9 | 109.6 | 108.7 |
| Other apparel commodities .....                           | 101.6          | 107.4 | 107.3 | 108.2 | 109.8 | 110.4 | 110.5 | 110.6 | 112.2 | 112.0 | 112.8 | 113.9 | 114.0 | 113.5 | 115.2 |
| Apparel services .....                                    | 115.0          | 119.2 | 119.5 | 119.3 | 119.4 | 120.3 | 120.7 | 120.9 | 121.1 | 121.5 | 121.6 | 122.0 | 122.2 | 122.4 | 122.7 |
| Transportation .....                                      | 101.7          | 105.1 | 105.8 | 106.3 | 106.4 | 106.9 | 107.6 | 107.3 | 106.8 | 106.4 | 106.2 | 106.8 | 107.8 | 108.2 | 108.6 |
| Private transportation .....                              | 100.9          | 104.1 | 104.9 | 105.5 | 105.5 | 106.1 | 106.7 | 106.4 | 105.9 | 105.6 | 105.3 | 105.9 | 107.0 | 107.3 | 107.7 |
| New vehicles .....  | 110.4          | 114.0 | 113.9 | 113.5 | 113.3 | 114.5 | 115.9 | 116.1 | 115.8 | 115.7 | 115.3 | 115.3 | 115.6 | 115.8 | 115.8 |
| New cars .....  | 110.4          | 114.3 | 114.4 | 114.0 | 113.8 | 114.9 | 116.2 | 116.3 | 115.9 | 116.0 | 115.7 | 115.7 | 116.0 | 116.2 | 116.2 |
| Used cars .....   | 108.8          | 113.1 | 115.4 | 115.5 | 115.9 | 116.1 | 116.4 | 116.2 | 115.9 | 116.0 | 116.1 | 116.6 | 116.9 | 117.5 | 117.8 |
| Motor fuel .....  | 77.1           | 80.3  | 82.3  | 84.5  | 84.1  | 83.3  | 83.3  | 82.0  | 79.7  | 78.3  | 77.5  | 79.4  | 81.4  | 81.4  | 82.3  |
| Gasoline .....  | 76.9           | 80.2  | 82.2  | 84.4  | 84.1  | 83.2  | 83.2  | 81.9  | 79.5  | 78.1  | 77.3  | 79.2  | 81.3  | 81.3  | 82.3  |
| Maintenance and repair .....                              | 110.6          | 115.1 | 114.9 | 115.4 | 116.0 | 116.3 | 116.7 | 117.0 | 117.4 | 117.8 | 118.6 | 118.9 | 119.4 | 119.8 | 120.1 |
| Other private transportation .....                        | 113.8          | 119.0 | 118.9 | 118.7 | 119.1 | 121.0 | 122.0 | 122.0 | 122.9 | 123.2 | 123.1 | 123.0 | 124.3 | 125.2 | 125.4 |
| Other private transportation commodities .....            | 96.3           | 96.7  | 96.3  | 96.7  | 97.3  | 97.7  | 97.2  | 97.4  | 98.1  | 98.0  | 98.1  | 97.9  | 98.6  | 98.5  | 97.9  |
| Other private transportation services .....               | 117.1          | 123.4 | 123.4 | 123.1 | 123.4 | 125.8 | 127.1 | 127.1 | 128.0 | 128.5 | 128.2 | 128.3 | 129.7 | 130.8 | 131.3 |
| Public transportation .....                               | 116.8          | 120.4 | 119.7 | 120.8 | 121.4 | 120.7 | 121.2 | 121.3 | 121.2 | 120.4 | 120.8 | 121.7 | 121.8 | 122.3 | 123.0 |
| Medical care .....  | 122.0          | 130.2 | 130.8 | 131.4 | 132.0 | 132.6 | 133.0 | 133.4 | 134.6 | 135.8 | 136.5 | 137.1 | 137.8 | 138.5 | 139.6 |
| Medical care commodities .....                            | 122.2          | 130.2 | 130.9 | 131.3 | 131.9 | 132.6 | 133.4 | 134.1 | 134.7 | 135.4 | 136.1 | 137.2 | 138.0 | 138.3 | 139.4 |
| Medical care services .....                               | 122.0          | 130.3 | 130.8 | 131.4 | 132.0 | 132.6 | 133.0 | 133.2 | 134.6 | 135.8 | 136.6 | 137.1 | 137.7 | 138.5 | 139.6 |
| Professional services .....                               | 120.9          | 129.0 | 129.6 | 130.2 | 130.9 | 131.4 | 131.7 | 132.0 | 133.4 | 134.7 | 135.5 | 136.1 | 136.6 | 137.7 | 138.5 |
| Hospital and related services .....                       | 122.6          | 131.1 | 131.4 | 132.4 | 132.8 | 133.7 | 134.9 | 135.4 | 136.9 | 138.4 | 139.3 | 140.1 | 141.2 | 141.5 | 143.8 |
| Entertainment .....                                       | 111.0          | 114.8 | 115.0 | 115.1 | 115.6 | 116.3 | 116.7 | 116.9 | 117.4 | 117.6 | 118.2 | 118.9 | 119.0 | 119.4 | 119.8 |
| Entertainment commodities .....                           | 107.8          | 110.6 | 110.9 | 110.8 | 110.9 | 111.3 | 112.2 | 112.6 | 112.8 | 112.9 | 113.5 | 114.2 | 114.6 | 114.9 | 115.4 |
| Entertainment services .....                              | 116.5          | 121.8 | 121.8 | 122.2 | 123.2 | 124.3 | 124.1 | 124.0 | 124.9 | 125.2 | 126.0 | 126.5 | 126.3 | 126.8 | 127.2 |
| Other goods and services .....                            | 120.9          | 127.8 | 127.5 | 128.0 | 130.3 | 130.8 | 131.0 | 131.3 | 132.7 | 133.6 | 134.0 | 134.2 | 134.5 | 135.0 | 136.3 |
| Tobacco products .....                                    | 124.8          | 133.7 | 135.1 | 135.4 | 136.0 | 136.5 | 136.7 | 137.2 | 141.0 | 142.3 | 143.0 | 143.1 | 143.4 | 143.8 | 147.9 |
| Personal care .....                                       | 111.9          | 115.0 | 115.1 | 115.4 | 115.8 | 116.1 | 116.2 | 116.4 | 117.1 | 117.5 | 117.7 | 118.1 | 118.5 | 118.8 | 119.1 |
| Toilet goods and personal care appliances .....           | 111.2          | 113.9 | 114.1 | 114.3 | 114.6 | 115.0 | 115.0 | 115.1 | 116.0 | 116.2 | 116.5 | 117.0 | 117.1 | 117.4 | 117.8 |
| Personal care services .....                              | 112.6          | 116.1 | 116.2 | 116.7 | 117.1 | 117.3 | 117.4 | 117.8 | 118.3 | 118.9 | 119.0 | 119.3 | 119.9 | 120.2 | 120.4 |
| Personal and educational expenses .....                   | 128.5          | 138.2 | 136.7 | 137.4 | 141.8 | 142.4 | 142.8 | 143.0 | 143.4 | 144.3 | 144.6 | 144.7 | 145.2 | 145.8 | 146.0 |
| School books and supplies .....                           | 127.8          | 137.9 | 136.4 | 136.6 | 140.7 | 141.8 | 141.8 | 141.9 | 143.9 | 145.3 | 145.2 | 145.4 | 145.4 | 145.6 | 145.6 |
| Personal and educational services .....                   | 128.6          | 138.4 | 137.0 | 137.7 | 142.1 | 142.7 | 143.1 | 143.3 | 143.6 | 144.5 | 144.8 | 144.9 | 145.4 | 146.0 | 146.3 |
| All items .....   | 108.6          | 112.5 | 112.7 | 113.3 | 113.8 | 114.1 | 114.3 | 114.2 | 114.5 | 114.7 | 115.1 | 115.7 | 116.2 | 116.7 | 117.2 |
| Commodities .....   | 103.9          | 107.3 | 107.3 | 107.9 | 108.5 | 108.9 | 109.1 | 108.9 | 108.8 | 108.7 | 109.3 | 110.1 | 110.5 | 110.7 | 111.1 |
| Food and beverages .....                                  | 108.9          | 113.3 | 113.5 | 113.6 | 114.0 | 114.1 | 114.1 | 114.5 | 115.4 | 115.5 | 115.7 | 116.3 | 116.8 | 117.4 | 118.5 |
| Commodities less food and beverages .....                 | 100.8          | 103.6 | 103.5 | 104.3 | 105.1 | 105.7 | 106.0 | 105.4 | 104.7 | 104.5 | 105.3 | 106.3 | 106.7 | 105.6 | 106.6 |
| Nondurables less food and beverages .....                 | 97.3           | 100.8 | 100.4 | 101.8 | 103.1 | 103.8 | 104.0 | 102.8 | 101.7 | 101.4 | 102.7 | 104.3 | 104.8 | 104.3 | 104.3 |
| Apparel commodities .....                                 | 104.2          | 108.8 | 105.3 | 107.4 | 111.5 | 113.9 | 113.9 | 111.1 | 108.6 | 108.3 | 112.4 | 114.9 | 114.3 | 112.6 | 110.6 |
| Nondurables less food, beverages, and apparel .....       | 95.3           | 99.2  | 100.3 | 101.4 | 101.5 | 101.3 | 101.6 | 101.2 | 100.8 | 100.5 | 100.4 | 101.6 | 102.6 | 102.8 | 103.7 |
| Durables .....  | 104.9          | 106.6 | 106.9 | 106.8 | 106.9 | 107.4 | 108.0 | 108.0 | 107.9 | 107.9 | 108.0 | 108.1 | 108.4 | 108.7 | 108.8 |
| Services .....  | 114.7          | 119.4 | 119.7 | 120.4 | 120.9 | 121.1 | 121.2 | 121.3 | 122.0 | 122.5 | 122.8 | 123.1 | 123.6 | 124.5 | 125.1 |
| Rent of shelter (12/84=100) .....                         | 109.0          | 114.0 | 114.0 | 114.9 | 115.2 | 115.9 | 116.1 | 116.4 | 117.1 | 117.5 | 118.0 | 118.2 | 118.5 | 119.0 | 119.6 |
| Household services less rent of shelter (12/84=100) ..... | 103.9          | 104.0 | 105.9 | 106.6 | 106.3 | 104.2 | 103.4 | 103.1 | 103.5 | 103.9 | 103.8 | 104.4 | 104.9 | 107.2 | 107.4 |
| Transportation services .....                             | 115.4          | 120.8 | 120.6 | 120.7 | 121.2 | 122.5 | 123.5 | 123.6 | 124.1 | 124.4 | 124.5 | 124.8 | 125.8 | 126.6 | 127.1 |
| Medical care services .....                               | 122.0          | 130.3 | 130.8 | 131.4 | 132.0 | 132.6 | 133.0 | 133.2 | 134.6 | 135.8 | 136.6 | 137.1 | 137.7 | 138.5 | 139.6 |
| Other services .....                                      | 118.7          | 124.7 | 124.1 | 124.6 | 126.9 | 127.7 | 127.8 | 127.9 | 128.5 | 129.0 | 129.5 | 129.8 | 130.0 | 130.5 | 130.8 |
| Special indexes:  |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| All items less food .....                                 | 108.5          | 112.2 | 112.4 | 113.1 | 113.7 | 114.0 | 114.3 | 114.1 | 114.2 | 114.4 | 115.0 | 115.5 | 116.0 | 116.5 | 116.8 |
| All items less shelter .....                              | 107.4          | 111.0 | 111.2 | 111.8 | 112.4 | 112.6 | 112.7 | 112.5 | 112.7 | 112.8 | 113.2 | 113.9 | 114.4 | 115.0 | 115.4 |
| All items less homeowners' costs (12/84=100) .....        | 102.8          | 106.4 | 106.6 | 107.1 | 107.7 | 107.8 | 108.0 | 107.8 | 108.0 | 108.1 | 108.6 | 109.2 | 109.7 | 110.2 | 110.7 |
| All items less medical care .....                         | 107.8          | 111.5 | 111.7 | 112.3 | 112.9 | 113.1 | 113.3 | 113.2 | 113.4 | 113.6 | 114.0 | 114.6 | 115.0 | 115.6 | 116.0 |
| Commodities less food .....                               | 101.2          | 103.9 | 103.8 | 104.6 | 105.4 | 105.9 | 106.3 | 105.6 | 105.0 | 104.9 | 105.7 | 106.6 | 107.0 | 106.9 | 107.0 |
| Nondurables less food .....                               | 98.0           | 101.4 | 101.1 | 102.4 | 103.6 | 104.2 | 104.4 | 103.3 | 102.4 | 102.2 | 103.4 | 104.9 | 105.4 | 105.0 | 105.1 |
| Nondurables less food and apparel .....                   | 96.4           | 100.0 | 101.0 | 101.9 | 102.0 | 101.9 | 102.2 | 101.8 | 101.5 | 101.4 | 101.4 | 102.5 | 103.4 | 103.6 | 104.5 |
| Nondurables .....   | 103.3          | 107.2 | 107.2 | 107.9 | 108.8 | 109.2 | 109.2 | 108.8 | 108.8 | 108.7 | 109.4 | 110.5 | 111.0 | 111.1 | 111.6 |
| Services less rent of shelter (12/84=100) .....           | 107.1          | 110.8 | 111.5 | 112.0 | 112.5 | 112.2 | 112.2 | 112.2 | 112.8 | 113.2 | 113.4 | 113.9 | 114.4 | 115.7 | 116.1 |
| Services less medical care .....                          | 113.9          | 118.2 | 118.5 | 119.2 | 119.7 | 119.9 | 119.9 | 120.1 | 120.7 | 121.1 | 121.4 | 121.7 | 122.2 | 123.1 | 123.6 |
| Energy .....  | 87.4           | 88.0  | 90.5  | 92.2  | 91.8  | 89.3  | 88.6  | 87.8  | 86.8  | 86.3  | 85.8  | 86.7  | 88.1  | 90.3  | 90.7  |
| All items less energy .....                               | 111.5          | 116.0 | 115.9 | 116.4 | 117.1 | 117.7 | 118.0 | 118.0 | 118.5 | 118.7 | 119.3 | 119.9 | 120.2 | 120.5 | 121.0 |
| All items less food and energy .....                      | 112.3          | 116.8 | 116.6 | 117.2 | 117.9 | 118.7 | 119.1 | 119.0 | 119.3 | 119.6 | 120.3 | 120.8 | 121.1 | 121.4 | 121.7 |
| Commodities less food and energy .....                    | 107.6          | 110.8 | 110.3 | 110.8 | 111.8 | 112.7 | 113.1 | 112.6 | 112.3 | 112.4 | 113.5 | 114.3 | 114.4 | 114.3 | 114.2 |
| Energy commodities .....                                  | 77.2           | 80.3  | 82.0  | 84.1  | 83.8  | 83.0  | 83.2  | 82.1  | 80.0  | 78.7  | 77.9  | 79.7  | 81.5  | 81.4  | 82.1  |
| Services less energy .....                                | 115.8          | 121.2 | 121.1 | 121.8 | 122.4 | 123.1 | 123.4 | 123.7 | 124.3 | 124.8 | 125.2 | 125.6 | 126.0 | 126.5 | 127.1 |
| Purchasing power of the consumer dollar:                  |                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |

**31. Consumer Price Index: U.S. city average and available local area data: all items**

(1982-84 = 100, unless otherwise indicated)

