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U.S. Department of Labor Bureau of Labor Statistics September 1987

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## U.S. DEPARTMENT OF LABOR William E. Brock, Secretary

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## Labor Month In Review



SURVEY PLANNING. The Bureau of Labor Statistics responded to a congressional request that BLS plan a new broad-based survey of white-collar pay and benefits. Here are highlights from the plan submitted to Congress on August 13:

Broad coverage. The Bureau plans to develop the new survey by expanding and integrating three of its ongoing programs: The National Survey of Professional, Administrative, Technical, and Clerical Pay; the Employee Benefits Survey; and the Employment Cost Index. Each will be substantially modified for this endeavor. Implementation of the new survey will take 5 years, and will use annual resource levels supported in the fiscal year 1987 bLS budget.

When operational, the survey will provide data annually on white-collar compensation, including employer costs for salaries and employee benefits. In addition, the survey will provide descriptions of employee benefit plans and pay data for narrowly defined occupations in which workers are classified further by skill level.
In its broadest context, the survey will cover white-collar employees in private nonfarm industries and State and local governments. Samples will represent the United States as a whole, and collection will be carried out in all sizes of establishments except for narrowly defined occupational data. The survey's design limits data collection for narrowly defined occupations, such as accountants, computer programmers, and engineers, to establishments with 50 employees or more to conserve resources. To further conserve resources, the Bureau has planned portions of the survey work with alternateyear collection cycles.

Two-year collection cycles will be used for surveying employee benefit provisions and salaries of detailed occupations. For benefit provisions, medium and large private industry firms will be surveyed in odd-numbered years and small private firms and State and local governments in even-numbered years. Each year's product will be published separately and also will be combined with the previous year's results for an overall account of employee benefits reported during the 2 -year span.

For salary data on narrowly defined occupations, the collection cycle will be for private goods-producing industries and State and local governments in even-numbered years, and for private services-producing industries in oddnumbered years. The Employment Cost Index will be used to update the salary information of the unsurveyed component each year to provide a complete picture of both years' efforts.

The new program will use probability sampling for both establishments and occupations, thus ensuring objectivity of the survey results. The design, however, will ensure that occupations required for the Federal pay comparability process will be taken into account.

The National Survey of Professional, Administrative, Technical, and Clerical Pay will continue to meet current Federal pay comparability requirements through 1989. Beginning in 1990, detailed occupational data from the new program will be available. This 2-year period will allow policymakers time to ensure that outputs from the new survey meet the needs of the Federal pay comparability process.

Field tests. To prepare the report, BLS contacted data users in the Federal Government, including representatives
of the President's Pay Agent under the comparability process (Office of Management and Budget, Office of Personnel Management, and the Department of Labor), the Advisory Committee on Federal Pay, congressional committees, Congressional Research Service, Congressional Budget Office, General Accounting Office, and others. In addition, discussions were held with about 300 representatives of business and labor organizations, State and local governments, and academia.

As part of its research for the new survey, the Bureau also began field tests involving pay and employee benefit practices in industries, occupations, and small establishments not included in the Bureau's current white-collar pay survey.

The tests introduced new statistical techniques for selection of occupations to be surveyed, collection of data using broad occupational descriptions, and classification of professional and managerial jobs into generic work levels, such as trainee, fully qualified, and first-level supervisor. Pay practices for such occupations as primary and secondary schoolteachers, university professors, and salesworkers-ranging from salesclerks to stock and bond brokers-were documented.

Finally, research and analysis necessary to prepare cost level estimates of pay and benefits from Employment Cost Index data were completed. The cost levels, which will be published in October 1987, will provide a preview of outputs from the proposed WhiteCollar Pay and Benefits Survey.

The report to Congress was prepared by the Bureau's Office of Wages and Industrial Relations.

## Projections 2000

# Overview and implications of the projections to 2000 

> Bureau of Labor Statistics moderate projections show 21 million new jobs over the 1986-2000 period, mostly in service-producing industries; the black and Hispanic labor force is estimated to increase much faster than that of whites

## Ronald E. Kutscher

The Bureau of Labor Statistics has prepared projections of the U.S. economy to 2000 . Three alternative projections were developed, based on a range of assumptions which result in high, moderate, and low rates of economic growth. The projections encompass the future demographic structure of the labor force, economic rate of growth and composition of demand, and industrial and occupational composition of employment. The Bureau prepares projections biennially; this latest outlook replaces the projections to 1995 , published in 1985. ${ }^{1}$ This article summarizes the moderate projections of the labor force, economic growth, and industry and occupational employment, and discusses some important implications of the projections. The four articles that follow present the projections in considerably more detail.

## Labor force overview

According to the moderate growth projections, the labor force is expected to expand by nearly 21 million, or 18 percent, over the 1986-2000 period. This represents a slowdown in both the number to be added to the labor force and in the rate of growth achieved in the previous 14 -year pe-

[^0]riod, 1972 to 1986, when the labor force increased by almost 31 million, or 35 percent. The projected growth also represents a slowing from the more recent 1979-86 period. Consequently, the projected slower growth is a continuation of a trend that started in the late 1970's. The rapid increases in the past were the result of the very large baby-boom generation (those born between 1946 and 1964) entering the labor force, accompanied by rapid increases in women's labor force participation rates. The recent slowdown and that projected for the remainder of the century reflect the entry of the smaller numbers from the "birth dearth" generation (those born over the 1965-78 period) along with the slower rate of projected growth in the participation rates of women. (See table 1.)

Not only is the labor force expected to continued to slow its rate of increase over the $1986-2000$ period, but it is projected to become increasingly minority and female. For example, the white labor force is projected to increase less than 15 percent, while the black labor force is expected to grow by nearly 29 percent, or 3.7 million workers, more than 17 percent of the projected total labor force increase. The Hispanic labor force is projected to grow by about 6 million, or more than 74 percent, and to account for nearly 29 percent of labor force growth over this period. The Asian and other races group (American Indians, Alaskan Natives,

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Asians, and Pacific Islanders) is projected to grow by nearly 2.4 million, or 70 percent, and account for more than 11 percent of labor force growth. Blacks, Hispanics, and Asians and other races are projected to account for 57 percent of labor force growth; if non-Hispanic white women are included, the combined share of future growth reaches more than 90 percent.

Women are projected to account for 64 percent of the net increase in the labor force-slightly more than their share of the 1972-86 labor force growth. Consequently, by 2000, women are expected to make up more than 47 percent of the labor force, up from 39 percent in 1972 and 45 percent in 1986.

The age composition of the projected work force is expected to continue some of the current trends at least through the mid-1990's, after which a number of these trends will begin to reverse-some sharply. After the very large babyboom generation was born, a period of significantly lower numbers of births prevailed until the late 1970's. From 1978 to the present, births increased (even though the birth rate was stable or declining) as women of the baby-boom generation began having children. As a result of the fewer births during the 1965-78 period, the number of 16 -year-olds in the population as well as in the labor force began a decline in 1976, which is expected to continue until about 1992. The number of 17 -year-olds began a decline in about 1977 which is expected to continue until about 1993. Each group 1 year older is expected to follow the same pattern, but 1 year later-for example, the number of 18 -year-olds is expected to continue to decline until about 1994.

The differing birth cohorts moving into older age groups have two important consequences for the age composition of the labor force. (1) By the year 2000, the share of the labor force age 16 to 34 and over age 55 is projected to decline, and the share of 35 - to 54 -year-olds is expected to increase. (2) For some age groups in the labor force, sharp changes are expected to take place during the 1986-2000 period. For example, the number of

- 16- to 24 -year-olds is projected to decline until the mid1990's, then reverse and begin to increase;
- 25 - to 34 -year-olds is projected to increase through the early 1990 's, then show a very sharp decline; and
- 55 - to 64 -year-olds is projected to decline through the mid-1990's, then increase very rapidly.


## Economic growth and structural changes

According to the moderate projections, the rate of economic growth, as measured by real GNP, is expected to increase by 40 percent, or 2.4 percent a year over the 19862000 period. This is only slightly less than the 2.5 -percent annual growth rate over the 1972-86 period, but slightly more than the 2.0 percent achieved over the 1979-86 period, which included two recessions. The rate of economic growth through the year 2000 results from an acceleration

Table 1. Civilian labor force, by sex, age, race, and Hispanic origin, 1972-86, and moderate growth projections 2000
[Numbers in thousands]

| Group | Actual |  |  | Projected, | $\begin{aligned} & \text { Change, } \\ & \text { 1986-2000 } \end{aligned}$ | $\begin{aligned} & \text { Growth } \\ & \text { rate, } \\ & 1986-2000 \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 |  |  |  |
| Total, 16 and older . . | 87,037 | 104,960 | 117,837 | 138,775 | 20,938 | 1.2 |
| Men, 16 and older | 53,556 | 60,727 | 65,423 | 73,136 | 7,713 | . 8 |
| 16 to 24 | 11,243 | 13,645 | 12,251 | 11,506 | -745 | -. 4 |
| 25 to 54 | 33,133 | 37,926 | 44,406 | 53,024 | 8,618 | 1.3 |
| 55 and older | 9,180 | 9.156 | 8,766 | 8,606 | -160 | -. 1 |
| Women, 16 and older | 33,481 | 44,233 | 52,414 | 65,639 | 13,225 | 1.6 |
| 16 to 24 | 8,943 | 11,760 | 11,117 | 11,125 | 8 | . 0 |
| 25 to 54 | 19,192 | 26,594 | 35,159 | 47,756 | 12,597 | 2.2 |
| 55 and older | 5,346 | 5,879 | 6,138 | 6,758 | 620 | . 7 |
| White, 16 and older | 77,275 | 91,922 | 101,801 | 116,701 | 14,900 | 1.0 |
| Black, 16 and older | 8,748 | 10,665 | 12,684 | 16,334 | 3,650 | 1.8 |
| Other, 16 and older ${ }^{1}$ |  | 2,373 | 3,352 | 5,740 | 2,388 | 3.9 |
| Hispanic origin, 16 and older. | - | 5,215 | 8,076 | 14,086 | 6,010 | 4.1 |

1 Includes American Indians, Alaskan Natives, Asians, and Pacific Islanders.
NOTE: Detail for race and Hispanic groups may not add to total because Hispanics are included in both the white and black population groups. Dash indicates data not available.
SOURCE: Historical data are from the Current Population Survey.
projected for productivity, even as the rate of labor force growth is projected to slow. Many factors account for the faster productivity growth incorporated in these projections: a more mature, educated, and experienced labor force; greater stability in projected energy prices over the 19862000 period than prevailed in the 1972-86 period; and more favorable growth in the projected capital-labor ratio, in particular, a slowing of labor force growth and a somewhat larger increase in the share of investment in producers' durable equipment.
Changes also are projected in demand structure of GNP over the 1986-2000 period. Among the most important are:

- Stabilization of the share of consumer durables, which increased considerably during the 1972-86 period.
- A modest increase in the share of GNP allocated to producers' durable equipment.
- An increase in the export share of GNP , a reversal from the trend of the 1979-86 period.
- No change in the import share of GNP, even though the import share of GNP increased nearly 5 percentage points over the 1972-86 period.
- A decline in the share of GNP devoted to defense expendi-tures-a reversal of the 1979-86 trend.
- An increase in the growth rate of State and local government spending, larger than the rate over the 1979-86 period, but not enough to halt the declining share of GNP allocated to spending by States and localities.
On the income side of GNP, the projections show a relatively constant share going to disposable personal income. Real disposable personal income per capita is projected to grow 1.6 percent per year, about the same as in the 1972-86 period, but more than the 1.3 -percent a year gain over the

1979-86 period. The greater growth rate reflects primarily the projected faster rate of productivity growth.

## Employment changes

Of the 21 million new jobs projected for the 1986-2000 period, 20.1 million are expected to be nonagricultural wage and salary jobs, and 1.7 million nonagricultural selfemployed and unpaid family jobs. These gains are expected to be offset slightly by a decline in agricultural employment. The projected employment increase-more than 19 percent between 1986 and 2000, or 1.3 percent a year-represents a slowing of employment growth, reflecting, in large part, slower labor force growth. In terms of absolute growth, nonagricultural wage and salary workers increased by nearly 26 million over the 1972 to 1986 period, an expansion of almost 35 percent, or 2.2 percent a year. The projected slowdown in employment growth is not quite so dramatic when compared to the more recent 1979-86 period in which nonagricultural wage and salary jobs grew 1.5 percent a year.

By industry. Goods-producing industries are projected to experience almost no change in employment over the 19862000 period. Service-producing industries, therefore, will account for nearly all of the projected growth. Among major groups in the goods-producing industry, the projections show increasing employment only in construction-nearly 900,000 jobs. (See table 2.) Although agriculture is projected to increase its wage and salary jobs, that increase is expected to be more than offset by declines among the self-employed, so that total agriculture is projected to decline by more than 300,000 jobs.

Manufacturing employment is projected to decline by more than 800,000 jobs over the 1986-2000 period. Declines are projected even though output is expected to increase 2.3 percent a year. However, productivity in manufacturing is projected to grow even faster. Large job growth is projected for both wholesale and retail trade; more than 1.5 million wage and salary jobs are expected in wholesale trade and almost 4.9 million in retail trade. This is consistent with the long-term trend of this industry growing the same or slightly faster than the economy. The finance, insurance, and real estate industry also is projected to add more than 1.6 million jobs. However, this represents a considerable slowing in this sector when compared with the nearly 2.4 million jobs added over the previous 14 years. The service industries will expand by more than 10 million jobs, with health care services and business services important contributors as they continue to produce new services that greatly add to their overall demand and employment growth. Government is expected to expand by about 1.6 million jobsnearly all at the State and local level.

Although manufacturing employment as a whole is projected to decline through 2000, many of its industries are projected to grow, quite rapidly in some cases. It is important to note that in 2000 , manufacturing is projected to

Table 2. Employment by major sector, 1972, 1986, and projected to 2000 low, moderate, and high alternatives [In thousands]

| Industry | 1972 | 1986 | Projected, 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Low | Moderate | High |
| Total | 84,549 | 111,623 | 126,432 | 133,030 | 137,533 |
| Nonfarm wage and salary ${ }^{1}$. . . . | 73,514 | 99,044 | 113,554 | 119,156 | 123,013 |
| Goods-producing . . . . . . . . . | 23,668 | 24,681 | 23,148 | 24,678 | 25,906 |
| Mining | 628 | 783 | 672 | 724 | 779 |
| Construction | 3,889 | 4,904 | 5,643 | 5,794 | 6,077 |
| Manufacturing | 19,151 | 18,994 | 16,833 | 18,160 | 19,050 |
| Service-producing ${ }^{1}$ | 49,846 | 74,363 | 90,406 | 94,478 | 97,107 |
| Transportation and public utilities | 4,541 | 5,244 | 5,410 | 5,719 | 5,903 |
| Wholesale trade . . . . . . . | 4,113 | 5,735 | 7,015 | 7,266 | 7,361 |
| Retail trade | 11,835 | 17,845 | 21,795 | 22,702 | 23,079 |
| Finance, insurance, and real estate | 3,907 | 6,297 | 7,508 | 7,917 | 8,159 |
| Services ${ }^{1}$ | 12,117 | 22,531 | 30,778 | 32,545 | 33,708 |
| Government | 13,333 | 16,711 | 17,900 | 18,329 | 18,897 |
| Agriculture | 3,523 | 3,252 | 2,784 | 2,917 | 3,009 |
| Private households | 1,693 | 1,241 | 1,122 | 1,215 | 1,234 |
| Nonfarm self-employed and unpaid family workers | 5,819 | 8,086 | 8,972 | 9,742 | 10,277 |

${ }^{1}$ Excludes SIC 074, 5, 8 (agricultural services), and 99 (nonclassifiable establishments): therefore data are not directly comparable with those from the Current Employment Survey.
provide more than 18 million wage and salary jobs, or 15.2 percent of all wage and salary employment. Generally, manufacturing industries that are expected to experience employment declines are those that have been declining for years, such as basic steel, leather goods, shoes, tobacco, some of the textile and most of the basic metal processing industries, and many of the food processing industries. Employment gains are expected among printing and publishing, drugs and pharmaceutical products, computers, plastic products, and instruments industries. Some occupations within manufacturing are projected to grow, even as the overall employment in manufacturing industries declines. For example, the engineering and related occupations are projected to increase by more than 165,000 jobs and managerial jobs, by 85,000 .

By occupation. Five occupational groups are projected to experience faster than average employment growth over the 1986-2000 period-technicians, service workers, professional workers, salesworkers, and executive and managerial employees. (See table 3.) Only two groups-farming, forestry, and fishing workers and private household work-ers-are expected to have absolute declines. Three broad occupational groups are expected to experience belowaverage growth: precision production, craft, and repair workers; administrative support workers, including clerical; and operators, fabricators, and laborers.

When employment by major occupational group is distributed in 1986 and 2000 by the most prevalent 1986 educational level, the projections show a growth in the share of jobs requiring most workers to have at least 1 year of college. The share of jobs requiring high school completion as the predominant educational level declines slightly. How-

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ever, there is a sharper decline in the share of jobs where less than a high school education is currently the most prevalent educational requirement.

If projected employment growth by major occupational group is compared with jobs currently held by blacks and Hispanics, a disparity is shown-neither group is well represented in the fast-growing occupations and both groups are overrepresented in the slow-growing or declining occupations. When a similar analysis is done for women, a disparity also is shown, although it is not nearly as great as that for blacks and Hispanics. Still, women are not well represented in some fast-growing occupations such as natural scientists and the architectural occupations.

## High and low projections

The high and low alternatives show a relatively broad band around the moderate alternative. The annual growth rate of real GNP ranges from 1.6 percent in the low alternative to 3.0 percent in the high. For the labor force, the difference between the low and high is nearly 6.6 million workers in 2000. The unemployment rate in 2000 is 7.7 percent in the low alternative, 6 percent in the moderate, and 4.5 percent in the high. In 2000, the low alternative has a level of employment 6.6 million lower than the moderate level; the high alternative is 4.5 million higher than the moderate. The employment range in 2000 is 11.1 million.

## Labor force implications

A slower growing labor force along with the changes expected in its age, sex, and racial composition has several important implications. For instance, the projected decline of jobseekers age 16 to 19 offers an opportunity for lowering the unemployment rate for a labor force group that historically has had a high rate. This is particularly true in light of the projected large employment increases in eating and drinking places, retail sales, and many service industries which typically employ first-time jobseekers. As noted, the share of labor force growth among blacks and Hispanics is also projected to increase. These groups traditionally have had higher unemployment rates than those for whites, which may make the lowering of the overall unemployment rate more difficult. This follows unless, of course, past problems of jobs for minorities can be dealt with, including educational requirements and geographic location of jobs.

Other important implications are drawn from the changes expected for the 20 to 24 age group, whose number is expected to continue to decline until the late 1990's. In addition to employers who are looking for first-time jobseekers, many others who have a primary interest in this age group-for example, community and 4-year colleges and the military-will see the population from which they primarily seek students and recruits shrink throughout most of the 1986-2000 period. Also, producers of goods and services primarily targeted at 16 - to 24 -year-olds, from specialized magazines, cassette tapes, and clothing to motorcycles

Table 3. Employment by broad occupational group, 1986 and moderate growth projections 2000
[Numbers in thousands]

| Major occupational group | 1986 | Projected, 2000 | Percent change, 1986-2000 |
| :---: | :---: | :---: | :---: |
| Total employment | 111,623 | 133,030 | 19.2 |
| Technicians and related support workers | 3,726 | 5,151 | 38.2 |
| Service workers, except private household workers | 16,555 | 21,962 | 32.7 |
| Salesworkers | 12,606 | 16,334 | 29.6 |
| Executive, administrative, and managerial workers | 10,583 | 13,616 | 28.7 |
| Professional workers | 13,538 | 17,192 | 27.0 |
| Precision production, craft, and repair workers Administrative suppor workers, including | 13,924 | 15,590 | 12.0 |
| clerical | 19,851 | 22,109 | 11.4 |
| Operators, fabricators, and laborers | 16,300 | 16,724 | 2.6 |
| Private household workers . . . . . . . . . . . . . . | 981 | 955 | -2.7 |
| Farming, forestry, and fishing workers ........ | 3,556 | 3,393 | -4.6 |

Note: Estimates of 1986 employment, the base year for the 2000 projections, were derived from data collected in the Occupational Employment Statistics Surveys.
and compact discs, can expect their market base to continue to decline.

Considerable attention already has been focused on a potential shortage of workers. Often, this does not reflect an overall lack of workers, but the declining numbers in the younger age groups. As a result, in a number of instances, employers have turned to other sources of workers, such as immigrants or the recently retired.

The implications of the large baby-boom generation have been widely discussed. Less well-known and, consequently, not often discussed is the younger birth dearth group. The maturation of the birth dearth group already has caused a decline, first in the number of 16 - to 19 -year-olds in the population and in the labor force, and then in 20- to 24 -yearolds. In the late 1980's, that decline will extend to older groups. Other results will likely occur from the decline in these age groups. Because they are beyond the age for first-time jobseekers might mean faster promotions for this age group, as firms compete for a shrinking labor pool of managers or skilled technicians and professionals. However, it is important to remember that this group is following on the heels of the very large baby-boom group, and such scarcities may never materialize.

Immigrants are projected to account for more than 23 percent of the change in the labor force over the 1986-2000 period. Several important considerations with regard to the large projected immigrant share of labor force growth are: (1) to the extent they are not English-speaking, their integration into the work force is considerably more difficult, (2) given the skill shifts which are implied by the occupational projections, many immigrants may not possess the job skills which are in high demand in the U.S. economy, and (3) the geographic distribution of immigrants is more concentrated than that for the total labor force and, consequently, may complicate immigrants' search for jobs.

The growing share of blacks and Hispanics in the projected labor force poses two important considerations. First,
both groups historically have had higher unemployment rates than those for whites. Thus, the opportunity for a lower unemployment rate with the shrinkage of the youth cohort (with its significantly higher unemployment rates) could be negated if solutions cannot be found for the high unemployment among blacks and Hispanics. The second consideration raised by the faster labor force growth for blacks and Hispanics is the disparity between their current occupation and the projected growth in occupational employment. Policymaking will need to focus on ensuring that all youth, particularly minorities, are given sufficient education to ease their entry into the job market and to equip them with the skills needed to advance to better jobs. While education alone is not the solution to all labor market problems, it is clearly important in the solution. Information on future job growth and the education and training necessary for the new jobs are important for all labor force aspirants.

The increasingly larger role that women are projected to play in the future labor force raises some of the same considerations as those noted for blacks and Hispanics. The gap between the male and female unemployment rates has nar-rowed-more from an increase in the male rate than from lowering of the female rate. While in the 1960's and 1970's, unemployment rates for women were typically 1 to 2 percentage points higher than those for men, that gap has narrowed in the 1980's. During the 1984-86 period, female unemployment rates ranged from 0.2 to 0.4 percentage points higher than those for men. However, the occupational distribution of jobs still shows some disparities, even though the differences have narrowed over the last decade. An opportunity exists for future improvements, in that an important source of job growth over the 1986-2000 period is professional, technical, and managerial jobs, and women are projected to constitute more than three-fifths of net additions to the labor force.

## Economic implications

Several implications can be drawn from the projected overall economic growth and the changes expected in the structure of demand over the 1986-2000 period. The projections call for an increase in the rate of productivity growth. It should be noted that the projected productivity growth is more uncertain than the projected labor force growth. Therefore, the economic growth projections can be viewed as having a higher degree of uncertainty. Consequently, users should carefully examine all three projection alternatives and their implications. For example, the low projection alternative, which has a rate of real GNP growth of 1.6 percent per year over the 1986-2000 period, results from a productivity growth rate consistent with the 1972-86 productivity trend. One very important implication of this projected trend is that real disposable income per capita (one measure of well-being in the economy) only increases 0.7 percent per year under this alternative, much slower than the 1.7-percent growth during the $1972-86$ period, and less
than one-half the rate of increase projected in the moderate alternative. Of course, if a faster rate of productivity increase should prevail, it would be more favorable for the economy because that is the primary factor leading to gains in living standards of the population.

Perhaps the most significant change in trend projected in the composition of demand for the 1986-2000 period is in foreign trade. As a result of changes in exchange rates, exports are projected to increase faster than imports. This is important both to exporting industries as well as other industries which have been pressured by the very rapid growth of imports over the last decade, in particular. However, the extent of the slowdown in import growth and the increase in export growth varies considerably among industries. The projections of exports and imports are uncertain, with trends more volatile than most other demand categories because numerous factors in many countries influence trends for U.S. exports and imports. Another difficulty in developing foreign trade projections is the capacity of some U.S. industries to recover their export markets once they have been lost-even though a significant turnaround in the value of the dollar has occurred.

The projected shifts in the structure of demand result in several other important relationships. The projected lack of any growth of the younger age groups in the population and the resulting modest slowdown in household and family formation will affect expenditure patterns. This is most noticeable in consumer durables, particularly in automobile purchases and new housing construction. Another impact related to demographic changes in the population is the health care expenditures of older age groups, particularly the expected very rapid growth between now and 2000 in the over age 85 population-projected to increase 3.7 percent annually, compared with 0.8 percent for the overall population. Not only is this older group expected to keep health care expenditures among the most rapidly growing demand categories, but the distribution of health care purchases also is projected to shift toward nursing homes and home health care expenditures.

Another important change in trend included in the projections is the expected slowing of defense expenditures. Real defense expenditures declined over the 1972-79 period, but then reversed over the 1979-86 period and have shown an appreciable increase of 6.2 percent a year. In these projections, defense spending is projected to slow in the late 1980's, and then gradually decline in the 1990's such that by 2000, the level of real defense expenditures is projected to return to near the 1986 level. These projected trends are particularly important to industries such as aircraft, missiles, ships, and electronics which sell a high proportion of their output to the U.S. Department of Defense.

## Industry employment impact

Employment is projected to grow, albeit slower than it has in the past. Most of the growth is expected among
service-producing industries. Further employment declines are projected for many industries including agriculture, many mining industries, a significant number of manufacturing industries, and a few service industries. Consequently, workers are expected to continue to be displaced. Further, because of the geographic concentration of many of the declining industries, some localities will be hard hit from these displacements. Although some displaced workers may obtain related jobs and maintain their standard of living, others may require further training or education, or both, or may have to relocate geographically to do so.

Some of those displaced from their jobs, of course, may not find similar employment, given the occupational shifts that are projected to occur between now and 2000, particularly if they lack the education and training required for the emerging jobs. Jobs for displaced workers are a problem for which an easy solution has not been found. Although much occupational mobility exists in this economy, it is concentrated primarily among the young. Thus, while it is important that entry level workers be provided with as high a level of education as possible, this helps little in finding the best mechanism for providing the right mix of education and training needed for displaced workers, particularly if those displaced are over age 40 and have relatively low educational attainment. ${ }^{2}$

High tech employment in manufacturing is projected to slow from the above-average growth of the past decade, as these industries mature and as several of them continue to face stiff competition in foreign markets. The computer manufacturing industry, in particular, accounted for a significant proportion of total high tech employment growth in the 1970's and early 1980's, but a projected slowing in this industry's employment growth is expected to be a major factor in the high tech future for the rest of this century.

The expected continuation of employment changes in service-producing industries has several important implications. Firms in some of these industries are likely to be small. Because small firms have a higher turnover rate, they may, as a consequence, be less likely to provide a lifetime employment opportunity for workers. Consequently, workers will need to be prepared through education and training for more frequent changes of employers and occupations. Also, many smaller firms are often less able to provide other benefits, such as health care, that large firms may provide. ${ }^{3}$ A benefit of the increasing share of employment in the service-producing industries is that the effect of any future business cycle downturn is likely to be moderated because the variability of employment is lower in services than in goods-producing industries such as manufacturing and construction.

Another trend is developing that will, in all likelihood, require adjustments in the future. As the work force declines among the younger age groups and as women increasingly seek full-time work, a conflict emerges between industries which traditionally demand a large number of part-time
workers and the economy's ability to supply those workers. This conflict could be resolved by these industries moving back to providing a larger share of full-time jobs, expanding self-service stores, or drawing older workers into the work force. If these changes do not occur, one consequence could be that some seekers of full-time work might be able to find only part-time employment. Another likely implication is a slowing, or possibly even a reversal, in the decline of average hours of work, because the share of part-time employment was the primary factor behind past declines in average hours.

## Occupational employment implications

Shifts in industry employment and changes in the staffing patterns of industries are expected to affect the occupational structure of employment. Generally, occupations in which current participants have the most education are projected to have the most rapid growth rates, even if their relative growth is slower. Jobs are expected to continue to be available for those with only a high school education. However, persons with less than a high school education will find it more difficult to find a job-particularly a job with good pay and chances for advancement-than those with more education. Those with less education will continue to have more labor market problems and less opportunity for advancement because they frequently do not have the education or training needed to adapt to the continuing changes in employment resulting from technology advances and changes in the structure of demand, and to the employment displacement which may follow these changes. The fact that large numbers continue to drop out of high school clearly signals that an important problem remains. ${ }^{4}$ As pointed out earlier, blacks and Hispanics are disproportionately represented among those with less education and are projected to account for an increasing share of workers. Given this trend, the recent data on declining college enrollment of blacks are unfortunate. ${ }^{5}$

Despite the faster than average employment growth for occupations requiring at least a bachelor's degree, the surplus of college graduates that began in the early 1970's is expected to continue through the end of the century. However, the balance between supply and demand for new college graduates is expected to narrow considerably as we enter the 1990 's, partly because of the decline of college graduates stemming from the shrinkage in college-age population. ${ }^{6}$

Occupations that are generally filled by young workers, such as food service, retail sales, and construction labor, are projected to continue to generate many jobs and, as discussed earlier, the declining number of young workers could offer the opportunity to improve the youth labor market situation. At the same time, given the expected sharp decline in the number of youths, it could also provide employment opportunities for others not often employed in those jobs, such as those recently retired who desire some work.

Further, this also could offer the opportunity to increase the labor market participation of some groups such as black men who currently have much lower labor force participation rates than do white men of the same age.

Women and blacks traditionally have been highly concentrated in certain occupations. Although some improvements
have occurred in the past decade in changing this occupational segregation, the future offers a chance for further improvement because employment growth is projected to be most rapid in occupations not traditionallly filled by Hispanics, blacks, and, to some extent, women-and labor force growth will be predominantly from these groups.
_FOOTNOTES_-


#### Abstract

${ }^{1}$ For the last report on the 1995 projections, see the following articles in the November 1985 Monthly Labor Review: Betty W. Su, "The economic outlook to 1995: new assumptions and projections," pp. 3-16; Howard N Fullerton, Jr., "The 1995 labor force: BLS' latest projections," pp.17-25; Valerie A. Personick, "A second look at industry output and employment trends through 1995," pp. 26-41; and George T. Silvestri and John Lukasiewicz, "Occupational employment projections: the 1985-95 outlook," pp. 42-57. ${ }^{2}$ See Displaced Workers, 1979-83, Bulletin 2240 (Bureau of Labor Statistics, July 1985). For results of 1986 surveys on displaced workers, see the following articles in the June 1987 Monthly Labor Review: Francis


W. Horvath, "The pulse of economic change: displaced workers of 198185 ," pp. 3-12; and Sharon P. Brown, "How often do workers receive advance notice of layoffs?" pp. 13-17.
${ }^{3}$ See Employee Benefit Research Institute's tabulations of the May 1983 Current Population Survey.
${ }^{4}$ Elementary and Secondary Education Indicators in Brief (Office of Educational Research and Improvement, 1987).
${ }^{5}$ Elementary and Secondary Education
${ }^{6}$ See Trends in Education, 1975-76-1995-96 (U.S. Department of Education, Center for Education Statistics, 1987).

## Research fellowships

The American Statistical Association and the Bureau of Labor Statistics, under a grant from the National Science Foundation, are sponsoring a Senior Research Fellow and Associate Program for 1988-89. The terms of appointment range from 1 semester to 1 year and are part or full time. Research will be conducted at bLS in Washington, DC.

Fellowship applicants should have a recognized research record and considerable expertise in their area of proposed research. Senior Research Fellows will be selected by a review board consisting of representatives of ASA, BLS, the American Economic Association, the Committee on National Statistics, and the Social Science Research Council. Associates will assist the Fellows on their projects. Associate applicants should have a Ph.D in an appropriate field or have made significant progress toward the degree (at least 2 years of graduate study). Substantial computer experience will, in most cases, be required of Associates. Associates will be selected by the Senior Research Fellows with the approval of the review board.

The program is coordinated by the BLS Office of Research and Evaluation. Current research being conducted by this office includes index number theory and measurement, price measurement, cost-of-living and demand studies, survey response error, workers' compensation, compensating wage differentials, productivity analysis, relationship of union membership to employment variability, model-based seasonal adjustment, prediction properties of index estimators, measures of central location based on censored data, upper and lower probability inferences for outliers, and variance estimation.

For further information, contact Dr. Cathryn Dippo or Dr. Marilyn Manser, Bureau of Labor Statistics, Office of Research and Evaluation, Room 2126, 441 G Street, NW, Washington, DC, 20212; (202) 5231874 or (202) 523-1347.

## Projections 2000

## Economic projections to the year 2000

> Real gross national product growth averages 2.4 percent a year, according to moderate projections, reflecting a slowly improving foreign trade decifit, higher productivity, and a continued shift to a more service-oriented economy

## Norman C. Saunders

The Bureau of Labor Statistics has prepared projections of the U.S. economy to the year 2000, our first look at the remainder of this century. The new projections, with 1986 as the base historical year, update and extend the previously published projections. ${ }^{1}$ As with earlier projections, three alternatives-termed moderate growth, low growth, and high growth - were estimated. The alternatives are designed to provide a range of estimates with variations in those assumptions to which the aggregate model is the most sensitive.

The moderate-growth alternative is characterized by a gross national product (GNP) influenced by greater productivity increase and slowing labor force growth, a moderately tapering unemployment rate, and a slowly improving foreign trade situation. In comparison, the high-growth model has stronger overall demand, higher inflation, and lower unemployment, but less favorable foreign trade balances; while the low-growth version has deeper recessions, slower productivity growth, declining government spending, and a higher unemployment rate. Projected real GNP growth for the 1986-2000 period ranges between 1.6 percent for the low-growth alternative and 3.0 percent for the high-growth scenario, providing a spread of $\$ 1$ trillion in the real GNP estimates for 2000 .

By 2000, under the assumptions used by the Bureau in developing these projections, GNP is expected to range between $\$ 4.6$ trillion and $\$ 5.6$ trillion (in 1982 dollars), with disposable personal income between $\$ 3.2$ trillion and $\$ 3.9$ trillion. The annual employment increase ranges between

[^1]1 million persons in the low-growth scenario and 1.6 million persons in the high-growth scenario. The unemployment rate ranges between 4.5 percent in the high projection and 7.7 percent in the low. The following tabulation shows the levels and percent growth rates for selected key economic variables, 1982-86 and projected to 2000: ${ }^{2}$

Projected, 2000
1972
1986
Low Moderate High

| Civilian unem ployment rate .... | 5.6 | 7.0 | 7.7 | 6.0 | 4.5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Federal deficit (billions of current dollars) | -16.8 | -204.0 | -289.1 | -89.3 | -44.1 |
| Net exports (billions of 1982 |  |  |  |  |  |
| dollars) . . | -48.8 | -149.7 | -39.1 | -98.6 | -150.2 |

## Annual growth rate

|  | 1972-86 | Projected, 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Low | Moderate | High |
| Real GNP | 2.5 | 1.6 | 2.4 | 3.0 |
| GNP implicit deflator | 6.6 | 2.3 | 3.4 | 4.9 |
| Civilian labor force | 2.2 | 1.0 | 1.2 | 1.3 |
| Employment (from household survey) | 2.1 | . 9 | 1.2 | 1.5 |
| Real disposable personal income | 2.7 | 1.5 | 2.4 | 3.0 |
| Real disposable per capita income | 1.7 | . 7 | 1.6 | 1.9 |

## Projections framework

The aggregate economic projections are prepared using the Wharton Long-Term Model of the U.S. Economy as a starting point. ${ }^{3}$ Many exogenously specified variables must be provided to the model, but analysis has shown that a relatively small number of these assumptions significantly affect long-term projections. ${ }^{4}$ These variables are summarized in table 1 and are discussed below.
In addition, the projections are generally approached with certain results in mind, such as the level of the unemployment rate, the rate of growth of labor productivity, inflation, the presence or absence of a business cycle, and the sectoral distribution of employment.
In a change from prior BLS projections, a business cycle was assumed for the 1986-2000 projection period. Reviews of past projection efforts have indicated that by assuming steady uninterrupted growth in the economy, growth is overestimated in the more volatile and cyclically sensitive GNP components, in particular, consumer durables, producers' durable equipment, and construction. ${ }^{5}$ Two recessions are assumed to occur between 1986 and 2000. This should not be read as a prediction of a recession in any specific year; instead, it is a bow to the inevitability of business cycle fluctuations and the effect the cycle has on long-term demand growth and on the distribution of demand.
Second, the unemployment rate in 2000 is assumed to be slightly below current levels. In spite of temporary increases in unemployment induced by the assumed business cycle fluctuations, the moderate scenario has the unemployment rate declining to 6 percent in 2000, down a percentage point from the 1986 rate of 7.0 percent.
A third important modification to the model is to impose the industry distribution of production and employment on the aggregate projections at a major sector level to reflect the more detailed analysis carried out at the industry level. The aggregate projections thus provide control values to the industry projections but are, in turn, affected by those projections.

## Underlying assumptions-moderate scenario

Many assumptions must be spelled out in very specific terms to generate an estimate of future growth. The following discussion focuses on the more important assumptions underlying the moderate-growth projections.

Fiscal policy. Plans for new defense programs are expected to be gradually curtailed in the coming decade. Projects for which appropriations have already been made or planned are expected to keep real defense spending growing through the end of this decade, when it is projected to peak at $\$ 268$ billion. Thereafter, smooth declines are assumed over the remainder of the projection period, as defense spending drops to $\$ 251$ billion in 2000 , roughly the same level as in 1986.

Real nondefense purchases of goods and services are assumed to drop to $\$ 78.8$ billion by 1990 , approximately the 1981-82 level of spending. After 1990, growth returns as these purchases increase at a relatively smooth average annual rate of 2.8 percent over the decade of the 1990's.
The realities of recent large Federal deficits bring a sense of general fiscal conservatism to the assumptions affecting other Federal expenditure categories. No real growth is assumed during the 1986-95 period for food stamp benefits, military retirement and veterans' benefits, medicare payments, and Social Security benefits. Growth in these categories is a combination of inflation adjustment and client population shifts only. After 1995, some resumption of growth in all of these benefits categories is expected-but still only a modest 1 to 2 percent annually.
Federal subsidies are assumed to be flat in real terms throughout the period, as are Federal grants-in-aid to State and local governments.
On the revenue side, the Tax Simplification Act of 1986 has the initial impact of increasing effective personal tax rates from 10.4 percent in 1986 to 11.2 percent in 1987. Thereafter, as taxpayers make shifts in their tax strategies, the effective rate declines steadily over the entire projection period, reaching 8.9 percent in 2000.
The effective corporate tax rate has increased steadily from 27 percent in the late 1970's to its current level of 37 percent. The rate is assumed to remain at this level through 1990, followed by gradual declines to 26 percent by 2000 . The Social Security wage base and combined tax rates are as mandated by the Social Security Act of 1978.

State and local government spending increased at an annual 1.5 -percent real rate between 1979 and 1986, less than the 2 -percent rate during the 1972-79 period. Slower growth from 1979 to 1986 than from 1972 to 1979 resulted from declining school enrollments and a general trend toward slower growth in government provided services. This pattern is expected to reverse over the next 14 years in response to several factors.
First, the baby-boom generation has been having children. These children, the so-called "echo," are now beginning to affect school enrollments, which are already climbing in the early grades. Elementary school enrollments are expected to peak in 1996 and secondary attendance, around 2000. Over the decade of the 1990's, demand for educational services will increase as a result. However, the echo will not affect postsecondary education until after 2000.

Further, it is expected that cutbacks or slower growth in many State-provided services will be tempered in the coming years. The net effect of these assumptions is to pull real State and local spending up to a 2-percent annual rate of growth, comparable with the 1972-79 period and 0.5 percentage points higher than the growth during the 1979-86 period.

Monetary policy. Monetary policy in the moderategrowth projection is best described as accommodative.

Growth of M 2 , the broadly defined money supply, has been set to parallel projected growth in nominal GNP so that monetary policy will not choke growth by being too restrictive, nor re-initiate the inflationary spiral of the 1970's by being too loose. The velocity of M 2 remains roughly constant, in the 1.60 to 1.65 range, throughout the projection period.
Both short- and long-term interest rates remain flat in real terms, rising about 1 percentage point over the 14 -year horizon of the projections in response to the expected rate of increase in prices.

Demographic. The population estimates underlying the aggregate projections are the middle-growth series developed by the Bureau of Census. ${ }^{6}$ These new population projections have been developed with higher immigration and slightly lower birth rates than in earlier Census Bureau efforts. The middle-level civilian labor force projections, developed by bLS to be consistent with the new Census Bureau population estimates, are incorporated in the moderategrowth aggregate projections. ${ }^{?}$
Other demographic assumptions, such as the number of households, the number of families, and the number of unrelated individuals, have all been derived from earlier Census Bureau projections, modified by bls to reflect the new population projections.

Foreign economic activity. World gross domestic product, less that of the United States and centrally-planned economies, is assumed to grow at a real annual rate of 2.6 percent over the 1986-2000 period, paralleling the performance of this measure during the 1972-86 period. Some slowdowns are assumed for interim years in response to recessions in the U.S. economy, but the drop in growth is relatively small and easily recovered in the following years.

The projections encompass an assumed annual inflation rate of 5 percent for the same world area, slightly less than the 5.7-percent inflation rate during the 1979-86 period and well below the disastrously high 15.3 -percent annual inflation during the 1972-79 period, which was caused primarily by rapid increases in oil prices.
In 1981, the exchange value of the dollar began a sharp and steady increase, culminating in 1985 with the U.S. dollar valued almost 64 percent higher than in 1980. As a result, imports became less expensive and flooded the United States while the Nation's exports, now more expensive, were choked out of many of their traditional foreign markets. The dollar's exchange value dropped 22 percent in 1986. It has been assumed that the exchange rate will stabilize at its 1982 level and remain steady at that level for the remainder of the decade.

Table 1. Major assumptions affecting aggregate economic projections, 1972, 1979, 1986, and projected to 2000
[In billions, unless noted otherwise]


[^2]Department of Energy; and the Bureau of Labor Statistics. Projected data are from the Bureau of Labor Statistics and the Bureau of Census.

Energy. Assumptions regarding oil prices, import levels of crude petroleum and natural gas, and domestic production levels of crude petroleum, natural gas, and coal have been set in accordance with projections prepared by the U.S. Department of Energy. ${ }^{8}$ These projections assume a nominal crude oil import price of $\$ 48.40$ per barrel in 2000 . In constant 1986 prices, this translates to a barrel price of $\$ 30.90$ in 2000 , roughly a doubling of real imported oil prices in the next 14 years.

General assumptions. It was assumed that there would be no major wars, oil embargoes, other major price shocks, or serious natural catastrophes during the projection period.

## Moderate growth results

Real GNP is projected to increase 2.4 percent a year between 1986 and 2000, for a 40-percent increase over the period. This compares to the 2.5 -percent growth rate over the 1972-86 period and the 2-percent rate over the 1979-86 period. A summary of demand growth is shown in table 2.

A change from historical behavior is reflected in the fact that half of the projected growth in real GNP is attributable to growth in labor productivity and half to growth in employment. During the 1972-86 period, only 28 percent of the change in real GNP was contributed by productivity increase.

Personal consumption. As in the past, the personal consumption expenditures (PCE) component is projected to grow slightly more rapidly than overall GNP, increasing its share of GNP from 65.8 percent in 1986 to 66.4 percent by 2000. This results largely from cuts in personal taxes over the 1987-90 period, spurring further increases in consumption.

Spending for durable goods is projected to account for a fixed share of the consumer budget over the next decade, as purchases of consumer electronics and the specialized furniture necessary to house the new equipment grow rapidly, offsetting expected slowdowns in auto sales.

Consumer spending for autos and parts is projected to grow 0.9 percent a year between 1986 and 2000, down considerably from the 4.6 -percent pace over the 1979-86 period. The sluggish expansion is attributed to a slowdown in the growth of the "new driver" population and to the two assumed recessions over the projection horizon. Durable consumption as a whole continues to account for just more than 15 percent of total consumer spending, unchanged from 1986. (See table 3.)

Nondurable consumption continues to account for a smaller share of aggregate PCE over time. Many nondurable items, such as clothing and food, represent basic necessities of living and, as such, are relatively income inelastic. As family incomes rise beyond certain basic subsistence levels, the increases tend to be spent more on luxury items than on the basic necessities.

Nondurables accounted for 38.2 percent of real consumption in 1979, dropped to a 36.1 -percent share by 1986, and

Table 2. Gross national product by major demand categories, 1972, 1979, 1986, and projected to 2000 [Billions of 1982 dollars]

| Item | 1972 | 1979 | 1986 | Projected, 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Low | Moderate | High |
| Gross national product | 2,608.5 | 3,192.4 | 3,678.5 | 4,617.5 | 5,161.4 | 5,552.4 |
| Personal consumption . . | 1,621.9 | 2,004.4 | 2,418.7 | 3,101.2 | 3,429.4 | 3,659.7 |
| Durables . | 200.4 | 266.5 | 368.9 | 472.9 | 527.2 | 589.0 |
| Nondurables | 665.5 | 766.6 | 872.4 | 1,038.3 | 1,116.4 | 1,204.6 |
| Services | 756.0 | 971.2 | 1,177.4 | 1,590.0 | 1,785.9 | 1,866.1 |
| Gross private domestic investment | 465.4 | 575.2 | 659.7 | 767.8 | 932.1 | 1,103.2 |
| Equipment | 167.5 | 258.8 | 320.3 | 424.8 | 504.2 | 560.8 |
| Structures | 109.5 | 130.6 | 134.7 | 146.5 | 198.8 | 224.6 |
| Residential | 166.6 | 170.8 | 193.9 | 190.9 | 202.1 | 279.6 |
| Inventory change | 21.8 | 15.0 | 10.8 | 5.6 | 27.0 | 38.2 |
| Exports . . . . . . | 195.2 | 356.8 | 371.3 | 516.8 | 634.5 | 712.0 |
| Imports | 244.6 | 353.2 | 521.0 | 555.9 | 733.0 | 862.2 |
| Federal Government . . . | 246.0 | 236.2 | 333.4 | 319.8 | 354.4 | 371.2 |
| Defense | 185.3 | 164.3 | 251.0 | 222.5 | 251.0 | 263.0 |
| Nondefense | 60.7 | 71.9 | 82.4 | 97.3 | 103.4 | 108.2 |
| State and local government | 324.7 | 373.0 | 414.5 | 467.8 | 544.0 | 568.6 |
|  | Percent distribution |  |  |  |  |  |
| Gross national product . | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Personal consumption ... | 62.2 | 62.8 | 65.8 | 67.2 | 66.4 | 65.9 |
| Durables . . . . . . . . . . . | 7.7 | 8.3 | 10.0 | 10.2 | 10.2 | 10.6 |
| Nondurables . . . . . . . . | 25.5 | 24.0 | 23.7 | 22.5 | 21.6 | 21.7 |
| Services . . . . . . . . . . | 29.0 | 30.4 | 32.0 | 34.4 | 34.6 | 33.6 |
| Gross private domestic investment | 17.8 | 18.0 | 17.9 | 16.6 | 18.1 | 19.9 |
| Equipment . . . . . . | 6.4 | 8.1 | 8.7 | 9.2 | 9.8 | 10.1 |
| Structures . . . . . . . . . . . | 4.2 | 4.1 | 3.7 | 3.2 | 3.9 | 4.0 |
| Residential | 6.2 | 5.4 | 5.3 | 4.1 | 3.9 | 5.0 |
| Inventory change ..... | . 8 | . 5 | . 3 | . 1 | . 5 | . 7 |
| Exports . . . . . . . . . . . . | 7.5 | 11.2 | 10.1 | 11.2 | 12.3 | 12.8 |
| Imports | 9.4 | 11.1 | 14.2 | 12.0 | 14.2 | 15.5 |
| Federal Government . . . . | 9.4 | 7.4 | 9.6 | 6.9 | 6.9 | 6.7 |
| Defense | 7.1 | 5.2 | 6.8 | 4.8 | 4.9 | 4.7 |
| Nondefense | 2.3 | 2.3 | 2.2 | 2.1 | 2.0 | 1.9 |
| State and local government | 12.4 | 11.7 | 11.3 | 10.1 | 10.5 | 10.2 |
|  | Average annual rate of growth (in percent) |  |  |  |  |  |
|  | $\begin{gathered} 1972- \\ 79 \end{gathered}$ | $\begin{gathered} 1979- \\ 86 \end{gathered}$ | $\begin{gathered} 1972- \\ 86 \end{gathered}$ | 1986-2000 |  |  |
|  |  |  |  | Low | Moderate | High |
| Gross national product . | 2.9 | 2.0 | 2.5 | 1.6 | 2.4 | 3.0 |
| Personal consumption ... | 3.1 | 2.7 | 2.9 | 1.8 | 2.5 | 3.0 |
| Durables . . . . . . . . . . . | 4.2 | 4.8 | 4.5 | 1.8 | 2.6 | 3.4 |
| Nondurables | 2.0 | 1.9 | 2.0 | 1.2 | 1.8 | 2.3 |
| Services . . . . . . . . . . . | 3.6 | 2.8 | 3.2 | 2.2 | 3.0 | 3.3 |
| Gross private domestic investment | 3.1 | 2.0 | 2.5 | 1.1 | 2.5 | 3.7 |
| Equipment . . . . . . . . . | 6.4 | 3.1 | 4.7 | 2.0 | 3.3 | 4.1 |
| Structures. | 2.5 | . 4 | 1.5 | . 6 | 2.8 | 3.7 |
| Residential . . . . . . . . | . 8 | 1.8 | 1.3 | -. 1 | . 4 | 2.6 |
| Inventory change ..... | -5.2 | -4.6 | -4.9 | -5.1 | 5.0 | 9.3 |
| Exports . . . . . . . . . . . | 9.0 | . 6 | 4.7 | 2.4 | 3.9 | 4.8 |
| Imports . . . . . . . . . . . . | 5.4 | 5.7 | 5.5 | . 5 | 2.5 | 3.7 |
| Federal Government . . . . | -. 6 | 5.0 | 2.2 | -. 3 | . 4 | . 8 |
| Defense | -1.7 | 6.2 | 2.2 | -. 9 | 0 | . 3 |
| Nondefense . . . . . . . | 2.4 | 2.0 | 2.2 | 1.2 | 1.6 | 2.0 |
| State and local government | 2.0 | 1.5 | 1.8 | . 9 | 2.0 | 2.3 |

SOURCE: Historical data are from the Bureau of Economic Analysis, U.S. Department of Commerce. Projected data are from the Bureau of Labor Statistics.
are projected to account for just 32.6 percent by 2000 . All of the major nondurable subcategories decline in share terms except for other nondurables, which include purchases of cleaning products and toiletry articles, drug preparations, paper products, and a long list of other nondurable household items. Strong growth in the purchases of cleaning items and drug preparations raise the other nondurables category to a 7.1 -percent share of total PCE in 2000 , up from a 6.3-

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percent share in 1986, and reversing a slowing trend apparent over the 1970's and early 1980's. (See table 3.)

Because of slowing growth in auto sales, more efficient engines, and the general energy conservation awareness of the 1980's, real spending on gasoline and oil is expected to remain virtually unchanged in real terms over the projection horizon.
Purchases of consumer services are projected to grow quite strongly over the 1986-2000 period, increasing from 48.7 percent of total consumption in 1986 to 52.1 percent in 2000. Spending for housing, household operation, and transportation will remain a virtually fixed share of consumption during this period. All of the share growth occurs in health and other consumer services, which covers a range of recreational, social, educational, personal, and professional activities.
Health services are projected to grow at a real rate of 3.5 percent a year, increasing their share of overall consumption to 10.8 percent in 2000 from 9.5 percent in 1986. This is attributable to both the generally aging population and the expected continued development of new, but increasingly more expensive, medical procedures. Very sharp increases are expected in spending for a variety of consumer entertainmentlegitimate theater, commercial sporting events, and health clubs and spas, to name a few. Also expected to grow faster than average is personal spending on all types of financial services, as the level of sophistication with which consumers approach money management continues to increase.

Investment. Although PCE still accounts for the lion's share of GNP, the moderate projections are also characterized by strong, sustained growth in business fixed investment. Purchases of producers' durable equipment are expected to increase at an annual real rate of 2.5 percent over the projection period, or about $\$ 19$ billion each year.
Although off sharply during both of the assumed recessionary periods, purchases of producers' durable equipment are expected to recover strongly from both downturns and to grow more rapidly than overall GNP during the recovery years. Producers' durable equipment will continue the trend evident in the late 1970's and early 1980's in which it accounted for an increasing share of real GNP. This upward shift principally reflects slowing growth in the sector-level user cost of capital. Declining corporate tax rates, lower inflation, and lower long-term interest rates all serve to make the expected stream of services from current investment relatively less expensive than during the 1970's and 1980's, thus leading to more rapid growth in capital accumulation over the projection period. Equipment purchases accounted for 8.7 percent of GNP in 1986 and are expected to account for more than 10 percent by 2000.

By major consuming sector, the most rapid growth in spending for equipment is projected for durable manufacturing and communications, both expected to spend at a real rate of 4.5 percent between 1986 and 2000. The slowest growth sectors are transportation ( 0.8 -percent annual

Table 3. Durable, nondurable, and services consumption in 1972, 1979, 1986, and projected to 2000

| Item | Level (billions of 1982 dollars) |  |  |  | Percent distribution |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 | Projected, 2000 | 1972 | 1979 | 1986 | Projected, 2000 |
| Durable consumption | \$200.4 | \$266.5 | \$368.9 | \$527.2 | 100.0 | 100.0 | 100.0 | 100.0 |
| Autos and parts | 98.3 | 119.4 | 164.0 | 187.0 | 49.1 | 44.8 | 44.6 | 35.5 |
| Household furniture | 70.2 | 97.1 | 140.3 | 226.3 | 35.0 | 36.4 | 38.0 | 42.9 |
| Other durables | 31.8 | 50.1 | 64.5 | 113.9 | 15.9 | 18.8 | 17.4 | 21.6 |
| Nondurable consumption |  |  |  |  |  |  |  |  |
| consumption ....... | 665.5 | 766.3 | 872.4 | 1,116.4 | 100.0 | 100.0 | 100.0 | 100.0 |
| Food and beverages | 344.2 | 387.5 | 440.7 | 541.6 | 51.7 | 50.6 | 50.5 | 48.5 |
| Clothing and shoes | 80.3 | 112.1 | 155.5 | 201.3 | 12.1 | 14.6 | 17.8 | 18.0 |
| Gasoline and oil | 87.0 | 97.1 | 105.2 | 105.8 | 13.1 | 12.7 | 12.1 | 9.5 |
| Fuel oil and coal | 28.6 | 26.2 | 18.7 | 24.4 | 4.3 | 3.4 | 2.1 | 2.2 |
| Other nondurables | 125.3 | 143.7 | 152.3 | 243.2 | 18.8 | 18.8 | 17.5 | 21.8 |
| Services consumption | 756.0 | 971.2 | 1,177.4 | 1,785.9 | 100.0 | 100.0 | 100.0 | 100.0 |
| Housing | 235.5 | 304.1 | 351.4 | 510.9 | 31.2 | 31.3 | 29.8 | 28.6 |
| Household operation | 108.6 | 138.3 | 150.7 | 218.4 | 14.4 | 14.2 | 12.8 | 12.2 |
| Transportation .... | 66.0 | 82.9 | 85.0 | 118.4 | 8.7 | 8.5 | 7.2 | 6.6 |
| Health | 136.0 | 192.2 | 229.8 | 371.7 | 18.0 | 19.8 | 19.5 | 20.8 |
| Other services | 210.0 | 253.7 | 360.5 | 566.5 | 27.8 | 26.1 | 30.6 | 31.7 |

growth) and agriculture and public utilities (both exhibiting 2.5 -percent annual growth). Nondurable manufacturing industries are expected to buy new equipment at a 3.5 -percent rate of increase, not as fast as the growth of equipment purchases by durable goods producers, but still above the overall average growth rate for this component of demand.

Almost one-fifth of the total expenditures for producers' durable equipment is expected to be for computers, the largest single item of all the equipment commodities. Heavy investment in factory automation and robotics also leads to large purchases of certain types of industrial machinery, particularly metalworking machinery and material moving equipment, and of scientific and controlling devices. Communications equipment is projected to be the most rapidly growing, and the third largest producers' durable equipment purchase, as the demand for telecommunications services leads to high levels of spending on satellites and other communications equipment. Investment demand for motor vehicles, including trucks, is projected to grow more slowly than total equipment spending, but will still rank second in terms of overall levels.

Overall capital accumulation accelerates throughout the projection period in most sectors of the economy, leading to strong growth in labor productivity, especially in the manufacturing industries.

A recovery from the commercial building glut of the late 1970's and early 1980's is also projected, as investment in nonresidential structures increases 2.8 percent each year between 1986 and 2000, up sharply from the 0.4 -percent annual growth in the 1979-86 period.

Residential construction is expected to slow over the next 14 years, growing at an average real rate of 0.4 percent between 1986 and 2000. As with autos, the slowdown is determined by both cyclical and demographic factors, as the formation of new households is projected to slow dramatically during the 1990's, pulling down the level of housing
starts over the projection period. The aging of the population, particularly among those of retirement age, is expected to increase demand for multi-unit starts relative to singleunit starts.

Foreign trade. The sharp reduction in the exchange value of the dollar seen in 1986 is assumed to continue until 1990, but at a much slower rate. This drop in the value of the dollar, accompanied by relatively robust assumptions regarding foreign economic growth, leads to almost 4-percent annual real growth projected for exports of goods and services between 1986 and 2000. Although substantially better than export performance in the early 1980's, the dramatic improvement in exports expected by many economic analysts in response to declining dollar values fails to materialize in the projections because of changes in foreign markets and in U.S. industries during the period of reduced export trade.

Many of the countries which, during the 1960's and 1970's, maintained large agricultural import balances with the United States have now not only developed the capability to feed their own populations from within but are, quite often, becoming net agricultural exporters. It is unlikely, therefore, that the United States has any chance of replicating the past booms in agricultural exports.

Many export markets in less-developed countries were also lost during the early 1980's. However, now that U.S. exports are again becoming price-competitive, many of these countries are facing serious debt problems, effectively locking them out of foreign markets.

Most significantly, however, a large number of already vulnerable industries, such as farm and garden equipment, engines, turbines, and generators, and other nonelectrical machinery producers, were hit hard by the strong dollar of the early 1980 's, forcing them to shrink at an accelerated pace and making it highly unlikely at this point that they will be able to respond as strongly as in past periods to increasing foreign demand. (See table 4 for exports by major end-use categories.)

Imports, in contrast, are expected to grow much less rapidly, as the value of the dollar is assumed to decline. The slowdown in import growth due to financial considerations is, however, at least partially offset as softening oil prices are assumed to lead to major reductions in domestic exploration for and production of crude petroleum and natural gas. As the demand for primary and secondary energy products continues to expand over the 1990's, it is assumed that the shortfall in domestic production is made up entirely from imports.

As a result, the grave trade imbalances of the mid-1980's improve substantially over the projection period, but are not fully resolved. The real net export balance is expected to decline slowly to $\$ 99$ billion in 2000. (See table 4 for imports by major end-use categories.) The drop in auto imports reflects the assumption that the dollar's decline will result in less competitive prices for foreign cars and in more foreign automakers setting up factories in the United States.

Table 4. Exports and imports by major end-use categories, 1972, 1986, and projected to 2000
[In billions of 1982 dollars]

| Item | 1972 | 1986 | Projected,2000 | Annual growth rate (in percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1972-86 | Projected, 1986-2000 |
| Total exports ...... | \$195.2 | \$371.3 | \$634.5 | 4.7 | 3.9 |
| Merchandise . . . . . | 131.3 | 237.5 | 416.4 | 4.3 | 4.1 |
| Food, feed, and beverages | 16.3 | 25.7 | 51.6 | 3.3 | 5.1 |
| Consumer goods. | 7.5 | 13.9 | 22.8 | 4.5 | 3.6 |
| Industrial supplies | 39.5 | 62.1 | 96.8 | 3.3 | 3.2 |
| Capital goods ... | 39.7 | 90.1 | 167.3 | 6.0 | 4.5 |
| Autos and parts .. | 17.0 | 21.1 | 26.0 | 1.6 | 1.6 |
| Other merchandise | 11.3 | 24.7 | 51.8 | 5.7 | 5.3 |
| Services . . . . . . . . | 64.0 | 133.8 | 218.1 | 5.4 | 3.6 |
| Factor income ... | 33.9 | 76.9 | 134.3 | 6.0 | 4.1 |
| Military sales . . . | 3.1 | 8.1 | 5.4 | 7.1 | -2.9 |
| Other services ... | 27.0 | 46.1 | 78.3 | 3.9 | 3.9 |
| Total imports ....... | 244.6 | 521.0 | 733.0 | 5.5 | 2.5 |
| Merchandise . . . . . | 190.7 | 420.4 | 563.8 | 5.8 | 2.1 |
| Food, feed, and beverages | 17.4 | 23.1 | 30.0 | 2.0 | 1.9 |
| Consumer goods . | 25.4 | 73.6 | 111.2 | 7.9 | 3.0 |
| Industrial supplies | 46.9 | 73.9 | 86.5 | 3.3 | 1.1 |
| Petroleum products | 56.0 | 75.9 | 122.1 | 2.2 | 3.5 |
| Capital goods ... | 10.9 | 90.9 | 111.7 | 16.4 | 1.5 |
| Autos and parts .. | 26.6 | 66.7 | 56.5 | 6.8 | -1.2 |
| Other merchandise | 7.7 | 16.2 | 45.8 | 5.5 | 7.7 |
| Services . . . . . . . . | 53.9 | 100.7 | 169.2 | 4.6 | 3.8 |
| Factor income . . . | 11.1 | 44.2 | 80.1 | 11.1 | 4.3 |
| Defense purchases | 4.8 | 10.6 | 16.2 | 4.8 | 3.1 |
| Other services ... | 38.9 | 44.5 | 72.9 | 1.0 | 3.6 |

Government. As a whole, government purchases of goods and services are expected to account for a smaller share of GNP over time, dropping from almost 21 percent of GNP in 1986 to 17.4 percent by 2000 . Most of the declining share is accounted for by Federal Government spending slowdowns. Defense spending is expected to account for 4.8 percent of GNP in 2000 , down from a share of almost 7 percent in 1986, while nondefense spending drops off slightly in importance, from 2.2 percent of GNP in 1986 to 1.9 percent in 2000.

Other Federal expenditure categories are also projected to account for a declining share of GNP during the next 14 years, as shown in the following tabulation:

|  | Percent of nominal GNP |  |  |
| :---: | :---: | :---: | :---: |
|  | 1972 | 1986 | Projected, 2000 |
| Total Federal expenditures | 20.5 | 24.5 | 20.5 |
| Goods and services | 8.7 | 8.7 | 6.7 |
| Transfer payments | 6.9 | 9.1 | 8.9 |
| Net interest | 1.2 | 3.2 | 2.5 |
| Other spending | 3.7 | 3.1 | 2.3 |
| Total Federal receipts | 19.1 | 19.6 | 19.6 |
| Personal taxes | 8.9 | 8.6 | 7.3 |
| Corporate taxes | 3.0 | 2.0 | 2.1 |
| Indirect business taxes | 1.6 | 1.2 | 1.4 |
| Social insurance contributions | 1.6 | 7.8 | 8.7 |
| Federal deficit | 1.4 | 4.9 | 1.0 |

Federal receipts are expected to account for a fixed share of GNP, just under 20 percent. The burden is expected to shift, however, as personal, corporate, and indirect business taxes together account for 55.4 percent of total Federal revenues in 2000, down from the 60.2 percent accounted for by these three tax categories in 1986. The burden is shifted to social insurance contributions, which are expected to account for almost 45 percent of Federal tax collections in 2000 (up from 39.8 percent in 1986), and by the early 1990's are expected to become a more important source of Federal revenues than personal income taxes.

The net effect of these changes is that, in the BLS projections, a gradually shrinking deficit results, declining from $\$ 204$ billion in 1986 ( 4.9 percent of GNP) to $\$ 85.6$ billion in 2000 ( 0.9 percent of GNP).

As the following tabulation shows, State and local spending is up slightly in share terms, as increasing demand for educational services in the mid- to late 1990's temporarily expands government educational shares, which are offsetting slower growth elsewhere:

|  | Percent of nominal GNP |  |  |
| :---: | :---: | :---: | :---: |
|  | 1972 | 1986 | Projected $2000$ |
| Total State and local expenditures | 13.7 | 13.3 | 14.4 |
| Goods and services | 11.9 | 11.8 | 12.9 |
| Other spending | 1.8 | 1.5 | 1.5 |
| Total State and local |  |  |  |
| receipts . . . . . . . | 14.8 | 14.7 | 15.0 |
| Personal taxes | 2.8 | 3.6 | 3.7 |
| Corporate taxes | . 4 | . 5 | . 5 |
| Indirect business taxes | 7.5 | 7.0 | 7.3 |
| Social insurance contributions | . 9 | 1.1 | 1.4 |
| Grants-in-aid | 3.1 | 2.5 | 2.0 |

Inflation. The rate of growth of prices, as reflected by the implicit GNP deflator, is projected to moderate from the 1972-86 pace of 6.6 percent to a 3.5 -percent rate over the 1986-2000 period. As noted earlier, monetary policy has been assumed that will be stimulative to growth without providing enough pressure to re-ignite the inflationary spiral of the 1970's.

Labor productivity. Productivity, represented in the model and in these projections by real GNP per employee, increased at a dismal rate of 0.3 percent each year between 1972 and 1979. During the next 7 years, productivity fared only slightly better, growing at an average rate of 0.5 percent between 1979 and 1986. Sustained growth in investment and the movement of much of the labor force into prime working-age years is expected to cause a modest recovery in labor productivity. GNP per employee is projected to increase at an average annual rate of 1.2 percent between 1986 and $2000 .{ }^{9}$

Productivity growth in the manufacturing sector is projected to be much more robust than for the economy as a whole, continuing a historical trend that has been especially pronounced in recent years. Capital investment in factory automation, continued energy substitution, contracting out, restructuring of inefficient operations, and other factors noted over the 1986 to 2000 period are expected to continue to contribute to high growth in manufacturing productivity.

Employment. Between 1979 and 1986, civilian household employment expanded at an annual average rate of 1.5 percent, or about 1.5 million persons. This was just slightly lower than the rate of increase in the civilian labor force over the same period. Employment is projected to increase by just under 21 million persons between 1986 and 2000, an annual average increase of almost 1.5 million employed persons. The civilian unemployment rate, at 7 percent in 1986, is expected to reach 6 percent in the year 2000. (See table 5.)

Income. No particular surprises are projected for income distributions over the decade of the 1990's. Personal income accounts for virtually the same share of GNP in the year 2000 as in 1986. Disposable personal income, in contrast, accounts for a slightly greater share of GNP in 2000 than in 1986, because of the declines in effective personal tax rates as a result of tax changes enacted in 1986.

Real per capita disposable income is expected to reach $\$ 13,421$ by 2000 , reflecting a continuation of the rate of increase noted over the 1972-86 period, but a resurgence from the slower growth this measure experienced between 1979 and 1986. The personal savings rate is projected to

Table 5. Labor force, employment, and labor productivity 1972, 1979, 1986 and projected to 2000
[In millions, unless noted otherwise]

| Item | 1972 | 1979 | 1986 | Projected, 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Low | Moderate | High |
| Civilian labor force <br> Civilian employment (from household survey) Unemployed Unemployment rate (percent) <br> Nonagricultural establishment employment GNP per employee (thousands of 1982 dollars) . | 87.0 | 104.9 | 117.8 | 134.5 | 138.8 | 141.1 |
|  | 82.2 | 98.8 | 109.6 | 124.1 | 130.4 | 134.8 |
|  | 4.9 | 6.1 | 8.2 | 10.4 | 8.3 | 6.4 |
|  | 5.6 | 5.8 | 7.0 | 7.7 | 6.0 | 4.5 |
|  | 73.7 | 89.8 | 100.2 | 114.1 | 119.7 | 123.6 |
|  | 30.25 | 32.30 | 33.55 | 37.20 | 39.57 | 41.20 |
|  |  | rage ann | rate of | wth | (in percent) |  |
|  |  |  |  |  | 1986-2000 |  |
|  |  |  |  | Low | Moderate | High |
| Civilian labor force Civilian employment (from household survey) Nonagricultural establishment employment GNP per employee (thousands of 1982 dollars) | 2.7 | 1.7 | 2.2 | 1.0 | 1.2 | 1.3 |
|  | 2.7 | 1.5 | 2.1 | . 9 | 1.2 | 1.5 |
|  | 2.7 2.9 | 1.6 | 2.1 2.2 | . 9 | 1.2 1.3 | 1.5 1.5 |
|  |  |  |  | . 7 | 1.2 | 1.5 |

Table 6. Gross national product as income, 1972, 1979, 1986, and projected to 2000
[Billions of current dollars, except where noted]

| Item | 1972 | 1979 | 1986 | 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Low | Moderate | High |
| Gross national product | 1,212.8 | 2,508.2 | 4,208.5 | 7,312.4 | 9,455.0 | 12,637.5 |
| Net national product | 1,104.8 | 2,242.2 | 3,753.4 | 6,722.7 | 8,710.7 | 11,587.9 |
| National income | 994.1 | 2,047.3 | 3,387.4 | 5,993.3 | 7,852.8 | 10,482.5 |
| Compensation | 726.2 | 1,491.2 | 2,498.3 | 4,661.9 | 5,676.0 | 7,530.3 |
| Proprietors' income | 98.3 | 191.9 | 278.9 | 407.5 | 602.5 | 833.3 |
| Rental income | 17.9 | 5.6 | 15.6 | 59.0 | 61.7 | 36.9 |
| Corporate profits | 100.7 | 200.1 | 299.7 | 579.3 | 791.4 | 1,097.2 |
| Net interest income | 51.0 | 158.3 | 294.9 | 708.3 | 721.2 | 984.7 |
| Personal income . ..... | 981.6 | 2,034.0 | 3,487.0 | 5,961.2 | 7,752.1 | 10,433.3 |
| Disposable personal income | 839.6 | 1,729.3 | 2,973.7 | 5,178.9 | 6,705.6 | 8,908.2 |
| Billions of 1982 dollars | 1,794.4 | 2,212.6 | 2,603.7 | 3,218.8 | 3,626.1 | 3,938.1 |
| Per capita, current dollars | 4,000.0 | 7,628.0 | 12,312.0 | 19,168.0 | 24,819.0 | 31,782.0 |
| dollars. | 8,562.0 | 9,829.0 | 10,780.0 | 11,914.0 | 13,421.0 | 14,050.0 |
|  | Percent distribution |  |  |  |  |  |
| Gross national product | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Net national product | 91.1 | 89.4 | 89.2 | 91.9 | 92.1 | 91.7 |
| National income | 82.0 | 81.6 | 80.5 | 82.0 | 83.1 | 82.9 |
| Compensation ...... | 59.9 | 59.5 | 59.4 | 63.8 | 60.0 | 59.6 |
| Proprietors' income | 8.1 | 7.7 | 6.6 | 5.6 | 6.4 | 6.6 |
| Rental income | 1.5 | . 2 | 4 | . 8 | . 7 | . 3 |
| Corporate profits | 8.3 | 7.8 | 7.1 | 7.9 | 8.4 | 8.7 |
| Net interest income . . . | 4.2 | 6.3 | 7.0 | 9.7 | 7.6 | 7.8 |
| Personal income Disposal personal income | 80.9 | 81.1 | 82.9 | 81.5 | 82.0 | 82.6 |
|  | 69.2 | 68.9 | 70.7 | 70.8 | 70.9 | 70.5 |
|  | Average annual rate of change (in percent) |  |  |  |  |  |
|  | 1972-79 | 1979-86 | 1972-86 | 1986-2000 |  |  |
|  |  |  |  | Low | Moderate | High |
| Gross national product | 10.9 | 7.7 | 9.3 | 4.0 | 6.0 | 8.2 |
| Net national product . . . . | 10.6 | 7.6 | 9.1 | 4.3 | 6.2 | 8.4 |
| National income | 10.9 | 7.5 | 9.2 | 4.2 | 6.2 | 8.4 |
| Compensation ...... | 10.8 | 7.6 | 9.2 | 4.6 | 6.0 | 8.2 |
| Proprietors' Income . . . | 10.0 | 5.5 | 7.7 | 2.7 | 5.7 | 8.1 |
| Rental income | -15.3 | 15.8 | -1.0 | 10.0 | 10.3 | 6.3 |
| Corporate profits | 10.3 | 5.9 | 8.1 | 4.8 | 7.2 | 9.7 |
| Net interest income | 17.6 | 9.3 | 13.4 | 6.5 | 6.6 | 9.0 |
| Personal income . . . . . . | 11.0 | 8.0 | 9.5 | 3.9 | 5.9 | 8.1 |
| Disposable personal income | 10.9 | 8.1 | 9.5 | 4.0 | 6.0 | 8.2 |
| Billions of 1982 dollars. | 3.0 | 2.4 | 2.7 | 1.5 | 2.4 | 3.0 |
| Per capita, current dollars <br> Per capita, 1982 | 9.8 | 7.0 | 8.4 | 3.2 | 5.1 | 7.0 |
| dollars | 2.0 | 1.3 | 1.7 | . 7 | 1.6 | 1.9 |

Source: Historical data are from the Bureau of Economic Analysis, U.S. Department of Commerce. Projected data are from the Bureau of Labor Statistics.
range between 3.7 percent and 6.0 percent over the $1986-$ 2000 period, generally higher than the 1986 rate of 3.9 percent.

In SUMMARY, the moderate-growth scenario describes a growing economy characterized by a slowly improving Federal deficit, a return to higher productivity growth, and a continuation of the shift to a more service-oriented economy. The most pervasive problem facing the U.S. economy over the next decade will be our chronic trade deficit. Reductions in the value of the dollar are seen as only the first step necessary to forge a recovery from the current wide trade gap.

## High and low scenarios

A high- and a low-growth scenario, providing bounds around the moderate-growth aggregate projection, have been estimated based on differing sets of assumptions outlined in table 1.

The low-growth projection was designed primarily to provide a scenario over the decade of the 1990's in which many current problems persist without much improvement. Labor productivity is assumed to grow at the same rate as it did during the 1972-86 period- 0.7 percent annually. Combined with an assumption of deeper recessions and relatively sluggish recoveries, this leads to a real GNP almost \$550 billion lower in 2000 than in the moderate projection, with employment lower by 6.3 million.

The high-growth projection, on the contrary, assumes labor productivity growth of 1.5 percent each year between 1986 and 2000, only minor slowdowns in GNP increase, and strong, sustained recoveries in other years, resulting in a GNP of $\$ 5.6$ trillion in 2000, almost $\$ 500$ billion higher than in the moderate projection. The sustained growth leads to an unemployment rate of 4.5 percent in 2000 , implying 4.1 million more employed persons that year than in the moderate projection.

The two alternatives encompass a $\$ 935$ billion spread in real GNP, a 6.3 million difference in the civilian labor force, and a 10.4 million range in the number of employed persons. Major results of the alternatives, compared with the moderate-growth projection, are as follows:

|  | 2000 |  |  |
| :---: | :---: | :---: | :---: |
|  | Low | Moderate | High |
| Civilian unemployment rate | 7.7 | 6.0 | 4.5 |
| Federal deficit, billions of current dollars | -289.1 | -89.3 | 44.1 |
| Net exports, billions of 1982 dollars | -39.1 | -98.6 | -150.2 |
|  | Annual rate of growth, 1986-2000 |  |  |
|  | Low | Moderate | High |
| Real GNP | 1.6 | 2.4 | 3.0 |
| GNP implicit deflator ... | 3.3 | 3.5 | 5.0 |
| Civilian labor force | 1.0 | 1.2 | 1.3 |
| Employment (from household survey) | . 9 | 1.2 | 1.5 |
| GNP per employee | . 7 | 1.2 | 1.5 |

Major demand category summaries are provided in table 2, employment summaries in table 5, and income comparisons in table 6.

Underlying assumptions. Federal Government expenditures are higher in the high-trend and lower in the low-trend alternatives than in the base projections. Conversely, spending as a share of nominal GNP shows the opposite relationship: high-trend government spending accounts for a smaller
proportion of GNP and low-growth government spending a higher proportion of GNP than in the base projection. The following tabulation shows projected Federal spending in 2000, total and as a share of GNP:

|  | Billions of <br> current dollars |  |  | Share of GNP <br> (in percent) |  |
| :---: | ---: | ---: | ---: | ---: | ---: |
|  | Low | High |  | Low | High |
| Federal spending . | $\$ 1,588.0$ | $\$ 2,549.8$ |  | 21.8 | 20.3 |
| Goods ....... | 491.3 | 827.8 |  | 6.8 | 6.6 |
| Transfers .... | 651.3 | 1179.4 |  | 9.0 | 9.4 |
| Other ..... | 445.4 | 542.6 |  | 6.0 | 4.3 |

In other words, faster or slower GNP growth in the alternatives is attributed, not to fiscal stimulus, but to other causes, primarily the wide range of productivity growth assumptions.

Higher rates of inflation, combined through the tax system with higher private incomes, yield much higher Federal revenues in the high-trend projection, resulting in a balanced Federal budget in 2000. The opposite effect is apparent in the low-trend projection, resulting in a Federal deficit of $\$ 289$ billion in the year 2000 .

In the low-growth projection, the same population levels are assumed as in the moderate-growth scenario, but an
assumption of a lower labor force participation rate results in slower labor force growth. Alternatively, the high-growth scenario assumes a participation rate identical to the moderate-growth projection, but assumes a larger population, resulting from a more rapid than expected influx of immigrants, both documented and undocumented.

A projected unemployment rate of 7.7 percent in 2000 for the low-growth alternative leads to employment levels 6.3 million lower than in the moderate-growth projection. Conversely, in the high-growth scenario, an unemployment rate of 4.5 percent, combined with the larger labor force, yields employment higher by 4.1 million in 2000 . Thus, the projections allow for a range of possible employment levels in the year 2000 of 10.4 million.

Sluggish foreign economic growth combined with lower world inflation serves to dampen exports somewhat in the low-growth alternative. However, imports drop off even more sharply in this alternative in response to lower GNP growth in the United States, leading to a much improved foreign trade balance.

