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In this issue: Projections of the economy, labor force, and occupational change to the year 2000. jitized for FRASER ps://fraser.stlouisfed.org deral Reserve Bank of St. Louis



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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 White-Collar 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 period, 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 mid-1990'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 1986-2000 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 i	n thousands
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		Actual		Projected,	Change,	Growth	
Group	1972	1979	1986	2000	1986-2000	1986-2000	
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	
16 and older	-	5,215	8,076	14,086	6,010	4.1	

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 1986-2000 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 expenditures-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 1986– 2000 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]

	1070	1096	Projected, 2000					
Industry	1972	1986	Low	Moderate	High			
Total	84,549	111,623	126,432	133,030	137,533			
Nonfarm wage and salary ¹ Goods-producing Mining Construction Manufacturing	73,514 23,668 628 3,889 19,151	99,044 24,681 783 4,904 18,994	113,554 23,148 672 5,643 16,833	119,156 24,678 724 5,794 18,160	123,013 25,906 779 6,077 19,050			
Service-producing ¹ Transportation and public utilities Wholesale trade Retail trade Finance, insurance, and	49,846 4,541 4,113 11,835	74,363 5,244 5,735 17,845	90,406 5,410 7,015 21,795	94,478 5,719 7,266 22,702	97,107 5,903 7,361 23,079			
real estate Services ¹ Government	3,907 12,117 13,333	6,297 22,531 16,711	7,508 30,778 17,900	7,917 32,545 18,329	8,159 33,708 18,897			
Agriculture Private households Nonfarm self-employed and	3,523 1,693	3,252 1,241	2,784 1,122	2,917 1,215	3,009 1,234			

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 workers—are expected to have absolute declines. Three broad occupational groups are expected to experience below-average 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. However, 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 Service workers, except private household	3,726	5,151	38.2
workers	16,555	21,962	32.7
Salesworkers Executive, administrative, and managerial	12,606	16,334	29.6
workers	10,583	13,616	28.7
Professional workers	13,538	17,192	27.0
Precision production, craft, and repair workers Administrative support 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

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 narrowed-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 traditionally filled by Hispanics, blacks, and, to some extent, women—and labor force growth will be predominantly from these groups.

—FOOTNOTES—

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 1981– 85," 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) 523–1874 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

Norman C. Saunders is an economist in the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics. I 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

			Р	Projected, 2000				
	1972	1986	Low	Moderate	High			
Civilian unem- ployment rate Federal deficit (billions of	5.6	7.0	7.7	6.0	4.5			
current dollars) Net exports (billions of	-16.8	-204.0	-289.1	-89.3	-44.1			
1982 dollars)	-48.8	-149.7	-39.1	-98.6	-150.2			

Annual growth rate

1972–86	Projected, 2000						
	Low	Moderate	High				
2.5	1.6	2.4	3.0				
6.6	2.3	3.4	4.9				
2.2	1.0	1.2	1.3				
2.1	.9	1.2	1.5				
2.7	1.5	2.4	3.0				
1.7	.7	1.6	1.9				
	1972-86 2.5 6.6 2.2 2.1 2.7 1.7	$\begin{array}{c c} & P \\ \hline 1972-86 & \hline Low \\ 2.5 & 1.6 \\ 6.6 & 2.3 \\ 2.2 & 1.0 \\ 2.1 & .9 \\ 2.7 & 1.5 \\ 1.7 & .7 \end{array}$	Projected, 20 1972–86 Low Moderate 2.5 1.6 2.4 6.6 2.3 3.4 2.2 1.0 1.2 2.1 .9 1.2 2.7 1.5 2.4 1.7 .7 1.6				

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 M2, 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 M2 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 moderate-growth aggregate projections.⁷

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.

lines	1070	1070	1000		Projected, 20	00	Ham	1070	1070	1000	F	Projected, 20	00
nem	1972	Low Moderate High	item	1972	19/9	1986	Low	Moderate	High				
Federal Government: Defense purchases.							Safety, 1982 dollars Other purchases.	26.2	31.4	40.5	45.4	54.2	56.8
1982 dollars Nondefense purchases,	185.3	164.3	251.0	222.5	251.0	263.0	1982 dollars Transfer payments,	109.9	108.8	121.6	140.8	163.3	171.
1982 dollars Food stamps, 1982	60.7	71.9	82.4	97.3	103.4	108.2	1982 dollars Dividends, current	59.1	73.2	93.4	110.3	117.3	121.5
dollars Military retirement, 1982	6.5	7.7	9.6	10.4	12.2	14.9	dollars Net interest, current	.3	2.0	6.6	7.3	7.3	7.3
dollars Medicare, 1982 dollars	29.4 18.5	30.2 37.8	28.1 57.9	28.4 75.2	30.1 83.0	32.1 94.1	dollars	-1.5	-11.8	-26.0	-45.2	-49.6	-57.6
dollars Other transfers, 1982	116.3	131.3	169.7	209.0	243.4	293.9	Number of families Number of households .	52.1 69.0	59.3 78.8	63.2 88.6	73.1 109.0	73.1 109.0	74.8 111.5
dollars Old Age, Survivors, and Disability Insur-	39.6	43.6	53.5	55.5	58.6	61.3	Number of unrelated individuals Civilian labor force	21.4 86.6	24.4 104.9	32.2 117.9	40.4 134.5	40.4 138.8	40.8
ance taxable income, current dollars	10,800	22,900	41,500	89,700	89,700	89,700	Armed Forces	2.6 5.4	2.1 6.8	2.2 7.9	2.3 8.9	2.3 9.7	2.3 10.2
and Disability Insur-							Adjustment factor	.5 9	.5 -1.6	.3 -1.9	.1 -1.7	.2 -1.9	-2.1
Grants-in-aid, current	9.0	12.3	14.3	15.5	15.5	15.5	Foreign:						
Subsidies, current	37.5	80.5	104.0	143.0	192.1	235.1	World gross domestic product, 1982						
Transfers to foreigners,	7.9	9.2	25.6	20.2	26.1	29.4	World gross domestic	5,571.9	6,946.4	7,930.1	9,082.2	11,314.2	12,836.4
Interest to foreigners,	2.9	0.Z	22.0	14.8	15.2	17.3	$(1982 = 100) \dots$	29.5	80.0	117.6	203.6	232.6	266.0
tate and local	2.1	11.1	20.0	49.2	40.7	40.3	U.S. dollar Crude oil imports,	132.4	131.9	103.5	97.3	97.3	97.3
Education, 1982 dollars	146.8	165.0	178.7	195.3	223.1	232.5	per day	3.1	6.5	4.8	6.3	7.6	8.5
Health and welfare, 1982 dollars	41.8	67.9	73.7	86.3	103.4	108.2	per barrel	5.74	21.67	15.88	43.71	48.40	53.10

Table 1.	Major assumptions	affecting aggrega	te economic	projections,	1972,	1979,	1986, a	nd p	rojected	to	2000
[In billions, unle	ess noted otherwise]										

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 I	nation	al pro	duct	by major	de	mand
categorie	s, 1972,	1979,	1986,	and	projected	to	2000
(Billions of 198	2 dollars]						