| Area <sup>1</sup>                                 | Pricing schedule <sup>2</sup> | Other index base | All Urban Consumers |       |       |       |       |       |       |       | Urban Wage Earners |       |       |       |       |       |
|---|-------------------------------|------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|--------------------|-------|-------|-------|-------|-------|
|   |                               |                  | 1987                |       | 1988  |       |       |       | 1987  |       | 1988               |       |       |       |       |       |
|   |                               |                  | July                | Aug.  | Mar.  | Apr.  | May   | June  | July  | July  | Aug.               | Mar.  | Apr.  | May   | June  | July  |
| U.S. city average .....                           | M                             | -                | 113.8               | 114.4 | 116.5 | 117.1 | 117.5 | 118.0 | 118.5 | 112.7 | 113.3              | 115.1 | 115.7 | 116.2 | 116.7 | 117.2 |
| <b>Region and area size<sup>3</sup></b>           |                               |                  |                     |       |       |       |       |       |       |       |                    |       |       |       |       |       |
| Northeast urban .....                             | M                             | -                | 116.0               | 116.9 | 119.6 | 120.4 | 120.7 | 121.4 | 121.8 | 115.2 | 116.0              | 118.4 | 119.2 | 119.5 | 120.2 | 120.6 |
| Size A - More than 1,200,000 .....                | M                             | -                | 116.9               | 117.9 | 120.4 | 121.3 | 121.6 | 122.0 | 122.6 | 115.4 | 116.3              | 118.5 | 119.3 | 119.5 | 120.0 | 120.6 |
| Size B - 500,000 to 1,200,000 .....               | M                             | -                | 113.5               | 114.0 | 117.5 | 118.2 | 118.9 | 119.9 | 120.0 | 112.5 | 113.0              | 116.4 | 117.0 | 117.7 | 118.7 | 118.8 |
| Size C - 50,000 to 500,000 .....                  | M                             | -                | 115.0               | 115.9 | 117.2 | 118.2 | 118.7 | 119.8 | 120.0 | 117.3 | 118.2              | 119.8 | 120.7 | 121.2 | 122.2 | 122.4 |
| North Central urban .....                         | M                             | -                | 112.3               | 113.1 | 114.3 | 114.9 | 115.5 | 116.0 | 116.6 | 110.4 | 111.2              | 112.3 | 113.0 | 113.6 | 114.1 | 114.7 |
| Size A - More than 1,200,000 .....                | M                             | -                | 113.2               | 114.0 | 115.1 | 115.7 | 116.0 | 117.0 | 117.7 | 110.7 | 111.5              | 112.5 | 113.1 | 113.5 | 114.4 | 115.1 |
| Size B - 360,000 to 1,200,000 .....               | M                             | -                | 111.5               | 112.6 | 114.2 | 115.0 | 115.7 | 115.6 | 115.8 | 109.0 | 110.1              | 111.8 | 112.6 | 113.4 | 113.3 | 113.5 |
| Size C - 50,000 to 360,000 .....                  | M                             | -                | 111.9               | 112.8 | 114.6 | 115.2 | 116.1 | 116.1 | 116.6 | 110.8 | 111.6              | 113.4 | 114.0 | 114.9 | 114.9 | 115.5 |
| Size D - Nonmetropolitan (less than 50,000) ..... | M                             | -                | 110.2               | 110.5 | 111.1 | 111.8 | 112.2 | 112.8 | 113.5 | 110.0 | 110.2              | 110.6 | 111.3 | 111.9 | 112.4 | 113.2 |
| South urban .....                                 | M                             | -                | 112.6               | 112.9 | 114.8 | 115.4 | 115.6 | 116.1 | 116.6 | 112.1 | 112.4              | 114.2 | 114.7 | 114.9 | 115.5 | 116.1 |
| Size A - More than 1,200,000 .....                | M                             | -                | 113.5               | 114.0 | 115.5 | 116.0 | 116.7 | 117.2 | 117.7 | 112.8 | 113.2              | 114.7 | 115.1 | 115.7 | 116.4 | 116.9 |
| Size B - 450,000 to 1,200,000 .....               | M                             | -                | 112.7               | 113.2 | 115.8 | 116.3 | 116.2 | 116.7 | 117.1 | 111.1 | 111.4              | 113.6 | 114.1 | 114.0 | 114.7 | 115.2 |
| Size C - 50,000 to 450,000 .....                  | M                             | -                | 112.1               | 112.3 | 114.0 | 114.5 | 114.6 | 114.9 | 115.6 | 112.5 | 112.7              | 114.3 | 114.9 | 115.0 | 115.3 | 116.1 |
| Size D - Nonmetropolitan (less than 50,000) ..... | M                             | -                | 110.8               | 110.9 | 112.7 | 113.6 | 113.7 | 114.5 | 115.0 | 111.6 | 111.7              | 113.4 | 114.2 | 114.4 | 115.3 | 115.8 |
| West urban .....                                  | M                             | -                | 114.3               | 114.8 | 117.5 | 117.9 | 118.5 | 118.7 | 119.2 | 113.2 | 113.7              | 116.2 | 116.6 | 117.2 | 117.4 | 117.8 |
| Size A - More than 1,250,000 .....                | M                             | -                | 115.4               | 116.0 | 118.9 | 119.2 | 120.1 | 120.2 | 120.5 | 113.0 | 113.6              | 116.2 | 116.6 | 117.4 | 117.5 | 117.8 |
| Size B - 330,000 to 1,250,000 .....               | M                             | -                | 113.1               | 113.3 | 115.9 | -     | -     | -     | -     | 113.4 | 113.6              | 116.0 | -     | -     | -     | -     |
| Size C - 50,000 to 330,000 .....                  | M                             | -                | 113.8               | 114.2 | 116.2 | 116.8 | 116.5 | 117.2 | 117.9 | 113.2 | 113.6              | 115.6 | 116.2 | 115.9 | 116.6 | 117.3 |
| <b>Size classes:</b>                              |                               |                  |                     |       |       |       |       |       |       |       |                    |       |       |       |       |       |
| A .....   | M                             | 12/86            | 103.2               | 103.8 | 105.7 | 106.3 | 106.7 | 107.2 | 107.6 | 103.3 | 103.9              | 105.6 | 106.1 | 106.6 | 107.1 | 107.6 |
| B .....   | M                             | -                | 112.7               | 113.2 | 115.8 | 116.4 | 116.7 | 117.2 | 117.5 | 111.5 | 112.0              | 114.3 | 114.9 | 115.3 | 115.8 | 116.1 |
| C .....   | M                             | -                | 112.9               | 113.4 | 115.1 | 115.8 | 116.1 | 116.5 | 117.1 | 113.2 | 113.7              | 115.4 | 116.1 | 116.4 | 116.8 | 117.4 |
| D .....   | M                             | -                | 111.3               | 111.4 | 113.5 | 114.1 | 114.3 | 115.0 | 115.4 | 111.6 | 111.8              | 113.7 | 114.3 | 114.6 | 115.3 | 115.7 |
| <b>Selected local areas</b>                       |                               |                  |                     |       |       |       |       |       |       |       |                    |       |       |       |       |       |
| Chicago, IL-<br>Northwestern IN .....             | M                             | -                | 115.9               | 116.7 | 116.9 | 117.1 | 117.0 | 118.9 | 119.8 | 112.4 | 113.2              | 113.2 | 113.3 | 113.3 | 115.2 | 116.2 |
| Los Angeles-Long Beach, Anaheim, CA .....         | M                             | -                | 116.5               | 117.3 | 120.6 | 121.1 | 122.0 | 122.0 | 122.1 | 113.8 | 114.6              | 117.5 | 118.0 | 118.9 | 118.9 | 119.0 |
| New York, NY-<br>Northeastern NJ .....            | M                             | -                | 117.9               | 118.9 | 121.5 | 122.6 | 122.7 | 123.1 | 123.6 | 116.5 | 117.4              | 119.7 | 120.6 | 120.7 | 121.2 | 121.7 |
| Philadelphia, PA-NJ .....                         | M                             | -                | 117.4               | 118.4 | 119.6 | 120.0 | 120.9 | 121.9 | 123.2 | 117.3 | 118.4              | 119.5 | 119.8 | 120.8 | 121.8 | 123.1 |
| San Francisco-<br>Oakland, CA .....               | M                             | -                | 115.8               | 116.1 | 119.1 | 118.7 | 119.7 | 120.1 | 120.9 | 114.7 | 114.9              | 117.9 | 117.8 | 118.7 | 119.0 | 119.7 |
| Baltimore, MD .....                               | 1                             | -                | 115.0               | -     | 117.7 | -     | 117.8 | -     | 119.9 | 114.7 | -                  | 117.3 | -     | 117.4 | -     | 119.7 |
| Boston, MA .....                                  | 1                             | -                | 116.3               | -     | 122.1 | -     | 123.1 | -     | 123.8 | 116.4 | -                  | 121.8 | -     | 123.1 | -     | 123.7 |
| Cleveland, OH .....                               | 1                             | -                | 112.8               | -     | 115.1 | -     | 116.6 | -     | 117.6 | 108.1 | -                  | 110.2 | -     | 111.7 | -     | 112.6 |
| Miami, FL .....                                   | 1                             | -                | 112.0               | -     | 115.1 | -     | 116.2 | -     | 116.8 | 111.3 | -                  | 114.3 | -     | 115.1 | -     | 116.0 |
| St. Louis, MO-IL .....                            | 1                             | -                | 112.7               | -     | 114.2 | -     | 114.1 | -     | 116.0 | 112.5 | -                  | 113.8 | -     | 113.7 | -     | 115.7 |
| Washington, DC-MD-VA .....                        | 1                             | -                | 116.2               | -     | 119.2 | -     | 120.1 | -     | 120.7 | 115.3 | -                  | 118.5 | -     | 119.3 | -     | 119.9 |
| Dallas-Ft. Worth, TX .....                        | 2                             | -                | -                   | 113.5 | -     | 115.4 | -     | 115.6 | -     | -     | 113.3              | -     | 114.8 | -     | 115.4 | -     |
| Detroit, MI .....                                 | 2                             | -                | -                   | 112.2 | -     | 114.4 | -     | 115.4 | -     | -     | 109.6              | -     | 111.9 | -     | 112.7 | -     |
| Houston, TX .....                                 | 2                             | -                | -                   | 107.3 | -     | 108.2 | -     | 109.4 | -     | -     | 107.1              | -     | 108.1 | -     | 109.4 | -     |
| Pittsburgh, PA .....                              | 2                             | -                | -                   | 112.0 | -     | 114.5 | -     | 114.3 | -     | -     | 107.7              | -     | 110.1 | -     | 110.0 | -     |

<sup>1</sup> Area is the Consolidated Metropolitan Statistical Area (CMSA), exclusive of farms and military. Area definitions are those established by the Office of Management and Budget in 1983, except for Boston-Lawrence-Salem, MA-NH Area (excludes Monroe County); and Milwaukee, WI Area (includes only the Milwaukee MSA). Definitions do not include revisions made since 1983.

<sup>2</sup> Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated.

M - Every month.

1 - January, March, May, July, September, and November.

2 - February, April, June, August, October, and December.

<sup>3</sup> Regions are defined as the four Census regions.

- Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Because each local index is a small subset of the national index, it has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error than the national index. As a result, local area indexes show greater volatility than the national index, although their long-term trends are quite similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in escalator clauses.



### 32. Annual data: Consumer Price Index, U.S. city average, all items and major groups

(1982-84 = 100)

| Series   | 1979 | 1980 | 1981 | 1982 | 1983  | 1984  | 1985  | 1986  | 1987  |
|--|------|------|------|------|-------|-------|-------|-------|-------|
| <b>Consumer Price Index for All Urban Consumers:</b>                     |      |      |      |      |       |       |       |       |       |
| All items:   |      |      |      |      |       |       |       |       |       |
| Index .....  | 72.6 | 82.4 | 90.9 | 96.5 | 99.6  | 103.9 | 107.6 | 109.6 | 113.6 |
| Percent change .....   | 11.3 | 13.5 | 10.3 | 6.2  | 3.2   | 4.3   | 3.6   | 1.9   | 3.6   |
| Food and beverages:  |      |      |      |      |       |       |       |       |       |
| Index .....  | 79.9 | 86.7 | 93.5 | 97.3 | 99.5  | 103.2 | 105.6 | 109.1 | 113.5 |
| Percent change .....   | 10.7 | 8.5  | 7.8  | 4.1  | 2.3   | 3.7   | 2.3   | 3.3   | 4.0   |
| Housing:   |      |      |      |      |       |       |       |       |       |
| Index .....  | 70.1 | 81.1 | 90.4 | 96.9 | 99.5  | 103.6 | 107.7 | 110.9 | 114.2 |
| Percent change .....   | 12.3 | 15.7 | 11.5 | 7.2  | 2.7   | 4.1   | 4.0   | 3.0   | 3.0   |
| Apparel and upkeep:  |      |      |      |      |       |       |       |       |       |
| Index .....  | 84.9 | 90.9 | 95.3 | 97.8 | 100.2 | 102.1 | 105.0 | 105.9 | 110.6 |
| Percent change .....   | 4.3  | 7.1  | 4.8  | 2.6  | 2.5   | 1.9   | 2.8   | .9    | 4.4   |
| Transportation:  |      |      |      |      |       |       |       |       |       |
| Index .....  | 70.5 | 83.1 | 93.2 | 97.0 | 99.3  | 103.7 | 106.4 | 102.3 | 105.4 |
| Percent change .....   | 14.3 | 17.9 | 12.2 | 4.1  | 2.4   | 4.4   | 2.6   | -3.9  | 3.0   |
| Medical care:  |      |      |      |      |       |       |       |       |       |
| Index .....  | 67.5 | 74.9 | 82.9 | 92.5 | 100.6 | 106.8 | 113.5 | 122.0 | 130.1 |
| Percent change .....   | 9.2  | 11.0 | 10.7 | 11.6 | 8.8   | 6.2   | 6.3   | 7.5   | 6.6   |
| Entertainment:   |      |      |      |      |       |       |       |       |       |
| Index .....  | 76.7 | 83.6 | 90.1 | 96.0 | 100.1 | 103.8 | 107.9 | 111.6 | 115.3 |
| Percent change .....   | 6.7  | 9.0  | 7.8  | 6.5  | 4.3   | 3.7   | 3.9   | 3.4   | 3.3   |
| Other goods and services:  |      |      |      |      |       |       |       |       |       |
| Index .....  | 68.9 | 75.2 | 82.6 | 91.1 | 101.1 | 107.9 | 114.5 | 121.4 | 128.5 |
| Percent change .....   | 7.2  | 9.1  | 9.8  | 10.3 | 11.0  | 6.7   | 6.1   | 6.0   | 5.8   |
| <b>Consumer Price Index for Urban Wage Earners and Clerical Workers:</b> |      |      |      |      |       |       |       |       |       |
| All items:   |      |      |      |      |       |       |       |       |       |
| Index .....  | 73.1 | 82.9 | 91.4 | 96.9 | 99.8  | 103.3 | 106.9 | 108.6 | 112.5 |
| Percent change .....   | 11.4 | 13.4 | 10.3 | 6.0  | 3.0   | 3.5   | 3.5   | 1.6   | 3.6   |

**33. Producer Price Indexes, by stage of processing**

(1982=100)

| Grouping  | Annual average |       | 1987  |       |       |       |       | 1988  |       |       |       |       |       |       |
|---|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 1986           | 1987  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |
| <b>Finished goods</b> .....                                       | 103.2          | 105.4 | 105.9 | 105.7 | 106.2 | 106.3 | 105.8 | 106.3 | 106.1 | 106.3 | 106.9 | 107.5 | 107.9 | 108.5 |
| Finished consumer goods .....                                     | 101.4          | 103.6 | 104.3 | 104.2 | 104.4 | 104.5 | 104.0 | 104.5 | 104.1 | 104.4 | 105.1 | 105.7 | 106.1 | 107.0 |
| Finished consumer foods .....                                     | 107.3          | 109.5 | 109.5 | 110.5 | 109.7 | 109.8 | 108.9 | 110.5 | 109.4 | 110.1 | 110.2 | 111.3 | 112.5 | 113.7 |
| Finished consumer goods excluding<br>foods .....                  | 98.5           | 100.7 | 101.8 | 101.1 | 101.9 | 101.9 | 101.6 | 101.5 | 101.5 | 101.5 | 102.5 | 102.9 | 103.0 | 103.7 |
| Nondurable goods less food .....                                  | 93.3           | 94.9  | 96.6  | 96.1  | 95.8  | 95.9  | 95.9  | 95.5  | 95.5  | 95.6  | 96.9  | 97.4  | 97.3  | 98.1  |
| Durable goods .....   | 108.9          | 111.5 | 110.9 | 110.0 | 113.4 | 113.0 | 112.2 | 112.6 | 112.8 | 112.6 | 112.8 | 112.9 | 113.3 | 113.7 |
| Capital equipment .....   | 109.7          | 111.7 | 111.7 | 111.2 | 112.5 | 112.5 | 112.4 | 112.9 | 113.2 | 113.2 | 113.6 | 113.9 | 114.2 | 114.2 |
| <b>Intermediate materials, supplies, and<br/>components</b> ..... | 99.1           | 101.5 | 102.5 | 102.7 | 103.1 | 103.4 | 103.6 | 104.2 | 104.3 | 104.7 | 105.5 | 106.2 | 107.4 | 108.2 |
| Materials and components for<br>manufacturing .....               | 102.2          | 105.3 | 105.8 | 106.3 | 107.2 | 107.5 | 108.1 | 109.5 | 109.9 | 110.5 | 111.5 | 112.2 | 113.0 | 113.9 |
| Materials for food manufacturing .....                            | 98.4           | 100.8 | 101.5 | 102.8 | 101.9 | 100.6 | 99.9  | 101.9 | 102.0 | 101.6 | 102.8 | 104.2 | 107.0 | 109.9 |
| Materials for nondurable manufacturing ..                         | 98.1           | 102.2 | 102.9 | 103.4 | 104.5 | 104.9 | 105.5 | 107.5 | 108.5 | 109.6 | 110.9 | 111.6 | 112.2 | 113.7 |
| Materials for durable manufacturing .....                         | 101.2          | 106.2 | 107.1 | 108.1 | 110.2 | 111.1 | 112.9 | 114.5 | 113.9 | 114.7 | 116.6 | 117.5 | 118.4 | 119.4 |
| Components for manufacturing .....                                | 107.5          | 108.8 | 108.8 | 109.0 | 109.3 | 109.5 | 109.8 | 110.5 | 110.8 | 111.1 | 111.4 | 111.7 | 112.3 | 112.4 |
| Materials and components for<br>construction .....                | 108.1          | 109.8 | 110.2 | 110.7 | 111.2 | 111.9 | 112.4 | 113.6 | 113.8 | 114.4 | 115.0 | 115.2 | 115.9 | 116.7 |
| Processed fuels and lubricants .....                              | 72.7           | 73.3  | 77.3  | 75.9  | 74.6  | 74.4  | 72.9  | 70.7  | 70.2  | 69.6  | 70.5  | 71.5  | 73.3  | 73.4  |
| Containers .....  | 110.3          | 114.5 | 114.4 | 115.4 | 116.1 | 116.5 | 116.1 | 116.6 | 116.9 | 117.4 | 118.2 | 119.3 | 119.9 | 120.3 |
| Supplies .....  | 105.6          | 107.7 | 107.8 | 108.2 | 108.8 | 109.5 | 109.9 | 110.5 | 110.6 | 111.1 | 111.7 | 112.3 | 114.0 | 115.2 |
| <b>Crude materials for further processing</b> ...                 | 87.7           | 93.7  | 96.5  | 95.7  | 95.3  | 94.7  | 94.4  | 93.7  | 94.7  | 94.1  | 95.7  | 97.1  | 98.2  | 97.0  |
| Foodstuffs and feedstuffs .....                                   | 93.2           | 96.2  | 97.1  | 96.6  | 96.1  | 95.3  | 95.9  | 97.2  | 99.7  | 99.8  | 101.2 | 104.5 | 108.4 | 109.9 |
| Crude nonfood materials .....                                     | 81.6           | 87.9  | 91.8  | 90.8  | 90.5  | 90.1  | 89.2  | 87.3  | 87.4  | 86.4  | 88.0  | 88.2  | 87.5  | 84.8  |
| <b>Special groupings</b>  |                |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Finished goods, excluding foods .....                             | 101.9          | 104.0 | 104.7 | 104.2 | 105.1 | 105.1 | 104.9 | 104.9 | 105.0 | 105.1 | 105.8 | 106.2 | 106.4 | 106.8 |
| Finished energy goods .....                                       | 63.0           | 61.8  | 64.9  | 63.4  | 62.4  | 62.5  | 61.4  | 59.2  | 58.5  | 58.2  | 60.9  | 61.5  | 60.8  | 60.7  |
| Finished goods less energy .....                                  | 109.7          | 112.3 | 112.3 | 112.4 | 113.1 | 113.2 | 112.9 | 113.9 | 113.8 | 114.1 | 114.3 | 114.9 | 115.5 | 116.3 |
| Finished consumer goods less energy .....                         | 109.7          | 112.5 | 112.6 | 112.8 | 113.4 | 113.4 | 113.1 | 114.3 | 114.0 | 114.4 | 114.5 | 115.2 | 115.9 | 117.0 |
| Finished goods less food and energy .....                         | 110.6          | 113.3 | 113.4 | 113.1 | 114.5 | 114.5 | 114.5 | 115.2 | 115.5 | 115.7 | 115.9 | 116.2 | 116.5 | 117.2 |
| Finished consumer goods less food and<br>energy .....             | 111.1          | 114.2 | 114.3 | 114.1 | 115.6 | 115.6 | 115.7 | 116.5 | 116.8 | 117.1 | 117.2 | 117.5 | 117.9 | 118.9 |
| Consumer nondurable goods less food and<br>energy .....           | 113.1          | 116.3 | 116.9 | 117.3 | 117.4 | 117.6 | 118.4 | 119.5 | 119.9 | 120.4 | 120.5 | 120.9 | 121.3 | 122.8 |
| Intermediate materials less foods and<br>feeds .....              | 99.3           | 101.7 | 102.7 | 102.8 | 103.2 | 103.6 | 103.7 | 104.2 | 104.4 | 104.8 | 105.7 | 106.3 | 107.1 | 107.7 |
| Intermediate foods and feeds .....                                | 96.2           | 99.2  | 99.6  | 101.0 | 100.6 | 101.4 | 102.0 | 102.9 | 101.9 | 102.0 | 103.5 | 104.9 | 112.0 | 116.8 |
| Intermediate energy goods .....                                   | 72.6           | 73.0  | 77.0  | 75.6  | 74.4  | 74.1  | 72.7  | 70.5  | 70.0  | 69.3  | 70.2  | 71.2  | 73.0  | 73.1  |
| Intermediate goods less energy .....                              | 104.5          | 107.3 | 107.7 | 108.3 | 109.1 | 109.5 | 110.1 | 111.2 | 111.4 | 112.1 | 112.8 | 113.5 | 114.5 | 115.5 |
| Intermediate materials less foods and<br>energy .....             | 104.9          | 107.8 | 108.2 | 108.7 | 109.6 | 110.1 | 110.6 | 111.8 | 112.2 | 112.9 | 113.7 | 114.3 | 114.9 | 115.7 |
| Crude energy materials .....                                      | 71.8           | 75.0  | 78.9  | 76.7  | 75.4  | 74.7  | 73.6  | 70.8  | 70.4  | 68.7  | 70.5  | 71.4  | 70.7  | 66.9  |
| Crude materials less energy .....                                 | 95.4           | 100.9 | 102.3 | 103.0 | 103.6 | 103.1 | 103.7 | 105.1 | 107.6 | 108.1 | 109.2 | 110.9 | 113.8 | 115.4 |
| Crude nonfood materials less energy .....                         | 103.1          | 115.7 | 118.7 | 122.9 | 126.4 | 127.1 | 127.3 | 129.2 | 131.6 | 133.4 | 133.6 | 131.1 | 131.0 | 132.8 |