Faster GNP growth in the high alternative elicits far greater import levels. Correspondingly higher rates of foreign economic growth have a much smaller effect on exports, leading to a steadily deteriorating trade balance in the highgrowth projection.
${ }^{1}$ For previous projection articles, see the November 1985 issue of the Monthly Labor Review.
${ }^{2}$ In this tabulation, and elsewhere in the article, labor productivity is represented by real gross national product per employee. It is important to note that this measure of productivity is not comparable with those developed within the Office of Productivity and Technology, Bureau of Labor Statistics. For the definitions of labor productivity, multifactor productivity, and other related measures, and their historical data series, see the Current Labor Statistics sections of the Review.
${ }^{3}$ The Wharton model was selected from the commercial models offered to the Bureau on the basis of a competitive procurement and should not be deemed either more or less suitable, on a theoretical basis, than the other models considered in the procurement action. A detailed description of the Wharton model is provided in Long-Term Model Structure and Specification (Philadelphia, Wharton Econometric Forecasting Associates, 1982). A concise statement of BLS' overall projection methodology is contained in Employment Projections for 1995: Data and Methods, Bulletin 2253 (Bureau of Labor Statistics, 1986).
${ }^{4}$ For a detailed description of the analysis and results of this study, see Norman C. Saunders, "Sensitivity of blS economic projections to exogenous variables," Monthly Labor Review, December 1986, pp. 23-29.
${ }^{5}$ As part of an ongoing effort to improve the projection methods and results, the BLS has evaluated the accuracy of earlier projection estimates. See the following Monthly Labor Review articles: John Tschetter, "An evaluation of BLS' projections of 1980 industry employment," August 1984, pp. 12-22; Howard N Fullerton, Jr., "How accurate were the 1980 labor force projections?" July 1982, pp. 15-21; and Max Carey and Kevin

Kasunic, "Evaluating the 1980 projections of occupational employment," July 1982, pp. 22-30. Analyses of the various projections for 1985 published by BLS are being prepared.
${ }^{6}$ See Projections of the Population of the United States, 1987 to 2080, Current Population Reports, Series P-25, No. 1018 (Bureau of Census, forthcoming).
${ }^{7}$ See Howard N Fullerton, Jr., "Labor force projections: 1986 to 2000," Monthly Labor Review, September 1987, pp. 19-29.
${ }^{8}$ See Annual Energy Outlook 1986 (U.S. Department of Energy, 1987). The Energy Department publishes each year a range of alternative energy scenarios. Scenarios consistent with the BLS estimates of GNP and inflation were chosen to fill in the energy assumptions.
${ }^{9}$ Based on historical relationships between GNP and the private business sector, the Office of Productivity and Technology, Bureau of Labor Statistics, has adjusted the projected 1986-2000 "GNP per employee" growth rate of 1.2 percent to "business sector output per employee" and "output per hour" estimates. The adjusted rates of growth, placed in a historical perspective, are as follow:

| Business sector output |  |
| :---: | :---: |
| Per hour | Per employee |
| 2.9 | 2.5 |
| .9 | .4 |
| .6 | .1 |
| 1.0 | .7 |
| 1.6 | 1.2 to 1.3 |

## Projections 2000

## Labor force projections: 1986 to 2000

> According to BLS projections, there will be 139 million persons in the 2000 labor force, representing a slowdown in the rate of growth after 1986; because of population or participation growth rates, blacks, Hispanics, and Asians and others are expected to increase their representation in the labor pool

Howard N Fullerton, Jr.

The labor force is projected by the Bureau of Labor Statistics to be 139 million persons in the year 2000. This represents growth of 21 million persons between 1986 to 2000 in the moderate of three alternative labor force projections; well below the 31 million added to the labor force between 1972 and 1986. The projected growth rate of 1.2 percent annually is less than the 2.2 -percent annual rate over the 1972-86 period. (See table 1.)

Some trends in the labor force projections-the expected growth in the share of women in the labor force and the drop in the share of workers 55 and older-are the result of anticipated changes in participation rates. Women were only 39 percent of the labor force as recently as 1972; by 2000, they are projected to be 47 percent. The older population, which is growing as a share of the overall population, is projected to have lower labor force participation rates in 2000 and, as a consequence, a smaller share of the labor force. (See table 2.)

Other changes expected between 1986 and 2000 reflect underlying population changes. The proportion of youths (those 16 to 24 years) dropped from 23 percent of the labor force in 1972 to 20 percent in 1986 and is projected to fall

[^3]further to 16 percent by 2000 . The drop in the youth share of the labor force for the 1972-86 period reflects the end of the entry of the baby-boomers, while the projected drop reflects the lower numbers of births in the 1970's. Blacks, who were 10 percent of the labor force in 1972 and 11 percent in 1986, are projected to be 12 percent by 2000 . The increased share of the labor force for blacks results from their population growth. Hispanics also are projected to increase their share of the labor force from 7 percent in 1986 to 10 percent by 2000 , reflecting both population and participation growth. Asians and others are projected to increase their labor force share from 3 percent in 1986 to 4 percent in 2000 , as the result of rapid population increase. ${ }^{1}$

This article presents BLS' first look at the 2000 labor force. ${ }^{2}$ The alternative labor force projections are presented by age, sex, race and Hispanic origin. They are based on the Bureau of Census middle population projection and BLS projections of future trends in labor force participation. ${ }^{3}$

## Components of labor force projections

Population. There are two major factors that determine labor force growth: changes in population and in labor force participation rates. The process of making projections is not exact; to indicate the possible range of uncertainty, BLS (and the Census Bureau) prepares alternative projections. ${ }^{4}$ Labor

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force participation rate projections were prepared for three racial groups and independently for Hispanics by sex and age. ${ }^{5}$

To prepare population projections, assumptions about the future paths of births, deaths, and net migration must be made. The Bureau of Census new population projections used in the labor force projections (and in the other projection articles in this issue) are based on the following assumptions about these major elements needed to project population change:

Net migration. The Bureau of Census assumption for the middle scenario is that both immigration and emigration will be high. The higher immigration assumption reflects the inclusion of undocumented aliens who are added in the middle population projections for the first time. The higher emigration assumption reflects the greater return migration of foreign-born persons to their native countries. The net migration (immigration less emigration) scenario reflects an assumption that new immigration legislation, which will not be fully implemented until the end of 1988 , will reduce the level of undocumented migration, but not entirely end it.

Fertility. In the long run, fertility changes are always most important for projecting the population. Between now and 2000 , the fertility assumptions would not affect the size of the 2000 population over the age of 16 .

There is no Hispanic population projection available that is consistent with the current Bureau of the Census population projection. BLS has decided to use the high migration scenario from the Census Bureau's most recent Hispanic population projection. ${ }^{6}$ The assumptions for this projection are for Hispanics to have an ultimate cohort fertility rate of 1.9 children per woman, an ultimate life expectancy at birth of 81.0 years, and yearly net migration of $361,000 .{ }^{7}$ The latter number is assumed to include 212,000 undocumented immigrants, consistent with the initial years, but not with the later years of the current overall projection. Future direction and magnitude of immigration, both documented and undocumented, is uncertain at this time. As a consequence, projections of the Hispanic population, because they are affected so much by immigration, are subject to more uncertainty than the overall population.

Table 1. Civilian labor force by sex, age, race, and Hispanic origin, actual 1972, 1979, and moderate growth projections 2000


Table 2. Civilian labor force participation, by sex, age, race, and Hispanic origin, actual 1972, 1979, and 1986, and moderate growth projections 2000

| Group | Actual |  |  | Projected, 2000 | Growth rate |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 |  | 1972-79 | 1979-86 | 1986-2000 |
| Total, 16 and over | 60.4 | 63.7 | 65.3 | 67.8 | 0.8 | 0.4 | 0.3 |
| Men, 16 and over | 79.0 | 77.8 | 76.3 | 74.7 | -. 2 | -. 3 | -. 2 |
| 16 to 24 | 71.3 | 75.0 | 73.0 | 74.3 | . 7 | -. 4 | 1 |
| 25 to 54 | 95.1 | 94.4 | 93.8 | 92.6 | -. 1 | -. 1 | -. 1 |
| 55 and over | 53.3 | 46.6 | 40.4 | 34.1 | -1.9 | -2.0 | -1.2 |
| Women, 16 and over | 43.9 | 50.9 | 55.3 | 61.5 | 2.1 | 1.2 | . 8 |
| 16 to 24. | 53.0 | 62.5 | 64.3 | 69.5 | 2.4 | . 4 | 6 |
| 25 to 54 | 51.0 | 62.3 | 70.8 | 80.8 | 2.9 | 1.8 | . 9 |
| 55 and over | 24.5 | 23.2 | 22.1 | 21.4 | -. 8 | $-.7$ | -. 2 |
| White, 16 and over | 60.4 | 63.9 | 65.5 | 68.2 | . 8 | . 4 | . 3 |
| Black, 16 and over | 60.2 | 61.4 | 63.5 | 66.0 | . 3 | . 5 | . 3 |
| Asian and other, ${ }^{1}$ 16 and over | - | 65.9 | 64.9 | 65.8 | - | -. 2 | . 1 |
| Hispanic, ${ }^{2}$ |  |  |  |  |  |  |  |
| 16 and over | - | 63.5 | 65.4 | 68.7 | - | . 4 | 4 |

${ }^{1}$ The "Asian and other" group includes American Indians, Alaskan Natives, Asians, and Pacific Islanders. The historic data are derived by subtracting "Black" from the "Black and other" group; projections are made directly.

2 Persons of Hispanic origin may be of any race. Labor force data for Hispanics are not available before 1976.
Note: Dash indicates data not available.
Summary of population changes, 1986-2000. The overall U.S. population, which increased by 1 percent annually between 1972 and 1986, is projected to grow by 0.8 percent yearly to 2000. This slowing reflects the anticipated drop in births as well as the slight drop in net migration. The rate of increase will not be uniform across age, race, or Hispanic origin groups.

As the following tabulation indicates, over the 1972-86 period, the number of persons (ages 18 to 24) entering college or their first job rose, while the number of those (ages 14 to 17) in high school dropped slightly. The number of those (ages 5 to 13) in elementary school dropped more substantially, while the number of preschoolers increased. Over the 1986-2000 period, many of these younger age groups show a reversal of trend; the number of persons ages 18 to 24 , which had been increasing during the 1972-86 period, is projected to drop through 2000:

|  | 1972 | 1986 | 2000 |
| :---: | :---: | :---: | :---: |
| Total population |  |  |  |
| (millions) | 209.9 | 241.6 | 268.3 |
| White | 183.3 | 204.7 | 221.5 |
| Black | 23.6 | 29.4 | 35.1 |
| Asian and other | 2.9 | 7.5 | 11.6 |
| Hispanic | - | 18.5 | 30.3 |
| Years of age: |  |  |  |
| 0 to 4 | 17.1 | 18.1 | 16.9 |
| 5 to 13 | 39.9 | 34.2 | 33.5 |
| 14 to 17 | 16.6 | 14.8 | 15.3 |
| 18 to 24 | 26.1 | 28.0 | 25.2 |
| 65 and older | 21.0 | 29.2 | 34.9 |
| 85 and older | 1.5 | 2.8 | 4.6 |

Civilian noninstitutional population 16 and older (millions)
144.1
180.6
204.7

The number of persons ages 65 and older increased more than twice as fast as the overall population during the 197286 period; those 85 and older increased more than four times as fast.
Changes in the total population are reflected in the civilian noninstitutional population 16 and older with a lag. Between 1972 and 1986, the civilian noninstitutional population grew by 1.6 percent annually, while over the 19862000 horizon, the population is projected to grow significantly more slowly, by 0.9 percent. (See table 3.)
An important event of the post-World War II period is the great flows of migrants documented and undocumented, into and out of this country. In the future, according to these population projections, immigration would be an increasing share of population growth. Immigrants are generally of working age. There are slightly more women than men among the documented entrants. As a consequence of the projected overall decrease in births, net migration, even though declining somewhat, still is projected to continue to be an increasing share of population growth:

$$
\text { 1972-79 } \quad 1979-84 \quad 1986-95 \quad 1995-2000
$$

Percent of $\begin{array}{lllll}\text { population } & \text {.. } & 17.2 & 25.7 & 29.9 \\ 32.2\end{array}$

The effect of the higher net migration is an increase in the number of people of working age and a decrease in the number of older people. To the extent that immigrants have different age, educational, and occupational compositions than the resident population, this would affect the future work force. A summary of the Census Bureau's projections for 2000 and estimates for the 1986 and related earlier years population are displayed in table $4 .{ }^{8}$

Projections of labor force participation change. Trends in labor force participation rates - the second important factor affecting the size of the labor force of the future-were projected by bls for 114 groups by age, sex, and race or ethnicity. After the rate of change for each sex and race group for the 1979-86 period was estimated, the labor force participation rate for the group was extrapolated by age. The resulting cross-sectional patterns for specific race-sex groups were examined for 2000 and, when these patterns were inconsistent with historical patterns, they were modified. The cohort participation rates were also plotted and, if inconsistent with historic patterns, the projected participation rates were modified. For these two reasons, adjustments mainly affected participation rates for women in the preretirement years. The projected pattern of participation for white women did not result in a drop in participation between ages 25 to 29 and 30 to 34 as it has in the past. However, this was accepted as consistent with developing patterns, though it has yet to manifest itself, reflecting primarily the fact that women increasingly are less likely to withdraw from the labor force after children are born.

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The primary methodological change in this set of projections involved the development of projections for five-year-of-age groups for blacks. Participation rates were also calculated for the Asian and other labor force, but after examination of the historical data, there was so much year-to-year variation that the growth patterns in labor force participation of whites were used instead to project the Asian and other labor force.

Labor force participation rates for women of prime working age ( 25 to 54 ) and older ages were assumed not to exceed that of men. After examination of the preliminary employment projections, the assumed participation rate of young whites was adjusted upward to reflect anticipated growth in job opportunities for first-time jobseekers and the declining number of youth available for those jobs.

## Compositional changes in the labor force

Age. By 2000, prime working-age persons would make up 73 percent of the labor force, up from 67 percent in 1986 (table 1). This reflects underlying demographic changes; the baby-boom generation will still be in the prime working ages, but between 1995 and 2000, the "echo" of the baby boom (their children) are projected to begin entering the labor force. Despite this, the youth in the labor force are still projected to account for a smaller share of the labor force in 2000 than in 1986, 16 percent, compared with 20 percentalthough their share is expected to be even lower in 1995. The share of older workers ( 55 and older) also is projected to shrink between 1986 and 2000 by about $1 \frac{1}{2}$ percentage points. The share of workers 55 and older is projected to be slightly lower in 1995, because that is when the group known as the "birth dearth of the 1930's" enters the retirement years. The following tabulation shows the number, in millions, of persons in each major age group for 1972-86 and the rate of growth for 1986-2000.

|  | Youth | Prime working age | Older |
| :--- | :---: | :---: | ---: |
| Period: |  |  |  |
| $1972 \ldots \ldots \ldots$ | 20.2 | 52.3 | 14.5 |
| $1986 \ldots \ldots \ldots$ | 23.4 | 79.6 | 14.9 |
| $2000 \ldots \ldots \ldots$ | 22.6 | 100.8 | 15.4 |
| Growth rate: |  |  |  |
| 1972-86 $\ldots \ldots$ | 1.1 | 3.0 |  |
| $1986-2000 \ldots \ldots$ | -.2 | 1.7 | .2 |

The labor force group age 55 and older is projected to decrease between 1986 and 1995, but then increase between 1995 and 2000. During the latter period, this group would be the fastest growing component of the labor force. The youth labor force, which has been decreasing since 1980, is also projected to decline until 1995, before increasing more rapidly than the overall labor force. The prime working-age group is the only one that is projected to grow throughout the period, even though some age groups within this broader age group are expected to decline for at least part of the 1986-2000 period. The prime age work force grew by 3
percent annually between 1980 and 1986; this growth rate is projected to drop to 2.6 percent for the rest of this decade, 1.8 percent for the early 1990 's, and less than 1 percent yearly until 2000 .

The changes in such broad age groups are a reflection of the changing size of underlying finer age groups, which are, in turn, a reflection of past variability in births. To further explicate the process, we describe the changes in various detailed age groups.

After the baby boom (defined by the Census Bureau as starting in 1946 and ending in 1964), the number of births dropped until 1975, with a modest upswing in 1968-70. Since 1976, births have increased as the women of the baby boom became mothers, the "echo" to the baby boom. As a result of the drop in births that started in 1960, the number of 16-year-olds in the population and labor force began to decline about 1976 and is expected to continue to decline until 1992. (There was a short-lived "boomlet" between 1968 and 1970, resulting in an increase in the number of teenagers during 1986-88.) The number of 17 -year-olds began to decline in 1977, 1 year after the number of 16 -yearolds. The decline should end 1 year later than for 16-yearolds, or 1993. Looking at larger age groups which are less sensitive to yearly variations in births, we see that the number of 16 - to 19 -year-olds began dropping in the late 1970's and is projected to continue to do so until the mid-1990's. Thereafter, this age group is projected to increase as the larger number born after 1978-the echo to the baby boom-begins to enter the labor force. The teenage labor force is projected to drop by nearly 1.5 million between 1986 and 1992 and then to increase by 1.4 million between 1992 and 2000.

This effect-reversal in direction over the 1986 and 2000 period-also is projected to prevail for other age groups. Numbers of labor force participants 20 to 24 years of age began to drop in the early 1980's and are projected to decline by 2.4 million people between 1986 and 1997 before beginning to increase. The labor force ages 25 to 29 , which has been growing rapidly, is projected to decline from the late 1980's until after 2000. The drop would be 2.9 million between 1986 and 2000. For those in the labor force who are 30 to 34 years old, the projected decline begins in the early 1990's. In the late 1990's, the next older group, ages 35 to 39 starts its decline in absolute numbers. The 30-to-34-yearolds are projected to increase by 2.1 million through the early 1990's and then decline by 2.2 million by 2000 . The 35 to 39 group is projected to increase by 4.2 million between 1986 and the mid-1990's and then to decline only slightly by the year 2000 .

Race or ethnicity. Blacks are projected to account for 18 percent of labor force growth between now and the end of the century. This would be significantly above their current share of the overall labor force. Blacks made up 11 percent of labor force growth between 1972 and 1979, 16 percent

Table 3. Civilian noninstitutional population, by sex, age, race, and Hispanic origin, actual 1972, 1979, and 1986, and projected to 2000

| Group | Level (in thousands) |  |  |  | Change (in thousands) |  |  | Growth rate |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 | Projected, 2000 | 1972-79 | 1979-86 | 1986-2000 | 1972-79 | 1979-86 | 1986-2000 |
| Total, 16 and over | 144,122 | 164,865 | 180,589 | 204,699 | 20,743 | 15,723 | 24,110 | 1.9 | 1.3 | 0.9 |
| Men, 16 and over 16 to 24 25 to 54 55 and over. | $\begin{aligned} & 67,835 \\ & 15,768 \\ & 34,840 \\ & 17,227 \end{aligned}$ | $\begin{aligned} & 78,021 \\ & 18,184 \\ & 40,184 \\ & 19,653 \end{aligned}$ | $\begin{aligned} & 85,799 \\ & 16,773 \\ & 47,343 \\ & 21,683 \end{aligned}$ | $\begin{aligned} & 97,962 \\ & 15,489 \\ & 57,250 \\ & 25,223 \end{aligned}$ | $\begin{array}{r} 10,186 \\ 2,416 \\ 5,344 \\ 2,426 \end{array}$ | $\begin{array}{r} 7,778 \\ -1,411 \\ 7,159 \\ 2,030 \end{array}$ | $\begin{array}{r} 12,163 \\ -1,284 \\ 9,907 \\ 3,540 \end{array}$ | $\begin{aligned} & 2.0 \\ & 2.1 \\ & 2.1 \\ & 1.9 \end{aligned}$ | $\begin{array}{r} 1.4 \\ -1.1 \\ 2.4 \\ 1.4 \end{array}$ | $\begin{array}{r} 1.0 \\ -\quad .6 \\ 1.4 \\ 1.1 \end{array}$ |
| Women, 16 and over 16 to 24 25 to 54 55 and over | $\begin{aligned} & 76,287 \\ & 16,887 \\ & 37,595 \\ & 21,805 \end{aligned}$ | $\begin{aligned} & 86,844 \\ & 18,827 \\ & 42,692 \\ & 25,325 \end{aligned}$ | $\begin{aligned} & 94,790 \\ & 17,293 \\ & 49,672 \\ & 27,825 \end{aligned}$ | $\begin{array}{r} 106,737 \\ 15,999 \\ 59,094 \\ 31,644 \end{array}$ | $\begin{array}{r} 10,557 \\ 1,940 \\ 5,097 \\ 3,520 \end{array}$ | $\begin{array}{r} 7,946 \\ -1,534 \\ 6,980 \\ 2,500 \end{array}$ | $\begin{array}{r} 11,947 \\ -1,294 \\ 9,422 \\ 3,819 \end{array}$ | $\begin{aligned} & 1.9 \\ & 1.6 \\ & 1.8 \\ & 2.2 \end{aligned}$ | $\begin{array}{r} 1.3 \\ -1.2 \\ 2.2 \\ 1.4 \end{array}$ | $\begin{array}{r} .9 \\ -\quad .6 \\ -1.2 \\ .9 \end{array}$ |
| White, 16 and over. | 127,904 | 143,898 | 155,433 | 171,230 | 15,994 | 11,535 | 15,797 | 1.7 | 1.1 | 7 |
| Black, 16 and over | 14,543 | 17,366 | 19,989 | 24,750 | 2,823 | 2,623 | 4,761 | 2.6 | 2.0 | 1.5 |
| Asian and other, ${ }^{1} 16$ and over | - | 3,601 | 5,164 | 8,719 | - | 1,562 | 3,555 | - | 5.3 | 3.8 |
| Hispanic, ${ }^{2} 16$ and over ...... | - | 8,208 | 12,343 | 20,490 | - | 4,135 | 8,147 | - | 6.0 | 3.7 |

${ }^{1}$ The "Asian and other" group includes American Indians, Alaskan Natives, Asians, and Pacific Islanders. The historic data are derived by subtracting "Black" from the "Black and other" group; projections are made directly.
${ }^{2}$ Persons of Hispanic origin may be of any race. Data for Hispanics are not available before

Note: Dash indicates data not available.
SOURCE: Based on U.S. Bureau of Census "middle" population projections.
between 1980 and 1986, and are projected to account for 17 percent between 1986 and 1990. The following tabulation shows the number, in millions, of persons in the labor force and the growth rate, in percent, by race or ethnic origin, 1972-86 and 1986-2000:

| Group | Labor force |  |  | Growth rate |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1986 | 2000 | 1972-86 | 1986-2000 |
| Total | 87.0 | 117.8 | 138.8 | 2.2 | 1.2 |
| White | 77.3 | 101.8 | 116.7 | 2.0 | 1.0 |
| Black | 8.7 | 12.7 | 16.3 | 2.7 | 1.8 |
| Asian and other | - | 3.4 | 5.7 | - | 3.9 |
| Hispanic | - | 8.1 | 14.1 | - | 4.1 |

There are projected to be 16.3 million blacks in the labor force in 2000 , up 3.7 million from 1986. This represents a higher annual growth rate, 1.8 percent, than those projected for whites and for the overall labor force. Black labor force participation is projected to grow 0.3 percent annually, as is that of whites. By 2000, blacks are projected to account for 12 percent of the labor force, up 1 percentage point from 1986.

The white labor force is projected to grow by 15 million between 1986 and 2000, reaching a level of 117 million. Whites have historically been the largest share of the labor force, but this share has been dropping and is projected to continue to do so-in 1972 it was 89 percent and by 2000, it should be 84 percent. Thus, the white labor force, which also includes nearly all of the Hispanics, is growing more slowly than the overall labor force, 0.2 percent per year less over both the historical period, 1972-86, and the projected period, 1986-2000. This slower growth reflects slower population increases (table 2), because labor force participation of whites is projected to grow at the same rate as the overall labor force.

The Asian and other labor force is projected to increase 71 percent, or by 2.4 million persons, between 1986 and 2000. This increase reflects a high rate of population growth, which, in turn, reflects higher births and immigration of this group. By 2000 , persons of Asian and other races would constitute 4 percent of the labor force, up from less than 3 percent in 1986. Over the 1986-2000 period, Asians and others account for 11 percent of the projected growth in the labor force. This represents a slowing in their growth rate from the 1979-86 period during which their population was increasing rapidly due to the entry of refugees. This entry of refugees has virtually stopped, and it is assumed not to occur again over the projection period.
Labor force participation of the Asian and other group is assumed to increase at the same rate as whites at the individual age-sex level. Their participation rate is projected to be lower than that of whites in 2000. This reflects their lower participation in 1986. The lower rate of increase for their overall labor force participation reflects the different age and sex composition of this population group.
The Hispanic labor force is projected to increase 74 percent between 1986 and 2000; among the largest increases projected for any group. By 2000, Hispanics are projected to be 10 percent of the labor force, up from 7 percent in 1986. This increase results in 6 million more Hispanics entering the labor force, for a total of 14 million in 2000.
Hispanic labor force participation, which increased 0.4 percent annually between 1979 and 1986, is projected to continue to increase at that rate over the next 14 years. This reflects the younger age of the Hispanic population-with more young women, overall participation rises as their participation is projected to rise. By contrast, whites and blacks are projected to have slower rates of increase in participation.

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Hispanics' share of labor force growth was 22 percent between 1979 and 1986. Given their more rapid population growth, their share of the labor force increment between 1986 and 2000 is projected to be 29 percent. The size of the share is more impressive by subperiod- 27 percent for the years 1986 to 1995 and 32 percent for 1995 to 2000. More than a third of population growth in the late 1990's is projected to be Hispanic. As noted earlier, the number of Hispanics is affected by the assumption made regarding future levels of immigration; projections of the share of Hispanics in the labor force could vary considerably.

Sex. As in the past, women are projected to account for more than 60 percent of the labor force growth. Over the past 16 years, women have also made up 60 percent of the additions to the labor force. This share is projected to be 64 percent between now and the end of the century. It may be more useful to indicate that since 1979, when the babyboom generation had almost completed their entry into the labor force, women accounted for 64 percent of labor force additions. For the rest of this decade, and in the early 1990's, women are projected also to make up 64 percent of the net growth in the labor force. In the late 1990's, as the "echo" to the baby boom reaches labor force age and begins entering the labor force, women's share of growth is projected to drop slightly to 62 percent.

These projections show 66 million women in the labor force in 2000 , up 13.2 million from 1986 (table 1). This represents an annual rate of growth of 1.6 percent which is below the 3.3-percent rate of the 1972-86 period, during which young women of the baby boom were entering the
labor force. With the growth shown in these projections, women would make up 47 percent of the labor force in 2000, up from 39 percent in 1972 and 45 percent in 1986.

Women's labor force participation is projected to increase by 0.8 percent annually - more than twice the overall rate of increase in participation, but half the rate of growth in women's participation over the 1972-86 period. The primary factor behind the slower rate of increase is the level of labor force participation already achieved by women; future increases above past rates are unlikely. The labor force participation rate of women ages 25 to 54 , at 70.8 percent in 1986, is projected to reach 80.8 percent by 2000 .

The labor force participation of black women has typically been greater than that of white women, except at the younger ages. This is projected to continue through 2000, but the difference is expected to diminish significantly. In 1972, the participation rate of black women- 48.8 per-cent-was 4.6 percentage points above that of white women. By 2000, the difference would be 0.6 points. This reflects the somewhat slower growth in participation by black women and the greater number of young persons in the black female population. Because younger black women's participation is lower than that of white women, this also lowers the difference in participation.

Black women are projected to account for a tenth of labor force growth over the 1986-2000 period; their projected growth rate, 2.1 percent, is greater than that for white women. (See table 5.) For black women, the higher growth rate represents faster population growth as well as growing participation. Thus, the proportion of the labor force made up of black women would increase from 4.5 percent in 1972 to 6.1 percent in 2000.

Table 4. Total population, including armed forces overseas, by age, sex, and race, actual 1972, 1979, and 1986, and projected to 2000

| Group | Level (In thousands) |  |  |  | Change (In thousands) |  |  | Growth rate |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 | Projected, 2000 | 1972-79 | 1979-86 | 1986-2000 | 1972-79 | 1979-86 | 1986-2000 |
| Total | 209,896 | 225,055 | 241,596 | 268,264 | 15,159 | 16,541 | 26,668 | 1.0 | 1.0 | 0.8 |
| Years of age: |  |  |  |  |  |  |  |  |  |  |
| 0 to 4 | 17,101 | 16,063 | 18,128 | 16,898 | - 1,038 | 2,065 | - 1,230 | -. 9 | 1.7 | - . 5 |
| 5 to 13 | 39,936 | 35,592 | 34,193 | 33,483 | -4,344 | -1,399 | - 710 | -1.6 | -. 6 | -. 1 |
| 14 to 17 | 16,640 | 16,611 | 14,796 | 15,332 | -29 | - 1,815 | 536 | (1) | -1.6 | . 3 |
| 18 to 24 | 26,077 | 30,048 | 27,973 | 25,231 | 3,971 | -2,075 | -2,742 | 2.0 | - 1.0 | -. 7 |
| 25 to 34 | 27,623 | 36,203 | 42,984 | 37,149 | 8,580 | 6,781 | - 5,835 | 3.9 | 2.5 | -1.0 |
| 35 to 44 | 22,859 | 25,176 | 33,142 | 43,911 | 2,317 | 7,966 | 10,769 | 1.4 | 4.0 | 2.0 |
| 45 to 54 | 23,687 | 22,942 | 22,823 | 37,223 | -745 | - 119 | 14,400 | -. 5 | -. 1 | 3.6 |
| 55 to 64 | 19,211 | 21,448 | 22,230 | 24,157 | 2,237 | 782 | 1,927 | 1.6 | . 5 | . 6 |
| 65 to 74 | 12,922 | 15,338 | 17,325 | 18,242 | 2,416 | 1,987 | 917 | 2.5 | 1.8 | . 4 |
| 75 to 84 | 6,555 | 7,599 | 9,049 | 12,017 | 1,044 | 1,450 | 2,968 | 2.1 | 2.5 | 2.0 |
| 85 and over | 1,542 | 2,197 | 2,796 | 4,621 | 655 | 599 | 1,825 | 5.2 | 3.5 | 3.7 |
| Men | 102,591 | 109,584 | 117,820 | 131,185 | 6,993 | 8,236 | 13,365 |  |  |  |
| Women | 107,305 | 115,472 | 123,776 | 137,072 | 8,167 | 8,304 | 13,296 | 1.1 | 1.0 | . 7 |
| White | 183,326 | 194,098 | 204,671 | 221,512 | 10,772 | 10,573 | 16,841 | . 8 | . 8 | . 6 |
| Black | 23,646 | 26,417 | 29,427 | 35,122 | 2,771 | 3,010 | 5,695 | 1.6 | 1.6 | 1.3 |
| Asian and other ${ }^{2}$ | 2,924 | 4,540 | 7,498 | 11,630 | 1,616 | 2,958 | 4,132 | 6.5 | 7.4 | 3.2 |

[^4]Population of the United States, by Age, Sex, and Race: 1970 to 1981, Current Population Reports, Series P-25, No. 917; for 1986 data, Estimates of the Population of the United States, by Age, Sex, and Race: 1980 to 1986, Current Population Reports, Series P-25, No. 1000; and for 2000 data, Projections of the Population of the United States, by Age, Sex, and Race 1987 to 2080, Series No. 1018.

Table 5. Civilian labor force and participation rates by sex, age, race, and Hispanic origin, actual 1972, 1979, and 1986, and moderate growth projections 2000


White women (including most of the Hispanic women), who accounted for half the labor force growth during the 1972-86 period, are projected to account for less than half of the projected labor force increase over the next 14 years. Their participation rate, which grew by 12 percentage points between 1972 and 1986, is projected to grow more slowly to the year 2000. During both periods, this was a greater increase than for black women, but by 2000 , black women are projected to still have slightly greater participation.
The labor force of Hispanic women is projected to increase by 2.7 million to 5.8 million in 2000, an 85 -percent increase. Numerically, this growth is projected to exceed that of black women, even though the female Hispanic labor force would still be smaller than that of black women. The growth reflects both population and participation rate increases.

Men have been and are projected to be a majority of the labor force; even though the number of men in the labor force is not changing as dynamically as that of women, it still is changing. It is projected to grow more slowly, by 7.7 million, or 12 percent, during the 1986-2000 period (this compares with 25 percent for women during the same period). Different components of the labor force are growing at different rates; both the older and younger male labor force are projected to drop in size between 1986 and 2000,
but both groups are projected to actually increase between 1995 and 2000.
The change in the size of the young male labor force represents the interplay of population dynamics - the echo of the baby boom and projected participation rate increases. The participation of young men is projected to increase modestly over the entire projection period. However, between 1986 and 1995, the number of young men is projected to drop by 1.1 percent yearly, more than offsetting the anticipated rise in participation. By 1995, however, the number of younger groups is projected to increase, and with an increase in participation rates, the number of those in the labor force would then rise.

The change in the number of the older men in the labor force also represents the interplay of population and participation. The 55 to 65 age group, whose population is projected to decrease over the 1986-95 period, is projected to grow more rapidly than the 65 and older group during the 1995-2000 period. Because the younger group has a higher participation rate and their participation is projected to drop more slowly than that of men over age 65 , the entire older male labor force is projected to grow over the 1995-2000 period. However, this growth would not be enough to offset the earlier drop; over the 1986-2000 period, the older male labor force is projected to decline by 160,000 .

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Over the 1986-2000 period, the fastest growing group among men would be ages 45 to 54 , the consequence of the aging of the baby-boom generation. This group is above the age of peak participation, but, because baby-boom men would still be in their prime working years in 2000, the prime age male labor force is projected to be a greater proportion of the labor force than in 1986, 1972, or 1979. The labor force of men ages 45 to 54 is projected to grow 6.3 million, and constitute 30 percent of the 1986-2000 labor force increment.

The labor force of black men is projected to grow more rapidly than the overall labor force ( 1.6 percent annually, compared with 1.2 percent), despite falling participation. This reflects their higher population growth rates. The number of white men in the labor force (including most Hispanics) is projected to grow at only half the rate of the overall labor force. Despite this, white men are projected to account for a quarter of labor force growth and are projected to be 45 percent of the 2000 labor force

The number of Hispanic men in the labor force is projected to increase by 3.4 million between 1986 and 2000, a greater absolute change than for black men. Their growth rate would be three times that of the overall labor force and more than twice that of black men. By 2000, there are projected to be more Hispanic than black men in the labor force. Hispanic men would make up 6 percent of the 2000 labor force and 16 percent of the labor force growth over the rest of the century. Despite this increase, their participation is anticipated to drop slightly.

## Alternative scenarios

The actual world of work in 2000 will certainly be different from that in 1986 in ways that we cannot anticipate. To give an idea of at least some of the uncertainty, two alternative projections of the labor force were prepared. (See table 6.) One assumes slower participation rate changes which is applied to the middle population series, and the other assumes a higher immigration rate and uses the middle participation rate series

Under the low alternative, the overall 2000 labor force would be 135 million, an expansion of 14 percent over the 1986 level. This slow growth, 1.0 percent annually, is a consequence of the participation rate growing slowly or dropping rapidly. In the middle scenario, overall participation is projected to increase 0.3 percent annually. Under this scenario, it would drop at the same rate.

Also under the low alternative, labor force participation among women is projected to rise more slowly. This is consistent with the view that the rapid increases of the 1970's completed their increase in participation. The rapid rise of the past 2 years would be a cyclical response to the recession of the early 1980's-not a resumption of the high growth of the early and middle 1970's.

Using the participation rates of the middle scenario with the Census Bureau's high migration series, we find that the
labor force increases to 141 million in $2000-2$ million greater than the middle scenario. The only difference between the middle and the high migration population projections is in the net migration assumption. Despite the higher level of immigration, 160 percent greater, the resulting growth rate of the labor force is only 0.2 percent higher.

For the high migration scenario, it was assumed that Hispanics would be the same proportion of the civilian noninstititional population in any new projection as they had been in the previous high migration projection. Under this assumption, this Hispanic labor force would grow at the same rate under both the middle and high scenarios and the Hispanic labor force would be the same share under both scenarios. Under the low participation scenario, Hispanics would initially account for 9.4 percent of the labor force and that share would grow by 3.3 percent yearly to 2000 , compared with the 4.1-percent gain attained in the middle and high scenarios.

This analysis suggests that Asians and others are a more significant source of labor force growth in the high migration scenario; their share of the labor force would be the same under all three scenarios, but the growth rate is much higher under the high migration scenario- 4.4 percent, compared with 3.9 percent in the middle growth scenario, and 3.7 percent in the low scenario.

## Other insights

The median age of the labor force in the post-World War II era peaked in 1962, at 40.6 years. With the entry of the baby-boom generation into the labor force, the median age dropped, reaching a low in 1980 of 34.6 years. By 1986, the median age had risen to 35.3 years, an increase of less than 1 year. The median age of the labor force is projected to reach 38.9 years in 2000, 3.6 years above the 1986 level. Even though the age of the population is increasing rapidly, unless older workers remain in the labor force in greater numbers, the 1962 median is not likely to be attained again. As the population ages, more would be in the ages which had-and are projected to continue to have-declining labor force participation. Table 7 shows median ages of the labor force by race and Hispanic origin, for selected historical years and for projected years.

To reinforce the point about older workers, persons ages 55 and older constituted 16.7 percent of the labor force in 1972. With the entry of the baby-boom generation (and the continuing drop in participation of older men), workers 55 and over made up only 14.3 percent in 1979. In 1986, after the baby-boom generation had completed their entry, the older group was only 12.6 percent of the labor force.

## Share of labor force growth

If we consider the components of labor force growth, starting in a year for which we have data for all groups, shares of labor force growth for 1976-86 can be compared with the projected share for $1986-2000$. Women are pro-

| Group | Participation rate |  |  | Level (in thousands) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | High | Moderate | Low | High | Moderate | Low |
| Total | 68.0 | 67.8 | 65.7 | 141,107 | 138,775 | 134,517 |
| Men: | 74.8 | 74.7 | 73.2 | 74,464 | 73,136 | 71,729 |
| 16 to 24 years | 74.4 | 74.3 | 72.7 | 11,811 | 11,506 | 11,261 |
| 25 to 54 years | 92.6 | 92.6 | 90.9 | 54,009 | 53,024 | 52,043 |
| 55 years and over. | 34.2 | 34.1 | 33.4 | 8,644 | 8,606 | 8,425 |
| Women: | 61.7 | 61.5 | 58.8 | 66,643 | 65,639 | 62,788 |
| 16 to 24 years | 69.6 | 69.5 | 68.1 | 11,365 | 11,125 | 10,898 |
| 25 to 54 years | 80.8 | 80.8 | 76.2 | 48,487 | 47,756 | 45,007 |
| 55 years and over .... | 21.4 | 21.4 | 21.8 | 6,791 | 6,758 | 6,883 |
| White . . . . . . . . . . . . | 68.4 |  |  |  | 116,701 | 112,918 |
| Black .............. | 66.1 | 66.0 | 64.8 | 16,518 | 16,334 | 16,031 |
| Asian and other ${ }^{1}$ | 66.0 | 65.8 | 63.9 | 6,115 | 5,740 | 5,568 |
| Hispanic ${ }^{2}$. . . . . . . . . . | 68.8 | 68.7 | 61.9 | 14,122 | 14,086 | 12,675 |

[^5]jected to account for about the same share of labor force growth as they have in the past. The white share of labor force growth is projected to drop. The black, the Asian and other, and the Hispanic shares are each projected to increase, with the Hispanic share increasing the most. These calculations show that Hispanics, most of whom are white, are sustaining the white share of growth. ${ }^{9}$ The non-Hispanic white share ( 43 percent) is projected to be 18 percentage points less than the 1976-86 share; however, the overall white share is projected to fall only by 7 percentage points. These projections show that non-Hispanic white men, who accounted for 18 percent of labor force growth from 1976 to 1986 when the baby-boom generation was completing its entry into the labor force, would drop to 8 percent of the 1986-2000 increase. This reflects the fact that most nonHispanic white men are already in the labor force and a slight drop in the participation of older white men. The following tabulation shows the percentage distribution of the labor force by sex, race, and Hispanic origin, and by residency status, 1976-86, and projected, 1986-2000:

| Group | 1976-86 | 1986-2000 |
| :---: | :---: | :---: |
| Men | 38.0 | 36.8 |
| Women | 62.0 | 63.2 |
| White | 78.6 | 71.2 |
| Black | 14.5 | 17.4 |
| Asian and other | 6.9 | 11.4 |
| Hispanic | 17.5 | 28.7 |
| Non-Hispanic white | 61.6 | 43.3 |
| Men | 18.1 | 8.5 |
| Women | 43.5 | 34.8 |
| Residents | - | 76.6 |
| Net migrants | - | 23.4 |

Over the 1972-86 period, the white female labor force of prime working age grew by 12.2 million and that of their white counterparts, by 9.0 million, the second greatest increase. White persons of prime age are projected to have the greatest increment to the 1982-2000 labor force, with the number of women increasing by 9.8 million and men, 6.3 million. Because of the birth dearth, the number of younger white men in the labor force is projected to drop. Because of continuing decreases in participation, the number of older white men in the labor force is also expected to drop. These decreases in the number of younger and older white men offset the prime age white male growth in the labor force. One further refinement indicates that the number of nonHispanic prime age white men would increase by 4.9 million or 23.4 percent of the 1986-2000 labor force growth.

Over the 1986-2000 period, net migration accounts for almost a fourth of labor force growth. Somewhat more men than women immigrants would join the labor force-the 23.4-percent net migration would be divided into 12.8 percent for men versus 10.6 for women. As the following tabulations shows, most migration is projected to be by whites, with Asians and others having a greater share than blacks (because the migration scenario used for Hispanics is not consistent with that for the main projection, it is not possible to provide a projection of the Hispanic share of labor force growth due to net migration):
Migrant Resident

| Total | 23.4 | 76.6 |
| :---: | :---: | :---: |
| Men | 12.8 | 24.0 |
| Women | 10.6 | 52.6 |
| White | 14.4 | 56.8 |
| Black | 2.3 | 15.1 |
| Asian and other | 6.7 | 4.7 |

Dependency ratio. With the baby-boom generation in their prime working years and with the small number of births projected between 1986 and 2000, persons who are working are expected to exceed those who do not:

Economic dependency ratio (by age)

| Total | Under <br> 16 | $16-64$ | Age 65 <br> and over |
| ---: | :---: | :---: | :---: |
| 134.6 | 62.3 | 54.1 | 18.2 |
| 110.2 | 52.0 | 37.6 | 20.6 |
| 101.2 | 46.5 | 32.9 | 21.8 |
| 94.2 | 44.0 | 27.0 | 23.2 |
| 89.8 | 40.8 | 26.0 | 23.0 |

The economic dependency ratio is the number of those in the total population (including Armed Forces overseas) who are not in the total labor force per 100 persons in the total labor force. This ratio declined steadily over the 1972-86 period as the baby-boom generation entered the labor force. The largest component of the dependency ratio is made up of persons under age 16 . However, this ratio has been dropping and is expected to continue to do so throughout the

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entire projection period. With the rising participation of women, the component of the dependency ratio attributed to those ages 16 to 64 has also declined steadily. The change between 1995 and 2000 is modest, reflecting slightly lower participation rates of the largest age group of men, those 45 to 54 . The dependency ratio for all persons over 65 has been rising over the entire historical period, a trend projected to continue. The slight drop between 1995 and 2000 reflects the aging of the smaller birth cohort of the 1930's.

Employment-population ratio. WIth the rise in participation, the employment-population ratio is projected to rise. It has been growing over the last 14 years; like overall labor force participation, the rate of increase is projected to slow: ${ }^{10}$
$1972 \quad 1979 \quad 1986 \quad 2000$
$\begin{array}{lllllll}\text { Employment-population ratio } & \ldots & 57.0 & 59.9 & 60.7 & 63.7\end{array}$
Keeping in mind the 14 -year span of the projections, we can look at 15 -year cohorts-those 15 to 29,30 to 44,45 to 59 , and 60 to 74 . Each cohort in the labor force will be in the next older group by the end of each of the time intervals discussed here:


The combination of cohort size and stage in the life cycle explain the share of labor force. When a cohort is large, but is at a stage in life when participation is low, such as when entering or leaving the labor force, their share will be small. Those born during 1895-1909 were in the retirement years in 1972, but still accounted for 8.4 percent of the labor force in that year. Those born 1910-24 who entered the labor force in the late 1920's and 1930's, were still almost the same share of the labor force in 1972 as the next generation, despite being in the preretirement years. Those born into this
group in the United States were joined by migrants from Europe at a level exceeding the immigration of the 1980's. By 1986, the group born during the 1910-24 period were 6 percent of the labor force and virtually ail are projected to be out of the labor force in 2000 . Those born during the 1925-39 period could be described as part of the 1930's birth dearth. Although in their prime working-age years in 1972, they made up less than a third of the work force; this share dropped to a fifth by 1986. As they retire, their share drops to less than 5 percent by 2000 . Those born during 1940-55 are considered pre- and early baby-boom generation. They also were more than a third of the labor force when they entered the labor force (in 1972). Like the younger edge of the baby-boom generation, their share grew by 1986. However, as they continue to age, their share is projected to drop and in 2000, they are projected to make up less than a third of the labor force. Those born during the 1955-69 period entered the labor force between 1972 and 1986. Once this entry was complete, they accounted for more than a third of the labor force. They may be considered the last part of the baby-boom generation. Their labor force share is projected to increase between now and 2000 as the women in this group continue entering the labor force and as younger smaller cohorts reach working age.

## Where are they now?

These changes projected in the labor force by age suggest that it would be interesting to look at some of the major cohorts of the past. Four groups are nominated: the birth dearth of the 1930 's, the baby boom of the late 1940's, 1950's, and early 1960's, the birth dearth of the late 1960 's and early 1970's, and the echo group of the late 1970's and the 1980 's. The following tabulation illustrates the passage of these groups through the labor force:

|  | Percent of labor force |  |  | Growth rate (percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1986 | 2000 | 1972-86 | 1986-2000 |
| 1930's dearth | 18.8 | 15.1 | 1.7 | . 6 | -13.3 |
| Baby boom | - | 55.5 | 49.8 | - | 0.4 |
| 1970's dearth | - | 6.7 | 22.8 | - | 10.4 |
| Echo . . . . | - | - | 11.2 | - | - |

The persons in the 1930's birth-dearth group are now in their preretirement years and are projected to be in their late sixties by 2000. The number of these persons in the labor force is projected to plunge in the next 14 years. Their share of the labor force-small in 1986 because of the size of the baby boom-is projected to diminish to near zero by 2000. The baby-boom generation, more than half of the labor force now, will begin shrinking as a share of the labor force as they move towards the years when some may be taking early retirement. Their 2000 labor force is projected to be slightly larger than now-although a smaller percent. The persons in the 1970's birth dearth group are in their teens and their share of labor force is projected to grow as they begin
working; despite their relatively small size, they are expected to represent a fifth of the labor force in 2000. Not all the echo to the baby-boom group has been born as of 1986;
in 2000 , they are projected to still be entering the labor force, of which they are projected to make up just over a tenth.
${ }^{1}$ The Asian and other race group consists of American Indians, Native Alaskans, Asians, and Pacific Islanders.
${ }^{2}$ These projections replace those described by Howard N Fullerton, Jr. in "The 1995 labor force: BLS's latest projections," Monthly Labor Review, November 1985, pp. 17-26; and Howard N Fullerton, Jr. and John Tschetter, "The 1995 labor force: a second look," Monthly Labor Review, November 1983, pp. 3-10.
${ }^{3}$ Projections of the Population of the United States by Age, Sex and Race: 1987 to 2080, Current Population Reports, Series P-25, No. 1018 (Bureau of Census, forthcoming).
${ }^{4}$ For the most recent evaluation of blS labor force projections, see Howard N Fullerton, Jr., "How accurate were the 1980 labor force projections?" Monthly Labor Review, July 1982, pp. 15-21. An evaluation of the labor force projections to 1985 is in progress. For a description of BLs's current projection methodology, see Employment Projections for 1995: Data and Methods, Bulletin 2253 (Bureau of Labor Statistics, 1986).
${ }^{5}$ Hispanics may be of any race; their population and labor force numbers are also included in those for whites, blacks, and Asians and others.
${ }^{6}$ Gregory Spencer, Projections of the Hispanic Population, 1983 to 2080, Current Population Reports, Series P-25, No. 995 (Bureau of Census, 1986).
${ }^{7}$ A cohort is a group experiencing the same event during the same time period-for example, immigrants to the United States during the 1960-64 period or those born 1930-34. In this article, only birth cohorts are discussed.
${ }^{8}$ See the following articles in the Monthly Labor Review, September 1987: Ronald E. Kutscher, "Overview and implications of the projections to 2000," pp. 3-9; Norman C. Saunders, "Economic projections to the year 2000," pp. 10-18; Valerie A. Personick, "Industry output and employment through the end of the century," pp. 30-45; and George T. Silvestri and John M. Lukasiewicz, "A look at occupational employment trends to the year 2000," pp. 46-63.
${ }^{9}$ For the purpose of deriving the share of non-Hispanic whites, it is assumed that 97 percent of Hispanics are white.
${ }^{10}$ The employment for 2000 is projected to be 130.4 million, with an unemployment rate of 6.0 percent. See Norman C. Saunders, "Economic projections," pp. 10-18.

## 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-inChief, Monthly Labor Review, Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC 20212.

## Projections 2000

# Industry output and employment through the end of the century 

Service-producing industries add more than 20 million jobs; employment in manufacturing declines, but the output share of the Nation's factories is projected to hold steady

## Valerie A. Personick

More than 21 million new jobs are projected to be added to the U.S. economy between 1986 and the year 2000, bringing total employment to just over 133 million. Many industries are projected to share in this expansion and enjoy strong job growth, but several, especially some in manufacturing, are not. This article describes the trends of industry output and job growth projected by the Bureau of Labor Statistics for the remainder of the 20th century.

The 21 million new jobs translate into an increase of 19.2 percent over the projection period, or annual growth of 1.3 percent. This compares to annual rates of job growth of 2.6 percent over the 1972-79 period, and 1.4 percent over the 1979-86 period. Thus, projected employment increases are expected to occur at a slower pace than in the past.

Three projections of employment were prepared-a moderate, a low, and a high. This article focuses on the moderate growth scenario. The demographic and economic assumptions of this scenario are described in detail in companion articles by Howard N Fullerton, Jr., and Norman C. Saunders, on pp. 10-29 of this issue. Some of the key trends which especially affect the industry projections are:

- A continued slowdown in labor force growth following the 1970's surge, during which the baby-boom generation entered the work force and women's labor force participation rose dramatically;
- Average growth of 2.4 percent a year in real gross national product (GNP) between 1986 and 2000, and unemployment tapering from a 7.0-percent rate in 1986 to 6.0 percent by 2000;

[^6]- Higher productivity growth, especially in manufacturing, which allows production to expand without corresponding job gains;
- Improvements in the Nation's international trade balance, as the exchange value of the dollar is projected to return to a level more consistent with long-term relationships; imports will continue to make inroads in some key sectors, but the export market, especially for U.S. capital goods, should expand faster;
- Defense spending growing in real terms, at least through 1990, because of projects already approved, but beginning a modest decline after that.


## Goods versus services

The 133 million jobs in the year 2000 will be even more concentrated in service-producing sectors than are jobs today, because virtually all of the net increase of 21 million jobs are in the service-producing sector; although some goods-producing industries are projected to grow, others are projected to decline, with a net employment change of zero. As table 1 shows, 119 million of the 133 million total jobs are expected to be nonfarm wage and salary jobs, or payroll employment. The rest are in nonfarm self-employment and unpaid family work, 9.7 million; private household work, 1.2 million; and agriculture (both payroll and selfemployed), 2.9 million. Of the nonfarm wage and salary jobs, 3 out of 4 were in service-producing industries in 1986; by the year 2000, almost 4 out of 5 are projected to be. The goods-producing sector, in contrast, is expected to show virtually no net change, as declines in manufacturing and mining just offset projected increases in construction. Manufacturing employment is projected to fall from 19 million in 1986 to 18.2 million by 2000.

The structural drop in total factory jobs has been occurring since 1979, and for many individual manufacturing industries, the decline started much earlier. In 1979, manufacturing employment peaked at just over 21 million jobs, but over the 1980 and 1981-82 recessions, about 2.8 million of those jobs were lost. Since the trough of the last recession in November 1982, employment in manufacturing has made a partial comeback, but new economic conditions have suppressed full recovery. The high value of the dollar compared to foreign currencies, for example, resulted in unprecedented levels of merchandise imports into the United States, and domestic firms tended to find that their long-established cost structures prevented them from competing with these cheaper imports. Many firms engaged in cost-cutting and restructuring, closing some older plants and streamlining others. This restructuring and cost-cutting, along with other factors such as contracting out, technological advances, new capital investment, and energy substitution, to name a few, pushed productivity gains in manufacturing to a brisk 3.4-percent pace between 1983 and 1986, compared to 2.3 percent in the 1970's. Output reached record high levels in 1986.
The projections of manufacturing employment incorporate a continued restructuring, but the rate of job contraction is expected to slow in the future. The average annual rate of decline in factory jobs was -1.4 percent during the years 1979-86; the 1986-2000 projected rate is just -0.3 percent.
In contrast to jobs, factory output is projected to show very strong growth during the $1986-2000$ period. At 2.3 percent a year, it is expected to be only slightly below the rate of increase in total GNP. Demand for U.S. manufactured products is projected to be high for a number of reasons. First, exports are projected to recover some of their markets as the value of the dollar continues to fall, with the rate of growth exceeding that projected for imports. Second, domestic demand for capital goods is expected to be robust as low real interest rates spur investment. Finally, already scheduled defense expenditures for communications equipment, missiles, and aircraft should stimulate those sectors for several years to come. As a result of these factors, manufacturing production, especially of durable goods, is projected to hold a steady 33 -percent share of total output through the next decade. Manufacturing jobs, by comparison, are projected to drop from 19 percent of total payroll employment in 1986 to 15 percent by 2000.

## Industry output and employment trends

Agriculture. Agricultural production is projected to recover from its 1983-86 slump as the declining dollar stimulates a modest recovery of agricultural exports. However, it is not expected that U.S. exports can regain the world dominance they once enjoyed. This is because several former customer nations have not only achieved self-sufficiency but have in fact become net exporters of the agricultural products they once imported.

One portion of the agricultural sector-the agricultural services, forestry, and fishery products industry - has been posting very rapid growth and is projected to continue to do so. Employment in this industry has been growing, in contrast to long-term steady declines in farm production jobs. About 245,000 new jobs are projected to be added in agricultural services between 1986 and 2000, compared to losses of 585,000 in crop and livestock production. Most of the gains in agricultural services are in landscaping and horticultural services (such as lawn services). Thus, even within the agricultural sector, the shift to services is inexorable.
The overall decline in total agricultural jobs from 1972 to 1986 occurred entirely among the self-employed and unpaid family workers. In contrast, wage and salary farm jobs have actually increased, and are expected to continue to do so, as the following tabulation shows:

|  | Change in employment (thousands) |  |
| :---: | :---: | :---: |
|  | 1972-86 | 1986-2000 |
| Total agriculture | -266 | -340 |
| Self-employed and unpaid family jobs | -619 | -488 |
| Wage and salary jobs | 353 | 148 |

This reflects the closure of many smaller, family-owned farms, and the increasing concentration of farming operations among fewer, larger producers.

Mining. The bls projections for the mining sector incorporate the latest energy assumptions for the year 2000 from the U.S. Department of Energy. ${ }^{1}$ In this scenario, imports of crude petroleum rise enormously from present levels, reflecting the assumption that the current worldwide oil glut will be absorbed. Domestic production of crude oil is projected to drop by almost one-fourth over the 1986-2000 period, while imports are projected to more than double. Correspondingly, employment in crude oil production is projected to fall even further below 1986's depressed level, but some of the recent job loss in exploration services is expected to be made up by the year 2000 because of higher oil prices in the 1990's. Coal production is projected to grow as an alternative energy source, but high productivity in this industry results in the continued shrinking of employment. (See table 6 for detailed projections of industry employment.)
Metal mining is not projected to recover any of the deep cuts experienced in both output and employment since 1979. Demand for U.S. primary metals and, in turn, metal mining activity were severely reduced in the 1980-82 recessions, and did not pick up again in the recovery period. In 1986, output of U.S. metal mines was less than threefourths of the 1979 level, and employment was only about two-fifths. Further losses are projected, although at a much slower rate. The primary metals manufacturing industries are projected to either decline or to be among the slowest-

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growing of all the industries studied in the BLS projections. As a result, production of U.S. metal mines is projected to decline and another 14,000 jobs are projected to be lost.

Construction. The real value of new and maintenance construction is projected to grow by 1.4 percent a year between 1986 and 2000, slightly faster than long-term historical trends but slower than the 2.4-percent projected for overall GNP growth. New construction is especially sensitive to cyclical fluctuations, but demographic factors play a part as well. Because of an expected slowdown in the rate of new household formation in the 1990's, residential construction is projected to slow dramatically. A little growth is expected for new single-family homes and for residential alterations and additions, but this will be just about offset by declines in new apartment and condominium construction and in farm housing. Nonresidential construction is projected to recover from the recent oversupply of office and commercial space, and will grow about 2.0 percent a year during the 1986-2000 period.

Construction employment is projected to rise by 890,000 between 1986 and 2000 , to 5.8 million wage and salary jobs. The rate of increase, 1.2 percent a year, is just slightly below the projected total job growth in the economy.

Manufacturing. Manufacturing is projected to lose 834,000 jobs by 2000 , a rate of decline of -0.3 percent a year. Output, in contrast, is projected to almost keep pace with total GNP growth, averaging 2.3 percent a year. Heavy investment in capital accumulation and the continued winnowing out of less efficient operations, among other factors, are expected to result in substantial productivity growth. The following tabulation presents wage and salary employment estimates (in thousands) for 1979 and 1986, and projected to 2000:

|  | 1979 | 1986 | 2000 |
| :---: | :---: | :---: | :---: |
| Manufacturing | 21,042 | 18,994 | 18,160 |
| Durables | 12,762 | 11,244 | 10,731 |
| Nondurables | 8,280 | 7,750 | 7,429 |

Table 1. Employment by major sector, 1972, 1979, 1986, and projected to 2000

| Sector |  | Employment (in thousands) |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |  | Change, 1986-2000 |  |  |
|  |  |  |  |  | Low | Moderate | High |  | Low | Moderate | High |
| Total |  | 84,549 | 101,353 | 111,623 | 126,432 | 133,030 | 137,533 |  | 14,809 | 21,407 | 25,910 |
| Nonfarm wage and salary ${ }^{1}$ |  | 73,514 | 89,481 | 99,044 | 113,554 | 119,156 | 123,013 |  | 14,510 | 20,112 | 23,969 |
| Goods-producing . . . . . |  | 23,668 | 26,463 | 24,681 | 23,148 | 24,678 | 25,906 |  | -1,533 | -3 | $1,225$ |
| Mining . . . . . |  | 628 | 958 | 783 | 672 | 724 | 779 |  | -111 | -59 | -4 |
| Construction |  | 3,889 | 4,463 | 4,904 | 5,643 | 5,794 | 6,077 |  | 739 | 890 | 1,173 |
| Manufacturing |  | 19,151 | 21,042 | 18,994 | 16,833 | 18,160 | 19,050 |  | -2,161 | -834 | 56 |
| Durable ... |  | 11,050 | 12,762 | 11,244 | 9,654 | 10,731 | 11,193 |  | -1,590 | -513 | -51 |
| Nondurable |  | 8,101 |  | 7,750 | 7,179 | 7,429 |  |  |  | -321 | 107 |
| Service-producing ${ }^{1}$ |  | 49,846 | 63,018 | 74,363 | 90,406 | 94,478 | 97,107 |  | 16,043 | 20,115 | 22,744 |
| Transportation and public utilities |  | 4,541 | 5,135 | 5,244 | 5,410 | 5,719 | 5,903 |  | 166 | 475 | 659 |
| Wholesale trade . . . . . . . . . . . . |  | 4,113 | 5,204 | 5,735 | 7,015 | 7,266 | 7,361 |  | 1,280 | 1,531 | 1,626 |
| Retail trade |  | 11,835 | 14,989 | 17,845 | 21,795 | 22,702 | 23,079 |  | 3,950 | 4,857 | 5,234 |
| Finance, insurance, and real estate |  | 3,907 | 4,975 | 6,297 | 7,508 | 7,917 | 8,159 |  | 1,211 | 1,620 | 1,862 |
| Services ${ }^{1}$. . . . . . . . . . . . . . . . . . |  | 12,117 | 16,768 | 22,531 | 30,778 | 32,545 | 33,708 |  | 8,247 | 10,014 | 11,177 |
| Government |  | 13,333 | 15,947 | 16,711 | 17,900 | 18,329 | 18,897 |  | 1,189 | 1,618 | 2,186 |
| Agriculture <br> Private households <br> Nonfarm self-employed and unpaid family workers |  | 3,523 | 3,401 | 3,252 | 2,784 | $\begin{aligned} & 2,917 \\ & 1,215 \\ & 9,742 \end{aligned}$ | $\begin{array}{r} 3,009 \\ 1,234 \\ 10,277 \end{array}$ |  | -478 | -335 | -253 |
|  |  | 1,693 | 1,326 | 1,241 | 1,122 |  |  |  | -119 | -26 | -7 |
|  |  | 5,819 | 7,145 | 8,086 | 8,972 |  |  |  | 886 | 1,656 | 2,191 |
|  | Average annual rate of change (in percent) |  |  |  |  | Percent distribution of wage and salary employment |  |  |  |  |  |
|  | 1972-79 | 1979-86 | 1986-2000 |  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |
|  |  |  | Low | Moderate | High |  |  |  | Low | Moderate | High |
| Total | 2.6 | 1.4 | 0.9 | 1.3 | 1.5 | - | - | - | - | - | - |
| Nonfarm wage and salary ${ }^{1}$ | 2.8 | 1.5 | 1.0 | 1.3 | 1.6 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Goods-producing . . . . . | 1.6 | -1.0 | $-.5$ | . 0 | . 3 | 32.2 | 29.6 | 24.9 | 20.4 | 20.7 | 21.1 |
| Mining ...... | 6.2 | -2.8 | -1.1 | $-.6$ | . 0 | . 9 | 1.1 | . 8 | . 6 | . 6 | . 6 |
| Construction | 2.0 | 1.4 | 1.0 | 1.2 | 1.5 | 5.3 | 5.0 | 5.0 | 5.0 | 4.9 | 4.9 |
| Manufacturing | 1.4 | -1.4 | $-.9$ | -. 3 | . 0 | 26.1 | 23.5 | 19.2 | 14.8 | 15.2 | 15.5 |
| Durable | 2.1 | -1.8 | -1.1 | -. 3 | . 0 | 15.0 | 14.3 | 11.4 | 8.5 | 9.0 | 9.1 |
| Nondurable | . 3 | - . 9 | $-.5$ | -. 3 | .1 | 11.0 | 9.3 | 7.8 | 6.3 | 6.2 | 6.4 |
| Service-producing ${ }^{1}$. ........... | 3.4 | 2.4 | 1.4 | 1.7 | 1.9 | 67.8 | 70.4 | 75.1 | 79.6 | 79.3 | 78.9 |
| Transportation and public utilities | 1.8 | . 3 | . 2 | . 6 | . 8 | 6.2 | 5.7 | 5.3 | 4.8 | 4.8 | 4.8 |
| Wholesale trade . . . . . . . . . . . . | 3.4 | 1.4 | 1.4 | 1.7 | 1.8 | 5.6 | 5.8 | 5.8 | 6.2 | 6.1 | 6.0 |
| Retail trade | 3.4 | 2.5 | 1.4 | 1.7 | 1.9 | 16.1 | 16.8 | 18.0 | 19.2 | 19.1 | 18.8 |
| Finance, insurance, and real estate | 3.5 | 3.4 | 1.3 | 1.7 | 1.9 | 5.3 | 5.6 | 6.4 | 6.6 | 6.6 | 6.6 |
| Services ${ }^{1}$. . . . . . . . . . . . . . . . . | 4.8 | 4.3 | 2.3 | 2.7 | 2.9 | 16.5 | 18.7 | 22.7 | 27.1 | 27.3 | 27.4 |
| Government . | 2.6 | . 7 | . 5 | . 7 | . 9 | 18.1 | 17.8 | 16.9 | 15.8 | 15.4 | 15.4 |
| Agriculture | $-.5$ | -. 6 | -1.1 | $-.8$ | $-.6$ | - | - | - | - | - | - |
| Private households . . . . . . . . . . . . . . . . . . . . | -3.4 | $-.9$ | $-.7$ | $-.1$ | . 0 | - | - | - | - | - | - |
| Nonfarm self-employed and unpaid family workers | 3.0 | 1.8 | . 8 | 1.3 | 1.7 | - | - | - | - | - | - |
| ${ }^{1}$ Excludes Standard Industrial Classifications 074,5,8 sifiable establishments). Therefore, the estimates are | vices) and parable wit | 9 (nonclas data pub |  | shed in Emp | oyment an | Earnings. |  |  |  |  |  |

Table 2. Distribution and growth of real domestic output by major sector, 1972, 1979, 1986, and projected to 2000

| Sector | Percent distribution |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |
|  |  |  |  | Low | Moderate | High |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Goods-producing | 48.3 | 46.5 | 43.5 | 41.0 | 41.5 | 42.1 |
| Mining | 4.8 | 4.0 | 3.3 | 2.4 | 2.3 | 2.3 |
| Construction | 7.9 | 6.9 | 6.8 | 5.7 | 6.0 | 6.5 |
| Manufacturing | 35.6 | 35.6 | 33.4 | 33.0 | 33.2 | 33.2 |
| Durable | 18.0 | 18.3 | 17.0 | 17.6 | 17.9 | 17.8 |
| Nondurable | 17.6 | 17.3 | 16.4 | 15.3 | 15.3 | 15.4 |
| Service-producing | 47.9 | 50.0 | 53.1 | 55.6 | 55.1 | 54.4 |
| Transportation and public utilities | 8.6 | 9.1 | 8.1 | 8.3 | 8.4 |  |
| Wholesale trade . ........ | 4.8 | 4.9 | 5.6 | 5.8 | 8.4 5.9 | 8.4 |
| Retail trade . | 6.6 | 6.7 | 7.4 | 7.8 | 7.5 | 7.5 |
| Finance, insurance, and real estate | 10.0 | 10.8 | 11.6 | 11.8 | 12.0 | 11.7 |
| Services | 10.8 | 12.0 | 13.8 | 15.4 | 15.4 | 15.1 |
| Government | 7.1 | 6.5 | 6.6 | 6.5 | 6.0 | 5.7 |
| Agriculture Private households | 3.6 | 3.3 | 3.3 | 3.3 | 3.3 | 3.4 |
|  | 2 | . 1 | 1 | . 1 | . 1 | . 1 |
|  | Average annual rate of change (in percent) |  |  |  |  |  |
|  | 1972-79 |  | 1979-86 | 1986-2000 |  |  |
|  |  |  | Low | Moderate | High |
|  | 2.9 |  |  | 1.6 | 1.6 | 2.4 | 3.0 |
| Goods-producing Mining Construction Manufacturing Durable Nondurable | 2.3.3 |  | 6-1.4 | 1.0 | 2.0 | 2.7 |
|  |  |  | - 9 | - 2 | . 4 |
|  | 1.0 |  |  | 1.3 | . 1 | 1.4 | 2.6 |
|  | 2.9 |  | . 6 | 1.3 | 2.3 | 2.9 |
|  | 3.1 |  | . 5 | 1.7 | 2.7 | 3.3 |
|  | 2.6 |  | . 8 | . 9 | 1.8 | 2.5 |
| Service-producing <br> Transportation and public utilities <br> Wholesale trade <br> Retail trade <br> Finance, insurance, and real estate <br> Services <br> Government | 3.5 |  | 2.4 | 1.8 | 2.6 | 3.1 |
|  | 3.6 |  | . 0 | 1.6 | 2.6 | 3.2 |
|  | 3.13.2 |  | $\begin{aligned} & 3.6 \\ & 3.0 \end{aligned}$ | 1.6 | 2.72.4 | 3.4 |
|  |  |  | 3.1 |  |  |
|  | 4.1 |  |  | 2.5 | 1.6 | 2.6 |  |
|  | 4.4 |  | 3.6 | 2.31.2 | 2.6 3.2 | 3.7 |
|  | 1.7 |  | 1.8 |  | 1.5 | 1.8 |
| Agriculture | $\begin{array}{r} 1.7 \\ -3.7 \end{array}$ |  | 1.43.0 | 1.5$-\quad .8$ | 2.4. | 1.3.4 |
| Private households |  |  |  |  |  |  |  |

Because most of the driving force behind the strong manufacturing output growth stems from investment in and exports of capital equipment, output growth is projected to be sharper for durable goods than for nondurables. Durable manufacturing industries are projected to average production growth of 2.7 percent a year, while nondurables will average 1.8 percent a year. In fact, of the 79 separate durable manufacturing industries in the economic projections system, only 5 are not expected to post any output gains. The exceptions are railroad equipment and four of the primary metals industries; all the other durable goods industries are projected to expand. Similarly, productivity gains are expected to be higher in durable goods industries, resulting in a net decline of 513,000 jobs, compared with a drop of 321,000 in nondurable manufacturing.

At the same time, it should be noted that the occupational composition of the remaining 18.2 million manufacturing jobs in 2000 is expected to change. More details can be
found in the George T. Silvestri and John M. Lukasiewicz article on occupational projections (pp. 46-63 of this issue), but in general, manufacturing employment is expected to shift away from production and assembly-line jobs toward professional, managerial, and technical occupations:

|  | Percent of employment |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Durables |  | Nondurables |  |
|  | 1986 | 2000 | 1986 | 2000 |
| All manufacturing occupations | 100.0 | 100.0 | 100.0 | 100.0 |
| Managerial, professional, technical | 19.9 | 23.4 | 12.8 | 14.7 |
| Marketing and sales | 2.2 | 2.3 | 4.1 | 4.6 |
| Administrative support, clerical | 11.3 | 10.2 | 12.6 | 12.2 |
| Precision production | 11.0 | 11.2 | 6.6 | 6.8 |
| Other production type jobs* | 47.3 | 44.9 | 55.5 | 53.6 |

*Mechanics, machine operators, hand assemblers, material movers, laborers.
In fact, although manufacturing in total is projected to drop 834,000 jobs, there will actually be an increase of 258,000 engineering, scientific, and technical positions and 85,000 more managerial jobs.

The shift is more pronounced in industries where imports play a significant role. In some cases, design and engineering are done domestically, but much of the actual assembly is performed overseas. The product is then brought into this country under the brand name of the domestic parent. In these cases-electronic home entertainment equipment as an example-the U.S. firm acts essentially as a design and marketing agent.

Following is a discussion of the outlook for selected manufacturing industries. (See table 6 for the full output and employment detail.)

Industrial machinery (except computers and office equipment). Despite some growth in 1984, 1985, and 1986, virtually all of the heavy industrial machinery industries have yet to regain 1979's peak production levels. Many of them rely on exports for a large share of their markets (between 10 and 30 percent of output), and with the wide disequilibrium in the price of the dollar in recent years, exports fell and imports gained ground-considerable ground in some industries. In addition, primary domestic markets for some of the machinery manufacturers have been depressed, particularly farming and mining.

Similarly, employment is still far below 1979's levels. About 500,000 fewer jobs were found in heavy machinery industries in 1986 than in 1979, shrinking demand having forced the closing of inefficient plants, complete restructuring of some industries, and the drastic streamlining of others.

The outlook for machinery, except electrical, is for a recovery in production to new peak levels (except in a few of the sectors), rapid productivity growth, and some job gains-but not enough to even come close to 1979's employment levels.

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This projection varies among the individual machinery producers. General industrial machinery (pumps, compressors, industrial ovens, fans, general purpose robots, and so forth) is projected to post 1.9 -percent annual output growth (somewhat slower than prerecession trends) and to add about 13,000 jobs to 1986 's employment level of 255,000 . Exports rise above 1985's depressed level but imports are projected to increase their market share from about 22 percent in 1985 to more than 26 percent by 2000. (Imports are calculated as a percent of the total value of output in constant 1982 dollars.) Miscellaneous nonelectric machinery (which includes such items as pistons, valves, and carburetors) is projected to have 2.2 -percent annual output growth, which again is slower than past trends, and to add about 26,000 jobs to reach an employment level of 301,000 by 2000. Exports and imports are relatively small in this sector. The employment level represents a new peak for the industry, because productivity growth is projected to be rather low; the large number of small firms and the diversity of products limit widespread automation. Metalworking machinery is also characterized by low productivity growth because of the many job shops in the industry, but sluggish growth in domestic output (because of weak demand and rising imports) causes employment in the BLS projections to fall from 304,000 in 1986 to 281,000 by 2000 .

Computers and office equipment. The computer manufacturing industry has been one of the fastest growing U.S. industries over the last 25 years and, despite rising imports, it is one of the few manufacturing industries to show a consistently large trade surplus. Job gains have been rapid in the industry since the mid-1970's, but since 1984, employment levels have fallen as the growth of domestic output slowed. The nature of work in this industry is uncharacteristic of manufacturing industries as a whole as reflected in its high concentration of scientific personnel and its relatively low concentration of production workers. ${ }^{2}$ More than 25 percent of employment in computer manufacturing consists of engineers, technicians, and systems analysts, while production workers represent only 35 percent. For manufacturing as a whole, production workers accounted for 68 percent of all jobs in 1986, although, as noted earlier, occupational shifts away from production-type occupations are projected to occur.

Output growth for computers is expected to slow considerably over the next 14 years, although the industry is still projected to be the fastest growing in the economy in terms of output. The slowdown occurs as the industry matures and its size makes it difficult to expand at past rates of growth; future technological advances are not assumed to have the same dramatic impact as the introduction of the minicomputer or the microcomputer. However, demand is expected to be buoyed by rapidly expanding purchases by private consumers. Employment is projected to expand by about 85,000 jobs to 503,000 in 2000 , with even more of a shift from production to research and development occupations.

Electrical and electronic equipment. The fastest growing industries within this sector are projected to be semiconductors and miscellaneous electronic components. Despite significant import growth, domestic production increases in these industries will rank them among the top five of all U.S. industries. Also enjoying rapid output growth of more than 5 percent a year will be the X-ray and electromedical apparatus industry, as demand for sophisticated health equipment continues unabated. Defense demand will not have as much of an impact on the communications equipment industry as in the past, but the slack is expected to be taken up by increases in private investment purchases of such items as satellites, fiber optics systems, broadcasting equipment, and industrial laser systems.

The rapid production gains in these electrical equipment industries are expected to lead to some job growth, but it is almost totally offset by declines in other, related industries. Overall employment in electrical equipment manufacturing is projected to remain at 2.1 million jobs.

Table 3. Projected output trends for selected industries, 1986-2000

| Fastest growing | Average annual rate of change (percent) |
| :---: | :---: |
| Electronic computing equipment | 7.4 |
| Arrangement of passenger transportation | 5.9 |
| Semiconductors and related devices | 5.8 |
| Miscellaneous electronic components | 5.5 |
| Amusement and recreation services, n.e.c. | 5.5 |
| X-ray and other electromedical apparatus | 5.2 |
| Optical and ophthalmic products | 5.1 |
| Child day care services . . . . . . | 5.1 |
| Computer and data processing services | 4.9 |
| Electronic home entertainment equipment | 4.9 |
| Residential care | 4.9 |
| Medical instruments and supplies | '4.4 |
| Outpatient facilities and health services, n.e.c. | 4.4 |
| Research, management, and consulting services | 4.3 |
| Radio and TV communication equipment | 4.2 |
| Oil and gas field services . . . . . . . . . . | 4.1 |
| Telephone and telegraph apparatus | 4.1 |
| Partitions and fixtures . . . . . . . . . . | 4.0 |
| Office and miscellaneous furniture and fixtures | 4.0 |
| Drugs | 4.0 |
| Slowest growing or most rapidly declining | Average annual rate of change (percent) |
| New farm housing, alterations, and additions | -3.2 |
| Crude petroleum, natural gas, and gas liquids | -2.0 |
| Footwear except rubber and plastic . . . . . . | -2.0 |
| New nonfarm housing, n.e.c. . . . . | -1.7 |
| Railroad equipment . . | -1.3 |
| Luggage, handbags, and leather products, n.e.c. | -1.0 |
| Metal mining | $-8$ |
| Blast furnaces and basic steel products | -. 8 |
| Iron and steel foundries | -. 7 |
| New conservation and development facilities | $-.4$ |
| Tobacco manufactures | -. 2 |
| Watch, clock, jewelry, and furniture repair | -. 2 |
| New local transit facilities . . . | -. 1 |
| New gas utility and pipeline facilities | -. 0 |
| Ship and boat building and repairing | . 2 |
| Private households . . . . . . . . . . . | 2 |
| Miscellaneous primary and secondary metals | 3 |
| Mobile homes | . 4 |
| Jewelry, silverware, and plated ware | 4 |
| New nonbuilding facilities, n.e.c. . . | . 5 |

Table 4. Projected employment trends for wage and salary workers, selected industries, 1986-2000

| Fastest growing | Average annual rate of change (percent) |
| :---: | :---: |
| Computer and data processing services | 5.2 |
| Outpatient facilities and health services, n.e.c. | 4.6 |
| Personnel supply services | 4.4 |
| Offices of health practitioners | 4.4 |
| Credit reporting and business services, n.e.c. | 4.1 |
| Legal services | 3.8 |
| Nursing and personal care facilities | 3.8 |
| Research, management, and consulting services | 3.6 |
| Residential care | 3.5 |
| Miscellaneous publishing | 3.4 |
| Equipment rental and leasing | 3.4 |
| Accounting, auditing, and services, n.e.c. | 3.2 |
| Personal services, n.e.c. | 3.1 |
| Detective and protective services | 3.1 |
| Credit agencies and investment offices | 2.9 |
| Advertising . | 2.9 |
| Services to dwellings and other buildings | 2.9 |
| Individual and miscellaneous social services | 2.9 |
| Automotive rentals, without drivers | 2.7 |
| Arrangement of passenger transportation | 2.6 |
| Most rapidly declining | Average annual rate of change (percent) |
| Railroad transportation | -3.9 |
| Footwear except rubber and plastic | -3.6 |
| Railroad equipment | -3.4 |
| Metal mining | -3.1 |
| Miscellaneous primary and secondary metals | -2.3 |
| Luggage, handbags, and leather products, n.e.c. | -2.3 |
| Blast furnaces and basic steel products | -2.2 |
| Iron and steel foundries | -2.1 |
| Electronic home entertainment equipment | -2.1 |
| Agricultural chemicals | -1.9 |
| Dairy products | -1.9 |
| Petroleum refining | -1.9 |
| Grain mill products and fats and oils | -1.8 |
| Tobacco manufactures | -1.8 |
| Tires and inner tubes | -1.8 |
| Plastics materials and synthetics | -1.7 |
| Coal mining | -1.6 |
| Ship and boat building and repairing | -1.6 |
| Sugar and confectionery products. | -1.6 |
| Aircraft . . . . . . . . . . . | -1.5 |

n.e.c. $=$ not elsewhere classified

Transportation equipment. BLS projects that employment in the auto industry will fall below the 1986 level, as tapering demand and higher productivity offset the trend toward more domestic-based production of foreign automobiles. Domestic production is expected to slow to about 2.0 percent a year, somewhat below pre-1979 rates of growth and trailing the 2.4-percent projected growth rate of GNP.