Itom	1972	1979	1986			
nem	15/2	1979	1500	Low	Moderate	High
Gross national product	2 608 5	3 192 4	3 678 5	46175	5 161 4	5 552
Personal consumption	1 621 9	2 004 4	24187	3 101 2	3 4 2 9 4	3 659
Durables	200.4	266.5	368.0	172 0	527.2	589
Nondurablas	665.5	766.6	872 4	1 038 3	1 116 4	1 204
Services	756.0	971.2	1,177.4	1,590.0	1,785.9	1,866.
iross private domestic				707.0	000.4	
investment	465.4	5/5.2	659.7	/6/.8	932.1	1,103.
Equipment	167.5	258.8	320.3	424.8	504.2	560.
Structures	109.5	130.6	134.7	146.5	198.8	224.
Residential	166.6	1/0.8	193.9	190.9	202.1	2/9.
Inventory change	21.8	15.0	10.8	5.6	27.0	38.
xports	195.2	356.8	371.3	516.8	634.5	/12.
nports	244.6	353.2	521.0	555.9	733.0	862.
ederal Government	246.0	236.2	333.4	319.8	354.4	371.
Defense	185.3	164.3	251.0	222.5	251.0	263.
Nondefense	60.7	71.9	82.4	97.3	103.4	108.
government	324.7	373.0	414.5	467.8	544.0	568.
			Percent o	listributio	n	
Gross national product	100.0	100.0	100.0	100.0	100.0	100.
Personal consumption	62.2	62.8	65.8	67.2	66.4	65.
Durables	7.7	8.3	10.0	10.2	10.2	10.
Nondurables	25.5	24.0	23.7	22.5	21.6	21
Services	29.0	30.4	32.0	34.4	34.6	33.
Bross private domestic				100	10.4	
investment	17.8	18.0	17.9	16.6	18.1	19.
Equipment	6.4	8.1	8.7	9.2	9.8	10.
Structures	4.2	4.1	3.7	3.2	3.9	4.
Residential	6.2	5.4	5.3	4.1	3.9	5.
Inventory change	.8	.5	.3	.1	.5	
xports	7.5	11.2	10.1	11.2	12.3	12.
moorts	9.4	11.1	14.2	12.0	14.2	15.
ederal Government	9.4	7.4	9.6	6.9	6.9	6.
Defense	7.1	5.2	6.8	4.8	4.9	4.
Nondefense	23	2.3	2.2	2.1	2.0	1.
State and local						
government	12.4	11.7	11.3	10.1	10.5	10.
	A	verage ar	nnual rate	of growth	(in percent)
	1972-	1979-	1972-		1986-2000)
	79	86	86	Low	Moderate	High
Gross national product	2.9	2.0	2.5	1.6	2.4	3.
Personal consumption	31	27	2.9	1.8	2.5	3
Durables	42	48	4.5	1.8	2.6	3
Nondurables	20	1.9	2.0	1.2	1.8	2
Services	3.6	28	32	22	3.0	3
Gross private domestic	0.0	2.0	0.2		0.0	
investment	3.1	2.0	2.5	1.1	2.5	3
Equipment	6.4	3.1	4.7	2.0	3.3	4
Structures	2.5	4	1.5	.6	2.8	3
Residential	.8	1.8	1.3	1	.4	2
Inventory change	-5.2	-4.6	-4.9	-5.1	5.0	9
	90	6	47	24	3.9	4
Exports	54	57	5.5	5	2.5	3
Exports		50	22	- 3	4	
Exports	- 6	1 3 1	to the		0	
Exports	6	6.2	22	- 4	0	
Exports	6	6.2	2.2	9	1.6	2
Protis	6 -1.7 2.4	6.2 2.0	2.2 2.2	9	1.6	2.
Protection of the second secon	6 -1.7 2.4 2.0	5.0 6.2 2.0	2.2 2.2 1.8	9 1.2 .9	1.6 2.0	2

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 6.3percent 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 entertainment—legitimate 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 consumptionin 1972, 1979, 1986, and projected to 2000

	Level	(billion	s of 198	2 dollars)	Percent distribution				
item	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	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	Annual growth rate (in percent)		
	1972		2000	1972-86	Projected, 1986-2000	
Total exports	\$195.2	\$371.3	\$634.5	4.7	3.9	
Merchandise Food, feed, and	131.3	237.5	416.4	4.3	4.1	
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 Food, feed, and	190.7	420.4	563.8	5.8	2.1	
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 slow-downs. 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:

	Perc	cent of not	minal 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
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:

	Perc	cent of no.	minal 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

				P	rojected, 20	00			
Item	1972	1979	1986	Low	Moderate	High			
Civilian labor force Civilian employment (from	87.0	104.9	117.8	134.5	138.8	141.1			
household survey)	82.2	98.8	109.6	124.1	130.4	134.8			
UnemployedUnemployment rate	4.9	6.1	8.2	10.4	8.3	6.4			
(percent)Nonagricultural establish-	5.6	5.8	7.0	7.7	6.0	4.5			
ment employment GNP per employee (thousands	73.7	89.8	100.2	114.1	119.7	123.6			
of 1982 dollars)	30.25	32.30	33.55	37.20	39.57	41.20			
	Average annual rate of growth (in percent)								
				1986-2000					
	1972-79	197986	1972-86	Low	Moderate	High			
Civilian labor force Civilian employment (from	2.7	1.7	2.2	1.0	1.2	1.3			
household survey) Nonagricultural establish-	2.7	1.5	2.1	.9	1.2	1.5			
ment employment	2.9	1.6	2.2	.9	1.3	1.5			
of 1982 dollars)	9	.5	.7	.7	1.2	15			

				2000				
ltem	1972	1979	1986	Low	Moderate	High		
Gross national product	1 212 8	2 508 2	4 208 5	73124	9.455.0	12 637 5		
Net national product	1.104.8	2,300.2	3,753.4	6.722.7	8,433.0	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 Disposable personal	981.6	2,034.0	3,487.0	5,961.2	7,752.1	10,433.3		
income	839.6	1,729.3	2,973.7	5,178.9	6,705.6	8,908.2		
Billions of 1982 dollars Per capita, current	1,794.4	2,212.6	2,603.7	3,218.8	3,626.1	3,938.1		
Per capita, 1982	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	distributio	n			
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	1.1	0.0	0.0	0.4	0.0		
Corporate profite	1.5	7.8	71	.0	81	8		
Net interest income	42	6.3	70	97	76	7.8		
Personal income	80.9	81.1	82.9	81.5	82.0	82.6		
income	69.2	68.9	70.7	70.8	70.9	70.5		
		Average	annual rate	e of change	e (in percen	t)		
					1986-2000			
	1972-79	1979-86	1972-86	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		
Disposable personal	10.0	0.1	9.5	3.9	5.9	8.1		
Billions of 1982 dollars	30	2.4	27	4.0	2.4	3.0		
Per capita, current dollars	9.8	7.0	8.4	3.2	5.1	7.0		
Per capita, 1982	0.0			-				
dollars	2.0	1.3	1.7	.7	1.6	1.9		

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.

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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	7.7	6.0	4.5
Federal deficit, billions of current dollars Net exports, billions of	-289.1	-89.3	44.1
1982 dollars	-39.1	-98.6	-150.2
	Annual ra	te of growth, I	986-2000
	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 house-			
hold survey)	.9	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:

	Billio current	Share (in pe	of GNP ercent)	
	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.

—FOOTNOTES —

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	
1948–73	2.9	2.5	
1973–86	.9	.4	
1973–79	.6	.1	
1979–86	1.0	.7	
1986–2000	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

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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 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.