### 34. Producer Price indexes, by durability of product

(1982 = 100)

| Grouping                                    | Annual average |       | 1987  |       |       |       |       | 1988  |       |       |       |       |       |       |
|---|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 1986           | 1987  | Aug.  | Sept. | Oct.  | Nov.  | Dec.  | Jan.  | Feb.  | Mar.  | Apr.  | May   | June  | July  |
| Total durable goods .....                   | 107.5          | 109.9 | 110.0 | 110.2 | 111.4 | 111.7 | 112.0 | 112.8 | 113.0 | 113.3 | 113.8 | 114.0 | 114.5 | 114.8 |
| Total nondurable goods .....                | 94.8           | 97.5  | 99.0  | 98.8  | 98.5  | 98.6  | 98.3  | 98.5  | 98.6  | 98.8  | 99.8  | 100.8 | 101.9 | 102.5 |
| Total manufactures .....                    | 101.7          | 104.4 | 105.1 | 105.1 | 105.8 | 106.0 | 106.0 | 106.6 | 106.8 | 107.1 | 107.8 | 108.5 | 109.1 | 109.8 |
| Durable .....                               | 107.5          | 109.6 | 109.7 | 109.7 | 110.9 | 111.1 | 111.4 | 112.2 | 112.4 | 112.6 | 113.1 | 113.4 | 113.9 | 114.1 |
| Nondurable .....                            | 96.0           | 99.2  | 100.5 | 100.4 | 100.7 | 100.9 | 100.6 | 101.1 | 101.3 | 101.7 | 102.6 | 103.7 | 104.4 | 105.4 |
| Total raw or slightly processed goods ..... | 92.3           | 94.2  | 96.2  | 95.9  | 94.9  | 94.7  | 94.5  | 94.0  | 94.1  | 93.8  | 94.9  | 95.6  | 97.7  | 97.4  |
| Durable .....                               | 107.8          | 122.6 | 125.7 | 130.9 | 137.3 | 138.0 | 138.3 | 139.9 | 144.6 | 146.2 | 146.6 | 142.9 | 144.0 | 149.2 |
| Nondurable .....                            | 91.5           | 92.9  | 94.7  | 94.3  | 92.9  | 92.6  | 92.4  | 91.9  | 91.8  | 91.4  | 92.5  | 93.4  | 95.5  | 94.9  |

### 35. Annual data: Producer Price Indexes, by stage of processing

(1982 = 100)

| Index  | 1979  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Finished goods:</b>                                   |       |       |       |       |       |       |       |       |       |
| Total .....  | 77.6  | 88.0  | 96.1  | 100.0 | 101.6 | 103.7 | 104.7 | 103.2 | 105.4 |
| Consumer goods .....                                     | 77.5  | 88.6  | 96.6  | 100.0 | 101.3 | 103.3 | 103.8 | 101.4 | 103.6 |
| Capital equipment .....                                  | 77.5  | 85.8  | 94.6  | 100.0 | 102.8 | 105.2 | 107.5 | 109.7 | 111.7 |
| <b>Intermediate materials, supplies, and components:</b> |       |       |       |       |       |       |       |       |       |
| Total .....  | 78.4  | 90.3  | 98.6  | 100.0 | 100.6 | 103.1 | 102.7 | 99.1  | 101.5 |
| Materials and components for manufacturing .....         | 80.9  | 91.7  | 98.7  | 100.0 | 101.2 | 104.1 | 103.3 | 102.2 | 105.3 |
| Materials and components for construction .....          | 84.2  | 91.3  | 97.9  | 100.0 | 102.8 | 105.6 | 107.3 | 108.1 | 109.8 |
| Processed fuels and lubricants .....                     | 61.6  | 85.0  | 100.6 | 100.0 | 95.4  | 95.7  | 92.8  | 72.7  | 73.3  |
| Containers .....   | 79.4  | 89.1  | 96.7  | 100.0 | 100.4 | 105.9 | 109.0 | 110.3 | 114.5 |
| Supplies .....   | 80.2  | 89.9  | 96.9  | 100.0 | 101.8 | 104.1 | 104.4 | 105.6 | 107.7 |
| <b>Crude materials for further processing:</b>           |       |       |       |       |       |       |       |       |       |
| Total .....  | 85.9  | 95.3  | 103.0 | 100.0 | 101.3 | 103.5 | 95.8  | 87.7  | 93.7  |
| Foodstuffs and feedstuffs .....                          | 100.0 | 104.6 | 103.9 | 100.0 | 101.8 | 104.7 | 94.8  | 93.2  | 96.2  |
| Nonfood materials except fuel .....                      | 69.6  | 84.6  | 101.8 | 100.0 | 100.7 | 102.2 | 96.9  | 81.6  | 87.9  |
| Fuel .....   | 57.3  | 69.4  | 84.8  | 100.0 | 105.1 | 105.1 | 102.7 | 92.2  | 84.1  |



**36. U.S. export price indexes by Standard International Trade Classification**

(June 1977 = 100, unless otherwise indicated)

| Category   | 1974<br>SITC | 1985  | 1986  |       |       |       | 1987  |       |       |       | 1988  |       |
|--|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  |              | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| <b>ALL COMMODITIES (9/83=100)</b> .....  |              | 99.7  | 99.4  | 99.1  | 97.9  | 99.0  | 99.9  | 102.2 | 102.8 | 104.9 | 106.5 | 109.4 |
| <b>Food (3/83=100)</b> .....   | 0            | 100.7 | 97.2  | 97.1  | 86.0  | 90.1  | 87.3  | 89.9  | 86.7  | 94.6  | 95.2  | 103.4 |
| Meat (3/83=100) .....  | 01           | 103.6 | 102.5 | 105.2 | 111.3 | 114.5 | 115.0 | 121.2 | 118.8 | 116.8 | 122.8 | 131.8 |
| Fish (3/83=100) .....  | 03           | 100.6 | 100.2 | 108.6 | 111.9 | 115.9 | 117.1 | 125.8 | 131.1 | 138.5 | 140.9 | 144.7 |
| Grain and grain preparations (3/80=100) .....  | 04           | 98.8  | 91.7  | 89.0  | 66.3  | 72.5  | 68.3  | 71.0  | 67.8  | 77.4  | 79.8  | 87.2  |
| Vegetables and fruit (3/83=100) .....  | 05           | 98.2  | 98.6  | 108.6 | 114.6 | 117.5 | 115.3 | 112.4 | 101.1 | 100.5 | 97.5  | 104.4 |
| Feedstuffs for animals (3/83=100) .....  | 08           | 114.0 | 120.0 | 114.8 | 123.9 | 119.7 | 117.0 | 123.8 | 123.1 | 145.2 | 134.6 | 158.1 |
| Misc. food products (3/83=100) .....   | 09           | 99.5  | 98.0  | 97.0  | 98.7  | 99.9  | 100.1 | 100.6 | 100.3 | 100.3 | 102.3 | 102.7 |
| <b>Beverages and tobacco (6/83=100)</b> .....  | 1            | 99.4  | 96.6  | 97.4  | 97.3  | 102.6 | 102.6 | 105.0 | 105.5 | 107.0 | 109.6 | 110.6 |
| Beverages (9/83=100) .....   | 11           | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Tobacco and tobacco products (6/83=100) .....  | 12           | 99.5  | 96.3  | 97.1  | 97.0  | 102.6 | 102.6 | 105.0 | 105.5 | 107.0 | 109.8 | 110.7 |
| <b>Crude materials (6/83=100)</b> .....  | 2            | 98.1  | 101.4 | 102.2 | 99.6  | 102.4 | 105.7 | 114.5 | 118.7 | 125.2 | 130.0 | 139.7 |
| Raw hides and skins (6/80=100) .....   | 21           | 110.0 | 108.7 | 117.1 | 108.3 | 115.9 | 131.9 | 149.6 | 147.7 | 157.1 | 171.4 | 164.2 |
| Oilseeds and oleaginous fruit (9/77=100) .....   | 22           | 94.7  | 99.1  | 98.1  | 97.5  | 95.2  | 90.4  | 101.6 | 95.1  | 109.6 | 115.6 | 143.0 |
| Rubber rubber (including synthetic and reclaimed) (9/83=100) .....                                     | 23           | 99.7  | 99.7  | 99.9  | 99.6  | 98.9  | 99.9  | 101.0 | 102.8 | 105.3 | 104.5 | 106.1 |
| Wood .....   | 24           | 101.9 | 101.5 | 101.2 | 102.9 | 107.9 | 111.2 | 116.2 | 141.7 | 146.0 | 150.2 | 149.5 |
| Pulp and waste paper (6/83=100) .....  | 25           | 96.7  | 104.2 | 116.4 | 129.0 | 129.4 | 144.2 | 149.9 | 153.0 | 160.4 | 171.2 | 178.8 |
| Textile fibers .....   | 26           | 96.4  | 100.2 | 98.0  | 73.0  | 90.9  | 97.8  | 112.4 | 116.5 | 111.6 | 107.5 | 109.8 |
| Crude fertilizers and minerals .....   | 27           | 99.2  | 100.0 | 98.4  | 98.0  | 96.8  | 94.4  | 94.0  | 91.6  | 91.6  | 92.8  | 94.9  |
| Metalliferous ores and metal scrap .....   | 28           | 94.8  | 100.3 | 98.0  | 100.4 | 96.8  | 98.8  | 107.0 | 117.4 | 125.9 | 131.8 | 146.0 |
| <b>Mineral fuels</b> .....   | 3            | 97.0  | 83.6  | 76.8  | 77.4  | 77.8  | 81.3  | 82.8  | 84.6  | 82.5  | 79.3  | 82.1  |
| <b>Animal and vegetable oils, fats, and waxes</b> .....  | 4            | 82.5  | 74.3  | 67.7  | 62.1  | 71.8  | 73.9  | 78.8  | 78.5  | 81.6  | 92.7  | 97.3  |
| Fixed vegetable oils and fats (6/83=100) .....   | 42           | 80.3  | 71.3  | 70.6  | 60.2  | 64.6  | 67.3  | 71.9  | 71.2  | 75.4  | 85.7  | 93.7  |
| <b>Chemicals (3/83=100)</b> .....  | 5            | 99.6  | 99.8  | 98.0  | 95.7  | 95.2  | 99.6  | 106.7 | 107.7 | 112.9 | 117.9 | 121.8 |
| Organic chemicals (12/83=100) .....  | 51           | 99.2  | 98.5  | 93.1  | 91.6  | 92.4  | 101.9 | 118.4 | 116.1 | 123.5 | 135.1 | 145.1 |
| Fertilizers, manufactured (3/83=100) .....   | 56           | 100.5 | 98.9  | 93.0  | 85.1  | 77.4  | 85.6  | 91.6  | 100.9 | 106.5 | 110.6 | 109.8 |
| <b>Intermediate manufactured products (9/81=100)</b> .....   | 6            | 99.8  | 101.3 | 102.5 | 103.8 | 104.2 | 106.4 | 107.9 | 110.3 | 111.2 | 114.4 | 117.8 |
| Leather and furskins (9/79=100) .....  | 61           | 98.0  | 97.3  | 103.8 | 104.2 | 107.8 | 123.6 | 126.9 | 128.7 | 118.0 | 125.7 | 125.1 |
| Rubber manufactures .....  | 62           | 99.7  | 100.7 | 100.1 | 100.5 | 100.9 | 102.0 | 102.5 | 103.9 | 104.1 | 105.2 | 108.8 |
| Paper and paperboard products (6/78=100) .....   | 64           | 97.9  | 100.5 | 104.7 | 109.1 | 110.8 | 114.7 | 117.0 | 120.1 | 122.4 | 126.2 | 129.0 |
| Iron and steel (3/82=100) .....  | 67           | 100.9 | 100.3 | 100.2 | 102.3 | 101.9 | 102.9 | 102.9 | 100.7 | 102.9 | 106.1 | 110.8 |
| Nonferrous metals (9/81=100) .....   | 68           | 98.9  | 104.2 | 103.1 | 105.3 | 102.6 | 106.6 | 113.0 | 123.0 | 124.4 | 134.0 | 143.7 |
| Metal manufactures, n.e.s. (3/82=100) .....  | 69           | 100.2 | 100.4 | 100.8 | 100.8 | 100.8 | 101.5 | 101.3 | 102.3 | 103.4 | 104.5 | 108.0 |
| <b>Machinery and transport equipment, excluding military and commercial aircraft (12/78=100)</b> ..... | 7            | 100.2 | 100.7 | 100.8 | 101.0 | 101.6 | 101.7 | 101.8 | 102.1 | 102.4 | 103.2 | 103.9 |
| Power generating machinery and equipment (12/78=100) .....   | 71           | 101.3 | 102.3 | 102.4 | 102.5 | 103.7 | 104.6 | 103.7 | 104.8 | 105.2 | 107.0 | 108.5 |
| Machinery specialized for particular industries (9/78=100) .....                                       | 72           | 100.4 | 100.6 | 100.3 | 100.4 | 100.6 | 100.0 | 100.1 | 100.5 | 100.9 | 102.1 | 103.6 |
| Metalworking machinery (6/78=100) .....  | 73           | 101.3 | 101.9 | 102.0 | 103.0 | 104.2 | 105.8 | 106.7 | 107.8 | 108.2 | 109.3 | 111.3 |
| General industrial machines and parts n.e.s. 9/78=100) .....   | 74           | 100.4 | 100.9 | 101.6 | 102.5 | 103.3 | 104.2 | 104.5 | 104.6 | 105.4 | 106.7 | 108.0 |
| Office machines and automatic data processing equipment .....  | 75           | 99.1  | 99.9  | 99.0  | 98.8  | 98.2  | 96.0  | 96.1  | 95.7  | 95.5  | 95.8  | 95.5  |
| Telecommunications, sound recording and reproducing equipment .....                                    | 76           | 100.1 | 99.2  | 98.9  | 99.7  | 101.3 | 101.9 | 101.4 | 101.4 | 101.9 | 102.8 | 104.6 |
| Electrical machinery and equipment .....   | 77           | 98.9  | 99.5  | 99.2  | 99.7  | 100.3 | 101.7 | 102.1 | 102.5 | 101.8 | 103.1 | 102.8 |
| Road vehicles and parts (3/80=100) .....   | 78           | 100.9 | 101.0 | 101.7 | 101.9 | 103.3 | 103.1 | 103.5 | 103.8 | 104.6 | 104.5 | 104.7 |
| Other transport equipment, excl. military and commercial aviation .....                                | 79           | 101.1 | 102.1 | 103.1 | 102.8 | 103.5 | 104.5 | 105.5 | 105.8 | 106.6 | 107.4 | 109.6 |
| <b>Other manufactured articles</b> .....   | 8            | 100.3 | 102.3 | 103.5 | 103.4 | 103.8 | 104.6 | 105.2 | 105.4 | 105.6 | 106.9 | 108.0 |
| Apparel (9/83=100) .....   | 84           | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Professional, scientific, and controlling instruments and apparatus .....                              | 87           | 100.6 | 102.0 | 103.1 | 103.0 | 103.5 | 104.4 | 105.5 | 106.3 | 107.1 | 110.0 | 111.1 |
| Photographic apparatus and supplies, optical goods, watches and clocks (12/77=100) .....               | 88           | 100.1 | 101.9 | 102.6 | 102.4 | 102.1 | 102.7 | 102.5 | 99.0  | 97.9  | 97.6  | 99.8  |
| Miscellaneous manufactured articles, n.e.s. .....  | 89           | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| <b>Gold, non-monetary (6/83=100)</b> .....   | 971          | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |

- Data not available.