The slowdown reflects a projected absolute decline in the size of the 16- to 34 -year-old population, which accounts for the majority of first-time car buyers. This dampening trend offsets the expectation that there will be a larger number of older car buyers, who generally buy higher priced cars. At the same time, investment in new auto plants with the latest automated production techniques leads to a projected 3.2percent gain in productivity. Slower demand and high productivity outweigh the assumption that Japanese automakers will expand their U.S. operations-a likely event as the rising value of the yen relative to the dollar forces Japanese car prices to less competitive levels. Imports (in dollar
terms) are projected to hold a slightly smaller share of the market than at present, about 22 percent in 2000 , as imports from Japan shrink but those from the Third World rise. In total, domestic output of the motor vehicle industry is projected to grow only about 2.0 percent a year during the 1986-2000 period (compared to 2.4 percent for GNP), and employment to fall from 865,000 to 749,000 jobs.

The aircraft industry is expected to see production gains of only 0.8 percent a year, considerably slower than recent trends. The turnabout mainly results from the assumption of tapering defense demand following current high levels, but it is tempered somewhat by accelerated export growth. The industry is expected to be able to remain competitive in the export market through cost-cutting and productivity im-provements-jobs are projected to shrink from 339,000 in 1986 to 274,000 in 2000. Similar trends apply in the aircraft and missile engines and equipment industry-an increase in exports buoy output growth but the numbers of jobs fall from 385,000 in 1986 to 330,000 in 2000.

Instruments and related products. Demand is projected to be very high for many products in this industry, especially for optical instruments (in particular, spectrographs and electron microscopes), medical instruments, measuring and controlling devices, and engineering and scientific instruments. These industries have typically experienced very rapid output growth, and continued strong demand reflects the assumed high levels of research and development spending by U.S. manufacturers on this type of equipment in the future. Employment will grow from 707,000 in 1986 to 771,000 in 2000 , or about 9 percent over the entire period.

Primary and fabricated metals. Primary metals have suffered by far the largest job contraction of all the manufacturing sectors in the 1979-86 period, shrinking by 40 percent. All the primary metals industries have been affected, but basic steel and iron and steel foundries have lost the most jobs. The 1980-82 recessions accelerated a long-term decline in steel-the peak employment year for steel was 1965 and for production, 1974-and the industry closed many of its plants and cut production and jobs drastically. Large capital expenditures would be necessary to improve the competitiveness of raw steel production in the United States, but recent financial losses by most of the large steel companies have led instead to reduced capital expenditures. Also, this industry is faced by worldwide excess capacity, making needed capital improvements very risky.

The industry's declines are projected to ease in the future because most of the more inefficient mills have already closed, but no rebound is anticipated. U.S. steel output in real terms is projected to fall -0.8 percent a year over the 1986-2000 period (compared to -8.9 percent during the 1979-86 period), and employment to deline by -2.2 percent annually (versus -10.3 percent over the 1979-86 period). (The year 1986 may have been atypical because of a strike in the industry, but clearly, long-term trends are

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sharply negative.) Imports are projected to rise in value from 22.5 percent of total output in 1985 to almost 31 percent by 2000. Most of the import increases are expected to be in the form of semifinished steel for further processing in U.S. finishing mills, which are relatively more efficient than the Nation's raw steel manufacturing plants. Demand for steel and other primary metals will be sharply limited by the continued shift to other inputs (such as plastics and composites) in transportation equipment, machinery, and other manufactured goods.

Fabricated metal products lost 285,000 jobs between 1979 and 1986, and the sector is projected to lose another 120,000 by 2000 . Among the fabricated metals industries, structural metal products of the type used in construction are projected to post output growth at about the same rate as new construction, 1.7 percent a year, but more efficient production techniques will result in continued employment declines. Metal coating, engraving, and allied services is the only fabricated metals industry projected to add jobs. It is expected to enjoy fairly strong output growth ( 2.9 percent a year), because about 10 percent of its output is purchased by the fast-growing electronic components industry. Productivity advances in this industry are limited by the large number of small firms and by product diversity.

Food products. Overall output of food products is projected to grow slower than past trends, reflecting the future slowdown in population growth. Changing demographics and consumer preferences will boost demand for higher valued food items, such as prepared convenience foods, while limiting growth for others, such as sugar and confectionery products.

The meat products industry is projected to register 1.6percent annual output growth, with exports rising faster than domestic consumption. Canned, dried, and frozen foods is

Table 5. Industries projected to generate the largest numbers of new wage and salary jobs, 1986-2000

| Industry | New jobs (thousands) |
| :---: | :---: |
| Eating and drinking places | 2,471 |
| Offices of health practitioners | 1,375 |
| New and repair construction | 890 |
| Nursing and personal care facilities | 852 |
| Personnel supply services | 832 |
| State and local government education | 784 |
| Machinery and equipment wholesalers | 614 |
| Computer and data processing services | 613 |
| Grocery stores | 598 |
| Hotels and other lodging places | 574 |
| Outpatient facilities and health services, n.e.c. | 547 |
| State and local general government, n.e.c. | 546 |
| Research, management, and consulting services | 531 |
| Legal services | 522 |
| Credit agencies and investment offices | 499 |
| Credit reporting and business services, n.e.c. | 497 |
| Hospitals, private | 481 |
| Department stores | 386 |
| Real estate | 353 |
| Services to dwellings and other buildings | 341 |

n.e.c. $=$ not elsewhere classified
projected to have the fastest output growth of all the food sectors, 2.2 percent a year. Strong demand for high-priced frozen dinners and other frozen specialties will more than offset diminishing purchases of canned fruits and vegetables. The market for alcoholic beverages is expected to erode further as consumers continue to change their drinking habits. Output of domestic beer, wine, and liquor has shown no growth in real terms since 1979 , and is projected to recover to only 1.0 -percent annual growth over the $1986-$ 2000 period. This compares to 3 - to 4 -percent average growth for the industry prior to 1979. Soft drinks and flavorings (including carbonated waters) are projected to reap some of the benefits of flat beer and liquor sales, but because of slow growth in both the teen population and the number of fast food establishments, output of soft drinks will grow much slower than historically.

Efficiencies in food production are projected to continue to increase over the next decade, especially in grain mill products and in dairy products. Employment has been declining or has remained essentially unchanged in most food industries over the past 25 years, and this trend is expected to continue. Meat products, the largest food industry in terms of employment, is projected to add 10,000 jobs to reach 382,000 by 2000 , but overall, food industries combined are estimated to lose 161,000 jobs between 1986 and 2000.

Apparel and textiles. Rising real disposable income will boost consumer demand for apparel, but a larger proportion of output will come from foreign suppliers. Clothing imports are expected to claim a 37-percent market share by 2000, compared to an already high 28 percent in 1985. Despite rising imports, domestic production of apparel is projected to expand by 1.1 percent a year, because of the strong consumer demand and because continued costcutting measures will keep U.S. apparel prices competitive. Nevertheless, employment in the industry is projected to fall from 921,000 in 1986 to 763,000 in 2000 , a cutback of 158,000 jobs.

Textile mill products will benefit from both the steady growth in domestic apparel production and from the continued diffusion of new, automated technologies. Although imports are expected to increase their market share slightly, U.S. textile manufacturers are projected to be able to enjoy a healthy expansion of production. Floor covering mills are expected to be the fastest growing of the textile industries, with output rising 3.0 percent a year. Employment in textiles will continue to fall, however. About 300,000 jobs have been cut back in textile industries since the peak year 1973, and 99,000 fewer jobs are expected by 2000.

Printing and publishing. Printing and publishing is one of the few manufacturing sectors to have registered consistent job gains in the last few years. Even during the recession, both output and employment increased steadily. Despite the introduction of electronic composition systems and other
new technologies in the larger firms, employment gains in printing and publishing have actually accelerated from past rates to average 2.6 percent a year over the 1979-86 period.

The explanation for this growth lies in sharp increases in demand for new trade journals and newsletters, catalogs and directories, software manuals, new specialty magazines such as health and fitness and regional magazines, commercial printing and business forms, elementary school textbooks, and greeting cards. Also, the industry encompasses a large number of small, widely scattered firms, which often have only limited capacity to invest in the newer technologies. Occupational shifts also are occurring within the printing trades industries, from fewer typesetters and other craftworkers to more front-office personnel such as writers, editors, managers, and salesworkers.

Growth is projected to continue to be strong through the 1990's, and all of the printing and publishing industries are projected to show increases in both output and employment between 1986 and 2000. The most rapid growth will be for miscellaneous publishing, with 3.6-percent per year output gains and 3.4-percent employment growth.

Chemicals and allied products. The chemical industry encompasses a variety of products, each with a somewhat different outlook. Industrial chemicals are projected to continue their upswing from the 1980-82 recessions, but future expansion is limited. Once an important export industry, the domestic chemical sector has seen a weakening in worldwide demand as many foreign countries have invested in their own chemical manufacturing facilities. In contrast, substantial output growth is projected for plastics materials and synthetics, reflecting for the most part gains for plastics and resins (such as carbon fiber resin for autos and airplanes), but little or no growth in synthetic fibers. The plastics materials and synthetics industry traditionally has enjoyed high productivity, however, and employment is expected to continue to fall despite sharp output advances.

The fastest growing chemical industry, and indeed one of the fastest growing industries in the whole economy in terms of output, is drugs and pharmaceutical products. Advances in biomedical research have led to a vast array of important new drugs, and it is expected that these will be adopted widely in coming years. Also, an expanding elderly population which spends more of its income on medicines than any other age group will boost demand. Output of drug products is projected to grow 4.0 percent a year, and employment is expected to rise by 17,000 to 224,000 in 2000 .

## Service-producing industries

Overall trends for the service-producing sector are projected to be vastly different from those in the goods sector. Payroll job growth will be very strong for almost all of the service-producing industries, particularly health services, business services, and trade. Service-producing employment will constitute about 80 percent of all wage and salary
jobs by the year 2000. More than 20 million new jobs are projected to be added to the service-producing sector between 1986 and 2000.

Transportation. In recent years, deregulation has boosted employment in the air transportation industry as many smaller firms entered the market and price competition stimulated demand. But, in the long-run, consolidation and takeovers are expected to dampen the rate of job growth. Employment has been growing by more than 7 percent a year since 1983, but future increases are expected to be limited to 1.7 percent annually. This represents a gain of 151,000 jobs between 1986 and 2000. The slowdown occurs as unsuccessful competitors cut back on routes or merge with larger companies.

Along with the recent rise in airline transportation output and employment, there has been a corresponding boom in the arrangement of passenger transportation (travel agencies). With the proliferation and constant revision of new routes and new fares, the traveler has turned from the airline itself to an independent travel agent to make reservations. Employment in travel agencies and independent ticket offices rose from 99,000 in 1980 (the first year for which separate data were available for the industry) to 158,000 in 1986, and an additional 69,000 jobs are projected to be added by 2000.

Demand for truck transportation is generally dependent on the state of the economy; the value of trucking output is projected to post 2.2-percent annual growth over the 19862000 period. Consolidations are anticipated to have an impact in this industry as well, and projected employment growth is limited to 1.5 percent annually. Greater efficiencies in scheduling, marketing, and cost control are expected to make possible greater gains in output than in employment.

Communications. The breakup of the telephone service monopoly in 1983 thus far has not led to real output gains, and employment in communications (except broadcasting) is beginning to edge downward from the 1.1 million mark maintained through most of the 1970's and 1980's. Competition in the 1990's is expected to lead to an employment decline of about 121,000 (or -0.9 percent a year), but real output is projected to advance 3.9 percent a year as demand for telecommunications surges.

Radio and television broadcasting has seen the development of cable TV systems, which provided a further boost to already expanding output and employment. Growth should taper as the market becomes saturated, and the projections show a deceleration to 1.7-percent annual job gains during the 1986-2000 period, compared to 2.6 percent over the 1982-86 period.

Wholesale trade. Over the projection period, wholesale trade is expected to add 1.5 million jobs, about 600,000 of them among machinery and equipment suppliers. This gain
is a consequence of the earlier described assumptions of strong capital investment and export growth in these manufacturing industries.

Retail trade. In retail trade, 4.9 million jobs will be added. Although a very sizable number, the rate of gain projected for retail jobs falls considerably below historical trends for two reasons: (1) the trade division generally mirrors overall economic patterns, and as growth in the labor force and total employment moderates, retail trade can be expected to do likewise; and (2) a large part of the past additions to retail trade employment have been part-time workers, about 40 percent during the 1973-85 period, ${ }^{3}$ but trends indicate that this growth in the part-time labor force may not continue indefinitely.

As the following tabulation shows, part-time employment is mainly concentrated among teenagers and women in the 25 -to-54 and 55 -and-older age groups:

|  | Part-time workers, 19864 |  |
| :---: | :---: | :---: |
|  | Number (thousands) | Percent of total |
| Total | 20,598 | 100.0 |
| 16-19: |  |  |
| Men | 2,326 | 11.3 |
| Women | 2,468 | 12.0 |
| 20-24: |  |  |
| Men | 1,300 | 6.3 |
| Women | 1,841 | 8.9 |
| 25-54: |  |  |
| Men | 1,758 | 8.5 |
| Women | 7,399 | 35.9 |
| 55 and over: |  |  |
| Men | 1,438 | 7.0 |
| Women | 2,068 | 10.0 |

However, the supply of these workers is projected to be very limited in the future. The teenage labor force will show a net increase of only 195,000 between 1986 and 2000-consisting of an absolute decline of 1.5 million over the 1986-92 period (resulting from the "birth dearth" of the 1960's and 1970's) and an increase of 1.7 million over the 1992-2000 period (reflecting the larger numbers of births to baby-boom parents in the 1980's). The net impact of teenage labor force changes is to shrink this age group from 6.9 percent of all workers in 1986 to 6.0 percent by 2000 .

Additionally, data clearly indicate a declining preference by women for part-time work. The following tabulation shows women voluntarily working part time as a percentage of all employed women for selected recent years:

> Percent
part-time


Retailers in some areas have already found it difficult to staff their part-time positions, and there is much discussion about alternative sources of labor, such as older workers, to fill these jobs. This might be a partial solution in the longer term, as the labor force age 55 and over is projected to increase dramatically between 1986 and 2000. However, it does not seem a promising interim solution unless many early retirees can be induced to return to part-time work within the next few years. Although the number of workers aged 55 to 64 is projected to increase by 1.7 million between 1986 and 2000 -an unprecedented addition-it does not come close to matching the expected increase in retail trade jobs. Furthermore, all of the increase in the labor force of older persons begins to occur only after 1995.

The projected employment data in this article do not distinguish between part-time and full-time jobs, but an examination of the average workweek can provide some indication of expected trends. Average weekly hours in retail trade dropped from 35.6 in 1972 to 29.2 in 1986 (and to 25.6 in eating and drinking places), clearly a reflection of the growth in part-time employment. This decline, however, is beginning to moderate and is assumed to slow further in the projections. The rate of decline in the workweek averaged -0.8 percent a year from 1972 to 1979 for retail trade (other than eating and drinking places) and -2.1 percent for eating and drinking establishments. Over the more recent period 1979-86, the workweek decline averaged -0.7 and -0.6 percent, respectively. The projected decline is only -0.2 percent a year for retail trade and -0.3 percent for eating and drinking establishments.

Among individual retail industries, eating and drinking places will have the most growth in jobs, 2.5 million, but the rate of increase will be much slower than historically. In particular, the proliferation of fast-food establishments, which generated many jobs in the past, should taper off as the market becomes saturated and as population growth slows, especially that of the teenage population. Some additional growth is expected for eating and drinking places as the practice of contracting out food service operations reaches more markets, such as hospitals, residential institutions, and schools.

Grocery stores are projected to add 598,000 new jobs by 2000 , reflecting both a trend toward providing more laborintensive services (such as carry-out prepared meals, meat and deli counters, fish counters, and salad bars), as well as the continued expansion of store hours. Department stores will gain 386,000 jobs, and miscellaneous shopping goods stores are projected to add 339,000 . (This latter sector includes such establishments as sporting goods, jewelry, book, gift, and stationery stores.)

Finance and insurance. Banking, credit agencies, and investment offices should enjoy very substantial rates of output growth, but consolidation and technological advances in automatic banking and other financial transactions will sharply slow past rates of employment gain. The output
growth is expected as demand for financial services continues unabated, although the projected rates of increase are not expected to match those of recent years. In 1985 and 1986, falling interest rates and a bull market caused a surge in mortgage banking services and brokerage services. The projected long-term rates of output growth for these services are more in line with past longer term trends. Employment in finance is expected to grow less rapidly than in the past, but even so, there are projected to be 262,000 more jobs in banking, 495,000 more in credit agencies and investment offices, and 134,000 more in security and commodity brokers and exchanges by the year 2000. It should be noted that the distinctions among these sectors are blurring, as deregulation eliminates many restrictions on financial services.

The value of insurance services is projected to grow at about the same rate as GNP, 2.3 percent a year during the 1986-2000 period. Because of greater efficiencies in computerized underwriting, job gains will be limited-only 168,000 for insurance carriers and 214,000 for independent agents and brokers.

Services division. The major industry division, services, is composed of many different types of activities-business, health, professional, recreational, personal, and educational, to name a few. Overall, services has been and is projected to be the fastest growing division in terms of employment, adding 10 million new jobs between 1986 and 2000. In 1986, it accounted for about 23 percent of all nonfarm wage and salary jobs; in 2000 , it will account for more than 27 percent. More than 32 million payroll jobs will be in the services division in the year 2000.

Despite such awesome growth, the projected gains do not match past increases, due to the overall slowdown of labor force and employment growth expected in the 1990's. Over the period 1972-86, the services division added 10.4 million new jobs; its rate of growth averaged 4.5 percent a year. The projected rate of increase $1986-2000$ is 2.7 percent a year.
Following is a discussion of some of the major industries within the services division.

Business and professional services. For the current set of projections, it has been possible because of an expansion in BLS data series to study more of the detailed business services industries to try to get a clearer picture of where growth will occur. As can be seen in table 6, virtually all the business services industries are projected to have very rapid rates of output and employment growth, much faster than the increases in GNP or overall employment. The development of new types of specialized services continues to accelerate, thereby boosting employment in the business services sector.

The most rapidly growing business services industry and, in fact, the most rapidly growing of all the industries in the projections system in terms of employment, will be computer and data processing services. The need for systems design and analysis, programming, and software develop-
ment is certain to be very strong, reflecting the demand for specialized systems by business and government as well as the proliferation of packaged software for a wide variety of users. The heavy investment in computer-assisted design and manufacturing techniques which is assumed for the 1990's inevitably will lead to a sharp increase in demand for computer specialists. Employment in the industry is projected to swell by 5.2 percent a year, just about doubling its 1986 level to reach 1.2 million by 2000 .

The business services industry with the biggest absolute increase in employment will be personnel supply services, gaining more than 800,000 jobs over 1986's 1.0 million level by the year 2000. This industry has been one of the most rapidly expanding in recent years, almost doubling in employment over the period 1982-86.

Several factors help explain the phenomenal growth in personnel services. Most important has been the expansion in the temporary help industry. ${ }^{5}$ The demand for temporary help has been very strong because of lower fringe benefit costs-"temps" typically have fewer benefits than permanent employees-and because of employers' need to meet peak workloads under uncertain economic conditions. On the supply side, many workers have been willing to work as temporaries because of the opportunities for flexible scheduling of assignments and the chance for skill enhancement. The temporary field is not limited only to office workers; the market is expanding to include industrial, medical, managerial, and engineering and technical occupations as well. The projected rate of job growth for temporary help, however, is not expected to match the gains of 1982-86 because a large part of that surge was associated with cyclical recovery from the 1980-82 downturns. Despite a slowdown, however, growth of the temporary help industry will still be very strong.

Another factor contributing to growth in personnel supply services has been the trend by government to contract out operations previously performed by public employees. The operation of private prisons under contract with State and local governments is an example. The rise in public facilities management by private firms will foster additional growth in the personnel supply industry.

Contracting out, not only by government agencies but also by private business establishments, has also had an impact on the building services and protective services industries. In addition, the office and commercial building boom in recent years boosted the demand for contract cleaning and guard services. Future gains should be slower as construction tapers and the trend toward contracting out levels off. Thus, projected increases for the services to dwellings industry and the detective and protective services industry are not expected to match historical rates. Some new growth is anticipated for protective services in the field of mechanical protective devices and polygraph services, but these two areas are relatively small compared to building guard services.

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The development of new services should keep demand for the research, management, and consulting services industry very strong. Included in this industry are independent laboratories for research and development (nonmedical, and not manufacturing auxiliaries), market research, personnel training or management, economic research, efficiency experts, lobbyists, and other business consultants. Output is projected to grow 4.3 percent a year during the 1986-2000 period, a rate second only to that of computer services among all the business services industries. Some 513,000 new jobs are projected to be added to 1986's level of 788,000 , an increase of nearly two-thirds over the period 1986-2000.

The equipment rental and leasing sector shows very high projected output and employment growth rates (ranking among the top 20 for employment) primarily because of video tape rentals. The rest of this industry includes the leasing of tools and heavy construction equipment, which is not expected to be a high-growth service. (Computer leasing is not included here; rather, it is accounted for either in the computer services industry or in the computer manufacturing industry.)

The credit reporting and business services not-elsewhereclassified sector has very rapid projected growth primarily because of the "not-elsewhere-classified" designation. All the new business services that do not fit any other category are included in this industry. Examples are mailing list compilers, word processing services (typing), building inspectors, tourist and convention bureaus, restaurant reservation services, speakers' bureaus, merchandise liquidators, check validating services, and so on. Historically, employment growth in this industry has been very sharp, averaging about 60,000 new jobs each year since 1983. Future gains for miscellaneous business services should be more limited as the size of the industry reaches some upward limit. Employment increases in credit reporting and miscellaneous business services over the next 14 years are projected to average about 36,000 a year, for a total employment level of 1.2 million by 2000 .

The legal services industry has been booming, reflecting the increasing incidence of liability litigation; corporate mergers and acquisitions; high divorce levels; the geographic expansion of law firms; a greater degree of legal specialization within firms; and an increase in litigation in general. In addition, trends in the industry indicate a shift from self-employed workers toward more wage and salary personnel. Payroll employment in legal services grew by 7.4 percent each year between 1972 and 1986, while the number of self-employed (plus unpaid family workers) posted only 0.7 -percent annual growth. These trends-very rapid demand growth and fewer self-employed lawyersare projected to continue in the legal services industry. An additional 519,000 payroll jobs are projected for the legal services industry by the year 2000 . This represents a 3.8 percent annual rate of increase, ranking legal services among the top 10 fastest growing employment industries. A
rising proportion of these jobs are expected to be filled by legal assistants, rather than attorneys.

Like factory automation in manufacturing industries, office automation in business (and financial) service industries will have a significant impact on the occupational structure of those industries. It is expected that administrative support occupations, mainly in the clerical field, will account for a much smaller share of the work force. In some cases, even the absolute numbers of such jobs will decline, for example, stenographers, payroll and timekeeping clerks, typists and word processors, data entry keyers, and statistical clerks.

Health services. Industries providing medical care are undergoing very pronounced changes having important implications for future growth. Cost containment policies have halted-at least temporarily-the expansion of hospital output and employment, and more of the services once performed in a hospital now are being performed in doctors' offices and in outpatient facilities. Patient care is generally cheaper in these centers than in traditional hospitals, providing an impetus for future growth. New group practices such as emergency care clinics, surgicenters, and walk-in treatment centers, are becoming commonplace. Often these establishments perform their own radiological and laboratory work. This shift from hospital to outpatient care is projected to continue and, coupled with an increasing demand for medical care services, will significantly boost employment in establishments classified as offices of health practitioners. It is projected that 1.4 million new payroll jobs will be added to this industry between 1986 and 2000, reflecting a rate of growth of 4.4 percent a year.

Demand for health care is projected to be very strong in the 1990's because of the aging of the population and because of dramatic advances in medical technologies. The following tabulations illustrate the large projected increase in the elderly population and the reasons why this factor is so significant for the health industries:

|  | Population (millions) |  | As percent of total |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 65 and older | 85 and older | 65 and older | 85 and older |
| 1970 | 20.1 | 1.4 | 9.8 | 0.7 |
| 1975 . . . . . . . . . . | . 22.7 | 1.8 | 10.5 | . 8 |
| 1980 | . 25.7 | 2.3 | 11.3 | 1.0 |
| 1985. | . 28.5 | 2.7 | 11.9 | 1.1 |
| Projected 2000 | 34.9 | 4.9 | 13.0 | 1.8 |
|  | 1982-83 health expenditures as a percent of total expenditures |  |  |  |
|  | All consumer units |  | Consumer unit head age 65 or over |  |
| Total health care |  |  |  |  |
| Medical services |  |  |  |  |
| Drugs and supplies |  | 7 |  |  |
| Health insurance |  | 2 |  |  |

Table 6. Employment by selected industry, 1972, 1979, 1986, and projected to 2000

| Industry | Standard Industrial Classification | Employment (thousands) |  |  |  |  |  | Annual rate of change, 1986-2000 ${ }^{1}$ (percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |  |  |
|  |  |  |  |  | Low | Moderate | High | Employment | Output |
| Total | - | 84,549 | 101,353 | 111,623 | 126,432 | 133,030 | 137,533 | 1.3 | 2.4 |
| Agriculture <br> Livestock and livestock products Other agricultural products Agricultural services, forestry, and fishing Private households Nonfarm self-employed and unpaid family workers | 01,2,7,8,9 | 3,523 | 3,401 | 3,252 | 2,784 | 2,917 | 3,009 | - 8 | 2.4 |
|  | 01 pt., 02 pt. | 1,365 | 988 | 848 | 629 | 677 | 745 | -1.6 | 1.4 |
|  | $01 \mathrm{pt},. 02 \mathrm{pt}$. | 1,699 | 1,785 | 1,534 | 1,045 | 1,120 | 1,087 | -2.2 | 3.0 |
|  | 07,08,09 | 459 | 628 | 875 | 1,110 | 1,120 | 1,177 | 1.8 | 3.0 |
|  | 88 | 1,693 | 1,326 | 1,241 | 1,122 | 1,215 | 1,234 | -. 1 | . 2 |
|  | - | 5,819 | 7,145 | 8,086 | 8,972 | 9,742 | 10,277 | 1.3 |  |
| Nonfarm wage and salary | - | 73,514 | 89,481 | 99,044 | 113,554 | 119,156 | 123,013 | 1.3 | - |
| Mining <br> Metal mining Coal mining Crude petroleum, natural gas, and gas liquids. Oil and gas field services Nonmetallic minerals, except fuels | 10-14 | 628 | 958 | 783 | 672 | 724 | 779 | - 6 | - 2 |
|  | 10 | 83 | 101 | 41 | 20 | 27 | 29 | -3.1 | -. 8 |
|  | 11,12 | 161 | 259 | 176 | 140 | 141 | 149 | -1.6 | 2.2 |
|  | 131,2 | 143 | 198 | 224 | 169 | 184 | 192 | -1.4 | -2.0 |
|  | 138 | 125 | 276 | 233 | 253 | 271 | 302 | 1.1 | 4.1 |
|  | 14 | 116 | 124 | 109 | 91 | 102 | 106 | -. 5 | 1.4 |
| Construction . .......... | 15,16,17 | 3,889 | 4,463 | 4,904 | 5,643 | 5,794 | 6,077 | 1.2 | 1.4 |
| Manufacturing Durable manufacturing Lumber and wood products Logging camps and logging contractors Sawmills and planing mills Millwork and structural wood members, n.e.c. Veneer and plywood Wood containers and miscellaneous wood products Mobile homes | 20-39 | 19,151 | 21,042 | 18,994 | 16,833 | 18,160 | 19,050 | -. 3 | 2.3 |
|  | 24,25,32-39 | 11,050 | 12,762 | 11,244 | 9,654 | 10,731 | 11,193 | -. 3 | 2.7 |
|  | 24 | 726 | 767 | 711 | 603 | 693 | 763 | - 2 | 1.9 |
|  | 241 | 69 | 89 | 83 | 67 | 71 | 72 | -1.1 | 2.7 |
|  | 242 | 225 | 237 | 194 | 137 | 173 | 188 | -. 8 | 1.5 |
|  | 2431,4,9 | 122 | 150 | 184 | 209 | 227 | 254 | 1.5 | 1.7 |
|  | 2435,6 | 75 | 77 | 61 | 44 | 57 | 68 | -. 5 | 2.6 |
|  | 244,9 | 124 | 132 | 118 | 96 | 106 | 109 | -. 8 | 2.1 |
|  | 2451 | 80 | 57 | 49 | 34 | 42 | 50 | -1.1 |  |
| Furniture and fixtures Household furniture Partitions and fixtures Office and miscellaneous furniture and fixtures | 25 | 484 | 498 | 497 | 515 | 563 | 607 | . 9 | 3.1 |
|  | 251 | 337 | 329 | 294 | 280 | 311 | 351 | . 4 | 2.2 |
|  | 254 | 56 | 65 | 72 | 72 | 80 | 81 | . 7 | 4.0 |
|  | 252,3,9 | 91 | 104 | 131 | 163 | 172 | 175 | 2.0 | 4.0 |
| Stone, clay, and glass products Glass and glass products Concrete, gypsum, and plaster products Stone, clay, and miscellaneous mineral products |  | 678 | 710 | 586 | 483 | 535 | 560 | -. 6 | 1.4 |
|  | 321,2,3 | 193 | 199 | 155 | 121 | 138 | 146 | - 8 | 1.2 |
|  |  | 210 | 216 | 209 | 184 | 206 | 217 | -. 1 | 1.5 |
|  | 325,6,8,9 | 243 | 262 | 199 | 162 | 173 | 179 | -1.0 |  |
| Primary metal industries Blast furnaces and basic steel products Iron and steel foundries Miscellaneous primary and secondary metals Aluminum rolling and drawing Nonferrous wire drawing and insulating Aluminum foundries | 33 | 1,173 | 1,254 | 753 | 489 | 574 | 646 | -1.9 | 1 |
|  | 331 | 568 | 571 | 275 | 166 | 202 | 229 | -2.2 | - 8 |
|  | 332 | 219 | 241 | 131 | 81 | 97 | 109 | -2.1 | $-.7$ |
|  | 334,9 | 36 | 51 | 42 | 25 | 30 | 37 | -2.3 | . 3 |
|  | 3353,4,5 | 9 | 76 | 65 | 53 | 55 | 60 | -1.2 | 1.1 |
|  | 3357 | 85 | 89 | 77 | 60 | 68 | 71 | -. 9 | 1.6 |
|  | 3361 | 46 | 58 | 53 | 40 | 45 | 46 | -1.2 | 1.4 |
| Fabricated metal products <br> Metal cans and shipping containers Cutlery, hand tools, and hardware Plumbing and nonelectric heating equipment Fabricated structural metal products Screw machine products, bolts, rivets, and so forth Forgings Automotive stampings Stampings, except automotive Metal coating, engraving, and allied services Ordnance, except vehicles and missiles Miscellaneous fabricated metal products | 34 | 1,547 | 1,718 | 1,433 | 1,172 | 1,313 | 1,361 | -. 6 | 1.8 |
|  | 341 | 85 | 80 | 58 | 45 | 50 | 52 | -1.1 | 1.3 |
|  | 342 | 161 | 184 | 136 | 115 | 127 | 130 | -. 5 | 1.9 |
|  | 343 | 71 | 76 | 61 | 53 | 56 | 59 | - 6 | 1.4 |
|  | 344 | 444 | 523 | 438 | 340 | 385 | 394 | - 9 | 1.7 |
|  | 345 | 100 | 116 | 93 | 73 | 84 | 88 | -. 7 | 1.6 |
|  | 3462,3 | - | 63 | 39 | 34 | 38 | 41 | $-.1$ | 1.0 |
|  | 3465 | 104 | 118 | 105 | 75 | 91 | 104 | -1.0 | 1.4 |
|  | 3466,9 | - | 124 | 100 | 85 | 88 | 90 | - 9 | 2.4 |
|  | 347 | 88 | 107 | 110 | 112 | 126 | 129 | 1.0 | 2.9 |
|  | 348 | 82 | 64 | 77 | 67 | 74 | 77 | - . 2 | 2.7 |
|  | 349 | 224 | 264 | 216 | 174 | 193 | 197 | -. 8 | 1.9 |
| Machinery, except electrical <br> Engines and turbines <br> Farm and garden machinery <br> Construction machinery <br> Mining and oilfield machinery <br> Materials handling machinery and equipment <br> Metalworking machinery <br> Special industry machinery <br> General industrial machinery <br> Electronic computing equipment Office and accounting machines Refrigeration and service industry machinery Miscellaneous nonelectrical machinery | 35 | 1,889 | 2,485 | 2,059 | 1,951 | 2,129 | 2,171 | 2 | 4.5 |
|  | 351 | 115 | 145 | 102 | 85 | 93 | 92 | - 6 | 1.4 |
|  | 352 | 135 | 182 | 91 | 80 | 80 | 85 | -1.0 | 1.2 |
|  | 3531 | 139 | 156 | 80 | 71 | 76 | 76 | -. 4 | 1.8 |
|  | 3532,3 | 65 | 120 | 68 | 74 | 83 | 95 | 1.4 | 2.0 |
|  | 3534,5,6,7 | 89 | 106 | 79 | 75 | 87 | 92 | . 7 | 3.1 |
|  | 354 | 286 | 369 | 304 | 250 | 281 | 286 | - 6 | 1.8 |
|  | 355 | 177 | 205 | 159 | 130 | 140 | 138 | -. 9 | . 9 |
|  | 356 | 267 | 329 | 255 | 242 | 268 | 273 | . 3 | 1.9 |
|  | 3573 | 182 | 319 | 418 | 466 | 503 | 510 | 1.3 | 7.4 |
|  | 3572,4,6,9 | 77 | 78 | 57 | 43 | 51 | 49 | - 7 | 3.7 |
|  | 358 | 164 | 188 | 171 | 149 | 166 | 169 | - 2 | 2.9 |
|  | 359 | 191 | 286 | 275 | 287 | 301 | 306 | . 7 | 2.2 |
| Electrical and electronic equipment <br> Electric distributing equipment Electrical industrial apparatus Household appliances Electric lighting and wiring equipment Electronic home entertainment equipment Telephone and telegraph apparatus Radio and TV communication equipment Electronic tubes Semiconductors and related devices Miscellaneous electronic components Storage batteries and engine electrical parts |  |  |  | 2,124 |  | 2,128 | 2,222 | . 0 | 3.9 |
|  | 361 | 128 | 126 | 107 | 79 | 99 | 110 | -. 6 | 2.4 |
|  | 362 | 209 | 251 | 187 | 159 | 175 | 178 | -. 5 | 2.0 |
|  | 363 | 187 | 178 | 135 | 112 | 121 | 132 | -. 8 | 2.5 |
|  | 364 | 204 | 225 | 196 | 163 | 185 | 191 | -. 4 | 1.6 |
|  | 365 | 139 | 115 | 82 | 61 | 61 | 67 | -2.1 | 4.9 |
|  | 3661 | 160 | 165 | 127 | 94 | 116 | 132 | - 6 | 4.1 |
|  | 3662 | 299 | 357 | 505 | 472 | 542 | 585 | . 5 | 4.2 |
|  | 3671,2,3 | 46 | 42 | 40 | 26 | 34 | 36 | -1.1 | 6 |
|  | 3674 | 115 | 201 | 268 | 280 | 289 | 276 | . 5 | 5.8 |
|  | 3675,6,7,8,9 | 193 | 281 | 323 | 343 | 352 | 354 | 6 -7 | 5.5 |
|  | 3691,4 | 94 | 118 |  |  |  | 89 |  | 2.3 |

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Table 6. Continued-Employment by selected industry, 1972, 1979, 1986, and projected to 2000

| Industry | $\begin{gathered} \text { Standard } \\ \text { Industrial } \\ \text { Classification } \end{gathered}$ | Employment (thousands) |  |  |  |  |  | Annual rate of change, 1986-20001 (percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |  |  |
|  |  |  |  |  | Low | Moderate | High | Employment | Output |
| X-ray and other electromedical apparatus Electrical equipment and supplies, n.e.c. | $\begin{aligned} & 3693 \\ & 3692,9 \end{aligned}$ | - | 26 30 | 32 27 | 41 23 | $\begin{aligned} & 45 \\ & 24 \end{aligned}$ | $\begin{aligned} & 46 \\ & 25 \end{aligned}$ | $\begin{array}{r} 2.5 \\ -\quad .9 \end{array}$ | $\begin{aligned} & 5.2 \\ & 3.0 \end{aligned}$ |
|  | 37 | 1,790 | 2,077 | 2,016 | 1,516 | 1,697 | 1,742 | -1.2 | 1.7 |
| Motor vehicles | 371 | 875 | 990 | 865 | 679 | 749 | 770 | -1.0 | 2.0 |
| Motor vehicles and car bodies | 3711 | 415 | 463 | 396 | 307 | 335 | 343 | -1.2 | 1.9 |
| Motor vehicle parts and accessories | 3714 | 383 | 441 | 387 | 306 | 340 | 350 | -. 9 | 2.1 |
| Truck and bus bodies, trailers, and motor homes | 3713,5,6 | 77 | 86 | 82 | 67 | 75 | 78 | -. 7 | 3.0 |
| Aircraft . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 3721 | 287 | 333 | 339 | 243 | 274 | 282 | -1.5 | . 8 |
| Aircraft and missile engines and equipment | 3724,8,3764,9 | 224 | 298 | 385 | 282 | 330 | 339 | -1.1 | 2.0 |
| Guided missiles and space vehicles | 3761 | 76 | 81 | 153 | 120 | 124 | 129 | -1.5 | . 8 |
| Ship and boat building and repairing | 373 | 193 | 226 | 185 | 129 | 147 | 151 | -1.6 | . 2 |
| Railroad equipment | 374 | 49 | 74 | 28 | 16 | 17 | 17 | -3.4 | -1.3 |
| Miscellaneous transportation equipment | 375,9 | 86 | 74 | 61 | 47 | 55 | 55 | -. 7 | 3.4 |
| Instruments and related | 38 | 517 | 691 | 707 | 692 | 771 | 791 | 6 | 3.7 |
| Engineering and scientific instruments | 381 | 65 | 72 | 84 | 89 | 94 | 96 | 8 | 3.3 |
|  | 382 | 160 | 236 | 246 | 227 | 267 | 272 | 6 | 3.4 |
| Measuring and controlling devices Optical and ophthalmic products. | 383,5 | 55 | 77 | 71 | 74 | 79 | 80 | 8 | 5.1 |
| Medical instruments and supplies | 384 | 90 | 144 | 180 | 204 | 226 | 234 | 1.6 | 4.4 |
| Photographic equipment and supplies | 386 | 117 | 134 | 115 | 90 | 97 | 102 | -1.2 | 2.9 |
| Miscellaneous manufacturing | 39 | 433 | 445 | 362 | 306 | 329 |  | - . 7 | 1.9 |
| Jewelry, silverware, and plated ware | 391 | 52 | 61 | 54 | 50 | 52 | 48 | -. 3 | . 4 |
|  | 394 | 126 | 121 | 94 | 76 | 85 | 86 | -. 7 | 3.1 |
| Toys and sporting goods Manufactured products, n.e.c. | 393,5,6,9 | 255 | 263 | 214 | 179 |  |  | -. 8 | 1.9 |
| Nondurable manufacturing | 20-23,26-31 | 8,101 | 8,280 | 7,750 | 7,179 | 7,429 | 7,857 | -. 3 |  |
| Food and kindred products | 20 | 1,745 | 1,733 | 1,617 | 1,421 | 1,456 | 1,512 | -. 7 | 1.5 |
| Meat products ........ | 201 | 347 | 358 | 372 | 380 | 382 | 390 | 2 | 1.6 |
| Dairy products | 202 | 217 | 180 | 163 | 123 | 125 | 129 | -1.9 | 1.2 |
|  | 203 | 255 | 261 | 238 | 227 | 235 | 252 | -. 1 | 2.2 |
| Canned, dried, and frozen foods ... Grain mill products and fats and oils | 204,7 | 172 | 189 | 156 | 120 | 122 | 124 | -1.8 | 1.7 |
| Grain mill products and fats and oils Bakery products .............. | 205 | 258 | 231 | 210 | 180 | 182 | 188 | -1.0 | . 9 |
| Sugar and confectionery products | 206 | 117 | 110 | 97 | 76 | 78 | 82 | -1.6 | . 5 |
| Alcoholic beverages .......... | 2082,3,4,5 | 91 | 85 | 71 | 56 | 59 | 64 | -1.3 | 1.0 |
| Soft drinks and flavorings | 2086,7 | 137 | 153 | 141 | 117 | 122 | 131 | -1.0 | 1.5 |
| Miscellaneous foods and kindred products | 209 | 152 | 166 | 169 | 142 | 150 | 153 | -. 8 | 1.8 |
| Tobacco manufactures | 21 | 75 | 70 | 59 | 40 | 46 | 47 | -1.8 | - 2 |
| Textile mill products | 22 | 985 | 886 | 706 | 582 | 607 |  |  | 1.6 |
| Weaving, finishing, yarn and thread mills | 221,2,3,4,6,8 | 583 | 528 | 388 | 302 | 316 | 337 | -1.5 | 1.4 |
| Knitting mills ..................... | 225 | 268 | 227 | 207 | 183 | 186 | 198 | - 8 | 1.4 |
| Floor covering mills | 227 | 62 | 61 | 56 | 56 | 60 | 68 | . 5 | 3.0 |
| Miscellaneous textile goods | 229 | 72 | 70 | 55 | 42 | 46 | 51 | -1.3 | 1.7 |
| Apparel and other textile products | 23 | 1,382 | 1,304 | 1,105 | 903 | 924 | 965 | -1.3 | 1.3 |
| Apparel | 231-8 | 1,206 | 1,115 | 921 | 744 | 763 | 799 | -1.3 | 1.1 |
| Miscellaneous fabricated textile products | 239 | 176 | 189 | 184 | 158 | 161 | 166 | -1.0 | 2.1 |
| Paper and allied prod | 26 | 689 | 706 | 675 | 633 | 655 | 715 | - . 2 | 2.4 |
| Pulp, paper, and paperboard mills | 261,2,3,6 | 273 | 271 | 249 | 218 | 223 | 233 | -. 8 | 2.6 |
| Converted paper products except containers | 264 | 196 | 221 | 230 | 243 | 256 | 284 | . 8 | 2.7 |
| Paperboard containers and boxes ....... | 265 | 220 | 214 | 196 | 172 | 176 | 198 | -. 8 | 1.8 |
| Printing and publishing | 27 | 1,094 | 1,235 | 1,458 | 1,643 | 1,706 | 1,798 | 1.1 |  |
| Newspapers | 271 | 382 | 420 | 458 | 508 | 520 | 541 | . 9 | 1.7 |
| Periodicals | 272 | 63 | 82 | 115 | 131 | 137 | 147 | 1.3 | 3.1 |
| Books | 273 | 96 | 102 | 109 | 121 | 126 | 133 | 1.1 | 2.4 |
| Miscellaneous publishing | 274 | 38 | 46 | 72 | 106 | 115 | 125 | 3.4 | 3.6 |
| Commercial printing and business forms | 275,6 | 394 | 455 | 557 | 612 | 635 | 671 | . 9 | 3.6 |
| Blankbooks and bookbinding | 278 | 58 | 63 | 73 | 82 | 86 | 90 | 1.2 | 3.1 |
| Printing trade services .... | 279 | 41 | 43 | 51 | 65 | 67 | 69 | 1.9 | 3.5 |
| Chemicals and allied prod | 28 | 1,009 | 1,109 | 1,023 | 912 | 950 | 1,017 | -. 5 |  |
| Industrial chemicals ...... | 281,6 | 284 | 333 | 291 | 250 | 258 | 272 | -. 9 | 1.9 |
| Plastics materials and synthetics | 282 | 229 | 212 | 167 | 125 | 132 | 143 | -1.7 | 3.0 |
| Drugs . . . . . . . . . . . . . . . | 283 | 159 | 192 | 207 | 217 | 224 | 235 | . 6 | 4.0 |
| Soap, cleaners, and toilet goods | 284 | 122 | 139 | 147 | 147 | 154 | 167 | 3 | 2.4 |
| Paints and allied products | 285 | 69 | 69 | 63 | 50 | 53 | 58 | -1.2 | 1.6 |
| Agricultural chemicals ... | 287 | 56 | 70 | 55 | 39 | 42 | 47 | -1.9 | 1.6 |
| Miscellaneous chemical products | 289 | 90 | 93 | 93 | 86 | 89 | 95 | -. 3 | 2.9 |
|  | 29 | 195 | 210 | 169 | 120 | 127 | 134 | -2.0 | . 6 |
| Petroleum and coal products Petroleum refining ...... | 291 | 151 | 165 | 131 | 96 | 100 | 106 | -1.9 | . 6 |
|  | 30 | 631 | 781 |  | 825 | 861 | 913 | . 6 | 3.1 |
| Rubber and miscellaneous plastics products Tires and inner tubes ............. | 301 | 122 | 127 | 88 | 65 | 69 | 75 | -1.8 | 1.4 |
| Rubber products and plastic hose and footwear | 302,3,4,6 | 166 | 166 | 135 | 108 | 112 | 119 | -1.4 | 2.0 |
| Rubber products and plastic hose and footwear Miscellaneous plastics products ........... | 307 | 343 | 488 | 566 | 653 | 680 | 720 | 1.3 | 3.7 |
| Leather and leather products | 31 | 296 | 246 | 152 | 99 | 98 | 103 | -3.1 |  |
| Footwear except rubber and plastic | 313,4 | - | 161 | 96 | 61 | 58 | 58 | -3.6 | -2.0 |
| Luggage, handbags, and leather products, n.e.c | 311,5,6,7,9 | - | 85 | 56 | 38 | 40 | 45 | -2.3 | -1.0 |
| Transportation and public utilitiesTransportation $\ldots . . . . . . . . . . ~$ | 40-42,44-49 | 4,541 | 5,135 | 5,244 | 5,410 | 5,719 | 5,903 | . 6 | 2.6 |
|  | 40-42,44-47 | 2,678 | 3,021 | 3,041 | 3,315 | 3,500 | 3,568 | 1.0 | 2.4 |

Table 6. Continued-Employment by selected industry, 1972, 1979, 1986, and projected to 2000

| Industry | Standard Industrial Classification | Employment (thousands) |  |  |  |  |  | Annual rate of change, 1986-2000 ${ }^{1}$ (percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |  |  |
|  |  |  |  |  | Low | Moderate | High | Employment | Output |
| Railroad transportation Local and interurban passenger transit Trucking and warehousing Water transportation Air transportation . <br> Arrangement of passenger transportation Miscellaneous transportation services | 40 | 582 | 556 | 331 | 167 | 190 | 203 | -3.9 | . 7 |
|  | 41 | 276 | 263 | 282 | 300 | 308 | 315 | . 6 | 1.3 |
|  | 42 | 1,124 | 1,339 | 1,382 | 1,627 | 1,713 | 1,740 | 1.5 | 2.2 |
|  | 44 | 212 | 216 | 174 | 146 | 159 | 167 | - 6 | 1.7 |
|  | 45 | 348 | 438 | 570 | 690 | 721 | 725 | 1.7 | 3.7 |
|  | 4722 | - | - | 158 | 217 | 227 | 230 | 2.6 | 5.9 |
|  | 471,2,3,4,8 | - | - | 126 | 153 | 164 | 172 | 1.9 | 3.0 |
| Communications Communications except broadcasting Radio and television broadcasting | 48 | 1,152 | 1,309 | 1,279 | 1,130 | 1,222 | 1,320 | -. 3 | 3.9 |
|  | 481,2,9 | 1,009 | 1,121 | 1,041 | 845 | 920 | 978 | - 9 | 3.9 |
|  | 483 | 143 | 188 | 238 | 284 | 302 | 342 | 1.7 | 3.9 |
| Public utilities . . . . . . . . . . . . . | 49 | 711 | 805 | 924 | 965 | 998 | 1,015 | . 6 | 2.1 |
| Electric utilities including combined services | 491,493 pt. | 420 | 493 | 582 | 602 | 613 | 621 | 4 | 2.4 |
| Gas utilities including combined services .. | 492, 493 pt . | 216 | 220 | 216 | 200 | 210 | 214 | - 2 | 1.5 |
| Water and sanitation including combined services | 494-7, 493 pt . | 75 | 92 |  | 164 | 175 | 180 | 2.4 | 3.4 |
| Wholesale trade | 50,1 | 4,113 | 5,204 | 5,735 | 7,015 | 7,266 | 7,361 | 1.7 | 2.7 |
| Motor vehicles and automotive equipment | 501 | 353 | 439 | 431 | 479 | 496 | 502 | 1.0 | - |
| Machinery, equipment, and supplies | 508 | 869 | 1,261 | 1,445 | 1,988 | 2,059 | 2,086 | 2.6 |  |
| Groceries and related products | 514 | 536 | 648 | 757 | 876 | 907 | 919 | 1.3 |  |
| Petroleum and products | 517 | 225 | 225 | 200 | 187 | 194 | 197 | -. 2 |  |
| Retail trade | 52-59 | 11,835 | 14,989 | 17,845 | 21,795 | 22,702 | 23,079 | 1.7 | 2.4 |
| Department stores | 531 | 1,706 | 1,878 | 1,978 | 2,261 | 2,364 | 2,404 | 1.3 | - |
| Grocery stores .. | 541 | 1,578 | 2,002 | 2,523 | 2,984 | 3,121 | 3,174 | 1.5 | - |
| New and used car dealers | 551,2 | 814 | 881 | 947 | 906 | 947 | 963 | . 0 | - |
| Gasoline service stations | 554 | 649 | 577 | 596 | 387 | 502 | 412 | -1.2 | - |
| Apparel and accessory stores | 56 | 784 | 949 | 1,070 | 1,292 | 1,351 | 1,374 | 1.7 | - |
| Eating and drinking places . . | 58 | 2,860 | 4,513 | 5,879 | 8,084 | 8,365 | 8,501 | 2.6 | 1.9 |
| Drug and proprietary stores | 591 | 452 | 489 | 563 | 647 | 677 | 688 | 1.3 | - |
| Miscellaneous shopping goods stores | 594 | 375 | 569 | 746 | 1,038 | 1,085 | 1,103 | 2.7 |  |
| Finance, insurance, and real estate | 60.67 | 3,907 | 4,975 | 6,297 | 7,508 | 7,917 | 8,159 | 1.7 | 2.6 |
| Banking .... | 60 | 1,115 | 1,499 | 1,736 | 1,930 | 1,998 | 2,060 | 1.0 | 2.8 |
| Credit agencies and investment offices | 61,7 | 458 | 665 | 1,023 | 1,364 | 1,518 | 1,610 | 2.9 | 3.1 |
| Security and commodity brokers and exchanges | 62 | 203 | 204 | 392 | 517 | 526 | 543 | 2.1 | 2.2 |
| Insurance carriers | 63 | 1,054 | 1,200 | 1,364 | 1,454 | 1,532 | 1,566 | . 8 | 2.3 |
| Insurance agents, brokers, and service | 64 | 301 | 430 | 581 | 767 | 795 | 808 | 2.3 | 2.3 |
| Real estate . . . . . . . . . . . . . . . . . | 65,6 | 776 | 977 | 1,200 | 1,476 | 1,548 | 1,572 | 1.8 | 2.5 |
| Services ${ }^{2}$ | 70-86,89 | 12,117 | 16,768 | 22,531 | 30,545 | 32,545 | 33,708 | 2.7 | 3.2 |
| Hotels and other lodging places | 70 | 813 | 1,060 | 1,401 | 1,848 | 1,971 | 2,061 | 2.5 | 1.9 |
| Personal services .......... | 72 | 912 | 904 | 1,104 | 1,298 | 1,357 | 1,391 | 1.5 | 1.6 |
| Laundry, cleaning, and shoe repair | 721,5 |  | 367 | 393 | 400 | 434 | 445 | . 7 | . 8 |
| Personal services, n.e.c. | 722,9 | - | 150 | 267 | 406 | 411 | 422 | 3.1 | 3.2 |
| Beauty and barber shops | 723,4 | - | 319 | 367 | 410 | 423 | 430 | 1.0 | . 7 |
| Funeral service and crematories | 726 | 64 | 69 | 77 | 82 | 89 | 94 | 1.0 | 1.1 |
| Business services | 73 | 1,790 | 2,906 | 4,781 | 7,593 | 8,121 | 8,533 | 3.9 | 4.2 |
| Advertising | 731 | 121 | 146 | 202 | 284 | 302 | 310 | 2.9 | 3.5 |
|  | 734 | 336 | 487 | 681 | 995 | 1,020 | 1,046 | 2.9 | 3.2 |
| Personnel supply services ........... | 736 | 221 | 527 | 1,017 | 1,730 | 1,851 | 1,908 | 4.4 | 3.6 |
| Computer and data processing services | 737 | 107 | 271 | 591 | 1,090 | 1,203 | 1,281 | 5.2 | 5.0 |
| Research, management, and consulting services | 7391,2,7 | - | - | 788 | 1,186 | 1,301 | 1,394 | 3.6 | 4.3 |
| Detective and protective services ......... | 7393 | - | - | 445 | 658 | 687 | 709 | 3.1 | 3.9 |
| Equipment rental and leasing <br> Photocopying, commercial art, photofinishing | 7394 | - | - | 208 | 314 | 330 | 396 | 3.4 | 4.1 |
|  | 7332,3,95 | - | - | 174 | 199 | 244 | 257 1 | 2.4 | 4.1 |
| Credit reporting and business services, n.e.c. | $\begin{aligned} & 732,5 ; 7331,39 ; \\ & 7396,99 \end{aligned}$ | - | - | 677 | 1,137 | 1,184 | 1,233 | 4.1 | 4.0 |
| Auto repair, services, and garages | 75 751 | 399 |  |  | 919 210 | 1,016 233 | 1,040 241 |  | 2.2 2.6 |
| Automotive rentals, without drivers | 751 $752,3,4$ | - | 120 | 161 601 | 210 709 | 233 783 | 241 799 | 2.7 1.9 | 2.6 2.2 |
| Miscellaneous repair shops | 76 | 199 | 282 | 320 | 352 | 397 | 416 | 1.5 | 1.2 |
| Electrical repair shops | 762 | - | 79 | 104 | 125 | 142 | 146 | 2.3 | . 8 |
| Watch, clock, jewelry, and furniture repair Miscellaneous repair shops and related services | 763,4 | - | 29 | 28 | 26 | 28 | 29 | . 0 | - 2 |
|  | 769 | - | 174 | 188 | 201 | 226 | 240 | 1.3 | 1.6 |
| Motion pictures | 78 | 205 | 228 | 227 | 207 | 248 | 266 | . 6 | 2.0 |
| Amusement and recreation services | 79 | 504 | 712 | 915 | 1,143 | 1,204 | 1,235 | 2.0 | 4.6 |
| Theatrical producers and entertainers | 792 | - | 85 | 121 | 159 | 165 | 167 | 2.2 | 4.0 |
| Bowling alleys and billiard establishments | 793 | - | 110 | 95 | 72 | 82 | 85 | -1.1 | . 6 |
| Commercial sports | 794 | - | 72 | 99 | 126 | 133 | 143 | 2.1 | 1.5 |
| Amusement and recreation services, n.e.c. | 791,9 | - | 445 | 600 | 785 | 824 | 840 | 2.3 | 5.5 |
| Health services | 80 | 3,412 | 4,993 | 6,551 | 9,369 | 9,774 | 10,039 | 2.9 | 3.4 |
| Offices of health practitioners | 801,2,3,4 | 694 | 1,150 | 1,672 | 2,901 | 3,061 | 3,137 | 4.4 | 3.7 |
| Nursing and personal care facilities | 805 | 591 | 951 | 1,250 | 1,992 | 2,097 | 2,124 | 3.8 | 3.6 |
| Hospitals, private . . . . . . . . . . . | 806 | 1,980 | 2,608 | 3,038 | 3,438 | 3,513 | 3,611 | 1.0 | 2.8 |
| Outpatient facilities and health services, n.e.c. | 807,8,9 | 146 | 284 | 591 | 1,038 | 1,103 | 1,167 | 4.6 | 4.4 |
| Legal services <br> Educational services <br> Social, membership, and miscellaneous services Individual and miscellaneous social services Job training and related services Child day care services | 81 | 271 | 460 | 748 | 1,191 | 1,267 | 1,317 |  |  |
|  | 82 | 958 | 1,090 | 1,428 | 1,532 | 1,620 | 1,666 | . 9 | 1.8 |
|  | 83,4,6,9 | - | 3,571 | 4,296 | 5,326 | 5,569 | 5,745 | 1.9 | 3.0 |
|  | 832,9 | - | 393 | 528 | 755 | 790 | 798 | 2.9 | 2.9 |
|  | 833 | 146 | 303 | 256 | 333 | 337 | 389 | 2.0 | ${ }^{2.6}$ |
|  | 3835 | 146 | 303 | 354 | 467 | 478 | 495 | 2.2 | 5.1 |

Table 6. Continued-Employment by selected industry, 1972, 1979, 1986, and projected to 2000

| Industry | StandardIndustrialClassification | Employment <br> (thousands) |  |  |  |  |  | Annual rate of change, 1986-20001 (percent) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1972 | 1979 | 1986 | Projected, 2000 |  |  |  |  |
|  |  |  |  |  | Low | Moderate | High | Employment | Output |
| Residential care | 836 | - | 202 | 319 | 500 | 519 | 532 | 3.5 | 4.9 |
| Museums and noncommercial organizations, n.e.c. | 84,865,9,892 | - | 195 | 263 | 334 | 355 | 357 | 2.2 | 3.4 |
| Business and professional associations ......... | 861,2 | - | 118 | 135 | 144 | 159 | 165 | 1.2 | 2.2 |
| Labor, civic, and social organizations . . | 863,4 | - | 464 | 485 | 507 | 531 | 537 | . 7 | $1.9$ |
| Engineering and architectural services. | 891 | 339 | 515 | 678 | 887 | 936 | 957 | 2.3 | 2.9 |
| Accounting, auditing, and services, n.e.c. |  | - | 316 | 458 | 673 | 711 | 742 | 3.2 | 3.5 |
| Government | - | 13,333 | 15,947 | 16,711 | 17,900 | 18,329 | 18,897 | . 7 | 1.5 |
| Federal Government . | - | 2,684 | 2,773 | 2,899 | 2,900 | 3,000 | 3,093 | . 2 | 1.3 |
| Federal enterprises | - | 888 | 876 | 1,000 | 1,001 | 1,031 | 1,087 | . 2 | 2.7 |
| U.S. Postal Service | - | 698 | 661 | 789 | 832 | 845 | 886 | . 5 | $3.0$ |
| Federal electric utilities | - | 29 | 52 | 39 | 32 | 33 | 37 | -1.3 | 1.4 |
| Federal Government enterprises, n.e.c. | - | 161 | 163 | 172 | 137 | 153 | 164 | $-.8$ | 2.5 |
| Federal general government | - | 1,796 | 1,897 | 1,899 | 1,899 | 1,969 | 2,006 | . 3 | . 7 |
| State and local government. . . | - | 10,649 | 13,174 | 13,812 | 15,000 | 15,329 | 15,804 | . 7 | 1.7 |
| State and local enterprises . | - | 547 | 733 | 831 | 973 | 1,004 | 1,023 | 1.4 | 1.5 |
| Local government passenger transit | - | 100 | 130 | 174 | 207 | 212 | 218 | 1.4 | 1.0 |
| State and local electric utilities .... | - | 59 | 63 | 69 | 69 | 75 | 79 | . 6 | 1.4 |
| State and local government enterprises, n.e.c. | - | 388 | 540 | 588 | 697 | 716 | 726 | 1.4 | 1.7 |
| State and local general government . . . . . . . . | - | 1.102 | 12,441 | 12,981 | 14,027 | 14,325 | 14,781 | . 7 | 1.7 |
| State and local government hospitals | - | 926 | 1,108 | 1,047 | 1,047 | 1,070 | 1,103 | . 2 | 2.6 |
| State and local government education | - | 5,550 | 6,486 | 7,058 | 7,674 | 7,842 | 8,085 | . 8 | 1.6 . |
| State and local general government, n.e.c. | - | 3,625 | 4,847 | 4,876 | 5,306 | 5,413 | 5,593 | . 7 | 1.7 |

$$
{ }^{1} \text { As projected in the moderate alternative. }
$$

${ }^{2}$ Excludes Standard Industrial Classifications $074,5,8$ (agricultural services) and 99 (nonclassifiable establishments). Therefore the estimates are not exactly comparable with data published in Employment and Earnings.
${ }^{3}$ Does not meet usual publication criteria of bls Current Employment Statistics survey.
n.e.c. $=$ not elsewhere classified.

NOTE: Dash indicates data not available.

In addition to offices of health practitioners, the outpatient facilities and health services not elsewhere classified industry is also expected to show enormous growth. The absolute increases in numbers of jobs are not projected to be as great as for doctors' offices because outpatient facilities and miscellaneous health services is a smaller industry, but the 4.6 -percent annual rate of gain ranks it as the second fastest growing industry in the economy in terms of employment. This industry includes such services as group health associations (GHA's), health maintenance organizations (нмо's), alcohol and drug treatment centers, family planning clinics, home health agencies, and visiting nurse associations. Clearly, these services will balloon as the preferred method of treatment shifts from lengthy hospital care to outpatient or home care.
Nursing and personal care facilities are also expected to benefit from the shift away from hospital treatment. Nursing homes will see very rapid growth through 2000 as the population aged 85 and over (the primary age group for nursing home care) rises from 2.7 million in 1985 (or 1.1 percent of the total population) to 4.9 million in 2000 ( 1.8 percent of total population). Personal care facilities will grow faster than nursing homes; the former include extended care facilities, convalescent homes, and hospices. Jobs in the nursing home and personal care sector as a whole are projected to grow 3.8 percent a year, with employment rising to a level of 2.1 million by 2000 .
Hospitals are projected to show some job gains over the 1986-2000 period, despite the shift to outpatient care. The increase in the number of persons over age 65 , plus rapid
advances in new complex technologies, will cause an expansion in hospitals. At 1.0 percent a year, however, projected job growth in private hospitals is just a fraction of the rate expected for other health sectors through the year 2000 and of the historical rate of gain in the industry. Still, almost 500,000 new jobs are expected to be added in hospitals over the projection period.

Personal, repair, and recreation services. Traditional personal and repair service industries are projected to have only very modest output growth through the 1990's, but the newer types of services in the industry termed "personal services not elsewhere classified" are projected to have fairly good growth, increasing faster than GNP. This catchall group includes health, beauty, and reducing clubs or salons; dating services; tax return preparation services (nonaccountants); convenience services for two-earner families; and a wide variety of other personal services. Payroll employment in this industry is projected to rise by 144,000 , to 411,000 by 2000 . This industry also includes many selfemployed workers; their numbers are projected at about 110,000 in 2000.
The small gains expected in the laundry and cleaning industry reflect some growth for industrial launderers, as more hospitals and institutions contract out laundry operations. Consumer demand for commercial laundry and dry cleaning services is expected to remain rather flat.

In contrast, consumers are expected to have high levels of demand for amusement and recreation services. Output of the industry "amusements and recreation, not elsewhere
classified," is projected to grow more than twice as fast as GNP ( 5.5 percent a year from 1986 to 2000), and 224,000 wage and salary jobs are expected to be added. The output growth rate ranks this sector among the top five of all the industries studied. Included are golf courses, membership sports and recreation clubs, tennis and racquetball facilities, swimming pools, gyms, ski lifts, gambling establishments, recreational classes or instruction, and numerous other recreational services.
The rate of output growth projected for theatrical producers and entertainers also is very high- 4.0 percent a yearreflecting the demand for more programming for expanding cable TV networks.

Social, membership, and miscellaneous services. Several of the social service industries are expected to have employment increases of more than 100,000 between 1986 and 2000. The number of jobs in the individual and miscellaneous social services sector, for example, is projected to rise from 528,000 in 1986 to 790,000 in 2000. This industry includes individual and family counseling, disaster relief, adult day care, senior citizens associations, fundraising organizations, and other related social services. Employment growth in the industry averaged 4.3 percent a year over the 1979-86 period. Thus, while projected growth is large in absolute numbers, the 2.9 -percent annual increase projected represents a slowdown from historical trends.

Residential care is another social service industry projected to show a large employment gain, 200,000 more jobs by 2000 . This industry provides residential care where medical care is not a major element, as in group homes, halfway houses, and rehabilitation centers. The rising demand for these services reflects the growing number of elderly who may need to reside in a home for the aged but who do not require intensive nursing care, as well as an increase in the use of drug and alcohol residential treatment centers.

Government. Total public employment is projected to rise by 1.6 million between 1986 and 2000, with almost all of the increase occurring in State and local governments. Federal employment is expected to remain virtually level, as it has for most of the 1970's and 1980's.
The job gains in State and local governments reflect an additional 784,000 workers in education and 537,000 in other governmental functions except hospitals. The rising
level of educational staff occurs as the population of elementary and secondary school-age children, offspring of the baby-boom cohort, edges up. The following tabulation presents estimates of the school-age population for selected years 1970-85, and projected to 2000 (in millions):
$\frac{\text { Population }}{5 \text { to } 13} 14$ to 17

| 1970 | 36.7 | 15.9 |
| :---: | :---: | :---: |
| 1975 | 33.9 | 17.1 |
| 1980 | 31.1 | 16.1 |
| 1985 | 30.1 | 14.9 |
| Projected 2000 | 34.4 | 15.4 |

Other increases are related to the assumption that some past cutbacks in local government services will be reversed in coming years.

## Alternatives

This article has focused on the results of the moderate growth projection scenario, but two alternatives were also prepared. The alternatives show the effects of changes in some of the key assumptions of the macroeconomic model discussed by Norman C. Saunders elsewhere in this issue. In the low-growth scenario, GNP expands by only 1.6 percent a year, 1986-2000, compared to 2.4 percent in the moderate case, and the unemployment rate in 2000 reaches 7.7 percent, versus 6.0 percent in the moderate scenario. In the high-growth scenario, GNP grows by 3.0 percent a year, and the unemployment rate falls to 4.5 percent.
Because of the sluggish growth and high unemployment in the low scenario, total employment only rises to 126.4 million, compared to 133 million in the moderate case discussed in this article. Manufacturing employment falls proportionately more in the low scenario because of slower growth in equipment purchases and an actual decrease in nonresidential construction. Durable goods employment is 10 percent less than in the moderate case; nondurables employment, 3 percent less; and nonmanufacturing employment, about 5 percent less.

In the high scenario, employment rises to 137.5 million in the year 2000, 4.5 million more than in the moderate case. Again, more of the difference is concentrated in manufacturing. Employment in that sector is 5 percent higher than in the moderate scenario, while nonmanufacturing employment is 3 percent higher.

[^7][^8]
## Projections 2000

# A look at occupational employment trends to the year 2000 

> High-skill job groups are projected to continue pacing occupational growth as groups requiring the most education and training are estimated to grow faster than average

## George T. Silvestri and John M. Lukasiewicz

The Nation's economy is projected to generate more than 21 million jobs between 1986 and 2000. While a considerable number, this 19 -percent increase is only about half the average annual rate of increase that occurred over the previous 14-year period, 1972 to 1986. (See table 1.) An accompanying article by Valerie Personick, pp. 30-45, discusses the projected changes in the industrial composition of employment. Our article presents the 1986-2000 occupational projections.

The Bureau of Labor Statistics has developed three sets of occupational projections, with each set tied to the high, moderate, or low economic and industry employment projections alternatives presented elsewhere in this issue of the Review. However, the basic changes in the occupational structure of the economy from 1986 to 2000 among the three alternatives are similar. Thus, for ease of presentation, we focus on the moderate alternative, because the discussion would be similar if either of the other scenarios was highlighted. The major differences among the alternatives are discussed briefly at the end of the article.

## Broad occupational group changes

The structure of occupational employment over the 19862000 period is expected to shift because the change in total

[^9]employment will not be evenly distributed among the broad occupational groups. For example, each of the three broad occupational groups with the most highly trained workers in terms of educational attainment (executive, administrative, and managerial workers; professional workers; and technicians and related support workers) is projected to continue to grow more rapidly than the average for total employment. Collectively, these three groups, which accounted for 25 percent of total employment in 1986, are expected to account for almost 40 percent of the total job growth between 1986 and 2000. In contrast, many factors, such as office and factory automation, changes in consumer demand, and import substitution are expected to lead to relatively slow growth or a decline for occupational groups requiring less education (administrative support workers, including clerical ; farming, forestry, and fishing workers; and operators, fabricators, and laborers). The service workers group (except private household workers), which is expected to grow at a faster rate than total employment and account for more of the total growth in employment than any other broad occupational group, is an important exception to the general trend, because its educational attainment is not in the high group. The expected shift away from low-skill jobs to highskill jobs is discussed in greater detail later in this article. The following discussion on each broad occupational group is based on data found in table 1. Historical trends in table 1 are based on data from the Current Population Survey,

Table 1. Employment by broad occupational group, 1986 and projected to 2000 moderate alternative, and percent change in employment for selected periods
[Numbers in thousands]

| Occupation | 1986 |  | Projected, 2000 |  | Percent change |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Percent | Number | Percent | 1972-79 | 1979-86 | 1972-86 | 1986-2000 |
| Total employment | 111,623 | 100.0 | 133,030 | 100.0 | 20.3 | 10.9 | 33.4 | 19.2 |
| Executive, administrative, and managerial workers | 10,583 | 9.5 | 13,616 | 10.2 | 34.9 | 28.7 | 73.7 | 28.7 |
| Professional workers . . . . . . . . . . . . . . . . . . . . | 13,538 | 12.1 | 17,192 | 12.9 | 29.8 | 21.4 | 57.5 | 27.0 |
| Technicians and related support workers | 3,726 | 3.3 | 5,151 | 3.9 | 39.9 | 24.7 | 74.5 | 38.2 |
| Salesworkers | 12,606 | 11.3 | 16,334 | 12.3 | 24.3 | 24.4 | 54.6 | 29.6 |
| Administrative support workers, including clerical | 19,851 | 17.8 | 22,109 | 16.6 | 23.5 | 9.5 | 35.2 | 11.4 |
| Private household workers . . . . . . . . . . . . . . . | 981 | . 9 | 955 | . 7 | -23.0 | -11.5 | -31.9 | -2.7 |
| Service workers, except private household workers | 16,555 | 14.8 | 21,962 | 16.5 | 25.7 | 16.0 | 45.9 | 32.7 |
| Precision production, craft, and repair workers . . . | 13,924 | 12.5 | 15,590 | 11.7 | 21.7 | 6.5 | 29.6 | 12.0 |
| Operators, fabricators, and laborers . | 16,300 | 14.6 | 16,724 | 12.6 | 8.7 | -9.2 | -1.3 | 2.6 |
| Farming, forestry, and fishing workers . . . . . . | 3,556 | 3.2 | 3,393 | 2.6 | -5.1 | -5.6 | -10.4 | -4.6 |

NoTE: Estimates of 1986 employment, the base year for the 2000 projections, were derived primarily from data collected in the Occupational Employment Statistics surveys. The 1972-79,

1979-86, and 1972-86 rates of change were derived from the Current Population Survey data because comparable Occupational Employment Statistics survey data were not available for 1972 and 1979
whereas projected trends are based on data from the Na tional Industry-Occupation Matrix. In order to compare data from both sources in table 1, the occupational categories from the Current Population Survey were selected. Table 8 also is based on the Current Population Survey occupational categories and data. In all other tables in this article, the National Industry-Occupation Matrix occupational classification and data were used.

Employment of executive, administrative, and managerial workers is expected to increase by more than 3 million jobs from 1986 to 2000 due to the ever-increasing complexity of business operations and the large employment gains in the wholesale and retail trade and services sectors. The rate of increase for this group is expected to be about 29 percent, or about one and one-half the average for all occupations. The relative growth rate for this occupational group is projected to be less than it was from 1972 to 1986 when executive, administrative, and managerial workers grew twice as fast as did total employment.

The number of professional workers is expected to continue to grow more rapidly than total employment, or by 27 percent, from 1986 to 2000. Employment in many of the occupations in this group is expected to surge, including the engineering, computer specialty, and health professional occupations, which together are expected to account for more than one-half of the 3.7 million new professional jobs added by the year 2000 .

Employment in the technicians and related support workers category is projected to grow faster than any other major occupational group ( 38 percent), or more than twice as fast as total employment. The technicians occupational group also was the fastest growing group from 1972 to 1986. Jobs for health technologists and technicians are expected to account for 47 percent of the 1.4 million new technician jobs that will be added over the 1986-2000 period.

Employment in the salesworkers group is expected to increase by 30 percent, or by 3.7 million jobs, due mainly to the large employment gains in wholesale and retail trade
where salesworkers are concentrated. The share of total employment accounted for by these workers is projected to increase from 11.3 percent of the total in 1986 to 12.3 percent by the year 2000 . This is the only major occupational group that grew as fast during the 1979-86 period as it did from 1972 to 1979, even though total employment had grown only half as fast in the latter period.
The number of administrative support workers, including clerical, which grew as fast as total employment in the 1972-86 period, is projected to increase significantly more slowly than the average for total employment from 1986 to 2000 , or by only 11 percent. This slowing of growth was evident in the 1979-86 period when this occupational group grew slightly slower than the average for total employment; in the previous 7 years it had grown slightly faster than total employment. Although this group is projected to add 2 million jobs by the year 2000, its share of total employment is expected to decline from 17.8 percent to 16.6 percent because of its slow growth. Office automation and other technological changes are expected to cause employment to decline in several detailed occupations within this group, such as typists and word processors. Employment in several clerical occupations, however, is projected to grow faster than the average for total employment due to rapid growth in the industries that employ clerical workers such as hotel desk clerks and new account clerks in banking. Other occupations in this group are also expected to be favorably affected by technological change, such as the computer and peripheral equipment operators group, which is expected to grow rapidly due to the ever-increasing use of computers throughout the economy.

Employment in the service workers group (except private household workers) is expected to rise faster than the average for total employment, increasing by more than 5 million jobs-more than any other broad occupational group from 1986 to 2000. The projected growth rate of 33 percent for 1986-2000 is faster than total employment and, consequently, the share of total employment accounted for by

Table 2. Projected 1986-2000 employment change (number and percent) for wage and salary workers, by major industry division and for self-employed and unpaid family workers, in major occupational groups, moderate trend

| Occupation | Total, all classes of workers | Total, wage and salary workers | Agriculture | Mining | Construction | Manufacturing | Transportation, communications, and public utilities | Wholesale and retail trade | Finance, insurance, and real estate | Services | Government | Self-employed and unpaid family workers |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All occupations (thousands) | 21,407 | 20,221 | 149 | -58 | 891 | -830 | 475 | 6,388 | 1,620 | 10,774 | 811 | 1,185 |
| Managerial and managementrelated occupations. | 3,033 | 2,677 | 14 | -2 | 111 | 85 | 76 | 619 | 479 | 1,128 | 167 | 356 |
| Engineers, architects, and surveyors | 495 | 470 | 4 | -0 | 12 | 165 | 16 | 17 | 7 | 213 | 36 | 25 |
| Natural, computer, and mathematical scientists | 339 | 324 | 3 | -1 | 1 | 23 | 12 | 25 | 41 | 199 | 21 | 15 |
| Teachers, librarians, and counselors | 772 | 751 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 743 | 6 | 21 |
| Health diagnosing and treating occupations | 1,081 | 1,072 | 7 | 0 | 0 | 0 | 0 | 29 | 1 | 1,013 | 22 | 9 |
| Other professional specialists <br> Technician occupations <br> Marketing and sales occupations Administrative support occupations, including clerical Service occupations . | 967 | 811 | 3 | 0 | 0 | 28 | 29 | 46 | 30 | 582 | 93 | 156 |
|  | 1,403 | 1,374 | 4 | -2 | 4 | 70 | 28 | 86 | 51 | 1,070 | 63 | 28 |
|  | 3,728 | 3,168 | 4 | 1 | 13 | 17 | 76 | 2,408 | 286 | 357 | 5 | 560 |
|  | $\begin{aligned} & 2,258 \\ & 5,381 \end{aligned}$ | $\begin{aligned} & 2,327 \\ & 5,205 \end{aligned}$ | $\begin{aligned} & 5 \\ & 2 \end{aligned}$ | $\begin{array}{\|r\|r\|} \hline-19 \\ -1 \end{array}$ | $\begin{aligned} & 0 \\ & 2 \end{aligned}$ | $\begin{array}{r} -238 \\ -31 \end{array}$ | $\begin{array}{r} -27 \\ -37 \end{array}$ | $\begin{array}{r} 287 \\ 2,251 \end{array}$ | $\begin{array}{r} 551 \\ 74 \end{array}$ | $\begin{aligned} & 1,815 \\ & 2,596 \end{aligned}$ | $\begin{array}{r} -45 \\ 276 \end{array}$ | $\begin{array}{r} -69 \\ 176 \end{array}$ |
| Agriculture, forestry, fishing, and related occupations | - 163 | 194 | 83 | 0 | 2 | -8 | 1 | 21 | 26 | 55 | 15 | -357 |
| Blue-collar worker supervisors | 144 | 138 | 3 | -2 | 52 | -58 | 15 | 41 | 4 | 65 | 17 | 5 |
| Construction trades and extractive workers . | 704 | 537 | 1 | -5 | 437 | -18 | -14 | 19 | 11 | 66 | 39 | 167 |
| Mechanics, installers, and repairers | 687 | 677 | 3 | -4 | 64 | -7 | -2 | 217 | 52 | 317 | 37 | 11 |
| Precision production and plant systems occupations $\qquad$ | 134 | 111 | 0 | -2 | 26 | -52 | 1 | 48 | 2 | 74 | 15 | 23 |
| Machine setters, set-up operators, operators, and tenders | -194 | - 201 | 3 | -2 | 5 | -319 | 0 | 21 | 1 | 89 | 1 | 7 |
| Assemblers and other handwork occupations | -113 | -108 | 1 | 0 | 11 | -203 | 2 | 32 | 0 | 47 | 2 | -4 |
| Transportation and material moving machine and vehicle operators .. Helpers, laborers, and | 500 | 443 | 6 | - 12 | 62 | -137 | 193 | 157 | 4 | 141 | 30 | 57 |
| material movers, hand | 249 | 251 | 4 | - 7 | 90 | -147 | 32 | 65 | 2 | 204 | 9 | -2 |

service workers is expected to jump from 14.8 percent in 1986 to 16.5 percent in 2000 . Most of the large projected employment gain in this occupational group is concentrated in food service and health service occupations.

The number of private household workers is projected to decline by 2.7 percent. This is more in line with the recent moderate decline that occurred between 1979 and 1986 than it is with the rapid declines that occurred from 1972 to 1979 and in earlier periods.

The number of precision production, craft, and repair workers is projected to increase more slowly than the average for total employment, or by only 12 percent. From 1972 to 1986, employment in this group grew about as fast as the average for total employment, although during the latter part of the 1979-86 period, its employment growth was slower than that for the total economy. Within this group, the rate of growth for the construction trades is projected to be close
to the 19 -percent growth rate of the overall economy. This increase is expected to be offset, however, by occupations concentrated in manufacturing that are expected to grow more slowly than the average for total employment or to decline over the 1986-2000 period. Employment decreases are expected in occupations such as precision food, metal, printing, textile, and apparel workers.