	Level (In thousands)					Change (In	thousands)		Percer	t change
Group	1972	1979	1986	Projected, 2000	1972-79	1979–86	1986-2000	1972-79	1979–86	1986-2000
Total, 16 and over	87,037	104,960	117,837	138,775	17,923	12,877	20,938	20.6	12.3	17.8
Iden, 16 and over 16 to 24 25 to 54 55 and over	53,556 11,243 33,133 9,180	60,727 13,645 37,926 9,156	65,423 12,251 44,406 8,766	73,136 11,506 53,024 8,606	7,171 2,402 4,793 -24	4,696 -1,394 6,480 -390	7,713 -745 8,618 -160	13.4 21.4 14.5 3	7.7 -10.2 17.1 -4.3	11.8 -6.1 19.4 -1.8
Nomen, 16 and over	33,481 8,943 19,192 5,346	44,233 11,760 26,594 5,879	52,414 11,117 35,159 6,138	65,639 11,125 47,756 6,758	10,752 2,817 7,402 533	8,181 643 8,565 259	13,225 8 12,597 620	32.1 31.5 38.6 10.0	18.5 -5.5 32.2 4.4	25.2 .1 35.8 10.1
White, 16 and over	77,275 8,748 —	91,922 10,665 2,373 5,215	101,801 12,684 3,352 8,076	116,701 16,334 5,740 14,086	14,647 1,917 —	9,879 2,019 979 2,861	14,900 3,650 2,388 6,010	19.0 21.9 —	10.7 18.9 41.3 54.9	14.6 28.8 71.2 74.4
					Percent distribution			Growth rate		
				1972	1979	1986	Projected, 2000	1972–79	1979-86	1986-2000
fotal, 16 and over Men, 16 and over 16 to 25 25 to 54 55 and over				100.0 61.5 12.9 38.1 10.5	100.0 57.9 13.0 36.1 8.7	100.0 55.5 10.4 37.7 7.4	100.0 52.7 8.3 38.2 6.2	2.7 1.8 2.8 1.9 (3)	1.7 1.1 -1.5 2.3 6	1.2 .8 4 1.3 1
Women, 16 and over		38.5 10.3 22.1 6.1	42.1 11.2 25.3 5.6	44.5 9.4 29.8 5.2	47.3 8.0 34.4 4.9	4.1 4.0 4.8 1.4	2.5 8 4.1 .6	1.6 (3) 2.2 .7		
White, 16 and over . Black, 16 and over . Asian and other, ¹ 16 and over . Hispanic, ² 16 and over .			88.8 10.1	87.6 10.2 2.3	86.4 10.8 2.8	84.1 11.8 4.1	2.5 2.9	1.5 2.5 5.1	1.0 1.8 3.9	

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

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

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 1972– 86 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 1986– 2000 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:

	1972-79	1979-84	1986-95	1995-2000
ercent of				
population	 17.2	25.7	29.9	32.2

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.

The primary methodological change in this set of projections involved the development of projections for five-yearof-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 yearto-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
	0 -0-	
20.2	52.3	14.5
23.4	79.6	14.9
22.6	100.8	15.4
1.1	3.0	.2
2	1.7	.2
	<i>Youth</i> 20.2 23.4 22.6 1.1 2	Youth Prime working age 20.2 52.3 23.4 79.6 22.6 100.8 1.1 3.0 2 1.7

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, al	nd H	lispanic	origin,	actual	1972,	1979,	and	1986,	and
projected	to 2000													

		Level (in t	housands)		Cha	nge (in thou	sands)	Growth rate		
Group	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	67,835 15,768 34,840 17,227	78,021 18,184 40,184 19,653	85,799 16,773 47,343 21,683	97,962 15,489 57,250 25,223	10,186 2,416 5,344 2,426	7,778 -1,411 7,159 2,030	12,163 -1,284 9,907 3,540	2.0 2.1 2.1 1.9	1.4 -1.1 2.4 1.4	1.0 6 1.4 1.1
Women, 16 and over	76,287 16,887 37,595 21,805	86,844 18,827 42,692 25,325	94,790 17,293 49,672 27,825	106,737 15,999 59,094 31,644	10,557 1,940 5,097 3,520	7,946 -1,534 6,980 2,500	11,947 -1,294 9,422 3,819	1.9 1.6 1.8 2.2	1.3 -1.2 2.2 1.4	.9 6 1.2 .9
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

projections are made directly.

² Persons of Hispanic origin may be of any race. Data for Hispanics are not available before

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:

	L	abor for	се	Growth rate			
Group	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.

NOTE Dash indicates data not available.

SOURCE: Based on U.S. Bureau of Census "middle" population projections.

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.

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 percent—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.

Group		Level (In	thousands)		Ch	ange (In thous	ands)	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 5 to 13 14 to 17 18 to 24 25 to 34 	17,101 39,936 16,640 26,077 27,623	16,063 35,592 16,611 30,048 36,203	18,128 34,193 14,796 27,973 42,984	16,898 33,483 15,332 25,231 37,149	- 1,038 - 4,344 - 29 3,971 8,580	2,065 - 1,399 - 1,815 - 2,075 6,781	- 1,230 - 710 536 - 2,742 - 5,835	9 - 1.6 (1) 2.0 3.9	1.7 6 - 1.6 - 1.0 2.5	5 1 .3 7 - 1.0	
35 to 44	22,859 23,687 19,211 12,922 6,555 1,542	25,176 22,942 21,448 15,338 7,599 2,197	33,142 22,823 22,230 17,325 9,049 2,796	43,911 37,223 24,157 18,242 12,017 4,621	2,317 - 745 2,237 2,416 1,044 655	7,966 - 119 782 1,987 1,450 599	10,769 14,400 1,927 917 2,968 1,825	1.4 5 1.6 2.5 2.1 5.2	4.0 1 .5 1.8 2.5 3.5	2.0 3.6 .6 .4 2.0 3.7	
Men Women	102,591 107,305	109,584 115,472	117,820 123,776	131,185 137,072	6,993 8,167	8,236 8,304	13,365 13,296	.9 1.1	1.0 1.0	.8 .7	
White	183,326 23,646 2,924	194,098 26,417 4,540	204,671 29,427 7,498	221,512 35,122 11,630	10,772 2,771 1,616	10,573 3,010 2,958	16,841 5,695 4,132	.8 1.6 6.5	.8 1.6 7.4	.6 1.3 3.2	

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

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.

		Partic	ipation	rate		Level (in	thousand	5)	Change (i	n thousands)	Percent change		Growth rate	
Group	Actual F		Projected		Actual		Projected	1070 00	1000 0000	1070 00	1096 2000	1070 96	1096 000	
	1972	1979	1986	2000	1972	1979	1986	2000	1972-00	1900-2000	1972-00	1900-2000	1972-00	1900-200
Total, 16 and over	60.4	63.7	65.3	67.8	87,037	104,960	117,837	138,775	30,800	20,938	35.4	17.8	2.2	1.2
Men, 16 and over	79.0	77.8	76.3	74.7	53,556	60,727	65,423	73,136	11,867	7,713	22.2	11.8	1.4	.8
	58.1	61.5	56.4	60.2	4,478	5,111	4,102	4,501	- 376	399	- 8.4	9.7	6	.7
	83.9	86.4	85.8	87.5	6,765	8,534	8,149	7,005	1,384	- 1,144	20.5	- 14.0	1.3	- 1.1
	95.7	95.3	94.6	93.6	12,349	16,386	19,383	16,559	7,034	- 2,824	57.0	- 14.6	3.3	- 1.1
35 to 44 45 to 54 -55 to 64 -65 and over	96.4	95.7	94.8	93.9	10,372	11,532	15,029	20,133	4,657	5,104	44.9	34.0	2.7	2.1
	93.2	91.4	91.0	90.1	10,412	10,008	9,994	16,332	- 418	6,338	- 4.0	63.4	3	3.6
	80.4	72.8	67.3	63.2	7,155	7,213	6,954	7,238	- 201	284	- 2.8	4.1	2	.3
	24.3	19.9	16.0	9.9	2,025	1,943	1,812	1,368	- 213	- 444	- 10.5	- 24.5	8	- 2.0
Women, 16 and over -16 to 19 -20 to 24 -25 to 34	43.9	50.9	55.3	61.5	33,481	44,233	52,414	65,639	18,933	13,225	56.5	25.2	3.3	1.6
	45.8	54.2	52.9	59.2	3,578	4,527	3,824	4,379	246	555	6.9	14.5	.5	1.0
	59.1	69.0	72.4	78.4	5,365	7,233	7,293	6,746	1,928	- 547	35.9	- 7.5	2.2	6
	47.8	63.9	71.6	82.3	6,609	11,550	15,209	15,098	8,600	- 111	130.1	7	6.1	1
-35 to 44	52.0	63.6	73.1	84.2	6,028	8,153	12,204	18,438	6,176	6,234	102.5	51.1	5.2	3.0
-45 to 54	53.9	58.4	65.9	75.4	6,555	6,891	7,746	14,220	1,191	6,474	18.2	83.6	1.2	4.4
-55 to 64	42.1	41.7	42.3	45.8	4,257	4,718	4,940	5,732	683	792	16.0	16.0	1.1	1.1
-65 and over	9.3	8.3	7.4	5.4	1,089	1,161	1,198	1,026	109	- 172	10.0	- 14.4	.7	- 1.1
Whites, 16 and over	60.4	63.9	65.5	68.2	77,275	91,922	101,801	116,701	24,526	14,900	31.7	14.6	2.0	1.0
Men	79.6	78.6	76.9	75.3	48,118	53,857	57,216	62,252	9,098	5,036	18.9	8.8	1.2	.6
Women	43.2	50.5	55.0	61.5	29,157	38,065	44,585	54,449	15,428	9,864	52.9	22.1	3.1	1.4
Blacks, 16 and over	60.2	61.4	63.5	66.0	8,748	10,665	12,684	16,334	3,936	3,650	45.0	28.8	2.7	1.8
Men	73.9	71.6	71.2	70.7	4,855	5,556	6,373	7,926	1,518	1,553	31.3	24.4	2.0	1.6
Women	48.8	53.2	57.2	62.1	3,893	5,109	6,311	8,408	2,418	2,097	62.1	33.2	3.5	2.1
Asian and other, ¹ 16 and over Men		65.9 76.7 56.0	64.9 74.9 55.9	65.8 72.4 60.1		2,373 1,314 1,059	3,352 1,834 1,518	5,740 2,958 2,782	/	2,388 1,124 1,264		71.2 61.3 83.3		3.9 3.5 4.5
Hispanics, ² 16 and over Men		63.5 81.2 47.4	65.4 81.0 50.1	68.7 80.4 56.9		5,215 3,182 2,033	8,076 4,948 3,128	14,086 8,303 5,783		6,010 3,355 2,655		74.4 67.8 84.9		4.1 3.8 4.5