### 37. U.S. import price indexes by Standard International Trade Classification

(June 1977 = 100, unless otherwise indicated)

| Category  | 1974<br>SITC | 1986  |       |       | 1987  |       |       |       | 1988  |       |
|---|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |              | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| <b>ALL COMMODITIES (9/82=100)</b> .....   |              | 98.7  | 101.1 | 102.3 | 106.5 | 110.0 | 110.9 | 112.5 | 113.8 | 116.9 |
| <b>Food (9/77=100)</b> .....  | 0            | 107.3 | 112.0 | 109.1 | 105.2 | 108.3 | 109.1 | 112.5 | 114.1 | 113.9 |
| Meat .....  | 01           | 96.0  | 104.3 | 109.2 | 105.0 | 108.0 | 114.4 | 113.4 | 111.5 | 107.1 |
| Dairy products and eggs (6/81=100) .....  | 02           | 108.7 | 111.3 | 113.8 | 119.3 | 122.3 | 121.7 | 125.1 | 125.6 | 125.0 |
| Fish .....  | 03           | 110.5 | 114.1 | 119.1 | 121.8 | 126.0 | 130.4 | 131.0 | 132.5 | 129.1 |
| Bakery goods, pasta products, grain and grain preparations<br>(9/77=100) .....              | 04           | 112.5 | 117.8 | 118.8 | 122.3 | 126.2 | 124.8 | 130.7 | 135.8 | 139.9 |
| Fruits and vegetables .....   | 05           | 100.0 | 106.0 | 104.3 | 101.9 | 110.1 | 110.0 | 116.2 | 115.4 | 120.3 |
| Sugar, sugar preparations, and honey (3/82=100) .....                                       | 06           | 104.6 | 106.2 | 106.5 | 107.4 | 109.6 | 109.0 | 107.0 | 109.6 | 110.0 |
| Coffee, tea, cocoa .....  | 07           | 117.2 | 121.5 | 104.9 | 89.9  | 87.0  | 85.1  | 90.6  | 94.3  | 93.4  |
| <b>Beverages and tobacco</b> .....  | 1            | 105.2 | 103.9 | 106.8 | 107.8 | 112.8 | 112.2 | 113.5 | 116.0 | 116.2 |
| Beverages .....   | 11           | 106.1 | 107.5 | 109.5 | 112.1 | 114.2 | 114.8 | 116.2 | 118.7 | 119.9 |
| <b>Crude materials</b> .....  | 2            | 106.4 | 109.5 | 109.1 | 115.1 | 116.2 | 120.3 | 122.1 | 129.2 | 137.8 |
| Crude rubber (inc. synthetic & reclaimed) (3/84=100) .....                                  | 23           | 99.5  | 97.7  | 98.4  | 98.4  | 103.7 | 110.7 | 120.1 | 121.7 | 151.1 |
| Wood (9/81=100) .....   | 24           | 104.3 | 107.6 | 104.8 | 113.5 | 110.2 | 117.4 | 108.8 | 112.4 | 111.4 |
| Pulp and waste paper (12/81=100) .....  | 25           | 100.3 | 108.0 | 116.9 | 127.0 | 132.0 | 133.4 | 141.0 | 151.0 | 160.5 |
| Crude fertilizers and crude minerals (12/83=100) .....                                      | 27           | 99.0  | 98.4  | 98.6  | 98.2  | 99.6  | 99.2  | 99.9  | 100.4 | 101.0 |
| Metalliferous ores and metal scrap (3/84=100) .....   | 28           | 121.6 | 124.8 | 118.3 | 122.8 | 124.5 | 128.7 | 137.9 | 151.2 | 167.6 |
| Crude vegetable and animal materials, n.e.s. ....   | 29           | 111.3 | 112.4 | 111.9 | 113.0 | 109.0 | 107.6 | 118.3 | 135.8 | 149.0 |
| <b>Fuels and related products (6/82=100)</b> .....  | 3            | 51.5  | 52.2  | 55.9  | 67.4  | 74.1  | 74.3  | 67.2  | 60.6  | 64.7  |
| Petroleum and petroleum products (6/82=100) .....   | 33           | 49.0  | 50.0  | 55.0  | 67.4  | 74.4  | 75.2  | 67.8  | 60.4  | 65.0  |
| <b>Fats and oils (9/83=100)</b> .....   | 4            | 66.7  | 61.2  | 83.4  | 82.9  | 87.9  | 96.4  | 102.1 | 106.4 | 111.2 |
| Vegetable oils (9/83=100) .....   | 42           | -     | -     | -     | -     | -     | 100.0 | 105.7 | 111.1 | 116.1 |
| <b>Chemicals (9/82=100)</b> .....   | 5            | 99.7  | 99.8  | 99.0  | 102.6 | 104.8 | 105.6 | 110.1 | 114.2 | 116.3 |
| Medicinal and pharmaceutical products (3/84=100) .....                                      | 54           | 111.2 | 115.9 | 113.6 | 120.1 | 123.4 | 124.3 | 126.3 | 135.3 | 140.3 |
| Manufactured fertilizers (3/84=100) .....   | 56           | 93.0  | 89.8  | 89.9  | 92.9  | 94.6  | 109.3 | 133.6 | 133.7 | 136.3 |
| Chemical materials and products, n.e.s. (9/84=100) .....                                    | 59           | 110.1 | 111.3 | 112.7 | 115.1 | 117.7 | 120.6 | 124.8 | 138.7 | 148.6 |
| <b>Intermediate manufactured products (12/77=100)</b> .....                                 | 6            | 103.6 | 105.8 | 106.7 | 108.6 | 112.5 | 116.3 | 119.8 | 124.4 | 131.6 |
| Leather and furskins .....  | 61           | 106.3 | 108.8 | 107.2 | 110.9 | 116.6 | 117.8 | 124.4 | 131.8 | 137.0 |
| Rubber manufactures, n.e.s. ....  | 62           | 101.2 | 102.0 | 101.8 | 104.3 | 104.6 | 103.2 | 104.6 | 106.0 | 107.7 |
| Cork and wood manufactures .....  | 63           | 111.0 | 112.7 | 117.4 | 118.0 | 124.3 | 128.3 | 128.2 | 133.8 | 137.8 |
| Paper and paperboard products .....   | 64           | 100.8 | 101.0 | 104.9 | 104.8 | 104.9 | 110.3 | 112.3 | 117.2 | 118.3 |
| Textiles .....  | 65           | 105.4 | 107.4 | 107.9 | 110.4 | 111.8 | 114.6 | 118.6 | 120.0 | 120.6 |
| Nonmetallic mineral manufactures, n.e.s. ....   | 66           | 110.5 | 116.6 | 117.9 | 120.5 | 126.7 | 130.4 | 133.4 | 137.4 | 142.5 |
| Iron and steel (9/78=100) .....   | 67           | 98.9  | 100.0 | 100.9 | 102.7 | 106.6 | 109.4 | 114.0 | 120.0 | 127.2 |
| Nonferrous metals (12/81=100) .....   | 68           | 98.9  | 103.3 | 101.5 | 102.5 | 112.4 | 120.9 | 125.8 | 132.7 | 154.6 |
| Metal manufactures, n.e.s. ....   | 69           | 107.9 | 107.7 | 108.3 | 112.1 | 112.7 | 114.6 | 117.8 | 121.1 | 127.9 |
| <b>Machinery and transport equipment (6/81=100)</b> .....                                   | 7            | 110.4 | 113.0 | 114.4 | 117.5 | 119.9 | 119.9 | 123.1 | 125.4 | 127.3 |
| Machinery specialized for particular industries (9/78=100) .....                            | 72           | 116.9 | 122.7 | 123.0 | 130.4 | 136.1 | 134.3 | 142.1 | 146.8 | 149.5 |
| Metalworking machinery (3/80=100) .....   | 73           | 113.0 | 117.7 | 120.9 | 126.4 | 128.1 | 130.2 | 135.5 | 139.9 | 142.5 |
| General industrial machinery and parts, n.e.s. (6/81=100) .....                             | 74           | 116.2 | 119.9 | 120.9 | 127.9 | 130.8 | 130.1 | 137.0 | 140.4 | 143.5 |
| Office machines and automatic data processing equipment<br>(3/80=100) .....                 | 75           | 109.1 | 109.9 | 108.9 | 110.0 | 114.0 | 114.8 | 118.3 | 118.1 | 119.6 |
| Telecommunications, sound recording and reproducing apparatus<br>(3/80=100) .....           | 76           | 106.4 | 109.2 | 108.9 | 110.5 | 110.3 | 110.2 | 112.1 | 112.8 | 114.0 |
| Electrical machinery and equipment (12/81=100) .....  | 77           | 106.4 | 108.8 | 109.8 | 112.4 | 115.8 | 115.1 | 118.2 | 122.2 | 123.8 |
| Road vehicles and parts (6/81=100) .....  | 78           | 110.8 | 112.9 | 116.1 | 118.6 | 120.5 | 120.6 | 122.6 | 125.5 | 127.7 |
| <b>Misc. manufactured articles (3/80=100)</b> .....   | 8            | 106.8 | 109.7 | 110.3 | 114.5 | 117.8 | 118.5 | 121.8 | 124.2 | 125.8 |
| Plumbing, heating, and lighting fixtures (6/80=100) .....                                   | 81           | 108.6 | 111.1 | 110.8 | 111.6 | 117.0 | 116.2 | 121.0 | 123.4 | 127.0 |
| Furniture and parts (6/80=100) .....  | 82           | 108.0 | 110.7 | 112.3 | 114.8 | 119.8 | 119.0 | 124.3 | 125.4 | 130.2 |
| Clothing (9/77=100) .....   | 84           | 100.7 | 101.7 | 102.6 | 106.4 | 109.2 | 111.9 | 112.3 | 115.6 | 114.8 |
| Footwear .....  | 85           | 108.0 | 110.7 | 112.3 | 114.8 | 119.8 | 119.0 | 124.3 | 125.4 | 130.2 |
| Professional, scientific, and controlling instruments and<br>apparatus (12/79=100) .....    | 87           | 117.9 | 122.6 | 122.5 | 131.3 | 135.9 | 132.7 | 138.7 | 140.0 | 142.2 |
| Photographic apparatus and supplies, optical goods, watches, and<br>clocks (3/80=100) ..... | 88           | 113.8 | 118.0 | 119.0 | 123.7 | 126.0 | 122.1 | 127.3 | 129.2 | 129.3 |
| Misc. manufactured articles, n.e.s. (6/82=100) .....  | 89           | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| <b>Gold, non-monetary (6/82=100)</b> .....  | 971          | -     | -     | -     | -     | -     | -     | -     | -     | -     |

- Data not available.

**38. U.S. export price indexes by end-use category**

(September 1983 = 100 unless otherwise indicated)

| Category   | Per-centage of 1980 trade value | 1986  |       |       | 1987  |       |       |       | 1988  |       |
|--|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  |                                 | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| Foods, feeds, and beverages .....                        | 16.294                          | 96.2  | 87.2  | 90.2  | 87.4  | 91.5  | 88.0  | 96.6  | 98.5  | 110.2 |
| Raw materials .....                                      | 30.696                          | 96.0  | 95.1  | 96.3  | 100.8 | 106.1 | 109.1 | 111.8 | 114.2 | 118.3 |
| Capital goods (12/82=100) .....                          | 30.186                          | 100.6 | 100.7 | 101.1 | 101.4 | 101.6 | 101.8 | 102.1 | 103.3 | 104.1 |
| Automotive vehicles, parts and engines (12/82=100) ..... | 7.483                           | 101.9 | 102.3 | 103.5 | 103.4 | 103.6 | 104.0 | 104.5 | 104.3 | 104.7 |
| Consumer goods .....                                     | 7.467                           | 103.3 | 103.6 | 105.2 | 105.9 | 106.3 | 106.9 | 108.0 | 110.1 | 110.6 |
| Durables .....   | 3.965                           | 102.8 | 102.9 | 104.9 | 105.5 | 106.6 | 107.3 | 107.9 | 110.4 | 110.3 |
| Nondurables .....  | 3.501                           | 103.7 | 103.8 | 104.3 | 105.4 | 104.3 | 104.6 | 106.3 | 107.4 | 108.8 |

**39. U.S. import price indexes by end-use category**

(December 1982 = 100)

| Category  | Per-centage of 1980 trade value | 1986  |       |       | 1987  |       |       |       | 1988  |       |
|---|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |                                 | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| Foods, feeds, and beverages .....                         | 7.477                           | 106.1 | 109.8 | 108.4 | 105.2 | 107.8 | 109.0 | 112.1 | 113.7 | 113.6 |
| Petroleum and petroleum products, excl. natural gas ..... | 31.108                          | 49.1  | 50.0  | 54.7  | 67.2  | 74.1  | 74.7  | 67.6  | 60.3  | 64.8  |
| Raw materials, excluding petroleum .....                  | 19.205                          | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Raw materials, nondurable .....                           | 9.391                           | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Raw materials, durable .....                              | 9.814                           | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Capital goods .....                                       | 13.164                          | 110.7 | 113.5 | 114.2 | 118.7 | 122.2 | 121.9 | 126.6 | 128.6 | 130.8 |
| Automotive vehicles, parts and engines .....              | 11.750                          | 110.4 | 112.7 | 114.6 | 116.5 | 118.4 | 118.4 | 120.6 | 123.7 | 125.9 |
| Consumer goods .....                                      | 14.250                          | 107.1 | 110.1 | 110.5 | 114.2 | 116.9 | 118.2 | 121.4 | 124.2 | 126.4 |
| Durable .....   | 5.507                           | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Nondurable .....  | 8.743                           | -     | -     | -     | -     | -     | -     | -     | -     | -     |

- Data not available.

**40. U.S. export price indexes by Standard Industrial Classification <sup>1</sup>**

| Industry group   | 1986  |       |       | 1987  |       |       |       | 1988  |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| Manufacturing:   |       |       |       |       |       |       |       |       |       |
| Food and kindred products (6/83=100) .....                     | 97.2  | 97.4  | 100.2 | 102.0 | 107.4 | 107.1 | 116.3 | 120.8 | 124.8 |
| Lumber and wood products, except furniture (6/83=100) .....    | 103.4 | 104.8 | 108.8 | 112.8 | 116.2 | 138.9 | 142.5 | 146.1 | 145.3 |
| Furniture and fixtures (9/83=100) .....                        | 103.7 | 104.0 | 104.1 | 108.0 | 108.6 | 108.7 | 111.2 | 112.5 | 112.9 |
| Paper and allied products (3/81=100) .....                     | 97.9  | 102.3 | 104.9 | 109.3 | 112.3 | 115.5 | 119.3 | 124.6 | 129.5 |
| Chemicals and allied products (12/84=100) .....                | 98.0  | 95.8  | 95.8  | 100.5 | 107.6 | 108.7 | 113.8 | 118.4 | 122.5 |
| Petroleum and coal products (12/83=100) .....                  | 61.8  | 65.1  | 67.6  | 73.5  | 80.5  | 81.4  | 78.8  | 73.0  | 78.3  |
| Primary metal products (3/82=100) .....                        | 102.6 | 109.3 | 106.9 | 110.6 | 117.2 | 122.3 | 126.6 | 126.9 | 134.8 |
| Machinery, except electrical (9/78=100) .....                  | 100.1 | 100.1 | 100.1 | 99.6  | 99.4  | 99.4  | 99.7  | 100.6 | 101.3 |
| Electrical machinery (12/80=100) .....                         | 99.5  | 99.9  | 100.8 | 101.9 | 102.1 | 102.5 | 102.2 | 102.9 | 103.4 |
| Transportation equipment (12/78=100) .....                     | 104.7 | 104.8 | 106.0 | 106.2 | 106.7 | 106.9 | 107.8 | 108.0 | 109.0 |
| Scientific instruments; optical goods; clocks (6/77=100) ..... | 104.5 | 104.7 | 105.3 | 105.8 | 106.8 | 106.6 | 107.1 | 109.2 | 110.6 |

<sup>1</sup> SIC - based classification.