Employment in the operators, fabricators, and laborers group is projected to be at virtually the same level in 2000 as it was in 1986. The stable employment level for this occupational group is a reversal of the decline of more than 9 percent that this group suffered from 1979 to 1986 , which offset an approximately equal increase from 1972 to 1979. Its share of total employment is expected to decrease significantly from 14.6 percent to 12.6 percent. The drop in manufacturing employment and increasing factory automation are largely responsible for the lack of employment

Table 2. Continued-Projected 1986-2000 employment change (number and percent) for wage and salary workers, by major industry division and for self-employed and unpaid family workers, in major occupational groups, moderate trend

| Occupation | Total, all classes of workers | Total, wage and salary workers | Agriculture | Mining | Construction | Manufacturing | Transportation, communications, and public utilities | Wholesale and retail trade | Finance, insurance, and real estate | Services | Government | Self-employed and unpaid family workers |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All occupations (percent) | 19.2 | 19.8 | 9.4 | -7.4 | 18.2 | -4.4 | 9.1 | 27.1 | 25.7 | 33.8 | 9.4 | 12.2 |
| Managerial and mana-gement-related occupations | 28.7 | 28.9 | 36.9 | -2.7 | 23.7 | 5.5 | 18.1 | 28.8 | 39.4 | 47.9 | 16.7 | 27.1 |
| Engineers, architects, and surveyors. | 31.6 | 31.6 | 35.4 | -0.4 | 26.2 | 24.0 | 18.9 | 67.6 | 54.6 | 54.5 | 18.2 | 31.6 |
| Natural, computer, and mathematical scientists | 45.9 | 46.3 | 33.3 | 1.4 -2.8 | 26.2 47.8 | 24.0 15.3 | 18.9 50.6 | 67.6 80.8 | 54.6 58.6 | 54.5 85.9 | 18.2 13.4 | 31.6 39.8 |
| Teachers, librarians, and counselors | 15.6 | 15.6 | 7.5 | - 2 | 47.8 | 8.9 | 10.4 | 80.8 28.3 | 24.6 | 85.9 15.8 | 13.4 6.1 | 39.8 17.2 |
| Health diagnosing and treating occupations | 41.7 | 46.3 | 32.0 | -19.6 | 16.9 | 2.3 | 20.0 | 28.5 | 34.5 | 50.2 | 12.9 | 3.1 |
| Other professional specialists | 26.2 | 27.4 | 27.9 | -4.5 | 13.9 | 11.0 | 22.2 | 30.8 | 41.1 | 35.9 | 13.0 | 21.4 |
| Technician occupations | 38.4 | 38.6 | 28.8 | -6.6 | 10.4 | 11.7 | 17.7 | 57.1 | 43.7 | 52.2 | 15.2 | 32.6 |
| Marketing and sales occupations Administrative support | 29.6 | 29.3 | 21.9 | 11.2 | 18.8 | 3.0 | 29.8 | 29.3 | 34.0 | 46.0 | 8.5 | 31.3 |
| occupations, including clerical Service occupations | $\begin{aligned} & 11.4 \\ & 30.7 \end{aligned}$ | $\begin{aligned} & 12.0 \\ & 31.5 \end{aligned}$ | $\begin{array}{r} 6.6 \\ 11.4 \end{array}$ | $\begin{aligned} & -19.6 \\ & -14.6 \end{aligned}$ | $\begin{array}{r} -0.1 \\ 5.6 \end{array}$ | $\begin{array}{r} -10.6 \\ -9.2 \end{array}$ | $\begin{aligned} & -2.1 \\ & 21.0 \end{aligned}$ | $\begin{array}{r} 9.1 \\ 39.4 \end{array}$ | $\begin{aligned} & 16.6 \\ & 22.5 \end{aligned}$ | $\begin{aligned} & 29.1 \\ & 31.4 \end{aligned}$ | $\begin{array}{r} -1.7 \\ 16.8 \end{array}$ | $\begin{array}{r} -16.8 \\ 17.2 \end{array}$ |
| Agriculture, forestry, fishing, and related occupations | -4.6 | 10.0 | 6.6 | -11.5 | 14.3 | -8.3 | 17.8 | 32.7 | 29.1 | 17.9 | 12.5 | -22.1 |
| Blue-collar worker supervisors | 7.9 | 8.2 | 31.6 | -5.0 | 23.8 | -7.3 | 8.0 | 25.9 | 35.2 | 44.8 | 14.3 | 4.1 |
| Construction trades and extractive workers | 17.6 | 17.2 | 19.9 | -2.9 | 22.0 | $-6.6$ | -17.5 | 28.1 | 31.5 | 36.8 | 12.2 | 18.8 |
| Mechanics, installers, and repairers | 14.7 | 15.9 | 18.8 | -7.1 | 21.9 | -0.9 | -. 3 | 20.1 | 34.3 | 38.6 | 12.0 | 2.4 |
| Precision production and plant systems occupations | 4.4 | 3.9 | 14.0 | -12.5 | 20.9 | -2.9 | . 5 | 13.3 | 23.4 | 29.9 | 9.6 | 10.5 |
| Machine setters, set-up operators, operators, and tenders | -3.9 | -4.1 | 16.9 | -9.1 | 19.4 | -7.3 | 1.1 | 23.5 | 29.6 | 26.9 | 5.2 | 8.0 |
| Assemblers and other handwork occupations | -4.2 | -4.1 -4.1 | 16.6 | 2.1 | 19.4 26.7 | 1.8 -8.8 | 9.2 | 23.5 30.9 | 29.6 43.6 | 41.9 | 5.2 7.6 | 1.0 -4.9 |
| Transportation and material moving machine and vehicle operators |  |  |  |  |  |  |  |  |  |  |  |  |
| vehicle operators Helpers, laborers, and material movers, hand | 10.4 5.8 | 9.9 6.0 | 16.9 9.2 | -9.7 -14.3 | 18.5 11.9 | -18.5 -10.3 | 15.9 9.4 | 13.5 8.0 | 34.7 12.3 | 24.2 40.9 | 11.8 3.5 | 17.0 -2.5 |

[^10]growth for this group. Several transportation occupations, however, are not expected to be affected by these factors, including the truck and bus drivers and aircraft pilots and flight engineers occupations.

The number of farming, forestry, and fishing workers is projected to decrease 5 percent between 1986 and 2000. This represents a continuation of a very long-term decline, but nevertheless a slowing of the rate of decline that occurred during the previous 14 years.

## Trends by industry

Occupational projections were developed through the use of an industry-occupation employment matrix. The 1986 matrix used as the base year of the projections presents the occupational structure of 258 detailed industries. These data
were derived primarily from the Bureau's Occupational Employment Statistics Survey, which obtains data on the occupational staffing patterns of industries. ${ }^{1}$ The 1986 occupational structure of each industry was projected to 2000 through analysis of the factors that are expected to change the structure, such as changes in technology, business practices and methods of operation, and product demand. The projected structure was then applied to projections of total employment for each industry described in Personick's article. To derive the projections of total employment by occupation, the detailed cells of the matrix were aggregated across all industries. ${ }^{2}$

Table 2, derived from the National Industry-Occupation Matrix, shows the absolute and percent changes in employment between 1986 and 2000 for major occupational groups
by major industry division. More than 80 percent of the rise in total employment is projected to occur among wage and salary workers in wholesale and retail trade and in services. Increases in the number of marketing and sales and service workers are expected to account for almost half of the employment gains in these two industry divisions. This is as one would expect because of the high concentration of these two groups. What is not so obvious, however, is the impact that these two divisions may have on other occupational groups. For example, employment gains in wholesale and retail trade and services are expected to account for nearly all of the job growth for the teachers, librarians, and counselors occupation and workers in the health diagnosing and treating occupation; ${ }^{3} 82$ percent of the growth for the technicians occupation; 66 percent of the increase in the scientists and computer specialists occupation; 65 percent of the rise in the other professionals occupation; and 58 percent of the growth in managers. Except for teachers in services, each of these occupational groups has a projected growth rate that is faster than that projected for total employment in the trade and services divisions.

Although most of the total employment change is projected to occur in trade and services, several other industry divisions have notable changes. Finance, insurance, and real estate is projected to account for 8 percent of the growth in total employment or 1.6 million jobs. Most of the growth in this industry division is expected to occur among workers in managerial and management-related occupations and workers in administrative support, including clerical workers. The increase in the number of clerical workers is projected to exceed that of managers within the finance, insurance, and real estate division. However, the overall rate of growth for clerical occupations is less than that for managers due to office automation in banking, credit reporting agencies, and insurance.

Another industry division adding significant numbers of jobs is construction, which accounts for 4 percent of the growth in total jobs $(891,000)$. Nearly half of this industry's growth is expected to occur among the construction trades and extractive occupations.

Government (excluding State and local government employees in education and hospitals) is projected to account for 4 percent of total employment growth ( 811,000 jobs); this increase is expected to occur mainly among State and local government service workers, such as police and firefighters. Also noteworthy in government is the projected loss of 45,000 jobs among administrative support workers, including clerical. This loss is largely due to projected declines in typists, stenographers, payroll and timekeeping clerks, and statistical clerks.

The manufacturing industry division is projected to decrease by more than 800,000 jobs. The largest employment declines in manufacturing are projected to be for machine setters, set-up operators, operators, and tenders; assemblers and other handwork occupations; administrative support
workers, including clerical; helpers, laborers, and material movers, hand; and transportation and material moving machine and vehicle operators. Many of the detailed occupations in these groups are expected to be affected by automation and a decrease in demand for the products of industries in which they are concentrated because of changes in consumer tastes, shifts in governmental priorities, and increases in foreign competition. Despite the drop in employment, some occupational groups within manufacturing are expected to grow. The group with the largest job increase is engineers $(165,000)$, followed by managers $(85,000)$ and technicians $(70,000)$.

The agriculture, forestry, and fishing division has a projected increase in employment among wage and salary workers, but if self-employed agriculture workers are included, the industry shows a decrease.

The number of self-employed workers and unpaid family workers combined is projected to increase by 12.2 percent, from 9.8 million in 1986 to 10.9 million in the year 2000. This estimate refers to both nonfarm and agricultural industries. All of this growth is expected to occur among selfemployed workers, because jobs for unpaid family workers are projected to decline by a quarter of a million. For self-employed workers and unpaid family workers combined, sales occupations are expected to account for 560,000 of the total increase of 1.2 million jobs. The occupational group expected to add the next largest number of self-employed and unpaid family worker jobs is managers and management-related workers $(356,000)$, followed by service workers $(176,000)$, and construction trades and extractive workers $(167,000)$.

## Trends for occupational clusters

The Bureau has developed projections for 480 detailed occupations, which are grouped into clusters that conform to the Standard Occupational Classification system. (See table 3.) These clusters are discussed in terms of employment change, factors affecting change, and significant detailed occupational components. The occupational groups in this section below are based on the occupational classification used in the National Industry-Occupation Matrix. They differ somewhat from previously discussed groups based on the Current Population Survey, which is the only source of comparable occupational employment data for the entire 1972-86 period.

## Managerial and management-related occupations.

 Several managerial occupations are expected to grow rapidly from 1986 to 2000 due to the increasing complexity of business operations and the large employment gains in trade and service industries where, because of small firm size, a higher than average proportion of employment is in management occupations. For example, the number of employment interviewers, private or public employment service, is projected to increase by 71 percent, largely as a resultTable 3. Civilian employment in occupations with $\mathbf{2 5 , 0 0 0}$ workers or more, actual 1986 and projected to 2000
[Numbers in thousands]

| Occupation | Total employment |  |  |  | 1986-2000 employment change |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 |  |  | Number |  |  | Percent |  |  |
|  |  | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High |
| Total, all occupations | 111,623 | 126,432 | 133,030 | 137,533 | 14,809 | 21,407 | 25,910 | 13 | 19 | 23 |
| Managerial and management-related occupations | 10,583 | 12,900 | 13,616 | 14,105 | 2,316 | 3,033 | 3,521 | 22 | 29 | 33 |
| Managerial and administrative occupations ... | 7,369 | 8,939 | 9,441 | 9,780 | 1,570 | 2,071 | 2,411 | 21 | 28 | 33 |
| Education administrators . ........ | 288 | 316 | 325 | 336 | 28 | 37 | 48 | 10 | 13 | 17 |
| Financial managers | 638 | 747 | 792 | 824 | 109 | 154 | 185 | 17 | 24 | 29 |
| Food service and lodging managers | 509 | 628 | 663 | 685 | 120 | 154 | 176 | 24 | 30 | 35 |
| General managers and top executives | 2,383 | 2,820 | 2,965 | 3,052 | 437 | 582 | 669 | 18 | 24 | 28 |
| Marketing, advertising, and public relations managers | 323 | 402 | 427 | 444 | 80 | 105 | 122 | 25 | 32 | 38 |
| Personnel, training, and labor relations managers . . | 151 | 183 | 194 | 201 | 32 | 43 | 50 | 21 | 28 | 33 |
| Postmasters and mail superintendents . . . . . | 28 | 29 | 30 | 31 | 2 | 2 | 4 | 7 | 8 | 14 |
| Property and real estate managers | 128 | 166 | 178 | 184 | 38 | 50 | 56 | 30 | 39 | 44 |
| Public administration chief executives, legislators, and general administrators ... | 66 | 73 | 75 | 77 | 7 | 9 | 11 | 11 | 14 | 17 |
| Purchasing managers . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 230 | 248 | 260 | 266 | 18 | 30 | 36 | 8 | 13 | 16 |
| Management support occupations | 3,214 | 3,961 | 4,175 | 4,324 | 747 | 962 | 1,110 | 23 | 30 | 35 |
| Accountants and auditors | 945 | 1,251 | 1,322 | 1,371 | 306 | 376 | 426 | 32 | 40 | 45 |
| Claims examiners, property and casualty insurance | 34 | 43 | 45 | 46 | 9 | 11 | 12 | 27 | 33 | 36 |
| Inspectors and compliance officers, except construction | 125 | 137 | 142 | 146 | 12 | 17 | 21 | 9 | 13 | 17 |
| Construction and building inspectors | 50 | 54 | 55 | 57 | 4 | 5 | 7 | 8 | 11 | 14 |
| Cost estimators | 157 | 180 | 188 | 197 | 23 | 31 | 39 | 15 | 20 | 25 |
| Employment interviewers, private or public employment service | 75 | 122 | 129 | 134 | 47 | 54 | 58 | 62 | 71 | 77 |
| Loan officers and counselors | 98 | 123 | 131 | 137 | 26 | 33 | 39 | 26 | 34 | 40 |
| Management analysts | 126 | 155 | 165 | 173 | 29 | 40 | 47 | 23 | 31 | 38 |
| Personnel, training, and labor relations specialists | 230 | 264 | 278 | 288 | 34 | 49 | 58 | 15 | 21 | 25 |
| Purchasing agents, except wholesale, retail, and farm products | 188 | 181 | 193 | 200 | -7 | 5 | 12 | -3 | 3 | 7 |
| Tax examiners, collectors, and revenue agents | 57 | 65 | 67 | 69 | 8 | 10 | 12 | 13 | 17 | 20 |
| Underwriters | 99 | 127 | 134 | 136 | 28 | 34 | 37 | 28 | 34 | 37 |
| Wholesale and retail buyers, except farm products | 192 | 200 | 209 | 213 | 8 | 17 | 21 | 4 | 9 | 11 |
| Engineers, architects, and surveyors | 1,567 | 1,917 | 2,062 | 2,138 | 350 | 495 | 571 | 22 | 32 | 36 |
| Engineers | 1,371 | 1,683 | 1,815 | 1,883 | 312 | 444 | 512 | 23 | 32 | 37 |
| Aeronautical and astronautical engineers | 53 | 53 | 58 | 60 | 0 | 6 | 8 | 1 | 11 | 15 |
| Chemical engineers | 52 | 57 | 60 | 64 | 5 | 8 | 11 | 9 | 15 | 21 |
| Civil engineers, including traffic engineers | 199 | 238 | 249 | 257 | 39 | 50 | 58 | 20 | 25 | 29 |
| Electrical and electronics engineers | 401 | 544 | 592 | 616 | 143 | 192 | 215 | 36 | 48 | 54 |
| Industrial engineers, except safety engineers | 117 | 140 | 152 | 158 | 22 | 35 | 41 | 19 | 30 | 35 |
| Mechanical engineers | 233 | 286 | 309 | 320 | 53 | 76 | 87 | 23 | 33 | 37 |
| Architects, except landscape and marine | 84 | 102 | 108 | 112 | 18 | 25 | 29 | 22 | 30 | 34 |
| Surveyors | 94 | 108 | 113 | 117 | 13 | 19 | 22 | 14 | 20 | 24 |
| Natural, computer, and mathematical scientists | 738 | 1,014 | 1,077 | 1,122 | 275 | 339 | 384 | 37 | 46 | 52 |
| Computer systems analysts, electronic data processing | 331 | 544 | 582 | 607 | 212 | 251 | 276 | 64 | 76 | 83 |
| Life scientists . . . . . . . . . . . . . . . . . . . . . . . . . . . | 140 | 163 | 170 | 176 | 23 | 30 | 35 | 16 | 21 | 25 |
| Biological scientists | 61 | 72 | 75 | 62 | 11 | 14 | 16 | 18 | 23 | 27 |
| Mathematical scientists, actuaries and statisticians | 48 | 58 | 61 | 63 | 11 | 14 | 16 | 22 | 29 | 33 |
| Operations and systems researchers | 38 | 55 | 59 | 62 | 17 | 21 | 23 | 44 | 54 | 61 |
| Physical scientists | 180 | 194 | 205 | 214 | 13 | 24 | 34 | 7 | 13 | 19 |
| Chemists | 86 | 92 | 96 | 95 | 5 | 10 | 15 | 6 | 11 | 17 |
| Geologists, geophysicists, and oceanographers | 44 | 46 | 50 | 49 | 2 | 6 | 8 | 6 | 13 | 19 |
| Teachers, librarians, and counselors | 4,949 | 5,558 | 5,720 | 5,906 | 610 | 772 | 957 | 12 | 16 | 19 |
| Teachers, preschool, kindergarten, and elementary | 1,702 | 2,011 | 2,066 | 2,131 | 308 | 363 | 428 | 18 | 21 | 25 |
| Teachers, preschool . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 176 | 233 | 240 | 248 | 57 | 64 | 72 | 33 | 36 | 41 |
| Teachers, kindergarten and elementary . . . . . . . . . . . . . . . . . . . . . . . . . . . | 1,527 | 1,778 | 1,826 | 1,883 | 251 | 299 | 356 | 16 | 20 | 23 |
| Teachers, secondary school | 1,128 | 1,246 | 1,280 | 1,320 | 118 | 152 | 192 | 10 | 13 | 17 |
| College and university faculty | 754 | 703 | 722 | 745 | -51 | -32 | -9 | -7 | -4 | -1 |
| Other teachers and instructors | 1,097 | 1,296 | 1,340 | 1,386 | 199 | 243 | 289 | 18 | 22 | 26 |
| Adult and vocational education teachers | 427 | 489 | 509 | 529 | 62 | 82 | 102 | 14 | 19 | 24 |
| Instructors, adult (nonvocational) education | 202 | 229 | 241 | 251 | 26 | 39 | 49 | 13 | 19 | 24 |
| Teachers and instructors, vocational education and training ............... | 225 | 260 | 268 | 278 | 35 | 43 | 53 | 16 | 19 | 24 |
| Librarians, archivists, curators, and related workers . . . . . . . . . . . . . . . . . . . . . | 144 | 159 | 165 | 170 | 15 | 20 | 25 | 10 | 14 | 18 |
| Librarians, professional . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 136 | 150 | 155 | 159 | 14 | 18 | 23 | 10 | 13 | 17 |
| Counselors | 123 | 144 | 148 | 154 | 21 | 25 | 32 | 17 | 21 | 26 |
| Health diagnosing and treating occupations | 2,592 | 3,528 | 3,674 | 3,785 | 935 | 1,081 | 1,192 | 36 | 42 | 46 |
| Dentists | 151 | 184 | 196 | 203 | 33 | 45 | 52 | 22 | 30 | 34 |
| Dietitians and nutritionists | 40 | 52 | 54 | 55 | 12 | 14 | 15 | 29 | 34 | 38 |
| Optometrists | 37 | 52 | 55 | 57 | 15 | 18 | 20 | 40 | 49 | 54 |
| Pharmacists . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 151 | 179 | 187 | 191 | 29 | 36 | 41 | 19 | 24 | 27 |
| Physician assistants . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 26 | 39 | 41 | 42 | 13 | 15 | 16 | 49 | 57 | 62. |
| Physicians and surgeons | 491 | 645 | 679 | 700 | 154 | 188 | 209 | 31 | 38 | 43 |
| Registered nurses . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 1,406 | 1,951 | 2,018 | 2,077 | 546 | 612 | 671 | 39 | 44 | 48 |
| Therapists | 240 | 352 | 366 | 378 | 112 | 126 | 138 | 46 | 52 | 57 |
| Occupational therapists | 29 | 43 | 45 | 46 | 14 | 15 | 17 | 46 | 52 | 58 |
| Physical therapists ................................................ . | 61 | 109 | 115 | 118 | 48 | 53 | 57 | 79 | 87 | 94 |
| Recreational therapists | 29 | 41 | 43 | 44 | 12 | 14 | 15 | 42 | 49 | 52 |
| Respiratory therapists . | 56 | 74 | 76 | 78 | 17 | 19 | 22 | 30 | 34 | 38 |
| Speech pathologists and audiologists | 45 | 58 | 61 | 63 | 13 | 15 | 18 | 29 | 34 | 39 |
| Veterinarians and veterinary inspectors . . . . . . . . . . . . . . . . . . . . . . . . . . | 37 | 52 | 54 | 57 | 15 | 17 | 19 | 39 | 46 | 52 |
| Other professional specialists | 3,692 | 4,421 | 4,660 | 4,842 | 729 | 967 | 1,150 | 20 | 26 | 31 |
| Artists and commercial artists | 176 | 218 | 235 | 246 | 43 | 59 | 70 | 24 | 34 | 40 |
| Designers | 259 | 322 | 343 | 357 | 63 | 84 | 97 | 24 | 32 | 38 |
| Musicians | 189 | 218 | 231 | 239 | 30 | 42 | 50 | 16 | 23 | 27 |
| Photographers and camera operators | 109 | 137 | 146 | 153 | 28 | 37 | 44 | 25 | 33 | 41 |

Table 3. Continued-Civilian employment in occupations with $\mathbf{2 5 , 0 0 0}$ workers or more, actual 1986 and projected to 2000 [Numbers in thousands]


Table 3. Continued-Civilian employment in occupations with 25,000 workers or more, actual 1986 and projected to 2000 [Numbers in thousands]

| Occupation | Total employment |  |  |  | 1986-2000 employment change |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 |  |  | Number |  |  | Percent |  |  |
|  |  | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High |
| Receptionists and information clerks Reservation and transportation ticket agents and travel clerks. | 682 | 913 | 964 | 997 | 232 | 282 | 315 | 34 | 41 | 46 |
|  | 122 | 139 | 146 | 147 | 18 | 24 | 26 | 15 | 20 | 21 |
| Mail and message distribution workers ................... | 876 | 924 | 947 | 992 | 48 | 71 | 116 | 5 | 8 | 13 |
| Mail clerks, except mail machine operators and postal service | 136 | 138 | 145 | 150 | 1 | 9 | 14 | 1 | 6 | 10 |
| Messengers .................................... | 101 | 116 | 123 | 128 | 16 | 22 | 28 | 16 | 22 | 28 |
| Postal mail carriers | 269 | 288 | 291 | 306 | 18 | 22 | 37 | 7 | 8 | 14 |
| Postal service clerks | 370 | 383 | 388 | 408 | 12 | 18 | 37 | 3 | 5 | 10 |
| Material recording, scheduling, dispatching, and distribution occupations | 2,173 | 2,151 | 2,264 | 2,330 | -22 | 91 | 157 | -1 | 4 | 7 |
| Dispatchers .............................................. | 185 | 206 | 215 | 221 | 21 | 30 | 36 | 11 | 16 | 20 |
| Dispatchers, except police, fire, and ambulance | 124 | 138 | 146 | 151 | 14 | 22 | 26 | 11 | 18 | 21 |
| Dispatchers, police, fire, and ambulance ...... | 61 | 67 | 69 | 71 | 6 | 8 | 10 | 11 | 13 | 16 |
| Meter readers, utilities | 48 | 42 | 43 | 44 | -6 | -5 | -4 | -12 | -10 | -7 |
| Order fillers, wholesale and retail sales | 195 | 200 | 208 | 211 | 5 | 13 | 16 | 3 | 7 | 8 |
| Procurement clerks .............. | 41 | 33 | 35 | 37 | -7 | -5 | -4 | -18 | -13 | -9 |
| Production, planning, and expediting clerks | 213 | 210 | 228 | 239 | -3 | 15 | 26 | -1 | 7 | 12 |
| Stock clerks, stockroom, warehouse, or yard | 726 | 668 | 703 | 721 | -57 | -23 | -4 | -8 | -3 | -1 |
|  | 548 | 557 | 585 | 604 | 9 | 38 | 56 | 2 | 7 | 10 |
| Traffic, shipping, and receiving clerks ...... Weighers, measurers, checkers, and samplers, | 40 | 37 | 39 | 41 | -3 | 0 | 1 | -7 | -1 | 3 |
| Records processing occupations, except financial | 848 | 898 | 939 | 969 | 49 | 91 | 121 | 6 | 11 | 14 |
| Brokerage clerks ....................... | 58 | 73 | 75 | 77 | 15 | 16 | 19 | 25 | 28 | 32 |
| File clerks | 242 | 260 | 274 | 283 | 18 | 32 | 41 | 8 | 13 | 17 |
| Library assistants and bookmobile drivers | 102 | 111 | 114 | 117 | 9 | 12 | 16 | 9 | 12 | 15 |
| Order clerks, materials, merchandise, and service | 271 | 263 | 277 | 285 | -8 | 6 | 13 | -3 | 2 | 5 |
| Personnel clerks, except payroll and timekeeping | 119 | 119 | 126 | 130 | 0 | 7 | 11 | 0 | 6 | 9 |
| Statement clerks ......................... | 43 | 54 | 57 | 59 | 11 | 14 | 16 | 26 | 32 | 37 |
| Secretaries, stenographers, and typists | 4,414 | 4,413 | 4,648 | 4,813 | -2 | 234 | 398 | 0 | 5 | 9 |
| Secretaries . . | 3,234 | 3,470 | 3,658 | 3,789 | 236 | 424 | 554 | 7 | 13 | 17 |
| Stenographers | 178 | 123 | 128 | 133 | -55 | -50 | -46 | -31 | -28 | -26 |
| Typists and word processors | 1,002 | 820 | 862 | 892 | -182 | -140 | -110 | -18 | -14 | -11 |
| Other clerical and administrative support workers |  | 4,009 | 4,206 | 4,358 | 277 | 475 | 627 | 7 | 13 | 17 |
| Bank tellers .......................... | 539 | 576 | 610 | 635 | 37 | 71 | 96 | 7 | 13 | 18 |
| Court clerks. | 40 | 49 | 51 | 52 | 9 | 10 | 12 | 23 | 26 | 30 |
| Credit checkers | 41 | 42 | 45 | 47 | 1 | 4 | 6 | 3 | 10 | 15 |
| Customer service representatives, utilities | 102 | 93 | 99 | 104 | -9 | -3 | 2 | -9 | -3 | 2 |
| Data entry keyers, except composing ... | 400 | 315 | 334 | 347 | -85 | -66 | -53 | -21 | -16 | -13 |
| Data entry keyers, composing ..... | 29 | 41 | 43 | 45 | 13 | 15 | 17 | 44 | 51 | 58 |
| First-line supervisors and managers | 956 | 1,106 | 1,161 | 1,200 | 150 | 205 | 244 | 16 | 21 | 25 |
| Loan and credit clerks .......... | 159 | 191 | 207 | 217 | 32 | 47 | 57 | 20 | 30 | 36 |
| Real estate clerks | 26 | 35 | 36 | 37 | 9 | 10 | 11 | 33 | 39 | 42 |
| Statistical clerks | 71 | 49 | 52 | 54 | -21 | -19 | -17 | -30 | -26 | -24 |
| Teacher aides and educational assistants | 648 | 752 | 773 | 797 | 104 | 125 | 150 | 16 | 19 | 23 |
| Service occupations | 17,536 | 21,933 | 22,917 | 23,532 | 4,397 | 5,381 | 5,996 | 25 | 31 | 34 |
| Cleaning and building service occupations, except private household | 3,107 | 3,662 | 3,819 | 3,937 | 555 | 712 | 830 | 18 | 23 | 27 |
|  | 123 | 157 | 165 | 170 | 34 | 42 | 47 | 28 | 34 | 38 |
|  | 2,676 | 3,144 | 3,280 | 3,382 | 468 | 604 | 706 | 17 | 23 | 26 |
| Janitors and cleaners, including maids and housekeeping cleaners Pest controllers and assistants | 50 | 56 | 58 | 59 | 6 | - | 10 | 13 | 16 | 19 |
| Food preparation and service occupations | 7,104 | 9,337 | 9,705 | 9,908 | 2,233 | 2,601 | 2,804 | 31 | 37 | 39 |
| Cooks, except short order | 2,563 | 3,299 | 3,427 | 3,501 | 736 | 864 | 938 | 29 | 34 | 37 |
|  | 1,023 | 1,324 | 1,378 | 1,413 | 301 | 355 | 390 | 29 | 35 | 38 |
| Bakers, bread and pastry | 114 | 155 | 162 | 165 | 41 | 48 | 51 | 36 | 42 | 45 |
| Cooks, institution or cafeteria | 389 | 442 | 457 | 469 | 53 | 68 | 80 | 14 | 17 | 20 |
|  | 520 | 727 | 759 | 778 | 207 | 240 | 259 | 40 | 46 | 50 |
| Cooks, short order and fast food | 591 | 748 | 775 | 788 | 157 | 184 | 197 | 27 | 31 | 33 |
| Food preparation workers .... | 949 | 1,227 | 1,273 | 1,300 | 277 | 324 | 351 | 29 | 34 | 37 |
| Food service occupationsBartenders | 4,204 | 5,611 | 5,832 | 5,948 | 1,407 | 1,628 | 1,744 | 33 | 39 | 41 |
|  | 396 | 530 | 553 | 566 | 134 | 157 | 170 | 34 | 40 | 43 |
| Dining room and cateteria attendants and barroom helpers | 433 | 607 | 631 | 644 | 174 | 197 | 211 | 40 | 46 | 49 |
| Food counter, fountain, and related workers ........... | 1,500 | 1,879 | 1,949 | 1,985 | 378 | 449 | 485 | 25 | 30 | 32 |
| Hosts and hostesses, restaurant, lounge, and coffee shops | 172 | 236 | 245 | 250 | 64 | 73 | 78 | 37 | 42 | 45 |
| Waiters and waitresses | 1,702 | 2,360 | 2,454 | 2,503 | 658 | 752 | 801 | 39 | 44 | 47 |
| Health service occupations | 1,819 | 2,437 | 2,549 | 2,608 | 618 | 730 | 788 | 34 | 40 | 43 |
| Dental assistants | 155 | 231 | 244 | 250 | 76 | 88 | 95 | 49 | 57 | 61 |
| Medical assistants | 132 | 239 | 251 | 258 | 107 | 119 | 126 | 81 | 90 | 96 |
| Nursing aides and psychiatric aides | 1,312 | 1,673 | 1,750 | 1,786 | 361 | 437 | 474 | 28 | 33 | 36 |
| Nursing aides, orderlies, and attendants | 1,224 | 1,584 | 1,658 | 1,691 | 359 | 433 | 467 | 29 | 35 | 38 |
| Psychiatric aides ................. | 88 | 90 | 92 | 95 | 2 | 4 | 7 | 2 | 5 | 8 |
|  | 64 | 77 | 79 | 81 | 13 | 15 | 17 | 20 | 24 | 27 |
| Pharmacy assistants Physical and corrective therapy assistants and aides | 36 | 62 | 65 | 67 | 26 | 29 | 31 | 74 | 82 | 87 |
| Personal service occupations | 1,799 | 2,135 | 2,259 | 2,341 | 336 | 460 | 542 | 19 | 26 | 30 |
| Amusement and recreation attendants | 184 | 228 | 239 | 246 | 43 | 55 | 62 | 24 | 30 | 34 |
| Baggage porters and bellhops | 31 | 39 | 41 | 43 | 8 | 10 | 12 | 24 | 32 | 37 |
| Barbers | 80 | 76 | 81 | 85 | -4 | 1 | 4 | -5 | 1 | 5 |
| Child care workers | 589 | 664 | 708 | 739 | 75 | 118 | 150 | 13 | 20 | 25 |
| Cosmetologists and related workers | 595 | 666 | 702 | 724 | 71 | 107 | 129 | 12 | 18 | 22 |
| Hairdressers, hairstylists, and cosmetologists | 562 | 627 | 662 | 683 | 65 | 99 | 121 | 12 | 18 | 22 |
| Flight attendants | 80 | 101 | 105 | 106 | 21 | 26 | 26 | 26 | 32 | 33 |
| Social welfare service and home health aidesHome health aides ................ | 197 | 320 | 336 | 349 | 123 | 139 | 152 | 63 | 71 | 77 |
|  | 138 | 236 | 249 | 258 | 98 | 111 | 120 | 71 | 80 | 87 |

Table 3. Continued-Civilian employment in occupations with $\mathbf{2 5 , 0 0 0}$ workers or more, actual 1986 and projected to 2000 [Numbers in thousands]


Table 3. Continued-Civilian employment in occupations with $\mathbf{2 5 , 0 0 0}$ workers or more, actual 1986 and projected to 2000 [Numbers in thousands]


Table 3. Continued-Civilian employment in occupations with 25,000 workers or more, actual 1986 and projected to 2000 [Numbers in thousands]

| Occupation | Total employment |  |  |  | 1986-2000 employment change |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 |  |  | Number |  |  | Percent |  |  |
|  |  | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High |
| Extruding and forming machine setters, operators, and tenders Furnace, kiln, or kettle operators and tenders Laundry and drycleaning machine operators and tenders, except pressers Packaging and filling machine operators and tenders Painting and paint spraying machine operators <br> Painting machine operators, tenders, setters, and set-up operators <br> Painters, transportation equipment <br> Paper goods machine setters and set-up operators Photographic processing machine operators and tenders Separating and still machine operators and tenders Shoe sewing machine operators and tenders | 100 | 91 | 96 | 102 | -9 | -3 | 2 | -9 | -3 | 2 |
|  | 58 | 49 | 53 | 56 | -9 | -5 | -2 | -16 | -8 | 3 |
|  | 140 | 160 | 170 | 175 | 21 | 31 | 36 | 15 | 22 | 26 |
|  | 299 | 280 | 293 | 308 | -19 | -5 | 10 | -6 | -2 | 3 |
|  | 100 | 94 | 102 | 107 | -7 | 1 | 6 | -7 | 1 | 6 |
|  | 66 | 62 | 68 | 72 | -3 | 2 | 6 | -5 | 3 | 9 |
|  | 35 | 31 | 34 | 35 | -4 | -1 | 0 | -10 | -2 | 1 |
|  | 60 | 58 | 60 | 66 | -2 | 0 | 6 | -4 | 0 | 10 |
|  | 39 | 45 | 48 | 51 | 6 |  | 12 | 16 | 24 | 32 |
|  | 26 | 22 | 23 | 24 | -4 | -3 | -2 | -16 | -12 | -7 |
|  | 27 | 18 | 18 | 18 | -8 | -9 | -8 | -31 | -32 | -31 |
| Assembler and other handwork occupations Precision assemblers <br> Electrical and electronic equipment assemblers, precision <br> Electromechanical equipment assemblers, precision <br> Machine builders and other precision machine assemblers | 2,701 | 2,389 | 2,589 | 2,695 | -312 | -113 | -6 | -12 | -4 | 0 |
|  | 351 | 315 | 348 | 358 | -36 | -3 | 7 | -10 | -1 | 2 |
|  | 170 | 155 | 171 | 177 | -15 | 1 | 6 | -9 | 1 | 4 |
|  | 59 | 57 | 62 | 64 | -2 | 4 | 5 | -3 | 7 | 9 |
|  | 50 | 44 | 48 | 49 | -6 | -2 | -1 | -12 | -4 | -1 |
| Other hand workers, including assemblers and fabricators <br> Cannery workers <br> Coil winders, tapers, and finishers <br> Cutters and trimmers, hand <br> Electrical and electronic assemblers <br> Grinders and polishers, hand <br> Machine assemblers <br> Meat, poultry, and fish cutters and trimmers, hand Painting, coating, and decorating workers, hand Solderers and brazers Welders and cutters | 2,350 | 2,074 | 2,240 | 2,338 | -277 | -110 | -13 | -12 | -5 | -1 |
|  | 78 | 69 | 72 | 76 | -8 | -5 | -1 | -11 | -7 | -2 |
|  | 34 | 25 | 28 | 29 | -9 | -6 | -5 | -26 | -19 | -16 |
|  | 50 | 48 | 50 | 53 | -2 | 0 | 3 | -4 | 1 | 6 |
|  | 249 | 105 | 116 | 119 | -145 | -134 | -131 | -58 | -54 | -52 |
|  | 73 | 62 | 69 | 72 | -11 | -4 | -2 | -15 | -6 | -2 |
|  | 50 | 44 | 49 | 50 | -6 | -1 | 0 | -12 | -2 | 1 |
|  | 101 | 105 | 106 | 108 | 3 | 4 | 7 | 3 | 4 | 7 |
|  | 42 | 42 | 46 | 48 | 0 | 4 | 6 | -1 | 9 | 14 |
|  | 25 | 24 | 27 | 28 | -1 | 2 | 3 | -3 | 7 | 10 |
|  | 287 | 284 | 307 | 320 | -4 | 19 | 32 | -1 | 7 | 11 |
| Transportation and material moving machine and vehicle operators Aircraft pilots and flight engineers Motor vehicle operators | 4,789 | 5,029 | 5,289 | 5,456 | 240 | 500 |  |  | 10 | 14 |
|  | 76 | 94 | 98 | 99 | 17 | 22 |  | 23 | 29 | 30 |
|  | 3,089 | 3,520 | 3,693 | 3,798 | 431 | 604 | 709 | 14 | 20 | 23 |
| Bus drivers ...... | 478 | 541 | 555 | 572 | 63 | 77 | 94 | 13 | 16 | 20 |
| Bus drivers, except school | 143 | 172 | 177 | 182 | 29 | 34 | 39 | 20 | 24 | 27 |
| Bus drivers, school .. | 334 | 369 | 378 | 390 | 34 | 44 | 56 | 10 | 13 | 17 |
| Taxi drivers and chautfers | 88 | 88 | 94 | 98 | 0 | 6 | 10 | 0 | 7 | 11 |
| Truck drivers. | 2,463 | 2,821 | 2,968 | 3,050 | 358 | 505 | 587 | 15 | 21 | 24 |
|  | 252 | 222 | 232 | 239 | -30 | -20 | -13 | -12 | -8 | -5 |
| Truck drivers, light and heavy | 2,211 | 2,599 | 2,736 | 2,811 | 388 | 525 | 600 | 18 | 24 | 27 |
| Rail transportation workers |  | 66 | 74 | 79 | -51 | -43 | -39 | -44 | -37 | -33 |
| Railroad brake, signal, and switch operatorsRairoad conductors and yardmasters | 42 | 22 | 25 | 27 | -20 | -17 | -15 | -47 | -40 | -36 |
|  | 29 | 15 | 17 | 18 | -14 | -12 | -11 | -48 | -41 | -37 |
| Water transportation and related workers | 50 | 43 | 46 | 49 | -8 | -4 | -1 | -15 | -8 | -3 |
|  | 416 | 401 | 421 | 430 | -15 | 5 | 15 | -4 | 1 | 4 |
| Parking lot attendants <br> Service station attendants | 30 | 34 | 37 | 38 | 4 | 7 | 8 | 12 | 21 | 25 |
|  | 299 | 272 | 285 | 291 | -28 | -14 | -8 | -9 | -5 | -3 |
| Material moving equipment operators | 998 | 857 | 905 | 947 | -140 | -93 | -51 | -14 | -9 | -5 |
| Crane and tower operators ..... | 58 | 56 | 60 | 64 | -2 | 3 | 7 | -4 | 5 | 11 |
| Excavation and loading machine operators | 70 | 75 | 79 | 83 | 6 | 9 | 13 | 8 | 13 | 19 |
| Grader, dozer, and scraper operators ... | 92 | 100 | 104 | 109 | 8 | 11 | 17 | 8 | 12 | 18 |
|  | 426 | 265 | 283 | 296 | -161 | -143 | -131 | -38 | -34 | -31 |
| Industrial truck and tractor operators Operating engineers ............ | 150 | 167 | 172 | 180 | 17 | 23 | 30 | 11 | 15 | 20 |
| Helpers, laborers, and material movers, hand | 4,273 | 4,295 | 4,522 | 4,705 | 22 | 249 | 432 | 1 |  | 10 |
| Freight, stock, and material movers, hand | 831 | 768 | 811 | 838 | -63 | -19 | 8 | -8 | -2 | 1 |
| Hand packers and packagers | 566 | 606 | 639 | 662 | 40 | 73 | 96 | 7 | 13 | 17 |
| Helpers, construction trades | 519 | 570 | 587 | 616 | 51 | 68 | 97 | 10 | 13 | 19 |
| Machine feeders and ottbearers | 278 | 242 | 262 | 280 | -36 | -16 | 2 | -13 | -6 | 1 |
| Refuse collectors | 113 | 130 | 135 | 138 | 17 | 22 | 25 | 15 | 19 | 22 |
| Vehicle washers and equipment cleaners | 189 | 190 | 203 | 208 |  | 14 | 19 | 0 | 7 | 10 |

of the rapid growth of the personnel supply services industry, which has many small establishments. Other managerial occupations projected to grow rapidly because of large employment gains in industries where the occupations are concentrated include insurance underwriters ( 34 percent), property and real estate managers ( 39 percent), and loan officers and counselors ( 34 percent). However, not all occupations in the managerial group will fare as well. Employment for purchasing managers; purchasing agents, except wholesale, retail, and farm products; and wholesale and retail buyers is expected to grow more slowly than total employment due to the computerization of purchasing tasks
and more efficient purchasing methods. Other occupations with low projected growth rates are in Federal, State, and local governments, which are not expected to grow as fast as the overall economy; these occupations include postmasters and mail superintendents, public administrators, and construction and building inspectors.

Engineers, architects, and surveyors. The electrical engineers occupation is projected to have the largest employment gain ( 192,000 jobs) and the most rapid increase (48 percent) in this cluster. Most of the increase is expected to occur in industries such as communications equipment,
computers, and other electronics equipment manufacturing. The need to remain competitive will require an increasing number of these engineers to update product designs, explore more cost-efficient ways of producing goods, and develop new products.

The mechanical engineers occupation is projected to have the next largest employment gain ( 76,000 jobs) and the second most rapid increase ( 33 percent) among occupations in the engineers, architects, and surveyors group. Most of the employment increase is expected in manufacturing because of increasing product design requirements. Other sources of demand for mechanical engineers include services, such as engineering and architectural services, miscellaneous business services, and temporary help supply services. Construction and government industries are expected to employ an increasing number of mechanical engineers as well. The number of civil engineers, including traffic engineers is projected to increase by 50,000 jobs ( 25 percent), based on the need to improve the highway system and other large-scale construction projects in the economic infrastructure. Also, the number of industrial engineers, except safety engineers, is projected to increase by 35,000 workers ( 30 percent) as industry seeks to improve its efficiency through the introduction of new production techniques, such as integrated manufacturing systems. The architects, except landscape and marine, occupation is projected to gain 25,000 jobs ( 30 percent) because of increased demand for office buildings, apartment buildings, and residential housing. Computer-assisted design equipment will allow architects to provide more flexible services by producing variations in design more easily.

Natural, computer, and mathematical scientists. The computer systems analysts occupation is expected to have the largest employment gain ( 251,000 jobs) and the fastest growth ( 76 percent) of any occupation within this job cluster. Close to half the employment gain for computer systems analysts is projected to occur in the computer and data processing services industry. The remaining increase will be scattered throughout the economy as computers continue to be used more intensively by an ever-expanding number of industries and firms. New business and defense computer applications will continue to be prime sources of demand. The number of operations and systems researchers is projected to grow very rapidly ( 54 percent) due to the increased importance of quantitative analysis throughout industries.

The number of life scientists is expected to grow 21 percent, or by 30,000 jobs, from 1986 to 2000 . The government and health services industries are expected to employ increasing numbers of life scientists as genetic research expands into such areas as new medicines, plant and animal variations, and diagnostic techniques for genetic defects. Employment of physical scientists is to increase moderately at 13 percent, with 24,000 jobs added due to military and private research and development. Employment oppor-
tunities are expected to open up in laser research, highenergy physics, and other areas of advanced science.

## Teachers, librarians, and counselors. This group of occu-

 pations is projected to grow about as fast as the average for total employment and add about 772,000 jobs. However, not all detailed occupations within this cluster are expected to have the same growth rate due to differing trends in the cohorts that comprise school-age youth in different levels of education. Employment for preschool teachers, for example, is projected to increase faster than total employment, or by 36 percent, because of the increased demand by working parents for child daycare services. The number of kindergarten and elementary school teachers is expected to grow about as fast as the average for total employment; this growth is because of rising enrollments that reflect the increase in births beginning in the late 1970's from the "echo" effect of the post-World War II baby boom. Employment for secondary teachers, however, is expected to grow more slowly than the average for total employment due to the small projected increase in enrollments from 1986 to 2000. The number of college and university faculty is projected to decrease by 4 percent because of the decline in college enrollments projected through 2000. Employment in the professional librarians occupation is expected to grow just slightly less than total employment, or by 13 percent; while the duties of librarians have become heavily automated, their work still requires extensive judgment. The number of counselors in education is projected to grow by 21 percent, as their duties are expected to extend beyond academic counseling into such areas as family relations and substance abuse.Health diagnosing and treating occupations. Employment for health professionals is expected to grow rapidly (42 percent), adding over 1 million jobs by 2000. Job growth in the health industries where these workers are employed is projected to be among the fastest in the economy, except for the hospital industry, which is projected to grow more slowly than total employment. A variety of health practitioner occupations in the health industries are projected to grow faster than the average for total employment, including physical therapists ( 87 percent), optometrists ( 49 percent), and speech pathologists and audiologists (34 percent).

The projections show 2 million registered nurses in 2000, an increase of more than 600,000 jobs. The demand for registered nurses is expected to be particularly strong in hospitals, where, in response to cost-containment pressures, nurses will assume some of the duties previously performed by other health personnel. The number of registered nurses is projected to grow rapidly in physicians' offices, due to the increasing size of physician practices and more sophisticated medical technology, and also in nursing and personal care facilities to care for patients who are expected to have shorter stays in hospitals.

Employment for physicians and surgeons is projected to grow rapidly ( 38 percent), adding 188,000 jobs. Employ-

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ment for physician assistants, a relatively small occupation, is projected to grow much faster than that of physicians. In addition, health maintenance organizations and other group practices are expected to use physician assistants to a greater degree.

Other professional workers. Most other professional occupations are expected to have average or above-average growth rates by 2000. Employment for lawyers is expected to grow about twice as fast as total employment, or by 36 percent, because of projected strong demand for legal services by individuals and businesses. Employment of social workers is expected to rise 33 percent due to the increased demand for social workers as mental health counselors and therapists.

Technicians. Health services, computer applications, research and development, and legal services will be areas of the economy where technician occupations are projected to experience large employment gains. The increase in employment for health technicians and technologists is expected to account for about half of the increase for total technicians- 663,000 of the $1,403,000$ jobs. The health technicians and technologists group contains occupations with duties ranging from cleaning teeth to administering electrocardiographs. The licensed practical nurses occupation is expected to have the largest numerical increase ( 238,000 jobs) among the health technicians, with many of these employed in nursing and personal care facilities that are expected to grow in response to an aging population. The radiologic technologists and technicians occupation is expected to have the second largest increase ( 75,000 jobs), with gains mainly in offices of physicians and in hospitals. The number of medical and clinical laboratory technologists and technicians is expected to increase by 57,000 jobs throughout the health industries and the number of dental hygienists is projected to increase by 54,000 jobs.
Employment for computer programmers is expected to grow rapidly by 70 percent, adding 335,000 jobs. Despite more effective programming tools, demand for software is expected to spur the growth because of the ever-expanding range of new applications for computers. Close to one-half of the job increase for computer programmers is expected to occur in the computer and data processing services industry. The remaining job increases for programmers are expected to be found throughout the economy.
The engineering and science technicians and technologists group is expected to gain 285,000 jobs. These workers are expected to realize healthy job gains in trade, services, and manufacturing. They perform testing, diagnose complicated problems with equipment, and assist scientists and engineers in research and development.
The paralegal personnel occupation is projected to be the fastest growing technician occupation and the fastest growing occupation overall, increasing by 104 percent. (See
table 4.) Nearly all of its employment gain is expected in legal services where the paralegal workers assist lawyers.

Marketing and salesworkers. A rapid projected growth rate for the real estate industry is expected to have a favorable impact on employment for brokers (increasing by 44 percent) and appraisers (increasing by 41 percent). Other sales occupations that are expected to grow rapidly are travel agents ( 46 percent) and securities and financial services salesworkers ( 42 percent). The largest detailed occupation in the group-salespersons, retail-is projected to grow 34 percent and add more jobs than any other detailed occupation ( 1.2 million jobs by 2000). (See table 5.)

## Administrative support occupations, including clerical.

 Office automation and other technological changes are projected to result in employment declines in several clerical occupations, including typists and word processors (14 percent); stenographers ( 28 percent); payroll and timekeeping clerks ( 12 percent); telephone central office operators ( 18 percent); telephone directory assistance operators (18 percent); procurement clerks ( 13 percent); data entry keyers, except composing ( 16 percent); and statistical clerks ( 26 percent). Other clerical occupations, however, are expected to increase because of rapid growth rates in the industries employing them or because of the difficulty in automating their duties. The number of real estate clerks, for example, is expected to grow by 39 percent; hotel desk clerks by 43 percent; brokerage clerks by 28 percent; receptionists andTable 4. Fastest growing occupations, 1986-2000,
moderate alternative
[Numbers in thousands]

| Occupation | Employment |  | Change in employment, 1986-2000 |  | Percent of total job growth 1986-2000 |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 | Number | Percent |  |
| Paralegal personnel | 61 | 125 | 64 | 103.7 | 3 |
| Medical assistants | 132 | 251 | 119 | 90.4 | . 6 |
| Physical therapists | 61 | 115 | 53 | 87.5 | . 2 |
| Physical and corrective therapy assistants and aides | 36 | 65 | 29 | 81.6 | . 1 |
| Data processing equipment repairers | 69 | 125 | 56 | 80.4 | 3 |
| Home health aides ......... | 138 | 249 | 111 | 80.1 | . 5 |
| Podiatrists . . . . . . . . . . . . . | 13 | 23 | 10 | 77.2 |  |
| Computer systems analysts, electronic data processing | 331 | 582 | 251 | 75.6 | 1.2 |
| Medical records technicians | 40 | 70 | 30 | 75.0 | . 1 |
| or public employment service | 75 | 129 | 54 | 71.2 | 3 |
| Computer programmers | 479 | 813 | 335 | 69.9 | 1.6 |
| Radiologic technologists and technicians | 115 | 190 | 75 | 64.7 | 3 |
| Dental hygienists ........ | 87 | 141 | 54 | 62.6 | 3 |
| Dental assistants | 155 | 244 | 88 | 57.0 | 4 |
| Physician assistants | 26 | 41 | 15 | 56.7 | . 1 |
| Operations and systems researchers | 38 | 59 | 21 | 54.1 | . 1 |
| Occupational therapists | 29 | 45 | 15 | 52.2 | . 1 |
| Peripheral electronic data processing equipment operators | 46 | 70 | 24 | 50.8 | 1 |
| Data entry keyers, composing | 29 | 43 | 15 | 50.8 | . 1 |
| Optometrists . . . . . . . . . . . | 37 | 55 | 18 | 49.2 | . 1 |

information clerks by 41 percent; and interviewing clerks, except personnel and social welfare, by 45 percent. Furthermore, certain clerical occupations are expected to grow as a result of being favorably affected by technological change. The rising use of computers throughout the economy is expected to spur the demand for computer operators and peripheral electronic data processing equipment operators; these occupations are projected to grow by 47 percent and 51 percent, respectively. Also, the data keyers, composing, occupation is projected to grow by 51 percent, a result of the increasing use of computerized typesetting technology.

Service workers. This group is projected to have several rapidly growing occupations and add large numbers of new jobs. Near the top of the list are several health service occupations. The medical assistant occupation, with a growth rate of 90 percent, is projected to be one of the fastest growing occupations from 1986 to 2000 because of the growing acceptance of those workers as a cost-effective way to provide both clinical and clerical support to physicians and other health professionals. The number of home health aides is projected to grow by 80 percent due to a number of factors, mainly the growing elderly population and the continuation of the trend to provide medical care outside of the traditional hospital setting.

Other health service occupations with rapid projected rates of growth over the 1986-2000 period include physical and corrective therapy assistants ( 82 percent) and dental assistants ( 57 percent). Employment for nursing aides, orderlies, and attendants is projected to grow by 35 percent, adding 433,000 jobs by 2000 ; much of the employment growth of these workers is expected in the rapidly expanding nursing and personal care industry. In the slower growing hospital industry, however, employment in this occupation is expected to decline by 62,000 jobs due to cost-cutting efforts.

Employment for food preparation and service occupations is projected to grow by 37 percent, increasing by 2.6 million jobs. These workers are concentrated in eating and drinking places. This industry is projected to have the largest numerical job growth of all the industries in the economy from 1986 to 2000 -nearly 2.5 million additional jobs. Occupational employment growth ranges from 17 percent for institution or cafeteria cooks to 46 percent for restaurant cooks.

The protective service workers group is projected to grow by 31 percent, or by 645,000 jobs. Within this group, the largest and most rapidly growing occupation is guards, with a projected increase of 48 percent. Their growth is expected to occur mainly in the protective services industry as more and more firms choose to contract out for protective services.

Another large service occupation with a sizable employment increase is janitors and cleaners ( 604,000 jobs), although the growth rate for the occupation will be about the average for the economy. More and more firms also are

Table 5. Occupations with the largest job growth, 19862000, moderate alternative
[Numbers in thousands]

| Occupation | Employment |  | Change in employment, 1986-2000 |  | Percent of total job growth, 1986-2000 |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 | Number | Percent |  |
| Salespersons, retail | 3,579 | 4,780 | 1,201 | 33.5 | 5.6 |
| Waiters and waitresses | 1,702 | 2,454 | 752 | 44.2 | 3.5 |
| Registered nurses ........... | 1,406 | 2,018 | 612 | 43.6 | 2.9 |
| Janitors and cleaners, including maids and housekeeping cleaners | 2,676 | 3,280 | 604 | 22.6 | 2.8 |
| General managers and top executives | 2,383 | 2,965 | 582 | 24.4 | 2.7 |
| Cashiers | 2,165 | 2,740 | 575 | 26.5 | 2.7 |
| Truck drivers, light and heavy .. | 2,211 | 2,736 | 525 | 23.8 | 2.5 |
| General office clerks | 2,361 | 2,824 | 462 | 19.6 | 2.2 |
| Food counter, fountain, and related workers | 1,500 | 1,949 | 449 | 29.9 | 2.1 |
| Nursing aides, orderlies, and attendants | 1,224 | 1,658 | 433 | 35.4 | 2.0 |
| Secretaries | 3,234 | 3,658 | 424 | 13.1 | 2.0 |
| Guards | 794 | 1,177 | 383 | 48.3 | 1.8 |
| Accountants and auditors ..... | 945 | 1,322 | 376 | 39.8 | 1.8 |
| Computer programmers | 479 | 813 | 335 | 69.9 | 1.6 |
| Food preparation workers ..... | 949 | 1,273 | 324 | 34.2 | 1.5 |
| Teachers, kindergarten and elementary | 1,527 | 1,826 | 299 | 19.6 | 1.4 |
| Receptionists and information clerks | 682 | 964 | 282 | 41.4 | 1.3 |
| Computer systems analysts, electronic data processing | 331 | 582 | 251 | 75.6 | 1.2 |
| Cooks, restaurant | 520 | 759 | 240 | 46.2 | 1.1 |
| Licensed practical nurses ..... | 631 | 869 | 238 | 37.7 | 1.1 |
| Gardeners and groundskeepers, except farm | 767 | 1,005 | 238 | 31.1 | 1.1 |
| Maintenance repairers, general utility | 1,039 | 1,270 | 232 | 22.3 | 1.1 |
| Stock clerks, sales floor | 1,087 | 1,312 | 225 | 20.7 | 1.0 |
| First-line supervisors and managers | 956 | 1,161 | 205 | 21.4 | 1.0 |
| Dining room and cafeteria attendants and barroom helpers | 433 | 631 | 197 | 45.6 | . 9 |
| Electrical and electronics engineers | 401 | 592 | 192 | 47.8 | 9 |
| Lawyers . . . . . . . . . . . . . . . . | 527 | 718 | 191 | 36.3 | 9 |

expected to contract out for janitorial services, rather than using their own employees for this work.

Agriculture, forestry, and fishing workers. Although this group as a whole is projected to have an employment decline of 163,000 jobs, several detailed occupations are projected to have significant employment increases. The most important of these increases is for the gardeners and groundskeepers, except farm, occupation that is projected to gain nearly 240,000 jobs largely because of growth in lawn services and landscaping services for both individuals and businesses.

Occupations in farming are projected to account for most of the employment decline in this group. Employment for farmers is expected to decline by 332,000 jobs as small farms continue to be consolidated into larger ones. However, the process of farm consolidation is projected to lead to an increase in the number of jobs $(47,000)$ for farm managers. Employment for farm workers is expected to decrease by almost 200,000 jobs as farming methods and equipment improve.

Blue-collar worker supervisors. The blue-collar worker supervisors occupation is expected to gain 144,000 jobs, an increase of only 8 percent. This slow growth rate is due mainly to the projected employment decline in manufacturing. However, small employment gains are expected in some manufacturing industries, including plastics, electronics, and commercial printing. Most of the growth in the blue-collar worker supervisors occupation is expected to occur outside manufacturing, especially in construction and services.

Construction trades and extractive workers. Employment for carpenters is projected to grow by about 18 percent, or by 182,000 jobs-the largest numerical increase among occupations in this cluster. Close to one-third of the gain is expected to occur among self-employed carpenters. The residential building and nonresidential carpentering and flooring industries are expected to add the bulk of the remaining jobs.

Employment in the electricians occupation is projected to grow by 89,000 jobs. Most of the increase is expected to occur in construction, which will more than offset job losses projected for electricians in manufacturing.

Employment for painters and paperhangers (construction and maintenance) is projected to increase by 90,000 jobs. More than 40 percent of this increase is expected among self-employed painters and paperhangers. The wage and salary worker increase is projected to occur in the construction, real estate, and services sectors.

Employment in the plumbers, pipefitters, and steamfitters occupation is projected to have an increase of 69,000 jobs, mainly occurring in construction.

Mechanics, installers, and repairers. The general utility maintenance repairers occupation is projected to have the largest job gain ( 232,000 jobs) within this job cluster, although the growth of 22 percent will be the same as that for total employment. A large part of the increase is expected in real estate and services, such as business services, hotels, nursing care, and education. Employment for bus and truck mechanics and diesel engineers is projected to grow by 63,000 jobs due to employment gains in trucking, repair services, and trade. Employment in the data processing equipment repairers group is projected to increase by 56,000 jobs, or 80 percent, the largest percentage increase of any occupation in the mechanics, installers, and repairers group. Most of the increase is expected in the machinery and equipment wholesale trade industry and in the computer and data processing services industry.

The number of automotive mechanics is projected to grow by 60,000 jobs, an increase of only 8 percent. This modest rate of increase is due to a decline in repair work done in gasoline service stations and from better design and workmanship in automobiles.

Precision production and plant system operators. The precision production and plant systems operators group is projected to experience little growth through the year 2000. The precision woodworkers occupation is expected to add 30,000 of the 134,000 new jobs for the group; the dental laboratory technicians and sheet metal workers occupations are expected to add 18,000 jobs and 19,000 jobs, respectively. The number of machinists is projected to drop by 5,000 jobs. Shoe and leather workers and repairers are expected to be one of the most rapidly declining occupations (17 percent) due to the projected declines in the shoe and leather industries.

Machine setters, set-up operators, operators, and tenders. This occupational group is projected to have the largest job decline, down 194,000 jobs. Employment for garment sewing machine operators is expected to decline by 14 percent, or by 92,000 jobs, as a result of the impact of technology and foreign imports on employment in the apparel industry. Other occupations expected to decline include textile drawout and winding machine operators ( 55,000 jobs); chemical equipment controllers and operators ( 22,000 jobs); and machine tool cutters, operators, and tenders $(19,000$ jobs). However, several occupations in this group are in industries that are growing and are expected to make modest gains: plastic molding machine operators and tenders ( 36,000 jobs), laundry and dry cleaning machine operators and tenders ( 31,000 jobs), and offset lithographic press setters and operators ( 23,000 jobs).

## Assemblers and other handwork occupations. Employ-

 ment in this group as a whole is projected to decline by 113,000 jobs as many tasks of the workers are automated. The increasing use of industrial robots, for example, is expected to cause electrical and electronic assemblers to be the fastest declining occupation with a projected loss of 54 percent (table 6) and to cause a more modest 7 -percent decline for welders and cutters. The impact of technological change is expected to be less severe on precision assemblers as a group because current robots, which are expected to be used on a large scale in the 1990's, are not capable of performing more complex assembly tasks. The employment of precision assemblers, therefore, is expected to remain virtually unchanged from 1986 to 2000.
## Transportation and material moving occupations.

 Employment in many occupations in this group is expected to decrease between 1986 to 2000 due to declining industry employment and technological changes. The railroad industry, for example, is expected to lose about 190,000 jobs, causing the number of rail transportation workers to drop by 37 percent. The number of water transportation workers is expected to decline by 8 percent as a result of the projected employment losses in the water transportation industries.The greater use of automated materials handling equipment in factories and warehouses is projected to cause employment in the industrial truck and tractor operators occupation to decrease by about 34 percent. Employment in the truck drivers occupation, however, is projected to grow by 21 percent, increasing by more than half a million jobs between 1986 and 2000. Other occupations expected to have average growth rates include bus drivers, parking lot attendants, excavation and loading machine operators, grading machine operators, and operating engineers. The aircraft pilots and flight engineers occupation is projected to increase faster than the average for total employment, or by 29 percent.

Helpers, laborers, and hand material movers. Occupations in this group are generally expected to grow more slowly than the average for total employment except for the refuse collectors occupation, which is projected to have an average rate of growth through the year 2000. Declines in the machine feeders and offbearers occupation (6 percent) and freight, stock, and material movers occupation ( 2 percent) are expected as a result of technological changes.

## Low and high projections

The distribution of employment by broad occupational group varies little among the projected alternatives for 2000 because of offsetting changes within the broad occupational groups. (See table 7.) In specific occupations, however, some significant differences may exist between the moderate and either the low or high alternatives. The differences in occupational employment from one alternative to another are caused only by differences in projected industry employment levels, because the same set of occupational staffing

## Table 6. Fastest declining occupations, 1986-2000, moderate alternative

[Numbers in thousands]

| Occupation | Employment |  | Percent decline in employment |
| :---: | :---: | :---: | :---: |
|  | 1986 | Projected, 2000 |  |
| Electrical and electronic assemblers | 249 | 116 | -53.7 |
| Electronic semiconductor processors | 29 | 14 | -51.1 |
| Railroad conductors and yardmasters | 29 | 17 | -40.9 |
| Railroad brake, signal, and switch operators | 42 | 25 | -39.9 |
| Gas and petroleum plant and system occupations | 31 | 20 | -34.3 |
| Industrial truck and tractor operators | 426 | 283 | -33.6 |
| Shoe sewing machine operators and tenders | 27 | 18 | -32.1 |
| Station installers and repairers, telephone . . . . . . | 58 | 40 | -31.8 |
| Chemical equipment controllers, operators and tenders | 73 | 52 | -29.7 |
| Chemical plant and system operators . . . . . . . . | 33 | 23 | -29.6 |
| Stenographers | 178 | 128 | -28.2 |
| Farmers | 1,182 | 850 | -28.1 |
| Statistical clerks | 71 | 52 | -26.4 |
| Textile draw-out and winding machine operators and tenders | 219 | 164 | -25.2 |
| Central office and PBX installers and repairers . . . | 74 | 57 | -23.1 |
| Farm workers | 940 | 750 | -20.3 |
| Coil winders, tapers, and finishers | 34 | 28 | -18.5 |
| Central office operators . . . . . | 42 | 34 | -17.9 |
| Directory assistance operators . . . . . . . . . . . . . | 32 | 27 | -17.7 |
| Compositors, typesetters, and arrangers, precision | 30 | 25 | -17.1 |

Table 7. Occupational employment distribution, 1986 and projected to 2000

| Occupation | 1986 | Projected, 2000 |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Low | Moderate | High |
| Total, all occupations | 100.0 | 100.0 | 100.0 | 100.0 |
| Managerial and management-related workers | 9.5 | 10.2 | 10.2 | 10.3 |
| Engineers, architects, and surveyors | 1.4 | 1.6 | 1.6 | 1.6 |
| Natural scientists and computer specialists | 0.7 | 0.8 | 0.8 | 0.8 |
| Teachers, librarians, and counselors | 4.4 | 4.4 | 4.3 | 4.3 |
| Health-diagnosing and treating specialists | 2.3 | 2.8 | 2.8 | 2.8 |
| Other professional specialists | 3.3 | 3.5 | 3.5 | 3.5 |
| Technicians | 3.3 | 3.8 | 3.8 | 3.8 |
| Marketing and salesworkers | 11.3 | 12.3 | 12.3 | 12.2 |
| Administrative support, inciuding clerical | 17.8 | 16.6 | 16.6 | 16.6 |
| Service workers . . . . . . . . . . . . . . . | 15.7 | 17.3 | 17.2 | 17.1 |
| Agriculture, forestry, and fishing workers | 3.2 | 2.6 | 2.6 | 2.5 |
| Blue-collar worker supervisors | 1.6 | 1.5 | 1.5 | 1.5 |
| Construction trades and extractive workers | 3.6 | 3.6 | 3.5 | 3.6 |
| Mechanics and repairers ........ | 4.2 | 4.0 | 4.0 | 4.0 |
| Precision production and plant systems occupations $\qquad$ | 2.7 | 2.4 | 2.4 | 2.4 |
| Machine setters and operators .... | 4.4 | 3.5 | 3.6 | 3.6 |
| Assemblers and other hand workers | 2.4 | 1.9 | 1.9 | 2.0 |
| Transportation and material moving workers | 4.3 | 4.0 | 4.0 | 4.0 |
| Helpers and laborers | 3.8 | 3.4 | 3.4 | 3.4 |

patterns were used for all alternatives. Total employment in the moderate trend projections varies by only about 4 percent from the high alternative and about 6 percent from the low alternative. Therefore, the greatest numerical differences for specific occupations exist between the low alternative projected employment and the moderate trend employment; the following text tabulation shows these differences:

## Occupation

Salespersons, retail
Employment difference216,000
Secretaries
General managers and top
executives ..... 145,000
Truck drivers, light and heavy ..... 138,000
Janitors and cleaners ..... 136,000
General office clerks ..... 136,000
Cashiers125,000
Bookkeeping, accounting, and auditing clerks ..... 123,000
Blue-collar worker supervisors ..... 113,000
Waiters and waitresses ..... 94,000

## Uses and implications

BLS occupational projections are used extensively for career guidance and provide the background for analyses of future employment opportunities in the bls Occupational Outlook Handbook. Job outlook discussions in the 1988-89 edition of the Handbook, scheduled for release in the spring of 1988 , will use the projections presented in this article. These projections also provide information for analyzing a variety of issues, including the relation of education and training to job opportunities and labor market conditions for minority groups.

Educational attainment. Much has been written to indicate that the changing occupational structure of employment
implies the need for a more highly educated work force. To see if the 1986-2000 occupational projections substantiate this view, the occupational clusters discussed previously were divided into three groups. Group I includes the clusters in which at least two-thirds of the workers in 1986 had 1 or more years of college. Group II includes the clusters in which the median years of school completed was greater than 12 and the proportion of those workers with less than a high school education was relatively low. Group III includes occupational clusters where the proportion of workers having less than a high school education was relatively high-more than 30 percent. Given that workers in any occupational cluster have a broad range of educational background, these three groups can only be based on the educational level of the majority of workers. Obviously, workers are employed in each of the groups at each of the educational levels.

The distribution of total employment in 1986 and projected 2000 employment for these three groups of educational attainment is shown in table 8 . These data indicate that employment in the occupations requiring the most education, group I, is projected to increase as a proportion of total employment, while employment in the other two groups in which workers had less education will decline as a proportion of total employment. The proportion of total employment is expected to decline the most in group III, the group which requires the least amount of education. It should be noted that the service workers group-the only occupational cluster in the educational attainment group III with median school years completed above 12 years-is increasing as a proportion of total employment. All other occupational clusters in this group are declining (some by very significant amounts). Conversely, in group I, all the

Table 8. Employment in broad occupational clusters by level of educational attainment, 1986 and projected to 2000, moderate alternative
[In percent]

| Occupation | 1986 | 2000 |
| :---: | :---: | :---: |
| Total, all groups | 100.0 | 100.0 |
| Group I, total | 25.1 | 27.3 |
| Management and management-related occupations | 9.5 | 10.2 |
| Engineers, architects, and surveyors | 1.4 | 1.5 |
| Natural scientists and computer specialists | 7 | . 8 |
| Teachers, librarians, and counselors | 4.4 | 4.3 |
| Health diagnosing and treating | 2.3 | 2.8 |
| Other professional specialists | 3.5 | 3.7 |
| Technicians ..... | 3.3 | 4.0 |
| Group II, total | 40.8 | 40.0 |
| Salesworkers | 11.3 | 12.3 |
| Administrative support, including clerical | 17.8 | 16.7 |
| Blue-collar worker supervisors | 1.6 | 1.5 |
| Construction trades and extractive workers | 3.4 | 3.3 |
| Mechanics and repairers | 4.2 | 4.0 |
| Precision production and plant systems workers | 2.5 | 2.2 |
| Group III, total | 34.0 | 32.7 |
| Service workers | 15.7 | 17.2 |
| Agriculture, forestry, and fishing workers | 3.3 | 2.6 |
| Machine setters and operators | 4.5 | 3.6 |
| Hand workers | 2.4 | 1.9 |
| Transportation and material moving workers | 4.3 | 4.0 |
| Helpers and laborers | 3.8 | 3.4 |

Table 9. Projected 1986-2000 growth rate and percent of total employment in 1986 accounted for by blacks, Hispanics, and women, moderate alternative ${ }^{1}$

| Occupation | Projected percent change, <br> 1986-2000 <br> 1986-2000 | Percent of total employment in 1986 |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Black | Hispanic | Women |
| Total, all occupations | 19 | 10 | 7 | 44 |
| Natural scientists and computer specialists | 46 | 6 | 3 | 31 |
| Health diagnosing and treating occupations | 42 | 6 | 3 | 67 |
| Technicians | 38 | 8 | 4 | 47 |
| Engineers, architects, and surveyors | 32 | 4 | 3 | 7 |
| Service workers | 31 | 17 | 9 | 61 |
| Marketing and salesworkers | 30 | 6 | 5 | 48 |
| Managerial and management-related workers | 29 | 6 | 4 | 43 |
| Other professional workers | 26 | 7 | 4 | 43 |
| Construction trades and extractive workers | 18 | 7 | 8 | 2 |
| Teachers, librarians, and counselors | 16 | 9 | 3 | 68 |
| Mechanics and repairers | 15 | 7 | 7 | 3 |
| Administrative, support, including clerical | 11 | 11 | 6 | 80 |
| Transportation and material moving workers | 10 | 14 | 8 | 9 |
| Helpers and laborers | 6 | 17 | 11 | 16 |
| Precision production and plant systems occupations | 4 | 9 | 9 | 23 |
| Machine setters and operators | -4 | 16 | 13 | 42 |
| Assemblers and other handwork occupations | -4 | 13 | 11 | 38 |
| Agriculture, forestry, and fishing workers | -5 | 7 | 10 | 16 |

${ }^{1}$ Does not include supervisors in construction trades and extractive workers; mechanics and repairers; precision production and plant system occupations; or assemblers and other handwork occupations.
clusters are increasing as a percent of total employment except for the teachers, librarians, and counselors occupation.

Minority groups. Job opportunities for individuals or groups of workers are determined by a multitude of factors relating to the job market and the characteristics of workers. Consequently, in developing projections of employment by industry and occupation, BLS does not develop projections of the demographic composition of those jobs. However, data on the current demographic composition of jobs can be used in conjunction with projected change in employment to determine the implications of the employment projections. For example, projections can be used to see if future job growth is consistent with the labor market pattern for jobs currently held by blacks and Hispanics.

Blacks and Hispanics accounted for about 10 percent and 7 percent of employment in 1986, respectively. Although members of these two groups were employed in virtually every occupation, they were more heavily concentrated in certain occupational clusters. These occupational clusters are listed in decreasing order by projected growth rate in table 9. In general, the data show that both blacks and Hispanics account for a greater proportion of persons employed in the occupations that are projected to decline or grow more slowly than in those occupations that are projected to increase rapidly. It should be pointed out that the occupational clusters projected to decline or grow slowly are generally those requiring the least amount of education and training and those projected to grow the fastest require the most education and training. The only exception is the service workers cluster, which, as discussed previously, is growing rapidly.

In general, occupations having the fastest growth rates can be assumed to have the better opportunities for employment. For blacks and Hispanics to improve their labor market situation, they must be able to take advantage of those opportunities. The labor force projections discussed in the article by Howard Fullerton, pp. 19-29, indicate that blacks and Hispanics will make up 17.4 percent and 28.7 percent of the total labor force growth, respectively. Because, as noted earlier, the fastest growing occupations are those in which a high percentage of workers currently have postsecondary education, the data imply that improvements in educational attainment are important if blacks and Hispanics are to take advantage of the favorable job opportunities associated with these rapidly growing occupations.

The proportion of women employed in certain occupational clusters varies among the clusters. In general,
however, women account for relatively high proportions of employment in the faster growing occupations with two exceptions. For natural scientists and computer specialists, the women's share of employment currently is low and the proportion of women employed as engineers, architects, and surveyors is very low ( 7 percent). Women tend to account for smaller proportions in the occupations projected to decline or grow slowly, except for the proportion of women employed as machine setters and operators.

In summary, occupations requiring the most education and training are projected to grow more rapidly than total employment. Women currently represent larger proportions of employment in those occupations than blacks and Hispanics. Therefore, among the three minority groups, employment opportunities for women are expected to be the most favorable.
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[^11][^12]
# Strong employment growth highlights first half of 1987 

With employment gains larger than the labor force expansion, the level and rate of unemployment showed marked improvements; job growth was concentrated in the service-producing sector

Wayne J. Howe

Employment rose markedly during the first half of 1987. The number of unemployed workers dropped by 700,000 to 7.4 million, and the civilian unemployment rate fell more than half a point to 6.2 percent. ${ }^{1}$ This brought the rate to its lowest level since the first quarter of 1980.

The employment gains in the first half continued to be concentrated in the service-producing sector. In the goodsproducing sector, there was an overall increase in construction and manufacturing jobs, and employment in mining began to show a recovery from recent job losses. ${ }^{2}$

## Unemployment and other labor market problems

The civilian unemployment rate, which had exhibited a pattern of slow improvement since the second quarter of 1984 , dipped 0.7 percentage point to 6.2 percent in the second quarter of 1987, as unemployment dropped to 7.4 million persons. (See table 1.) There were improvements for almost all worker groups.

Demographic groups. Recently, there has been a shift away from the historical pattern of a higher unemployment rate for women than for men. At 5.5 and 5.4 percent in the second quarter of 1987, the unemployment rates for adult men and women declined 0.6 percentage point from the last quarter of 1986. The similarity of jobless rates for these two groups at this point of an expansionary period is unprecedented. For example, during the late 1970 's, the rate for women generally exceeded the rate for men by $1 \frac{1}{2}$ to 2

[^13]percentage points. (See chart 1.) In the 1980's, however, the male unemployment rate rose much more steeply than that for women during the two recessions and, reflecting the industrial restructuring that has occurred, has not returned to the 4-percent level recorded in 1979. By contrast, the unemployment rate for adult women returned to 1979 levels.

Women have traditionally been more concentrated than men in the relatively fast-growing service-producing industries. Thus, they were apparently more insulated from the effects of industrial restructuring. Other factors that may have served to improve the unemployment situation of women include a sharp rise in their educational attainment, a shift into more full-time, career-oriented employment, and a more firm attachment to the labor force even during their childbearing years.

The unemployment rate for teenagers, at 17.0 percent in the second quarter of 1987 , was lower than during all of 1986. Unemployment rates for whites, blacks, and Hispanics declined to their lowest levels of the current expansionary period. The rate for blacks, at 13.2 percent in the second quarter, remained about $2 \frac{1}{2}$ times the 5.3 -percent rate for whites, while the rate for Hispanics, at 8.8 percent, remained in an intermediate position.

Reasons and duration. The number of unemployed job losers, job leavers, reentrants, and new entrants all declined from late 1986. With the exception of job leavers-persons who quit or otherwise voluntarily terminate their employ-ment-all other reasons-for-unemployment measures have declined significantly during the last 2 years.

Although there was a dip in the number of unemployed

Table 1. Selected labor force indicators by sex, age, race, and Hispanic origin, seasonally adjusted quarterly averages, 1982-87
[Numbers in thousands]


NOTE: Detail for race and HIspanic-origin groups will not sum to totals because data for the population groups.
"other races" group are not presented, and Hispanics are included in both the white and black
persons in the first half of 1987, the mean and median duration of unemployment were little changed, at 14.8 and 6.7 weeks, respectively. After peaking at one-fourth of the unemployed in the second quarter of 1983, the proportion of long-term jobless ( 27 weeks or more) remained at less than 15 percent during the first half of 1987 . There were still more than 1 million long-term unemployed in the labor market in mid-1987.

Discouragement and involuntary part-time work. Despite the continued employment growth and unemployment decline, the number of discouraged workers-persons who
report that they want to work but have not actively looked for jobs because they believe they could not find anyedged down to 1 million in the first half of 1987. The number of discouraged workers was only slightly lower than in late 1984. Although discouragement declined among men and whites, there was little change for women and blacks, two groups already overrepresented among the discouraged. By mid-1987, women made up 45 percent of the civilian labor force but accounted for 61 percent of discouraged workers; blacks constituted 11 percent of the labor force but 29 percent of those discouraged.