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

Islanders. The historic data are derived by subtracting "Black" from the "Black and other" group; projections are made directly

before 1976.

NOTE: Dash indicates data not available

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,

aitized for FRASER ps://fraser.stlouisfed.org deral Reserve Bank of St. Louis 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.

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 For the high migration scenario, it was assumed that Hispanics would be the same proportion of the civilian noninstitutional 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 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	Pa	rticipation ra	ate	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	68.2	65.9	118,474	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		

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 non-Hispanic 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 non-Hispanic 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 Women	12.8 10.6	24.0 52.6
White Black Asian and other	14.4 2.3 6.7	56.8 15.1 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 16	16–64	Age 65 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

Group		Histo	Projected			
citoup	1962	1972	1979	1986	1995	2000
Total	40.5	37.7	34.7	35.3	37.6	38.9
Men	40.5	38.1	35.3	35.6	37.9	39.3
Women	40.4	37.0	33.9	34.9	37.1	38.6
White	40.9	38.0	34.9	35.5	37.9	39.2
Black	38.3	35.4	33.5	33.8	36.1	37.2
Asian and others	-	-	-	35.5	37.2	38.0
Hispanic	-	-	32.2	32.6	34.1	35.1

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
 1979
 1986
 2000

 Employment-population ratio
 57.0
 59.9
 60.7
 63.7

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:

Year of birth	Labor force share			
	1972	1986	2000	
1955–69	-	34.9	39.9	
1940–54	35.2	37.4	28.3	
1925–39	28.6	21.2	4.5	
1910–24	27.2	6.2	0.3	
1895–1909	8.4	0.3	-	

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 all 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.

-FOOTNOTES-

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.

 $^9\,{\rm For}$ 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-in-Chief, 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;

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- 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 (thou	employment usands)
	1972-86	1986–2000
Total agriculture	-266	-340
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.

The BLS projections for the mining sector incor-Mining. porate 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.

The real value of new and maintenance Construction. 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

		Employment (in thousands)									
Sector	1972	1070	1070	1979 1986	Projected, 2000				Change, 1986-2000		
		1972	1979		Low	Moderat	e H	ligh	Low	Moderate	High
otal		84,549	101,353	111,623	126,432	133,030	13	7,533	14,809	21,407	25,910
Nonfarm wage and salary1		73 514	89 481	99.044	113 554	119,156	12	3.013	14.510	20.112	23.969
Goods-producing		23,668	26,463	24.681	23.148	24.678	2	5.906	-1.533	-3	1,225
Mining		628	958	783	672	724		779	-111	-59	-6
Construction		3.889	4,463	4,904	5.643	5,794		6,077	739	890	1,17
Manufacturing		19,151	21,042	18,994	16,833	18,160	19	9,050	-2,161	-834	5
Durable		11.050	12,762	11.244	9.654	10,731	1	1,193	-1,590	-513	-5
Nondurable		8,101	8,280	7,750	7,179	7,429		7,857	-571	-321	10
Convice producing1		10 846	63.018	74 363	90.406	04 479	0	7 107	16 043	20 115	22 74
Transportation and public utilities		45,040	5 135	5 244	5 410	5 710	9	5 903	166	475	65
Wholegale trade		4,041	5 204	5 735	7 015	7 266		7 361	1 280	1 531	1.62
Dotail trado		11.835	14 989	17 845	21 795	22 702	2	3 079	3,950	4 857	5.23
Finance incurance and real estate		3 907	4 975	6 297	7 508	7 017	-	8 159	1 211	1,620	1.86
Services1		12 117	16 768	22 531	30 778	32 545	2	3 708	8 247	10.014	11 17
Government		13 333	15 947	16 711	17 900	18 329	11	8 897	1 189	1 618	218
Government		10,000	10,047	10,711	17,500	10,020		0,001	1,100	1,010	2,10
Agriculture		3,523	3,401	3,252	2,784	2,917		3,009	-478	-335	-25
Private households		1,693	1,326	1,241	1,122	1,215		1,234	-119	-26	-
Nonfarm self-employed and unpaid family workers		5,819	7,145	8,086	8,972	9,742	1	5,277	880	1,000	2,19
	Aver	rage annual	rate of cha	ange (in perc	ent)	Perce	nt distril	bution of	wage and	salary employ	yment
	1070 70	1070 00	1986-2000)	1072	1070 1086	1096	Projected, 2000		
	1972-79	1979-00	Low	Moderate	High	1572	1979	1500	Low	Moderate	High
tal	2.6	1.4	0.9	1.3	1.5	-	-	-	-	-	-
Nonfarm wage and salan/1	28	15	10	13	16	100.0	100.0	100.0	100.0	100.0	100
Goode-producing	16	-10	- 5	0	3	32.2	29.6	24.9	20.4	20.7	21
Mining	62	-28	-11	- 6	0	.9	1.1		6	.6	
Construction	20	14	10	12	1.5	5.3	5.0	5.0	5.0	4.9	4
Manufacturing	14	-14	- 9	- 3	.0	26.1	23.5	19.2	14.8	15.2	15
Durable	21	-1.8	-1.1	- 3	0	15.0	14.3	11.4	8.5	9.0	9
Nondurable	.3	9	5	3	1	11.0	9.3	7.8	6.3	6.2	6.
				17	1	07.0	70.4	75 4	70.0	70.0	70
Service-producing ¹	3.4	2.4	1.4	1./	1.9	67.8	/0.4	/5.1	/9.6	/9.3	18.
Transportation and public utilities	1.8	.3	.2	.0	6.	0.2	5./	5.3	4.8	4.8	4.
wholesale trade	3.4	1.4	1.4	1./	1.8	0.0	0.0	10.0	10.2	0.1	0.
Retail trade	3.4	2.5	1.4	1./	1.9	10.1	10.8	18.0	19.2	19.1	18.
Finance, insurance, and real estate	3.5	3.4	1.3	1./	1.9	0.3	0.0 19.7	0.4	0.0	0.0	27
Government	4.0	4.3	2.3	2.1	2.9	18.1	17.8	16.9	15.8	15.4	15
GOVENINGIR	2.0					10.1	17.0	10.5	10.0	10.4	10.
Agriculture	5	6	-1.1	8	6	-	-	-	-	-	-
	-3.4	9	7	1	0.	-	-	-	-	-	-
Private households	1 1 1			1 0							