#### 41. U.S. import price indexes by Standard Industrial Classification <sup>1</sup>

| Industry group   | 1986  |       |       | 1987  |       |       |       | 1988  |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | June  | Sept. | Dec.  | Mar.  | June  | Sept. | Dec.  | Mar.  | June  |
| <b>Manufacturing:</b>  |       |       |       |       |       |       |       |       |       |
| Food and kindred products (6/77=100) .....                         | 97.3  | 99.7  | 103.0 | 103.8 | 106.3 | 108.4 | 110.6 | 114.0 | 114.4 |
| Textile mill products (9/82=100) .....                             | 106.8 | 109.2 | 110.6 | 114.1 | 116.1 | 119.4 | 124.3 | 127.4 | 128.9 |
| Apparel and related products (6/77=100) .....                      | 101.2 | 102.4 | 103.0 | 107.0 | 109.4 | 112.3 | 113.4 | 116.6 | 116.0 |
| Lumber and wood products, except furniture<br>(6/77=100) .....     | 106.3 | 109.0 | 109.0 | 114.8 | 115.0 | 120.3 | 115.4 | 119.5 | 120.0 |
| Furniture and fixtures (6/80=100) .....                            | 109.4 | 111.4 | 111.6 | 116.1 | 117.0 | 118.3 | 118.9 | 122.2 | 124.0 |
| Paper and allied products (6/77=100) .....                         | 97.3  | 98.6  | 103.3 | 105.1 | 105.9 | 110.9 | 113.6 | 119.1 | 121.2 |
| Chemicals and allied products (9/82=100) .....                     | 103.3 | 104.3 | 102.6 | 105.7 | 106.2 | 107.2 | 112.2 | 116.8 | 121.2 |
| Rubber and miscellaneous plastic products<br>(12/80=100) .....     | 105.3 | 106.6 | 107.9 | 110.6 | 113.6 | 112.3 | 115.7 | 117.2 | 119.2 |
| Leather and leather products .....                                 | 103.2 | 105.3 | 106.4 | 109.3 | 113.3 | 113.3 | 118.4 | 120.8 | 125.1 |
| Primary metal products (6/81=100) .....                            | 97.1  | 102.3 | 101.3 | 102.7 | 110.4 | 115.2 | 120.0 | 122.6 | 135.0 |
| Fabricated metal products (12/84=100) .....                        | 110.5 | 111.1 | 111.7 | 116.7 | 117.5 | 119.8 | 123.2 | 127.3 | 133.9 |
| Machinery, except electrical (3/80=100) .....                      | 114.9 | 118.2 | 118.9 | 123.4 | 127.4 | 127.8 | 133.9 | 135.9 | 138.2 |
| Electrical machinery (9/84=100) .....                              | 104.3 | 106.9 | 107.0 | 109.4 | 110.7 | 110.2 | 112.5 | 114.7 | 116.1 |
| Transportation equipment (6/81=100) .....                          | 112.8 | 114.7 | 117.3 | 119.9 | 122.1 | 122.5 | 124.6 | 127.3 | 129.5 |
| Scientific instruments; optical goods; clocks<br>(12/79=100) ..... | 117.8 | 122.6 | 122.4 | 128.8 | 132.5 | 128.8 | 134.0 | 135.8 | 136.9 |
| Miscellaneous manufactured commodities<br>(9/82=100) .....         | 104.7 | 110.7 | 112.2 | 115.1 | 118.1 | 121.4 | 123.8 | 127.7 | 133.2 |

<sup>1</sup> SIC - based classification.

#### 42. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

(1977=100)

| Item                                   | Quarterly Indexes |       |       |       |       |       |       |       |       |       |       |
|--|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | 1985              | 1986  |       |       |       | 1987  |       |       |       | 1988  |       |
|  | IV                | I     | II    | III   | IV    | I     | II    | III   | IV    | I     | II    |
| <b>Business:</b>                       |                   |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 108.5             | 110.5 | 110.4 | 110.0 | 109.8 | 109.9 | 110.6 | 111.7 | 111.8 | 112.8 | 112.2 |
| Compensation per hour .....            | 178.8             | 180.4 | 182.0 | 184.0 | 186.2 | 187.3 | 189.0 | 191.1 | 194.0 | 195.8 | 198.0 |
| Real compensation per hour .....       | 99.4              | 100.0 | 101.2 | 101.7 | 102.2 | 101.5 | 101.2 | 101.4 | 102.0 | 102.1 | 102.0 |
| Unit labor costs .....                 | 164.8             | 163.3 | 164.9 | 167.3 | 169.6 | 170.5 | 170.8 | 171.1 | 173.5 | 173.5 | 176.5 |
| Unit nonlabor payments .....           | 161.6             | 164.5 | 165.2 | 166.6 | 163.7 | 165.6 | 168.7 | 171.5 | 168.9 | 170.0 | 169.2 |
| Implicit price deflator .....          | 163.7             | 163.7 | 165.0 | 167.0 | 167.5 | 168.7 | 170.1 | 171.2 | 171.9 | 172.3 | 173.9 |
| <b>Nonfarm business:</b>               |                   |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 106.5             | 108.6 | 108.4 | 108.0 | 107.8 | 107.8 | 108.6 | 109.6 | 109.9 | 110.8 | 110.3 |
| Compensation per hour .....            | 177.9             | 179.8 | 181.2 | 183.1 | 185.4 | 186.4 | 187.9 | 190.0 | 192.9 | 194.6 | 196.6 |
| Real compensation per hour .....       | 99.0              | 99.6  | 100.7 | 101.2 | 101.8 | 101.0 | 100.6 | 100.8 | 101.4 | 101.5 | 101.3 |
| Unit labor costs .....                 | 167.1             | 165.5 | 167.1 | 169.5 | 172.1 | 172.9 | 173.0 | 173.3 | 175.6 | 175.7 | 178.2 |
| Unit nonlabor payments .....           | 162.7             | 166.1 | 166.6 | 168.1 | 164.9 | 167.2 | 169.8 | 173.0 | 170.9 | 171.6 | 171.4 |
| Implicit price deflator .....          | 165.5             | 165.7 | 167.0 | 169.0 | 169.5 | 170.9 | 171.9 | 173.2 | 174.0 | 174.2 | 175.8 |
| <b>Nonfinancial corporations:</b>      |                   |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all employees ..... | 108.0             | 109.5 | 109.3 | 109.6 | 110.3 | 110.1 | 110.9 | 112.2 | 112.2 | 113.3 | -     |
| Compensation per hour .....            | 175.3             | 177.1 | 178.5 | 180.2 | 182.2 | 182.9 | 184.3 | 186.1 | 188.5 | 189.9 | -     |
| Real compensation per hour .....       | 97.5              | 98.1  | 99.2  | 99.6  | 100.1 | 99.1  | 98.7  | 98.7  | 99.1  | 99.0  | -     |
| Total unit costs .....                 | 165.8             | 165.5 | 166.7 | 168.4 | 168.8 | 169.9 | 170.3 | 170.2 | 172.0 | 171.5 | -     |
| Unit labor costs .....                 | 162.3             | 161.7 | 163.3 | 164.3 | 165.1 | 166.2 | 166.1 | 165.9 | 168.1 | 167.5 | -     |
| Unit nonlabor costs .....              | 176.3             | 176.7 | 176.9 | 180.3 | 179.6 | 180.8 | 182.6 | 183.0 | 183.6 | 183.4 | -     |
| Unit profits .....                     | 132.4             | 133.7 | 132.7 | 133.6 | 129.7 | 128.5 | 129.8 | 136.4 | 128.3 | 132.5 | -     |
| Unit nonlabor payments .....           | 160.9             | 161.7 | 161.4 | 164.0 | 162.1 | 162.5 | 164.1 | 166.6 | 164.2 | 165.6 | -     |
| Implicit price deflator .....          | 161.8             | 161.7 | 162.6 | 164.2 | 164.1 | 164.9 | 165.4 | 166.1 | 166.7 | 166.9 | -     |
| <b>Manufacturing:</b>                  |                   |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 125.3             | 126.6 | 127.2 | 128.0 | 128.8 | 130.0 | 131.7 | 132.8 | 133.2 | 134.3 | 135.4 |
| Compensation per hour .....            | 179.4             | 181.1 | 182.0 | 183.6 | 185.3 | 185.9 | 186.3 | 187.2 | 188.2 | 190.7 | 192.1 |
| Real compensation per hour .....       | 99.8              | 100.3 | 101.2 | 101.5 | 101.7 | 100.8 | 99.7  | 99.3  | 99.0  | 99.4  | 99.0  |
| Unit labor costs .....                 | 143.2             | 143.0 | 143.2 | 143.4 | 143.8 | 143.1 | 141.4 | 141.0 | 141.3 | 142.1 | 141.9 |

- Data not available.

**43. Annual indexes of multifactor productivity and related measures, selected years**

(1977 = 100)

| Item   | 1960  | 1970  | 1973  | 1976  | 1978  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Private business</b>                          |       |       |       |       |       |       |       |       |       |       |       |       |
| Productivity:                                    |       |       |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....             | 67.3  | 88.4  | 95.9  | 98.4  | 100.8 | 99.2  | 100.6 | 100.3 | 103.1 | 105.7 | 107.6 | 109.7 |
| Output per unit of capital services .....        | 102.1 | 101.9 | 105.3 | 97.2  | 102.0 | 94.2  | 92.4  | 86.7  | 88.4  | 92.8  | 92.8  | 92.8  |
| Multifactor productivity .....                   | 78.1  | 92.9  | 99.1  | 98.0  | 101.2 | 97.4  | 97.7  | 95.3  | 97.7  | 101.0 | 102.2 | 103.4 |
| Output .....                                     | 55.3  | 80.2  | 93.0  | 94.5  | 105.8 | 106.6 | 108.9 | 105.4 | 109.9 | 119.2 | 124.0 | 128.1 |
| Inputs:  |       |       |       |       |       |       |       |       |       |       |       |       |
| Hours of all persons .....                       | 82.2  | 90.8  | 96.9  | 96.1  | 105.0 | 107.5 | 108.2 | 105.2 | 106.7 | 112.8 | 115.2 | 116.8 |
| Capital services .....                           | 54.2  | 78.7  | 88.3  | 97.2  | 103.8 | 113.1 | 117.8 | 121.7 | 124.4 | 128.5 | 133.6 | 138.0 |
| Combined units of labor and capital input .....  | 70.8  | 86.3  | 93.8  | 96.5  | 104.5 | 109.4 | 111.5 | 110.7 | 112.6 | 118.1 | 121.3 | 123.8 |
| Capital per hour of all persons .....            | 65.9  | 86.7  | 91.1  | 101.2 | 98.8  | 105.3 | 108.8 | 115.7 | 116.6 | 113.9 | 116.0 | 118.2 |
| <b>Private nonfarm business</b>                  |       |       |       |       |       |       |       |       |       |       |       |       |
| Productivity:                                    |       |       |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....             | 70.7  | 89.2  | 96.4  | 98.5  | 100.8 | 98.7  | 99.6  | 99.1  | 102.5 | 104.7 | 105.9 | 107.6 |
| Output per unit of capital services .....        | 103.6 | 102.8 | 106.0 | 97.3  | 101.9 | 93.4  | 91.1  | 85.1  | 87.3  | 91.3  | 90.8  | 90.5  |
| Multifactor productivity .....                   | 80.9  | 93.7  | 99.6  | 98.1  | 101.2 | 96.9  | 96.7  | 94.1  | 97.0  | 99.9  | 100.5 | 101.4 |
| Output .....                                     | 54.4  | 79.9  | 92.9  | 94.4  | 106.0 | 106.6 | 108.4 | 104.8 | 110.1 | 119.3 | 123.7 | 127.6 |
| Inputs:  |       |       |       |       |       |       |       |       |       |       |       |       |
| Hours of all persons .....                       | 77.0  | 89.6  | 96.3  | 95.8  | 105.1 | 108.0 | 108.8 | 105.7 | 107.4 | 114.0 | 116.8 | 118.5 |
| Capital services .....                           | 52.5  | 77.8  | 87.6  | 97.0  | 104.0 | 114.1 | 119.0 | 123.2 | 126.1 | 130.6 | 136.3 | 141.0 |
| Combined units of labor and capital input .....  | 67.3  | 85.3  | 93.3  | 96.2  | 104.7 | 110.0 | 112.2 | 111.4 | 113.5 | 119.4 | 123.1 | 125.8 |
| Capital per hour of all persons .....            | 68.2  | 86.8  | 91.0  | 101.3 | 98.9  | 105.6 | 109.4 | 116.5 | 117.4 | 114.6 | 116.7 | 119.0 |
| <b>Manufacturing</b>                             |       |       |       |       |       |       |       |       |       |       |       |       |
| Productivity:                                    |       |       |       |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....             | 62.2  | 80.8  | 93.4  | 97.1  | 101.5 | 101.4 | 103.6 | 105.9 | 112.0 | 118.1 | 124.2 | 128.8 |
| Output per unit of capital services .....        | 102.5 | 98.6  | 111.4 | 96.2  | 102.1 | 91.2  | 89.2  | 81.8  | 86.9  | 95.7  | 97.8  | 99.3  |
| Multifactor productivity .....                   | 71.9  | 85.2  | 97.9  | 96.8  | 101.7 | 98.7  | 99.8  | 99.2  | 105.1 | 112.2 | 117.0 | 120.6 |
| Output .....                                     | 52.5  | 78.6  | 96.3  | 93.1  | 106.0 | 103.2 | 104.8 | 98.4  | 104.7 | 117.5 | 122.5 | 125.9 |
| Inputs:  |       |       |       |       |       |       |       |       |       |       |       |       |
| Hours of all persons .....                       | 84.4  | 97.3  | 103.1 | 95.9  | 104.4 | 101.7 | 101.1 | 92.9  | 93.5  | 99.5  | 98.7  | 97.8  |
| Capital services .....                           | 51.2  | 79.7  | 86.4  | 96.7  | 103.7 | 113.1 | 117.5 | 120.3 | 120.6 | 122.8 | 125.3 | 126.8 |
| Combined units of labor and capital inputs ..... | 73.0  | 92.2  | 98.4  | 96.1  | 104.2 | 104.5 | 105.0 | 99.2  | 99.7  | 104.7 | 104.8 | 104.4 |
| Capital per hour of all persons .....            | 60.7  | 82.0  | 83.8  | 100.9 | 99.4  | 111.2 | 116.2 | 129.4 | 129.0 | 123.5 | 127.0 | 129.7 |

#### 44. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

(1977 = 100)

| Item                                   | 1960 | 1970 | 1973 | 1976 | 1978  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  |
|--|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Business:</b>                       |      |      |      |      |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 67.6 | 88.4 | 95.9 | 98.3 | 100.8 | 99.3  | 100.7 | 100.3 | 103.0 | 105.5 | 107.7 | 110.1 | 111.0 |
| Compensation per hour .....            | 33.6 | 57.8 | 70.9 | 92.8 | 108.5 | 131.5 | 143.7 | 154.9 | 161.4 | 167.9 | 175.5 | 183.1 | 190.4 |
| Real compensation per hour .....       | 68.9 | 90.3 | 96.8 | 98.8 | 100.9 | 96.7  | 95.8  | 97.3  | 98.2  | 97.9  | 98.8  | 101.2 | 101.5 |
| Unit labor costs .....                 | 49.7 | 65.4 | 73.9 | 94.3 | 107.6 | 132.5 | 142.7 | 154.5 | 156.7 | 159.1 | 162.9 | 166.3 | 171.5 |
| Unit nonlabor payments .....           | 46.4 | 59.4 | 72.5 | 93.3 | 106.7 | 118.7 | 134.6 | 136.6 | 146.4 | 156.5 | 160.9 | 165.0 | 168.7 |
| Implicit price deflator .....          | 48.5 | 63.2 | 73.4 | 94.0 | 107.3 | 127.6 | 139.8 | 148.1 | 153.0 | 158.2 | 162.2 | 165.8 | 170.5 |
| <b>Nonfarm business:</b>               |      |      |      |      |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 71.0 | 89.3 | 96.4 | 98.5 | 100.8 | 98.8  | 99.8  | 99.2  | 102.5 | 104.6 | 106.1 | 108.2 | 109.0 |
| Compensation per hour .....            | 35.3 | 58.2 | 71.2 | 92.8 | 108.6 | 131.3 | 143.6 | 154.8 | 161.5 | 167.8 | 174.9 | 182.3 | 189.4 |
| Real compensation per hour .....       | 72.3 | 90.9 | 97.2 | 98.9 | 100.9 | 96.6  | 95.8  | 97.2  | 98.3  | 97.9  | 98.5  | 100.8 | 101.0 |
| Unit labor costs .....                 | 49.7 | 65.2 | 73.9 | 94.3 | 107.7 | 132.9 | 144.0 | 156.0 | 157.6 | 160.4 | 164.9 | 168.6 | 173.8 |
| Unit nonlabor payments .....           | 46.3 | 60.0 | 69.3 | 93.0 | 105.6 | 118.5 | 133.5 | 136.5 | 148.3 | 156.3 | 161.9 | 166.4 | 170.2 |
| Implicit price deflator .....          | 48.5 | 63.4 | 72.3 | 93.8 | 107.0 | 127.8 | 140.3 | 149.2 | 154.3 | 159.0 | 163.8 | 167.8 | 172.5 |
| <b>Nonfinancial corporations:</b>      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| Output per hour of all employees ..... | 73.4 | 91.1 | 97.5 | 98.4 | 100.6 | 99.1  | 99.6  | 100.4 | 103.5 | 106.0 | 107.7 | 109.7 | 111.3 |
| Compensation per hour .....            | 36.9 | 59.2 | 71.6 | 92.9 | 108.4 | 131.1 | 143.3 | 154.3 | 159.9 | 165.8 | 172.5 | 179.5 | 185.5 |
| Real compensation per hour .....       | 75.5 | 92.5 | 97.7 | 98.9 | 100.8 | 96.4  | 95.5  | 96.9  | 97.3  | 96.7  | 97.1  | 99.2  | 98.9  |
| Total unit costs .....                 | 49.4 | 64.8 | 72.7 | 94.8 | 107.3 | 133.4 | 147.7 | 159.5 | 159.5 | 160.8 | 164.1 | 167.3 | 170.6 |
| Unit labor costs .....                 | 50.2 | 65.0 | 73.4 | 94.3 | 107.8 | 132.3 | 143.8 | 153.8 | 154.5 | 156.5 | 160.2 | 163.6 | 166.6 |
| Unit nonlabor costs .....              | 47.0 | 64.2 | 70.7 | 96.2 | 105.7 | 136.7 | 159.1 | 176.4 | 174.3 | 173.6 | 175.8 | 178.4 | 182.5 |
| Unit profits .....                     | 59.8 | 52.3 | 65.6 | 89.4 | 102.0 | 85.2  | 98.1  | 78.5  | 110.9 | 136.5 | 133.0 | 132.4 | 130.8 |
| Unit nonlabor payments .....           | 51.5 | 60.1 | 68.9 | 93.8 | 104.4 | 118.6 | 137.8 | 142.1 | 152.1 | 160.6 | 160.8 | 162.3 | 164.4 |
| Implicit price deflator .....          | 50.7 | 63.3 | 71.9 | 94.2 | 106.6 | 127.6 | 141.7 | 149.8 | 153.7 | 157.9 | 160.4 | 163.2 | 165.8 |
| <b>Manufacturing:</b>                  |      |      |      |      |       |       |       |       |       |       |       |       |       |
| Output per hour of all persons .....   | 62.2 | 80.8 | 93.4 | 97.1 | 101.5 | 101.4 | 103.6 | 105.9 | 112.0 | 118.1 | 123.6 | 127.7 | 132.0 |
| Compensation per hour .....            | 36.5 | 57.4 | 68.8 | 92.1 | 108.2 | 132.4 | 145.2 | 157.5 | 162.4 | 168.0 | 176.4 | 183.0 | 186.9 |
| Real compensation per hour .....       | 74.8 | 89.6 | 93.9 | 98.1 | 100.6 | 97.4  | 96.8  | 98.9  | 98.8  | 98.0  | 99.3  | 101.2 | 99.7  |
| Unit labor costs .....                 | 58.7 | 71.0 | 73.7 | 94.9 | 106.6 | 130.6 | 140.1 | 148.7 | 145.0 | 142.2 | 142.7 | 143.3 | 141.7 |
| Unit nonlabor payments .....           | 60.0 | 64.1 | 70.7 | 93.5 | 101.9 | 97.8  | 111.8 | 114.0 | 128.5 | 138.6 | 130.4 | 136.3 | 139.2 |
| Implicit price deflator .....          | 59.1 | 69.0 | 72.8 | 94.5 | 105.2 | 121.0 | 131.8 | 138.6 | 140.2 | 141.2 | 139.1 | 141.3 | 141.0 |