Another measure of underutilized resources, persons

Chart 1. Unemployment rates for men and women age 20 and older, 1979-87
Seasonally adjusted quarterly data


Chart 2. Employment changes by major industry, fourth quarter 1986 to second quarter 1987 Seasonally adjusted

working part time for economic reasons (those who would have preferred full-time work), declined to 5.3 million by the second quarter of 1987. The two major factors cited by workers as reasons for part-time employment for economic reasons are slack work and inability to find full-time work. The number of such part-time workers has dropped significantly since the fourth quarter of 1982 . However, the pace of that decline has not matched the decline in the number of unemployed persons during that same period.

## Civilian employment

Total civilian employment continued to expand, rising by 1.8 million in the first half of 1987, the strongest twoquarter job gain since the first half of 1984. At 112.2 million in the second quarter of 1987, total employment had increased by 13.1 million from the recession trough in the fourth quarter of $1982 .{ }^{3}$ The present economic expansion ( 55 months as of June 1987) has followed the post-World War II pattern of robust employment growth in the early stages of a recovery period, followed by relatively smaller increases in subsequent years. The following tabulation shows the percentage change in employment during each 6 -month period of the current recovery:

Period
Percent change

| IV 1982-II 1983 | . 8 |
| :---: | :---: |
| II 1983-IV 1983 | 2.6 |
| IV 1983-II 1984 | 2.4 |
| II 1984-IV 1984 | . 8 |
| IV 1984-II 1985 | . 8 |
| II 1985-IV 1985 | 1.1 |
| IV 1985-II 1986 | 1.2 |
| II 1986-IV 1986 | 1.1 |
| IV 1986-II 1987 | 1.6 |

The strongest growth during the current recovery was between the second quarters of 1983 and 1984, followed by much lower rates of employment growth through 1986. However, the recent increase in the rate of employment growth is somewhat unusual, because it transpired after more than 4 years of economic growth.

Age and gender. As has been the case throughout the current economic expansion, almost all of the employment increase during the first 6 months of 1987 was concentrated among adults. As shown in the following tabulation, adult women accounted for more than half of the job gain, although they make up only 42 percent of all U.S. workers:

> Percent of II 1987 employment

> Percent of IV 1986-II 1987 employment change


Although relatively strong, women's share of employment growth in the first half of 1987 was smaller than in both 1985 and 1986, when they accounted for 70 and 56 percent, respectively, of over-the-year increases in employment. Adult men and teenagers contributed relatively small amounts toward the employment increase in proportion to their shares of the total work force. Nevertheless, adult men's share of job growth during the first 6 months of 1987 was the largest since the second half of 1984.

The employment-population ratio (the proportion of the working-age population with civilian jobs) provides additional evidence of the strong recent pattern of employment growth for adult men and women. As the following tabulation shows, the employment-population ratio for adult women rose steadily between the second quarters of 1983 and 1987, continuing a long-term trend.

| Period | Overall | Men | Women | Teenagers |
| :---: | :---: | :---: | :---: | :---: |
| Second quarter: |  |  |  |  |
| $1979 \ldots \ldots \ldots \ldots$ | 59.8 | 76.5 | 47.4 | 48.5 |
| $1983 \ldots \ldots \ldots$ | 57.5 | 71.0 | 48.4 | 40.8 |
| $1984 \ldots \ldots$ | 59.6 | 73.2 | 50.3 | 44.0 |
| $1985 \ldots \ldots \ldots$ | 60.0 | 73.2 | 50.9 | 44.2 |
| $1986 \ldots \ldots \ldots$ | 60.6 | 73.2 | 51.9 | 44.7 |
| $1987 \ldots \ldots \ldots$ | 61.5 | 73.8 | 53.1 | 44.9 |

For adult men, the employment-population ratio showed no change between the second quarters of 1984 and 1986, after sharply declining during the last recession. While it increased during the first 6 months of 1987, the adult male ratio is still well below its 1979 level. This largely reflects a continuation of long-term declines in employment activity of older men. The employment-population ratio for teenagers dropped between 1979 and 1983, recovered slightly in early 1984, and has edged up slightly over the last 3 years.

Whites, blacks, and Hispanics. All three major race or ethnic groups contributed to the job growth in the first half of 1987. The fastest rate of employment gain was recorded by Hispanic workers. Although they make up only 7 percent of the U.S. labor force, Hispanics accounted for 20 percent of the overall increase in employment. Their employmentpopulation ratio increased by more than 1 percentage point over the 6 -month period to a record high 60.6 percent. Adult women were responsible for most of the employment gains among both whites and blacks. Both whites and blacks also experienced increases in their employment-population ratios.

## Industrial developments

The number of employees on nonagricultural payrolls (as measured by the survey of business establishments) averaged 101.7 million in the second quarter of 1987 , a gain of 1.3 million jobs in the last 6 months. (See table 2.) Much of the growth occurred in the first quarter. Throughout much of the recovery period, the employment increase was dominated by service-producing industries, where there was an
addition of nearly 1.2 million jobs. All of the major industries which make up the service sector posted strong employment gains in the first half of 1987, with the services industry and retail trade generating the largest number of new jobs, while the fastest rate of employment growth was in finance, insurance, and real estate. Among the goodsproducing industries, construction and manufacturing showed a rise in employment. (See chart 2, p. 66.)

Service-producing industries. Since the recession trough in November 1982, 6 of every 7 new jobs have been in the
service-producing sector of the economy. The largest job gains have been in services and retail trade, accounting for 60 percent of the total increase in payroll jobs. And, in the first half of 1987, they continued to lead the expansion. The services industry posted a 535,000 job gain, with the business and health services components accounting for almost two-thirds of the increase.

Within business services, computer and data processing and temporary help industries continued to register strong job gains. Such progress was expected for computer and data processing, as more firms recognize the economic ben-

Table 2. Employees on nonagricultural payrolls by industry, seasonally adjusted quarterly averages, 1982-87
[In thousands]

| Industry | 1982 | 1984 | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | IV | IV | 1 | II | III | IV | 1 | 11 |
| Total | 88,717 | 95,882 | 98,901 | 99,321 | 99,804 | 100,397 | 101,133 | 101,686 |
| Total private | 72,893 | 79,721 | 82,299 | 82,670 | 83,119 | 83,498 | 84,183 | 84,655 |
| Goods-producing | 22,980 | 24,943 | 24,767 | 24,702 | 24,629 | 24,624 | 24,733 | 24,761 |
| Mining Oil and gas extraction | $\begin{array}{r} 1,029 \\ 651 \end{array}$ | $\begin{aligned} & 957 \\ & 610 \end{aligned}$ | $\begin{aligned} & 864 \\ & 529 \end{aligned}$ | $\begin{aligned} & 789 \\ & 461 \end{aligned}$ | $\begin{aligned} & 750 \\ & 429 \end{aligned}$ | $\begin{aligned} & 730 \\ & 411 \end{aligned}$ | $\begin{aligned} & 720 \\ & 406 \end{aligned}$ | $\begin{aligned} & 732 \\ & 419 \end{aligned}$ |
| Construction General building contractors | $\begin{array}{r} 3,837 \\ 959 \end{array}$ | $\begin{aligned} & 4,501 \\ & 1,188 \end{aligned}$ | $\begin{aligned} & 4,817 \\ & 1,298 \end{aligned}$ | $\begin{aligned} & 4,910 \\ & 1,300 \end{aligned}$ | $\begin{aligned} & 4,939 \\ & 1,292 \end{aligned}$ | $\begin{aligned} & 4,941 \\ & 1,285 \end{aligned}$ | $\begin{aligned} & 5,035 \\ & 1,304 \end{aligned}$ | $\begin{aligned} & 5,007 \\ & 1,268 \end{aligned}$ |
| Manufacturing | 18,115 | 19,485 | 19,086 | 19,003 | 18,939 | 18,953 | 18,979 | 19,022 |
| Durable goods . | 10,484 | 11,634 | 11,343 | 11,267 | 11,195 | 11,173 | 11,171 | 11,179 |
| Lumber and wood products | 596 | 703 | 703 | 706 | 711 | 723 | 733 | 737 |
| Furniture and fixtures .... | 425 | 493 | 495 | 496 | 498 | 499 | 501 | 508 |
| Stone, clay, and glass products | 558 | 593 | 588 | 589 | 584 | 582 | 587 | 585 |
| Primary metal industries ...... | 824 | 844 | 779 | 760 | 737 | 733 | 733 | 743 |
| Blast furnaces and basic steel products | 344 | 318 | 291 | 282 | 268 | 260 | 260 | 272 |
| Fabricated metal products ........... | 1,349 | 1,483 | 1,444 | 1,437 | 1,423 | 1,421 | 1,420 | 1,422 |
| Machinery, except electrical | 2,051 | 2,235 | 2,102 | 2,075 | 2,046 | 2,016 | 2,013 | 2,026 |
| Electrical and electronic equipment | 1,953 | 2,248 | 2,134 | 2,118 | 2,122 | 2,119 | 2,105 | 2,086 |
| Transportation equipment | 1,662 | 1,931 | 2,019 | 2,013 | 2,012 | 2,018 | 2,019 | 2,014 |
| Motor vehicles and equipment | 659 | 877 | 883 | 868 | 855 | 854 | 855 | 846 |
| Instruments and related products | 699 | 721 | 715 | 710 | 703 | 700 | 695 | 693 |
| Miscellaneous manufacturing | 367 | 382 | 364 | 363 | 359 | 362 | 364 | 365 |
| Nondurable goods | 7,631 | 7,851 | 7,743 | 7,737 | 7,744 | 7.780 | 7,808 | 7,843 |
| Food and kindred products | 1,628 | 1,607 | 1,608 | 1,615 | 1,618 | 1,626 | 1,631 | 1,636 |
| Tobacco manufactures . | 68 | 64 | 61 | 60 | 58 | 58 | 58 | 57 |
| Textile mill products | 729 | 726 | 700 | 702 | 707 | 713 | 722 | 726 |
| Apparel and other textile products | 1,139 | 1,156 | 1,110 | 1,104 | 1,102 | 1,105 | 1,103 | 1,107 |
| Paper and allied products | 654 | 682 | 673 | 673 | 673 | 678 | 678 | 676 |
| Printing and publishing | 1,271 | 1,404 | 1,443 | 1,452 | 1,462 | 1,472 | 1,482 | 1,497 |
| Chemical and allied products | 1,055 | 1,056 | 1,028 | 1,022 | 1,021 | 1,019 | 1,018 | 1,021 |
| Petroleum and coal products . ......... | 200 | 188 | 172 | 170 | 168 | 165 | 164 | 164 |
| Rubber and miscellaneous plastics products. | 679 | 792 | 788 | 787 | 787 | 797 | 805 | 810 |
| Leather and leather products . . . . . . . . . . | 209 | 176 | 158 | 152 | 148 | 147 | 147 | 150 |
| Service-producing | 65,737 | 70,939 | 74,134 | 74,619 | 75,175 | 75,773 | 76,399 | 76,925 |
| Transportation and public utilities | 5,023 |  | 5,261 | 5,211 | 5,231 | 5,272 | 5,317 | 5,349 |
| Transportation ..... | 2,735 | 2,964 | 3,035 | 3,023 | 3,038 | 3,067 | 3,099 | 3,125 |
| Communication and public utilities | 2,288 | 2,237 | 2,226 | 2,188 | 2,193 | 2,204 | 2,218 | 2,224 |
| Wholesale trade | 5,213 | 5,643 | 5,740 | 5,735 | 5,736 | 5,728 | 5,755 | 5,774 |
| Durable goods | 3,034 | 3,336 | 3,391 | 3,378 | 3,383 | 3,381 | 3,391 | 3,402 |
| Nondurable goods | 2,179 | 2,307 | 2,350 | 2,357 | 2,352 | 2,347 | 2,363 | 2,372 |
| Retail trade |  | 16,923 | 17,679 | 17,792 | 17,906 | 17,999 | 18,119 | 18,209 |
| General merchandise stores | 2,141 | 2,316 | 2,345 | 2,359 | 2,371 | 2,376 | 2,370 | 2,389 |
| Food stores . | 2,510 | 2,685 | 2,831 | 2,864 | 2,888 | 2,908 | 2,938 | 2,953 |
| Automotive dealers and service stations | 1,634 | 1,834 | 1,922 | 1,934 | 1,950 | 1,964 | 1,979 | 1,979 |
| Eating and drinking places ........ | 4,872 | 5,527 | 5,829 | 5,857 | 5,901 | 5,928 | 5,955 | 5,974 |
| Finance, insurance, and real estate |  |  |  |  |  |  |  |  |
| Finance . . . . . . . . . . . . . . . . | 2,664 | 2,890 | 3,079 | 3,132 | 3,181 | 3,214 | 3,245 | 3,276 |
| Insurance | 1,715 | 1,785 | 1,899 | 1,930 | 1,961 | 1,990 | 2,017 | 2,036 |
| Real estate | 977 | 1,105 | 1,180 | 1,196 | 1,207 | 1,217 | 1,241 | 1,261 |
| Services | 19,131 | 21,231 | 22,695 | 22,973 | 23,268 | 23,455 | 23,757 | 23,989 |
| Business services | 3,289 | 4,195 | 4,673 | 4,749 | 4,816 | 4,883 | 4,985 | 5,072 |
| Health services . | 5,892 | 6,177 | 6,439 | 6,508 | 6,591 | 6,665 | 6,747 | 6,821 |
| Government | 15,824 | 16,161 | 16,602 | 16,651 | 16,685 | 16,899 | 16,949 | 17,031 |
| Federal | 2,745 | 2,830 | 2,916 | 2,896 | 2,885 | 2,900 | 2,917 | 2,921 |
| State | 3,641 | 3,771 | 3,871 | 3,882 | 3,884 | 3,916 | 3,929 | 3,945 |
| Local | 9,438 | 9,560 | 9,815 | 9,873 | 9,916 | 10,082 | 10,104 | 10,166 |

efits of contracting out for those services. Ongoing job gains in the temporary help industry-businesses primarily engaged in supplying temporary help to other establishments on a contractual basis-while small in the aggregate, represent a change in the way many American companies are conducting business. Although the growth rate of the temporary employment industry has fallen off slightly from earlier in the recovery, the industry continues to expand at a vigorous pace.

Elsewhere in the service-producing sector, retail trade employment showed marked growth in the first 6 months of 1987, adding 210,000 jobs. Within the largest retail trade industries, the strongest increases occurred in eating and drinking places and food stores, while gains in general merchandise stores and automotive dealers and service stations were comparatively small. Employment gains in finance, insurance, and real estate continued at the same brisk pace experienced throughout 1986. All three components of that industry contributed to the strong growth. At the same time, government employment grew, mostly at the local level.

Within transportation and public utilities, transportation was responsible for the bulk of the 75,000 employment rise in the first half of 1987. Finally, following an overall employment decline in 1986, there was an increase of 45,000 jobs in the wholesale trade industry. The majority of that employment boost was in nondurable goods.

Goods-producing industries. After losing 320,000 jobs during 1985 and 1986, employment in the goods-producing sector edged up by 135,000 in the first half of 1987. The construction and manufacturing industries were each responsible for half of that job advance.

All of the increase in construction jobs $(95,000)$ occurred in the first quarter, reflecting exceptionally favorable weather during the winter months and a surge in building permits at the end of 1986. The second quarter showed a loss of 30,000 jobs. Special trade contractors continued steady employment gains in the first quarter of 1987. This industry accounted for the bulk of the employment growth in construction in 1984 and 1985 and all of the increase in 1986. As a result, the share of total construction jobs performed by these contractors-who specialize in painting, papering, plumbing, electrical work, stone masonry, and roofing-has risen from 54 to 59 percent in the past 4 years. However, the industry's growth slowed in the second quarter of 1987. Heavy construction was the only other construc-
tion industry to record employment gains in both the first and second quarters of 1987. That increase nearly recouped losses incurred during 1986.

Mining employment edged up between February and May of 1987, in marked contrast to the large and persistent job losses of 1985 and 1986. The halt in the employment decline reflects stabilization in the oil and gas extraction industry, which had suffered a protracted slump during 1985 and 1986.

Total manufacturing employment also increased in the first half of 1987, although its durable goods component was rather stagnant. After growing sharply in the first 2 years of the current recovery, employment in durable goods manufacturing had fallen by 460,000 in 1985 and 1986. During that period, the largest job losses occurred in electrical and electronic equipment, motor vehicles, machinery, and in the primary and fabricated metal industries. The electrical equipment and motor vehicles industries continued to experience a drop in employment in the first half of 1987, losing an additional 35,000 and 10,000 jobs, respectively. Those declines were offset by a slight turnaround in the primary metals and machinery industries, in addition to continued growth in the lumber and wood products industry.

After trending downward from the second half of 1984 through the end of 1985, nondurable goods employment improved in 1986, and that progress continued through the first two quarters of 1987. Within nondurable manufacturing, the textiles, food, printing and publishing, and rubber and plastics industries were responsible for the recent job gains, as they were in the fourth quarter of 1986.

Factories maintained unusually high workweeks in the first half of 1987, averaging just under 41 hours. That was the highest average since the last half of 1966. Factory overtime, at 3.6 and 3.7 hours in the first two quarters of 1987, was also very high by historical standards.

The increase in the rate of employment growth in the first half of 1987 was somewhat unusual, given the advanced stage of the current recovery. Employment gains were larger than the labor force expansion; consequently, the level and rate of unemployment showed marked improvements. Job growth was concentrated in the service-producing sector. While employment gains were posted in manufacturing, by historical standards, the factory workweek was at extraordinarily high levels.

[^14]economic characteristics. The ces survey is a monthly survey of approximately 290,000 nonagricultural establishments and provides information by detailed industry on the number of employees on business payrolls, as well as on average hours and earnings.

[^15]
## Major Agreements Expiring Next Month



This list of selected collective bargaining agreements expiring in October is based on information collected by the Bureau's Office of Wages and Industrial Relations. The list includes agreements covering $\mathbf{1 , 0 0 0}$ workers or more. Private industry is arranged in order of Standard Industrial Classification.


[^16]
# Developments in Industrial Relations 



## Aerospace update

In St. Louis, 11,000 workers were covered by a 3 -year contract between the Machinists union and McDonnell Douglas Corp. containing terms similar to those the company unilaterally put into effect in March 1987 at three California plants.
The St. Louis accord provides for an immediate 3-percent wage increase and a lump sum equal to 3 percent of earnings during the preceding 12 months. This is followed by a 2 -percent lump sum in the second contract year, and a 4 percent lump sum in the final year. Automatic quarterly cost-of-living adjustments now apply to all employees. Previously, adjustments had been denied to employees in lower pay grades to relieve a compression of pay rates between higher and lower grades. Pay averaged $\$ 12.95$ an hour at the end of the prior contract, according to the union.

Benefit changes include a $\$ 3$ increase in the monthly pension for each year of service for future retirees, annual payments of $\$ 200, \$ 225$, and $\$ 250$ in the respective contract years to current retirees and an increase in the lifetime major medical limit for employees and their dependents.
McDonnell Douglas will continue to pay the full premium cost for health insurance. This is the major difference from the terms the company imposed at the California plants, where employees now pay $\$ 2$ to $\$ 4$ a week toward the premium cost.
Elsewhere in the industry, Bell Helicopter, Inc., a subsidiary of Textron, Inc., settled with the Auto Workers, ending a 3 -week strike by 3,900 employees in Fort Worth, TX. The stoppage reportedly was triggered by a company demand that monetary gains be limited to lump-sum pay-ments-countered by a union demand that the gains be only in the form of wage increases. The outcome was a compromise: a 3-percent immediate wage increase, accompanied by a lump-sum payment equal to 3 percent of employee earnings in the preceding 12 months, followed by a 2 percent wage increase and a 2 -percent lump sum in the second year, and a 4 -percent lump sum in the final year. The employees also received an immediate 14 -cent-an-hour pay increase under the provision for automatic quarterly cost-of-living adjustments, which was continued.

[^17]Bell agreed to continue paying the full cost of the health insurance program, which was revised to give employees a choice of plans. (The company had been pressing employees to assume part of health insurance costs.) Changes also were adopted to hold down health insurance cost increases. Other benefit terms include a $\$ 5$ increase in the monthly pension for each year of credited service, a $\$ 1,000$ increase in the $\$ 18,000$ life insurance coverage, a $\$ 200$ increase in the $\$ 800$ annual limit on dental benefits, and a $\$ 20$ increase in the $\$ 170$ a week sickness and accident payments.

Rockwell International Corp.'s Aerospace Group and the Auto Workers settled for 17,000 employees in Los Angeles and Santa Susana, CA, Columbus, OH, and Tulsa and McAlester, ок. As in the other settlements in the aerospace industry, monetary gains were a combination of wage increases and lump-sum payments. Effective immediately, the workers received a 3 -percent wage increase that ranged from 30 to 55 cents an hour, plus a 15 -cent immediate "travel" cost-of-living adjustment to counter the rise in the Consumer Price Index since the last adjustment under the previous agreement. The 3 -percent increase and the 15 -cent adjustment applied to all steps of the rate ranges for the highest 12 of the 18 pay grades, but only to the top steps of the six other grades.

The first lump-sum payment, in December 1987, is equal to 2 percent of earnings during the preceding 12 months, excluding pay for holidays and other "nonwork" time. The second payment, calculated at 6 percent of earnings, will be in August 1988, and the third, calculated at 5 percent, will be in August 1989.

Because of a higher rate of increase in health care costs in California than elsewhere, the parties agreed to some changes in the health insurance plan, including a new requirement that employees not enrolled in a health maintenance organization must pay a percentage of their covered expenses, up to a maximum of $\$ 2,500$ for individuals and $\$ 5,000$ for families. In another change applicable only to employees in California, the possible allowance resulting from continuation of the provision for automatic quarterly cost-of-living adjustments will be reduced if health care costs to the company exceed a target level, and increased if the costs are lower than the target. Possible cost-of-living allowances for the employees in Ohio and Oklahoma are not linked to health care costs.

Other changes included a $\$ 4$ increase in the $\$ 19$ a month pension for each year of service, applying to employees retiring on or after July 1, 1987, and flat $\$ 200, \$ 225$, and $\$ 250$ payments in the respective contract years to employees who retired earlier; and a $\$ 3,500$ increase in companyfinanced life insurance.

## Maritime settlements

About 9,000 longshore workers in California, Oregon, and Washington were covered by a 3-year agreement between the Pacific Maritime Association and the International Longshoremen's and Warehousemen's Union. Wages were frozen during the first contract year, but employees who load and unload ships will benefit from a new method of calculating overtime pay. Under the old agreement, the workers were paid $\$ 17.27$ for each of the first 6 hours of daily work, and time and one-half ( $\$ 25.90$ ) for each of the other 2 hours of their normal 8 -hour shift, for an overall average of $\$ 19.43$ an hour. Now, all hours will be paid at a flat $\$ 19.43$ rate; hours worked in excess of 8 per day will be paid at time and one-half, or $\$ 29.15$. The $\$ 19.43$ hourly rate will rise to $\$ 19.83$ in the second year and to $\$ 20.33$ in the third year.

Reflecting management's concern about possible inroads by lower cost nonunion operators-such as those that have entered the Atlantic and Gulf Coast areas where the International Longshoremen's Association had a lock on workthe parties agreed on terms intended to moderate labor costs. One such change reduces second and third shift pay to 1.3 and 1.6 times the daytime hourly rate (previously 1.5 and 1.8 times). In another change, casual employees and new regular employees with less than 1,000 hours worked in the industry start at $\$ 14$ an hour, which will rise by $\$ 1$ for each additional 1,000 hours worked. Also, employers were given more freedom in scheduling operations.

Under the wage guarantee plan, employees with at least 5 years of service will be assured 38 hours of work per week (previously 36 hours). Other employees will continue to be assured 28 hours of work. The major benefit change was a $\$ 4$ increase in the monthly pension rate over the contract term for future retirees and a $\$ 3$ increase for current retirees. The previous rates were $\$ 29$ and $\$ 30$ a month for each year of credited service to 33 and 30 years, respectively.

Elsewhere in the maritime industry, 11,000 sailors aboard deep sea vessels were covered by two settlements. The first accord, for 5,000 of the sailors, was between the Seafarers union and the American Maritime Association, which bargains for seven shipping lines operating 100 to 120 ships.

The 3-year accord provides for 2-percent wage increases in each year. The initial increase, effective July 1, 1987, brought hourly rates to $\$ 12.30$ for sailors, $\$ 10.31$ for cooks, and $\$ 17.99$ for engineers. There also is a provision for cost-of-living pay increases if the Consumer Price Index rises more than 10 percent over the term. The companies
also agreed to increase their financing of the health and welfare and pension plans to maintain current coverage.

The other accord, also running for 3 years, was between the National Maritime Union and the joint Maritime Service/Tanker Service Committee, which is made up of companies with about 120 ships.

This settlement also provided for 2-percent wage increases in each year, except that the first increase was diverted to help support the union's welfare plan. There also is a cost-of-living clause similar to that of the Seafarers .

Other provisions included a new defined benefit pension plan for sailors on dry cargo vessels (such a plan already is in effect for tanker sailors), and an additional paid holiday.

## Air traffic controllers form new union

The Nation's air traffic controllers, engaged in continuing debate with the Federal Aviation Administration over working conditions and the safety and efficiency of the control system, apparently strengthened their position when they voted to form a new union. The tally was 7,494 votes for the new National Air Traffic Controllers Association and 3,225 for no union; there were 41 unresolved challenges. Election of officers is expected to be completed later in 1987.

John F. Thornton, who led the organizing drive, stressed that the constitution of the new union prohibits strikes because "times change, and our experience has shown that strikes against the government are not successful." He was referring to developments in August 1981, when the predecessor union, the Professional Air Traffic Controllers Organization, went on strike in violation of Federal law, leading to the firing of 11,400 controllers who defied a return-towork order. Later in 1981, Professional Air Traffic Controllers was stripped of its right to represent the employees and in 1982, it went into bankruptcy.

Federal Aviation Administration efforts to rebuild the system since then have been hampered by ever-increasing air traffic and the high attrition rate among trainees hired to replace the controllers who were fired. Prior to the firing, there were 16,200 controllers; currently, there are 13,665 , plus a new corps of 1,467 assistants who perform some duties that controllers handled prior to the strike. The current force of controllers is weakened to some extent because 30 percent are still in training and must be supervised by certified controllers.

The new union is an affiliate of the Marine Engineers' Beneficial Association, as was the Professional Air Traffic Controllers.

## Program guarantees 100 -percent job security

In agricultural equipment manufacturing, Case IH and the Auto Workers adopted a Competitive and Secure Employment Program guaranteeing that employment in the six covered plants will be maintained at the May 1, 1987, level.

Auto Workers Vice President Bill Casstevens said this was the first time the union had achieved its three-decade goal of "100 percent job security." The union had, in recent years, won 90 -percent job guarantees at Deere \& Co. and Caterpillar, Inc., but these programs, unlike the Competitive and Secure Employment Program, do not protect employees against job losses resulting from "economic and marketplace forces."

Under the program, the initial guaranteed employment level is subject to increases and decreases during the 39month term of the parties' new labor contract. Generally, the guarantee will be increased by one job whenever a recalled or newly hired employee attains 1 year of seniority and works 26 of any 52 consecutive weeks. Reductions in the guaranteed employment level will usually be at the rate of one for each job lost through attrition, excluding discharges. This is partly offset by a requirement that one person be recalled from layoff or a new person hired for every two jobs lost through attrition. Each year, Case is permitted to shut down all operations for a 4-week vacation period and for up to 6 weeks if required because of reduced sales.

The guarantee does not cover 2,400 jobs at three plants in Illinois, Iowa, and Indiana that are scheduled to close. The initial 3,700 jobs guarantee applies to four plants in Wiscon$\sin$, Minnesota, Iowa, and Illinois, and two parts depots.

In return for the new program, the employees agreed to several contract provisions intended to moderate Case's operating costs: more flexible work rules, overtime provisions, job assignments, and job bidding and transfer rules.

The accord does not provide for specified increases in earnings, which averaged $\$ 15$ an hour, according to the union, but the workers did receive an immediate $\$ 250$ "special" payment.

Under the Guaranteed Sharing Benefits plan, the employees will receive guaranteed allocations in April of 1988, 1989, and 1990, calculated at 20, 25, and 30 cents for each hour worked during the preceding calendar year. The allocations, which were previously contingent on Case's profitability, will be subject to investment in stock of Tenneco, Inc. (Case's parent firm) or in a tax-deferred savings plan, at the employees' option.

The'guaranteed payments will also include a possible share of penalty payments if Case violates a new restriction on overtime work. Under the provision, the company will pay $\$ 5$ into a fund for each overtime hour worked in excess of 5 percent of all straight-time hours worked during the particular year. Overtime work for plant additions and renovations, installation of machines, and similar operations will not be subject to the penalty provision.

Other terms included continuation of the provision for automatic quarterly cost-of-living adjustments, subject to a 55-cent-an-hour diversion over the term to help finance a training program and to help Case meet the overall settlement cost; improvements in pensions for current and future
retirees; continuation of attendance bonuses (without the provision that had allowed eligible employees to take paid days off); and improvements in insurance benefits, including new optional employee-paid life insurance for those wanting to supplement their basic company-financed coverage.

## Initial contract for catfish farm workers

In an event the Food and Commercial Workersviewed as a major victory in its organizing campaign in the South, the union negotiated an initial contract with the Delta Catfish Processors, Inc., in Indianola, Ms. The settlement came 8 months after the union gained the right to represent the 1,150 workers. (See Monthly Labor Review, December 1986, pp. 36-37.)

The new 3-year contract provides for wage increases of 15 to 35 cents an hour in the first year and 10 to 20 cents in the second and third years. The total increases averaged 65 cents an hour, according to the union. Prior to the settlement, wage rates ranged from $\$ 3.35$ to $\$ 3.95$ an hour.

Other terms include adoption of a pension plan, financed by a 5 -cent-an-hour employer payment beginning in the first year; an additional week of paid vacation after 5 years' service; two additional annual paid holidays, bringing the total to 7; adoption of a grievance procedure; establishment of a formal wage structure; resolution of various unfair labor practices charges the company and union had filed against each other; and reinstatement offers to 17 employees the Food and Commercial Workers claimed had been illegally fired during the organizing drive.

The company, owned by 160 catfish farmers, produces about half the Nation's catfish.

The union also represents workers at Pride of the Pond in Tunica, MS, who were organized shortly before the Delta Catfish election and for whom an initial contract was negotiated earlier in 1987.

## Employees of steel supplier accept compensation cut

The continuing over-capacity and profit problems in the basic steel industry were reflected in a settlement between Eveleth Taconite Co., a supplier to the industry, and the United Steelworkers. Eveleth mines and processes taconite, a type of rock containing iron ore and other minerals.

The agreement followed a company threat to close the Eveleth, MN, operations. It provides for a $\$ 1.60$ an hour cut in employee compensation-including a 99-cent-an-hour reduction in wages, bringing average pay to $\$ 12$, and revisions in pay and insurance.

In return for accepting the cuts, the 625 employees won a profit-sharing plan linked to USX's profits or, if USX does not earn a profit, to the stock price of Bethlehem Steel and LTV Steel. A gain-sharing program also was established under which the company and the workers will equally share any savings resulting from cuts in controllable costs.

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Eveleth Taconite is operated by Ogleby Norton Co. of Cleveland.

## Weyerhaeuser accord

The lead-off agreement in the round of bargaining in the West Coast pulp and paper industry froze wages for 2,000 Weyerhaeuser Co. employees in Oregon and Washington, but provided for an immediate $\$ 650$ lump-sum payment and for possible annual incentive payments. The payments, ranging up to 4 percent of the employee's earnings during the preceding 12 months, will be calculated separately for each of the five mills and will be based on quality, output, safety, and production costs.

The 2 -year contract, negotiated by the Association of Western Pulp and Paper Workers, also provided for improvements in pension and health and welfare benefits.
The incentive pay approach comes 1 year after Weyerhaeuser and the Woodworkers and Lumber Production and Industrial Workers unions negotiated a profit-sharing plan for 7,200 lumber and plywood workers in 2 -year contracts that cut pay and benefits an average of $\$ 3.90$ an hour. According to a Woodworkers' official, most employees have benefited from the plan but the payout has varied among mills.
Elsewhere in the forest products industry, work stoppages involving more than 3,000 workers began at International Paper Co. mills in Jay, me, Mobile, AL, DePere, wi, and Lock Haven, PA, as the United Paperworkers union resisted demands for compensation cuts the company claimed were necessary to aid in countering increasing international competition. Previously, International Paper had negotiated with the union on a plant by plant basis, but the union said it will now coordinate bargaining at all locations on key issues and combine the results of contract ratification votes into a single total.

## Employers in Maine must pay severance benefits

In a 5 to 4 decision, the U.S. Supreme Court upheld a Maine law requiring employers to pay severance benefits. Under the law, owners closing plants employing at least 100 workers or relocating such operations more than 100 miles away must provide 1 week's pay for each year of service to employees who had worked at the affected plant for at least 3 years. The law does not apply to employees who accept jobs at the new location or to employees covered by a labor contract that deals with severance pay.
The case, Fort Halifax Packing Co. v. Coyne, arose in 1981 when the company closed a poultry processing plant and did not distribute severance pay to affected employees.
In its appeal to the Supreme Court, Fort Halifax Packing, joined by the U.S. Department of Justice and the U.S.

Chamber of Commerce, argued that the Maine law was preempted by a Federal law, the Employee Retirement Income Security Act of 1974 (ERISA) which broadly regulates severance and other employee benefit plans. The company also contended that the Maine law was preempted by the National Labor Relations Act, which regulates collective bargaining.

Writing for the majority, Justice William J. Brennan, Jr. said that the Maine law did not fall under the preemption clause of ERISA because the severance payments are made on a one-time basis, rather than being part of a plan providing for "ongoing benefits on a continuous basis." Justice Brennan also found no conflict with the National Labor Relations Act, rejecting company arguments that the State requirement interfered with collective bargaining by undercutting an employer's ability to withstand a union's demand for severance pay.

Writing for the minority, Justice Byron R. White said that the Court's decision had created a "loophole that will undermine Congress' decision to make employee benefit plans a matter of exclusive Federal regulation."

## Court upholds decision on incumbent unions

The U.S. Supreme Court approved the National Labor Relations Board's broad interpretation of a 1972 decision by the Court making it difficult for companies that acquire the assets of another company to avoid dealing with incumbent unions.

The case, Fall River Dyeing v. NLRB, began in 1982 when Sterlingwale Corp., an unprofitable Massachusetts textile firm closed. Seven months later, a former vice president and a former customer of the firm acquired the plant and equipment and formed the Fall River Dyeing and Finishing Corp. The new company refused to bargain with United Textile Workers Local 292, which had represented employees at Sterlingwale. The union then complained to the National Labor Relations Board, which ruled that the union had retained the right to represent workers at the new company.

Responding to Fall River's appeal, Justice Harry A. Blackmun, writing for the majority, said that the company was a "substantial continuity" in operations, and was obliged to bargain with the union when it started operations because a majority of its employees were formerly with Sterlingwale.
In dissent, Justice Lewis F. Powell, Jr., joined by Chief Justice William H. Rehnquist and Justice Sandra Day O'Connor, said that the new company was "a completely separate entity" from Sterlingwale, and that requiring Fall River to recognize the union at the beginning of operations deprived employees of the right to select their union.

## Book Reviews



## The benevolence of the bottom line

The Responsive Workplace: Employers and a Changing Labor Force. By Sheila B. Kamerman and Alfred J. Kahn. New York, Columbia University Press, 1987. 329 pp. $\$ 30$.
Over the past three decades, the composition of the labor force has changed dramatically. The most significant aspect of this has been the shift from a virtually all-male labor force to one that is composed almost equally of men and women. This change has had an enormous effect on marriage and parenting, and has placed new strains on the family. There is no doubt that families-especially those with childrenare in need of help in coping with the kinds of problems engendered by this change. What is in question, though, is the sort of aid families need, and which institutions should provide it.

At the forefront of the relationship between families and work are employers. They provide the benefits (exclusive of wages) that employees need for the security and well being of their families. This book is a study of these benefits; what they are, how they are provided, and, most important, a description of the factors that underlie the type and amount of these benefits.

Using information gathered from an extensive set of interviews with employers and employees at all levels, Kamerman and Kahn have produced a comprehensive overview of the system of employer-provided benefits. The key point made in this analysis is that benefits and the way they are administered stem not so much from altruistic motivations on the part of employers, but rather from their "bottom line." Thus, benefits are sensitive to a great many pressures. For instance, the authors cite the case of a supermarket chain which exchanges fringe benefits for union acceptance of a large part-time work force. Profit margins in this industry are notoriously small so that the maintenance of a large number of part-time employees who can respond to times of peak demand avoids the high costs of overtime pay that would accompany a full-time work force. Also mentioned was a high tech firm that uses benefits to recruit and retain a highly skilled work force at less cost than if the company were offering higher wages. The fact that employees are willing to accept fringe benefits over wages is not surpris-
ing; benefits are a form of wealth. In other words, benefits substitute for the savings that employees would need to make to provide for such things as future medical or retirement expenses.

However, because bottom-line constraints are a major factor in the provision of benefits, large-scale inequities result. Many workers lack such basic benefits as medical insurance, retirement, life insurance, and paid leave. Thus, the amount and kind of benefits available to a worker and his or her family depend on the employer the employee has the good (or bad) luck to work for.

Few would disagree that this is an inherently unsatisfactory situation. However, because benefits stem from individual employers, each of whom is sensitive to a variety of differing factors, it is unrealistic to expect that employers alone would voluntarily reject their own self-interest and move towards a more equitable system.

However, the authors suggest that the current system (or non-system) contains the seeds of its own reformation. Namely, many of the benefits received by today's workers are supported by tax incentives or legislative mandates. Consequently, tax law and other legislation can be used as a foundation for the creation of a more equitable, universal system of benefits that could be geared towards meeting the problems of today's families.

This is an extremely valuable book that has been published at a time when the perception of conflict between family life and work is growing and the need for an authoritative overview of benefits and the factors affecting them is becoming urgent. Kamerman and Kahn have produced a volume that not only fills this need, but is accessible to both the expert and the knowledgeable lay person alike. It is difficult to envision a better treatment of such a complex, sensitive subject. Although it is obvious where the authors' sympathies lie, the book is free from the ideology and polemicism too often associated with literature regarding social policy. In short, it is an important resource for any-one-student, business administrator, or policymakerwho needs a clear guide to the present system of employerprovided benefits.
-Howard Hayghe
Office of Current Employment Analysis Bureau of Labor Statistics

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## Current Labor Statistics


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| Series | Release date | Period covered | Release date | Period covered | Release date | Period covered | MLR table number |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Employment situation | September 4 | August | October 2 | September | November 6 | October | 1; 4-21 |
| Producer Price Index | September 11 | August | October 16 | September | November 13 | October | 2; 33-35 |
| Consumer Price Index | September 23 | August | October 23 | September | November 20 | October | 2; 30-32 |
| Real earnings | September 23 | August | October 23 | September | November 20 | October | 14-17 |
| Major collective bargaining settlements |  |  | October 26 | 1st 9 months |  |  | 3; 25-28 |
| Employment Cost Index |  |  | October 27 | 3rd quarter |  |  | 1-3; 22-24 |
| U.S. Import and Export Price Indexes. |  |  | October 29 | 3rd quarter | ............ | .... | 36-41 |
| Productivity and costs: <br> Nonfarm business and manufacturing | ............. | . |  |  | November 2 | 3rd quarter | 2; 42-44 |
| Occupational illnesses and injuries |  |  |  |  | November 10 | 1986 | 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 $\mathrm{X}-11$ ARIMA, which was developed at Statistics Canada as an extension of the standard $\mathrm{X}-11$ 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 1987 issue of the Review, to reflect experience through 1986.

Annual revisions of the seasonally adjusted payroll data shown in tables 13,14 , and 18 were made in the July 1986 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 two-volume, data book-Labor Force Statistics Derived From the Current Population Survey, Bulletin 2096. 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 annual 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 Prices and Price Indexes. Detailed data on all of the series in this section are provided in the Handbook of Labor Statistics, which is published biennally 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

$\mathrm{p}=$ 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.

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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, Volumes I and II, Bulletins 2134-1 and 2134-2 (Bureau of Labor Statistics, 1982 and 1984, respectively), as well as the additional bulletins, articles, and other publications noted in the separate sections of the Review's "Current Labor Statistics Notes." Historical data for many series are provided in the Handbook of Labor Statistics, Bulletin 2217 (Bureau of Labor Statistics, 1985). 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 59,500 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 12 th 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 unemployment 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 1986.

## Additional sources of information

For detailed explanations of the data, see BLS Handbook of Methods, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 1, and for additional data, Handbook of Labor Statistics, Bulletin 2217 (Bureau of Labor Statistics, 1985). A detailed description of the Current Population Survey as well as additional data are available in the monthly Bureau of Labor Statistics periodical, Employment and Earnings. Historical data from 1948 to 1981 are available in Labor Force Statistics Derived from the Current Population Survey: A Databook, Vols. I and II, Bulletin 2096 (Bureau of Labor Statistics, 1982).

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 290,000 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 12 th 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 all 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 nonagricutural 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.

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 1987 data, published in the July 1987 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 1985; seasonally adjusted data have been revised back to January 1982. These revisions were published in the Supplement to Employment and Earnings (Bureau of Labor Statistics, 1987). Unadjusted data from April 1986 forward, and seasonally adjusted data from January 1983 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 2134-1 (Bureau of Labor Statistics, 1982), chapter 2. For additional data, see Handbook of Labor Statistics, Bulletin 2217 (Bureau of Labor Statistics, 1985).

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 <br> 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 2134-1 (Bureau of Labor Statistics, 1982), chapter 4.

## 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 and on wages and salaries are available for private nonfarm workers excluding proprietors, the selfemployed, and household workers. Both 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 2,200 private nonfarm establishments providing about 12,000 occupational observations and 700 State and local government establishments providing

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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-ofliving 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 data series began in the fourth quarter of 1975, with the quarterly percent change in wages and salaries in the private nonfarm sector. Data on employer costs for employee benefits were included in 1980 to produce, when combined with the wages and salaries series, a measure of the percent change in employer costs for employee total compensation. State and local government units were added to the ECI coverage in 1981, providing a measure of total compensation change in the civilian nonfarm economy (excluding Federal employees). Historical indexes (June $1981=100$ ) of the quarterly rates of change are presented in the May issue of the blS monthly periodical, Current Wage Developments.

## Additional sources of information

For a more detailed discussion of the Employment Cost Index, see the Handbook of Methods, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 11, 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 after contract ratification-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 hourly earnings, excluding overtime, 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 in 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

Care should be exercised in comparing the size and nature of the settlements in State and local government with those in the private sector because of differences in bargaining practices and settlement characteristics. A principal difference is the incidence of cost-of-living adjustment (COLA) clauses which cover only about 2 percent of workers under a few local government settlements, but cover 50 percent of workers under private sector settlements. Agreements without COLA's tend to provide larger specified wage increases than those with COLA's. Another difference is that State and local government bargaining frequently excludes pension benefits which are often prescribed by law. In the private sector, in contrast, pensions are typically a bargaining issue.

## Additional sources of information

For a more detailed discussion on the series, see the BLS Handbook of Methods, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 10. Comprehensive data are published in press releases issued quarterly (in January, April, July, and October) for private industry, and semi-
annually (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 monthly 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 data appear in the BLS
monthly periodical, Current Wage Developments. Historical data appear in the bLS Handbook of Labor Statistics.

## 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 ( $1967=100$, 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 halfcentury 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

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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, Volume II, The Consumer Price Index, Bulletin 2134-2 (Bureau of Labor Statistics, 1984). 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 in primary markets of the United States by producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 60,000 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 2134-1 (Bureau of Labor Statistics, 1982), chapter 7.

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 $1977=100$, 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 1980 .

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.

## Additional sources of information

For a discussion of the general method of computing International Price Indexes, see BLS Handbook of Methods, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 8.

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).

## PRODUCTIVITY DATA

(Tables 2; 42-47)

## 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 input 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 labor and capital inputs combined). 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 the ratio output per unit of labor and capital inputs combined. 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 change in 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 and the value of inventory adjustments per unit of output.

Hours of all persons are the total hours paid of payroll workers, selfemployed 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

Output measures for the business sector and the nonfarm businesss sector exclude the constant dollar value of owner-occupied housing, rest of world, households and institutions, and general government output from the constant dollar value of gross national product. 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 estimates of 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 2134-1 (Bureau of Labor Statistics, 1982), chapter 13. Historical data for selected industries are provided in the Bureau's Handbook of Labor Statistics, 1985, Bulletin 2217.

## MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics

## 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.

## 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. 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


#### Abstract

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 comparabil-ity-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 2134-1 (Bureau of Labor Statistics, 1982), chapter 16 and periodic Monthly Labor Review articles. Historical data are provided in the Bureau's Handbook of Labor Statistics, Bulletin 2217, 1985. The statistics are issued twice per year-in a news release (generally in May) and in a Monthly Labor Review article (generally in December).

## 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 em-
ployee 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 em ployee 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 Occupational Safety and Health Statistics.

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 Occupational Safety and Health Statistics.

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 2134-1 (Bureau of Labor Statistics, 1982), chapter 17; 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.

MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Comparative Indicators

1. Labor market indicators

| Selected indicators | 1985 | 1986 | 1985 |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | III | IV | 1 | II | III | IV | 1 | II |
| Employment data |  |  |  |  |  |  |  |  |  |  |
| Employment status of the civilian noninstitutionalized population (household survey) ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |
| Labor force participation rate ..................................................... | 64.8 | 65.3 | 64.7 | 64.9 | 65.1 | 65.2 | 65.3 | 65.4 | 65.5 | 65.5 |
| Employment-population ratio ..................................................... | 60.1 | 60.7 | 60.1 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 6.7 | 61.5 |
| Unemployment rate ................................................................... | 7.2 | 7.0 | 7.2 | 7.1 | 7.1 | 7.1 | 6.9 | 6.9 | 6.7 6.7 | 6.2 |
| Men ....................................................................................... | 7.0 | 6.9 | 7.0 | 6.9 | 6.9 | 7.0 | 6.9 13.7 | 6.9 13.4 | 6.7 13.4 | 6.3 13.1 |
| 16 to 24 years ....................................................................... | 14.1 | 13.7 | 14.0 | 14.2 | 13.5 | 14.2 | 13.7 | 13.4 | 13.4 | 13.1 |
| 25 years and over ................................................................ | 5.3 | 5.4 | 5.3 | 5.2 | 5.3 | 5.3 | 5.4 | 5.4 | 5.2 | 4.8 |
| Women ................................................................................... | 7.4 | 7.1 | 7.4 | 7.3 | 7.3 | 7.2 | 6.9 | 6.8 | 6.6 | 6.1 |
| 16 to 24 years ..................................................................... | 13.0 | 12.8 | 12.9 | 13.1 | 13.1 | 13.1 | 12.6 | 12.5 | 12.6 | 11.8 |
| 25 years and over ................................................................ | 5.9 | 5.5 | 5.9 | 5.6 | 5.7 | 5.7 | 5.4 | 5.3 | 5.1 | 4.6 |
| Unemployment rate, 15 weeks and over ................................... | 2.0 | 1.9 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 |
| Employment, nonagricultural (payroll data), in thousands: ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |
| Total .......................................................................................... | 97,519 | 99,610 | 97,775 | 98,444 | 98,901 | 99,321 | 99,804 | 100,397 | 101,133 | 101,708 |
| Private sector ........................................................................... | 81,125 | 82,900 | 81,303 | 81,905 | 82,299 | 82,670 | 83,119 | 83,498 | 84,183 | 84,675 |
| Goods-producing ....................................................................... | 24,859 | 24,681 | 24,788 | 24,788 | 24,767 | 24,702 | 24,629 | 24,624 | 24,733 | 24,757 |
| Manufacturing ......................................................................... | 19,260 | 18,994 | 19,183 | 19,133 | 19,086 | 19,003 | 18,939 | 18,953 | 18,979 | 19,015 |
| Service-producing ..................................................................... | 72,660 | 74,930 | 72,987 | 73,656 | 74,134 | 74,619 | 75,175 | 75,773 | 76,399 | 76,951 |
| Average hours: |  |  |  |  |  |  |  |  |  |  |
| Private sector ............................................................................. | 34.9 | 34.8 | 34.9 | 34.9 | 34.9 | 34.8 | 34.7 | 34.7 | 34.8 | 34.8 |
| Manufacturing ......................................................................... | 40.5 | 40.7 | 40.6 | 40.8 | 40.7 | 40.7 | 40.7 | 40.8 3 | 41.0 | 40.9 |
| Overtime ............................................................................ | 3.3 | 3.4 | 3.3 | 3.4 | 3.4 | 3.4 | 3.5 | 3.5 | 3.6 | 3.7 |
| Employment Cost Index |  |  |  |  |  |  |  |  |  |  |
| Percent change in the ECl, compensation: |  |  |  |  |  |  |  |  |  |  |
| All workers (excluding farm, household, and Federal workers) ....... | 4.3 | 3.6 | 1.6 | . 6 | 1.1 | . 7 | 1.1 | . 6 | . 9 | 0.7 |
| Private industry workers ........................................................... | 3.9 | 3.2 | 1.3 | . 6 | 1.1 | . 8 | . 7 | . 6 | 1.0 | . 7 |
| Goods-producing ${ }^{2}$.................................................................. | 3.4 | 3.1 | . 6 | . 6 | 1.1 | . 9 | . 6 | . 5 | . 5 | . 7 |
| Service-producing ${ }^{2}$................................................................ | 4.4 | 3.2 | 1.8 | . 5 | 1.1 | . 6 | . 8 | . 6 | 1.3 | . 7 |
| State and local government workers ......................................... | 5.7 | 5.2 | 3.4 | . 7 | 1.0 | . 6 | 2.8 | . 8 | . 8 | . 3 |
| Workers by bargaining status (private industry): |  |  |  |  |  |  |  |  |  |  |
| Union .............. | 2.6 | 2.1 | . 8 | . 5 | 1.0 | . 2 | . 8 | . 7 | .5 1.1 | .5 .7 |
| Nonunion ............................................................................... | 4.6 | 3.6 | 1.4 | . 6 | 1.2 | . 9 | . 8 | . 7 | 1.1 | . 7 |

${ }^{1}$ Quarterly data seasonally adjusted.
${ }^{2}$ Goods-producing industries include mining, construction, and manufacturing. Service-
2. Annual and quarterly percent changes in compensation, prices, and productivity

| Selected measures | 1985 | 1986 | 1985 |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | III | IV | I | II | III | IV | 1 | II |
| Compensation data ${ }^{1}$, 2 |  |  |  |  |  |  |  |  |  |  |
| Employment Cost Index--compensation (wages, salaries, benefits): |  |  |  |  |  |  |  |  |  |  |
|  | 4.3 3.9 | 3.6 3.2 | 1.6 | 0.6 6 | 1.1 1.1 | 0.7 8 | 1.1 7 | 0.6 | 0.9 | 0.7 |
| Employment Cost Index-wages and salaries |  |  |  |  |  |  |  |  |  |  |
| Civilian nonfarm ................................................................ | 4.4 | 3.5 | 1.7 | . 6 | 1.0 | . 8 | 1.1 | . 6 | 1.0 | . 5 |
| Private nonfarm .............................................................. | 4.1 | 3.1 | 1.3 | . 6 | 1.0 | . 9 | . 7 | . 5 | 1.0 | . 7 |
| Price data ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |
| Consumer Price Index (All urban consumers): All items ....... | 3.8 | 1.1 | . 7 | . 9 | -4 | . 6 | . 7 | . 3 | 1.4 | 1.3 |
| Producer Price Index: |  |  |  |  |  |  |  |  |  |  |
| Finished goods ................................................................ | 1.8 | -2.3 | -1.4 | 2.5 | -3.1 | . 5 | -. 7 | 1.1 |  | 1.4 |
| Finished consumer goods ................................................ | 1.5 | -3.6 | -1.4 | 2.5 | -4.1 | . 4 | -. 7 | . 8 | . 8 | 1.8 |
| Capital equipment ........................................................... | 2.7 | 2.1 | -1.4 | 2.5 | . 2 | . 6 | -. 7 | 2.0 | . 9 | . 4 |
| Intermediate materials, supplies, components ................... | -. 3 | -4.4 | -. 5 | . 4 | -2.9 | -. 9 | -. 2 | -. 4 |  | 1.8 |
| Crude materials ....................................................................... | -5.6 | -9.0 | -4.5 | 4.3 | -7.6 | -1.5 | -. 5 | . 6 | 1.4 4.2 | 5.6 |
| Productivity data ${ }^{3}$ |  |  |  |  |  |  |  |  |  |  |
| Output per hour of all persons: |  |  |  |  |  |  |  |  |  |  |
| Business sector |  |  |  |  |  |  |  |  | . 2 | . 4 |
| Nonfarm business sector | 1.2 | 1.6 | 1.7 | 1.0 | 2.3 | 1.9 | 1.1 | 1.5 | -. 1 | . 3 |
| Nonfinancial corporations ${ }^{4}$.............................................. | 2.1 | 1.6 | 3.3 | 2.3 | 2.6 | 1.8 | . 7 | 1.5 | 0 | . 3 |

1 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.
2 Excludes Federal and private household workers.
${ }^{3}$ Annual rates of change are computed by comparing annual averages.

## 3. Alternative measures of wage and compensation changes

| Components | Quarterly average |  |  |  |  |  | Four quarters ended- |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1986 |  |  |  | 1987 |  | 1986 |  |  |  | 1987 |  |
|  | 1 | II | III | IV | $\rho^{p}$ | IIP | 1 | II | III | IV | $I^{p}$ | ${ }_{11}{ }^{\text {P }}$ |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| All persons, business sector | 4.8 | 4.4 | 3.7 | 3.3 | 2.8 | 2.8 | 3.2 | 3.5 | 3.0 | 3.6 | 1.4 | 3.3 |
| All employees, nonfarm business sector | 4.5 | 4.1 | 3.6 | 3.4 | 2.7 | 2.7 | 3.9 | 2.9 | 2.8 | 4.0 | 1.1 | 3.0 |
| Employment Cost Index-compensation: |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian nonfarm ${ }^{2}$ | 1.1 | . 7 | 1.1 | . 6 | . 9 | . 7 | 4.1 3.8 | 4.0 3.8 | 3.6 3.2 | 3.6 3.2 | 3.4 3.1 | 3.3 3.0 |
| Private nonfarm | 1.1 | . 8 | . 7 | . 6 | 1.0 | . 7 | 3.8 | 3.8 | 3.2 | 3.2 | 3.1 | 3.0 |
| Union | 1.0 | . 2 | . 5 | . 3 | . 5 | . 5 | 2.9 | 2.5 | 2.3 | 2.1 | 1.6 | 1.9 |
| Nonunion | 1.2 | . 9 | . 8 | . 7 | 1.1 | . 7 | 4.2 | 4.2 | 3.5 | 3.6 | 3.6 | 3.4 |
| State and local governments | 1.0 | . 6 | 2.8 | . 8 | . 8 | . 3 | 5.5 | 5.8 | 5.2 | 5.2 | 5.0 | 4.7 |
| Employment Cost Index-wages and salaries: |  |  |  |  | 1.0 | . 5 | 4.2 | 4.1 | 3.5 | 3.5 | 3.5 | 3.2 |
| Civilian nonfarm ${ }^{2}$ <br> Private nonfarm | 1.0 1.0 | . 8 | 1.1 .7 | .6 .5 | 1.0 1.0 | . 5 | 4.2 3.9 | 4.1 3.7 | 3.5 3.1 | 3.5 3.1 | 3.5 3.2 | 3.2 |
| Private nonfarm Union . . . . . | $\begin{array}{r}\text { 1. } \\ \hline\end{array}$ | . 4 | . 6 | . 2 | 1.0 .4 | . 5 | 3.9 3.2 | 2.5 | 2.3 | 2.0 | 1.7 | 1.7 |
| Nonunion | 1.1 | . 9 | . 7 | . 7 | 1.2 | . 8 | 4.3 | 4.1 | 3.4 | 3.5 | 3.5 | 3.3 |
| State and local governments | 1.0 | . 4 | 3.2 | . 7 | . 8 | . 2 | 5.5 | 5.7 | 5.4 | 5.4 | 5.2 | 5.0 |
| Total effective wage adjustments ${ }^{3}$. | . 6 | . 7 | . 5 | . 5 | . 4 | 1.0 | 3.1 | 2.9 | 2.3 | 2.3 | 2.0 | 2.2 |
| From current settlements.... | $\left.{ }^{4}\right)$ | . 2 | . 1 | . 2 | ${ }^{4}$ ) | . 1 | . 6 | . 5 | . 5 | . 5 | . 4 | . 3 |
| From prior settlements... | . 4 | . 6 | . 5 | . 2 | . 3 | . 7 | 1.7 | 1.8 | 1.6 | 1.7 | 1.5 | 1.6 |
| From cost-of-living provision | . 2 | $\left.{ }^{4}\right)$ | $\left.{ }^{4}\right)$ | . 1 | . 1 | . 2 | . 8 | . 7 | . 2 | . 2 | . 1 | . 3 |
| Negotiated wage adjustments from settlements: ${ }^{3}$ |  |  |  |  |  |  | 2.0 | 1.6 | 1.2 | 1.2 | 1.2 | 1.5 |
| First-year adjustments <br> Annual rate over life of contract | .8 1.5 | 1.3 2.0 | .8 1.5 | 2.0 2.1 | 1.2 1.8 | 2.6 2.9 | 2.0 2.5 | 2.2 | 1.7 | 1.8 | 1.8 | 2.0 |
| Negotiated wage and benefit adjustments from settlements: ${ }^{5}$ |  |  | . |  |  |  |  |  |  |  |  |  |
| First-year adjustment | . 6 | .7 16 | .7 12 | 2.7 2.4 | 1.7 2.4 | 4.2 3.9 | 2.3 2.5 | 1.4 2.0 | .9 1.4 | 1.1 1.6 | 1.2 1.7 | $\begin{aligned} & 1.9 \\ & 2.1 \end{aligned}$ |
| Annual rate over life of contract | 1.2 | 1.6 | 1.2 | 2.4 | 2.4 | 3.9 | 2.5 | 2.0 | 1.4 | 1.6 | 1.7 |  |

[^18]Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.
${ }^{4}$ Output per hour of all employees.
Business sector
Business sector ...............
Nonfarm business sector
Nonfinancial corporations

## MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Employment Data

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

(Numbers in thousands)

| Employment status | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
| TOTAL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Noninstitutional population ${ }^{1},{ }^{2}$........ | 179,912 | 182,293 | 182,354 | 182,525 | 182,713 | 182,935 | 183,114 | 183,297 | 183,575 | 183,738 | 183,915 | 184,079 | 184,259 | 184,421 |  |
| Labor force ${ }^{2}$ | 117,167 | 119,540 | 119,789 | 119,821 | 119,988 | 120,163 | 120,426 | 120,336 | 120,782 | 121,089 | 120,958 | 121,070 | 121,719 | 121,235 | $\begin{aligned} & 184,605 \\ & 121,672 \end{aligned}$ |
| Participation rate ${ }^{3}$................ | 65.1 | 65.6 | 65.7 | 65.6 | 65.7 | 65.7 | 65.8 | 65.7 | 65.8 | 65.9 | 65.8 | 65.8 | +66.1 | 121,25.7 | $121,65.9$ |
| Total employed ${ }^{2}$ $\qquad$ Employment-population | 108,856 | 111,303 | 111,559 | 111,764 | 111,703 | 111,941 | 112,183 | 112,387 | 112,759 | 113,122 | 113,104 | 113,570 | 114,173 | 113,975 | 114,447 |
| ratio ${ }^{4}$.................................. | 60.5 | 61.1 | 61.2 | 61.2 | 61.1 | 61.2 | 61.3 | 61.3 | 61.4 | 61.6 | 61.5 | 61.7 | 62.0 | 61.8 | 62.0 |
| Resident Armed Forces ${ }^{1}$........ | 1,706 | 1,706 | 1,672 | 1,697 | 1,716 | 1,749 | 1,751 | 1,750 | 1,748 | 1,740 | 1,736 | 1,735 | 1,726 | 1,718 | 1,720 |
| Civilian employed .................... | 107,150 | 109,597 | 109,887 | 110,067 | 109,987 | 110,192 | 110,432 | 110,637 | 111,011 | 111,382 | 111,368 | 111,835 | 112,447 | 112,257 | 112,727 |
| Agriculture ........................... | 3,179 | 3,163 | 3,124 | 3,057 | 3,142 | 3,162 | 3,215 | 3,161 | 3,145 | 3,236 | 3,284 | 3,290 | 3,335 | 3,178 | 3,219 |
| Nonagricultural industries ...... | 103,971 | 106,434 | 106,763 | 107,010 | 106,845 | 107,030 | 107,217 | 107,476 | 107,866 | 108,146 | 108,084 | 108,545 | 109,112 | 109,079 | 109,508 |
| Unemployed .............................. | 8,312 | 8,237 | 8,230 | 8,057 | 8,285 | 8,222 | 8,243 | 7,949 | 8,023 | 7,967 | 7,854 | 7,500 | 7,546 | 7,260 | 7,224 |
| Unemployment rate ${ }^{5}$............ | 7.1 62.744 | 6.9 62.75 | 6.9 62565 | 6.7 62.704 | 6.9 62.725 | 6.8 62.772 | 6.8 | 6.6 | 6.6 62.793 | 6.6 | 6,5 | 6,2 63,009 | 7,56 62.2 | 260 63 | $\begin{array}{r}7,224 \\ \hline\end{array}$ |
| Not in labor force ........................ | 62,744 | 62,752 | 62,565 | 62,704 | 62,725 | 62,772 | 62,688 | 62,961 | 62,793 | 62,649 | 62,957 | 63,009 | 62,540 | 63,187 | 62,933 |
| Men, 16 years and over |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Noninstitutional population ${ }^{1,2}$ | 86,025 | 87,349 | 87,373 | 87,460 | 87,556 | 87,682 | 87,773 | 87,868 | 88,020 | 88,099 | 88,186 | 88,271 | 88,361 | 88,442 | 88,534 |
| Labor force ${ }^{2}$ | 65,967 | 66,973 | 66,968 | 66,911 | 67,128 | 67,130 | 67,407 | 67,425 | 67,672 | 67,764 | 67,644 | 67,603 | 67,816 | 67,556 | 67,656 |
| Participation rate ${ }^{3}$................. | 76.7 | 76.7 | 76.6 | 76.5 | 76.7 | 76.6 | 76.8 | 76.7 | 76.9 | 76.9 | 76.7 | 76.6 | 76.7 | 76.4 | 76.4 |
| Total employed ${ }^{2}$ $\qquad$ Employment-population | 61,447 | 62,443 | 62,402 | 62,483 | 62,528 | 62,565 | 62,833 | 62,986 | 63,187 | 63,335 | 63,282 | 63,417 | 63,562 | 63,471 | 63,715 |
| ratio ${ }^{4}$ $\qquad$ | 71.4 | 71.5 | 71.4 | 71.4 | 71.4 | 71.4 | 71.6 | 71.7 | 71.8 | 71.9 | 71.8 | 71.8 | 71.9 | 71.8 | 72.0 |
| Resident Armed Forces ${ }^{1}$........ | 1,556 | 1,551 | 1,518 | 1,541 | 1,560 | 1,590 | 1,592 | 1,593 | 1,591 | 1,584 | 1,575 | 1,575 | 1,566 | 1,559 | 1,561 |
| Civilian employed .................... | 59,891 | 60,892 | 60,884 | 60,942 | 60,968 | 60,975 | 61,241 | 61,393 | 61,596 | 61,751 | 61,707 | 61,842 | 61,996 | 61,912 | 62,154 |
| Unemployed .............................. | 4,521 | 4,530 | 4,566 | 4,428 | 4,600 | 4,565 | 4,574 | 4,439 | 4,484 | 4,429 |  |  |  |  |  |
| Unemployment rate ${ }^{5}$............ | 6.9 | 6.8 | 6.8 | 6.6 | 6.9 | 6.8 | 6.8 | 6.6 | 6.6 | 6.5 | 4,362 6.4 | 4,186 6.2 | 4,254 6.3 | 4,085 6.0 | 3,941 5.8 |
| Women, 16 years and over |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Noninstitutional population ${ }^{1},{ }^{2}$........ | 93,886 | 94,944 | 94,981 | 95,065 | 95,156 | 95,253 | 95,341 | 95,429 | 95,556 | 95,639 | 95,729 | 95,808 | 95,898 | 95,979 | 96,071 |
| Labor force ${ }^{2}$................................ | 51,200 | 52,568 | 52,821 | 52,910 | 52,860 | 53,033 | 53,019 | 52,911 | 53,110 | 53,325 | 53,314 | 53,467 | 53,903 | 53,679 | $54,016$ |
| Participation rate ${ }^{3}$................. | 54.5 | 55.4 | 55.6 | 55.7 | 55.6 | 55.7 | 55.6 | 55.4 | 55.6 | 55.8 | 55.7 | 55.8 | 56.2 | 55.9 | $56.2$ |
| Total employed ${ }^{2}$ $\qquad$ Employment-population | 47,409 | 48,861 | 49,157 | 49,281 | 49,175 | 49,376 | 49,350 | 49,401 | 49,572 | 49,787 | 49,822 | 50,153 | 50,611 | 50,504 | 50,733 |
| ratio ${ }^{4}$ $\qquad$ | 50.5 | 51.5 | 51.8 | 51.8 | 51.7 | 51.8 | 51.8 | 51.8 | 51.9 | 52.1 | 52.0 | 52.3 | 52.8 | 52.6 | 52.8 |
| Resident Armed Forces ${ }^{1}$........ | 150 | 155 | 154 | 156 | 156 | 159 | 159 | 157 | 157 | 156 | 161 | 160 | 160 | 159 | 159 |
| Civilian employed .................... | 47,259 | 48,706 | 49,003 | 49,125 | 49,019 | 49,217 | 49,191 | 49,244 | 49,415 | 49,631 | 49,661 | 49,993 | 50,451 | 50,345 | 50,574 |
| Unemployed .............................. | 3,791 | 3,707 | 3,664 | 3,629 | 3,685 | 3,657 | 3,669 | 3,510 | 3,538 | 3,538 | 3,492 | 3,314 | 3,292 | 3,175 | 3,283 |
| Unemployment rate ${ }^{5}$............ | 7.4 | 7.1 | 6.9 | 6.9 | 7.0 | 6.9 | 6.9 | 6.6 | 6.7 | 6.6 | -6.6 | 6.2 | 6,292 | 5.9 | 6.1 |
| 1 The population and Armed Forces figures are not adjusted for seasonal variation. <br> 2 Includes members of the Armed Forces stationed in the United States. <br> ${ }^{3}$ Labor force as a percent of the noninstitutional population. <br> 4 Total employed as a percent of the noninstitutional population. <br> ${ }^{5}$ 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 |  | 1986 |  |  |  |  |  |  |  | 1987 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
| TOTAL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional population ${ }^{1}$ $\qquad$ | 178,206 | 180,587 | 180,682 | 180,828 | 180,997 | 181,186 | 181,363 | 181,547 | 181,827 | 181,998 | 182,179 | 182,344 | 182,533 | 182,703 | 182,885 |
| Civilian labor force .... | 115,461 | 117,834 | 118,117 | 118,124 | 118,272 | 118,414 | 118,675 | 118,586 | 119,034 | 119,349 | 119,222 | 119,335 | 119,993 | 119,517 | 119,952 |
| Participation rate .................. | 64.8 | 65.3 | 65.4 | 65.3 | 65.3 | 65.4 | 65.4 | 65.3 | 65.5 | 65.6 | 65.4 | 65.4 | 65.7 | 65.4 | 65.6 |
| Employed ................................ | 107,150 | 109,597 | 109,887 | 110,067 | 109,987 | 110,192 | 110,432 | 110,637 | 111,011 | 111,382 | 111,368 | 111,835 | 112,447 | 112,257 | 112,727 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 60.1 | 60.7 | 60.8 | 60.9 | 60.8 | 60.8 | 60.9 | 60.9 | 61.1 | 61.2 | 61.1 | 61.3 | 61.6 | 61.4 | 61.6 |
| Unemployed | 8,312 | 8,237 | 8,230 | 8,057 | 8,285 | 8,222 | 8,243 | 7,949 | 8,023 | 7,967 | 7,854 | 7,500 | 7,546 | 7,260 | 7,224 |
| Unemployment rate ............... | 7.2 | 7.0 | 7.0 | 6.8 | 7.0 | 6.9 | 6.9 | 6.7 | 6.7 | 6.7 | 6.6 | 6.3 | 6.3 | 6.1 | 6.0 |
| Not in labor force ........................ | 62,744 | 62,752 | 62,565 | 62,704 | 62,725 | 62,772 | 62,688 | 62,961 | 62,793 | 62,649 | 62,957 | 63,009 | 62,540 | 63,187 | 62,933 |
| Men, 20 years and over |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| population ${ }^{1}$................................... | 77,195 | 78,523 | 78,586 | 78,634 | 78,722 | 78,802 | 78,874 | 78,973 | 79,132 | 79,216 | 79,303 | 79,387 | 79,474 | 79,536 | 79,625 |
| Civilian labor force ........................ | 60,277 | 61,320 | 61,355 | 61,219 | 61,412 | 61,409 | 61,703 | 61,826 | 61,948 | 61,973 | 61,983 | 61,976 | 62,156 | 62,057 | 62,116 |
| Participation rate ................... | 78.1 | 78.1 | 78.1 | 77.9 | 78.0 | 77.9 | 78.2 | 78.3 | 78.3 | 78.2 | 78.2 | 78.1 | 78.2 | 78.0 | 78.0 |
| Employed ................................ | 56,562 | 57,569 | 57,544 | 57,585 | 57,607 | 57,595 | 57,883 | 58,101 | 58,227 | 58,325 | 58,410 | 58,567 | 58,721 | 58,620 | 58,793 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 73.3 | 73.3 | 73.2 | 73.2 | 73.2 | 73.1 | 73.4 | 73.6 | 73.6 | 73.6 | 73.7 | 73.8 | 73.9 | 73.7 | 73.8 |
| Agriculture ............................. | 2,278 | 2,292 | 2,275 | 2,185 | 2,286 | 2,297 | 2,303 | 2,289 | 2,254 | 2,300 | 2,411 | 2,411 | 2,441 | 2,307 | 2,343 |
| Nonagricultural industries ... | 54,284 | 55,277 | 55,269 | 55,400 | 55,321 | 55,298 | 55,580 | 55,812 | 55,974 | 56,024 | 55,999 | 56,155 | 56,280 | 56,313 | 56,450 |
| Unemployed ....................... | 3,715 | 3,751 | 3,811 | 3,634 | 3,805 | 3,814 | 3,820 | 3,725 | 3,720 | 3,648 | 3,573 | 3,409 | 3,436 | 3,437 | 3,323 |
| Unemployment rate ............... | 6.2 | 6.1 | 6.2 | 5.9 | 6.2 | 6.2 | 6.2 | 6.0 | 6.0 | 5.9 | 5.8 | 5.5 | 5.5 | 5.5 | 5.4 |
| Women, 20 years ond over |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional population ${ }^{1}$ $\qquad$ | 86,506 | 87,567 | 87,629 | 87,689 | 87,779 | 87,856 | 87,933 | 88,016 | 88,150 | 88,237 | 88,321 | 88,395 | 88,464 | 88,546 | 88,632 |
| Civilian labor force .... | 47,283 | 48,589 | 48,879 | 48,950 | 48,920 | 49,014 | 49,043 | 48,923 | 49,161 | 49,348 | 49,355 | 49,466 | 49,774 | 49,714 | 49,971 |
| Participation rate .................. | 54.7 | 55.5 | 55.8 | 55.8 | 55.7 | 55.8 | 55.8 | 55.6 | 55.8 | 55.9 | 55.9 | 56.0 | 56.3 | 56.1 | 56.4 |
| Employed ................................. | 44,154 | 45,556 | 45,869 | 45,956 | 45,905 | 46,020 | 46,067 | 46,058 | 46,261 | 46,475 | 46,498 | 46,751 | 47,094 | 47,126 | 47,288 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 51.0 | 52.0 | 52.3 | 52.4 | 52.3 | 52.4 | 52.4 | 52.3 | 52.5 | 52.7 | 52.6 | 52.9 | 53.2 | 53.2 | 53.4 |
| Agriculture | 596 | 614 | 607 | 622 | 614 | 612 | 675 | 621 | 628 | 641 | 589 | 587 | 634 | 615 | 619 |
| Nonagricultural industries ......... | 43,558 | 44,943 | 45,262 | 45,334 | 45,291 | 45,408 | 45,392 | 45,437 | 45,633 | 45,835 | 45,909 | 46,164 | 46,460 | 46,512 | 46,669 |
| Unemployed | 3,129 | 3,032 | 3,010 | 2,994 | 3,015 | 2,994 | 2,976 | 2,865 | 2,900 | 2,873 | 2,857 | 2,715 | 2,680 | 2,588 | 2,683 |
| Unemployment rate ................ | 6.6 | 6.2 | 6.2 | 6.1 | 6.2 | 6.1 | 6.1 | 5.9 | 5.9 | 5.8 | 5.8 | 5.5 | 5.4 | 5.2 | 5.4 |
| Both sexes, 16 to 19 years |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional population ${ }^{1}$ $\qquad$ | 14,506 | 14,496 | 14,467 | 14,505 | 14,496 | 14,527 | 14,557 | 14,558 | 14,545 | 14,546 | 14,555 | 14,562 | 14,595 | 14,621 | 14,628 |
| Civilian labor force ....................... | 7,901 | 7,926 | 7,883 | 7,955 | 7,940 | 7,991 | 7,929 | 7,837 | 7,926 | 8,028 | 7,884 | 7,894 | 8,063 | 7,746 | 7,865 |
| Participation rate ................... | 54.5 | 54.7 | 54.5 | 54.8 | 54.8 | 55.0 | 54.5 | 53.8 | 54.5 | 55.2 | 54.2 | 54.2 | 55.2 | 53.0 | 53.8 |
| Employed | 6,434 | 6,472 | 6,474 | 6,526 | 6,475 | 6,577 | 6,482 | 6,478 | 6,524 | 6,582 | 6,460 | 6,518 | 6,633 | 6,511 | 6,647 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 44.4 | 44.6 | 44.8 | 45.0 | 44.7 | 45.3 | 44.5 | 44.5 | 44.9 | 45.2 | 44.4 | 44.8 | 45.4 | 44.5 | 45.4 |
| Agriculture ..................... | 305 | 258 | 242 | 250 | 242 | 253 | 237 | 251 | 264 | 295 | 284 | 292 | 261 | 257 | 258 |
| Nonagricultural industries ......... | 6,129 | 6,215 | 6,232 | 6,276 | 6,233 | 6,324 | 6,245 | 6,227 | 6,260 | 6,287 | 6,176 | 6,226 | 6,372 | 6,254 | 6,389 |
| Unemployed .............................. | 1,468 | 1,454 | 1,409 | 1,429 | 1,465 | 1,414 | 1,447 | 1,359 | 1,402 | 1,446 | 1,424 | 1,376 | 1,430 | 1,235 | 1,218 |
| Unemployment rate ............... | 18.6 | 18.3 | 17.9 | 18.0 | 18.5 | 17.7 | 18.2 | 17.3 | 17.7 | 18.0 | 18.1 | 17.4 | 17.7 | 15.9 | 15.5 |
| White |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional population ${ }^{1}$ $\qquad$ | 153,679 | 155,432 | 155,502 | 155,604 | 155,723 | 155,856 | 155,979 | 156,111 | 156,313 | 156,431 | 156,561 | 156,676 | 156,811 | 156,930 | 157,058 |
| Civilian labor force ....................... | 99,926 | 101,801 | 102,015 | 102,122 | 102,158 | 102,297 | 102,455 | 102,503 | 102,746 | 102,893 | 102,797 | 102,894 | 103,573 | 103,106 | 103,272 |
| Participation rate ................... | 65.0 | 65.5 | 65.6 95 | 65.6 | 65.6 | 65.6 | 65.7 | 65.7 | 65.7 | 65.8 | 65.7 | 65.7 | 66.1 | 65.7 97 | 65.8 |
| Employed ........................ | 93,736 | 95,660 | 95,861 | 96,177 | 96,000 | 96,147 | 96,281 | 96,533 | 96,717 | 96,995 | 96,998 | 97,340 | 98,050 | 97,716 | 97,958 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 61.0 | 61.5 | 61.6 | 61.8 | 61.6 | 61.7 | 61.7 | 61.8 | 61.9 | 62.0 | 62.0 | 62.1 | 62.5 | 62.3 | 62.4 |
| Unemployed .............................. | 6,191 | 6,140 | 6,154 | 5,945 | 6,158 | 6,150 | 6,174 | 5,970 | 6,029 | 5,898 | 5,799 | 5,554 | 5,524 | 5,390 | 5,314 |
| Unemployment rate ............... | 6.2 | 6.0 | 6.0 | 5.8 | 6.0 | 6.0 | 6.0 | 5.8 | 5.9 | 5.7 | 5.6 | 5.4 | 5.3 | 5.2 | 5.1 |
| Black |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian noninstitutional |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| population ${ }^{\text {c................................. }}$ Civilian labor (orce .............. | 19,664 | 19,989 | 20,002 | 20,028 | 20,056 | 20,089 | 20,120 | 20,152 | 20,187 | 20,218 | 20,249 | 20,279 | 20,312 | 20,341 | 20,373 13,047 |
| Civilian labor force $\qquad$ Participation rate $\qquad$ | 12,364 62.9 | 12,654 63.3 | 12,611 63.0 | 12,553 62.7 | 12,652 | 12,720 63.3 | 12,719 63.2 | 12,707 63.1 | 12,831 63.6 | 12,957 64.1 | 12,844 63.4 | 12,743 62.8 | 12,860 63.3 | 12,863 63.2 | 13,047 64.0 |
| Employed ................................ | 10,501 | 10,814 | 10,822 | 10,716 | 10,799 | 10,895 | 10,910 | 10,968 | 10,997 | 11,101 | 11,053 | 11,090 | 11,080 | 11,223 | 11,401 |
| Employment-population ratio ${ }^{2}$ $\qquad$ | 53.4 | 54.1 | 54.1 | 53.5 | 53.8 | 54.2 | 54.2 | 54.4 | 54.5 | 54.9 | 54.6 | 54.7 | 54.6 | 55.2 | 56.0 |
| Unemployed ............................. | 1,864 | 1,840 | 1,789 | 1,837 | 1,853 | 1,825 | 1,809 | 1,739 | 1,833 | 1,855 | 1,791 | 1,653 | 1,779 | 1,640 | 1,647 |
| Unemployment rate ............... | 15.1 | 14.5 | 14.2 | 14.6 | 14.6 | 14.3 | 14.2 | 13.7 | 14.3 | 14.3 | 13.9 | 13.0 | 13.8 | 12.7 | 12.6 |

See footnotes at end of table.

MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Employment Data
5. Continued- Employment status of the civilian population, by sex, age, race and Hispanic origin, monthly data seasonally adjusted
(Numbers in thousands)

${ }^{1}$ The population figures are not seasonally adjusted.
${ }^{2}$ 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 |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  | June | July |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May |  |  |
| CHARACTERISTIC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civilian employed, 16 years and over | 107,150 | 109,597 | 109,887 | 110,067 | 109,987 | 110,192 | 110,432 | 110,637 | 111,011 | 111,382 | 111,368 | 111,835 | 112,447 | 112,257 | 112,727 |
| Men ...................................... | 59,891 | 60,892 | 60,884 | 60,942 | 60,968 | 60,975 | 61,241 | 61,393 | 61,596 | 61,751 | 61,707 | 61,842 | 61,996 | 61,912 | 62,154 |
| Women | 47,259 | 48,706 | 49,003 | 49,125 | 49,019 | 49,217 | 49,191 | 49,244 | 49,415 | 49,631 | 49,661 | 49,993 | 50,451 | 50,345 | 50,574 |
| Married men, spouse present .. | 39,248 | 39,658 | 39,634 | 39,735 | 39,691 | 39,780 | 39,952 | 40,093 | 40,102 | 39,913 | 40,100 | 39,967 | 40,029 | 40,057 | 40,241 |
| present | 26,336 | 27,144 | 27,474 | 27,388 | 27,249 | 27,323 | 27,333 | 27,400 | 27,525 | 27,817 | 27,965 | 28,213 | 28,495 | 28,458 | 28,426 |
| Women who maintain families . | 5,597 | 5,837 | 5,812 | 5,832 | 5,926 | 6,016 | 6,041 | 6,005 | 5,985 | 5,906 | 5,933 | 5,972 | 5,921 | 5,939 | 6,013 |
| MAJOR INDUSTRY AND CLASS OF WORKER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Agriculture: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wage and salary workers ......... | 1,535 | 1,547 | 1,504 | 1,509 | 1,521 | 1,562 | 1,582 | 1,621 | 1,650 | 1,647 | 1,739 | 1,589 | 1,695 | 1,614 | 1,619 |
| Self-employed workers ............. | 1,458 | 1,447 | 1,434 | 1,387 | 1,460 | 1,451 | 1,425 | 1,400 | 1,370 | 1,454 | 1,418 | 1,505 | 1,442 | 1,386 | 1,429 |
| Unpaid family workers .............. | 185 | 169 | 171 | 174 | 159 | 164 | 198 | 152 | 136 | 126 | 150 | 175 | 170 | 165 | 154 |
| Nonagricultural industries: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wage and salary workers ........ | 95,871 | 98,299 | 98,312 | 98,586 | 98,692 | 98,846 | 98,869 | 99,164 | 99,550 | 99,748 | 99,834 | 100,112 | 100,834 | 100,420 | 100,838 |
| Government .......................... | 16,031 | 16,342 | 16,582 | 16,446 | 16,333 | 16,264 | 16,457 | 16,443 | 16,412 | 16,532 | 16,568 | 16,484 | 16,710 | 16,956 | 16,931 |
| Private industries ................... | 79,841 | 81,957 | 81,730 | 82,140 | 82,359 | 82,582 | 82,412 | 82,721 | 83,138 | 83,216 | 83,265 | 83,628 | 84,124 | 83,464 | 83,907 |
| Private households .............. | 1,249 | 1,235 | 1,241 | 1,247 | 1,229 | 1,216 | 1,183 | 1,189 | 1,269 | 1,204 | 1,227 | 1,266 | 1,266 | 1,146 | 1,224 |
| Other ................................. | 78,592 | 80,722 | 80,489 | 80,893 | 81,130 | 81,366 | 81,229 | 81,532 | 81,869 | 82,012 | 82,038 | 82,362 | 82,858 | 82,318 | 82,683 |
| Self-employed workers ............. | 7,811 | 7,881 | 8,019 | 7,956 | 7,939 | 7,993 | 8,179 | 8,056 | 8,192 | 8,187 | 8,050 | 8,117 | 8,142 | 8,328 | 8,205 |
| Unpaid family workers ............. | 289 | 255 | 258 | 271 | 275 | 265 | 252 | 239 | 246 | 255 | 273 | 268 | 275 | 274 | 268 |
| PERSONS AT WORK PART TIME ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All industries: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Part time for economic reasons | 5,590 | 5,588 | 5,442 | 5,471 | 5,544 | 5,740 | 5,563 | 5,596 | 5,505 | 5,780 | 5,456 | 5,391 | 5,282 | 5,184 | 5,508 |
| Slack work ............................. | 2,430 | 2,456 | 2,473 | 2,417 | 2,472 | 2,481 | 2,510 | 2,444 | 2,473 | 2,535 | 2,440 | 2,322 | 2,223 | 2,317 | 2,456 |
| Could only find part-time work | 2,819 | 2,800 | 2,661 | 2,741 | 2,772 | 2,826 | 2,714 | 2,867 | 2,695 | 2,828 | 2,698 | 2,746 | 2,665 | 2,579 | 2,722 |
| Voluntary part time ..................... | 13,489 | 13,935 | 13,967 | 13,981 | 13,922 | 14,178 | 14,021 | 13,877 | 14,170 | 14,061 | 14,167 | 13,862 | 14,573 | 15,054 | 14,422 |
| Nonagricultural industries: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Part time for economic reasons . | 5,334 | 5,345 | 5,222 | 5,269 | 5,303 | 5,450 | 5,319 | 5,342 | 5,201 | 5,459 | 5,164 | 5,110 | 5,029 | 4,918 | 5,235 |
| Slack work | 2,273 | 2,305 | 2,317 | 2,283 | 2,314 | 2,314 | 2,366 | 2,286 | 2,281 | 2,340 | 2,218 | 2,137 | 2,071 | 2,155 | 2,295 |
| Could only find part-time work | 2,730 | 2,719 | 2,609 | 2,678 | 2,710 | 2,739 | 2,626 | 2,765 | 2,599 | 2,742 | 2,595 | 2,662 | 2,594 | 2,477 | 2,634 |
| Voluntary part time ...................... | 13,038 | 13,502 | 13,578 | 13,606 | 13,520 | 13,736 | 13,567 | 13,455 | 13,750 | 13,597 | 13,682 | 13,399 | 14,069 | 14,485 | 13,946 |

${ }^{1}$ Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illiness, or industrial disputes.
7. Selected unemployment indicators, monthly data seasonally adjusted
(Unemployment rates)

| Selected categories | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
| CHARACTERISTIC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total, all civilian workers | 7.2 | 7.0 | 7.0 | 6.8 | 7.0 | 6.9 | 6.9 | 6.7 | 6.7 | 6.7 | 6.6 | 6.3 | 6.3 | 6.1 | 6.0 |
| Both sexes, 16 to 19 years ............................... | 18.6 | 18.3 | 17.9 | 18.0 | 18.5 | 17.7 | 18.2 | 17.3 | 17.7 | 18.0 | 18.1 | 17.4 | 17.7 | 15.9 | 15.5 |
| Men, 20 years and over ................................... | 6.2 | 6.1 | 6.2 | 5.9 | 6.2 | 6.2 | 6.2 | 6.0 | 6.0 | 5.9 | 5.8 | 5.5 | 5.5 | 5.5 | 5.4 |
| Women, 20 years and over .............................. | 6.6 | 6.2 | 6.2 | 6.1 | 6.2 | 6.1 | 6.1 | 5.9 | 5.9 | 5.8 | 5.8 | 5.5 | 5.4 | 5.2 | 5.4 |
| White, total | 6.2 | 6.0 | 6.0 | 5.8 | 6.0 | 6.0 | 6.0 | 5.8 | 5.9 | 5.7 | 5.6 | 5.4 | 5.3 | 5.2 | 5.1 |
| Both sexes, 16 to 19 years | 15.7 | 15.6 | 15.2 | 15.4 | 15.9 | 15.4 | 16.0 | 15.1 | 15.0 | 15.2 | 15.5 | 14.9 | 15.2 | 13.6 | 13.0 |
| Men, 16 to 19 years ................................. | 16.5 | 16.3 | 15.6 | 16.6 | 16.6 | 15.7 | 16.3 | 15.5 | 16.1 | 16.0 | 17.1 | 16.7 | 17.3 | 14.5 | 13.0 |
| Women, 16 to 19 years ............................. | 14.8 | 14.9 | 14.7 | 14.2 | 15.1 | 15.2 | 15.7 | 14.6 | 13.8 | 14.3 | 13.9 | 13.1 | 13.1 | 12.7 | 13.0 |
| Men, 20 years and over ................................. | 5.4 | 5.3 | 5.4 | 5.1 | 5.4 | 5.4 | 5.4 | 5.3 | 5.3 | 5.2 | 5.1 | 4.8 | 4.7 | 4.9 | 4.7 |
| Women, 20 years and over ............................ | 5.7 | 5.4 | 5.3 | 5.2 | 5.3 | 5.2 | 5.2 | 5.0 | 5.1 | 4.9 | 4.8 | 4.6 | 4.5 | 4.4 | 4.5 |
| Black, total ....................................................... | 15.1 | 14.5 | 14.2 | 14.6 | 14.6 | 14.3 | 14.2 | 13.7 | 14.3 | 14.3 | 13.9 | 13.0 | 13.8 | 12.7 | 12.6 |
| Both sexes, 16 to 19 years ............................. | 40.2 | 39.3 | 38.0 | 40.3 | 38.4 | 35.8 | 36.0 | 36.5 | 39.5 | 38.9 | 37.6 | 38.0 | 39.0 | 33.3 | 31.5 |
| Men, 16 to 19 years .................................. | 41.0 | 39.3 | 40.5 | 38.8 | 38.6 | 37.8 | 35.0 | 36.1 | 36.5 | 38.3 | 36.5 | 39.3 | 40.3 | 31.5 | 31.5 |
| Women, 16 to 19 years ............................. | 39.2 | 39.2 | 35.0 | 41.9 | 38.3 | 33.8 | 37.0 | 36.9 | 43.2 | 39.5 | 38.8 | 36.5 | 37.6 | 35.1 | 31.4 |
| Men, 20 years and over ................................ | 13.2 | 12.9 | 12.9 | 13.2 | 13.4 | 13.1 | 12.9 | 11.8 | 12.2 | 12.0 | 11.5 | 10.9 | 12.5 | 11.5 | 11.3 |
| Women, 20 years and over ............................. | 13.1 | 12.4 | 12.1 | 12.5 | 12.4 | 12.4 | 12.5 | 12.3 | 12.8 | 12.9 | 13.0 | 11.5 | 11.6 | 11.1 | 11.4 |
| Hispanic origin, total .......................................... | 10.5 | 10.6 | 10.5 | 10.8 | 10.9 | 10.4 | 9.6 | 10.5 | 10.6 | 9.6 | 9.0 | 9.2 | 8.7 | 8.5 | 7.9 |
| Married men, spouse present .... | 4.3 | 4.4 | 4.4 | 4.2 | 4.3 | 4.6 | 4.5 | 4.3 | 4.2 | 4.2 | 4.1 | 4.1 | 3.9 | 4.0 | 3.8 |
| Married women, spouse present ....................... | 5.6 | 5.2 | 5.2 | 5.1 | 5.1 | 5.0 | 5.0 | 4.8 | 4.8 | 4.8 | 4.5 | 4.4 | 4.1 | 4.0 | 4.2 |
| Women who maintain families ........................... | 10.4 | 9.8 | 9.5 | 10.1 | 9.8 | 8.9 | 9.7 | 9.8 | 9.8 | 9.5 | 9.7 | 9.3 | 9.6 | 9.7 | 9.4 |
| Full-time workers ............................................. | 6.8 | 6.6 | 6.6 | 6.4 | 6.6 | 6.6 | 6.6 | 6.3 | 6.4 | 6.3 | 6.2 | 5.9 | 5.9 | 5.9 | 5.7 |
| Part-time workers ............................................ | 9.3 | 9.1 | 9.2 | 9.3 | 9.3 | 9.2 | 9.1 | 8.8 | 9.0 | 8.7 | 9.2 | 8.6 | 8.7 | 6.9 | 7.9 |
| Unemployed 15 weeks and over ....................... | 2.0 | 1.9 | 1.9 | 1.9 | 2.0 | 1.8 | 1.9 | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 | 1.8 | 1.7 | 1.6 |
| Labor force time lost ${ }^{1}$...................................... | 8.1 | 7.9 | 7.8 | 7.7 | 7.9 | 7.8 | 7.7 | 7.6 | 7.6 | 7.6 | 7.4 | 7.3 | 7.2 | 7.1 | 6.9 |
| INDUSTRY |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Nonagricultural private wage and salary workers .... | 7.2 | 7.0 | 7.1 | 6.9 | 7.0 | 7.0 | 7.0 | 6.8 | 6.7 | 6.6 | 6.5 | 6.2 | 6.3 | 6.2 | 6.1 |
| Mining | 9.5 | 13.5 | 16.6 | 16.6 | 13.9 | 14.5 | 14.5 | 14.1 | 14.0 | 12.4 | 9.3 | 11.1 | 12.9 | 10.8 | 7.8 |
| Construction .................................................... | 13.1 | 13.1 | 13.0 | 12.4 | 12.9 | 13.8 | 15.1 | 13.7 | 12.2 | 11.6 | 12.5 | 11.9 | 12.1 | 11.6 | 10.7 |
| Manufacturing .................................................. | 7.7 | 7.1 | 6.9 | 6.9 | 7.0 | 7.3 | 7.1 | 6.9 | 6.8 | 6.8 | 6.9 | 6.2 | 6.4 | 5.6 | 6.0 |
| Durable goods .............................................. | 7.6 | 6.9 | 6.7 | 6.8 | 6.5 | 7.2 | 6.6 | 6.4 | 6.8 | 6.8 | 6.7 | 6.2 | 6.3 | 5.3 | 6.1 |
| Nondurable goods ......................................... | 7.8 | 7.4 | 7.2 | 6.9 | 7.7 | 7.3 | 7.9 | 7.7 | 6.8 | 6.9 | 7.3 | 6.2 | 6.6 | 6.0 | 5.9 |
| Transportation and public utilities ..................... | 5.1 | 5.1 | 5.5 | 4.8 | 4.7 | 5.2 | 4.4 | 4.6 | 4.8 | 4.0 | 4.6 | 4.8 | 4.4 | 5.0 | 4.4 |
| Wholesale and retail trade ................................ | 7.6 | 7.6 | 7.8 | 7.5 | 7.6 | 7.4 | 7.2 | 7.2 | 7.5 | 7.2 | 7.3 | 7.0 | 6.9 | 7.2 | 6.8 |
| Finance and service industries .......................... | 5.6 | 5.5 | 5.7 | 5.6 | 5.6 | 5.4 | 5.4 | 5.1 | 5.2 | 5.4 | 4.9 | 4.7 | 4.8 | 4.8 | 5.1 |
| Government workers ............................................ | 3.9 | 3.6 | 3.3 | 3.3 | 3.5 | 3.7 | 3.6 | 3.3 | 3.6 | 3.7 | 3.4 | 3.6 | 3.3 | 3.4 | 3.4 |
| Agricultural wage and salary workers ..................... | 13.2 | 12.5 | 11.4 | 13.3 | 12.9 | 11.9 | 10.1 | 11.5 | 11.6 | 11.2 | 10.7 | 9.0 | 8.7 | 8.8 | 11.3 |

${ }^{1}$ Aggregate hours lost by the unemployed and persons on part time for economic reasons as a percent of potentially available labor force hours.

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

(Civilian workers)

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

10. Duration of unemployment, monthly data seasonally adjusted
(Numbers in thousands)

| Weeks of unemployment | Annual average |  | 1986 |  |  |  |  |  |  |  | 1987 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
|  |  |  | 3,399 | 3,436 | 3,415 | 3,418 | 3,382 | 3,355 | 3,416 | 3,361 | 3,383 | 3,143 | 3,349 | 3,085 | 3,168 |
| Less than 5 weeks | 3,498 2,509 | 3,448 2,557 | 2,521 | 3,436 2,407 | 3,524 | 2,563 | 2,613 | 2,389 | 2,530 | 2,477 | 2,447 | 2,232 | 2,118 | 2,114 | 2,141 |
| 5 to 14 weeks ........ | 2,509 | 2,232 | 2,250 | 2,272 | 2,373 | 2,168 | 2,217 | 2,171 | 2,200 | 2,131 | 2,050 | 2,075 | 2,101 | 2,055 | 1,907 |
| 15 weeks and over | 1,025 | 1,045 | 1,058 | 1,068 | 1,110 | 950 | 1,045 | 1,023 | 1,022 | 1,008 | 945 | 1,025 | 1,003 | 998 | 945 |
| 27 weeks and over .............................................. | 1,280 | 1,187 | 1,192 | 1,204 | 1,263 | 1,218 | 1,172 | 1,148 | 1,178 | 1,123 | 1,105 | 1,049 | 1,098 | 1,057 | 962 |
|  |  | 15.0 | 15.1 | 15.6 | 15.5 | 15.2 | 14.8 | 15.0 | 15.0 | 14.6 | 14.9 | 14.9 | 14.9 | 14.8 | 14.0 |
| Mean duration in weeks $\qquad$ <br> Median duration in weeks $\qquad$ | 6.8 | 6.9 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.1 | 7.0 | 6.6 | 6.6 | 7.0 | 6.5 | 6.7 | 6.7 |

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

| State | $\begin{gathered} \text { June } \\ 1986 \end{gathered}$ | $\begin{aligned} & \text { June } \\ & 1987 \end{aligned}$ | State | $\begin{aligned} & \text { June } \\ & 1986 \end{aligned}$ | June $1987$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Alabama | 10.1 | 7.7 | Montana | 7.6 | 6.0 |
| Alaska | 10.9 | 11.2 | Nebraska | 4.6 | 4.7 |
| Arizona ....................................................... | 7.5 | 7.0 | Nevada | 5.4 | 5.7 |
| Arkansas | 8.6 | 8.1 | New Hampshire ........... | 2.6 | 2.5 |
| California ................................................... | 6.5 | 5.4 |  |  |  |
|  |  |  | New Jersey .............................................. | 5.0 | 4.1 |
| Colorado | 7.3 | 8.0 | New Mexico .............................................. | 9.6 | 8.9 |
| Connecticut | 3.7 | 3.2 | New York. | 6.0 | 4.6 |
| Delaware ................................................... | 4.3 | 3.1 | North Carolina | 5.5 | 4.9 |
| District of Columbia .................................... | 7.5 | 6.3 | North Dakota . | 6.1 | 4.2 |
| Florida ....................................................... | 6.0 | 5.3 |  |  |  |
|  |  |  | Ohio | 8.7 | 7.3 |
| Georgia ..................................................... | 6.0 | 5.1 | Oklahoma | 8.5 | 7.6 |
| Hawaii | 5.5 | 4.3 | Oregon ..................................................... | 7.9 | 5.5 |
| Idaho | 8.5 | 7.0 | Pennsylvania ............................................. | 7.3 | 6.2 |
| Illinois | 8.4 | 7.8 | Rhode Island ................ | 3.9 | 3.9 |
| Indiana ..................................................... | 6.3 | 6.2 |  |  |  |
|  |  |  | South Carolina | 6.4 | 5.9 |
| Iowa .......................................................... | 6.4 | 4.5 | South Dakota .............................................. | 4.1 | 3.9 |
| Kansas | 5.4 | 4.6 | Tennessee | 8.0 | 6.8 |
| Kentucky .................................................... | 9.0 | 9.1 | Texas | 11.1 | 9.6 |
| Louisiana ................................................... | 14.0 | 11.2 | Utah ......................................................... | 5.8 | 6.5 |
| Maine ........................................................ | 4.9 | 4.0 |  |  |  |
|  |  |  | Vermont .................................................... | 4.6 | 3.3 4.6 |
| Maryland ................................................... | 4.4 | 4.2 | Virginia ..................................................... | 5.2 7.9 | 4.6 |
| Massachusetts .............................................. | 3.7 | 3.1 | Washington ............................................. | 7.9 | 7.3 |
| Michigan ..................................................... | 9.4 | 8.9 | West Virginia ............................................. | 11.2 | 9.1 |
| Minnesota .................................................. | 4.9 | 4.8 | Wisconsin ................................................. | 6.6 | 5.5 |
| Mississippi ................................................. | 12.7 | 9.8 |  |  |  |
| Missouri ...................................................... | 5.8 | 6.0 | Wyoming .................................................... | 8.3 | 7.3 |

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the
12. Employment of workers on nonagricultural payrolls by State, data not seasonally adjusted (In thousands)

| State | June 1986 | May 1987 | June $1987{ }^{\text {p }}$ | State | June 1986 | May 1987 | June $1987{ }^{\text {P }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Alabama | 1,465.3 | 1,486.3 | 1,489,7 | Nebraska | 658.2 | 667.0 | 665.8 |
| Alaska | 228.1 | 217.2 | 218.6 | Nevada | 470.7 | 499.0 | 501.6 |
| Arizona | 1,327.3 | 1,373.7 | 1,351.5 | New Hampshire ... | 498.0 | 500.4 | 508.3 |
| Arkansas | 814.4 | 837.3 | 834.2 |  |  |  |  |
| California | 11,303.1 | 11,606.4 | 11,671.8 | New Jersey | 3,528.6 | 3,575.9 | 3,623.9 |
|  |  |  |  | New Mexico | 528.4 | 535.3 | 537.7 |
| Colorado | 1,416.0 | 1,402.6 | 1,407.4 | New York | 7,969.7 | 8,094.5 | 8,159.7 |
| Connecticut | 1,618.8 | 1,648.8 | 1,662.8 | North Carolina ....................................... | 2,743.5 | 2,823.1 | 2,838.6 |
| Delaware .............. | 308.5 | 315.5 | 318.3 | North Dakota ........................................... | 252.6 | 252.8 | 253.5 |
| District of Columbia | 639.2 | 646.5 | 648.9 |  |  |  |  |
| Florida ........... | 4,564.0 | 4,796.2 | 4,787.1 | Ohio | 4,510.9 | 4,600.3 | 4,613.6 |
|  |  |  |  | Oklahoma ................................................ | 1,145.6 | 1,132.9 | 1,134.5 |
| Georgia | 2,675.8 | 2,752.6 | 2,755.9 | Oregon ... | 1,071.9 | 1,094.5 | 1,109.9 |
| Hawaii | 437.3 | 450.9 | 451.0 | Pennsylvania | 4,826.4 | 4,921.5 | 4,953.7 |
| Idaho | 337.3 | 341.2 | 343.6 | Rhode Island ............................................. | 444.9 | 451.2 | 451.0 |
| Illinois | 4,778.3 | 4,852.9 | 4,874.6 |  |  |  |  |
| Indiana ...................................................... | 2,226.6 | 2,315.2 | 2,303.1 | South Carolina | 1,344.9 | 1,389.8 | 1,393.0 |
|  |  |  |  | South Dakota | 259.1 | 256.2 | 260.2 |
| Iowa .......................................................... | 1,083.8 | 1,112.9 | 1,110.1 | Tennessee | 1,925.7 | 2,011.4 | 2,013.9 |
| Kansas | 988.5 | 999.5 | 1,000.0 | Texas ....................................................... | 6,568.7 | 6,504.4 | 6,505.4 |
| Kentucky | 1,278.2 | 1,311.6 | 1,309.1 | Utah ... | 637.1 | 642.0 | 645.0 |
| Louisiana .................................................... | 1,518.2 | 1,491.3 | 1,489.3 |  |  |  |  |
| Maine ........................................................ | 488.1 | 493.9 | 505.9 | Vermont ................................................... | 234.3 | 235.8 | 238.8 |
|  |  |  |  | Virginia ..................................................... | 2,585.0 | 2,631.4 | 2,656.0 |
| Maryland ................................................... | 1,977.6 | 2,000.8 | 2,004.5 | Washington ............................................... | 1,790.1 | 1,831.0 | 1,849.0 |
| Massachusetts ............................................ | 3,011.9 | 3,057.9 | 3,083.0 | West Virginia ............................................. | 600.5 | 603.4 | 603.8 |
| Michigan ..................................................... | 3,652.0 | 3,704.7 | 3,717.6 | Wisconsin ................................................ | 2,042.2 | 2,058.5 | 2,089.3 |
| Minnesota | 1,916.4 | 1,947.9 | 1,962.1 |  |  |  |  |
| Mississippi ................................................. | 847.5 | 863.5 | 856.1 | Wyoming .................................................. | 204.1 | 192.7 | 198.6 |
| Missouri ..................................................... | 2,141.9 | 2,165.7 | 2,158.6 | Puerto Rico .............................................. | 738.4 | 735.2 | 775.1 |
| Montana .................................................... | 284.5 | 278.6 | 279.5 | Virgin Islands ........................................... | 37.0 | 37.6 | 37.5 |

[^19]MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Employment Data
13. Employment of workers on nonagricultural payrolls by industry, monthly data seasonally adjusted
(In thousands)

| Industry | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June ${ }^{\text {P }}$ | July ${ }^{\text {P }}$ |
| TOTAL | 97,519 | 99,610 | 99,601 | 99,772 | 100,039 | 100,209 | 100,415 | 100,567 | 100,919 | 101,150 | 101,329 | 101,598 | 101,708 | 101,811 | 102,115 |
| PRIVATE SECTOR | 81,125 | 82,900 | 82,991 | 83,125 | 83,241 | 83,337 | 83,515 | 83,643 | 83,983 | 84,215 | 84,352 | 84,560 | 84,677 | 84,769 | 85,008 |
| GOODS-PRODUCING | 24,859 | 24,681 | 24,628 | 24,639 | 24,620 | 24,611 | 24,630 | 24,630 | 24,708 | 24,743 | 24,749 | 24,759 | 24,752 | 24,775 | 24,849 |
| Mining | 927 | 783 | 764 | 748 | 739 | 735 | 730 | 724 | 718 | 719 | 722 | 729 | 735 | 737 | 742 |
| Oil and gas extraction | 583 | 457 | 439 | 428 | 419 | 416 | 412 | 406 | 405 | 406 | 408 | 416 | 420 | 425 | 430 |
| Construction | 4,673 | 4,904 | 4,924 | 4,946 | 4,948 | 4,942 | 4,946 | 4,936 | 5,034 | 5,038 | 5,032 | 5,019 | 4,999 | 5,010 | 5,009 |
| General building contractors | 1,253 | 1,293 | 1,290 | 1,295 | 1,291 | 1,289 | 1,289 | 1,277 | 1,311 | 1,309 | 1,291 | 1,272 | 1,267 | 1,266 | 1,267 |
| Manufacturing | 19,260 | 18,994 | 18,940 | 18,945 | 18,933 | 18,934 | 18,954 | 18,970 | 18,956 | 18,986 | 18,995 | 19,011 | 19,018 | 19,028 | 19,098 |
| Production workers | 13,092 | 12,895 | 12,843 | 12,857 | 12,851 | 12,849 | 12,879 | 12,906 | 12,884 | 12,916 | 12,925 | 12,939 | 12,946 | 12,967 | 13,028 |
| Durable goods | 11,490 | 11,244 | 11,199 | 11,206 | 11,181 | 11,169 | 11,174 | 11,175 | 11,157 | 11,179 | 11,176 | 11,175 | 11,175 | 11,179 | 11,194 |
| Production workers | 7,644 | 7,432 | 7,386 | 7,399 | 7,382 | 7,369 | 7,385 | 7,393 | 7,370 | 7,398 | 7,399 | 7,406 | 7,409 | 7,423 | 7,432 |
| Lumber and wood products | 697 | 711 | 704 | 712 | 716 | 718 | 723 | 728 | 731 | 733 | 734 | 736 | 738 | 736 | 743 |
| Furniture and fixtures .......... | 494 | 497 | 497 | 499 | 499 | 499 | 499 | 499 | 500 | 501 | 502 | 504 | 509 | 510 | 519 |
| Stone, clay, and glass products ... | 588 | 586 | 584 | 584 | 584 | 581 | 582 | 584 | 586 | 588 | 586 | 586 | 584 | 582 | 582 |
| Primary metal industries ........... | 808 | 753 | 745 | 735 | 732 | 733 | 733 | 733 | 726 | 733 | 739 | 743 | 742 | 746 | 748 |
| Blast furnaces and basic steel products $\qquad$ | 303 | 275 | 278 | 265 | 260 | 262 | 260 | 259 | 254 | . 261 | 266 1.419 | , 272 | -272 | 275 1.423 | 275 |
| Fabricated metal products ........ | 1,465 | 1,431 | 1,423 | 1,423 | 1,424 | 1,421 | 1,419 | 1,422 | 1,422 | 1,419 | 1,419 | 1,423 | 1,420 | 1,423 | 1,426 |
| Machinery, except electrical | 2,174 | 2,060 | 2,056 | 2,051 | 2,031 | 2,022 | 2,015 | 2,011 | 2,007 | 2,018 | 2,015 | 2,022 | 2,025 | 2,030 | 2,037 |
| Electrical and electronic equipment $\qquad$ | 2,197 | 2,123 | 2,124 | 2,123 | 2,118 | 2,120 | 2,119 | 2,118 | 2,111 | 2,106 | 2,099 | 2,092 | 2,087 2,011 | 2,080 | 2,087 1,987 |
| Transportation equipment | 1,980 | 2,015 | 2,004 | 2,016 | 2,015 | 2,013 | 2,023 | 2,018 | 2,014 | 2,022 | 2,022 | 2,011 | 2,011 | 2,012 | ,987 |
| Motor vehicles and equipment | 884 | 865 | 848 | 861 | 857 | 850 | 858 | 853 | 851 | 859 | 854 | 847 | 843 | 843 | 5 |
| Instruments and related products | 720 | 707 | 703 | 703 | 703 | 702 | 700 | 698 | 697 | 695 | 694 | 694 | 693 | 693 | 695 |
| Miscellaneous manufacturing industries $\qquad$ | 367 | 362 | 359 | 360 | 359 | 360 | 361 | 364 | 363 | 364 | 366 | 364 | 366 | 367 | 370 |
| Nondurable goods | 7,770 | 7,750 | 7,741 | 7,739 | 7,752 | 7,765 | 7,780 | 7,795 | 7,799 | 7,807 | 7,819 | 7,836 | 7,843 | 7,849 | 7,904 |
| Production workers | 5,449 | 5,463 | 5,457 | 5,458 | 5,469 | 5,480 | 5,494 | 5,513 | 5,514 | 5,518 | 5,526 | 5,533 | 5,537 | 5,544 | 5,596 |
| Food and kindred products | 1,603 | 1,617 | 1,619 | 1,616 | 1,619 | 1,621 | 1,627 | 1,631 | 1,628 | 1,630 | 1,635 | 1,642 | 1,633 | 1,633 | 1,645 |
| Tobacco manufactures ...... | 64 | 59 | 59 | 58 | 58 | 58 | 59 | 58 | 58 | 58 | 57 | 56 | 57 | 57 | 58 |
| Textile mill products .... | 702 | 705 | 706 | 707 | 707 | 709 | 714 | 715 | 718 | 722 | 725 | 724 | 727 | 730 | 736 |
| Apparel and other textile products $\qquad$ | 1,121 | 1,106 | 1,103 | 1,102 | 1,102 | 1,104 | 1,101 | 1,110 | 1,106 | 1,101 | 1,103 | 1,104 | 1,107 677 | 1,108 676 | 1,127 677 |
| Paper and allied products | 678 | 674 | 673 | 671 | 675 | 677 | 678 | 679 | 678 | 679 | 678 | 677 | 677 | 676 | 677 |
| Printing and publishing | 1,428 | 1,457 | 1,459 | 1,462 | 1,465 | 1,469 | 1,472 | 1,474 | 1,479 | 1,483 | 1,485 | 1,493 | 1,497 | 1,498 | 1,504 |
| Chemicals and allied products | 1,044 | 1,023 | 1,022 | 1,021 | 1,021 | 1,020 | 1,020 | 1,017 | 1,018 | 1,018 | 1,017 | 1,018 | 1,022 | 1,025 | 1,025 |
| Petroleum and coal products.. | 179 | 169 | 168 | 168 | 167 | 166 | 165 | 163 | 164 | 164 | 164 | 164 | 164 | 164 | 164 |
| Rubber and misc. plastics products $\qquad$ | 786 | 790 | 783 | 786 | 791 | 794 | 797 | 800 | 803 | 805 | 807 | 809 | 809 | 809 | 815 153 |
| Leather and leather products | 165 | 151 | 149 | 148 | 147 | 147 | 147 | 148 | 147 | 147 | 148 | 149 | 150 | 149 | 153 |
| SERVICE-PRODUCING | 72,660 | 74,930 | 74,973 | 75,133 | 75,419 | 75,598 | 75,785 | 75,937 | 76,211 | 76,407 | 76,580 | 76,839 | 76,956 | 77,036 | 77,266 |
| Transportation and public utilitles $\qquad$ | 5,238 | 5,244 | 5,237 | 5,202 | 5,255 | 5,251 | 5,278 | 5,286 | 5,304 | 5,315 | 5,333 | 5,348 | 5,344 | 5,351 | 5,344 |
| Transportation ................................ | 3,003 | 3,041 | 3,029 | 3,035 | 3,050 | 3,053 | 3,071 | 3,078 | 3,089 | 3,097 | 3,112 | 3,124 | 3,120 | 3,129 | 3,126 |
| Communication and public utilities $\qquad$ | 2,235 | 2,203 | 2,208 | 2,167 | 2,205 | 2,198 | 2,207 | 2,208 | 2,215 | 2,218 | 2,221 | 2,224 | 2,224 | 2,222 | 2,218 |
| Wholesale trade | 5,717 | 5,735 | 5,735 | 5,736 | 5,736 | 5,731 | 5,728 | 5,725 | 5,741 | 5,757 | 5,766 | 5,772 | 5,775 | 5,780 | 5,790 |
| Durable goods .... | 3,388 | 3,383 | 3,385 | 3,382 | 3,383 | 3,379 | 3,380 | 3,383 | 3,386 | 3,391 | 3,397 | 3,397 | 3,401 | 3,405 | 3,412 |
| Nondurable goods | 2,329 | 2,351 | 2,350 | 2,354 | 2,353 | 2,352 | 2,348 | 2,342 | 2,355 | 2,366 | 2,369 | 2,375 | 2,374 | 2,375 | 2,378 |
| Retail trade | 17,356 | 17,845 | 17,866 | 17,913 | 17,939 | 17,980 | 18,009 | 18,007 | 18,080 | 18,140 | 18,136 | 18,197 | 18,205 | 18,217 | 18,278 |
| General merchandise stores | 2,324 | 2,363 | 2,367 | 2,371 | 2,374 | 2,385 | 2,379 | 2,363 | 2,358 | 2,373 | 2,380 | 2,385 | 2,390 | 2,386 | 2,406 |
| Food stores ........... | 2,775 | 2,873 | 2,882 | 2,889 | 2,892 | 2,901 | 2,906 | 2,916 | 2,929 | 2,940 | 2,944 | 2,953 | 2,956 | 2,960 | 2,968 |
| Automotive dealers and service stations $\qquad$ | 1,890 | 1,943 | 1,943 | 1,949 | 1,958 | 1,960 | 1,963 | 1,970 | 1,978 | 1,979 | 1,979 | 1,978 | 1,978 | 1,981 | 1,982 |
| Eating and drinking places | 5,709 | 5,879 | 5,887 | 5,904 | 5,911 | 5,919 | 5,927 | 5,938 | 5,946 | 5,956 | 5,964 | 5,962 | 5,976 | 5,981 | 5,986 |
| Finance, Insurance, and real estate $\qquad$ | 5,955 | 6,297 | 6,323 | 6,351 | 6,374 | 6,395 | 6,418 | 6,451 | 6,480 | 6,501 | 6,526 | 6,558 | 6,576 | 6,595 | 6,614 |
| Finance | 2,977 | 3,152 | 3,167 | 3,183 | 3,193 | 3,204 | 3,212 | 3,227 | 3,235 | 3,243 | 3,256 | 3,272 | 3,276 | 3,287 | 3,294 |
| Insurance | 1,833 | 1,945 | 1,952 | 1,961 | 1,971 | 1,980 | 1,990 | 1,999 | 2,012 | 2,016 | 2,022 | 2,032 | 2,037 | 2,039 | 2,044 |
| Real estate | 1,146 | 1,200 | 1,204 | 1,207 | 1,210 | 1,211 | 1,216 | 1,225 | 1,233 | 1,242 | 1,248 | 1,254 | 1,263 | 1,269 | 1,276 |
| Services | 22,000 | 23,099 | 23,202 | 23,284 | 23,317 | 23,369 | 23,452 | 23,544 | 23,670 | 23,759 | 23,842 | 23,926 | 24,025 | 24,051 | 24,133 |
| Business services | 4,457 | 4,781 | 4,798 | 4,815 | 4,835 | 4,861 | 4,877 | 4,912 | 4,950 | 4,984 | 5,020 | 5,044 | 5,083 | 5,085 | 5,101 |
| Health services | 6,299 | 6,551 | 6,563 | 6,594 | 6,615 | 6,644 | 6,661 | 6,691 | 6,721 | 6,748 | 6,773 | 6,800 | 6,822 | 6,851 | 6,884 |
| Government | 16,394 | 16,711 | 16,610 | 16,647 | 16,798 | 16,872 | 16,900 | 16,924 | 16,936 | 16,935 | 16,977 | 17,038 | 17,031 | 17,042 | 17,107 |
| Federal. | 2,875 | 2,899 | 2,872 | 2,882 | 2,902 | 2,897 | 2,900 | 2,904 | 2,912 | 2,916 | 2,922 | 2,933 | 2,935 | 2,938 | 2,937 |
| State | 3,832 | 3,888 | 3,881 | 3,881 | 3,890 | 3,907 | 3,915 | 3,927 | 3,929 | 3,927 | 3,930 | 3,943 | 3,947 | 3,935 | 3,951 |
| Local ...................................... | 9,687 | 9,923 | 9,857 | 9,884 | 10,006 | 10,068 | 10,085 | 10,093 | 10,095 | 10,092 | 10,125 | 10,162 | 10,149 | 10,169 | 10,219 |

$\mathrm{p}=$ 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 |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June ${ }^{\text {P }}$ | July ${ }^{p}$ |
| PRIVATE SECTOR | 34.9 | 34.8 | 34.7 | 34.7 | 34.7 | 34.7 | 34.8 | 34.6 | 34.7 | 34.9 | 34.8 | 34.7 | 34.9 | 34.8 | 34.7 |
| MANUFACTURING | 40.5 | 40.7 | 40.6 | 40.8 | 40.8 | 40.7 | 40.8 | 40.8 | 40.9 | 41.1 | 40.9 | 40.6 | 41.0 | 41.0 | 41.0 |
| Overtime hours .. | 3.3 | 3.4 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.6 | 3.6 | 3.6 | 3.6 | 3.5 | 3.8 | 3.7 | 3.8 |
| Durable goods | 41.2 | 41.3 | 41.2 | 41.4 | 41.4 | 41.3 | 41.4 | 41.4 | 41.6 | 41.7 | 41.5 | 41.2 | 41.6 | 41.5 | 41.6 |
| Overtime hours | 3.5 | 3.5 | 3.5 | 3.6 | 3.6 | 3.5 | 3.5 | 3.6 | 3.7 | 3.7 | 3.7 | 3.6 | 3.9 | 3.8 | 3.8 |
| Lumber and wood products | 39.9 | 40.3 | 40.4 | 40.2 | 40.3 | 40.4 | 40.8 | 40.6 | 40.8 | 41.3 | 40.9 | 40.6 | 41.0 | 40.5 | 40.4 |
| Furniture and fixtures | 39.4 | 39.8 | 39.7 | 39.9 | 40.0 | 39.9 | 39.8 | 39.9 | 40.2 | 40.2 | 40.0 | 39.1 | 39.9 | 40.0 | 40.1 |
| Stone, clay, and glass products | 41.9 | 42.2 | 42.1 | 42.3 | 42.4 | 42.3 | 41.9 | 42.2 | 42.5 | 42.8 | 42.5 | 41.9 | 42.3 | 42.1 | 42.3 |
| Primary metal industries ..... | 41.5 | 41.9 | 41.4 | 42.0 | 42.1 | 42.3 | 42.4 | 42.5 | 42.6 | 42.6 | 42.6 | 42.3 | 43.1 | 43.1 | 43.3 |
| Blast furnaces and basic steel products .... | 41.1 | 41.7 | 41.5 | 41.7 | 41.9 | 42.4 | 42.5 | 42.6 | 42.7 | 42.3 | 42.3 | 42.4 | 43.3 | 43.5 | 43.8 |
| Fabricated metal products ......................... | 41.3 | 41.3 | 41.1 | 41.3 | 41.5 | 41.3 | 41.4 | 41.2 | 41.6 | 41.6 | 41.5 | 41.2 | 41.6 | 41.5 | 41.5 |
| Machinery except electrical | 41.5 | 41.6 | 41.3 | 41.6 | 41.7 | 41.7 | 41.7 | 41.7 | 42.0 | 42.2 | 42.0 | 41.8 | 42.2 | 42.2 | 42.4 |
| Electrical and electronic equipment. | 40.6 | 41.0 | 41.1 | 41.1 | 41.2 | 41.0 | 41.0 | 41.0 | 41.0 | 41.1 | 40.9 | 40.6 | 40.8 | 41.1 | 41.1 |
| Transportation equipment. | 42.6 | 42.3 | 42.2 | 42.4 | 42.4 | 42.1 | 42.2 | 42.1 | 42.3 | 42.5 | 42.3 | 41.9 | 42.2 | 41.9 | 41.8 |
| Motor vehicles and equipment | 43.5 | 42.6 | 42.5 | 42.5 | 42.7 | 42.1 | 42.4 | 42.4 | 42.9 | 43.0 | 42.9 | 42.1 | 42.5 | 42.0 | 42.0 |
| Instruments and related products | 41.0 | 41.0 | 40.7 | 40.9 | 40.7 | 40.9 | 41.1 | 41.1 | 41.2 | 41.3 | 41.3 | 41.0 | 41.5 | 41.6 | 41.6 |
| Nondurable goods | 39.6 | 39.9 | 39.8 | 40.0 | 39.9 | 39.9 | 40.0 | 40.0 | 40.1 | 40.3 | 40.1 | 39.7 | 40.2 | 40.3 | 40.2 |
| Overtime hours | 3.1 | 3.3 | 3.4 | 3.4 | 3.3 | 3.4 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.3 | 3.7 | 3.6 | 3.7 |
| Food and kindred products | 40.0 | 40.0 | 39.9 | 40.2 | 39.8 | 39.8 | 40.0 | 39.8 | 40.0 | 40.1 | 40.0 | 39.8 | 40.1 | 40.2 | 39.9 |
| Textile mill products. | 39.7 | 41.1 | 41.0 | 41.2 | 41.4 | 41.4 | 41.4 | 41.6 | 41.6 | 42.0 | 42.1 | 41.4 | 42.0 | 42.0 | 42.8 |
| Apparel and other textile products | 36.4 | 36.7 | 36.6 | 36.6 | 36.8 | 36.8 | 36.9 | 37.0 | 37.0 | 37.4 | 37.0 | 36.1 | 37.2 | 37.2 | 37.2 |
| Paper and allied products ............. | 43.1 | 43.2 | 43.2 | 43.4 | 42.9 | 43.1 | 43.2 | 43.2 | 43.4 | 43.3 | 43.0 | 43.0 | 43.5 | 43.3 | 43.2 |
| Printing and publishing .. | 37.8 | 38.0 | 38.0 | 38.0 | 38.0 | 38.0 | 38.0 | 38.0 | 37.9 | 38.1 | 37.9 | 37.7 | 37.9 | 38.1 | 38.0 |
| Chemicals and allied products ... | 41.9 | 41.9 | 41.8 | 42.0 | 41.8 | 42.0 | 42.3 | 42.1 | 42.2 | 42.2 | 42.0 | 42.2 | 42.1 | 42.0 | 42.4 |
| Petroleum and coal products ....... | 43.0 | 43.8 | 43.7 | 44.2 | 43.5 | 43.7 | 43.8 | 43.6 | 44.6 | 44.0 | 44.1 | 43.9 | 44.3 | 43.6 | 44.1 |
| TRANSPORTATION AND PUBLIC UTILITIES ..... | 39.5 | 39.2 | 39.2 | 39.1 | 39.1 | 39.1 | 39.2 | 38.9 | 39.0 | 39.2 | 39.0 | 39.0 | 39.2 | 39.0 | 39.1 |
| Wholesale trade | 37.8 | 37.7 | 38.3 | 38.4 | 38.2 | 38.3 | 38.3 | 38.2 | 38.3 | 38.3 | 38.1 | 38.2 | 38.3 | 38.2 | 38.0 |
| RETAIL TRADE | 29.4 | 29.2 | 29.2 | 29.2 | 29.1 | 29.1 | 29.2 | 28.9 | 29.0 | 29.3 | 29.3 | 29.5 | 29.4 | 29.2 | 29.3 |
| SERVICES | 32.5 | 32.5 | 32.5 | 32.4 | 32.4 | 32.4 | 32.5 | 32.4 | 32.4 | 32.6 | 32.5 | 32.4 | 32.5 | 32.5 | 32.4 |

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

MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Employment Data
15. Average hourly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry

| Industry | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June ${ }^{\text {p }}$ | July ${ }^{\text {p }}$ |
| PRIVATE SECTOR | \$8.57 | \$8.76 | \$8.70 | \$8.70 | \$8.82 | \$8.82 | \$8.88 | \$8.86 | \$8.90 | \$8.92 | \$8.92 | \$8.91 | \$8.93 | \$8.92 | \$8.91 |
| Seasonally adjusted |  |  | 8.74 | 8.77 | 8.78 | 8.82 | 8.86 | 8.84 | 8.86 | 8.88 | 8.91 | 8.91 | 8.95 | 8.94 | 8.96 |
| MINING | 11.98 | 12.44 | 12.49 | 12.51 | 12.52 | 12.50 | 12.57 | 12.63 | 12.66 | 12.56 | 12.51 | 12.43 | 12.42 | 12.44 | 12.34 |
| CONSTRUCTION | 12.32 | 12.47 | 12.34 | 12.44 | 12.59 | 12.68 | 12.66 | 12.77 | 12.58 | 12.51 | 12.59 | 12.55 | 12.60 | 12.62 | 12.59 |
| MANUFACTURING | 9.54 | 9.73 | 9.74 | 9.68 | 9.73 | 9.72 | 9.78 | 9.85 | 9.84 | 9.84 | 9.85 | 9.87 | 9.87 | 9.88 | 9.88 |
| Durable goods | 10.10 | 10.29 | 10.26 | 10.22 | 10.29 | 10.27 | 10.33 | 10.40 | 10.38 | 10.39 | 10.39 | 10.39 | 10.40 | 10.43 | 10.41 |
| Lumber and wood products | 8.22 | 8.33 | 8.29 | 8.33 | 8.35 | 8.32 | 8.35 | 8.32 | 8.27 | 8.31 | 8.28 | 8.34 | 8.37 | 8.44 | 8.49 |
| Furniture and fixtures | 7.17 | 7.46 | 7.45 | 7.50 | 7.55 | 7.53 | 7.55 | 7.65 | 7.61 | 7.58 | 7.58 | 7.58 | 7.64 | 7.66 | 7.70 |
| Stone, clay, and glass products | 9.84 | 10.05 | 10.06 | 10.07 | 10.11 | 10.10 | 10.14 | 10.17 | 10.17 | 10.15 | 10.13 | 10.23 | 10.26 | 10.27 | 10.27 |
| Primary metal industries ........... | 11.67 | 11.86 | 11.93 | 11.74 | 11.82 | 11.75 | 11.80 | 11.82 | 11.76 | 11.78 | 11.82 | 11.96 | 11.96 | 11.97 | 12.03 |
| Blast furnaces and basic steel products ..... | 13.33 | 13.73 | 13.83 | 13.61 | 13.76 | 13.63 | 13.68 | 13.74 | 13.55 | 13.59 | 13.66 | 13.84 | 13.80 | 13.81 | 13.82 |
| Fabricated metal products ............................... | 9.70 | 9.89 | 9.86 | 9.82 | 9.88 | 9.88 | 9.94 | 10.02 | 9.98 | 9.99 | 9.99 | 9.98 | 9.97 | 10.01 | 9.99 |
| Machinery, except electrical | 10.29 | 10.59 | 10.59 | 10.59 | 10.61 | 10.58 | 10.62 | 10.67 | 10.64 | 10.68 | 10.72 | 10.70 | 10.70 | 10.77 | 10.79 |
| Electrical and electronic equipment | 9.46 | 9.65 | 9.67 | 9.64 | 9.70 | 9.67 | 9.73 | 9.82 | 9.84 | 9.84 | 9.84 | 9.82 | 9.83 | 9.84 | 9.87 |
| Transportation equipment ... | 12.71 | 12.81 | 12.73 | 12.70 | 12.82 | 12.82 | 12.88 | 12.96 | 12.93 | 12.88 | 12.86 | 12.80 | 12.85 | 12.91 | 12.82 |
| Motor vehicles and equipment. | 13.39 | 13.45 | 13.33 | 13.29 | 13.42 | 13.42 | 13.44 | 13.56 | 13.58 | 13.49 | 13.49 | 13.40 | 13.42 | 13.50 | 13.33 |
| Instruments and related products . | 9.17 | 9.47 | 9.48 | 9.47 | 9.54 | 9.56 | 9.63 | 9.65 | 9.64 | 9.67 | 9.67 | 9.67 | 9.69 | 9.69 | 9.70 |
| Miscellaneous manufacturing ......... | 7.30 | 7.54 | 7.57 | 7.51 | 7.58 | 7.57 | 7.62 | 7.69 | 7.69 | 7.68 | 7.66 | 7.67 | 7.72 | 7.73 | 7.75 |
| Nondurable goods | 8.71 | 8.94 | 9.00 | 8.94 | 8.96 | 8.96 | 9.02 | 9.07 | 9.09 | 9.08 | 9.09 | 9.14 | 9.13 | 9.12 | 9.16 |
| Food and kindred products | 8.57 | 8.74 | 8.76 | 8.66 | 8.65 | 8.69 | 8.79 | 8.88 | 8.90 | 8.91 | 8.93 | 8.95 | 8.96 | 8.90 | 8.86 |
| Tobacco manufactures | 11.96 | 12.85 | 13.73 | 13.55 | 12.29 | 12.14 | 12.67 | 12.93 | 12.97 | 13.44 | 13.80 | 14.28 | 14.53 | 15.52 | 14.75 |
| Textile mill products .... | 6.70 | 6.93 | 6.88 | 6.97 | 7.02 | 7.02 | 7.05 | 7.10 | 7.10 | 7.11 | 7.12 | 7.12 | 7.13 | 7.15 | 7.17 |
| Apparel and other textile products ... | 5.73 | 5.84 | 5.79 | 5.83 | 5.91 | 5.87 | 5.87 | 5.90 | 5.94 | 5.93 | 5.93 | 5.94 | 5.89 | 5.93 | 5.88 |
| Paper and allied products ................................. | 10.83 | 11.18 | 11.33 | 11.19 | 11.23 | 11.25 | 11.27 | 11.34 | 11.26 | 11.26 | 11.27 | 11.37 | 11.40 | 11.42 | 11.51 |
| Printing and publishing. | 9.71 | 9.99 | 9.98 | 10.02 | 10.12 | 10.09 | 10.11 | 10.15 | 10.14 | 10.16 | 10.17 | 10.14 | 10.19 | 10.16 | 10.22 |
| Chemicals and allied products | 11.56 | 11.98 | 12.05 | 11.99 | 12.03 | 12.08 | 12.17 | 12.20 | 12.18 | 12.21 | 12.24 | 12.30 | 12.31 | 12.27 | 12.35 |
| Petroleum and coal products ........................... | 14.06 | 14.18 | 14.16 | 14.06 | 14.18 | 14.19 | 14.32 | 14.41 | 14.57 | 14.51 | 14.50 | 14.50 | 14.52 | 14.41 | 14.53 |
| Rubber and miscellaneous plastics products ...... | 8.54 | 8.73 | 8.78 | 8.77 | 8.72 | 8.73 | 8.77 | 8.82 | 8.83 | 8.79 | 8.80 | 8.82 | 8.84 | 8.86 | 8.95 |
| Leather and leather products ............................. | 5.83 | 5.92 | 5.92 | 5.92 | 5.95 | 5.95 | 5.98 | 5.98 | 6.04 | 6.01 | 6.06 | 6.12 | 6.05 | 6.04 | 5.98 |
| TRANSPORTATION AND PUBLIC UTILITIES ..... | 11.40 | 11.70 | 11.67 | 11.67 | 11.77 | 11.77 | 11.90 | 11.90 | 11.89 | 11.93 | 11.90 | 11.94 | 11.95 | 11.95 | 11.99 |
| WHOLESALE TRADE | 9.16 | 9.35 | 9.30 | 9.32 | 9.37 | 9.36 | 9.47 | 9.47 | 9.49 | 9.55 | 9.53 | 9.53 | 9.57 | 9.56 | 9.57 |
| RETAIL TRADE | 5.94 | 6.03 | 5.98 | 5.97 | 6.06 | 6.06 | 6.08 | 6.07 | 6.09 | 6.09 | 6.08 | 6.09 | 6.09 | 6.07 | 6.07 |
| FINANCE, INSURANCE, AND REAL ESTATE ..... | 7.94 | 8.35 | 8.30 | 8.34 | 8.39 | 8.39 | 8.57 | 8.48 | 8.60 | 8.75 | 8.72 | 8.71 | 8.72 | 8.65 | 8.63 |
| SERVICES | 7.90 | 8.16 | 8.04 | 8.04 | 8.19 | 8.23 | 8.33 | 8.32 | 8.37 | 8.43 | 8.41 | 8.40 | 8.38 | 8.35 | 8.34 |

[^20][^21]16. Average weekly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry

| Industry | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June ${ }^{\text {p }}$ | July ${ }^{\text {p }}$ |
| PRIVATE SECTOR | $\left.\begin{array}{\|c\|} \$ 299.09 \\ - \\ 170.42 \end{array} \right\rvert\,$ | \$304.85 <br> 171.07 | $\begin{array}{r} \$ 303.63 \\ 303.28 \\ 170.67 \end{array}$ | $\begin{array}{\|r\|} \$ 305.37 \\ 304.32 \\ 171.36 \end{array}$ | \$306.94 304.67 171.47 | $\begin{array}{r} \$ 306.05 \\ 306.05 \\ 170.88 \end{array}$ | \$308.14 | \$308.33 | \$306.16 |  |  |  |  |  |  |
| Current dollars |  |  |  |  |  |  |  |  |  | \$307.74 | \$308.63 | \$308.29 | \$310.76 | \$312.20 | \$311.85 |
| Seasonally adjusted |  |  |  |  |  |  | 308.33 | 305.86 | 307.44 | 309.91 | 310.07 | 309.18 | 312.36 | 311.11 | 310.91 |
| Constant (1977) dollars |  |  |  |  |  |  | 171.86 | 171.87 | 169.52 | 169.74 | 169.48 | 168.28 | 169.17 | 169.21 | - |
| MINING | 519.93 | 524.97 | 517.09 | 529.17 | 527.09 | 526.25 | 520.40 | 535.51 | 538.05 | 527.52 | 522.92 | 519.57 | 526.61 | 527.46 | 526.92 |
| CONSTRUCTION | 464.46 | 466.38 | 471.39 | 476.45 | 484.72 | 480.57 | 462.09 | 469.94 | 467.98 | 460.37 | 470.87 | 469.37 | 485.10 | 480.82 | 484.72 |
| MANUFACTURING |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current dollars | 386.37 | 396.01 | 391.55 | 393.98 | 398.93 | 395.60 | 400.98 | 408.78 | 401.47 | 401.47 | 402.87 | 398.75 | 403.68 | 406.07 | 401.13 |
| Constant (1977) dolla | 220.15 | 222.23 | 220.10 | 221.09 | 222.87 | 220.88 | 223.64 | 227.86 | 222.30 | 221.44 | 221.24 | 217.78 | 219.75 | 220.09 | - |
| Durable goods | 416.12 | 424.98 | 416.56 | 420.04 | 428.06 | 424.15 | 429.73 | 439.92 | 430.77 | 431.19 | 432.22 | 427.03 | 431.60 | 434.93 | 426.81 |
| Lumber and wood product | 327.98 | 335.70 | 333.26 | 338.20 | 340.68 | 337.79 | 337.34 | 337.79 | 331.63 | 337.39 | 337.00 | 338.60 | 345.68 | 347.73 | 341.30 |
| Furniture and fixtures | 282.50 | 296.91 | 290.55 | 300.75 | 305.78 | 304.97 | 303.51 | 314.42 | 302.88 | 299.41 | 301.68 | 294.10 | 301.78 | 306.40 | 302.61 |
| Stone, clay, and glass prod | 412.30 | 424.11 | 426.54 | 431.00 | 434.73 | 430.26 | 423.85 | 427.14 | 421.04 | 423.26 | 425.46 | 430.68 | 439.13 | 437.50 | 437.50 |
| Primary metal industries | 484.31 | 496.93 | 489.13 | 487.21 | 497.62 | 493.50 | 500.32 | 508.26 | 500.98 | 503.01 | 505.90 | 508.30 | 514.28 | 517.10 | 516.09 |
| Blast furnaces and basic steel products | 547.86 | 572.54 | 572.56 | 560.73 | 575.17 | 569.73 | 580.03 | 589.45 | 575.88 | 577.58 | 581.92 | 593.74 | 598.92 | 604.88 | 603.93 |
| Fabricated metal products ........................ | 400.61 | 408.46 | 399.33 | 403.60 | 411.01 | 408.04 | 413.50 | 422.84 | 414.17 | 413.59 | 414.59 | 408.18 | 412.76 | 417.42 | 408.59 |
| Machinery, except electrical | 427.04 | 440.54 | 431.01 | 436.31 | 442.44 | 439.07 | 444.98 | 456.68 | 446.88 | 449.63 | 452.38 | 445.12 | 449.40 | 455.57 | 449.94 |
| Electrical and electronic equipmen | 384.08 | 395.65 | 390.67 | 394.28 | 400.61 | 396.47 | 402.82 | 413.42 | 404.42 | 402.46 | 402.46 | 395.75 | 399.10 | 404.42 | 398.75 |
| Transportation equipment | 541.45 | 541.86 | 528.30 | 528.32 | 542.29 | 537.16 | 546.11 | 562.46 | 549.53 | 546.11 | 547.84 | 536.32 | 542.27 | 540.93 | 526.90 |
| Motor vehicles and equipment. | 582.47 | 572.97 | 555.86 | 550.21 | 570.35 | 562.30 | 568.51 | 595.28 | 585.30 | 577.37 | 582.77 | 566.82 | 571.69 | 568.35 | 549.20 |
| Instruments and related products | 375.97 | 388.27 | 380.15 | 383.54 | 389.23 | 389.09 | 398.68 | 407.23 | 397.17 | 399.37 | 401.31 | 394.54 | 399.23 | 403.10 | 396.73 |
| Miscellaneous manufacturing ....... | 287.62 | 298.58 | 293.72 | 294.39 | 299.41 | 301.29 | 305.56 | 309.14 | 303.76 | 301.06 | 301.04 | 297.60 | 302.62 | 304.56 | 300.70 |
| Nondurable goods | 344.92 | 356.71 | 355.50 | 358.49 | 359.30 | 358.40 | 363.51 | 368.24 | 362.69 | 362.29 | 363.60 | 361.03 | 366.11 | 367.54 | 366.40 |
| Food and kindred produ | 342.80 | 349.60 | 349.52 | 351.60 | 349.46 | 347.60 | 353.36 | 357.86 | 354.22 | 351.05 | 352.74 | 351.74 | 359.30 | 357.78 | 353.51 |
| Tobacco manufactures | 444.91 | 480.59 | 499.77 | 490.51 | 470.71 | 473.46 | 481.46 | 483.58 | 481.19 | 486.53 | 525.78 | 536.93 | 571.03 | 622.35 | 523.63 |
| Textile mill products | 265.99 | 284.82 | 276.58 | 288.56 | 293.44 | 292.03 | 294.69 | 299.62 | 293.94 | 295.78 | 299.04 | 291.21 | 298.75 | 302.45 | 300.42 |
| Apparel and other textile prod | 208.57 | 214.33 | 210.18 | 213.96 | 217.49 | 216.60 | 218.36 | 220.66 | 218.59 | 220.00 | 219.41 | 212.65 | 219.11 | 222.38 | 216.97 |
| Paper, and allied products .. | 466.77 | 482.98 | 486.06 | 483.41 | 485.14 | 484.88 | 489.12 | 500.09 | 488.68 | 484.18 | 483.48 | 486.64 | 493.62 | 494.49 | 493.78 |
| Printing and publishing | 367.04 | 379.62 | 376.25 | 381.76 | 387.60 | 384.43 | 387.21 | 392.81 | 381.26 | 384.05 | 386.46 | 381.26 | 384.16 | 383.03 | 385.29 |
| Chemicals and allied products | 484.36 | 501.96 | 501.28 | 499.98 | 502.85 | 504.94 | 516.01 | 519.72 | 514.00 | 514.04 | 515.30 | 519.06 | 518.25 | 516.57 | 519.94 |
| Petroleum and coal products | 604.58 | 621.08 | 621.62 | 624.26 | 625.34 | 622.94 | 630.08 | 628.28 | 645.45 | 629.73 | 636.55 | 635.10 | 637.43 | 628.28 | 643.68 |
| Rubber and miscellaneous plastics products $\qquad$ | 350.99 | 360.55 | 354.71 | 361.32 | 362.75 | 362.30 | 365.71 | 373.09 | 367.33 | 364.79 | 365.20 | 360.74 | 366.86 | 370.35 | 366.06 |
| Leather and leather products | 216.88 | 218.45 | 219.04 | 217.86 | 218.37 | 218.96 | 221.86 | 227.84 | 225.29 | 223.57 | 227.25 | 224.60 | 233.53 | 238.58 | 230.23 |
| TRANSPORTATION AND PUBLIC UTILITIES | 450.30 | 458.64 | 459.80 | 459.80 | 461.38 | 460.21 | 467.67 | 465.29 | 457.77 | 465.27 | 462.91 | 463.27 | 466.05 | 469.64 | 471.21 |
| WHOLESALE TRADE | 351.74 | 359.04 | 358.05 | 358.82 | 358.87 | 359.42 | 363.65 | 363.65 | 361.57 | 361.95 | 361.19 | 363.09 | 366.53 | 367.10 | 365.57 |
| RETAIL TRADE | 174.64 | 176.08 | 178.80 | 178.50 | 176.35 | 175.74 | 176.32 | 178.46 | 172.35 | 174.78 | 175.71 | 177.83 | 178.44 | 179.67 | 182.10 |
| FINANCE, INSURANCE, AND REAL ESTATE $\qquad$ | 289.02 | 303.94 | 301.29 | 304.41 | 303.72 | 305.40 | 312.81 | 309.52 | 312.18 | 318.50 | 316.54 | 316.17 | 316.54 | 314.86 | 310.68 |
| SERVICES | 256.75 | 265.20 | 263.71 | 263.71 | 265.36 | 266.65 | 269.89 | 269.57 | 269.51 | 273.13 | 272.48 | 271.32 | 271.51 | 272.21 | 272.72 |


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

| Industry | Not seasonally adjusted |  |  |  | Seasonally adjusted |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { July } \\ 1986 \end{gathered}$ | $\begin{aligned} & \text { May } \\ & 1987 \end{aligned}$ | $\begin{array}{r} \text { June } \\ \text { 1987P } \end{array}$ | $\begin{gathered} \text { July } \\ 1987^{p} \end{gathered}$ | $\begin{gathered} \text { July } \\ 1986 \end{gathered}$ | Mar. $1987$ | Apr. <br> 1987 | $\begin{gathered} \text { May } \\ 1987 \end{gathered}$ | $\begin{gathered} \text { June } \\ \text { 1987p } \end{gathered}$ | $\begin{gathered} \text { July } \\ 1987^{p} \end{gathered}$ |
| PRIVATE SECTOR (in current dollars) ......................... | 168.6 | 172.7 | 172.6 | 172.7 | 169.1 | 172.2 | 172.6 | 172.9 | 172.9 | 173.2 |
| Mining ${ }^{1}$....................................................................... | 182.4 | 181.6 | 182.1 | 181.8 | 1515 | 1538 | 153.7 | 154.1 | ${ }_{155.1}$ | $154.7$ |
| Construction .............................................................. | 150.9 | 154.0 | 154.2 | 153.9 | 151.5 | 153.8 | 153.7 | 154.1 174.4 | 155.1 |  |
| Manufacturing ........................................................... | 172.6 | 174.5 | 174.7 | 175.1 | 172.4 | 174.3 | 175.0 | 174.4 | 174.8 | $\begin{aligned} & 174.9 \\ & 176 ? \end{aligned}$ |
| Transportation and public utilities .............................. | 170.0 | 175.2 | 175.1 | 175.2 | 171.0 | 174.6 | 175.2 | 176.2 | 175.9 | 176.2 |
| Wholesale trade ${ }^{1}$........................................................ | 171.6 | 176.7 | 176.3 | 176.5 | 158.1 | 1590 | 1598 | 160.2 | 160.2 |  |
| Retail trade ............................................................... | 157.5 | 160.5 | 160.2 | 160.2 | 158.1 | 159.0 | 159.8 | 160.2 | 160.2 | 160.9 |
| Finance, insurance, and real estate ${ }^{1}$........................... | 178.7 | 187.1 | 186.1 | 186.0 | 1740 | 1790 | 179.4 | 179.9 | - ${ }^{-79.8}$ | 180.5 |
| Services .................................................................... | 172.6 | 179.5 | 179.1 | 179.0 | 174.0 | 179.0 | 179.4 | 179.9 | 179.8 | 180.5 |
| PRIVATE SECTOR [in constant (1977) dollars] ........... | 94.8 | 94.0 | 93.6 | - | 95.1 | 94.4 | 94.2 | 94.0 | 93.8 | - |

[^22]MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Employment Data
18. Indexes of diffusion: industries in which employment increased, data seasonally adjusted

| Time span and year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Over 1-month span: |  |  |  |  |  |  |  |  |  |  |  |  |
| 1985 ....................... | 55.9 | 47.0 | 52.4 | 47.3 | 53.2 | 46.8 | 53.8 | 53.8 | 47.8 | 53.2 | 54.3 | 57.3 |
| 1986 | 53.2 | 48.1 | 48.1 | 53.5 | 52.4 | 46.8 | 52.4 | 56.2 | 55.1 | 53.2 | 59.7 | 59.7 |
| 1987 ................................................................ | 53.5 | 56.8 | 58.6 | 58.4 | 58.6 | 58.6 | 66.2 | - | - | - | - |  |
| Over 3-month span: |  |  |  |  |  |  |  |  |  |  |  |  |
| 1985 ................................................................... | 51.1 | 48.4 | 42.4 | 46.5 | 44.3 | 49.7 | 47.0 | 48.6 | 45.9 | 47.6 | 55.1 | 56.5 |
| 1986 .................................................................. | 49.7 | 44.9 | 45.7 | 48.4 | 47.6 | 45.4 | 48.4 | 55.1 | 55.9 | 58.1 | 58.6 | 60.3 |
| 1987 ................................................................... | 58.6 | 59.5 | 61.1 | 61.6 | 62.4 | 65.7 | - | - | - | - | - | - |
| Over 6-month span: |  |  |  |  |  |  |  |  |  |  |  |  |
| 1985 .................................................................. | 46.5 | 46.5 | 43.2 | 44.3 | 44.3 | 45.1 | 43.0 | 44.3 |  | 49.2 | 47.3 | 45.9 |
| 1986 ................................................................ | 47.6 | 47.6 | 43.0 | 43.2 | 45.4 | 48.4 | 47.3 | 53.0 | 59.2 | 58.9 | 57.8 - | 58.9 - |
| 1987 ................................................................. | 61.9 | 62.7 | 60.3 | 68.9 | - | - | - | - | - | - | - | - |
| Over 12-month span: |  |  |  |  |  |  |  |  |  |  |  |  |
| 1985 .................................................................. | 44.6 | 44.1 | 43.8 | 40.8 | 41.6 | 41.6 | 42.2 | 42.4 | 43.8 |  |  |  |
| 1986 .................................................................... | 43.2 | 44.1 | 46.2 | 45.7 | 47.8 | 49.5 | 49.5 | 51.6 | 54.9 | 52.2 | 55.1 | 58.1 |
| 1987 ................................................................. | 63.0 | - | - | - | - | - | - | - | - | - | - | - |

[^23]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 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Noninstitutional population $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .$. | 163,541 | 166,460 | 169,349 | 171,775 | 173,939 | 175,891 | 178,080 | 179,912 | 182,293 |
| Labor force: |  |  |  |  |  |  |  |  |  |

## 20. Annual data: Employment levels by industry

| Industry | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total employment | 86,697 | 89,823 | 90,406 | 91,156 | 89,566 | 90,200 | 94,496 | 97,519 | 99,610 |
| Private sector | 71,026 | 73,876 | 74,166 | 75,126 | 73,729 | 74,330 | 78,472 | 81,125 | 82,900 |
| Goods-producing | 25,585 | 26,461 | 25,658 | 25,497 | 23,813 | 23,334 | 24,727 | 24,859 | 24,681 |
| Mining ... | 851 | 958 | 1,027 | 1,139 | 1,128 | 952 | 966 | 927 | 783 |
| Construction | 4,229 | 4,463 | 4,346 | 4,188 | 3,905 | 3,948 | 4,383 | 4,673 | 4,904 |
| Manufacturing | 20,505 | 21,040 | 20,285 | 20,170 | 18,781 | 18,434 | 19,378 | 19,260 | 18,994 |
| Service-producing ........................... | 61,113 | 63,363 | 64,748 | 65,659 | 65,753 | 66,866 | 69,769 | 72,660 | 74,930 |
| Transportation and public utilities | 4,923 | 5,136 | 5,146 | 5,165 | 5,082 | 4,954 | 5,159 | 5,238 | 5,244 |
| Wholesale trade | 4,969 | 5,204 | 5,275 | 5,358 | 5,278 | 5,268 | 5,555 | 5,717 | 5,735 |
| Retail trade ................................... | 14,573 | 14,989 | 15,035 | 15,189 | 15,179 | 15,613 | 16,545 | 17,356 | 17,845 |
| Finance, insurance, and real estate | 4,724 | 4,975 | 5,160 | 5,298 | 5,341 | 5,468 | 5,689 | 5,955 | 6,297 |
| Services .. | 16,252 | 17,112 | 17,890 | 18,619 | 19,036 | 19,694 | 20,797 | 22,000 | 23,099 |
| Government | 15,672 | 15,947 | 16,241 | 16,031 | 15,837 | 15,869 | 16,024 | 16,394 | 16,711 |
| Federal | 2,753 | 2,773 | 2,866 | 2,772 | 2,739 | 2,774 | 2,807 | 2,875 | 2,899 |
| State | 3,474 | 3,541 | 3,610 | 3,640 | 3,640 | 3,662 | 3,734 | 3,832 | 3,888 |
| Local | 9,446 | 9,633 | 9,765 | 9,619 | 9,458 | 9,434 | 9,482 | 9,687 | 9,923 |

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

[^24]21. Annual data: Average hours and earnings of production or nonsupervisory workers on nonagricultural payrolls, by industry

| Industry | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Private sector |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 35.8 | 35.7 | 35.3 | 35.2 | 34.8 | 35.0 | 35.2 | 34.9 | 34.8 |
| Average hourly earnings (in dollars) | 5.69 | 6.16 | 6.66 | 7.25 | 7.68 | 8.02 | 8.32 | 8.57 | 8.76 |
| Average weekly earnings (in dollars) .................................. | 203.70 | 219.91 | 235.10 | 255.20 | 267.26 | 280.70 | 292.86 | 299.09 | 304.85 |
| Mining |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 43.4 | 43.0 | 43.3 | 43.7 | 42.7 | 42.5 | 43.3 | 43.4 | 42.2 |
| Average hourly earnings (in dollars) | 7.67 | 8.49 | 9.17 | 10.04 | 10.77 | 11.28 | 11.63 | 11.98 | 12.44 |
| Average weekly earnings (in dollars) | 332.88 | 365.07 | 397.06 | 438.75 | 459.88 | 479.40 | 503.58 | 519.93 | 524.97 |
| Construction |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 36.8 | 37.0 | 37.0 | 36.9 | 36.7 | 37.1 | 37.8 | 37.7 | 37.4 |
| Average hourly earnings (in dollars) | 8.66 | 9.27 | 9.94 | 10.82 | 11.63 | 11.94 | 12.13 | 12.32 | 12.47 |
| Average weekly earnings (in dollars) | 318.69 | 342.99 | 367.78 | 399.26 | 426.82 | 442.97 | 458.51 | 464.46 | 466.38 |
| Manufacturing |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 40.4 | 40.2 | 39.7 | 39.8 | 38.9 | 40.1 | 40.7 | 40.5 | 40.7 |
| Average hourly earnings (in dollars) | 6.17 | 6.70 | 7.27 | 7.99 | 8.49 | 8.83 | 9.19 | 9.54 | 9.73 |
| Average weekly earnings (in dollars) ............................... | 249.27 | 269.34 | 288.62 | 318.00 | 330.26 | 354.08 | 374.03 | 386.37 | 396.01 |
| Transportation and public utilities |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 40.0 | 39.9 | 39.6 | 39.4 | 39.0 | 39.0 | 39.4 | 39.5 | 39.2 |
| Average hourly earnings (in dollars) | 7.57 | 8.16 | 8.87 | 9.70 | 10.32 | 10.79 | 11.12 | 11.40 | 11.70 |
| Average weekly earnings (in dollars) | 302.80 | 325.58 | 351.25 | 382.18 | 402.48 | 420.81 | 438.13 | 450.30 | 458.64 |
| Wholesale trade |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 38.8 | 38.8 | 38.5 | 38.5 | 38.3 | 38.5 | 38.5 | 38.4 | 38.4 |
| Average hourly earnings (in dollars) ............................... | 5.88 | 6.39 | 6.96 | 7.56 | 8.09 | 8.55 | 8.89 | 9.16 | 9.35 |
| Average weekly earnings (in dollars) ............................... | 228.14 | 247.93 | 267.96 | 291.06 | 309.85 | 329.18 | 342.27 | 351.74 | 359.04 |
| Retail trade |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 31.0 | 30.6 | 30.2 | 30.1 | 29.9 | 29.8 | 29.8 | 29.4 | 29.2 |
| Average hourly earnings (in dollars) | 4.20 | 4.53 | 4.88 | 5.25 | 5.48 | 5.74 | 5.85 | 5.94 | 6.03 |
| Average weekly earnings (in dollars) | 130.20 | 138.62 | 147.38 | 158.03 | 163.85 | 171.05 | 174.33 | 174.64 | 176.08 |
| Finance, insurance, and real estate |  |  |  |  |  |  |  |  |  |
| Average weekly hours ...... | 36.4 | 36.2 | 36.2 | 36.3 | 36.2 | 36.2 | 36.5 | 36.4 | 36.4 |
| Average hourly earnings (in dollars) ............................... | 4.89 | 5.27 | 5.79 | 6.31 | 6.78 | 7.29 | 7.63 | 7.94 | 8.35 |
| Average weekly earnings (in dollars) ............................... | 178.00 | 190.77 | 209.60 | 229.05 | 245.44 | 263.90 | 278.50 | 289.02 | 303.94 |
| Services |  |  |  |  |  |  |  |  |  |
| Average weekly hours | 32.8 | 32.7 | 32.6 | 32.6 | 32.6 | 32.7 | 32.6 | 32.5 | 32.5 |
| Average hourly earnings (in dollars) | 4.99 | 5.36 | 5.85 | 6.41 | 6.92 | 7.31 | 7.59 | 7.90 | 8.16 |
| Average weekly earnings (in dollars) ... | 163.67 | 175.27 | 190.71 | 208.97 | 225.59 | 239.04 | 247.43 | 256.75 | 265.20 |