			Percent	distribu	tion		
Sector	1072	1070	1096	Projected, 2000			
	1972	1979	1900	Low	Moderate	High	
Total	100.0	100.0	100.0	100.0	100.0	100.0	
Goods-producing Mining Construction Manufacturing Durable Nondurable	48.3 4.8 7.9 35.6 18.0 17.6	46.5 4.0 6.9 35.6 18.3 17.3	43.5 3.3 6.8 33.4 17.0 16.4	41.0 2.4 5.7 33.0 17.6 15.3	41.5 2.3 6.0 33.2 17.9 15.3	42.1 2.3 6.5 33.2 17.8 15.4	
Service-producing	47.9	50.0	53.1	55.6	55.1	54.4	
utilities	8.6 4.8 6.6	9.1 4.9 6.7	8.1 5.6 7.4	8.3 5.8 7.8	8.4 5.9 7.5	8.4 6.0 7.5	
estate	10.0 10.8 7.1	10.8 12.0 6.5	11.6 13.8 6.6	11.8 15.4 6.5	12.0 15.4 6.0	11.7 15.1 5.7	
Agriculture Private households	3.6 .2	3.3 .1	3.3 .1	3.3 .1	3.3 .1	3.4 .1	
	A	verage	annual ra	te of cha	ange (in perc	cent)	
	107	0 70	1070 00		1986-2000		
	197	2-19	1979-00	Low	Moderate	High	
Total		2.9	1.6	1.6	2.4	3.0	
Goods-producing Mining . Construction Manufacturing Durable Nondurable		2.3 .3 1.0 2.9 3.1 2.6	.6 - 1.4 1.3 .6 .5 .8	1.0 9 .1 1.3 1.7 .9	2.0 2 1.4 2.3 2.7 1.8	2.7 .4 2.6 2.9 3.3 2.5	
Service-producing		3.5	2.4	1.8	2.6	3.1	
Wholesale trade		3.6 3.1 3.2	.0 3.6 3.0	1.6 1.6 1.8	2.6 2.7 2.4	3.2 3.4 3.1	
estate Services Government		4.1 4.4 1.7	2.5 3.6 1.8	1.6 2.3 1.2	2.6 3.2 1.5	3.0 3.7 1.8	
		4 7		1.0		0.0	

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 Managerial, professional,	100.0	100.0	100.0	100.0
technical	19.9	23.4	12.8	14.7
Marketing and sales Administrative support,	2.2	2.3	4.1	4.6
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 assembl	ers mater	ial mover	s laborer	·c

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.

Fastest growing	Average annual rate of change (percent)			
Electronic computing equipment . Arrangement of passenger transportation	7.4 5.9 5.8 5.5 5.5 5.2 5.1 4.9 4.9 4.9			
Nedical instruments and supplies	4.4			
Outpatient facilities and health services, n.e.c.	4.4			
Research, management, and consulting services	4.3			
Radio and rv communication equipment	4.2			
Oil and gas field services	4.1			
Felephone and telegraph apparatus	4.1			
Paritions 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			
ron 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			
Table 4.	Projected	employment	t trends for wag	e and
-----------	-------------	--------------	------------------	-------
salary wo	rkers, sele	cted industr	ies, 1986-2000	

Fastest growing	Average annual rate of change (percent)
Computer and data processing services Outpatient facilities and health services, n.e.c. Personnel supply services Offices of health practitioners Credit reporting and business services, n.e.c. Legal services Nursing and personal care facilities Research, management, and consulting services Residentia care Miscellaneous publishing	5.2 4.6 4.4 4.4 4.1 3.8 3.8 3.6 3.5 3.4
Equipment rental and leasing	3.4 3.2 3.1 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.9 2.7 2.6
Most rapidly declining	Average annual rate of change (percent)
Railroad transportation Footwear except rubber and plastic Railroad equipment Metal mining Miscellaneous primary and secondary metals Luggage, handbags, and leather products, n.e.c. Blast furnaces and basic steel products Iron and steel foundries Electronic home entertainment equipment	-3.9 -3.6 -3.4 -2.3 -2.3 -2.2 -2.1 -2.1
Agricultural chemicals Dairy products Petroleum refining Grain mill products and fats and oils Tobacco manufactures Tires and inner tubes Plastics materials and synthetics Coal mining	-1.9 -1.9 -1.8 -1.8 -1.8 -1.8 -1.7 -1.6

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 3.2-percent 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 improvements—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

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

Industry	New jobs (thousands
Eating and drinking places	2 471
Offices of health practitioners	1.375
New and renair construction	890
Nursing and personal care facilities	852
Personnel supply services	832
State and local government education	784
Achinery 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
egal 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

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 *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 1986– 2000 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, 1986 ⁴					
	Number (thousands)	Percent of total				
Total	20,598	100.0				
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
													24.1
													23.7
													23.2
													22.9
													21.9

..... 21.7

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 -0.6percent, respectively. The projected decline is only -0.2percent 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

1976

1978

1980

1982

1984

1986

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 development 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. 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 3.8percent 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:

	Popu (mil	ulation lions)	As percent of total				
Ċ	55 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			
		1002 02 1					

1982–83 health expenditures

us a percent of total experiation					
All consumer units	Consumer unit head age 65 or over				
4.4	9.9				
2.4	4.1				
.7	2.0				
1.2	3.8				
	All consumer units 4.4 2.4 .7 1.2				