**45. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted**

| Country                           | Annual average |      | 1986 | 1987 |      |      |      | 1988 |     |
|-----------------------------------|----------------|------|------|------|------|------|------|------|-----|
|                                   | 1986           | 1987 | IV   | I    | II   | III  | IV   | I    | II  |
| <b>Total labor force basis</b>    |                |      |      |      |      |      |      |      |     |
| United States .....               | 6.9            | 6.1  | 6.8  | 6.5  | 6.2  | 5.9  | 5.8  | 5.6  | 5.4 |
| Canada .....                      | 9.5            | 8.8  | 9.4  | 9.6  | 9.0  | 8.8  | 8.2  | 7.8  | 7.6 |
| Australia .....                   | 8.0            | 8.1  | 8.3  | 8.2  | 8.1  | 8.0  | 7.9  | 7.5  | -   |
| Japan .....                       | 2.8            | 2.9  | 2.8  | 3.0  | 3.1  | 2.8  | 2.7  | 2.7  | -   |
| France .....                      | 10.4           | 10.6 | 10.5 | 10.7 | 10.7 | 10.6 | 10.4 | 10.4 | -   |
| Germany .....                     | 6.8            | 6.8  | 6.7  | 6.7  | 6.8  | 6.8  | 6.8  | 6.8  | 6.9 |
| Italy <sup>1, 2</sup> .....       | 7.4            | 7.7  | 7.7  | 7.4  | 7.6  | 7.9  | 7.9  | 7.9  | -   |
| Sweden <sup>3</sup> .....         | 2.6            | 1.9  | 2.6  | 2.0  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6 |
| United Kingdom .....              | 11.5           | 10.2 | 11.1 | 10.9 | 10.5 | 10.0 | 9.4  | 9.0  | 8.6 |
| <b>Civilian labor force basis</b> |                |      |      |      |      |      |      |      |     |
| United States .....               | 7.0            | 6.2  | 6.8  | 6.6  | 6.3  | 6.0  | 5.9  | 5.7  | 5.5 |
| Canada .....                      | 9.6            | 8.9  | 9.4  | 9.6  | 9.1  | 8.8  | 8.2  | 7.9  | 7.7 |
| Australia .....                   | 8.1            | 8.1  | 8.4  | 8.3  | 8.2  | 8.0  | 8.0  | 7.6  | -   |
| Japan .....                       | 2.8            | 2.9  | 2.8  | 3.0  | 3.1  | 2.8  | 2.7  | 2.7  | -   |
| France .....                      | 10.6           | 10.9 | 10.8 | 10.9 | 10.9 | 10.8 | 10.6 | 10.6 | -   |
| Germany .....                     | 7.0            | 6.9  | 6.8  | 6.8  | 6.9  | 7.0  | 7.0  | 6.9  | 7.0 |
| Italy <sup>1, 2</sup> .....       | 7.5            | 7.9  | 7.8  | 7.6  | 7.8  | 8.1  | 8.0  | 8.0  | -   |
| Sweden <sup>3</sup> .....         | 2.6            | 1.9  | 2.6  | 2.0  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6 |
| United Kingdom .....              | 11.2           | 10.3 | 11.2 | 11.0 | 10.6 | 10.0 | 9.5  | 9.0  | 8.6 |

<sup>1</sup> Quarterly rates are for the first month of the quarter.

<sup>2</sup> Many Italians reported as unemployed did not actively seek work in the past 30 days, and they have been excluded for comparability with U.S. concepts. Inclusion of such persons would about double the Italian unemployment rate in 1985 and earlier years and increase it to 11-12 percent for 1986 onward.

<sup>3</sup> Break in series beginning in 1987. The 1986 rate based

on the new series was 2.2 percent.

- Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures.

**46. Annual data: Employment status of the civilian working-age population, approximating U.S. concepts, 10 countries**

(Numbers in thousands)

| Employment status and country                  | 1978    | 1979    | 1980    | 1981    | 1982    | 1983    | 1984    | 1985    | 1986    | 1987    |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Labor force</b>                             |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 102,251 | 104,962 | 106,940 | 108,670 | 110,204 | 111,550 | 113,544 | 115,461 | 117,834 | 119,865 |
| Canada .....                                   | 10,895  | 11,231  | 11,573  | 11,904  | 11,958  | 12,183  | 12,399  | 12,639  | 12,870  | 13,121  |
| Australia .....                                | 6,443   | 6,519   | 6,693   | 6,810   | 6,910   | 6,997   | 7,133   | 7,272   | 7,562   | 7,736   |
| Japan .....                                    | 54,610  | 55,210  | 55,740  | 56,320  | 56,980  | 58,110  | 58,480  | 58,820  | 59,410  | 60,050  |
| France .....                                   | 22,460  | 22,660  | 22,800  | 22,950  | 23,160  | 23,140  | 23,300  | 23,360  | 23,450  | 23,520  |
| Germany .....                                  | 26,000  | 26,250  | 26,520  | 26,650  | 26,700  | 26,650  | 26,760  | 26,960  | 27,100  | 27,260  |
| Italy .....                                    | 20,570  | 20,850  | 21,120  | 21,320  | 21,410  | 21,590  | 21,670  | 21,800  | 22,280  | 22,340  |
| Netherlands .....                              | 5,010   | 5,100   | 5,310   | 5,520   | 5,570   | 5,600   | 5,620   | 5,710   | 5,760   | 5,780   |
| Sweden .....                                   | 4,203   | 4,262   | 4,312   | 4,327   | 4,350   | 4,369   | 4,385   | 4,418   | 4,443   | 4,480   |
| United Kingdom .....                           | 26,260  | 26,350  | 26,520  | 26,590  | 26,740  | 26,790  | 27,180  | 27,370  | 27,540  | 27,760  |
| <b>Participation rate<sup>1</sup></b>          |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 63.2    | 63.7    | 63.8    | 63.9    | 64.0    | 64.0    | 64.4    | 64.8    | 65.3    | 65.6    |
| Canada .....                                   | 62.7    | 63.4    | 64.1    | 64.8    | 64.1    | 64.4    | 64.8    | 65.2    | 65.7    | 66.2    |
| Australia .....                                | 61.9    | 61.6    | 62.1    | 61.9    | 61.7    | 61.4    | 61.5    | 61.8    | 63.0    | 63.0    |
| Japan .....                                    | 62.8    | 62.7    | 62.6    | 62.6    | 62.7    | 63.1    | 62.7    | 62.3    | 62.1    | 61.9    |
| France .....                                   | 57.5    | 57.5    | 57.2    | 57.1    | 57.1    | 56.6    | 56.6    | 56.3    | 56.1    | 55.8    |
| Germany .....                                  | 53.3    | 53.3    | 53.2    | 52.9    | 52.6    | 52.3    | 52.4    | 52.6    | 52.8    | 53.1    |
| Italy .....                                    | 47.8    | 48.0    | 48.2    | 48.3    | 47.7    | 47.5    | 47.3    | 47.2    | 48.2    | 48.2    |
| Netherlands .....                              | 48.8    | 49.0    | 50.2    | 51.4    | 51.2    | 50.9    | 50.5    | 50.7    | 50.8    | 50.5    |
| Sweden .....                                   | 66.1    | 66.6    | 66.9    | 66.8    | 66.8    | 66.7    | 66.6    | 66.9    | 67.1    | 67.4    |
| United Kingdom .....                           | 62.8    | 62.6    | 62.5    | 62.2    | 62.3    | 62.1    | 62.6    | 62.7    | 62.7    | 63.0    |
| <b>Employed</b>                                |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 96,048  | 98,824  | 99,303  | 100,397 | 99,526  | 100,834 | 105,005 | 107,150 | 109,597 | 112,440 |
| Canada .....                                   | 9,987   | 10,395  | 10,708  | 11,006  | 10,644  | 10,734  | 11,000  | 11,311  | 11,634  | 11,955  |
| Australia .....                                | 6,038   | 6,111   | 6,284   | 6,416   | 6,415   | 6,300   | 6,490   | 6,670   | 6,952   | 7,107   |
| Japan .....                                    | 53,370  | 54,040  | 54,600  | 55,060  | 55,620  | 56,550  | 56,870  | 57,260  | 57,750  | 58,320  |
| France .....                                   | 21,260  | 21,300  | 21,330  | 21,200  | 21,240  | 21,170  | 20,980  | 20,890  | 20,960  | 20,970  |
| Germany .....                                  | 25,130  | 25,470  | 25,750  | 25,560  | 25,140  | 24,750  | 24,790  | 24,950  | 25,210  | 25,370  |
| Italy .....                                    | 19,720  | 19,930  | 20,200  | 20,280  | 20,250  | 20,320  | 20,390  | 20,490  | 20,610  | 20,590  |
| Netherlands .....                              | 4,750   | 4,830   | 4,980   | 5,010   | 4,980   | 4,890   | 4,930   | 5,110   | 5,200   | 5,240   |
| Sweden .....                                   | 4,109   | 4,174   | 4,226   | 4,219   | 4,213   | 4,218   | 4,249   | 4,293   | 4,326   | 4,396   |
| United Kingdom .....                           | 24,610  | 24,940  | 24,670  | 23,800  | 23,710  | 23,600  | 24,000  | 24,310  | 24,450  | 24,910  |
| <b>Employment-population ratio<sup>2</sup></b> |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 59.3    | 59.9    | 59.2    | 59.0    | 57.8    | 57.9    | 59.5    | 60.1    | 60.7    | 61.5    |
| Canada .....                                   | 57.5    | 58.7    | 59.3    | 59.9    | 57.0    | 56.7    | 57.4    | 58.4    | 59.4    | 60.3    |
| Australia .....                                | 58.0    | 57.8    | 58.3    | 58.4    | 57.3    | 55.3    | 56.0    | 56.6    | 57.9    | 57.9    |
| Japan .....                                    | 61.3    | 61.4    | 61.3    | 61.2    | 61.2    | 61.4    | 61.0    | 60.6    | 60.4    | 60.1    |
| France .....                                   | 54.4    | 54.0    | 53.5    | 52.8    | 52.3    | 51.8    | 51.0    | 50.4    | 50.2    | 49.7    |
| Germany .....                                  | 51.5    | 51.7    | 51.7    | 50.8    | 49.6    | 48.6    | 48.5    | 48.7    | 49.1    | 49.4    |
| Italy .....                                    | 45.9    | 45.9    | 46.1    | 45.9    | 45.2    | 44.7    | 44.5    | 44.4    | 44.6    | 44.4    |
| Netherlands .....                              | 46.3    | 46.4    | 47.0    | 46.6    | 45.8    | 44.5    | 44.3    | 45.4    | 45.8    | 45.8    |
| Sweden .....                                   | 64.6    | 65.3    | 65.6    | 65.1    | 64.7    | 64.4    | 64.5    | 65.0    | 65.4    | 66.2    |
| United Kingdom .....                           | 58.8    | 59.2    | 58.1    | 55.7    | 55.3    | 54.7    | 55.3    | 55.7    | 55.7    | 56.6    |
| <b>Unemployed</b>                              |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 6,202   | 6,137   | 7,637   | 8,273   | 10,678  | 10,717  | 8,539   | 8,312   | 8,237   | 7,425   |
| Canada .....                                   | 908     | 836     | 865     | 898     | 1,314   | 1,448   | 1,399   | 1,328   | 1,236   | 1,167   |
| Australia .....                                | 405     | 408     | 409     | 394     | 495     | 697     | 642     | 602     | 610     | 629     |
| Japan .....                                    | 1,240   | 1,170   | 1,140   | 1,260   | 1,360   | 1,560   | 1,610   | 1,560   | 1,670   | 1,730   |
| France .....                                   | 1,200   | 1,360   | 1,470   | 1,750   | 1,920   | 1,970   | 2,320   | 2,440   | 2,490   | 2,550   |
| Germany .....                                  | 870     | 780     | 770     | 1,090   | 1,560   | 1,990   | 1,970   | 2,010   | 1,890   | 1,890   |
| Italy .....                                    | 850     | 920     | 920     | 1,040   | 1,160   | 1,270   | 1,280   | 1,310   | 1,680   | 1,760   |
| Netherlands .....                              | 260     | 270     | 330     | 510     | 590     | 710     | 690     | 600     | 560     | 540     |
| Sweden .....                                   | 94      | 88      | 86      | 108     | 137     | 151     | 136     | 125     | 117     | 84      |
| United Kingdom .....                           | 1,650   | 1,420   | 1,850   | 2,790   | 3,030   | 3,190   | 3,180   | 3,060   | 3,090   | 2,850   |
| <b>Unemployment rate</b>                       |         |         |         |         |         |         |         |         |         |         |
| United States .....                            | 6.1     | 5.8     | 7.1     | 7.6     | 9.7     | 9.6     | 7.5     | 7.2     | 7.0     | 6.2     |
| Canada .....                                   | 8.3     | 7.4     | 7.5     | 7.5     | 11.0    | 11.9    | 11.3    | 10.5    | 9.6     | 8.9     |
| Australia .....                                | 6.3     | 6.3     | 6.1     | 5.8     | 7.2     | 10.0    | 9.0     | 8.3     | 8.1     | 8.1     |
| Japan .....                                    | 2.3     | 2.1     | 2.0     | 2.2     | 2.4     | 2.7     | 2.8     | 2.6     | 2.8     | 2.9     |
| France .....                                   | 5.3     | 6.0     | 6.4     | 7.6     | 8.3     | 8.5     | 10.0    | 10.4    | 10.6    | 10.9    |
| Germany .....                                  | 3.3     | 3.0     | 2.9     | 4.1     | 5.8     | 7.1     | 7.4     | 7.5     | 7.0     | 6.9     |
| Italy .....                                    | 4.1     | 4.4     | 4.4     | 4.9     | 5.4     | 5.9     | 5.9     | 6.0     | 7.5     | 7.9     |
| Netherlands .....                              | 5.2     | 5.3     | 6.2     | 9.2     | 10.6    | 12.7    | 12.3    | 10.5    | 9.7     | 9.3     |
| Sweden .....                                   | 2.2     | 2.1     | 2.0     | 2.5     | 3.1     | 3.5     | 3.1     | 2.8     | 2.6     | 1.9     |
| United Kingdom .....                           | 6.3     | 5.4     | 7.0     | 10.5    | 11.3    | 11.9    | 11.7    | 11.2    | 11.2    | 10.3    |

<sup>1</sup> Labor force as a percent of the civilian working-age population.

<sup>2</sup> Employment as a percent of the civilian working-age population.