22. Employment Cost Index, compensation,' by occupation and industry group
(June 1981=100)

| Series | 1985 |  |  | 1986 |  |  |  | 1987 |  | Percent change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June | ended | 12 months ended |
|  |  |  |  |  |  |  |  |  |  | June 1987 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| White-collar workers ................ | 128.3 | 130.7 | 131.6 | 133.1 | 134.2 | 136.0 | 136.9 | 138.5 | 139.3 | . 6 | 3.8 |
| Blue-collar workers ........................................................... | 123.1 | 124.4 | 124.9 | 126.2 | 126.8 | 127.8 | 128.4 | 129.1 | 130.1 | . 8 | 2.6 |
| Service occupations | 128.0 | 130.9 | 131.8 | 133.1 | 133.7 | 135.4 | 136.6 | 138.0 | 138.5 | .4 | 3.6 |
| Workers, by industry division: |  |  |  |  |  |  |  |  |  |  |  |
| Goods-producing .................. | 123.9 | 124.9 | 125.5 | 126.9 | 128.1 | 128.8 | 129.5 | 130.2 | 131.1 | . 7 | 2.3 |
| Manufacturing | 124.6 | 125.5 | 126.0 | 127.7 | 128.7 | 129.3 | 130.1 | 130.7 | 131.5 | . 6 | 2.2 |
| Service-producing | 127.9 | 130.7 | 131.5 | 132.9 | 133.7 | 135.6 | 136.5 | 138.1 | 138.9 | . 6 | 3.9 |
| Services ............ | 132.6 | 136.4 | 137.1 | 138.8 | 139.4 | 142.4 | 143.6 | 145.2 | 145.8 | . 4 | 4.6 |
| Health services | - | - | - | - | - | - | - | - | - | . 6 | 4.7 |
| Hospitals | - | - | - | - | - | - | - | - | - | . 8 | 4.5 |
| Public administration ${ }^{3}$.................................................... | 130.3 | 134.2 | 134.8 | 136.8 | 138.0 | 140.6 | 141.6 | 144.1 | 144.7 | 4 | 4.9 |
| Nonmanufacturing .......... | 127.2 | 129.7 | 130.6 | 131.9 | 132.8 | 134.6 | 135.4 | 136.9 | 137.8 | . 7 | 3.8 |
| Private industry workers ...................................................... | 125.2 | 126.8 | 127.5 | 128.9 | 129.9 | 130.8 | 131.6 | 132.9 | 133.8 | . 7 | 3.0 |
| Workers, by occupational group: |  |  |  |  |  |  |  |  |  |  |  |
| White-collar workers ................................................ | 127.1 | 128.8 | 129.8 | 131.3 | 132.5 | 133.5 | 134.3 | 136.1 | 137.0 | . 7 | 3.4 |
| Professional specialty and technical occupations .......... | - | - | - | - | - | - | - | - | - | . 6 | 3.5 |
| Executive, administrative, and managerial occupations | - | - | - | - | - | - | - | - | - | . 7 | 3.9 |
| Sales occupations ........................................................ | - | - | - | - | - | - | - | - | - | . 5 | 2.1 |
| Administrative support occupations, including clerical | - | - | - | - | - | - | - | - | - | 1.0 | 3.5 |
| Blue-collar workers | 122.8 | 124.0 | 124.4 | 125.7 | 126.3 | 127.2 | 127.8 | 128.4 | 129.5 | . 9 | 2.5 |
| Precision production, craft, and repair occupation ......... | 122.8 | . | - | - | - | - | - | - | - | . 8 | 2.4 |
| Machine operators, assemblers, and inspectors ............ | - | - | - | - | - | - | - | - | - | 1.0 | 2.7 |
| Transportation and material moving occupations ........... | - | - | - | - | - | - | - | - | - | 1.1 | 3.0 |
| Handlers, equipment cleaners, helpers, and laborers .... | - | - | - | - | - | - | - | - | - | . 5 | 2.0 |
| Service occupations | 126.5 | 128.8 | 129.5 | 130.9 | 131.1 | 132.3 | 133.5 | 134.7 | 135.2 | . 4 | 3.1 |
| Workers, by industry division: |  |  |  |  |  |  |  |  |  |  |  |
| Goods-producing .................. | 123.8 | 124.6 | 125.3 | 126.7 | 127.8 | 128.6 | 129.2 | 129.9 | 130.8 | . 7 | 2.3 |
| Construction ... | - | - | - | - | - | - | - | - | - | 1.3 | 3.1 |
| Manufacturing | 124.6 | 125.5 | 126.0 | 127.7 | 128.7 | 129.3 | 130.1 | 130.7 | 131.5 | . 6 | 2.2 |
| Durables ....... | - | - | - | - | - | - | - | - | - | . 7 | 2.0 |
| Nondurables | - | - | - | - | - | - | - | - | - | . 5 | 2.6 |
| Service-producing | 126.4 | 128.7 | 129.4 | 130.8 | 131.6 | 132.7 | 133.5 | 135.3 | 136.3 | . 7 | 3.6 |
| Transportation and public utilities ................................... | . | . |  | - | - | - | - | - | - | 1.1 | 2.8 |
| Transportation .............................................................. | - | - | - | - | - | - | - | - | - | 1.4 | 2.8 |
| Public utilities | - | - | - | - | - | - | - | - | - | . 9 | 2.9 |
| Wholesale and retail trade ............................................ | - | - | - | - | - | - | - | - | - | 1.5 | 3.4 |
| Wholesale trade | - | - | - | - | - | - | - | - | - | 1.5 | 4.3 |
| Retail trade | - | - | - | - | - | - | - | - | - | 1.4 | 3.0 |
| Finance, insurance, and real estate | - | - | - | - | - | - | - | - | - | -1.0 | 3.0 |
| Service .......... | - | - | - | - | - | - | - | - | - | . 6 | 4.3 |
| Health services ........................................................... | - | - | - | - | - | - | - | - | - | .7 | 5.0 |
| Hospitals ................................................................... | - | - | - | - | - | - | - | - | - | .7 | 4.6 |
| Nonmanufacturing | 125.6 | 127.6 | 128.4 | 129.7 | 130.6 | 131.7 | 132.4 | 134.1 | 135.1 | . 7 | 3.4 |
| State and local government workers .............................. | 132.0 | 136.5 | 137.5 | 138.9 | 139.7 | 143.6 | 144.7 | 145.9 | 146.3 | . 3 | 4.7 |
| Workers, by occupational group: |  |  |  |  |  |  |  |  |  |  |  |
| White-collar workers ................. | 132.9 | 137.6 | 138.6 | 140.0 | 140.5 | 145.0 | 146.0 | 147.2 | 147.5 | . 2 | 5.0 |
| Blue-collar workers . | 128.5 | 131.9 | 132.7 | 134.7 | 136.3 | 138.5 | 139.5 | 140.8 | 141.3 | . 4 | 3.7 |
| Workers, by industry division: |  |  |  |  |  |  |  |  |  |  |  |
| Services ........................................................................ | 133.2 | 137.9 | 139.1 | 140.4 | 140.8 | 145.5 | 146.6 | 147.3 | 147.6 | . 2 | 4.8 |
| Hospitals and other services ${ }^{4}$...................................... | 131.5 | 134.1 | 135.2 | 136.8 | 137.9 | 139.4 | 141.1 | 142.5 | 143.3 | . 6 | 3.9 |
| Health services ......................................................... | - | - | - | - |  | - | - | - | - | . 6 | 3.8 |
| Schools ..................................................................... | 133.7 | 139.1 | 140.3 | 141.5 | 141.7 | 147.6 | 148.4 | 148.9 | 149.1 | . 1 | 5.2 |
| Elementary and secondary ....................................... | 134.6 | 140.9 | 142.0 | 143.0 | 143.2 | 149.4 | 150.3 | 150.5 | 150.7 | . 1 | 5.2 |
| Public administration ${ }^{3}$..................................................... | 130.3 | 134.2 | 134.8 | 136.8 | 138.0 | 140.6 | 141.6 | 144.1 | 144.7 | 4 | 4.9 |

[^25]${ }^{3}$ Consist of legislative, judicial, administrative, and regulatory activities.
4 Includes, for example, library, social, and health services.
23. Employment Cost Index, wages and salaries, by occupation and industry group
(June $1981=100$ )

| Series | 1985 |  |  | 1986 |  |  |  | 1987 |  | Percent change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |  | 12 months ended |
|  |  |  |  |  |  |  |  |  |  | June 1987 |  |
| Civilian workers ${ }^{1}$ | 124.2 | 126.3 | 127.0 | 128.3 | 129.3 | 130.7 | 131.5 | 132.8 | 133.5 | 0.5 | 3.2 |
| Workers, by occupational group: |  |  |  |  |  |  |  |  |  |  |  |
| White-collar workers | 126.4 | 128.8 | 129.8 | 131.2 | 132.4 | 134.1 | 135.0 | 136.6 | 137.3 | . 5 | 3.7 |
| Blue-collar workers | $\begin{aligned} & 120.5 \\ & 125.3 \end{aligned}$ | $\begin{aligned} & 122.0 \\ & 128.0 \end{aligned}$ | 122.3 | 123.4 | 124.1 | 125.0 | 125.6 | 126.2 | 127.1 | . 7 | 2.4 |
| Service occupations |  |  | 128.6 | 129.8 | 130.0 | 131.7 | 132.8 | 134.2 | 134.7 | .4 | 3.6 |
| Workers, by industry division |  |  |  |  |  |  |  |  |  |  |  |
| Goods-producing .................. | 121.5 | 122.5 | 123.1 | 124.4 | 125.6 | 126.3 | 127.0 | 127.8 | 128.5 | . 5 | 2.3 |
| Manufacturing ... | 122.3 | 123.2 | 123.8 | 125.3 | 126.5 | 127.2 | 127.9 | 128.7 | 129.5 | . 6 | 2.4 |
| Service-producing | 125.8 | 128.6 | 129.4 | 130.7 | 131.5 | 133.4 | 134.2 | 135.8 | 136.5 | . 5 | 3.8 |
| Services ........... | 130.5 | 134.2 | 134.8 | 136.4 | 137.0 | 139.9 | 141.1 | 142.7 | 143.4 | . 5 | 4.7 |
| Health services | - | - | - | - | - | - | - | - | - | . 6 | 5.0 |
| Hospitals ......... | - | - | - | - | - | - | - | - | - | . 7 | 4.7 |
| Public administration ${ }^{2}$ | $\begin{aligned} & 127.2 \\ & 125.0 \end{aligned}$ | $\begin{aligned} & 131.4 \\ & 127.6 \end{aligned}$ | 132.0 | 133.8 | 134.6 | 137.5 | 138.1 | 140.5 | 141.0 | . 4 | 4.8 |
| Nonmanufacturing |  |  | 128.4 | 129.6 | 130.4 | 132.2 | 133.0 | 134.5 | 135.2 | . 5 | 3.7 |
| Private industry workers | 123.3 | 124.9 | 125.6 | 126.8 | 127.9 | 128.8 | 129.5 | 130.8 | 131.7 | . 7 | 3.0 |
| Workers, by occupational group: |  |  |  |  |  |  |  |  |  |  |  |
| White-collar workers ............... | 125.5 | 127.3 | 128.3 | 129.6 | 131.1 | 132.0 | 132.7 | 134.6 | 135.4 | . 6 | 3.3 |
| Professional specialty and technical occupations | 128.7 | 131.2 | 131.5 | 132.7 | 134.0 | 135.4 | 136.4 | 138.4 | 139.1 | . 5 | 3.8 |
| occupations ......................................... | $\begin{aligned} & 126.5 \\ & 117.4 \end{aligned}$ | 127.7 | 128.4 | 130.5 | 132.1 | 132.4 | 133.5 | 135.6 | 136.4 | . 6 | 3.3 |
| Sales occupations .................................... |  | 119.3 | 122.5 | 122.4 | 124.3 | 125.2 | 124.9 | 126.7 | 127.1 | . 3 | 2.3 |
| Administrative support occupations, including clerical $\qquad$ | 125.6 | 127.1 | 127.9 | 129.6 | 130.8 | 131.7 | 132.7 | 134.3 | 135.5 | . 9 | 3.6 |
| Blue-collar workers | 120.3 | 121.7 | 122.0 | 123.1 | 123.7 | 124.5 | 125.1 | 125.6 | 126.6 | . 8 | 2.3 |
| Precision production, craft, and repair |  |  |  |  |  |  |  |  |  |  |  |
| occupations ..................................... | 122.0 | 123.7 | 123.8 | 125.3 | 125.7 | 126.7 | 127.4 | 127.9 | 128.8 | . 7 | 2.5 |
| Machine operators, assemblers, and inspectors ........ | 120.1115.7 | $\begin{aligned} & 121.1 \\ & 117.7 \end{aligned}$ | 121.6 | 122.6 | 123.6 | 124.1 | 124.9 | 125.5 | 126.7 | 1.0 | 2.5 |
| Transportation and material moving occupations ........ |  | 117.7 | 117.8 | 118.0 | 118.9 | 119.8 | 120.1 | 120.5 | 121.5 | . 8 | 2.2 |
| Handlers, equipment cleaners, helpers, and laborers $\qquad$ | $\begin{aligned} & 118.5 \\ & 124.4 \end{aligned}$ | $\begin{aligned} & 118.6 \\ & 126.3 \end{aligned}$ | 119.8 | 120.0 | 120.3 | 120.9 | 121.4 | 121.9 | 122.6 | . 6 | 1.9 |
| Service occupations |  |  | 126.6 | 128.0 | 128.0 | 128.9 | 130.1 | 131.4 | 131.9 | . 4 | 3.0 |
| Workers, by industry division: |  |  |  |  |  |  |  |  |  |  |  |
| Goods-producing . | 121.4 | 122.3 | 122.9 | 124.2 | 125.4 | 126.1 | 126.8 | 127.5 | 128.3 | . 6 | 2.3 |
| Construction | 116.6 | 117.3 | 117.9 | 118.3 | 119.8 | 120.5 | 120.8 | 121.7 | 122.7 | . 8 | 2.4 |
| Manufacturing | 122.3 | 123.2 | 123.8 | 125.3 | 126.5 | 127.2 | 127.9 | 128.7 | 129.5 | . 6 | 2.4 |
| Durables .. | 122.0 | 122.7 | 123.4 | 124.8 | 125.8 | 126.4 | 127.2 | 127.7 | 128.7 | . 8 | 2.3 |
| Nondurables | 122.6 | 124.0 | 124.6 | 126.1 | 127.9 | 128.5 | 129.3 | 130.5 | 131.0 | . 4 | 2.4 |
| Service-producing | 124.8 | 127.0 | 127.8 | 129.0 | 129.9 | 130.9 | 131.6 | 133.4 | 134.3 | . 7 | 3.4 |
| Transportation and public utilities | 122.8 | 124.8 | 125.2 | 126.3 | 126.6 | 127.3 | 127.5 | 128.1 | 129.3 | . 9 | 2.1 |
| Transportation . |  |  | - | - | - | - | - | - | - | 1.3 | 1.8 |
| Public utilities .. |  |  | - | - | - | - | - | - | - | . 7 | 2.6 |
| Wholesale and retail trade | $121.1$ | $122.7$ | 123.7 | 124.5 | 125.8 | 126.5 | 126.9 | 127.9 | 129.9 | 1.6 | 3.3 |
| Wholesale trade | 126.8 | 127.7 | 128.3 | 129.7 | 131.2 | 131.8 | 133.1 | 134.8 | 137.2 | 1.8 | 4.6 |
| Retail trade .... | 118.9 | 120.8 | 121.9 | 122.5 | 123.7 | 124.4 | 124.5 | 125.2 | 127.1 | 1.5 | 2.7 |
| Finance, insurance, and real estate | 121.7 | 124.1 | 126.5 | 126.6 | 128.0 | 129.0 | 130.0 | 133.5 | 131.5 | -1.5 | 2.7 |
| Services ......................................... | 131.0 | 133.9 | 134.1 | 136.2 | 136.9 | 138.2 | 139.5 | 141.8 | 142.8 | . 7 | 4.3 |
| Health services ....................................................... | - | - | , | - |  | - | - | - | - | . 7 | 5.1 |
| Hospitals ............................................................... |  | - | - | - | - | - | - | - | - | . 7 | 4.8 |
| Nonmanufacturing | 123.9 | 125.9 | 126.6 | 127.7 | 128.7 | 129.7 | 130.4 | 131.9 | 132.8 | . 7 | 3.2 |
| State and local government workers $\qquad$ Workers, by occupational group | 128.7 | 133.2 | 134.2 | 135.5 | 136.0 | 140.4 | 141.4 | 142.5 | 142.8 | . 2 | 5.0 |
|  |  | $\begin{aligned} & 134.3 \\ & 127.9 \end{aligned}$ |  |  |  |  |  |  |  |  |  |
| White-collar workers ................................................... | $\begin{aligned} & 129.6 \\ & 124.5 \end{aligned}$ |  | 135.3 | 136.6 | 137.0 | 141.8 | 142.8 | 143.9 | 144.1 | . 1 | 5.2 |
| Workers, by industry division |  |  | 128.4 | 130.4 | 131.9 | 134.5 | 135.1 | 136.3 | 136.9 | . 4 | 3.8 |
|  | 124.5 |  |  |  |  |  |  |  |  |  |  |
| Services | 129.7 | 134.5 | 135.6 | 136.8 | 137.1 | 142.1 | 143.3 | 143.9 | 144.2 | . 2 | 5.2 |
| Hospitals and other services ${ }^{3}$ | 128.0 | 130.2 | 130.9 | 132.4 | 133.3 | 135.8 | 137.3 | 138.6 | 139.4 | . 6 | 4.6 |
| Health services ................. | - |  |  |  |  | - | - | - | - | . 6 | 4.1 |
| Schools ....... | 130.2 | 135.8137.5131.4 | 137.0 | 138.0 | 138.2 | 144.1 | 145.1 | 145.5 | 145.6 | . 1 | 5.4 |
| Elementary and secondary ..................................... | $\begin{aligned} & 131.1 \\ & 127.2 \end{aligned}$ |  | 138.5 | 139.4 | 139.4 | 145.7 | 146.4 | 146.5 | 146.6 | . 1 | 5.2 |
| Public administration ${ }^{2}$.................................................. |  |  | 132.0 | 133.8 | 134.6 | 137.5 | 138.1 | 140.5 | 141.0 | . 4 | 4.8 |

[^26]MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Compensation and Industrial Relations Data
24. Employment Cost Index, private nonfarm workers, by bargaining status, region, and area size

| Series | 1985 |  |  | 1986 |  |  |  | 1987 |  | Percent change |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |  | 12 months ended |
|  |  |  |  |  |  |  |  |  |  | June 1987 |  |
| COMPENSATION |  |  |  |  |  |  |  |  |  |  |  |
| Workers, by bargaining status ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |  |
| Union | 125.5 | 126.5 | 127.1 | 128.4 | 128.7 | 129.4 | 129.8 | 130.5 | 131.2 | 0.5 5 | 1.9 |
| Goods-producing ............................................................ | 123.9 | 124.6 | 125.2 | 126.4 | 126.7 | 127.3 | 127.5 | 128.0 | 128.7 | . 5 | 1.6 2.5 |
| Service-producing ........................................................... | 128.0 | 129.5 | 130.2 | 131.6 | 131.9 | 132.8 | 133.4 | 134.4 | 135.2 | .6 5 | 2.5 1.4 |
| Manufacturing ................................................................. | 124.2 | 125.0 | 125.5 | 127.0 | 126.9 | 127.5 | 127.9 | 128.0 | 128.7 | . 5 | 1.4 |
| Nonmanufacturing ............................................................................................................ | 126.6 | 127.8 | 128.6 | 129.7 | 130.4 | 131.2 | 131.5 | 132.6 | 133.5 | . 7 | 2.4 |
| Nonunion | 125.0 | 126.8 | 127.5 | 129.0 | 130.2 | 131.2 | 132.1 | 133.6 | 134.6 | . 7 | 3.4 |
| Goods-producing | 123.5 | 124.4 | 125.1 | 126.7 | 128.2 | 129.1 | 130.0 | 130.8 | 131.8 | . 8 | 2.8 |
| Service-producing ........................................................... | 125.8 | 128.3 | 129.0 | 130.4 | 131.4 | 132.5 | 133.4 | 135.3 | 136.4 | 8 | 3.8 |
| Manufacturing ................................................................. | 124.8 | 125.7 | 126.3 | 128.1 | 129.7 | 130.4 | 131.4 | 132.2 | 133.2 | . 8 | 2.7 3.8 |
| Nonmanufacturing ............................................................ | 125.1 | 127.3 | 128.1 | 129.5 | 130.4 | 131.6 | 132.5 | 134.3 | 135.3 | . 7 | 3.8 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Northeast .............................................................................. | 126.4 | 128.8 | 129.9 | 131.6 | 133.3 | 134.2 | 135.2 | 137.4 | 138.6 | .9 8 | 4.0 2.8 |
| South | 125.2 | 126.5 | 127.2 | 128.7 | 129.6 | 130.7 | 131.4 | 132.1 | 133.2 | . 8 | 2.8 |
| Midwest (formerly North Central) ......................................... | 122.7 | 124.2 | 124.6 | 125.9 | 126.2 | 127.3 | 128.1 132.8 | 129.1 | 130.2 134.2 | .9 <br> . | 3.2 2.0 |
| West .................................................................................. | 127.9 | 129.1 | 129.8 | 130.8 | 131.6 | 132.1 | 132.8 | 134.1 | 134.2 | . 1 | 2.0 |
| Workers, by area size ${ }^{1}$ l |  |  |  |  |  |  |  |  |  |  |  |
| Metropolitan areas ............................................................... | 125.7 122.5 | 127.3 123.9 | 128.1 123.9 | 129.5 125.5 | 130.5 126.4 | 131.4 127.2 | 132.2 127.9 | 133.5 129.0 | 134.4 130.2 | .7 .9 | 3.0 3.0 |
| WAGES AND SALARIES |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Union ................................................................................. | 123.0 | 124.1 | 124.7 | 125.6 | 126.1 | 126.9 | 127.2 | 127.7 | 128.3 | . 5 | 1.7 |
| Goods-producing ............................................................ | 121.3 | 122.2 | 122.7 | 123.4 | 124.1 | 124.5 | 124.8 | 125.0 | 125.8 | . 6 | 1.4 |
| Service-producing .......................................................................................................... | 125.7 | 127.1 | 127.8 | 129.0 | 129.3 | 130.5 | 130.9 | 131.7 | 132.2 | . 4 | 2.2 |
| Manufacturing ................................................................. | 121.7 | 122.8 | 123.3 | 124.2 | 124.6 | 125.0 | 125.5 | 125.6 | 126.2 | . 5 | 1.3 |
| Nonmanufacturing .......................................................... | 124.1 | 125.3 | 125.9 | 126.9 | 127.4 | 128.5 | 128.7 | 129.5 | 130.1 | . 5 | 2.1 |
| Nonunion ......................................................................... | 123.4 | 125.2 | 125.9 | 127.3 | 128.5 | 129.4 | 130.3 | 131.8 | 132.8 | . 8 | 3.3 |
| Goods-producing ............................................................ | 121.4 | 122.3 | 123.0 | 124.5 | 126.1 | 127.0 | 127.8 | 128.8 | 129.6 | . 6 | 2.8 |
| Service-producing ............................................................ | 124.4 | 126.9 | 127.7 | 128.9 | 129.9 | 130.8 | 131.7 | 133.6 | 134.6 | . 7 | 3.6 |
| Manufacturing .................................................................. | 122.8 | 123.7 | 124.4 | 126.1 | 127.7 | 128.5 | 129.5 | 130.6 | 131.5 | . 7 | 3.0 |
| Nonmanufacturing ........................................................... | 123.6 | 125.9 | 126.6 | 127.8 | 128.9 | 129.8 | 130.6 | 132.4 | 133.4 | . 8 | 3.5 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Northeast ............................................................................ | 124.6 | 126.8 | 128.1 | 129.2 | 131.3 | 132.3 | 133.1 | 135.4 | 136.6 | . 9 | 4.0 |
| South ................................................................................ | 123.4 | 124.8 | 125.4 | 126.8 | 127.8 | 128.8 | 129.4 | 130.1 | 131.1 | . 8 | 2.6 |
| Midwest (formerly North Central) ........................................ | 121.1 | 122.5 | 122.9 | 124.2 | 124.4 | 125.3 | 126.2 | 127.4 | 128.5 | . 9 | 3.3 |
| West .................................................................................. | 125.1 | 126.6 | 127.1 | 128.1 | 128.9 | 129.3 | 130.1 | 131.2 | 131.1 | -. 1 | 1.7 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Metropolitan areas ............................................................ | 123.8 | 125.5 | 126.3 | 127.4 | 128.5 | 129.4 | 130.2 125.6 | 131.6 126.6 | $132.4$ | . 6 | 3.0 2.7 |
| Other areas ....................................................................... | 120.6 | 121.9 | 122.0 | 123.6 | 124.5 | 125.0 | 125.6 | 126.6 | 127.8 | . 9 | 2.7 |

1 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 $\mathbf{1 , 0 0 0}$ workers or more (in percent)

| Measure | Annual average |  | Quarterly average |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | 1985 |  | 1986 |  |  |  | 1987 |  |
|  |  |  | III | IV | 1 | II | III | IV | $1 p$ | IIP |
| Specifiled adjustments: <br> Total compensation ${ }^{1}$ adjustments, ${ }^{2}$ settlements covering 5,000 workers or more: |  |  |  |  |  |  |  |  |  |  |
| First year of contract $\qquad$ <br> Annual rate over life of contract $\qquad$ | 2.6 2.7 | 1.1 1.6 | 2.0 3.0 | 2.0 1.4 | 0.6 1.2 | 0.7 1.6 | 0.7 1.2 | 2.7 2.4 | 1.7 2.4 | 4.2 3.9 |
| Wage adjustments, settlements covering 1,000 workers or more: <br> First year of contract $\qquad$ Annual rate over life of contract $\qquad$ | 2.3 2.7 | 1.2 1.8 | 2.0 3.1 | 2.1 1.9 | .8 1.5 | 1.3 2.0 | .8 1.5 | 2.0 2.1 | 1.2 1.8 | 2.6 2.9 |
| Effective adjustments: | 3.3 | 2.3 | 1.2 | . 5 | . 6 | . 7 | . 5 | . 5 | . 4 | 1.0 |
| From settlements reached in period | . 7 | . 5 | . 2 | . 1 | ${ }^{4}$ ) | . 2 | . 1 | . 2 | $\left({ }^{4}\right)$ | . 1 |
| periods | 1.8 | 1.7 | . 5 | . 2 | . 4 | . 6 | . 5 | 2 | . 3 | . 7 |
| From cost-of-living-adjustments clauses .............. | . 7 | . 2 | . 4 | . 1 | . 2 | $\left.{ }^{4}\right)$ | ${ }^{4}$ ) | . 1 | . 1 | . 2 |

1 Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.
${ }^{2}$ Adjustments are the net result of increases, decreases, and no changes in
compensation or wages
${ }^{3}$ Because of rounding, total may not equal sum of parts.
${ }^{4}$ Between -0.05 and 0.05 percent.
$\mathrm{p}=$ 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-- |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 |  | 1986 |  |  |  | 1987 |  |
|  | III | IV | 1 | II | III | IV | fp | $11 p$ |
| Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries: |  |  |  |  |  |  |  |  |
| First year of contract | 3.1 | 2.6 | 2.3 | 1.4 | 0.9 | 1.1 | 1.2 | 1.9 |
| Annual rate over life of contract ............................................................ | 2.7 | 2.7 | 2.5 | 2.0 | 1.4 | 1.6 | 1.7 | 2.1 |
| Specified wage adjustments, settlements covering 1,000 workers or more: |  |  |  |  |  |  |  |  |
| All industries |  |  |  |  |  |  |  |  |
| First year of contract ............... | 2.4 | 2.3 | 2.0 | 1.6 | 1.2 | 1.2 | 1.2 | 1.5 |
| Contracts with COLA clauses ....................................................... | 1.9 | 1.6 | 1.6 | 1.8 | 2.2 | 1.9 | 2.0 | 1.8 |
| Contracts without COLA clauses ................................................ | 2.7 | 2.7 | 2.2 | 1.5 | . 8 | . 9 | . 9 | 1.4 |
| Annual rate over life of contract .................................................... | 2.5 | 2.7 | 2.5 | 2.2 | 1.7 | 1.8 | 1.8 | 2.0 |
| Contracts with COLA clauses ..... | 1.8 | 2.5 | 2.5 | 2.5 | 2.0 | 1.7 | 1.8 | 1.7 |
| Contracts without COLA clauses | 3.0 | 2.8 | 2.5 | 2.1 | 1.6 | 1.8 | 1.8 | 2.2 |
| Manufacturing |  |  |  |  |  |  |  |  |
| First year of contract ..................................................................... | 1.5 | . 8 | . 8 | . 1 | -1.0 | -1.2 | $-1.6$ | -. 8 |
| Contracts with COLA clauses ..... | 1.5 | . 8 | . 8 | . 7 | 1.1 | 1.3 | 1.3 | 1.4 |
| Contracts without COLA clauses ................................................ | 1.5 | . 9 | . 9 | -. 4 | -2.0 | -2.8 | -3.5 | -2.9 |
| Annual rate over life of contract .................................................... | 1.6 | 1.8 | 1.8 | 1.4 | . 3 | . 2 | (2) | . 2 |
| Contracts with COLA clauses ...................................................... | 1.4 | 2.1 | 2.1 | 2.0 | 1.1 | . 9 | . 8 | . 8 |
| Contracts without COLA clauses | 2.4 | 1.6 | 1.5 | . 9 | -. 1 | -. 2 | -. 6 | -. 3 |
| Nonmanufacturing |  |  |  |  |  |  |  |  |
| First year of contract ..................................................................... | 3.2 | 3.3 | 2.8 | 2.6 | 2.1 | 2.0 | 2.2 | 2.3 |
| Contracts with COLA clauses ..................................................... | 4.0 | 3.6 | 3.5 | 3.4 | 2.7 | 2.1 | 2.2 | 2.1 |
| Contracts without COLA clauses ................................................. | 3.0 | 3.3 | 2.7 | 2.4 | 1.9 | 2.0 | 2.2 | 2.4 |
| Annual rate over life of contract ................................................... | 3.3 | 3.3 | 3.0 | 2.8 | 2.3 | 2.3 | 2.4 | 2.6 |
| Contracts with COLA clauses ... | 3.9 | 3.6 | 3.6 | 3.3 | 2.5 | 2.1 | 2.2 | 2.2 |
| Contracts without COLA clauses | 3.2 | 3.3 | 2.8 | 2.6 | 2.2 | 2.4 | 2.5 | 2.8 |
| Construction |  |  |  |  |  |  |  |  |
| First year of contract | 1.0 |  | 1.6 | 2.3 | 2.3 | 2.2 | 2.4 | 2.6 |
| Contracts with COLA clauses ...... | $\left.{ }^{1}{ }^{1}\right)$ | (1) | (1) | 1.1 | 1.4 | 1.4 | 1.6 | $\left.{ }^{1}{ }^{1}\right)$ |
| Contracts without COLA clauses ................................................. | (1) | (1) |  | 2.4 | 2.4 | 2.3 | 2.4 | (1) |
| Annual rate over life of contract .................................................................................. | (1) 1.7 | (1) 2.1 | 2.2 | 2.5 | 2.6 | 2.5 | 2.5 | (1) 2.8 |
| Contracts with COLA clauses | (1) | (') | (1) | 1.2 | 1.6 | 1.6 | 1.4 | (1) |
| Contracts without COLA clauses ................................................. | (1) | (1) | (1) | 2.6 | 2.6 | 2.5 | 2.6 | (1) |
| 1 Data do not meet publication standards. <br> ${ }^{2}$ Between -0.05 and 0.05 percent. |  | $\mathrm{p}=$ | minary. |  |  |  |  |  |

MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Compensation and Industrial Relations Data
27. Average effective wage adjustments, private industry collective bargaining situations covering $\mathbf{1 , 0 0 0}$ workers or more during 4-quarter periods (in percent)

| Effective wage adjustment | Average for four quarters ending-- |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\frac{1985}{\text { IV }}$ | 1986 |  |  |  | 1987 |  |
|  |  | 1 | II | III | IV | $1 p$ | 119 |
| For all workers: ${ }^{\text {1 }}$ |  |  |  |  |  |  |  |
| Total ................ | 3.3 | 3.1 | 2.9 | 2.3 | 2.3 | 2.0 | 2.2 |
| From settlements reached in period | . 7 | . 6 | . 5 | . 5 | . 5 | . 4 | . 3 |
| Deferred from settlements reached in earlier period ....................... | 1.8 | 1.7 | 1.8 | 1.6 | 1.7 | 1.5 | 1.6 |
| From cost-of-living-adjustments clauses ........................................ | . 7 | . 8 | . 7 | . 2 | . 2 | . 1 | . 3 |
| For workers receiving changes: |  |  |  |  |  |  |  |
| Total ......................................... | 4.1 | 4.0 | 3.8 | 3.1 | 2.8 | 2.4 | 2.8 |
| From settlements reached in period ........................................... | 3.4 | 2.9 | 2.5 | 1.7 | 1.6 | 1.2 | 1.1 |
| Deferred from settlements reached in earlier period ....................... | 3.7 | 3.5 | 3.4 | 3.8 | 3.9 | 3.7 | 3.5 |
| From cost-of-living-adjustments clauses ........................................ | 2.2 | 2.5 | 2.0 | 1.0 | 1.0 | . 6 | 1.8 |

${ }^{1}$ Because of rounding, total may not equal sum of parts.
$=$ 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 1987 |
| :---: | :---: | :---: | :---: |
|  | 1985 | 1986 |  |
| Specified adjustments: <br> Total compensation ${ }^{1}$ adjustments, ${ }^{2}$ settlements covering 5,000 workers or more: |  |  |  |
| First year of contract $\qquad$ <br> Annual rate over life of contract $\qquad$ | 4.2 5.1 | 6.2 6.0 | 5.7 |
| Wage adjustments, settlements covering 1,000 workers or more: First year of contract $\qquad$ Annual rate over life of contract $\qquad$ | 4.6 5.4 | 5.7 5.7 | 5.2 5.4 |
| Effective adjustments: |  |  |  |
| Total effective wage adjustment ${ }^{3}$.... | 5.7 | 5.5 |  |
| From settlements reached in period ..................................................................................................................... | 4.1 | 2.4 | . 4 |
| Deferred from settlements reached in earlier periods From cost-of-living-adjustment clauses | 1.6 | 3.0 $(4)$ | ${ }_{(4)}^{1.2}$ |

[^27]29. Work stoppages involving 1,000 workers or more

| Measure | Annual totals |  | 1986 |  |  |  |  |  |  | $1987^{\text {P }}$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June |
| Number of stoppages: <br> Beginning in period <br> In effect during period $\qquad$ | $\begin{aligned} & 54 \\ & 61 \end{aligned}$ | $\begin{aligned} & 69 \\ & 72 \end{aligned}$ | $\begin{aligned} & 11 \\ & 15 \end{aligned}$ | $\begin{aligned} & 13 \\ & 22 \end{aligned}$ | $\begin{aligned} & 10 \\ & 22 \end{aligned}$ | 8 17 | 5 17 | 2 | 1 6 | 2 | 5 7 | 3 5 | 2 | 2 6 | 8 12 |
| Workers involved: <br> Beginning in period (in thousands) $\qquad$ <br> In effect during period (in thousands) $\qquad$ | 323.9 584.1 | 533.0 899.5 | 198.0 206.8 | 46.7 83.1 | 113.3 153.0 | 39.4 87.4 | 44.3 109.9 | 8.7 67.8 | 3.0 49.4 | 7.3 46.9 | 37.6 41.6 | 12.2 16.2 | 2.7 8.9 | 4.5 68.4 | 14.9 22.1 |
| Days idle: <br> Number (in thousands) $\qquad$ Percent of estimated working time ${ }^{1}$ $\qquad$ | $7,079.0$ .03 | $11,861.0$ <br> .05 | $3,677.0$ <br> .18 | 859.1 .04 | $1,273.6$ .08 | $1,225.6$ .06 | $1,423.7$ .06 | 940.4 .05 | $1,873.6$ .04 | 828.6 .04 | 194.1 .01 | 104.4 .01 | 151.3 .01 | 158.7 .01 | 248.5 .01 |

[^28]30. Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity or service group; and CPI for Urban Wage Earners and Clerical Workers, all items
(1967 $=100$, unless otherwise indicated)

| Series | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
| CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All items | 322.2 | 328.4 | 328.0 | 328.6 | 330.2 | 330.5 | 330.8 | 331.1 | 333.1 | 334.4 | 335.9 | 337.7 | 338.7 | 340.1 | 340.8 |
| All items (1957-59 = 100 | 374.7 | 381.9 | 381.4 | 382.1 | 384.1 | 384.4 | 384.7 | 385.1 | 387.4 | 388.9 | 390.7 | 392.7 | 393.9 | 395.6 | 396.3 |
| Food and beverages | 302.0 | 311.8 | 312.2 | 314.6 | 315.1 | 315.6 | 316.4 | 317.0 | 320.5 | 321.6 | 321.6 | 322.5 | 324.0 | 325.4 | 325.1 |
| Food ..................... | 309.8 | 319.7 | 320.1 | 322.7 | 323.2 | 323.7 | 324.6 | 325.2 | 328.9 | 330.1 | 330.0 | 331.0 | 332.5 | 334.1 | 333.6 |
| Food at home | 296.8 | 305.3 | 305.5 | 308.9 | 309.0 | 309.5 | 309.9 | 310.2 | 315.2 | 316.6 | 315.8 | 316.9 | 318.8 | 320.4 | 319.1 |
| Cereals and bakery products | 317.0 | 325.8 | 326.3 | 328.2 | 328.5 | 328.4 | 328.5 | 329.5 | 331.5 | 332.7 | 333.2 | 335.6 | 336.5 | 337.0 | 338.4 |
| Meats, poultry, fish, and eggs | 263.4 | 275.1 | 274.9 | 283.0 | 284.7 | 284.9 | 286.3 | 287.3 | 289.2 | 286.4 | 286.5 | 285.9 | 288.5 | 290.7 | 293.1 |
| Dairy products .............. | 258.0 | 258.4 | 258.4 | 258.3 | 258.5 | 260.0 | 261.2 | 262.2 | 263.3 | 264.7 | 263.7 | 263.2 | 264.3 | 263.7 | 263.2 |
| Fruits and vegetables | 325.7 | 328.7 | 330.3 | 332.1 | 329.1 | 328.6 | 327.8 | 328.5 | 344.3 | 355.2 | 352.5 | 360.6 | 365.7 | 372.8 | 359.3 |
| Other foods at home | 361.1 | 373.6 | 373.7 | 374.0 | 373.7 | 374.4 | 373.9 | 372.2 | 378.7 | 380.0 | 378.6 | 377.6 | 377.5 | 376.4 | 375.9 |
| Sugar and sweets | 398.8 | 411.1 | 412.4 | 413.1 | 413.7 | 413.4 | 412.4 | 411.8 | 415.8 | 415.8 | 417.2 | 417.4 | 417.7 | 419.3 | 418.8 |
| Fats and oils .. | 294.4 | 287.8 | 287.3 | 287.8 | 285.6 | 284.6 | 285.4 | 286.0 | 293.2 | 290.3 | 294.6 | 291.8 | 293.3 | 291.4 | 292.9 |
| Nonalcoholic beverages | 451.7 | 478.2 | 478.3 | 476.9 | 475.7 | 477.5 | 476.9 | 470.2 | 482.6 | 481.9 | 475.4 | 469.8 | 467.9 | 462.6 | 458.5 |
| Other prepared foods ..................................................... | 294.2 | 301.9 | 301.8 | 303.2 | 303.8 | 304.7 | 303.9 | 305.2 | 308.4 | 312.1 | 311.3 | 313.2 | 313.5 | 314.5 | 315.4 |
| Food away from home .. | 346.6 | 360.1 | 360.8 | 361.8 | 363.3 | 364.0 | 365.8 | 367.1 | 368.6 | 369.6 | 370.9 | 371.5 | 372.3 | 373.8 | 374.9 |
| Alcoholic beverages ... | 229.5 | 239.7 | 240.4 | 240.1 | 240.4 | 240.6 | 240.5 | 240.8 | 242.5 | 243.2 | 243.6 | 244.3 | 245.0 | 245.9 | 246.7 |
| Housing | 349.9 | 360.2 | 361.5 | 362.4 | 363.7 | 363.0 | 361.7 | 362.1 | 363.9 | 365.1 | 366.4 | 367.7 | 368.9 | 371.3 | 372.5 |
| Shelter | 382.0 | 402.9 | 403.5 | 405.2 | 407.6 | 409.5 | 410.2 | 410.4 | 412.3 | 414.0 | 415.9 | 418.0 | 419.2 | 420.2 | 422.1 |
| Renters' costs ( $12 / 82=100$ ) | 115.4 | 121.9 | 122.5 | 122.9 | 123.6 | 124.0 | 124.3 | 124.2 | 125.3 | 125.8 | 126.4 | 127.1 | 127.3 | 127.9 | 129.3 |
| Rent, residential ............................................................... | 264.6 | 280.0 | 281.2 | 281.7 | 283.2 | 284.6 | 285.6 | 286.0 | 287.1 | 288.0 | 288.3 | 288.8 | 289.4 | 289.6 | 291.2 |
| Other renters' costs | 398.4 | 416.2 | 420.1 | 425.7 | 429.1 | 427.3 | 425.5 | 418.2 | 428.3 | 430.8 | 438.7 | 446.1 | 446.1 | 453.1 | 465.9 |
| Homeowners' costs (12/82 =100) | 113.1 | 119.4 | 119.4 | 119.9 | 120.7 | 121.3 | 121.5 | 121.6 | 122.0 | 122.5 | 123.0 | 123.6 | 124.0 | 124.2 | 124.4 |
| Owners' equivalent rent ( $12 / 82=100$ ) | 113.2 | 119.4 | 119.4 | 119.9 | 120.7 | 121.3 | 121.5 | 121.6 | 122.0 | 122.5 | 123.0 | 123.6 | 124.1 | 124.2 | 124.4 |
| Household insurance $(12 / 82=100)$.... | 112.4 | 119.2 | 119.9 | 119.9 | 120.2 | 120.6 | 121.1 | 121.6 | 121.8 | 122.0 | 122.2 | 122.4 | 123.0 | 123.6 | 124.5 |
| Maintenance and repairs. | 368.9 | 373.8 | 369.2 | 376.4 | 376.2 | 379.0 | 377.1 | 380.0 | 382.1 | 381.9 | 383.4 | 382.4 | 381.9 | 385.0 | 392.4 |
| Maintenance and repair services | 421.1 | 430.9 | 430.1 | 434.2 | 437.0 | 437.5 | 433.7 | 433.1 | 437.7 | 436.1 | 439.4 | 437.1 | 435.3 | 440.5 | 452.8 |
| Maintenance and repair commodities | 269.6 | 269.7 | 262.7 | 271.3 | 268.7 | 273.0 | 272.9 | 278.3 | 277.7 | 278.8 | 278.5 | 278.7 | 279.6 | 280.2 | 281.9 |
| Fuel and other utilities ....................... | 393.6 | 384.7 | 389.4 | 389.5 | 388.3 | 379.1 | 371.1 | 371.0 | 373.7 | 374.8 | 374.9 | 374.2 | 377.5 | 387.6 | 388.1 |
| Fuels | 488.1 | 463.1 | 469.2 | 469.0 | 467.2 | 450.3 | 437.8 | 438.1 | 443.7 | 445.1 | 444.6 | 442.0 | 448.7 | 470.8 | 468.9 |
| Fuel oil, coal, and bottled gas | 619.5 | 501.5 | 459.4 | 447.3 | 453.5 | 451.9 | 452.0 | 460.6 | 487.9 | 503.2 | 500.6 | 500.5 | 497.7 | 498.6 | 497.9 |
| Gas (piped) and electricity | 452.7 | 446.7 | 462.3 | 464.5 | 461.1 | 441.4 | 426.7 | 425.3 | 428.8 | 428.9 | 428.7 | 425.9 | 433.3 | 456.8 | 454.8 |
| Other utilities and public services | 240.7 | 253.1 | 255.6 | 255.9 | 255.6 | 257.1 | 255.4 | 254.9 | 254.9 | 255.6 | 256.2 | 257.0 | 257.2 | 256.4 | 258.6 |
| Household furnishings and operation | 247.2 | 250.4 | 250.5 | 250.5 | 251.5 | 251.6 | 251.2 | 252.4 | 253.1 | 253.5 | 254.3 | 255.2 | 254.9 | 254.9 | 255.1 |
| Housefurnishings ..................... | 200.1 | 201.1 | 201.2 | 200.9 | 202.2 | 202.2 | 201.4 | 202.5 | 203.0 | 203.2 | 203.8 | 204.7 | 203.7 | 203.6 | 203.9 |
| Housekeeping supplies | 313.6 | 319.5 | 319.5 | 319.8 | 320.1 | 319.8 | 320.4 | 322.9 | 324.6 | 325.3 | 327.7 | 328.2 | 330.1 | 330.5 | 330.1 |
| Housekeeping services | 338.9 | 346.6 | 346.6 | 347.4 | 347.8 | 348.5 | 348.5 | 349.3 | 349.8 | 350.6 | 351.0 | 352.2 | 353.1 | 353.0 | 353.8 |
| Apparel and upkeep | 206.0 | 207.8 | 203.2 | 207.0 | 212.1 | 213.2 | 213.1 | 210.9 | 207.1 | 208.4 | 215.2 | 218.7 | 218.0 | 214.5 | 210.5 |
| Apparel commodities | 191.6 | 192.0 | 187.0 | . 191.2 | 196.6 | 197.6 | 197.4 | 194.9 | 190.9 | 192.1 | 199.1 | 202.6 | 201.8 | 198.1 | 194.0 |
| Men's and boys' apparel | 197.9 | 200.0 | 195.8 | 197.8 | 203.2 | 204.3 | 205.3 | 202.3 | 199.2 | 199.9 | 203.5 | 205.6 | 207.1 | 205.3 | 203.0 |
| Women's and girls' apparel | 169.5 | 168.0 | 159.8 | 167.2 | 175.7 | 176.4 | 175.0 | 171.7 | 166.6 | 167.8 | 177.0 | 182.2 | 179.6 | 173.7 | 168.3 |
| Infants' and toddlers' appare | 299.7 | 312.7 | 307.5 | 310.6 | 309.7 | 312.0 | 307.0 | 312.7 | 301.8 | 304.5 | 319.6 | 319.1 | 316.4 | 308.0 | 301.2 |
| Footwear | 212.1 | 211.2 | 209.1 | 209.6 | 212.0 | 215.1 | 215.1 | 214.0 | 209.9 | 211.0 | 216.5 | 219.2 | 220.8 | 218.8 | 214.3 |
| Other apparel commodities | 215.5 | 217.9 | 218.1 | 221.6 | 221.1 | 219.8 | 221.1 | 220.0 | 223.2 | 226.0 | 227.4 | 227.0 | 226.7 | 230.6 | 231.9 |
| Apparel services | 320.9 | 334.6 | 334.6 | 334.7 | 336.7 | 338.3 | 339.0 | 339.5 | 342.5 | 343.2 | 344.7 | 344.7 | 346.8 | 347.4 | 348.7 |
| Transportation | 319.9 | 307.5 | 304.7 | 301.3 | 302.2 | 302.6 | 304.3 | 304.8 | 308.5 | 310.0 | 310.6 | 313.3 | 314.6 | 316.7 | 318.5 |
| Private transportatio | 314.2 | 299.5 | 296.5 | 292.8 | 293.7 | 294.1 | 295.8 | 295.9 | 299.8 | 301.3 | 301.9 | 304.8 | 306.3 | 308.6 | 310.5 |
| New vehicles | 214.9 | 224.1 | 224.5 | 224.5 | 224.2 | 226.7 | 230.2 | 231.7 | 232.3 | 229.9 | 229.2 | 229.9 | 230.6 | 231.2 | 231.8 |
| New cars | 215.2 | 224.4 | 224.7 | 224.7 | 224.5 | 227.1 | 230.7 | 232.2 | 233.0 | 230.2 | 229.4 | 230.4 | 231.3 | 232.0 | 232.7 |
| Used cars | 379.7 | 363.2 | 360.3 | 358.0 | 359.5 | 360.6 | 361.0 | 356.6 | 354.6 | 356.9 | 363.0 | 371.6 | 378.6 | 383.0 | 385.5 |
| Motor fuel | 373.8 | 292.1 | 280.2 | 265.9 | 271.1 | 263.2 | 260.9 | 261.9 | 275.8 | 288.1 | 290.0 | 297.2 | 299.7 | 306.0 | 311.2 |
| Gasoline | 373.3 | 291.4 | 279.8 | 265.3 | 270.6 | 262.6 | 260.2 | 261.2 | 275.1 | 287.5 | 289.4 | 296.7 | 299.3 | 305.5 | 310.8 |
| Maintenance and repair. | 351.4 | 363.1 | 363.4 | 364.3 | 365.0 | 365.7 | 368.4 | 370.7 | 371.3 | 373.0 | 373.0 | 376.1 | 376.1 | 376.3 | 376.8 |
| Other private transportation | 287.6 | 303.9 | 304.5 | 304.5 | 302.3 | 307.6 | 311.6 | 312.0 | 314.9 | 314.0 | 314.4 | 315.1 | 315.9 | 317.6 | 318.8 |
| Other private transportation commodities | 202.6 | 201.6 | 201.6 | 201.8 | 200.3 | 198.9 | 200.0 | 200.4 | 202.2 | 201.8 | 202.3 | 200.8 | 202.3 | 202.3 | 201.6 |
| Other private transportation services ....... | 312.8 | 333.9 | 334.6 | 334.6 | 332.3 | 339.3 | 344.1 | 344.5 | 347.7 | 346.7 | 347.0 | 348.6 | 349.1 | 351.3 | 353.2 |
| Public transportation .... | 402.8 | 426.4 | 428.0 | 428.0 | 428.5 | 428.7 | 431.7 | 437.5 | 438.9 | 439.8 | 441.4 | 440.8 | 439.6 | 438.1 | 438.3 |
| Medical care | 403.1 | 433.5 | 434.8 | 437.5 | 439.7 | 442.3 | 444.6 | 446.8 | 449.6 | 452.4 | 455.0 | 457.3 | 458.9 | 461.3 | 464.1 |
| Medical care commodities | 256.7 | 273.6 | 275.4 | 276.0 | 276.7 | 277.5 | 278.2 | 280.8 | 282.4 | 283.9 | 286.3 | 287.5 | 289.6 | 291.5 | 293.4 |
| Medical care services. | 435.1 | 468.6 | 469.8 | 473.0 | 475.7 | 478.8 | 481.5 | 483.4 | 486.5 | 489.6 | 492.1 | 494.7 | 496.0 | 498.4 | 501.5 |
| Professional services | 367.3 | 390.9 | 391.7 | 393.3 | 396.1 | 398.0 | 399.8 | 401.0 | 403.7 | 406.8 | 409.6 | 412.5 | 413.9 | 416.7 | 418.9 |
| Hospital and related services | 224.0 | 237.4 | 237.4 | 239.5 | 240.1 | 242.3 | 243.8 | 245.0 | 246.7 | 248.1 | 249.0 | 250.1 | 251.0 | 251.8 | 254.6 |
| Entertainment | 265.0 | 274.1 | 274.4 | 274.7 | 275.3 | 276.5 | 277.4 | 277.4 | 278.3 | 278.7 | 279.8 | 281.3 | 282.0 | 282.3 | 283.5 |
| Entertainment commodities | 260.6 | 265.9 | 265.8 | 266.1 | 265.9 | 266.7 | 267.6 | 267.4 | 268.1 | 268.1 | 269.9 | 270.8 | 271.7 | 271.8 | 272.8 |
| Entertainment services | 271.8 | 286.3 | 287.0 | 287.3 | 289.2 | 290.8 | 291.8 | 292.2 | 293.3 | 294.1 | 294.5 | 296.6 | 297.2 | 297.6 | 299.1 |
| Other goods and services | 326.6 | 346.4 | 344.9 | 346.4 | 353.3 | 354.6 | 354.9 | 355.2 | 358.1 | 359.7 | 360.3 | 361.1 | 362.0 | 362.9 | 365.1 |
| Tobacco products | 328.5 | 351.0 | 354.3 | 356.2 | 356.8 | 357.2 | 357.3 | 357.6 | 364.9 | 368.3 | 369.6 | 370.4 | 370.9 | 372.7 | 379.9 |
| Personal care. | 281.9 | 291.3 | 291.1 | 292.3 | 292.0 | 293.1 | 293.4 | 293.6 | 295.7 | 296.4 | 296.4 | 297.3 | 299.0 | 299.2 | 300.2 |
| Toilet goods and personal care appliances | 278.5 | 287.9 | 287.1 | 289.1 | 288.2 | 289.9 | 289.6 | 289.6 | 291.3 | 292.1 | 292.0 | 292.9 | 294.2 | 294.2 | 295.8 |
| Personal care services .................. | 286.0 | 295.4 | 295.8 | 296.2 | 296.5 | 297.1 | 297.9 | 298.2 | 300.8 | 301.3 | 301.5 | 302.3 | 304.6 | 304.9 | 305.3 |
| Personal and educational expenses | 397.1 | 428.8 | 421.2 | 422.9 | 445.2 | 447.6 | 448.2 | 448.8 | 450.6 | 452.0 | 452.8 | 453.8 | 454.4 | 455.5 | 456.5 |
| School books and supplies .................................................. | 350.8 | 380.3 | 375.9 | 376.9 | 389.4 | 392.3 | 392.5 | 392.6 | 400.7 | 403.4 | 403.9 | 404.4 | 404.9 | 405.1 | 405.2 |
| Personal and educational services ....................................... | 407.7 | 440.1 | 431.9 | 433.7 | 457.8 | 460.2 | 460.8 | 461.6 | 462.8 | 464.2 | 465.0 | 466.0 | 466.6 | 467.9 | 469.0 |

See footnotes at end of table.

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30. Continued- Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity or service group; and CPI for Urban Wage Earners and Clerical Workers, all items
(1967 $=100$, unless otherwise indicated)

| Series | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
|  | 1985 | 1986 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Apparel commodities | 191.3 | 191.5 | 186.3 | 190.8 | 196.2 | 197.1 | 196.6 | 194.5 | 190.5 | 191.5 | 198.3 | 202.1 | 201.2 | 197.5 | 193.6 |
| Men's and boys' apparel | 198.2 | 199.7 | 195.4 | 197.1 | 202.3 | 203.6 | 204.6 | 202.1 | 198.6 | 198.9 | 201.9 | 204.3 | 205.7 | 204.0 | 201.7 |
| Women's and girls' apparel | 171.3 | 169.4 | 160.8 | 169.3 | 178.1 | 178.1 | 176.2 | 173.1 | 168.2 | 169.2 | 178.6 | 184.4 | 181.8 | 175.8 | 170.4 |
| Infants' and toddlers' apparel | 311.7 | 329.4 | 323.7 | 328.6 | 326.2 | 329.2 | 323.8 | 329.3 | 319.1 | 322.2 | 337.3 | 336.3 | 334.7 | 324.2 | 318.3 |
| Footwear | 212.5 | 211.8 | 209.6 | 209.9 | 212.0 | 215.3 | 215.6 | 214.9 | 211.1 | 212.4 | 217.7 | 220.0 | 221.3 | 219.4 | 215.5 |
| Other apparel commodities | 203.1 | 206.1 | 206.5 | 209.5 | 209.0 | 207.9 | 208.9 | 207.8 | 210.1 | 212.1 | 214.1 | 213.9 | 213.1 | 217.0 | 217.6 |
| Apparel services ................... | 318.5 | 332.0 | 332.2 | 332.3 | 334.2 | 335.6 | 336.2 | 336.6 | 339.7 | 340.5 | 341.8 | 341.6 | 343.3 | 343.8 | 344.8 |
| Transportation | 321.6 | 307.6 | 304.6 | 300.9 | 301.8 | 302.2 | 304.0 | 304.2 | 308.2 | 309.9 | 310.8 | 313.9 | 315.5 | 317.9 | 319.7 |
| Private transportation | 317.4 | 301.5 | 298.3 | 294.4 | 295.3 | 295.7 | 297.5 | 297.5 | 301.6 | 303.4 | 304.2 | 307.4 | 309.1 | 311.7 | 313.6 |
| New vehicles ... | 214.2 | 223.3 | 223.7 | 223.6 | 223.3 | 225.7 | 229.4 | 230.7 | 231.2 | 228.9 | 228.2 | 229.0 | 229.5 | 229.9 | 230.3 |
| New cars. | 214.5 | 223.6 | 223.9 | 223.9 | 223.7 | 226.3 | 230.0 | 231.4 | 232.0 | 229.3 | 228.5 | 229.5 | 230.3 | 230.9 | 231.6 |
| Used cars | 379.7 | 363.2 | 360.3 | 358.0 | 359.5 | 360.6 | 361.0 | 356.6 | 354.7 | 357.0 | 363.1 | 371.7 | 378.7 | 383.0 | 385.4 |
| Motor fuel | 375.4 | 293.1 | 280.9 | 266.7 | 271.9 | 264.0 | 262.0 | 263.2 | 277.7 | 289.5 | 291.3 | 298.7 | 301.2 | 307.6 | 313.0 |
| Gasoline | 375.0 | 292.5 | 280.5 | 266.1 | 271.4 | 263.4 | 261.3 | 262.5 | 277.1 | 288.9 | 290.7 | 298.3 | 300.7 | 307.2 | 312.6 |
| Maintenance and repair | 352.6 | 364.7 | 365.0 | 365.7 | 366.6 | 367.2 | 369.7 | 372.3 | 373.4 | 375.1 | 374.9 | 377.9 | 378.1 | 378.3 | 378.8 |
| Other private transportation | 287.7 | 302.2 | 302.4 | 302.2 | 299.7 | 305.2 | 309.5 | 309.9 | 312.6 | 311.5 | 311.7 | 312.1 | 312.9 | 314.7 | 315.8 |
| Other private transportation commodities | 204.7 | 203.9 | 203.8 | 204.0 | 202.7 | 201.1 | 202.3 | 202.8 | 204.3 | 204.0 | 204.3 | 202.6 | 204.0 | 204.4 | 203.8 |
| Other private transportation services ....... | 312.3 | 330.9 | 331.2 | 330.9 | 328.1 | 335.4 | 340.7 | 341.0 | 344.0 | 342.6 | 342.9 | 344.1 | 344.6 | 346.9 | 348.7 |
| Public transportation ............... | 391.7 | 416.3 | 418.0 | 418.4 | 418.8 | 418.9 | 421.1 | 425.8 | 426.7 | 427.2 | 428.7 | 428.9 | 428.9 | 426.9 | 426.9 |
| Medical care | 401.2 | 431.0 | 432.4 | 435.0 | 437.1 | 439.7 | 441.7 | 443.9 | 446.7 | 449.7 | 452.3 | 454.9 | 456.6 | 459.3 | 462.1 |
| Medical care commodities | 256.3 | 272.8 | 274.6 | 275.2 | 275.8 | 276.6 | 277.0 | 279.8 | 281.4 | 282.9 | 285.1 | 286.2 | 288.2 | 290.5 | 292.1 |
| Medical care services. | 432.7 | 465.7 | 466.9 | 470.1 | 472.6 | 475.6 | 478.2 | 480.1 | 483.2 | 486.5 | 489.2 | 492.1 | 493.6 | 496.2 | 499.4 |
| Professional services | 367.7 | 391.4 | 392.3 | 394.0 | 396.6 | 398.4 | 400.2 | 401.5 | 404.2 | 407.4 | 410.2 | 413.3 | 414.7 | 417.5 | 419.7 |
| Hospital and related services | 221.2 | 234.2 | 234.2 | 236.3 | 236.8 | 239.1 | 240.4 | 241.6 | 243.2 | 244.6 | 245.4 | 246.5 | 247.4 | 248.2 | 250.9 |
| Entertainment | 260.1 | 268.7 | 269.0 | 269.2 | 270.0 | 271.1 | 272.1 | 272.3 | 272.9 | 273.4 | 274.4 | 276.0 | 276.9 | 277.0 | 278.2 |
| Entertainment commodities | 254.2 | 259.5 | 259.6 | 259.8 | 259.8 | 260.6 | 261.7 | 261.7 | 262.2 | 262.3 | 263.7 | 264.7 | 265.9 | 265.9 | 266.8 |
| Entertainment services | 271.6 | 286.0 | 286.5 | 286.7 | 288.9 | 290.7 | 291.6 | 292.0 | 292.7 | 293.9 | 294.2 | 296.6 | 297.2 | 297.4 | 299.0 |
| Other goods and services | 322.7 | 341.7 | 341.2 | 342.6 | 347.5 | 348.8 | 349.2 | 349.5 | 352.8 | 354.6 | 355.1 | 356.0 | 356.9 | 357.8 | 360.5 |
| Tobacco products .......... | 328.1 | 350.7 | 354.0 | 355.9 | 356.5 | 356.8 | 356.9 | 357.2 | 364.7 | 368.0 | 369.2 | 370.0 | 370.5 | 372.3 | 379.7 |
| Personal care ....... | 279.6 | 289.0 | 288.8 | 289.9 | 289.5 | 290.8 | 291.2 | 291.3 | 293.2 | 294.1 | 293.9 | 294.7 | 296.4 | 296.4 | 297.3 |
| Toilet goods and personal care applia | 279.0 | 288.6 | 287.8 | 289.7 | 288.7 | 290.5 | 290.5 | 290.3 | 292.0 | 293.2 | 292.7 | 293.6 | 294.9 | 294.8 | 296.1 |
| Personal care services .............. | 280.5 | 289.8 | 290.2 | 290.5 | 290.8 | 291.6 | 292.4 | 292.7 | 294.9 | 295.4 | 295.5 | 296.2 | 298.4 | 298.8 | 299.1 |
| Personal and educational expenses | 399.3 | 430.7 | 423.8 | 425.1 | 446.1 | 448.7 | 449.4 | 450.0 | 452.0 | 453.7 | 454.3 | 455.5 | 456.1 | 457.3 | 458.4 |
| School books and supplies.. | 355.7 | 384.8 | 380.5 | 381.4 | 393.9 | 396.7 | 396.9 | 397.1 | 406.5 | 409.3 | 409.6 | 410.1 | 410.5 | 410.6 | 410.7 |
| Personal and educational services | 410.1 | 442.0 | 434.6 | 436.0 | 458.7 | 461.3 | 462.1 | 462.8 | 464.3 | 465.9 | 466.6 | 467.8 | 468.5 | 469.8 | 471.0 |
| All items | 318.5 | 323.4 | 322.9 | 323.4 | 324.9 | 325.0 | 325.4 | 325.7 | 327.7 | 329.0 | 330.5 | 332.3 | 333.4 | 334.9 | 335.6 |
| Commodities | 286.5 | 283.1 | 281.1 | 281.1 | 282.6 | 282.6 | 283.1 | 283.3 | 285.5 | 287.0 | 288.6 | 290.7 | 291.6 | 292.4 | 292.5 |
| Food and beverages | 301.8 | 311.6 | 312.0 | 314.5 | 315.0 | 315.4 | 316.2 | 316.8 | 320.3 | 321.3 | 321.2 | 322.1 | 323.5 | 325.0 | 324.8 |
| Commodities less food and beverages | 274.9 | 264.2 | 260.7 | 259.4 | 261.5 | 261.1 | 261.5 | 261.5 | 262.9 | 264.6 | 267.2 | 269.9 | 270.6 | 270.9 | 271.2 |
| Nondurables less food and beverages | 283.8 | 265.6 | 260.1 | 258.1 | 261.5 | 260.2 | 259.7 | 259.9 | 262.3 | 266.0 | 270.0 | 273.7 | 274.2 | 274.1 | 274.1 |
| Apparel commodities ........................ | 191.3 | 191.5 | 186.3 | 190.8 | 196.2 | 197.1 | 196.6 | 194.5 | 190.5 | 191.5 | 198.3 | 202.1 | 201.2 | 197.5 | 193.6 |
| Nondurables less food, beverages, and apparel | 334.2 | 306.7 | 301.0 | 295.9 | 298.4 | 296.0 | 295.6 | 296.9 | 304.4 | 310.2 | 311.5 | 315.0 | 316.5 | 319.5 | 322.8 |
| Durables ..... | 265.2 | 264.0 | 263.2 | 262.6 | 263.0 | 264.0 | 265.3 | 265.0 | 265.4 | 264.5 | 265.3 | 266.8 | 267.8 | 268.5 | 269.1 |
| Services | 377.3 | 395.7 | 397.7 | 399.0 | 400.4 | 401.0 | 401.0 | 401.5 | 403.3 | 404.5 | 405.9 | 407.3 | 408.8 | 411.4 | 412.8 |
| Rent of sheiter ( $12 / 84=100$ ) | 103.2 | 109.0 | 109.2 | 109.6 | 110.3 | 110.8 | 111.0 | 111.1 | 111.5 | 111.9 | 112.5 | 113.0 | 113.4 | 113.5 | 114.0 |
| Household services less rent of shelter (12/84=100) | 102.6 | 103.9 | 106.0 | 106.4 | 106.0 | 103.8 | 102.0 | 101.8 | 102.3 | 102.5 | 102.5 | 102.4 | 103.2 | 105.7 | 105.9 |
| Transportation services ............................................. | 332.2 | 350.1 | 350.6 | 350.7 | 349.2 | 353.8 | 357.9 | 359.5 | 361.7 | 361.3 | 361.6 | 363.2 | 363.5 | 364.7 | 365.9 |
| Medical care services | 432.7 | 465.7 | 466.9 | 470.1 | 472.6 | 475.6 | 478.2 | 480.1 | 483.2 | 486.5 | 489.2 | 492.1 | 493.6 | 496.2 | 499.4 |
| Other services | 310.1 | 326.9 | 325.6 | 326.0 | 332.2 | 333.8 | 334.7 | 335.1 | 336.4 | 337.5 | 338.0 | 339.4 | 340.3 | 340.9 | 342.0 |
| Special indexes: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All items less food | 319.4 | 323.0 | 322.3 | 322.2 | 323.9 | 324.0 | 324.2 | 324.4 | 326.0 | 327.4 | 329.3 | 331.3 | 332.3 | 333.7 | 334.6 |
| Ail items less shelter | 303.4 | 305.1 | 304.3 | 304.6 | 305.9 | 305.7 | 305.9 | 306.3 | 308.4 | 309.6 | 311.0 | 312.8 | 313.9 | 315.6 | 315.9 |
| All items less homeowners' costs $(12 / 84=100)$ | 101.8 | 102.8 | 102.6 | 102.7 | 103.2 | 103.2 | 103.2 | 103.4 | 104.0 | 104.5 | 104.9 | 105.5 | 105.9 | 106.4 | 106.6 |
| All items less medical care | 314.3 | 318.0 | 317.4 | 317.8 | 319.3 | 319.3 | 319.6 | 319.8 | 321.8 | 323.0 | 324.5 | 326.2 | 327.3 | 328.8 | 329.3 |
| Commodities less food | 272.8 | 262.9 | 259.6 | 258.3 | 260.3 | 260.0 | 260.3 | 260.4 | 261.8 | 263.5 | 265.9 | 268.5 | 269.2 | 269.5 | 269.8 |
| Nondurables less food | 279.0 | 262.7 | 257.7 | 255.8 | 259.1 | 257.8 | 257.4 | 257.6 | 259.9 | 263.3 | 266.9 | 270.4 | 270.8 | 270.9 | 270.9 |
| Nondurables less food and apparel | 320.3 | 296.9 | 291.8 | 287.3 | 289.6 | 287.4 | 287.0 | 288.2 | 294.8 | 299.7 | 300.9 | 303.9 | 305.3 | 307.9 | 310.8 |
| Nondurables .................................. | 293.9 | 289.8 | 287.2 | 287.5 | 289.5 | 289.0 | 289.2 | 289.6 | 292.5 | 294.9 | 296.9 | 299.2 | 300.1 | 300.9 | 300.8 |
| Services less rent of shelter ( $12 / 84=100$ ) | 102.6 | 107.1 | 107.8 | 108.1 | 108.3 | 108.2 | 108.1 | 108.3 | 108.8 | 109.0 | 109.2 | 109.5 | 109.9 | 111.1 | 111.5 |
| Services less medical care | 369.0 | 385.9 | 387.9 | 389.0 | 390.3 | 390.6 | 390.4 | 390.7 | 392.5 | 393.5 | 394.7 | 396.1 | 397.5 | 400.1 | 401.4 |
| Energy ......... | 426.3 | 367.5 | 363.1 | 354.8 | 356.9 | 344.8 | 338.5 | 339.2 | 349.8 | 356.9 | 357.7 | 360.8 | 364.9 | 378.6 | 380.6 |
| All items less energy | 309.9 | 321.2 | 321.1 | 322.4 | 323.9 | 325.3 | 326.3 | 326.5 | 327.8 | 328.7 | 330.2 | 331.9 | 332.8 | 333.2 | 333.8 |
| All items less food and energy. | 308.7 | 320.3 | 320.1 | 321.0 | 322.7 | 324.4 | 325.4 | 325.6 | 326.3 | 327.1 | 329.0 | 330.9 | 331.6 | 331.8 | 332.6 |
| Commodities less food and energy | 256.8 | 259.8 | 258.5 | 259.3 | 260.9 | 261.7 | 262.4 | 262.1 | 261.7 | 262.0 | 264.6 | 266.6 328.9 | 267.1 | 266.7 337 | 266.3 343.1 |
| Energy commodities | 410.9 | 322.9 | 307.2 | 292.9 | 298.2 | 290.9 | 289.1 | 291.1 | 307.2 | 319.9 | 321.5 | 328.9 | 331.2 | 337.7 | 343.1 |
| Services less energy .. | 371.1 | 391.9 | 392.6 | 393.7 | 395.7 | 398.2 | 399.6 | 400.2 | 401.9 | 403.2 | 404.7 | 406.5 | 407.5 | 408.2 | 410.1 |
| Purchasing power of the consumer dollar: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1967 = \$1.00 ..... | 31.4 | 30.9 | 31.0 | 30.9 | 30.8 | 30.8 | 30.7 | 30.7 | 30.5 | 30.4 | 30.3 | 30.1 | 30.0 | 29.9 | 29.8 |
| $1957-59=\$ 1.00$........................... | 27.0 | 26.6 | 26.6 | 26.6 | 26.5 | 26.5 | 26.4 | 26.4 | 26.2 | 26.1 | 26.0 | 25.9 | 25.8 | 25.7 | 25.6 |

30. Continued- Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity or service group; and CPI for Urban Wage Earners and Clerical Workers, all items

| Series | Annual average |  | 1986 |  |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
|  | 1985 | 1986 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All items | 322.2 | 328.4 | 328.0 | 328.6 | 330.2 | 330.5 | 330.8 | 331.1 | 333.1 | 334.4 | 335.9 | 337.7 | 338.7 | 340.1 | 340.8 |
| Commodities | 286.7 | 283.9 | 281.9 | 281.9 | 283.5 | 283.6 | 284.0 | 284.2 | 286.3 | 287.7 | 289.5 | 291.4 | 292.3 | 292.8 | 292.8 |
| Food and beverages | 302.0 | 311.8 | 312.2 | 314.6 | 315.1 | 315.6 | 316.4 | 317.0 | 320.5 | 321.6 | 321.6 | 322.5 | 324.0 | 325.4 | 325.1 |
| Commodities less food and beverages | 274.6 | 264.7 | 261.4 | 260.1 | 262.3 | 262.1 | 262.4 | 262.4 | 263.7 | 265.2 | 267.9 | 270.4 | 270.9 | 270.9 | 271.0 |
| Nondurables less food and beverages | 282.1 | 265.2 | 259.8 | 258.1 | 261.5 | 260.4 | 260.0 | 260.0 | 261.8 | 265.4 | 269.7 | 273.2 | 273.5 | 273.2 | 272.8 |
| Apparel commodities . | 191.6 | 192.0 | 187.0 | 191.2 | 196.6 | 197.6 | 197.4 | 194.9 | 190.9 | 192.1 | 199.1 | 202.6 | 201.8 | 198.1 | 194.0 |
| Nondurables less food, beverages, and apparel | 333.3 | 307.3 | 301.7 | 296.9 | 299.5 | 297.2 | 296.7 | 298.0 | 304.8 | 310.3 | 311.9 | 315.0 | 316.4 | 319.1 | 322.0 |
| Durables . | 270.7 | 270.2 | 269.6 | 269.0 | 269.3 | 270.5 | 271.8 | 271.7 | 272.4 | 271.2 | 271.7 | 273.0 | 273.6 | 274.2 | 274.9 |
| Services | 381.5 | 400.5 | 402.3 | 403.7 | 405.5 | 406.1 | 406.1 | 406.6 | 408.6 | 409.9 | 411.2 | 412.8 | 414.2 | 416.7 | 418.3 |
| Rent of shelter ( $12 / 82=100$ ) | 113.9 | 120.2 | 120.5 | 120.9 | 121.7 | 122.2 | 122.4 | 122.5 | 123.1 | 123.6 | 124.1 | 124.8 | 125.1 | 125.4 | 126.0 |
| Household services less rent of' shelter ( $12 / 82=100$ ) | 111.2 | 112.8 | 114.9 | 115.3 | 114.9 | 112.9 | 111.0 | 110.8 | 111.3 | 111.5 | 111.5 | 111.4 | 112.3 | 114.8 | 115.1 |
| Transportation services | 337.0 | 356.3 | 357.1 | 357.3 | 356.2 | 360.5 | 364.4 | 366.2 | 368.5 | 368.5 | 369.0 | 370.5 | 370.5 | 371.6 | 372.9 |
| Medical care services | 435.1 | 468.6 | 469.8 | 473.0 | 475.7 | 478.8 | 481.5 | 483.4 | 486.5 | 489.6 | 492.1 | 494.7 | 496.0 | 498.4 | 501.5 |
| Other services ...... | 314.1 | 331.8 | 330.1 | 330.8 | 337.9 | 339.5 | 340.3 | 340.8 | 342.2 | 343.1 | 343.7 | 345.0 | 345.9 | 346.6 | 347.7 |
| Special indexes: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All items less food | 323.3 | 328.6 | 328.0 | 328.1 | 330.0 | 330.2 | 330.4 | 330.6 | 332.2 | 333.6 | 335.4 | 337.3 | 338.3 | 339.6 | 340.5 |
| All items less shelter | 303.9 | 306.7 | 306.1 | 306.4 | 307.9 | 307.8 | 308.0 | 308.3 | 310.3 | 311.5 | 312.9 | 314.6 | 315.6 | 317.1 | 317.4 |
| All items less homeowners' costs (12/82=100) | 109.7 | 111.2 | 111.0 | 111.2 | 111.7 | 111.7 | 111.8 | 111.9 | 112.7 | 113.1 | 113.6 | 114.2 | 114.6 | 115.1 | 115.3 |
| All items less medical care | 317.7 | 322.6 | 322.1 | 322.6 | 324.2 | 324.4 | 324.5 | 324.8 | 326.7 | 328.0 | 329.4 | 331.1 | 332.2 | 333.5 | 334.1 |
| Commodities less food | 272.5 | 263.4 | 260.2 | 259.0 | 261.1 | 260.9 | 261.2 | 261.2 | 262.5 | 264.0 | 266.5 | 268.9 | 269.4 | 269.5 | 269.6 |
| Nondurables less food | 277.2 | 262.2 | 257.3 | 255.6 | 258.9 | 257.8 | 257.4 | 257.5 | 259.2 | 262.6 | 266.4 | 269.6 | 270.0 | 269.8 | 269.5 |
| Nondurables less food and apparel | 319.2 | 297.1 | 292.2 | 287.9 | 290.2 | 288.1 | 287.7 | 288.9 | 294.9 | 299.6 | 301.0 | 303.7 | 305.0 | 307.4 | 309.9 |
| Nondurables. | 293.2 | 289.6 | 287.1 | 287.4 | 289.4 | 289.0 | 289.2 | 289.5 | 292.1 | 294.6 | 296.8 | 299.1 | 300.0 | 300.5 | 300.1 |
| Services less rent of' shelter ( $12 / 82=100$ ) | 113.5 | 118.7 | 119.5 | 119.8 | 120.2 | 120.1 | 120.0 | 120.2 | 120.8 | 121.1 | 121.3 | 121.6 | 122.1 | 123.2 | 123.7 |
| Services less medical care | 373.3 | 390.6 | 392.5 | 393.6 | 395.4 | 395.7 | 395.4 | 395.8 | 397.6 | 398.8 | 400.0 | 401.5 | 402.9 | 405.4 | 406.8 |
| Energy | 426.5 | 370.3 | 366.5 | 358.6 | 360.6 | 348.6 | 341.7 | 342.4 | 352.2 | 359.2 | 360.0 | 362.4 | 366.9 | 380.6 | 382.4 |
| All items less energy | 314.8 | 327.0 | 326.9 | 328.3 | 330.0 | 331.4 | 332.3 | 332.6 | 334.0 | 334.9 | 336.5 | 338.2 | 339.0 | 339.5 | 340.1 |
| All items less food and energy | 314.4 | 327.1 | 326.9 | 327.9 | 329.9 | 331.6 | 332.5 | 332.8 | 333.6 | 334.5 | 336.4 | 338.3 | 338.9 | 339.1 | 339.9 |
| Commodities less food and energ | 259.7 | 263.2 | 262.0 | 262.9 | 264.5 | 265.5 | 266.1 | 265.8 | 265.5 | 265.7 | 268.4 | 270.3 | 270.7 | 270.1 | 269.6 |
| Energy commodities ........... | 409.9 | 322.4 | 306.6 | 292.4 | 297.7 | 290.6 | 288.5 | 290.5 | 306.1 | 319.2 | 320.9 | 328.0 | 330.2 | 336.4 | 341.4 |
| Services less energy. | 375.9 | 397.1 | 397.7 | 399.0 | 401.4 | 403.7 | 405.0 | 405.7 | 407.5 | 408.9 | 410.4 | 412.3 | 413.2 | 414.1 | 416.0 |
| Purchasing power of the consumer dollar: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1967 = \$1.00 | 31.0 | 30.5 | 30.5 | 30.4 | 30.3 | 30.3 | 30.2 | 30.2 | 30.0 | 29.9 | 29.8 | 29.6 | 29.5 | 29.4 | 29.3 |
| $1957-59=\$ 1.00$ | 26.7 | 26.2 | 26.2 | 26.2 | 26.0 | 26.0 | 26.0 | 26.0 | 25.8 | 25.7 | 25.6 | 25.5 | 25.4 | 25.3 | 25.2 |
| CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All items ....................................................................... | 318.5 | 323.4 | 322.9 | 323.4 | 324.9 | 325.0 | 325.4 | 325.7 | 327.7 | 329.0 | 330.5 | 332.3 | 333.4 | 334.9 | 335.6 |
| All items ( $1957-59=100)$ | 370.4 | 376.1 | 375.5 | 376.1 | 377.8 | 378.0 | 378.4 | 378.8 | 381.1 | 382.6 | 384.4 | 386.5 | 387.8 | 389.5 | 390.3 |
| Food and beverages | 301.8 | 311.6 | 312.0 | 314.5 | 315.0 | 315.4 | 316.2 | 316.8 | 320.3 | 321.3 | 321.2 | 322.1 | 323.5 | 325.0 | 324.8 |
| Food | 309.3 | 319.2 | 319.5 | 322.3 | 322.8 | 323.3 | 324.2 | 324.8 | 328.4 | 329.5 | 329.4 | 330.2 | 331.8 | 333.4 | 333.1 |
| Food at home | 295.3 | 303.7 | 303.9 | 307.3 | 307.5 | 307.9 | 308.4 | 308.7 | 313.4 | 314.6 | 313.8 | 314.9 | 316.8 | 318.5 | 317.5 |
| Cereals and bakery products | 315.4 | 324.2 | 324.6 | 326.7 | 326.8 | 326.8 | 327.0 | 328.0 | 330.0 | 331.2 | 331.6 | 334.1 | 334.8 | 335.4 | 336.8 |
| Meats, poultry, fish, and eggs | 262.7 | 274.4 | 274.0 | 282.2 | 284.0 | 284.4 | 285.8 | 286.6 | 288.5 | 285.8 | 285.6 | 285.2 | 287.9 | 290.0 | 292.5 |
| Dairy products | 256.9 | 257.1 | 257.0 | 256.9 | 257.1 | 258.6 | 259.9 | 260.9 | 262.0 | 263.6 | 262.4 | 262.0 | 263.1 | 262.5 | 261.9 |
| Fruits and vegetables | 320.3 | 323.8 | 325.6 | 327.2 | 324.2 | 322.9 | 322.2 | 323.4 | 338.2 | 348.2 | 346.0 | 353.6 | 358.5 | 366.7 | 354.1 |
| Other foods at home | 361.5 | 373.5 | 373.4 | 373.9 | 373.5 | 374.4 | 373.9 | 372.2 | 378.9 | 380.0 | 378.8 | 377.8 | 377.9 | 376.8 | 376.3 |
| Sugar and sweets | 398.3 | 410.5 | 411.9 | 412.6 | 413.0 | 412.8 | 411.9 | 411.2 | 414.9 | 414.8 | 416.5 | 416.5 | 417.1 | 418.7 | 418.3 |
| Fats and oils ... | 293.9 | 287.2 | 286.6 | 287.1 | 285.1 | 284.1 | 284.5 | 285.5 | 292.6 | 289.9 | 293.9 | 291.3 | 292.6 | 290.7 | 292.2 |
| Nonalcoholic beverages | 453.2 | 478.1 | 477.6 | 476.9 | 475.5 | 477.7 | 477.1 | 470.3 | 483.7 | 482.5 | 476.9 | 471.3 | 470.0 | 464.5 | 460.5 |
| Other prepared foods. | 295.7 | 303.2 | 303.1 | 304.5 | 305.2 | 305.9 | 305.3 | 306.6 | 309.7 | 313.3 | 312.6 | 314.5 | 314.9 | 315.8 | 316.7 |
| Food away from home | 349.7 | 363.4 | 364.2 | 365.2 | 366.6 | 367.3 | 369.2 | 370.5 | 372.2 | 373.2 | 374.3 | 374.8 | 375.6 | 377.1 | 378.2 |
| Alcoholic beverages ........ | 232.6 | 242.5 | 243.4 | 243.0 | 243.4 | 243.5 | 243.4 | 243.9 | 245.4 | 246.2 | 246.5 | 247.2 | 247.8 | 248.6 | 249.2 |
| Housing | 343.3 | 353.2 | 354.5 | 355.4 | 356.6 | 355.6 | 354.3 | 354.8 | 356.3 | 357.5 | 358.8 | 360.0 | 361.1 | 363.5 | 364.6 |
| Shelter ............. | 370.4 | 390.7 | 391.5 | 392.9 | 395.2 | 397.1 | 397.8 | 398.1 | 399.6 | 401.2 | 403.2 | 405.1 | 406.3 | 406.9 | 408.7 |
| Renters' costs ( $12 / 84=100)$ | 103.6 | 109.5 | 110.0 | 110.3 | 110.9 | 111.4 | 111.7 | 111.6 | 112.3 | 112.7 | 113.3 | 113.8 | 114.0 | 114.2 | 115.3 |
| Rent, residential ........ | 263.7 | 279.1 | 280.3 | 280.8 | 282.2 | 283.6 | 284.6 | 285.1 | 286.1 | 287.0 | 287.3 | 287.8 | 288.3 | 288.5 | 290.0 |
| Other renters' costs | 397.9 | 416.0 | 420.4 | 426.1 | 428.9 | 426.7 | 424.8 | 417.3 | 424.9 | 427.6 | 439.0 | 448.1 | 449.2 | 453.1 | 467.0 |
| Homeowners' costs (12/84=100). | 103.1 | 108.8 | 108.8 | 109.3 | 110.0 | 110.5 | 110.7 | 110.8 | 111.1 | 111.6 | 112.1 | 112.7 | 113.1 | 113.2 | 113.4 |
| Owners' equivalent rent ( $12 / 84=100$ ) | 103.0 | 108.8 | 108.8 | 109.2 | 110.0 | 110.5 | 110.7 | 110.8 | 111.1 | 111.5 | 112.1 | 112.7 | 113.1 | 113.2 | 113.4 |
| Household insurance (12/84=100) .... | 103.2 | 109.4 | 110.1 | 110.1 | 110.4 | 110.8 | 111.3 | 111.7 | 111.9 | 112.1 | 112.4 | 112.5 | 113.1 | 113.8 | 114.6 |
| Maintenance and repairs. | 364.1 | 369.4 | 366.7 | 371.5 | 370.6 | 373.1 | 372.4 | 374.6 | 377.3 | 376.9 | 378.5 | 378.0 | 378.0 | 380.9 | 386.4 |
| Maintenance and repair services. | 415.0 | 425.3 | 425.2 | 428.6 | 430.7 | 431.1 | 428.2 | 428.1 | 434.5 | 432.5 | 436.8 | 435.7 | 433.2 | 438.3 | 449.8 |
| Maintenance and repair commodities | 261.1 | 262.5 | 259.0 | 263.5 | 261.1 | 264.3 | 265.0 | 268.0 | 267.6 | 268.4 | 267.9 | 267.9 | 269.7 | 270.5 | 270.7 |
| Fuel and other utilities | 394.7 | 385.4 | 390.3 | 390.6 | 389.1 | 379.3 | 371.3 | 371.1 | 373.9 | 374.9 | 375.1 | 374.3 | 377.5 | 388.0 | 388.3 |
| Fuels | 487.5 | 462.7 | 469.1 | 469.3 | 467.1 | 449.2 | 437.1 | 437.3 | 442.7 | 443.7 | 443.2 | 440.7 | 446.9 | 470.0 | 467.6 |
| Fuel oil, coal, and bottled gas | 622.0 | 504.5 | 462.9 | 450.7 | 456.6 | 454.8 | 455.0 | 463.5 | 489.3 | 503.9 | 501.4 | 501.1 | 498.2 | 499.4 | 498.4 |
| Gas (piped) and electricity ........ | 451.6 | 445.6 | 461.4 | 464.1 | 460.3 | 439.6 | 425.3 | 423.8 | 427.4 | 427.3 | 427.0 | 424.4 | 431.2 | 455.4 | 453.0 |
| Other utilities and public services .... | 241.6 | 253.8 | 256.3 | 256.6 | 256.2 | 257.8 | 255.8 | 255.3 | 255.6 | 256.5 | 257.1 | 257.8 | 258.1 | 257.4 | 259.5 |
| Household furnishings and operations | 243.4 | 246.5 | 246.5 | 246.6 | 247.5 | 247.5 | 247.2 | 248.5 | 248.9 | 249.4 | 250.1 | 250.8 | 250.5 | 250.4 | 250.7 |
| Housefúrnishings .... | 197.6 | 198.4 | 198.4 | 198.3 | 199.4 | 199.3 | 198.5 | 199.7 | 200.0 | 200.2 | 200.7 | 201.4 | 200.5 | 200.5 | 200.8 |
| Housekeeping supplies | 310.7 | 317.1 | 317.1 | 317.3 | 317.9 | 317.8 | 318.4 | 320.6 | 322.0 | 323.1 | 325.2 | 325.7 | 327.2 | 327.5 | 327.6 |
| Housekeeping services | 340.2 | 348.2 | 348.4 | 349.1 | 349.5 | 350.1 | 350.1 | 350.8 | 351.2 | 352.0 | 352.3 | 353.3 | 354.0 | 354.0 | 354.4 |
| Apparel and upkeep | 205.0 | 206.5 | 201.8 | 205.9 | 211.0 | 211.9 | 211.5 | 209.6 | 205.8 | 206.9 | 213.7 | 217.4 | 216.6 | 213.0 | 209.1 |