	Standard				Annual ra change, 1980	te of 6-2000 ¹				
Industry	Industrial Classification	1070	4070	1986	F	Projected, 200	10	(percer		
		1972	1979	1986	Low	Moderate	High	Employment	Output	
Total	_	84,549	101.353	111.623	126.432	133.030	137.533	1.3	2.4	
Agriculture	01.2.7.8.9	3.523	3.401	3,252	2,784	2,917	3,009	8	2.4	
Livestock and livestock products	01 pt., 02 pt.	1,365	988	848	629	677	745	-1.6	1.4	
Other agricultural products	01 pt., 02 pt. 07.08.09	1,699	1,785	1,534	1,045	1,120	1,087	-2.2	3.0	
Private households	88	1,693	1,326	1,241	1,122	1,215	1,234	1	.2	
Nonfarm self-employed and unpaid family workers	-	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	-	
fining	10-14	628	958	783	672	724	779	6	2	
Coal mining	11,12	161	259	176	140	141	149	-1.6	2.2	
Crude petroleum, natural gas, and gas liquids	131,2	143	198	224	169	184	192	-1.4	-2.0	
Nonmetallic minerals, except fuels	130	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	
lanufacturing	20-39	19,151	21,042	18,994	16,833	18,160	19,050	3	2.3	
Durable manufacturing	24,25,32-39	11,050	12,762	11,244	9,654	10,731	11,193	3	2.7	
Lumber and wood products	24	69	/6/	/11 83	603	693	763	2	1.9	
Sawmills and planing mills	242	225	237	194	137	173	188	8	1.5	
Millwork and structural wood members, n.e.c.	2431,4,9	122	150	184	209	227	254	1.5	1.7	
Wood containers and miscellaneous wood products	2433,0	124	132	118	96	106	109	8	2.1	
Mobile homes	2451	80	57	49	34	42	50	-1.1	.4	
Furniture and fixtures	25	484	498	497	515	563	607	.9	3.1	
Partitions and fixtures	254	56	65	72	72	80	81	.7	4.0	
Office and miscellaneous furniture and fixtures	252,3,9	91	104	131	163	172	175	2.0	4.0	
Stone, clay, and glass products	32	678	710	586	483	535	560	6	1.4	
Glass and glass products	321,2,3	210	216	209	121	206	217	8	1.2	
Stone, clay, and miscellaneous mineral products	325,6,8,9	243	262	199	162	173	179	-1.0	1.6	
Primary metal industries	33	1,173	1,254	753	489	574	646	-1.9	.1	
Blast turnaces and basic steel products	331	219	5/1 241	131	166	202	109	-2.2	8	
Miscellaneous primary and secondary metals	334,9	36	51	42	25	30	37	-2.3	.3	
Aluminum rolling and drawing	3353,4,5	- 85	76	65	53	55	60	-1.2	1.1	
Aluminum foundries	3361	46	58	53	40	45	46	-1.2	1.4	
Fabricated metal products	34	1,547	1,718	1,433	1,172	1,313	1,361	6	1.8	
Metal cans and shipping containers	341	85	80	58	45	50	52	-1.1	1.3	
Plumbing and nonelectric heating equipment	343	71	76	61	53	56	59	6	1.4	
Fabricated structural metal products	344	444	523	438	340	385	394	9	1.7	
Forgings	3462,3	-	63	39	34	38	41	1	1.0	
Automotive stampings	3465	104	118	105	75	91	104	-1.0	1.4	
Metal coating, engraving, and allied services	347	88	107	110	112	126	129	1.0	2.9	
Ordnance, except vehicles and missiles	348	82	64	77	67	74	77	2	2.7	
	35	1 990	2 485	2 050	1 051	2 1 20	2 171	.0	1.5	
Engines and turbines	351	115	145	102	85	93	92	6	1.4	
Farm and garden machinery	352	135	182	91	80	80 76	85	-1.0	1.2	
Mining and oilfield machinery	3532,3	65	120	68	74	83	95	1.4	2.0	
Materials handling machinery and equipment	3534,5,6,7	89	106	79	75	87	92	.7	3.1	
Special industry machinery	355	177	205	159	130	140	138	9	.9	
General industrial machinery	356	267	329	255	242	268	273	.3	1.9	
Office and accounting machines	3572,4,6,9	77	78	418	400	503	49	7	3.7	
Refrigeration and service industry machinery	358	164	188	171	149	166	169	2	2.9	
Miscellaneous nonelectrical machinery	359	191	286	275	287	301	306	./	2.2	
Electrical and electronic equipment	36	1,813	2,117	2,124	1,927	2,128	2,222	.0	3.9	
Electrical industrial apparatus	362	209	251	187	159	175	178	5	2.0	
Household appliances	363	187	178	135	112	121	132	8	2.5	
Electronic home entertainment equipment	365	139	115	82	61	61	67	-2.1	4.9	
Telephone and telegraph apparatus	3661	160	165	127	94	116	132	6	4.1	
Electronic tubes	3671,2,3	46	42	40	26	34	36	-1.1	.6	
Semiconductors and related devices	3674	115	201	268	280	289	276	.5	5.8	
Ourses betteries and engine cleatrical parts	3601 4	94	118	95	74	86	89	- 7	23	

	Standard				Annual rate of change, 1986–200 (percent)				
Industry	Industrial Classification	1070	1070		F	Projected, 200	0	(percer	it)
		1972	1979	1986	Low	Moderate	High	Employment	Output
X-ray and other electromedical apparatus	3693 3692,9	-	26 30	32 27	41 23	45 24	46 25	2.5 9	5.2 3.0
Transportation equipment Motor vehicles Motor vehicles and car bodies Motor vehicle parts and accessories Truck and bus bodies, trailers, and motor homes Aircraft Aircraft and missile engines and equipment Guided missiles and space vehicles Ship and boat building and repairing Railroad equipment Miscellaneous transportation equipment	37 371 3711 3714 3713,5,6 3721 3724,8,3764,9 3761 373 374 374 375,9	1,790 875 415 383 77 287 224 76 193 49 86	2,077 990 463 441 86 333 298 81 226 74 74	2,016 865 396 387 82 339 385 153 185 28 61	1,516 679 307 243 282 120 129 16 47	1,697 749 335 340 75 274 330 124 147 17 55	1,742 770 343 350 78 282 339 129 151 17 55	-1.2 -1.0 -1.2 9 7 -1.5 -1.1 -1.5 -1.6 -3.4 7	1.7 2.0 1.9 2.1 3.0 .8 2.0 .8 2.0 .8 2.2 -1.3 3.4
Instruments and related products . Engineering and scientific instruments Measuring and controlling devices Optical and ophthalmic products . Medical instruments and supplies . Photographic equipment and supplies	38 381 382 383,5 384 386	517 65 160 55 90 117	691 72 236 77 144 134	707 84 246 71 180 115	692 89 227 74 204 90	771 94 267 79 226 97	791 96 272 80 234 102	.6 .8 .6 .8 1.6 -1.2	3.7 3.3 3.4 5.1 4.4 2.9
Miscellaneous manufacturing . Jewelry, silverware, and plated ware Toys and sporting goods Manufactured products, n.e.c.	39 391 394 393,5,6,9	433 52 126 255	445 61 121 263	362 54 94 214	306 50 76 179	329 52 85 192	329 48 86 195	7 3 7 8	1.9 .4 3.1 1.9
Nondurable manufacturing Food and kindred products Meat products Dairy products Canned, dried, and frozen foods Grain mill products and fats and oils Bakery products Sugar and confectionery products Alcoholic beverages Soft drinks and flavorings Miscellaneous foods and kindred products	20-23,26-31 20 201 202 203 204,7 205 206 2082,3,4,5 2086,7 209 209	8,101 1,745 347 217 255 172 258 117 91 137 152	8,280 1,733 358 180 261 189 231 110 85 153 166	7,750 1,617 372 163 238 156 210 97 71 141 169	7,179 1,421 380 123 227 120 180 76 56 117 142	7,429 1,456 382 125 235 122 182 78 59 122 150	7,857 1,512 390 129 252 124 188 82 64 131 153	3 7 .2 -1.9 1 -1.8 -1.0 -1.6 -1.3 -1.0 8	1.8 1.5 1.6 1.2 2.2 1.7 .9 .5 1.0 1.5 1.8
Tobacco manufactures	21	75	70	59	40	46	155	-1.8	- 2
Textile mill products . Weaving, finishing, yarn and thread mills . Knitting mills . Floor covering mills . Miscellaneous textile goods .	22 221,2,3,4,6,8 225 227 229	985 583 268 62 72	886 528 227 61 70	706 388 207 56 55	582 302 183 56 42	607 316 186 60 46	653 337 198 68 51	-1.6 -1.1 -1.5 8 .5 -1.3	1.6 1.4 1.4 3.0 1.7
Apparel and other textile products	23 231-8 239	1,382 1,206	1,304 1,115	1,105 921	903 744	924 763	965 799	-1.3 -1.3	1.3 1.1
Paper and allied products Pulp, paper, and paperboard mills Converted paper products except containers Paperboard containers and boxes	26 261,2,3,6 264 265	689 273 196 220	706 271 221 214	675 249 230 196	633 218 243 172	655 223 256 176	715 233 284 198	2 8 .8 8	2.4 2.6 2.7 1.8
Printing and publishing Newspapers Periodicals Books Miscellaneous publishing Commercial printing and business forms Blankbooks and bookbinding Printing trade services	27 271 272 273 274 275,6 278 279	1,094 382 63 96 38 394 58 41	1,235 420 82 102 46 455 63 43	1,458 458 115 109 72 557 73 51	1,643 508 131 121 106 612 82 65	1,706 520 137 126 115 635 86 67	1,798 541 147 133 125 671 90 69	1.1 .9 1.3 1.1 3.4 .9 1.2 1.9	3.0 1.7 3.1 2.4 3.6 3.6 3.1 3.5
Chemicals and allied products Industrial chemicals Plastics materials and synthetics Drugs Soap, cleaners, and toilet goods Paints and allied products Agricultural chemicals Miscellaneous chemical products	28 281,6 282 283 284 285 287 289	1,009 284 229 159 122 69 56 90	1,109 333 212 192 139 69 70 93	1,023 291 167 207 147 63 55 93	912 250 125 217 147 50 39 86	950 258 132 224 154 53 42 89	1,017 272 143 235 167 58 47 95	5 9 -1.7 .6 .3 -1.2 -1.9 3	2.6 1.9 3.0 4.0 2.4 1.6 1.6 2.9
Petroleum and coal products	29 291	195 151	210 165	169 131	120 96	127 100	134 106	-2.0 -1.9	.6
Rubber and miscellaneous plastics products Tires and inner tubes Rubber products and plastic hose and footwear MIscellaneous plastics products	30 301 302,3,4,6 307	631 122 166 343	781 127 166 488	789 88 135 566	825 65 108 653	861 69 112 680	913 75 119 720	.6 -1.8 -1.4 1.3	3.1 1.4 2.0 3.7
Leather and leather products Footwear except rubber and plastic Luggage, handbags, and leather products, n.e.c.	31 313,4 311,5,6,7,9	296 	246 161 85	152 96 56	99 61 38	98 58 40	103 58 45	-3.1 -3.6 -2.3	-1.5 -2.0 -1.0
ansportation and public utilities Transportation	40-42,44-49 40-42,44-47	4,541 2,678	5,135 3,021	5,244 3,041	5,410 3,315	5,719 3,500	5,903 3,568	.6 1.0	2.6 2.4