## 47. Annual indexes of manufacturing productivity and related measures, 12 countries

(1977 = 100)

| Item and country                                 | 1960  | 1970  | 1973  | 1975  | 1976  | 1977  | 1979  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Output per hour</b>                           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 62.2  | 80.8  | 93.4  | 92.9  | 97.1  | 100.0 | 101.4 | 101.4 | 103.6 | 105.9 | 112.0 | 118.1 | 124.2 | 128.8 | 132.4 |
| Canada .....                                     | 50.7  | 75.6  | 90.3  | 88.6  | 94.8  | 100.0 | 102.0 | 98.2  | 102.9 | 98.3  | 105.4 | 116.8 | 119.7 | 119.4 | 121.5 |
| Japan .....                                      | 23.2  | 64.8  | 83.1  | 87.7  | 94.3  | 100.0 | 114.8 | 122.7 | 127.2 | 135.0 | 142.3 | 152.5 | 161.1 | 163.8 | 170.5 |
| Belgium .....                                    | 33.0  | 60.4  | 78.8  | 86.5  | 95.3  | 100.0 | 111.9 | 119.2 | 127.6 | 135.2 | 148.2 | 154.4 | 159.0 | 165.4 | -     |
| Denmark .....                                    | 37.2  | 65.6  | 83.3  | 94.6  | 98.2  | 100.0 | 106.5 | 112.3 | 114.2 | 114.6 | 120.2 | 118.6 | 118.3 | 118.5 | 121.0 |
| France .....                                     | 36.6  | 70.0  | 82.7  | 89.0  | 95.6  | 100.0 | 109.7 | 110.6 | 114.0 | 122.0 | 125.1 | 129.3 | 133.3 | 136.2 | 141.2 |
| Germany .....                                    | 40.3  | 71.2  | 84.0  | 90.1  | 96.4  | 100.0 | 108.2 | 108.6 | 111.0 | 112.6 | 119.2 | 123.7 | 128.5 | 130.7 | 132.4 |
| Italy .....                                      | 35.4  | 72.7  | 90.9  | 91.1  | 98.9  | 100.0 | 110.5 | 116.9 | 124.8 | 129.6 | 138.6 | 147.8 | 151.9 | 153.1 | 158.9 |
| Netherlands .....                                | 32.4  | 64.3  | 81.5  | 86.2  | 95.8  | 100.0 | 112.3 | 113.9 | 116.9 | 119.4 | 127.5 | 140.5 | 145.1 | 144.7 | -     |
| Norway .....                                     | 54.6  | 81.7  | 94.6  | 96.8  | 99.7  | 100.0 | 107.1 | 106.7 | 107.0 | 109.8 | 117.2 | 123.9 | 125.2 | 124.8 | 134.4 |
| Sweden .....                                     | 42.3  | 80.7  | 94.8  | 100.2 | 101.7 | 100.0 | 110.9 | 112.7 | 113.2 | 116.5 | 125.5 | 131.0 | 136.1 | 136.4 | 139.9 |
| United Kingdom .....                             | 55.9  | 80.4  | 95.5  | 94.9  | 99.1  | 100.0 | 102.5 | 101.9 | 107.0 | 113.5 | 123.2 | 130.0 | 134.7 | 138.5 | 148.1 |
| <b>Output</b>                                    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 52.5  | 78.6  | 96.3  | 84.9  | 93.1  | 100.0 | 108.1 | 103.2 | 104.8 | 98.4  | 104.7 | 117.5 | 122.5 | 125.9 | 130.7 |
| Canada .....                                     | 41.3  | 73.5  | 93.5  | 89.9  | 96.5  | 100.0 | 108.5 | 103.6 | 107.4 | 93.6  | 99.6  | 114.9 | 121.2 | 123.9 | 129.9 |
| Japan .....                                      | 19.2  | 69.9  | 91.9  | 86.2  | 94.8  | 100.0 | 113.9 | 124.1 | 129.8 | 137.3 | 148.2 | 165.4 | 177.0 | 178.0 | 184.1 |
| Belgium .....                                    | 41.9  | 78.6  | 96.4  | 92.7  | 99.7  | 100.0 | 104.1 | 106.8 | 105.7 | 110.1 | 114.8 | 117.5 | 119.9 | 122.0 | -     |
| Denmark .....                                    | 49.2  | 82.0  | 95.9  | 95.0  | 99.6  | 100.0 | 105.4 | 110.1 | 106.6 | 108.3 | 115.6 | 119.7 | 123.4 | 126.7 | 124.3 |
| France .....                                     | 35.4  | 73.3  | 88.6  | 90.0  | 96.1  | 100.0 | 105.3 | 104.6 | 102.9 | 104.0 | 103.8 | 104.0 | 103.3 | 103.0 | 104.1 |
| Germany .....                                    | 50.0  | 86.6  | 96.1  | 91.0  | 98.0  | 100.0 | 106.6 | 106.6 | 104.9 | 102.4 | 103.6 | 106.4 | 110.1 | 112.8 | 113.5 |
| Italy .....                                      | 36.4  | 78.0  | 90.5  | 86.9  | 97.9  | 100.0 | 108.6 | 115.4 | 115.1 | 113.4 | 114.3 | 119.0 | 121.8 | 125.8 | 131.2 |
| Netherlands .....                                | 44.8  | 84.4  | 95.8  | 92.7  | 99.0  | 100.0 | 106.1 | 106.6 | 106.7 | 105.0 | 107.0 | 113.3 | 116.0 | 117.3 | -     |
| Norway .....                                     | 55.1  | 86.9  | 99.5  | 101.0 | 101.4 | 100.0 | 103.3 | 98.8  | 97.7  | 97.4  | 97.2  | 102.6 | 105.2 | 107.0 | 108.9 |
| Sweden .....                                     | 52.6  | 92.5  | 100.3 | 106.1 | 106.1 | 100.0 | 103.6 | 104.0 | 100.6 | 100.1 | 105.2 | 111.5 | 115.3 | 115.2 | 118.8 |
| United Kingdom .....                             | 71.2  | 95.0  | 104.8 | 96.3  | 98.2  | 100.0 | 100.5 | 91.7  | 86.2  | 86.4  | 88.9  | 92.6  | 95.2  | 95.5  | 100.7 |
| <b>Total hours</b>                               |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 84.4  | 97.3  | 103.1 | 91.4  | 95.9  | 100.0 | 106.5 | 101.7 | 101.1 | 92.9  | 93.5  | 99.5  | 98.7  | 97.8  | 98.7  |
| Canada .....                                     | 81.4  | 97.2  | 103.6 | 101.5 | 101.8 | 100.0 | 106.3 | 105.5 | 104.3 | 95.2  | 94.5  | 98.3  | 101.2 | 103.8 | 106.9 |
| Japan .....                                      | 82.7  | 107.9 | 110.7 | 98.2  | 100.6 | 100.0 | 99.3  | 101.2 | 102.0 | 101.7 | 104.2 | 108.5 | 109.8 | 108.7 | 108.0 |
| Belgium .....                                    | 127.1 | 130.2 | 122.3 | 107.1 | 104.6 | 100.0 | 93.0  | 89.6  | 82.8  | 81.4  | 77.5  | 76.1  | 75.4  | 73.8  | -     |
| Denmark .....                                    | 132.4 | 125.1 | 115.2 | 100.4 | 101.4 | 100.0 | 99.0  | 98.0  | 93.4  | 94.5  | 96.2  | 100.9 | 104.3 | 106.9 | 102.7 |
| France .....                                     | 96.7  | 104.7 | 107.1 | 101.1 | 100.6 | 100.0 | 95.9  | 94.6  | 90.3  | 85.2  | 83.0  | 80.4  | 77.5  | 75.6  | 73.7  |
| Germany .....                                    | 123.8 | 121.7 | 114.4 | 101.0 | 101.6 | 100.0 | 98.5  | 98.1  | 94.6  | 91.0  | 86.9  | 86.1  | 85.7  | 86.3  | 85.7  |
| Italy .....                                      | 102.8 | 107.4 | 99.6  | 95.4  | 99.0  | 100.0 | 98.2  | 98.7  | 92.2  | 87.5  | 82.5  | 80.5  | 80.2  | 82.2  | 82.6  |
| Netherlands .....                                | 138.4 | 131.2 | 117.6 | 107.6 | 103.3 | 100.0 | 94.4  | 93.6  | 91.2  | 88.0  | 83.9  | 80.6  | 79.9  | 81.1  | -     |
| Norway .....                                     | 101.0 | 106.4 | 105.1 | 104.3 | 101.7 | 100.0 | 93.6  | 92.6  | 91.3  | 88.6  | 82.9  | 82.8  | 84.0  | 85.7  | 81.0  |
| Sweden .....                                     | 124.4 | 114.6 | 105.7 | 105.9 | 104.3 | 100.0 | 93.4  | 92.3  | 88.9  | 85.9  | 83.9  | 85.1  | 84.7  | 84.5  | 84.9  |
| United Kingdom .....                             | 127.3 | 118.1 | 109.8 | 101.5 | 99.0  | 100.0 | 98.0  | 90.1  | 80.6  | 76.2  | 72.2  | 71.2  | 70.7  | 69.0  | 68.0  |
| <b>Compensation per hour</b>                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 36.5  | 57.4  | 68.8  | 85.1  | 92.1  | 100.0 | 118.6 | 132.4 | 145.2 | 157.5 | 162.4 | 168.0 | 176.9 | 182.7 | 185.1 |
| Canada .....                                     | 27.5  | 47.9  | 60.0  | 78.9  | 90.3  | 100.0 | 118.6 | 131.3 | 151.1 | 167.0 | 177.2 | 185.5 | 194.7 | 202.3 | 211.4 |
| Japan .....                                      | 8.9   | 33.9  | 55.1  | 84.2  | 90.7  | 100.0 | 113.4 | 120.7 | 129.8 | 136.6 | 140.7 | 144.9 | 151.4 | 158.8 | 161.1 |
| Belgium .....                                    | 13.8  | 34.9  | 53.5  | 79.0  | 89.5  | 100.0 | 117.5 | 130.4 | 144.5 | 150.7 | 159.7 | 173.0 | 184.5 | 191.9 | -     |
| Denmark .....                                    | 12.6  | 36.3  | 56.1  | 81.0  | 90.4  | 100.0 | 123.1 | 135.9 | 149.7 | 162.9 | 174.2 | 184.4 | 196.1 | 205.3 | 225.9 |
| France .....                                     | 15.2  | 36.7  | 52.4  | 77.0  | 89.2  | 100.0 | 128.4 | 148.5 | 172.0 | 203.9 | 225.2 | 247.2 | 267.2 | 279.8 | 289.3 |
| Germany .....                                    | 18.8  | 48.0  | 67.5  | 84.5  | 91.2  | 100.0 | 116.1 | 125.6 | 134.5 | 141.0 | 148.3 | 155.5 | 164.7 | 172.1 | 179.1 |
| Italy .....                                      | 8.4   | 26.1  | 43.7  | 70.2  | 84.2  | 100.0 | 134.7 | 160.2 | 198.4 | 238.3 | 282.9 | 316.5 | 348.6 | 360.0 | 383.2 |
| Netherlands .....                                | 12.5  | 39.0  | 60.5  | 82.2  | 91.9  | 100.0 | 117.0 | 123.6 | 129.1 | 137.5 | 144.0 | 150.0 | 157.7 | 161.5 | -     |
| Norway .....                                     | 15.8  | 37.9  | 54.5  | 77.2  | 88.8  | 100.0 | 116.0 | 128.0 | 142.8 | 156.0 | 173.5 | 188.3 | 204.8 | 225.3 | 263.1 |
| Sweden .....                                     | 14.7  | 38.5  | 54.2  | 77.3  | 91.5  | 100.0 | 120.1 | 133.6 | 148.1 | 158.9 | 173.3 | 189.7 | 212.4 | 228.1 | 243.8 |
| United Kingdom .....                             | 15.2  | 31.4  | 47.9  | 76.4  | 88.4  | 100.0 | 139.0 | 168.7 | 193.3 | 211.7 | 226.6 | 242.3 | 258.6 | 278.5 | 301.3 |
| <b>Unit labor costs: National currency basis</b> |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 58.7  | 71.0  | 73.7  | 91.7  | 94.9  | 100.0 | 117.0 | 130.6 | 140.1 | 148.7 | 145.0 | 142.2 | 142.4 | 141.8 | 139.7 |
| Canada .....                                     | 54.2  | 63.4  | 66.5  | 89.1  | 95.3  | 100.0 | 116.2 | 133.7 | 146.7 | 170.0 | 168.1 | 158.8 | 162.6 | 169.4 | 174.0 |
| Japan .....                                      | 38.4  | 52.3  | 66.4  | 96.0  | 96.2  | 100.0 | 98.8  | 98.4  | 102.0 | 101.2 | 98.9  | 95.0  | 94.0  | 97.0  | 94.5  |
| Belgium .....                                    | 41.7  | 57.8  | 67.9  | 91.2  | 93.9  | 100.0 | 105.0 | 109.4 | 113.2 | 111.4 | 107.8 | 112.1 | 116.0 | 116.0 | -     |
| Denmark .....                                    | 33.8  | 55.4  | 67.4  | 85.6  | 92.1  | 100.0 | 115.7 | 121.0 | 131.1 | 142.2 | 144.9 | 155.4 | 165.7 | 173.2 | 186.6 |
| France .....                                     | 41.5  | 52.5  | 63.4  | 86.5  | 93.3  | 100.0 | 117.0 | 134.3 | 151.0 | 167.2 | 179.9 | 191.2 | 200.4 | 205.4 | 204.9 |
| Germany .....                                    | 46.6  | 67.4  | 80.3  | 93.8  | 94.6  | 100.0 | 107.3 | 115.7 | 121.2 | 125.2 | 124.4 | 125.8 | 128.2 | 131.7 | 135.2 |
| Italy .....                                      | 23.7  | 36.0  | 48.1  | 77.1  | 85.1  | 100.0 | 121.9 | 137.0 | 158.9 | 184.0 | 204.1 | 214.1 | 229.5 | 235.1 | 241.2 |
| Netherlands .....                                | 38.5  | 60.7  | 74.3  | 95.4  | 96.0  | 100.0 | 104.1 | 108.5 | 110.4 | 115.2 | 113.0 | 106.8 | 108.7 | 111.6 | -     |
| Norway .....                                     | 29.0  | 46.4  | 57.6  | 79.7  | 89.1  | 100.0 | 108.2 | 120.0 | 133.4 | 142.1 | 148.0 | 152.0 | 163.5 | 180.5 | 195.7 |
| Sweden .....                                     | 34.8  | 47.7  | 57.2  | 77.1  | 90.0  | 100.0 | 108.3 | 118.6 | 130.9 | 136.3 | 138.1 | 144.8 | 156.1 | 167.3 | 174.3 |
| United Kingdom .....                             | 27.2  | 39.1  | 50.2  | 80.5  | 89.2  | 100.0 | 135.6 | 165.6 | 180.6 | 186.6 | 183.9 | 186.4 | 192.0 | 201.1 | 203.4 |
| <b>Unit labor costs: U.S. dollar basis</b>       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| United States .....                              | 58.7  | 71.0  | 73.7  | 91.7  | 94.9  | 100.0 | 117.0 | 130.6 | 140.1 | 148.7 | 145.0 | 142.2 | 142.4 | 141.8 | 139.7 |
| Canada .....                                     | 59.4  | 64.5  | 70.6  | 93.1  | 102.7 | 100.0 | 105.4 | 121.5 | 130.0 | 146.3 | 144.9 | 130.3 | 126.5 | 129.5 | 139.4 |
| Japan .....                                      | 28.5  | 39.1  | 65.6  | 86.7  | 86.9  | 100.0 | 121.3 | 116.8 | 123.8 | 108.8 | 111.5 | 107.2 | 105.6 | 154.2 | 175.0 |
| Belgium .....                                    | 30.0  | 41.7  | 62.7  | 89.1  | 87.2  | 100.0 | 128.3 | 134.3 | 109.6 | 87.2  | 75.5  | 69.5  | 70.1  | 93.1  | -     |
| Denmark .....                                    | 29.5  | 44.4  | 67.2  | 89.6  | 91.5  | 100.0 | 132.0 | 129.0 | 110.3 | 102.3 | 95.1  | 90.1  | 93.9  | 128.5 | 163.6 |
| France .....                                     | 41.6  | 46.7  | 70.2  | 99.3  | 96.1  | 100.0 | 135.2 | 156.4 | 136.4 | 124.9 | 116.1 | 107.6 | 109.7 | 145.8 | 167.5 |
| Germany .....                                    | 25.9  | 42.9  | 70.4  | 88.7  | 87.3  | 100.0 | 135.9 | 147.9 | 124.9 | 119.7 | 113.1 | 102.6 | 101.1 | 140.8 | 174.5 |
| Italy .....                                      | 33.7  | 50.6  | 73.1  | 104.3 | 90.5  | 100.0 | 129.5 | 141.4 | 123.2 | 119.9 | 118.6 | 107.6 | 106.1 | 139.2 | 164.2 |
| Netherlands .....                                | 25.1  | 41.2  | 65.6  | 92.8  | 89.1  | 100   |       |       |       |       |       |       |       |       |       |