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



1 Area is the Consolidated Metropolitan Statistical Area (CMSA), exclu sive of farms and military. Area definitions are those established by the Office of Management and Budget in 1983, except for Boston-Lawrence-Sa lem, MA-NH Area (excludes Monroe County); and Milwaukee, WI Area (includes only the Milwaukee MSA). Definitions do not include revisions made since 1983.
${ }_{2}$ 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.
${ }^{3}$ 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 all items and major groups

| Series | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Consumer Price Index for All Urban Consumers: All items: |  |  |  |  |  |  |  |  |  |
| Index | 195.4 | 217.4 | 246.8 | 272.4 | 289.1 | 298.4 | 311.1 | 322.2 |  |
| Percent change | 7.7 | 11.3 | 13.5 | 10.4 | 6.1 | 298.4 | 4.3 | 322.2 3.6 | 328.4 1.9 |
|  |  |  |  |  |  |  |  |  |  |
| Index ................ | 206.3 | 228.5 | 248.0 | 267.3 | 278.2 | 284.4 | 295.1 | 302.0 | 311.8 |
| Percent change | 9.7 | 10.8 | 8.5 | 7.8 | 4.1 | 2.2 | 3.8 | 2.3 | 3.2 |
|  |  |  |  |  |  |  |  |  |  |
| Index ......................................................................... | 202.8 | 227.6 | 263.3 | 293.5 | 314.7 | 323.1 | 336.5 | 349.9 | 360.2 |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Index ... | 159.6 | 166.6 | 178.4 | 186.9 | 191.8 | 196.5 | 200.2 | 206.0 | 207.8 |
| Percent change | 3.5 | 4.4 | 7.1 | 4.8 | 2.6 | 2.5 | 1.9 | 2.9 | - 9 |
| Transportation: |  |  |  |  |  |  |  |  |  |
| Index ............ | 185.5 | 212.0 | 249.7 | 280.0 | 291.5 | 298.4 | 311.7 | 319.9 | 307.5 |
| Percent change | 4.7 | 14.3 | 17.8 | 12.1 | 4.1 | 2.4 | 4.5 | 2.6 | -3.9 |
|  |  |  |  |  |  |  |  |  |  |
| Index ....... | 219.4 | 239.7 | 265.9 | 294.5 | 328.7 | 357.3 | 379.5 | 403.1 |  |
| Percent change | 8.4 | 9.3 | 10.9 | 10.8 | 11.6 | 357.3 8.7 | 379.5 6.2 | 403.1 6.2 | 433.5 7.5 |
| Entertainment: |  |  |  |  |  |  |  |  |  |
| Index | 176.6 | 188.5 | 205.3 | 221.4 | 235.8 | 246.0 | 255.1 |  |  |
| Percent change | 5.3 | 6.7 | 8.9 | 7.8 | 6.5 | 246.0 4.3 | 255.1 3.7 | 265.0 3.9 | 274.1 3.4 |
|  |  |  |  |  |  |  |  |  |  |
| Index | 183.3 | 196.7 | 214.5 | 235.7 | 259.9 | 288.3 | 307.7 | 326.6 |  |
| Percent change | 6.4 | 7.3 | 9.0 | $\begin{array}{r}23.7 \\ \hline\end{array}$ | 10.3 | 288.3 10.9 | 60.7 | 326.6 6.1 | 346.4 6.1 |
| Consumer Price Index for Urban Wage Earners and Clerical Workers: |  |  |  |  |  |  |  |  |  |
| All items: |  |  |  |  |  |  |  |  |  |
| Index. | 195.3 | 217.7 | 247.0 | 272.3 | 288.6 | 297.4 | 307.6 | 318.5 | 323.4 |
| Percent change | 7.6 | 11.5 | 13.5 | 10.2 | 6.0 | 3.0 | 3.4 | 3.5 | $\begin{array}{r}1.5 \\ \hline\end{array}$ |

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## 33. Producer Price Indexes, by stage of processing

| $(1967=100)$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Grouping | Annual average |  | 1986 |  |  |  |  | 1987 |  |  |  |  |  |  |
|  | Anmual | 1986 |  | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Finished goods | 293.7 | 289.7 | 288.1 | 287.3 | 290.7 | 290.7 | 290.4 | 291.8 | 292.3 | 292.6 | 295.0 | 296.3 | 296.8 292.7 | 297.8 |
| Finished consumer goods $\qquad$ <br> Finished consumer foods $\qquad$ <br> Finished consumer goods excluding <br> foods $\qquad$ <br> Nondurable goods less food $\qquad$ <br> Durable goods $\qquad$ <br> Capital equipment $\qquad$ | 293.7 | 284.9 | 283.0 | 282.5 | 285.2 | 285.1 | 284.8 | 286.2 | 287.1 | 287.5 | 290.3 | 292.0 286.7 | 292.7 287.7 | 287.6 |
|  | $\begin{aligned} & 291.8 \\ & 271.2 \end{aligned}$ | 284.9 278.1 | 284.0 | 282.9 | 283.6 | 283.1 | 282.9 | 280.1 | 280.8 | 280.3 | 283.3 | 286.7 | 287.7 |  |
|  |  |  |  |  |  |  |  |  | 285.3 | 286.3 | 288.9 | 289.6 | 290.1 | 292.0 |
|  | 297.3 | 283.5 | 277.5 | 277.4 | 281.0 | 281.2 | 280.8 302.1 | 284.4 307.7 | 385.3 | 3812.2 | 315.2 | 316.5 | 317.4 | 320.2 |
|  | 339.3 | 311.2 | 301.6 | 304.5 | 301.9 253.5 | 302.2 253.5 | 302.1 252.8 | 353.2 | 350.7 | 250.6 | 252.1 | 252.0 | 251.9 | 252.3 |
|  | 241.5 | 306.4 | 306.2 | 303.9 | 309.9 | 310.4 | 310.1 | 311.2 | 310.7 | 310.5 | 311.7 | 311.9 | 311.6 | 312.1 |
|  | 300.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intermediate materials, supplies, and | 318.7 | 307.6 | 304.5 | 306.1 | 304.8 | 304.8 | 305.0 | 307.0 | 308.9 | 309.3 | 310.9 | 312.7 | 314.8 | 317.1 |
| Materials and components for |  |  |  |  |  | 296.4 | 296.4 | 297.8 | 298.7 | 299.5 | 301.3 | 303.2 | 304.6 | 306.4 |
| manufacturing ........................................ | 299.5 | 296.1 | 296.0 | 296.2 | 296.4 | 296.4 | 253.2 | 251.1 | 251.6 | 250.4 | 255.3 | 261.5 | 261.2 | 262.0 |
| Materials for food manufacturing ............ | 258.8 | 251.0 | 255.5 | 254.3 277.0 | 253.9 277.5 | 278.0 | 278.3 | 281.3 | 283.1 | 283.9 | 286.3 | 287.9 | 291.6 | 293.1 |
| Materials for nondurable manufacturing . | 285.9 320.2 | 279.1 313.8 | 277.1 313.6 | 277.0 314.9 | 277.5 315.3 | 314.9 | 313.9 | 315.8 | 316.2 | 317.8 | 320.3 | 323.9 | 325.3 | 329.7 |
| Materials for durable manufacturing ....... | 320.2 291.5 | 294.4 | 294.9 | 295.0 | 294.9 | 294.9 | 295.2 | 295.8 | 296.1 | 297.0 | 297.1 | 297.3 | 297.2 | 298.0 |
| Components for manufacturing .............. | 291.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Materials and components for | 315.2 | 317.4 | 317.6 | 317.6 | 317.3 | 317.5 | 316.9 | 317.1 | 317.9 | 318.7 | 319.3 | 319.9 | 320.2 | 321.8 449.5 |
| construction ......................... | 548.9 | 430.2 | 395.0 | 409.1 | 394.9 | 392.8 | 395.5 | 406.7 | 418.5 | 416.0 | 420.8 | 425.0 | 437.5 | 449.5 326.1 |
| Processed fuels and lubricants ................. | 311.2 | 314.9 | 316.2 | 317.4 | 318.1 | 319.0 | 319.2 | 320.7 | 323.6 | 324.9 | 325.3 | 325.0 | 326.1 |  |
| Containers ....... | 284.2 | 287.3 | 287.1 | 288.0 | 287.5 | 288.0 | 288.2 | 289.0 | 289.5 | 289.6 | 290.7 | 292.1 | 292.7 | 293.2 |
| Supplies .................................................. |  |  |  |  |  |  |  |  |  |  |  |  | 304.9 | 307.8 |
|  | 306.1 | 280.3 | 276.3 | 275.4 | 277.2 | 279.2 | 277.0 | 284.2 | 287.2 | 288.6 | 295.5 | 304.7 251.3 | 246.5 | 243.1 |
| Crude materials for further <br> Foodstuffs and feedstuffs | 235.0 | 231.0 | 238.1 | 233.5 | 235.0 | 236.8 | 233.5 | 227.6 | 229.9 | 402.0 | 405.4 | 414.0 | 420.1 | 431.0 |
| Crude nonfood materials .......................... | 459.2 | 386.8 | 358.3 | 365.6 | 367.9 | 370.3 | 370.6 | 394.2 | 398.5 |  |  |  |  |  |
| Special groupings |  |  |  |  |  | 290.7 | 290.4 | 293.2 | 293.6 | 294.3 | 296.4 | 296.9 | 297.2 | 298.6 |
| Finished goods, excluding foods ................. | 299.0 | 291.1 | 286.8 | 286.1 | 452.1 | 453.7 | 454.6 | 477.4 | 489.6 | 495.5 | 511.5 | 516.5 | 520.7 | 527.5 |
| Finished energy goods ............................... | 720.9 | 518.5 275.6 | 456.2 277.2 | 471.7 275.5 | 280.0 | 280.0 | 279.6 | 279.7 | 279.5 | 279.5 | 281.1 | 282.2 | 282.5 | 283.1 |
| Finished goods less energy ........................ | 269.2 | 275.6 267.9 | 270.0 | 268.5 | 272.6 | 272.4 | 272.0 | 271.8 | 271.7 | 271.8 | 273.4 | 274.9 | 275.3 | 276.0 |
| Finished consumer goods less energy ......... | 261.3 268.7 | 274.9 | 274.8 | 272.9 | 278.9 | 279.1 | 278.7 | 279.8 | 279.3 | 279.5 | 280.5 | 280.7 | 280.7 | 281.6 |
| Finished goods less food and energy ......... | 268.7 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Finished consumer goods less food and energy | 252.1 | 258.4 | 258.4253.8 | 256.7 | 262.6 | 262.6 | 262.2 | 263.4 | 262.9 | 263.3 | 264.1 | 264.4 | 264.5 | 265.7 |
| Consumer nondurable goods less food and energy |  |  |  |  | 254.8 | 254.9 | 254.7 | 256.4 | 257.2 | 257.9 | 258.2 | 258.7 | 258.9 | 260.7 |
| Intermediate materials less foods and | 325.0 | 313.3 | 309.9 | 311.5 | 310.4 | 310.3 | 310.5 | 312.8 | 314.7 | 315.3 | $\begin{aligned} & 316.8 \\ & 232.3 \end{aligned}$ | $\begin{aligned} & 318.1 \\ & 240.2 \end{aligned}$ | $\begin{aligned} & 320.3 \\ & 241.3 \end{aligned}$ | 322.8241.1 |
| feeds ....................................................... |  |  |  |  |  |  | 310.5 231.5 |  | 230.0 |  |  |  |  |  |
| Intermediate foods and feeds ...................... | 232.8 | 230.3 | 232.1 | 233.2 | 230.3 | 231.0 378.3 | 231.5 380.7 | $\begin{aligned} & 229.5 \\ & 391.3 \end{aligned}$ | 402.6 | $\begin{aligned} & 400.3 \\ & 306.8 \end{aligned}$ | $\begin{aligned} & 404.9 \\ & 308.2 \end{aligned}$ | $\begin{aligned} & 408.1 \\ & 309.8 \end{aligned}$ | $\begin{aligned} & 420.1 \\ & 310.8 \end{aligned}$ | $\begin{aligned} & 431.7 \\ & 312.2 \end{aligned}$ |
| Intermediate energy goods .......................... | 304.0 | 303.5 | 303.5 | 304.0 | 303.9 | 304.1 | 304.1 | 305.2 | 306.1 |  |  |  |  |  |
| Intermediate goods less energy .................. |  |  |  |  |  |  |  |  | 306.1 |  |  |  |  |  |
| Intermediate materials less foods and | 305.2 | 304.4 | 304.2 | 304.6 | 304.8 | 304.9 | 304.8 | 306.2 | 307.2 | 308.1 | 309.3 | 310.5 | 311.6 | 13.2 |
|  |  |  |  |  |  |  |  |  | 584.4 | 590.1 | 590.9 | 606.9 | 612.2 | 629.5 |
| Crude energy materials ............................... | 748.1 | 575.8 | 520.4 | 533.9 | 534.4 | 537.0 233.3 | 533.2 231.5 | 228.1 | 230.4 | 230.6 | 238.4 | 248.4 | 247.1 | 246.0 |
| Crude materials less energy ........................ | 233.2 | 229.2 | 232.4 235.9 | 229.7 239.1 | 231.6 242.3 | 233.3 244.4 | 247.1 | 250.3 | 252.8 | 254.4 | 257.6 | 263.1 | 271.1 | 276.4 |
| Crude nonfood materials less energy ......... | 249.7 | 245.6 | 235.9 | 239.1 | 242.3 |  |  |  |  |  |  |  |  |  |

34. Producer Price indexes, by durability of product
$(1967=100)$

| Grouping | Annual average |  | 1986 |  |  |  |  | 1987 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
| Total durable goods | 297.3 | 300.0 | 299.9 | 298.8 | 302.2 | 302.4 | 302.1 | 302.9 | 302.8 | 303.4 | 304.3 | 304.9 | 305.2 | 306.2 |
| Total nondurable goods .............................. | 317.2 | 298.8 | 294.2 | 295.6 | 294.4 | 294.8 | 294.7 | 298.2 | 300.7 | 301.1 | 304.5 | 308.0 | 309.8 | 312.0 |
| Total manufactures ..................................... | 304.3 | 297.6 | 295.5 | 296.0 | 297.0 | 297.1 | 297.2 | 299.5 | 300.7 | 300.8 | 302.9 | 304.4 | 305.4 | 306.8 |
| Durable | 298.1 | 300.8 | 300.8 | 299.6 | 303.1 | 303.3 | 302.9 | 303.7 | 303.5 | 304.1 | 305.0 | 305.5 | 305.4 | 306.3 |
| Nondurable ............................................. | 310.5 | 294.0 | 289.7 | 292.1 | 290.4 | 290.5 | 291.0 | 294.7 | 297.4 | 297.0 | 300.4 | 302.9 | 304.9 | 306.8 |
| Total raw or slightly processed goods ......... | 327.9 | 305.6 | 300.4 | 299.0 | 299.2 | 300.6 | 298.6 | 301.6 | 303.6 | 305.9 | 308.9 | 315.2 | 316.9 | 320.0 |
| Durable .................................................... | 252.2 | 252.0 | 252.0 | 252.8 | 252.0 | 254.4 | 255.4 | 258.8 | 260.9 | 261.1 | 263.2 | 268.4 | 279.0 | 286.3 |
| Nondurable .............................................. | 332.4 | 308.6 | 303.0 | 301.6 | 301.8 | 303.1 | 300.9 | 303.9 | 305.8 | 308.3 | 311.4 | 317.7 | 318.8 | 321.7 |

35. Annual data: Producer Price Indexes, by stage of processing
$(1967=100)$

| Index | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Finished goods: |  |  |  |  |  |  |  |  |  |
| Total | 195.9 | 217.7 | 247.0 | 269.8 | 280.7 | 285.2 | 291.1 | 293.7 | 289.7 |
| Consumer goods | 194.9 | 217.9 | 248.9 | 271.3 | 281.0 | 284.6 | 290.3 | 291.8 | 284.9 |
| Capital equipment .......................................... | 199.2 | 216.5 | 239.8 | 264.3 | 279.4 | 287.2 | 294.0 | 300.5 | 306.4 |
| Intermediate materials, supplies, and components: |  |  |  |  |  |  |  |  |  |
| Total ................................................. | 215.6 | 243.2 | 280.3 | 306.0 | 310.4 | 312.3 | 320.0 | 318.7 | 307.6 |
| Materials and components for manufacturing $\qquad$ | 208.7 | 234.4 | 265.7 | 286.1 | 289.8 | 293.4 | 301.8 | 299.5 | 296.1 |
| Materials and components for construction .... | 224.7 | 247.4 | 268.3 | 287.6 | 293.7 | 301.8 | 310.3 | 315.2 | 317.4 |
| Processed fuels and lubricants ...................... | 295.3 | 364.8 | 503.0 | 595.4 | 591.7 | 564.8 | 566.2 | 548.9 | 430.2 |
| Containers | 202.8 | 226.8 | 254.5 | 276.1 | 285.6 | 286.6 | 302.3 | 311.2 | 314.9 |
| Supplies ....................................................... | 198.5 | 218.2 | 244.5 | 263.8 | 272.1 | 277.1 | 283.4 | 284.2 | 287.3 |
| Crude materials for further processing: |  |  |  |  |  |  |  |  |  |
| Total ................................................................ | 234.4 | 274.3 | 304.6 | 329.0 | 319.5 | 323.6 | 330.8 | 306.1 | 280.3 |
| Foodstuffs and feedstuffs | 216.2 | 247.9 | 259.2 | 257.4 | 247.8 | 252.2 | 259.5 | 235.0 | 231.0 |
| Nonfood materials except fuel ....................... | 272.3 | 330.0 | 401.0 | 482.3 | 473.9 | 477.4 | 484.5 | 459.2 | 386.8 |
| Fuel ................................................................ | 426.8 | 507.6 | 615.0 | 751.2 | 886.1 | 931.5 | 931.3 | 909.6 | 817.2 |

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36. U.S. export price indexes by Standard International Trade Classification,
(June $1977=100$, unless otherwise indicated)

| Category | $\begin{aligned} & 1974 \\ & \text { SITC } \end{aligned}$ | 1984 | 1985 |  |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Dec. | Mar. | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
| ALL COMMODITIES (9/83=100) |  | 98.1 | 97.5 | 97.5 | 96.5 | 96.7 | 97.0 | 96.7 | 95.1 | 96.2 | 97.2 | 99.9 |
| Food $(3 / 83=100)$. | 0 | 96.5 | 95.8 | 94.0 | 90.2 | 93.6 | 90.5 | 89.5 | 77.2 | 81.2 | 79.8 | 83.4 |
| Meat $(3 / 83=100)$ | 01 | 104.4 | 103.9 | 104.7 | 106.1 | 112.2 | 111.5 | 114.7 | 122.0 | 122.6 | 123.4 | 129.0 |
| Fish ( $3 / 83=100$ ). | 03 | 98.7 | 101.0 | 103.6 | 102.6 | 101.8 | 102.2 | 106.2 | 111.2 | 116.9 | 118.5 | 122.9 |
| Grain and grain preparations ( $3 / 80=100$ ) | 04 | 92.9 | 92.4 | 90.3 | 82.6 | 87.1 | 82.1 | 79.1 | 59.0 | 64.8 | 62.9 | 66.5 |
| Vegetables and fruit ( $3 / 83=100$ ) ............. | 05 | 114.7 | 119.5 | 120.2 | 126.9 | 118.9 | 115.3 | 125.8 | 131.4 | 131.9 | 130.8 | 130.8 |
| Feedstuffs for animals ( $3 / 83=100$ ) | 08 | 82.4 | 72.8 | 68.6 | 75.7 | 83.4 | 88.5 | 85.5 | 90.2 | 87.4 | 85.7 | 93.7 |
| Misc. food products ( $3 / 83=100$ ) .... | 09 | 108.4 | 110.6 | 109.2 | 108.1 | 107.7 | 106.0 | 104.7 | 106.6 | 108.2 | 108.6 | 110.0 |
| Beverages and tobacco (6/83 = 100) ................................................... | 1 | 101.3 | 99.9 | 100.1 | 99.7 | 98.6 | 95.6 | 96.5 | 96.3 | 101.6 | 101.7 | 104.0 |
| Beverages $(9 / 83=100)$..................................................................... | 11 | 103.7 | 104.0 | 105.3 | 101.8 | 100.9 | 101.9 | 103.0 | 102.2 | 102.9 | 104.7 | 104.8 |
| Tobacco and tobacco products (6/83 $=100$ ) | 12 | 101.1 | 99.5 | 99.6 | 99.5 | 98.4 | 95.1 | 95.9 | 95.8 | 101.4 | 101.4 | 104.0 |
| Crude materials ( $6 / 83=100$ ) | 2 | 101.4 | 97.5 | 96.8 | 93.3 | 92.5 | 95.8 | 95.6 | 92.3 | 94.8 | 97.3 | 106.4 |
| Raw hides and skins (6/80=100) | 21 | 133.6 | 121.0 | 126.2 | 129.0 | 139.9 | 138.9 | 148.9 | 138.0 | 148.3 | 168.8 | 191.2 |
| Oilseeds and oleaginous fruit (9/77 = 100). | 22 | 74.8 | 71.0 | 71.2 | 64.2 | 63.9 | 66.9 | 65.8 | 64.5 | 62.9 | 60.4 | 68.6 |
| Crude rubber (including synthetic and reclaimed) $(9 / 83=100)$............... | 23 | 104.0 | 106.4 | 106.3 | 107.1 | 106.0 | 106.0 | 106.1 | 105.3 | 104.4 | - | 111.8 |
| Wood ................................................................................................. | 24 | 125.4 | 128.7 | 125.7 | 124.5 | 128.1 | 128.7 | 128.7 | 129.7 | 135.5 | 139.0 | 146.2 |
| Pulp and waste paper $(6 / 83=100)$ | 25 | 114.2 | 100.5 | 96.1 | 93.8 | 92.7 | 98.8 | 109.7 | 119.8 | 121.2 | 133.0 | 138.7 |
| Textile fibers ................................... | 26 | 106.7 | 102.4 | 105.8 | 103.6 | 97.7 | 101.6 | 98.6 | 74.7 | 92.2 | 99.7 | 115.0 |
| Crude fertilizers and minerals. | 27 | 163.2 | 165.6 | 167.9 | 169.4 | 165.5 | 168.0 | 166.1 | 164.3 | 162.8 | 155.6 | 155.1 |
| Metalliferous ores and metal scrap | 28 | 92.4 | 89.2 | 82.0 | 80.1 | 78.7 | 83.4 | 80.5 | 84.6 | 80.7 | 82.2 | 90.7 |
| Mineral fuels | 3 | 99.7 | 100.1 | 99.2 | 97.6 | 96.6 | 91.9 | 86.7 | 85.7 | 84.7 | 85.6 | 84.4 |
| Animal and vegetables oils, fats, and waxes | 4 | 147.9 | 142.0 | 144.5 | 114.5 | 101.4 | 90.8 | 84.4 | 76.5 | 86.8 | 88.9 | 94.5 |
| Fixed vegetable oils and fats $(6 / 83=100)$ | 42 | 156.7 | 152.9 | 164.8 | 128.8 | 108.7 | 95.4 | 95.3 | 80.8 | 87.0 | 89.1 | 94.7 |
| Chemicals ( $3 / 83=100$ ) | 5 | 97.7 | 97.0 | 96.8 | 97.1 | 96.6 | 96.5 | 95.4 | 93.1 | 92.2 | 96.6 | 103.1 |
| Organic chemicals $(12 / 83=100) \ldots . .$. | 51 | 94.7 | 93.8 | 96.5 | 97.1 | 95.4 | 93.5 | 89.3 | 88.0 | 89.4 | 99.5 | 114.3 |
| Fertilizers, manufactured ( $3 / 83=100$ ) | 56 | 94.8 | 92.5 | 87.9 | 89.8 | 90.0 | 88.6 | 84.0 | 77.4 | 68.7 | 75.4 | 80.4 |
| Intermediate manufactured products (9/81=100) | 6 | 100.4 | 99.4 | 99.2 | 99.2 | 99.1 | 100.3 | 101.2 | 102.2 | 102.7 | 104.4 | 106.8 |
| Leather and furskins (9/79 = 100) . | 61 | 79.0 | 82.5 | 79.2 | 75.9 | 78.5 | 77.8 | 82.5 | 84.2 | 88.0 | 96.3 | 101.1 |
| Rubber manufactures | 62 | 148.5 | 150.2 | 149.0 | 148.3 | 148.7 | 151.0 | 150.0 | 150.4 | 151.3 | 152.1 | 153.9 |
| Paper and paperboard products ( $6 / 78=100$ ) | 64 | 159.5 | 155.0 | 151.6 | 149.6 | 148.2 | 152.2 | 158.7 | 165.3 | 167.9 | 174.4 | 177.7 |
| Iron and steel ( $3 / 82=100$ ) ........................... | 67 | 96.5 | 95.5 | 95.3 | 95.9 | 98.2 | 98.4 | 99.4 | 100.2 | 100.1 | 101.5 | 101.5 |
| Nonferrous metals ( $9 / 81=100$ ) | 68 | 82.5 | 79.7 | 79.6 | 79.8 | 78.2 | 80.2 | 79.1 | 79.4 | 78.8 | 80.3 | 90.2 |
| Metal manufactures, n.e.s. $(3 / 82=100)$ | 69 | 105.0 | 105.4 | 105.2 | 105.4 | 104.4 | 105.3 | 105.5 | 105.6 | 105.7 | 105.7 | 105.6 |
| Machinery and transport equipment, excluding military and commercial aircraft ( $12 / 78=100$ ) | 7 | 141.5 | 142.3 | 142.9 | 143.1 | 143.3 | 144.0 | 144.2 | 144.6 | 145.5 | 146.2 | 146.8 |
| Power generating machinery and equipment ( $12 / 78=100$ ) | 71 | 167.5 | 165.3 | 167.4 | 167.1 | 167.5 | 169.1 | 169.2 | 169.5 | 171.4 | 173.0 | 172.8 |
| Machinery specialized for particular industries (9/78=100) .................... | 72 | 153.4 | 155.0 | 155.7 | 156.0 | 156.2 | 155.5 | 154.7 | 155.0 | 155.7 | 154.7 | 156.0 |
| Metalworking machinery ( $6 / 78=100$ ) .................................................. | 73 | 151.9 | 153.4 | 155.1 | 156.3 | 158.4 | 159.0 | 158.9 | 160.4 | 161.8 | 165.0 | 165.8 |
| General industrial machines and parts n.e.s. $9 / 78=100$ ) ...................... | 74 | 150.2 | 152.4 | 152.0 | 152.4 | 152.2 | 152.3 | 153.3 | 154.4 | 155.3 | 157.7 | 157.8 |
| Office machines and automatic data processing equipment ................... | 75 | 101.4 | 100.9 | 100.0 | 99.9 | 99.4 | 99.9 | 99.2 | 98.9 | 98.1 | 96.1 | 96.0 |
| Telecommunications, sound recording and reproducing equipment | 76 | 134.3 | 133.3 | 133.3 | 134.1 | 134.5 | 136.5 | 137.0 | 137.8 | 139.7 | 141.3 | 140.8 |
| Electrical machinery and equipment ...................................................... | 77 | 114.6 | 114.9 | 116.1 | 115.3 | 113.8 | 115.1 | 114.2 | 114.4 | 114.9 | 117.0 | 117.3 |
| Road vehicles and parts $(3 / 80=100)$ | 78 | 131.8 | 133.1 | 133.9 | 133.8 | 135.0 | 135.5 | 136.4 | 136.5 | 137.9 | 138.0 | 138.5 |
| Other transport equipment, excl. military and commercial aviation ........ | 79 | 191.7 | 195.5 | 196.6 | 199.3 | 200.7 | 203.3 | 206.8 | 207.4 | 209.7 | 211.4 | 214.7 |
| Other manufactured articles | 8 | 99.3 | 99.5 | 100.4 | 100.3 | 100.3 | 102.6 | 103.4 | 104.1 | 104.3 | 105.3 | 107.3 |
| Apparel (9/83 = 100) ........................................................................... | 84 | 103.4 | 104.7 | 104.7 | 105.0 | 105.3 | - | - | - | 110.0 | - | - |
| Professional, scientific, and controlling instruments and apparatus Photographic apparatus and supplies, optical goods, watches and | 87 | 171.7 | 175.5 | 178.3 | 178.7 | 178.8 | 182.1 | 183.8 | 183.8 | 184.8 | 186.4 | 188.5 |
| clocks ( $12 / 77=100$ ) | 88 | 130.3 | 128.0 | 129.1 | 127.5 | 128.5 | 131.6 | 132.9 | 132.7 | 132.0 | 133.4 | 133.1 |
| Miscellaneous manufactured articles, n.e.s. | 89 | 94.1 | 92.4 | 93.1 | 93.1 | 92.4 | 95.6 | 95.6 | 97.6 | 97.7 | 98.1 | 102.1 |
| Gold, non-monetary ( $6 / 83=100$ ) ......... | 971 | 79.5 | 69.1 | 75.4 | 77.4 | 77.5 | 81.8 | 82.2 | 97.5 | 94.5 | 98.2 | 108.4 |

[^29]37. U.S. import price indexes by Standard International Trade Classification
(June $1977=100$, unless otherwise indicated)

| Category | $\begin{aligned} & 1974 \\ & \text { SITC } \end{aligned}$ | 1985 |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
| ALL COMMODITIES (9/82=100) |  | 93.0 | 92.9 | 94.2 | 88.5 | 83.2 | 83.9 | 86.0 | 91.6 | 95.3 |
| Food (9/77 = 100) | 0 | 96.8 | 94.9 | 102.8 | 113.4 | 104.7 | 109.1 | 105.3 | 100.2 | 102.0 |
| Meat ........ | 01 | 118.2 | 120.6 | 131.2 | 122.7 | 118.5 | 126.9 | 134.4 | 132.1 | 135.9 |
| Dairy products and eggs ( $6 / 81=100$ ) | 02 | 97.9 | 99.1 | 100.5 | 106.7 | 107.1 | 109.4 | 111.5 | 116.8 | 119.6 |
| Fish .................................................................................................... | 03 | 129.4 | 129.7 | 132.7 | 139.3 | 144.8 | 149.6 | 157.1 | 161.6 | 167.4 |
| Bakery goods, pasta products, grain and grain preparations $(9 / 77=100)$ $\qquad$ | 04 | 132.3 | 136.3 | 141.9 | 146.9 | 149.2 | 154.0 | 155.3 | 161.0 | 165.2 |
| Fruits and vegetables .......................................................................... | 05 | 129.4 | 120.2 | 131.3 | 119.4 | 119.4 | 127.1 | 125.5 | 120.5 | 125.4 |
| Sugar, sugar preparations, and honey (3/82=100) ............................... | 06 | 122.6 | 123.1 | 111.9 | 124.6 | 121.6 | 123.9 | 124.3 | 126.0 | 128.6 |
| Coffee, tea, cocoa ................................................................................ | 07 | 56.0 | 54.4 | 64.6 | 85.9 | 69.2 | 71.8 | 61.0 | 50.9 | 49.3 |
| Beverages and tobacco ...................................................................... | 1 | 157.1 | 158.0 | 162.1 | 163.2 | 165.5 | 165.8 | 168.0 | 170.8 | 174.1 |
| Beverages .......................................................................................... | 11 | 154.3 | 156.0 | 159.1 | 161.8 | 163.9 | 165.5 | 168.2 | 171.5 | 174.6 |
| Crude materials ...................................................................................... | 2 | 93.6 | 91.5 | 91.2 | 94.2 | 95.3 | 98.1 | 98.5 | 103.1 | 105.6 |
| Crude rubber (inc. synthetic \& reclaimed) $(3 / 84=100)$ | 23 | 76.4 | 68.9 | 73.2 | 78.8 | 75.5 | 76.9 | 78.5 | 79.1 | 84.5 |
| Wood (9/81 = 100) .... | 24 | 106.9 | 101.6 | 99.4 | 104.3 | 106.3 | 109.4 | 107.2 | 115.0 | 112.0 |
| Pulp and waste paper (12/81=100) .................................................... | 25 | 80.4 | 76.8 | 75.8 | 74.9 | 79.9 | 86.0 | 92.8 | 100.5 | 104.6 |
| Crude fertilizers and crude minerals (12/83 = 100) ................................. | 27 | 101.7 | 102.7 | 102.1 | 101.5 | 100.0 | 100.4 | 100.2 | 99.5 | 98.4 |
| Metalliferous ores and metal scrap ( $3 / 84=100$ ) ................................... | 28 | 87.6 | 89.5 | 90.1 | 94.5 | 95.6 | 98.2 | 95.4 | 98.0 | 100.0 |
| Crude vegetable and animal materials, n.e.s. ........................................ | 29 | 104.9 | 102.5 | 102.5 | 103.6 | 104.4 | 104.8 | 104.7 | 113.4 | 120.3 |
| Fuels and related products ( $6 / 82=100)$ | 3 | 80.9 | 79.8 | 79.1 | 55.3 | 37.5 | 33.6 | 38.4 | 49.7 | 54.8 |
| Petroleum and petroleum products $(6 / 82=100)$.................................... | 33 | 81.6 | 80.3 | 80.1 | 54.7 | 36.1 | 32.1 | 37.9 | 49.9 | 55.2 |
| Fats and olls (9/83=100) ..................................................................... | 4 | 76.7 | 57.6 | 50.6 | 41.4 | 39.3 | 35.5 | 51.6 | 50.8 | 54.5 |
|  | 42 | 75.9 | 56.2 | 48.9 | 39.3 | 37.4 | 33.5 | 50.0 | 49.2 | 52.6 |
| Chemicals (9/82=100) .......................................................................... | 5 | 94.9 | 94.5 | 94.2 | 94.6 | 93.3 | 93.4 | 93.2 | 95.9 | 98.8 |
| Medicinal and pharmaceutical products (3/84=100) ............................. | 54 | 95.1 | 95.3 | 96.7 | 102.9 | 104.9 | 110.0 | 110.1 | 116.2 | 120.3 |
| Manufactured fertilizers (3/84 = 100) ................................................... | 56 | 82.0 | 80.8 | 78.5 | 79.2 | 79.7 | 77.4 | 79.7 | 81.8 | 83.6 |
| Chemical materials and products, n.e.s. $(9 / 84=100)$............................. | 59 | 95.6 | 96.9 | 97.8 | 99.9 | 100.3 | 101.0 | 102.8 | 104.3 | 105.0 |
| Intermediate manufactured products (12/77 = 100) ............................. | 6 | 132.4 | 133.6 | 133.4 | 134.0 | 135.6 | 138.8 | 139.4 | 142.2 | 147.4 |
| Leather and furskins ........................................................................... | 61 | 133.3 | 137.0 | 141.3 | 141.6 | 143.0 | 147.4 | 143.3 | 149.5 | 156.6 |
| Rubber manufactures, n.e.s. ................................................................ | 62 | 138.6 | 137.3 | 138.1 | 136.5 | 137.7 | 138.1 | 138.1 | 140.8 | 140.5 |
| Cork and wood manufactures | 63 | 121.2 | 123.4 | 124.0 | 130.8 | 134.3 | 137.4 | 142.7 | 144.3 | 151.6 |
| Paper and paperboard products | 64 | 157.2 | 157.8 | 156.5 | 157.1 | 157.1 | 157.5 | 164.8 | 165.2 | 165.0 |
| Textiles | 65 | 127.5 | 126.5 | 128.1 | 131.2 | 132.9 | 135.1 | 135.3 | 138.8 | 140.4 |
| Nonmetallic mineral manufactures, n.e.s. ............................................. | 66 | 151.7 | 157.6 | 162.2 | 164.2 | 169.6 | 178.2 | 180.2 | 183.1 | 190.3 |
| Iron and steel (9/78=100) ................................................................ | 67 | 120.1 | 119.1 | 118.3 | 117.3 | 118.1 | 119.0 | 118.5 | 122.3 | 127.1 |
| Nonferrous metals (12/81=100) ......................................................... | 68 | 82.3 | 83.7 | 80.4 | 79.4 | 78.9 | 83.5 | 81.6 | 82.4 | 90.9 |
| Metal manufactures, n.e.s. ................................................................... | 69 | 117.8 | 119.5 | 121.6 | 124.4 | 127.8 | 129.1 | 129.1 | 133.4 | 134.5 |
| Machinery and transport equipment (6/81=100) ............................... | 7 | 102.6 | 103.5 | 107.2 | 111.5 | 115.3 | 118.1 | 120.2 | 123.9 | 126.1 |
| Machinery specialized for particular industries (9/78=100) ................... | 72 | 97.0 | 101.4 | 104.9 | 112.1 | 115.4 | 120.1 | 121.0 | 127.5 | 129.5 |
| Metalworking machinery ( $3 / 80=100$ ) | 73 | 90.5 | 94.2 | 98.1 | 105.0 | 107.7 | 110.7 | 115.7 | 122.4 | 126.1 |
| General industrial machinery and parts, n.e.s. $(6 / 81=100)$................... | 74 | 91.1 | 94.3 | 98.0 | 103.8 | 109.0 | 112.8 | 113.9 | 120.5 | 123.0 |
| Office machines and automatic data processing equipment $(3 / 80=100)$ | 75 | 89.4 | 90.3 | 93.7 | 96.9 | 101.3 | 102.5 | 102.4 | 103.2 | 106.4 |
| Telecommunications, sound recording and reproducing apparatus $(3 / 80=100)$ | 76 | 88.8 | 88.3 | 88.6 | 89.4 | 91.6 | 93.7 | 93.9 | 94.6 | 95.5 |
| Electrical machinery and equipment (12/81=100) ............................... | 77 | 83.9 | 81.4 | 83.1 | 84.5 | 87.5 | 89.5 | 91.7 | 93.6 | 94.8 |
|  | 78 | 112.1 | 112.7 | 117.8 | 123.4 | 127.1 | 129.8 | 133.2 | 137.0 | 139.2 |
| Misc. manufactured articles ( $3 / 80=100$ ) | 8 | 98.0 | 99.6 | 100.8 | 103.3 | 104.8 | 109.5 | 109.6 | 114.3 | 118.1 |
| Plumbing, heating, and lighting fixtures ( $6 / 80=100$ ) | 81 | 114.1 | 117.8 | 115.0 | 120.1 | 123.5 | 125.5 | 125.5 | 125.5 | 130.6 |
| Furniture and parts ( $6 / 80=100$ ) ............................................................. | 82 | 136.7 | 142.1 | 142.7 | 147.0 | 142.2 | 145.8 | 146.9 | 148.9 | 153.3 |
| Clothing (9/77=100) ........................................................................... | 84 | 133.9 | 134.5 | 134.5 | 133.4 | 135.3 | 137.8 | 139.1 | 145.5 | 150.9 |
| Footwear | 85 | 136.7 | 142.1 | 142.7 | 147.0 | 142.2 | 145.8 | 146.9 | 148.9 | 153.3 |
| Professional, scientific, and controlling instruments and apparatus ( $12 / 79=100$ ) | 87 | 92.3 | 98.8 | 102.4 | 106.4 | 112.5 | 118.3 | 118.0 | 125.6 | 129.5 |
| Photographic apparatus and supplies, optical goods, watches, and clocks $(3 / 80=100)$ | 88 | 89.5 | 91.1 | 94.5 | 99.3 | 103.2 | 106.9 | 107.6 | 111.8 | 114.4 |
| Misc. manufactured articles, n.e.s. $(6 / 82=100)$................................... | 89 | 95.2 | 96.4 | 97.9 | 102.1 | 103.4 | 112.3 | 111.0 | 116.9 | 121.8 |
| Gold, non-monetary (6/82=100) .......................................................... | 971 | 98.3 | 101.1 | 101.0 | 106.7 | 107.3 | 126.9 | 123.3 | 128.0 | 141.5 |

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38. U.S. export price indexes by end-use category
(September $1983=100$ unless otherwise indicated)

| Category | Percentage of 1980 trade value | 1985 |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
| Foods, feeds, and beverages ................................................... | 16.294 | 80.9 | 76.2 | 77.5 | 75.5 | 74.7 | 66.0 | 68.4 | 67.1 | 71.3 |
| Raw materials ............................................................................ | 30.696 | 97.2 | 96.5 | 95.9 | 96.0 | 94.9 | 93.3 | 94.8 | 98.2 | 103.1 |
| Raw materials, nondurable ...................................................... | 21.327 | 99.5 | 98.7 | 97.9 | 97.5 | 96.1 | 93.7 | 95.4 | 99.5 | 104.7 |
| Raw materials, durable ............................................................ | 9.368 | 91.6 | 91.1 | 91.0 | 92.5 | 91.9 | 92.5 | 93.2 | 95.1 | 99.2 |
| Capital goods ( $12 / 82=100$ ) ....................................................... | 30.186 | 106.6 | 106.6 | 106.6 | 107.4 | 107.5 | 107.7 | 108.3 | 108.9 | 109.5 |
| Automotive vehicles, parts and engines (12/82=100) ................ | 7.483 | 108.0 | 108.1 | 109.2 | 109.5 | 110.4 | 110.8 | 111.8 | 111.9 | 112.1 |
| Consumer goods ........................................................................ | 7.467 | 101.1 | 101.9 | 101.4 | 103.7 | 104.5 | 104.5 | 105.7 | 106.9 | 107.1 |
| Durables | 3.965 | 99.2 | 100.4 | 99.5 | 101.8 | 101.8 | 102.1 | 102.7 | 103.9 | 103.6 |
| Nondurables ............................................................................ | 3.501 | 103.0 | 103.3 | 103.3 | 105.5 | 107.2 | 106.9 | 108.5 | 109.8 | 110.5 |

39. U.S. import price indexes by end-use category
(December $1982=100$ )

| Category | Percentage of 1980 trade value | 1985 |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
| Foods, feeds, and beverages | 7.477 | 100.4 | 99.0 | 106.0 | 115.8 | 108.2 | 112.3 | 109.2 | 104.7 | 106.6 |
| Petroleum and petroleum products, excl. natural gas .................. | 31.108 | 82.1 | 80.9 | 80.5 | 55.4 | 36.8 | 32.6 | 38.3 | 50.5 | 55.8 |
| Raw materials, excluding petroleum ........................................... | 19.205 | 95.8 | 95.4 | 93.9 | 94.5 | 94.0 | 95.3 | 94.9 | 96.9 | 100.5 |
| Raw materials, nondurable ...................................................... | 9.391 | 93.9 | 93.5 | 91.8 | 91.1 | 89.7 | 89.5 | 89.7 | 91.8 | 94.5 |
| Raw materials, durable ............................................................. | 9.814 | 97.8 | 97.4 | 96.2 | 98.1 | 98.7 | 101.4 | 100.3 | 102.3 | 106.8 |
| Capital goods ............................................................................ | 13.164 | 96.3 | 97.6 | 100.0 | 102.8 | 106.7 | 109.4 | 110.7 | 115.3 | 117.8 |
| Automotive vehicles, parts and engines ..................................... | 11.750 | 105.9 | 106.4 | 111.4 | 115.6 | 119.0 | 121.0 | 123.9 | 126.2 | 128.0 |
| Consumer goods ....................................................................... | 14.250 | 99.4 | 101.0 | 102.4 | 104.5 | 106.5 | 110.1 | 110.6 | 114.3 | 117.5 |
| Durable ................................................................................... | 5.507 | 97.0 | 98.9 | 100.7 | 103.4 | 106.5 | 111.2 | 111.6 | 114.8 | 117.5 |
| Nondurable .............................................................................. | 8.743 | 102.5 | 103.9 | 104.7 | 106.0 | 106.6 | 108.6 | 109.2 | 113.7 | 117.6 |

40. U.S. export price indexes by Standard Industrial Classification ${ }^{1}$

| Industry group | 1985 |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
|  | 99.5 | 96.7 | 98.1 | 97.0 | 95.0 | 95.2 | 97.6 | 99.0 | 104.1 |
| Food and kindred products $(6 / 83=100)$ |  |  |  |  |  |  |  |  |  |
| Lumber and wood products, except furniture $(6 / 83=100)$ $\qquad$ | 99.5 | 98.3 | 101.2 | 101.5 | 101.2 | 102.1 | 105.7 | 109.8 | 113.0 |
| Furniture and fixtures $(9 / 83=100)$................................. | 106.5 | 107.1 | 108.4 | 109.2 | 109.7 | 110.1 | 110.4 | 113.4 | 114.0 |
| Paper and allied products ( $3 / 81=100$ ) | 94.7 | 93.2 | 92.1 | 95.7 | 101.5 | 106.1 | 108.7 | 113.7 | 116.7 |
| Chemicals and allied products ( $12 / 84=100$ ) ................... | 99.6 | 99.7 | 99.2 | 98.9 | 98.3 | 96.2 | 95.9 | 100.3 | 106.5 |
| Petroleum and coal products $(12 / 83=100)$..................... | 102.7 | 102.0 | 99.1 | 93.5 | 83.1 | 83.1 | 82.2 | 83.5 | 86.8 |
| Primary metal products $(3 / 82=100)$.............................. | 87.5 | 88.1 | 87.9 | 89.8 | 89.8 | 90.7 | 89.9 | 91.7 | 97.4 |
| Machinery, except electrical (9/78=100) ........................ | 140.5 | 140.6 | 140.5 | 140.6 | 140.3 | 140.5 | 140.7 | 141.0 | 141.4 |
|  | 112.4 | 111.9 | 111.2 | 112.6 | 112.3 | 112.6 | 113.6 | 115.2 | 115.3 |
| Transportation equipment ( $12 / 78=100)$.......................... | 161.8 | 162.6 | 164.1 | 165.1 | 167.1 | 167.4 | 169.4 | 170.0 | 171.2 |
| Scientific instruments; optical goods; clocks $(6 / 77=100)$ $\qquad$ | 156.6 | 156.2 | 156.7 | 159.7 | 161.2 | 161.5 | 162.3 | 163.3 | 164.6 |

1 SIC - based classification.
41. U.S. import price indexes by Standard Industrial Classification ${ }^{1}$

| Industry group | 1985 |  |  | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Mar. | June |
| Manufacturing: |  |  |  |  |  |  |  |  |  |
| Food and kindred products ( $6 / 77=100$ ) | 115.0 | 114.2 | 115.1 | 117.7 | 115.6 | 118.0 | 122.4 | 122.7 | 125.9 |
| Textile mill products (9/82 $=100$ ) .......... | 101.0 | 100.4 | 101.8 | 104.7 | 106.4 | 107.1 | 108.0 | 111.7 | 113.6 |
| Apparel and related products ( $6 / 77=100$ ) | 133.0 | 133.9 | 134.4 | 133.4 | 135.1 | 137.8 | 139.3 | 146.0 | 150.9 |
| Lumber and wood products, except furniture $(6 / 77=100)$ | 120.6 | 1175 | 115.8 |  |  |  |  |  | 150.9 |
| Furniture and fixtures ( $6 / 80=100$ ). | 96.1 | 97.7 | 98.2 | 101.2 | 103.5 | 127.9 | 127.9 | 134.5 | 135.0 |
| Paper and allied products ( $6 / 77=100$ ) .. | 139.8 | 138.7 | 137.4 | 137.6 | 139.4 | 142.2 | 150.3 | 154.0 | 110.2 |
| Chemicals and allied products ( $9 / 82=100$ ) | 93.9 | 93.3 | 95.8 | 98.6 | 102.1 | 103.8 | 102.4 | 104.7 | 155.7 |
| Rubber and miscellaneous plastic products |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Leather and leather products | 138.9 | 142.3 | 144.0 | 145.8 | 144.6 | 147.7 | 148.7 | 151.8 | 156.2 |
| Primary metal products ( $6 / 81=100)$ | 84.1 | 84.3 | 82.6 | 82.0 | 82.4 | 84.9 | 84.0 | 85.4 | 91.3 |
| Fabricated metal products ( $12 / 84=100$ ). | 99.1 | 101.0 | 102.6 | 104.9 | 108.5 | 110.3 | 111.1 | 115.5 | 116.2 |
| Machinery, except electrical ( $3 / 80=100$ ). | 93.4 | 96.6 | 100.0 | 105.5 | 109.0 | 112.5 | 114.2 | 119.1 | 121.9 |
| Electrical machinery (9/84 = 100). | 95.8 | 94.5 | 95.8 | 97.0 | 100.2 | 102.6 | 104.0 | 105.7 | 106.9 |
| Transportation equipment ( $6 / 81=100$ ) ....... | 114.2 | 114.8 | 119.6 | 123.9 | 128.0 | 130.4 | 133.2 | 136.5 | 138.4 |
| Scientific instruments; optical goods; clocks $(12 / 79=100)$ | 91.7 | 94.6 | 98.8 | 103.9 | 109.1 | 113.7 | 113.7 | 119.1 | 122.1 |
| Miscellaneous manufactured commodities |  |  |  |  |  |  |  | 119.1 | 122.1 |
| $(9 / 82=100)$. | 95.1 | 96.6 | 98.7 | 99.9 | 101.7 | 106.9 | 108.1 | 110.3 | 113.8 |

SIC - based classification.
42. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted
(1977=100)


- Data not available.


## 43. Annual indexes of multifactor productivity and related measures, selected years

$(1977=100)$

| Item | 1960 | 1970 | 1973 | 1975 | 1977 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Private business |  |  |  |  |  |  |  |  |  |  |  |  |
| Productivity: |  |  |  |  |  |  |  |  |  |  |  |  |
| Output per hour of all persons | 67.3 | 88.4 | 95.9 | 95.7 | 100.0 | 99.5 | 99.2 | 100.6 | 100.3 | 103.0 | 105.4 | 106.5 |
| Output per unit of capital services ..................... | 102.4 | 102.0 | 105.3 | 93.8 | 100.0 | 99.8 | 94.2 | 92.4 | 86.6 | 88.3 | 92.4 | 91.5 |
| Multifactor productivity ...................................... | 78.2 | 92.9 | 99.1 | 95.0 | 100.0 | 99.7 | 97.4 | 97.7 | 95.2 | 97.6 | 100.6 | 101.0 |
| Output ................................................................ | 55.3 | 80.2 | 93.0 | 89.3 | 100.0 | 107.9 | 106.6 | 108.9 | 105.4 | 109.9 | 118.9 | 122.8 |
| Inputs: |  |  |  |  |  |  |  |  |  |  |  |  |
| Hours of all persons ......................................... | 82.2 | 90.8 | 96.9 | 93.2 | 100.0 | 108.4 | 107.5 | 108.2 | 105.2 | 106.7 | 112.8 | 115.3 |
| Capital services ....... | 54.0 | 78.7 | 88.3 | 95.1 | 100.0 | 108.0 | 113.1 | 117.8 | 121.7 | 124.4 | 128.7 | 134.1 |
| Combined units of labor and capital input .......... | 70.7 | 86.3 | 93.8 | 93.9 | 100.0 | 108.2 | 109.4 | 111.5 | 110.7 | 112.6 | 118.1 | 121.6 |
| Capital per hour of all persons .............................. | 65.7 | 86.7 | 91.1 | 102.0 | 100.0 | 99.7 | 105.3 | 108.8 | 115.7 | 116.7 | 114.1 | 116.3 |
| Private nonfarm business |  |  |  |  |  |  |  |  |  |  |  |  |
| Productivity: |  |  |  |  |  |  |  |  |  |  |  |  |
| Output per hour of all persons .......................... | 70.7 | 89.2 | 96.4 | 96.0 | 100.0 | 99.2 | 98.7 | 99.6 | 99.1 | 102.4 | 104.3 | 104.8 |
| Output per unit of capital services ..................... | 103.7 | 102.8 | 106.0 | 93.8 | 100.0 | 99.0 | 93.4 | 91.1 | 85.1 | 87.3 | 90.9 | 89.7 |
| Multifactor productivity | 80.9 | 93.7 | 99.6 | 95.3 | 100.0 | 99.1 | 96.9 | 96.7 | 94.1 | 97.0 | 99.6 | 99.4 |
| Output ................................................................ | 54.4 | 79.9 | 92.9 | 88.9 | 100.0 | 107.9 | 106.6 | 108.4 | 104.8 | 110.0 | 118.9 | 122.5 |
| Inputs: |  |  |  |  |  |  |  |  |  |  |  |  |
| Hours of all persons | 77.0 | 89.6 | 96.3 | 92.6 | 100.0 | 108.8 | 108.0 | 108.8 | 105.7 | 107.4 | 114.0 | 116.9 |
| Capital services .................................... | 52.5 | 77.7 | 87.6 | 94.8 | 100.0 | 109.0 | 114.1 | 119.0 | 123.2 | 126.1 | 130.8 | 136.6 |
| Combined units of labor and capital input .......... | 67.3 | 85.3 | 93.3 | 93.4 | 100.0 | 108.9 | 110.0 | 112.2 | 111.4 | 113.5 | 119.4 | 123.3 |
| Capital per hour of all persons ............................. | 68.2 | 86.8 | 91.0 | 102.3 | 100.0 | 100.1 | 105.6 | 109.4 | 116.5 | 117.4 | 114.7 | 116.8 |
| Manufacturing |  |  |  |  |  |  |  |  |  |  |  |  |
| Productivity: |  |  |  |  |  |  |  |  |  |  |  |  |
| Output per hour of all persons .......................... | 62.2 | 80.8 | 93.4 | 92.9 | 100.0 | 101.4 | 101.4 | 103.6 | 105.9 | 112.0 | 116.6 | 121.7 |
| Output per unit of capital services ..................... | 102.5 | 98.6 | 111.4 | 90.1 | 100.0 | 99.7 | 91.2 | 89.2 | 81.8 | 86.9 | 94.4 | 96.0 |
| Multifactor productivity | 71.9 | 85.2 | 97.9 | 92.0 | 100.0 | 101.0 | 98.7 | 99.8 | 99.2 | 105.1 | 110.7 | 114.7 |
| Output ................... | 52.5 | 78.6 | 96.3 | 84.9 | 100.0 | 108.1 | 103.2 | 104.8 | 98.4 | 104.7 | 116.0 | 120.4 |
| Inputs: |  |  |  |  |  |  |  |  |  |  |  |  |
| Hours of all persons ......................................... | 84.4 | 97.3 | 103.1 | 91.4 | 100.0 | 106.5 | 101.7 | 101.1 | 92.9 | 93.5 | 99.5 | 98.9 |
| Capital services ............................................... | 51.2 | 79.7 | 86.4 | 94.2 | 100.0 | 108.4 | 113.1 | 117.5 | 120.3 | 120.6 | 122.9 | 125.4 |
| Combined units of labor and capital inputs ........ | 73.0 | 92.2 | 98.4 | 92.2 | 100.0 | 107.0 | 104.5 | 105.0 | 99.2 | 99.7 | 104.8 | 105.0 |
| Capital per hour of all persons ............................ | 60.7 | 82.0 | 83.8 | 103.1 | 100.0 | 101.7 | 111.2 | 116.2 | 129.4 | 129.0 | 123.6 | 126.7 |

44. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years
$(1977=100)$

| Item |  |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |

45. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

| Country | Annual average |  | $\begin{gathered} 1985 \\ \hline \text { IV } \end{gathered}$ | 1986 |  |  |  | 1987 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1985 | 1986 |  | 1 | II | III | IV | 1 | II |
| Total labor force basis |  |  |  |  |  |  |  |  |  |
| United States .................................... | 7.1 | 6.9 | 7.0 | 7.0 | 7.0 | 6.8 | 6.8 | 6.6 | 6.1 |
| Canada ............................................ | 10.4 | 9.5 | 10.1 | 9.7 | 9.5 | 9.6 | 9.4 | 9.6 | 9.0 |
| Australia .......................................... | 8.2 | 8.0 | 7.8 | 7.9 | 7.7 | 8.2 | 8.3 | 8.3 | 8.1 |
| Japan ............................................... | 2.6 | 2.8 | 2.8 | 2.7 | 2.8 | 2.9 | 2.9 | 2.9 | - |
| France ............................................. | 10.2 | 10.4 | 10.2 | 10.2 | 10.4 | 10.6 | 10.6 | 11.0 | 11.0 |
| Germany .......................................... | 7.7 | 7.4 | 7.7 | 7.6 | 7.5 | 7.4 | 7.2 | 7.3 | 7.4 |
| Italy ${ }^{\text {, } 2 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ~}$ | 5.9 | 6.2 | 6.1 | 6.1 | 6.2 | 5.9 | 6.5 | 6.6 | - |
| Sweden ........................................... | 2.8 | 2.6 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 | 2.0 | 1.9 |
| United Kingdom .................................. | 11.2 | 11.1 | 11.0 | 11.1 | 11.2 | 11.1 | 10.9 | 10.6 | 10.2 |
| Civilian labor force basis |  |  |  |  |  |  |  |  |  |
| United States ................................... | 7.2 | 7.0 | 7.1 | 7.1 | 7.1 | 6.9 | 6.9 | 6.7 | 6.2 |
| Canada ............................................ | 10.5 | 9.6 | 10.1 | 9.7 | 9.6 | 9.7 | 9.4 | 9.6 | 9.1 |
| Australia .......................................... | 8.3 | 8.1 | 7.9 | 8.0 | 7.8 | 8.3 | 8.4 | 8.3 | 8.2 |
| Japan .............................................. | 2.6 | 2.8 | 2.8 | 2.7 | 2.8 | 2.9 | 2.9 | 2.9 | - |
| France ............................................ | 10.4 | 10.7 | 10.4 | 10.5 | 10.7 | 10.8 | 10.8 | 11.2 | 11.3 |
| Germany .......................................... | 7.9 | 7.6 | 7.8 | 7.8 | 7.7 | 7.5 | 7.4 | 7.4 | 7.5 |
| Italy ${ }^{1}{ }^{2}$.............................................. | 6.0 | 6.3 | 6.2 | 6.2 | 6.3 | 6.0 | 6.6 | 6.7 | - |
| Sweden ........................................... | 2.8 | 2.7 | 2.7 | 2.8 | 2.6 | 2.6 | 2.6 | 2.0 | 1.9 |
| United Kingdom ................................ | 11.2 | 11.1 | 11.1 | 11.2 | 11.2 | 11.2 | 10.9 | 10.7 | 10.3 |

[^30]double the Italian unemployment rate shown.

- 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


[^31]47. Annual indexes of manufacturing productivity and related measures, 12 countries
(1977 = 100)


[^32]MONTHLY LABOR REVIEW September 1987 - Current Labor Statistics: Illness and Injury Data
48. Occupational injury and illness incidence rates by industry, United States

| Industry and type of case ${ }^{1}$ | Incidence rates per 100 full-time workers ${ }^{2}$ |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| PRIVATE SECTOR ${ }^{3}$ |  |  |  |  |  |  |  |  |  |
| Total cases | 9.3 | 9.4 | 9.5 | 8.7 | 8.3 | 7.7 | 7.6 | 8.0 | 7.9 |
| Lost workday cases | 3.8 | 4.1 | 4.3 | 4.0 | 3.8 | 3.5 | 3.4 | 3.7 | 3.6 |
| Lost workdays ............................................................................................... | 61.6 | 63.5 | 67.7 | 65.2 | 61.7 | 58.7 | 58.5 | 63.4 | 64.9 |
| Total cases ......................................................... |  |  |  |  |  |  |  |  |  |
|  | 11.5 | 11.6 | 11.7 | 11.9 | 12.3 | 11.8 | 11.9 | 12.0 | 11.4 |
| Lost workday cases | 5.1 | 5.4 | 5.7 8.7 | 5.8 8.7 | 5.9 8.8 | 5.9 86.0 | 6.1 90.8 | 6.1 90.7 | 5.7 91.3 |
| Lost workdays ................................................................................................ | 81.1 | 80.7 | 83.7 | 82.7 | 82.8 | 86.0 | 90.8 | 90.7 | 91.3 |
| Mining |  |  |  |  |  |  |  |  |  |
|  | 10.9 | 11.5 | 11.4 | 11.2 | 11.6 | 10.5 | 8.4 | 9.7 | 8.4 |
| Lost workday cases | 6.0 | 6.4 | 6.8 | 6.5 | 6.2 | 5.4 | 4.5 | 5.3 | 4.8 |
| Lost workdays .......... | 128.8 | 143.2 | 150.5 | 163.6 | 146.4 | 137.3 | 125.1 | 160.2 | 145.3 |
| Construction |  |  |  |  |  |  |  |  |  |
|  | 15.5 | 16.0 | 16.2 | 15.7 | 15.1 | 14.6 | 14.8 | 15.5 | 15.2 |
| Lost workday cases . | 5.9 | 6.4 | 6.8 | 6.5 | 6.3 | 6.0 | 6.3 | 6.9 | 6.8 |
| Lost workdays ......... | 111.5 | 109.4 | 120.4 | 117.0 | 113.1 | 115.7 | 118.2 | 128.1 | 128.9 |
| General building contractors: |  |  |  |  |  |  |  |  |  |
| Total cases .................... | 15.0 | 15.9 | 16.3 | 15.5 | 15.1 | 14.1 | 14.4 | 15.4 | 15.2 |
| Lost workday cases | 5.7 | 6.3 | 6.8 | 6.5 | 6.1 | 5.9 | 6.2 | 6.9 | 6.8 |
| Lost workdays ......... | 100.2 | 105.3 | 111.2 | 113.0 | 107.1 | 112.0 | 113.0 | 121.3 | 120.4 |
| Heavy construction contractors: |  |  |  |  |  |  |  |  |  |
| Lost workday cases. | 16.0 5 | 16.6 | 16.6 6.7 | 16.3 | 14.9 | 15.1 58 | 15.4 | 14.9 6.4 | 14.5 6.3 |
|  | 5.7 116.7 | 6.2 110.9 | 6.7 123.1 | 6.3 117.6 | 6.0 106.0 | 5.8 113.1 | 6.2 122.4 | 6.4 131.7 | 6.3 127.3 |
| Special trade contractors: | 116.7 | 110.9 | 123.1 | 117.6 | 106.0 | 113.1 | 122.4 | 131.7 | 127.3 |
|  |  |  |  |  |  | 14.7 | 14.8 | 15.8 | 15.4 |
| Lost workday cases ... | 15.6 | 15.8 | 16.0 6.9 | 15.5 6.7 |  | 14.7 6.2 | 6.4 | 7.1 | 15.4 7.0 |
|  | 6.1 115.5 | 6.6 111.0 | 6.9 124.3 | 6.7 118.9 | 6.6 119.3 | 118.6 | 6.4 119.0 | 130.1 | 133.3 |
| Total cases ........................................... |  |  |  |  |  |  |  |  |  |
|  | 13.1 | 13.2 | 13.3 | 12.2 | 11.5 | 10.2 | 10.0 | 10.6 | 10.4 |
| Lost workday cases ... | 5.1 | 5.6 | 5.9 | 5.4 | 5.1 | 4.4 | 4.3 | 4.7 | 4.6 |
| Lost workdays ............ | 82.3 | 84.9 | 90.2 | 86.7 | 82.0 | 75.0 | 73.5 | 77.9 | 80.2 |
| Durable goods |  |  |  |  |  |  |  |  |  |
| Lumber and wood products: |  |  |  |  |  |  |  |  |  |
|  | 22.3 | 22.6 | 20.7 | 18.6 | 17.6 | 16.9 | 18.3 | 19.6 | 18.5 |
| Lost workday cases. | 10.4 | 11.1 | 10.8 | 9.5 | 9.0 | 8.3 | 9.2 | 9.9 | 9.3 |
| Lost workdays .......... | 178.0 | 178.8 | 175.9 | 171.8 | 158.4 | 153.3 | 163.5 | 172.0 | 171.4 |
| Furniture and fixtures: |  |  |  |  |  | 13.9 | 14.1 | 15.3 | 15.0 |
| Total cases ............... | 17.2 | 17.5 | 17.6 7 | 16.0 6.6 | 15.1 6.2 | 13.9 5.5 | 14.1 5.7 | 15.3 6.4 | 6.3 |
| Lost workday cases | 6.0 92.0 | 6.9 95.9 | 7.1 99.6 | 6.6 97.6 | 6.2 91.9 | 5.5 85.6 | 5.7 83.0 | 6.4 101.5 | 6.3 100.4 |
| Lost workdays $\qquad$ Stone, clay, and glass products: |  |  |  |  |  |  |  |  |  |
|  | 16.9 | 16.8 | 16.8 | 15.0 | 14.1 | 13.0 | 13.1 | 13.6 | 13.9 |
|  | 6.9 | 7.8 | 8.0 | 7.1 | 6.9 | 6.1 | 6.0 | 6.6 | 6.7 |
| Lost workdays $\qquad$ Primary metal industries: | 120.4 | 126.3 | 133.7 | 128.1 | 122.2 | 112.2 | 112.0 | 120.8 | 127.8 |
|  |  |  |  |  |  |  |  |  |  |
| Total cases .................. | 16.2 | 17.0 | 17.3 | 15.2 | 14.4 | 12.4 | 12.4 | 13.3 | 12.6 |
| Lost workday cases $\qquad$ <br> Lost workdays | 6.8 | 7.5 | 8.1 | 7.1 | 6.7 | 5.4 | 5.4 | 6.1 | 5.7 |
|  | 119.4 | 123.6 | 134.7 | 128.3 | 121.3 | 101.6 | 103.4 | 115.3 | 113.8 |
| Fabricated metal products: |  |  |  |  |  |  |  |  |  |
| Total cases <br> Lost workday cases | 19.1 | 19.3 | 19.9 | 18.5 | 17.5 | 15.3 | 15.1 | 16.1 | 16.3 |
|  | 7.2 | 8.0 | 8.7 | 8.0 | 7.5 | 6.4 | 6.1 | 6.7 | 6.9 |
|  | 109.0 | 112.4 | 124.2 | 118.4 | 109.9 | 102.5 | 96.5 | 104.9 | 110.1 |
|  |  |  |  |  |  |  |  |  |  |
|  | 14.0 | 14.4 | 14.7 | 13.7 | 12.9 | 10.7 | 9.8 | 10.7 | 10.8 |
| Lost workday cases ....................................................................... | 4.7 | 5.4 | 5.9 | 5.5 | 5.1 | 4.2 | 3.6 | 4.1 | 4.2 |
| Lost workdays ........................ | 69.9 | 75.1 | 83.6 | 81.3 | 74.9 | 66.0 | 58.1 | 65.8 | 69.3 |
|  |  |  |  |  |  |  |  |  |  |
| Total cases | 8.6 | 8.7 | 8.6 | 8.0 | 7.4 | 6.5 | 6.3 | 6.8 | 6.4 |
| Lost workday cases. | 3.0 | 3.3 | 3.4 | 3.3 | 3.1 | 2.7 | 2.6 | 2.8 | 2.7 |
| Lost workdays ............... | 46.7 | 50.3 | 51.9 | 51.8 | 48.4 | 42.2 | 41.4 | 45.0 | 45.7 |
|  |  |  |  |  |  |  |  |  |  |
| Total cases | 11.8 | 11.5 | 11.6 | 10.6 | 9.8 | 9.2 | 8.4 | 9.3 | 9.0 |
| Lost workday cases | 5.0 | 5.1 | 5.5 | 4.9 | 4.6 | 4.0 | 3.6 | 4.2 | 3.9 |
| Lost workdays ......... | 79.3 | 78.0 | 85.9 | 82.4 | 78.1 | 72.2 | 64.5 | 68.8 | 71.6 |
|  |  |  |  |  |  |  |  |  |  |
| Instruments and related products: Total cases ........................ | 7.0 | 6.9 | 7.2 | 6.8 | 6.5 | 5.6 | 5.2 | 5.4 | 5.2 |
| Lost workday cases .................. | 2.4 | 2.6 | 2.8 | 2.7 | 2.7 | 2.3 | 2.1 | 2.2 | 2.2 |
| Lost workdays $\qquad$ Miscellaneous manufacturing industries: | 37.4 | 37.0 | 40.0 | 41.8 | 39.2 | 37.0 | 35.6 | 37.5 | 37.9 |
|  |  |  |  |  |  |  |  |  |  |
| Miscellaneous manufacturing industries: Total cases ................................ | 11.5 | 11.8 | 11.7 | 10.9 | 10.7 | 9.9 | 9.9 | 10.5 | 9.7 |
| Lost workday cases ..................................................... | 4.0 | 4.5 | 4.7 | 4.4 | 4.4 | 4.1 | 4.0 | 4.3 | 4.2 |
| Lost workdays .......... | 58.7 | 66.4 | 67.7 | 67.9 | 68.3 | 69.9 | 66.3 | 70.2 | 73.2 |

See footnotes at end of table.


[^33]
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[^0]:    Ronald E. Kutscher is Associate Commissioner, Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

[^1]:    Norman C. Saunders is an economist in the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

[^2]:    SOURCE: Historical data are from the Bureau of the Census and the Bureau of Economic Analysis, U.S. Department of Commerce; Wharton Econometric Forecasting Associates, Inc.; U.S.

[^3]:    Howard N Fullerton, Jr. is a demographic statistician in the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

[^4]:    1 The rate is -0.05 to 0.05 .
    2 The "Asian and other" group includes American Indians, Alaskan Natives, Asians, and Pacific Islanders.
    SOURCE: U.S. Bureau of Census. For 1972 and 1979 data, Preliminary Estimates of the

[^5]:    ${ }^{1}$ The "Asian and other" group includes American Indians, Alaskan Natives, Asians, and Pacific Islanders.

    2 Persons of Hispanic origin may be of any race

[^6]:    Valerie A. Personick is an economist in the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

[^7]:    ${ }^{1}$ Annual Energy Outlook 1986 (U.S. Department of Energy, Energy Information Administration, 1986).
    ${ }^{2}$ Marcus E. Einstein and James C. Franklin, "Computer manufacturing enters a new era of growth," Monthly Labor Review, September 1986, pp. 9-16.
    ${ }^{3}$ Steven E. Haugen, "The employment expansion in retail trade, 197385," Monthly Labor Review, August 1986, pp. 9-16.

[^8]:    ${ }^{4}$ Includes voluntary part-time employed, part time for economic reasons who usually work part time, and unemployed looking for part-time work. For more information, see Thomas J. Nardone, "Part-time workers: who are they?" Monthly Labor Review, February 1986, pp. 13-19.
    ${ }^{5}$ Max L. Carey and Kim L. Hazelbaker, "Employment growth in the temporary help industry," Monthly Labor Review, April 1986, pp. 37-44.

[^9]:    George T. Silvestri and John M. Lukasiewicz are economists in the Division of Occupational Outlook, Bureau of Labor Statistics.

[^10]:    Note: Dash indicates division by zero

[^11]:    ${ }^{1}$ Data from the 1983, 1984, and 1985 Occupational Employment Statistics (OES) surveys, the most current for each industry in the economy when the projections were developed, were used to develop 1986 occupational staffing patterns for industries covered by the matrix. Staffing patterns for other industries were derived from the 1986 Current Population Survey. For more information concerning the development of the National IndustryOccupation Matrix, see Employment Projections for 1995: Data and Methods, Bulletin 2253 (Bureau of Labor Statistics, 1986). For more information concerning the oes survey program, see bLS Handbook of Methods, Bulletin 2134-1 (Bureau of Labor Statistics, December 1982).

[^12]:    ${ }^{2}$ The 1986 and projected 2000 occupational distributions in each of the 258 detailed matrix industries were multiplied by estimates of total wage and salary worker employment in each year. Estimates of self-employed and unpaid family workers by occupation for 1986 and projected 2000 were developed at the total (all industry) level based on data in the Current Population Survey. They were added to the sum of wage and salary worker employment to derive estimates of 1986 and projected 2000 total employment by occupation for the economy.
    ${ }^{3}$ In the National Industry-Occupation Matrix, State and local government workers in education and health service industries are included in the services industry division, not in government.

[^13]:    Wayne J. Howe is an economist in the Division of Labor Force Statistics, Bureau of Labor Statistics.

[^14]:    ${ }^{1}$ Unless otherwise noted, changes in the first half of 1987 refer to movements in seasonally adjusted data from the fourth quarter of 1986 through the second quarter of 1987.
    ${ }^{2}$ Data in this article are from two sources: the Current Population Survey (CPS), and the Current Employment Statistics survey (CES). The CPS is a monthly survey of about 60,000 households and provides information on the labor force, employment, and unemployment by demographic and

[^15]:    ${ }^{3}$ Business cycle peaks and troughs are designated by the National Bureau of Economic Research. The most recent recession extended from July 1981 to November 1982.

[^16]:    ${ }^{1}$ Affiliated with AFL-CIO except where noted as independent (Ind.).

[^17]:    "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.

[^18]:    1 Seasonally adjusted.
    2 Excludes Federal and household workers.
    ${ }^{3}$ Limited to major collective bargaining units of 1,000 workers or more. The most recent data are preliminary.

[^19]:    = preliminary
    NOTE: Some data in this table may differ from data published elsewhere

[^20]:    - Data not available.
    p preliminary

[^21]:    NOTE: See "Notes on the data" for a description of the most recen benchmark revision.

[^22]:    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.

[^23]:    - 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

[^24]:    recent benchmark revision.

[^25]:    Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.
    ${ }^{2}$ Consist of private industry workers (excluding farm and household workers)
    and State and local government (excluding Federal Government) workers.

[^26]:    Consists of private industry workers (excluding farm and household workers)
    and State and local government (excluding Federal Government) workers.
    ${ }^{2}$ Consists of legislative, judicial, administrative, and regulatory activities.

[^27]:    ${ }^{1}$ Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.
    ${ }_{2}$ Adjustments are the net result of increases, decreases, and no changes in
    ${ }^{3}$ Because of rounding, total may not equal sum of parts. ${ }^{2}$ Adjustments are the
    compensation or wages.

[^28]:    1 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,

[^29]:    - Data not available.

[^30]:    1 Quarterly rates are for the first month of the quarter.
    2 Maior changes in the Italian labor force survey introduced in 1977, resulted in a large increase in persons enumerated as unemployed. However, many persons reported that they had not actively sought work in the past 30 days, and they have been provisionally excluded for comparability with U.S. concepts. Inclusion of such persons would about

[^31]:    ${ }^{1}$ Labor force as a percent of the civilian working-age population.
    ${ }^{2}$ Employment as a percent of the civilian working-age population.

[^32]:    - Data not available.

[^33]:    Total cases include fatalities.
    2 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:
    $\mathrm{N}=$ number of injuries and illnesses or lost workdays.