	Ctandard			Annual rate of change, 1986–2000 ¹						
Industry	Industrial				P	rojected, 200	0	(percer	nt)	
	Classification	1972	1979	1986	Low	Moderate	High	Employment	Output	
Railroad transportation Local and interurban passenger transit Trucking and warehousing Water transportation Air transportation Arrangement of passenger transportation Miscellaneous transportation services	40 41 42 44 45 471,2,3,4,8	582 276 1,124 212 348 -	556 263 1,339 216 438 -	331 282 1,382 174 570 158 126	167 300 1,627 146 690 217 153	190 308 1,713 159 721 227 164	203 315 1,740 167 725 230 172	-3.9 .6 1.5 6 1.7 2.6 1.9	.7 1.3 2.2 1.7 3.7 5.9 3.0	
Communications . Communications except broadcasting . Radio and television broadcasting . Public utilities . Electric utilities including combined services . Gas utilities including combined services . Water and sanitation including combined services	48 481,2,9 483 49 491,493 pt. 492, 493 pt. 494-7, 493 pt.	1,152 1,009 143 711 420 216 75	1,309 1,121 188 805 493 220 92	1,279 1,041 238 924 582 216 126	1,130 845 284 965 602 200 164	1,222 920 302 998 613 210 175	1,320 978 342 1,015 621 214 180	3 9 1.7 .6 .4 2 2.4	3.9 3.9 3.9 2.1 2.4 1.5 3.4	
Wholesale trade	50,1 501 508 514 517	4,113 353 869 536 225	5,204 439 1,261 648 225	5,735 431 1,445 757 200	7,015 479 1,988 876 187	7,266 496 2,059 907 194	7,361 502 2,086 919 197	1.7 1.0 2.6 1.3 2	2.7 - - -	
Retail trade Department stores Grocery stores Gasoline service stations Apparel and accessory stores Eating and drinking places Drug and proprietary stores Miscellaneous shopping goods stores	52-59 531 541 551,2 554 56 58 591 594	11,835 1,706 1,578 814 649 784 2,860 452 375	14,989 1,878 2,002 881 577 949 4,513 489 569	17,845 1,978 2,523 947 596 1,070 5,879 563 746	21,795 2,261 2,984 906 387 1,292 8,084 647 1,038	22,702 2,364 3,121 947 502 1,351 8,365 677 1,085	23,079 2,404 3,174 963 412 1,374 8,501 688 1,103	1.7 1.3 1.5 .0 -1.2 1.7 2.6 1.3 2.7	2.4 - - 1.9 -	
Finance, insurance, and real estate	60-67 60 61,7 62 63 64 65,6	3,907 1,115 458 203 1,054 301 776	4,975 1,499 665 204 1,200 430 977	6,297 1,736 1,023 392 1,364 581 1,200	7,508 1,930 1,364 517 1,454 767 1,476	7,917 1,998 1,518 526 1,532 795 1,548	8,159 2,060 1,610 543 1,566 808 1,572	1.7 1.0 2.9 2.1 .8 2.3 1.8	2.6 2.8 3.1 2.2 2.3 2.3 2.5	
Services ² Hotels and other lodging places Personal services Laundry, cleaning, and shoe repair Personal services, n.e.c. Beauty and barber shops Funeral service and crematories	70-86,89 70 72 721,5 722,9 723,4 726	12,117 813 912 - - - 64	16,768 1,060 904 367 150 319 69	22,531 1,401 1,104 393 267 367 77	30,545 1,848 1,298 400 406 410 82	32,545 1,971 1,357 434 411 423 89	33,708 2,061 1,391 445 422 430 94	2.7 2.5 1.5 .7 3.1 1.0 1.0	3.2 1.9 1.6 .8 3.2 .7 1.1	
Business services Advertising Services to dwellings and other buildings Personnel supply services Computer and data processing services Research, management, and consulting services Detective and protective services Equipment rental and leasing Photocopying, commercial art, photofinishing Credit reporting and business services, n.e.c.	73 731 734 736 737 7391,2,7 7393 7394 7322,3,95 732,5;7331,39; 7396,99	1,790 121 336 221 107 - - - -	2,906 146 487 527 271 - - - - - - -	4,781 202 681 1,017 591 788 445 208 174 677	7,593 284 995 1,730 1,090 1,186 658 314 199 1,137	8,121 302 1,020 1,851 1,203 1,301 687 330 244 1,184	8,533 310 1,046 1,908 1,281 1,394 709 396 257 1,233	3.9 2.9 2.9 4.4 5.2 3.6 3.1 3.4 2.4 4.1	4.2 3.5 3.2 3.6 5.0 4.3 3.9 4.1 4.1 4.0	
Auto repair, services, and garages Automotive rentals, without drivers Automobile parking, repair, and services Miscellaneous repair shops Electrical repair shops Watch, clock, jewelry, and furniture repair Miscellaneous repair shops and related services	75 751 752,3,4 76 762 763,4 769	399 - 199 - -	575 120 455 282 79 29 174	762 161 601 320 104 28 188	919 210 709 352 125 26 201	1,016 233 783 397 142 28 226	1,040 241 799 416 146 29 240	2.1 2.7 1.9 1.5 2.3 .0 1.3	2.2 2.6 2.2 1.2 .8 2 1.6	
Motion pictures Amusement and recreation services Theatrical producers and entertainers Bowling alleys and billiard establishments Commercial sports Amusement and recreation services, n.e.c.	78 79 792 793 794 791,9	205 504 - - -	228 712 85 110 72 445	227 915 121 95 99 600	207 1,143 159 72 126 785	248 1,204 165 82 133 824	266 1,235 167 85 143 840	.6 2.0 2.2 -1.1 2.1 2.3	2.0 4.6 4.0 .6 1.5 5.5	
Health services . Offices of health practitioners . Nursing and personal care facilities . Hospitals, private . Outpatient facilities and health services, n.e.c.	80 801,2,3,4 805 806 807,8,9	3,412 694 591 1,980 146	4,993 1,150 951 2,608 284	6,551 1,672 1,250 3,038 591	9,369 2,901 1,992 3,438 1,038	9,774 3,061 2,097 3,513 1,103	10,039 3,137 2,124 3,611 1,167	2.9 4.4 3.8 1.0 4.6	3.4 3.7 3.6 2.8 4.4	
Legal services Educational services Social, membership, and miscellaneous services Individual and miscellaneous social services Job training and related services Child day care services	81 82 83,4,6,9 832,9 833 ³ 835	271 958 - - 146	460 1,090 3,571 393 - 303	748 1,428 4,296 528 256 354	1,191 1,532 5,326 755 333 467	1,267 1,620 5,569 790 337 478	1,317 1,666 5,745 798 389 495	3.8 .9 1.9 2.9 2.0 2.2	2.5 1.8 3.0 2.9 2.6 5.1	