48. Occupational injury and illness incidence rates by industry, United States

| Industry and type of case <sup>1</sup>                | Incidence rates per 100 full-time workers <sup>2</sup> |       |       |       |       |       |       |       |       |
|---|--|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 1978   | 1979  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  |
| <b>PRIVATE SECTOR<sup>3</sup></b>                     |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 9.4  | 9.5   | 8.7   | 8.3   | 7.7   | 7.6   | 8.0   | 7.9   | 7.9   |
| Lost workday cases .....                              | 4.1  | 4.3   | 4.0   | 3.8   | 3.5   | 3.4   | 3.7   | 3.6   | 3.6   |
| Lost workdays .....                                   | 63.5   | 67.7  | 65.2  | 61.7  | 58.7  | 58.5  | 63.4  | 64.9  | 65.8  |
| <b>Agriculture, forestry, and fishing<sup>3</sup></b> |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 11.6   | 11.7  | 11.9  | 12.3  | 11.8  | 11.9  | 12.0  | 11.4  | 11.2  |
| Lost workday cases .....                              | 5.4  | 5.7   | 5.8   | 5.9   | 5.9   | 6.1   | 6.1   | 5.7   | 5.6   |
| Lost workdays .....                                   | 80.7   | 83.7  | 82.7  | 82.8  | 86.0  | 90.8  | 90.7  | 91.3  | 93.6  |
| <b>Mining</b>   |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 11.5   | 11.4  | 11.2  | 11.6  | 10.5  | 8.4   | 9.7   | 8.4   | 7.4   |
| Lost workday cases .....                              | 6.4  | 6.8   | 6.5   | 6.2   | 5.4   | 4.5   | 5.3   | 4.8   | 4.1   |
| Lost workdays .....                                   | 143.2  | 150.5 | 163.6 | 146.4 | 137.3 | 125.1 | 160.2 | 145.3 | 125.9 |
| <b>Construction</b>                                   |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 16.0   | 16.2  | 15.7  | 15.1  | 14.6  | 14.8  | 15.5  | 15.2  | 15.2  |
| Lost workday cases .....                              | 6.4  | 6.8   | 6.5   | 6.3   | 6.0   | 6.3   | 6.9   | 6.8   | 6.9   |
| Lost workdays .....                                   | 109.4  | 120.4 | 117.0 | 113.1 | 115.7 | 118.2 | 128.1 | 128.9 | 134.5 |
| General building contractors:                         |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 15.9   | 16.3  | 15.5  | 15.1  | 14.1  | 14.4  | 15.4  | 15.2  | 14.9  |
| Lost workday cases .....                              | 6.3  | 6.8   | 6.5   | 6.1   | 5.9   | 6.2   | 6.9   | 6.8   | 6.6   |
| Lost workdays .....                                   | 105.3  | 111.2 | 113.0 | 107.1 | 112.0 | 113.0 | 121.3 | 120.4 | 122.7 |
| Heavy construction contractors:                       |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 16.6   | 16.6  | 16.3  | 14.9  | 15.1  | 15.4  | 14.9  | 14.5  | 14.7  |
| Lost workday cases .....                              | 6.2  | 6.7   | 6.3   | 6.0   | 5.8   | 6.2   | 6.4   | 6.3   | 6.3   |
| Lost workdays .....                                   | 110.9  | 123.1 | 117.6 | 106.0 | 113.1 | 122.4 | 131.7 | 127.3 | 132.9 |
| Special trade contractors:                            |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 15.8   | 16.0  | 15.5  | 15.2  | 14.7  | 14.8  | 15.8  | 15.4  | 15.6  |
| Lost workday cases .....                              | 6.6  | 6.9   | 6.7   | 6.6   | 6.2   | 6.4   | 7.1   | 7.0   | 7.2   |
| Lost workdays .....                                   | 111.0  | 124.3 | 118.9 | 119.3 | 118.6 | 119.0 | 130.1 | 133.3 | 140.4 |
| <b>Manufacturing</b>                                  |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 13.2   | 13.3  | 12.2  | 11.5  | 10.2  | 10.0  | 10.6  | 10.4  | 10.6  |
| Lost workday cases .....                              | 5.6  | 5.9   | 5.4   | 5.1   | 4.4   | 4.3   | 4.7   | 4.6   | 4.7   |
| Lost workdays .....                                   | 84.9   | 90.2  | 86.7  | 82.0  | 75.0  | 73.5  | 77.9  | 80.2  | 85.2  |
| <b>Durable goods</b>                                  |  |       |       |       |       |       |       |       |       |
| Lumber and wood products:                             |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 22.6   | 20.7  | 18.6  | 17.6  | 16.9  | 18.3  | 19.6  | 18.5  | 18.9  |
| Lost workday cases .....                              | 11.1   | 10.8  | 9.5   | 9.0   | 8.3   | 9.2   | 9.9   | 9.3   | 9.7   |
| Lost workdays .....                                   | 178.8  | 175.9 | 171.8 | 158.4 | 153.3 | 163.5 | 172.0 | 171.4 | 177.2 |
| Furniture and fixtures:                               |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 17.5   | 17.6  | 16.0  | 15.1  | 13.9  | 14.1  | 15.3  | 15.0  | 15.2  |
| Lost workday cases .....                              | 6.9  | 7.1   | 6.6   | 6.2   | 5.5   | 5.7   | 6.4   | 6.3   | 6.3   |
| Lost workdays .....                                   | 95.9   | 99.6  | 97.6  | 91.9  | 85.6  | 83.0  | 101.5 | 100.4 | 103.0 |
| Stone, clay, and glass products:                      |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 16.8   | 16.8  | 15.0  | 14.1  | 13.0  | 13.1  | 13.6  | 13.9  | 13.6  |
| Lost workday cases .....                              | 7.8  | 8.0   | 7.1   | 6.9   | 6.1   | 6.0   | 6.6   | 6.7   | 6.5   |
| Lost workdays .....                                   | 126.3  | 133.7 | 128.1 | 122.2 | 112.2 | 112.0 | 120.8 | 127.8 | 126.0 |
| Primary metal industries:                             |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 17.0   | 17.3  | 15.2  | 14.4  | 12.4  | 12.4  | 13.3  | 12.6  | 13.6  |
| Lost workday cases .....                              | 7.5  | 8.1   | 7.1   | 6.7   | 5.4   | 5.4   | 6.1   | 5.7   | 6.1   |
| Lost workdays .....                                   | 123.6  | 134.7 | 128.3 | 121.3 | 101.6 | 103.4 | 115.3 | 113.8 | 125.5 |
| Fabricated metal products:                            |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 19.3   | 19.9  | 18.5  | 17.5  | 15.3  | 15.1  | 16.1  | 16.3  | 16.0  |
| Lost workday cases .....                              | 8.0  | 8.7   | 8.0   | 7.5   | 6.4   | 6.1   | 6.7   | 6.9   | 6.8   |
| Lost workdays .....                                   | 112.4  | 124.2 | 118.4 | 109.9 | 102.5 | 96.5  | 104.9 | 110.1 | 115.5 |
| Machinery, except electrical:                         |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 14.4   | 14.7  | 13.7  | 12.9  | 10.7  | 9.8   | 10.7  | 10.8  | 10.7  |
| Lost workday cases .....                              | 5.4  | 5.9   | 5.5   | 5.1   | 4.2   | 3.6   | 4.1   | 4.2   | 4.2   |
| Lost workdays .....                                   | 75.1   | 83.6  | 81.3  | 74.9  | 66.0  | 58.1  | 65.8  | 69.3  | 72.0  |
| Electric and electronic equipment:                    |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 8.7  | 8.6   | 8.0   | 7.4   | 6.5   | 6.3   | 6.8   | 6.4   | 6.4   |
| Lost workday cases .....                              | 3.3  | 3.4   | 3.3   | 3.1   | 2.7   | 2.6   | 2.8   | 2.7   | 2.7   |
| Lost workdays .....                                   | 50.3   | 51.9  | 51.8  | 48.4  | 42.2  | 41.4  | 45.0  | 45.7  | 49.8  |
| Transportation equipment:                             |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 11.5   | 11.6  | 10.6  | 9.8   | 9.2   | 8.4   | 9.3   | 9.0   | 9.6   |
| Lost workday cases .....                              | 5.1  | 5.5   | 4.9   | 4.6   | 4.0   | 3.6   | 4.2   | 3.9   | 4.1   |
| Lost workdays .....                                   | 78.0   | 85.9  | 82.4  | 78.1  | 72.2  | 64.5  | 68.8  | 71.6  | 79.1  |
| Instruments and related products:                     |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 6.9  | 7.2   | 6.8   | 6.5   | 5.6   | 5.2   | 5.4   | 5.2   | 5.3   |
| Lost workday cases .....                              | 2.6  | 2.8   | 2.7   | 2.7   | 2.3   | 2.1   | 2.2   | 2.2   | 2.3   |
| Lost workdays .....                                   | 37.0   | 40.0  | 41.8  | 39.2  | 37.0  | 35.6  | 37.5  | 37.9  | 42.2  |
| Miscellaneous manufacturing industries:               |  |       |       |       |       |       |       |       |       |
| Total cases .....                                     | 11.8   | 11.7  | 10.9  | 10.7  | 9.9   | 9.9   | 10.5  | 9.7   | 10.2  |
| Lost workday cases .....                              | 4.5  | 4.7   | 4.4   | 4.4   | 4.1   | 4.0   | 4.3   | 4.2   | 4.3   |
| Lost workdays .....                                   | 66.4   | 67.7  | 67.9  | 68.3  | 69.9  | 66.3  | 70.2  | 73.2  | 70.9  |

See footnotes at end of table.

48. Continued— Occupational injury and illness incidence rates by industry, United States

| Industry and type of case <sup>1</sup>             | Incidence rates per 100 full-time workers <sup>2</sup> |       |       |       |       |       |       |       |       |  |
|--|--|-------|-------|-------|-------|-------|-------|-------|-------|--|
|  | 1978   | 1979  | 1980  | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  |  |
| <b>Nondurable goods</b>                            |  |       |       |       |       |       |       |       |       |  |
| <b>Food and kindred products:</b>                  |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 19.4   | 19.9  | 18.7  | 17.8  | 16.7  | 16.5  | 16.7  | 16.7  | 16.5  |  |
| Lost workday cases .....                           | 8.9  | 9.5   | 9.0   | 8.6   | 8.0   | 7.9   | 8.1   | 8.1   | 8.0   |  |
| Lost workdays .....                                | 132.2  | 141.8 | 136.8 | 130.7 | 129.3 | 131.2 | 131.6 | 138.0 | 137.8 |  |
| <b>Tobacco manufacturing:</b>                      |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 8.7  | 9.3   | 8.1   | 8.2   | 7.2   | 6.5   | 7.7   | 7.3   | 6.7   |  |
| Lost workday cases .....                           | 4.0  | 4.2   | 3.8   | 3.9   | 3.2   | 3.0   | 3.2   | 3.0   | 2.5   |  |
| Lost workdays .....                                | 58.6   | 64.8  | 45.8  | 56.8  | 44.6  | 42.8  | 51.7  | 51.7  | 45.6  |  |
| <b>Textile mill products:</b>                      |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 10.2   | 9.7   | 9.1   | 8.8   | 7.6   | 7.4   | 8.0   | 7.5   | 7.8   |  |
| Lost workday cases .....                           | 3.4  | 3.4   | 3.3   | 3.2   | 2.8   | 2.8   | 3.0   | 3.0   | 3.1   |  |
| Lost workdays .....                                | 61.5   | 61.3  | 62.8  | 59.2  | 53.8  | 51.4  | 54.0  | 57.4  | 59.3  |  |
| <b>Apparel and other textile products:</b>         |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 6.5  | 6.5   | 6.4   | 6.3   | 6.0   | 6.4   | 6.7   | 6.7   | 6.7   |  |
| Lost workday cases .....                           | 2.2  | 2.2   | 2.2   | 2.2   | 2.1   | 2.4   | 2.5   | 2.6   | 2.7   |  |
| Lost workdays .....                                | 32.4   | 34.1  | 34.9  | 35.0  | 36.4  | 40.6  | 40.9  | 44.1  | 49.4  |  |
| <b>Paper and allied products:</b>                  |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 13.5   | 13.5  | 12.7  | 11.6  | 10.6  | 10.0  | 10.4  | 10.2  | 10.5  |  |
| Lost workday cases .....                           | 5.7  | 6.0   | 5.8   | 5.4   | 4.9   | 4.5   | 4.7   | 4.7   | 4.7   |  |
| Lost workdays .....                                | 103.3  | 108.4 | 112.3 | 103.6 | 99.1  | 90.3  | 93.8  | 94.6  | 99.5  |  |
| <b>Printing and publishing:</b>                    |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 7.0  | 7.1   | 6.9   | 6.7   | 6.6   | 6.6   | 6.5   | 6.3   | 6.5   |  |
| Lost workday cases .....                           | 2.9  | 3.1   | 3.1   | 3.0   | 2.8   | 2.9   | 2.9   | 2.9   | 2.9   |  |
| Lost workdays .....                                | 43.8   | 45.1  | 46.5  | 47.4  | 45.7  | 44.6  | 46.0  | 49.2  | 50.8  |  |
| <b>Chemicals and allied products:</b>              |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 7.8  | 7.7   | 6.8   | 6.6   | 5.7   | 5.5   | 5.3   | 5.1   | 6.3   |  |
| Lost workday cases .....                           | 3.3  | 3.5   | 3.1   | 3.0   | 2.5   | 2.5   | 2.4   | 2.3   | 2.7   |  |
| Lost workdays .....                                | 50.9   | 54.9  | 50.3  | 48.1  | 39.4  | 42.3  | 40.8  | 38.8  | 49.4  |  |
| <b>Petroleum and coal products:</b>                |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 7.9  | 7.7   | 7.2   | 6.7   | 5.3   | 5.5   | 5.1   | 5.1   | 7.1   |  |
| Lost workday cases .....                           | 3.4  | 3.6   | 3.5   | 2.9   | 2.5   | 2.4   | 2.4   | 2.4   | 3.2   |  |
| Lost workdays .....                                | 58.3   | 62.0  | 59.1  | 51.2  | 46.4  | 46.8  | 53.5  | 49.9  | 67.5  |  |
| <b>Rubber and miscellaneous plastics products:</b> |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 17.1   | 17.1  | 15.5  | 14.6  | 12.7  | 13.0  | 13.6  | 13.4  | 14.0  |  |
| Lost workday cases .....                           | 8.1  | 8.2   | 7.4   | 7.2   | 6.0   | 6.2   | 6.4   | 6.3   | 6.6   |  |
| Lost workdays .....                                | 125.5  | 127.1 | 118.6 | 117.4 | 100.9 | 101.4 | 104.3 | 107.4 | 118.2 |  |
| <b>Leather and leather products:</b>               |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 11.7   | 11.5  | 11.7  | 11.5  | 9.9   | 10.0  | 10.5  | 10.3  | 10.5  |  |
| Lost workday cases .....                           | 4.7  | 4.9   | 5.0   | 5.1   | 4.5   | 4.4   | 4.7   | 4.6   | 4.8   |  |
| Lost workdays .....                                | 72.5   | 76.2  | 82.7  | 82.6  | 86.5  | 87.3  | 94.4  | 88.3  | 83.4  |  |
| <b>Transportation and public utilities</b>         |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 10.1   | 10.0  | 9.4   | 9.0   | 8.5   | 8.2   | 8.8   | 8.6   | 8.2   |  |
| Lost workday cases .....                           | 5.7  | 5.9   | 5.5   | 5.3   | 4.9   | 4.7   | 5.2   | 5.0   | 4.8   |  |
| Lost workdays .....                                | 102.3  | 107.0 | 104.5 | 100.6 | 96.7  | 94.9  | 105.1 | 107.1 | 102.1 |  |
| <b>Wholesale and retail trade</b>                  |  |       |       |       |       |       |       |       |       |  |
| <b>Wholesale trade:</b>                            |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 7.9  | 8.0   | 7.4   | 7.3   | 7.2   | 7.2   | 7.4   | 7.4   | 7.7   |  |
| Lost workday cases .....                           | 3.2  | 3.4   | 3.2   | 3.1   | 3.1   | 3.1   | 3.3   | 3.2   | 3.3   |  |
| Lost workdays .....                                | 44.9   | 49.0  | 48.7  | 45.3  | 45.5  | 47.8  | 50.5  | 50.7  | 54.0  |  |
| <b>Retail trade:</b>                               |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 8.9  | 8.8   | 8.2   | 7.7   | 7.1   | 7.0   | 7.2   | 7.2   | 7.2   |  |
| Lost workday cases .....                           | 3.9  | 4.1   | 3.9   | 3.6   | 3.4   | 3.2   | 3.5   | 3.5   | 3.6   |  |
| Lost workdays .....                                | 57.5   | 59.1  | 58.2  | 54.7  | 52.1  | 50.6  | 55.5  | 59.8  | 62.5  |  |
| <b>Finance, insurance, and real estate</b>         |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 2.1  | 2.1   | 2.0   | 1.9   | 2.0   | 2.0   | 1.9   | 2.0   | 2.0   |  |
| Lost workday cases .....                           | .8   | .9    | .8    | .8    | .9    | .9    | .9    | .9    | .9    |  |
| Lost workdays .....                                | 12.5   | 13.3  | 12.2  | 11.6  | 13.2  | 12.8  | 13.6  | 15.4  | 17.1  |  |
| <b>Services</b>                                    |  |       |       |       |       |       |       |       |       |  |
| Total cases .....                                  | 5.5  | 5.5   | 5.2   | 5.0   | 4.9   | 5.1   | 5.2   | 5.4   | 5.3   |  |
| Lost workday cases .....                           | 2.4  | 2.5   | 2.3   | 2.3   | 2.3   | 2.4   | 2.5   | 2.6   | 2.5   |  |
| Lost workdays .....                                | 36.2   | 38.1  | 35.8  | 35.9  | 35.8  | 37.0  | 41.1  | 45.4  | 43.0  |  |

<sup>1</sup> Total cases include fatalities.

<sup>2</sup> The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as:

(N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays.

EH = total hours worked by all employees during calendar year.  
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year.)

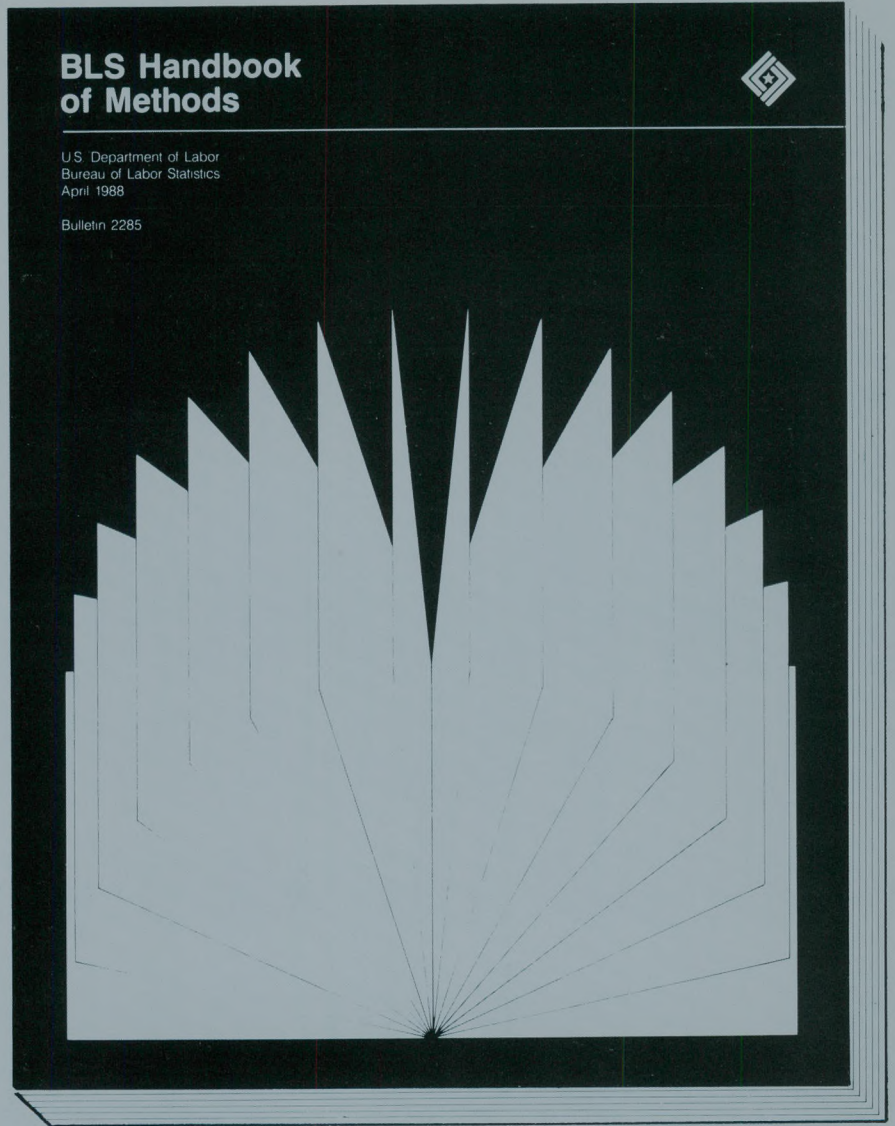
<sup>3</sup> Excludes farms with fewer than 11 employees since 1976.



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