Standard				Annual rate of change, 1986–2000				
Classification	1072	1070	1096	F	rojected, 200	(percer		
	1972	19/9	1900	Low	Moderate	High	Employment	Outpu
836	-	202	319	500	519	532	3.5	4.9
84,865,9,892	-	195	263	334	355	357	2.2	3.4
861,2	-	118	135	144	159	165	1.2	22
863,4	-	464	485	507	531	537	.7	1.9
891	339	515	678	887	936	957	23	29
893,9	-	316	458	673	711	742	3.2	3.5
-	13,333	15,947	16,711	17,900	18.329	18.897	.7	1.5
-	2,684	2,773	2,899	2,900	3.000	3.093	.2	1.3
-	888	876	1,000	1,001	1.031	1.087	.2	2.7
-	698	661	789	832	845	886	.5	3.0
-	29	52	39	32	33	37	-1.3	1.4
-	161	163	172	137	153	164	8	2.5
-	1,796	1,897	1.899	1.899	1,969	2.006	.3	.7
-	10,649	13,174	13,812	15,000	15,329	15,804	.7	1.7
-	547	733	831	973	1,004	1.023	1.4	1.5
-	100	130	174	207	212	218	1.4	1.0
-	59	63	69	69	75	79	.6	1.4
-	388	540	588	697	716	726	1.4	1.7
-	1 .102	12,441	12,981	14,027	14,325	14,781	.7	1.7
-	926	1,108	1,047	1,047	1,070	1,103	.2	2.6
-	5,550	6,486	7,058	7,674	7,842	8,085	.8	1.6
-	3.625	4,847	4,876	5,306	5,413	5,593	.7	1.7
	Standard Industrial Classification 836 84,865,9,892 861,2 863,4 891 893,9 	Standard Industrial Classification 1972 836 - 84,865,9,892 - 863,4 - 891 339 993,9 - - 2,684 - 898 - 2,684 - 898 - 2,684 - 898 - 10,649 - 10,649 - 599 - 11,02 - 388 - 11,02 - 926 - 5,550	Standard Industrial Classification 1972 1979 836 - 202 84,865,9,892 - 195 861,2 - 118 863,4 - 464 891 339 515 893,9 - 316 - 2,684 2,773 - 888 876 - 2,684 2,773 - 888 876 - 29 52 - 11,3333 15,947 - 2,684 2,773 - 888 876 - 13,697 1,1387 - 10,649 13,174 - 547 733 - 100 130 - 388 540 - 1,102 12,441 - 9265 1,108 - 3,265 6,486	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Standard Industrial Classification 1972 1979 1986 F 836 - 202 319 500 84,865,9,892 - 195 263 334 861,2 - 118 135 144 863,4 - 464 485 507 891 339 515 678 887 - 12,684 2,773 2,899 2,900 - 2,684 2,773 2,899 2,900 - 2,684 2,773 2,899 2,900 - 16,11 163 172 137 - 10,649 13,174 13,812 15,000 - 29 52 39 32 - 10,649 13,174 13,812 15,000 - 547 733 831 973 - 100 130 174 207 - 59 63 69 697	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$

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

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 (HMO'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.

NOTE: Dash indicates data not available.

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 (non-accountants); 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 self-employed 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

Employment and Earnings.

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 year—reflecting 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):

	Population				
	5 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

FOOTNOTES -

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.

¹ Annual Energy Outlook 1986 (U.S. Department of Energy, Energy Information Administration, 1986).

³ Steven E. Haugen, "The employment expansion in retail trade, 1973– 85," *Monthly Labor Review*, August 1986, pp. 9–16. 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.

² Marcus E. Einstein and James C. Franklin, "Computer manufacturing enters a new era of growth," *Monthly Labor Review*, September 1986, pp. 9–16.

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 1986–2000 period is expected to shift because the change in total

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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				
occupation	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	

whereas projected trends are based on data from the National 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

Occupation	Total, all classes of workers	Total, wage and salary workers	Agri- culture	Mining	Construc- tion	Manu- facturing	Transportation, communications, and public utilities	Wholesale and retail trade	Finance, insurance, and real estate	Services	Govern- ment	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 management-	3.033	2 677	14	-2	111	85	76	619	479	1 128	167	356
Engineers, architects, and surveyors Natural, computer, and	495	470	4	-0	12	165	16	17	7	213	36	25
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	967	811	3	0	0	28	29	46	30	582	93	156
occupations	1,403	1,374	4	- 2	4	70	28	86	51	1,070	63	28
Administrative support	3,728	3,168	4	1	13	17	76	2,408	286	357	5	560
including clerical Service occupations	2,258 5,381	2,327 5,205	5 2	- 19 - 1	0 2	- 238 - 31	- 27 37	287 2,251	551 74	1,815 2,596	- 45 276	- 69 176
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 Precision production	687	677	3	- 4	64	- 7	- 2	217	52	317	37	11
occupations	134	111	0	- 2	26	- 52	1	48	2	74	15	23
Machine setters, set-up operators, operators, and										00		7
tenders Assemblers and other handwork	- 194	- 201	3	- 2	5	- 319	0	21	1	89	1	/
occupations Transportation and material moving	- 113	- 108	1	0	11	- 203	2	32	0	47	2	- 4
vehicle operators Helpers, laborers, and material movers	500	443	6	- 12	62	- 137	193	157	4	141	30	57
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

Occupation	Total, all classes of workers	Total, wage and salary workers	Agri- culture	Mining	Construc- tion	Manu- facturing	Transportation, communications, and public utilities	Wholesale and retail trade	Finance, insurance, and real estate	Services	Govern- ment	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 Engineers, architects, and	28.7	28.9	36.9	-2.7	23.7	5.5	18.1	28.8	39.4	47.9	16.7	27.1
surveyors Natural, computer, and	31.6	31.6	35.4	-0.4	26.2	24.0	18.9	67.6	54.6	54.5	18.2	31.6
scientists	45.9	46.3	33.3	-2.8	47.8	15.3	50.6	80.8	58.6	85.9	13.4	39.8
and counselors	15.6	15.6	7.5	-	-	8.9	10.4	28.3	24.6	15.8	6.1	17.2
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
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	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	11.4 30.7	12.0 31.5	6.6 11.4	-19.6 -14.6	-0.1 5.6	-10.6 -9.2	-2.1 21.0	9.1 39.4	16.6 22.5	29.1 31.4	-1.7 16.8	-16.8 17.2
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
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 Precision production	14.7	15.9	18.8	-7.1	21.9	-0.9	3	20.1	34.3	38.6	12.0	2.4
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 Assemblers and other	-3.9	-4.1	16.9	-9.1	19.4	-7.3	1.1	23.5	29.6	26.9	5.2	8.0
handwork occupations Transportation and material moving	-4.2	-4.1	16.6	2.1	26.7	-8.8	9.2	30.9	43.6	41.9	7.6	-4.9
machine and vehicle operators Helpers, laborers, and material movers	10.4	9.9	16.9	-9.7	18.5	-18.5	15.9	13.5	34.7	24.2	11.8	17.0
hand	5.8	6.0	9.2	-14.3	11.9	-10.3	9.4	8.0	12.3	40.9	3.5	-2.5

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 result
 Table 3. Civilian employment in occupations with 25,000 workers or more, actual 1986 and projected to 2000

 [Numbers in thousands]

		Total en	nployment		1986-2000 employment cha				hange	
Occupation	1000	P	rojected, 200	00		Number			Percent	
	1986	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 . Managerial and administrative occupations . Education administrators . Fionacial managers . Food service and lodging managers . General managers and top executives . Marketing, advertising, and public relations managers . Personnel, training, and labor relations managers . Postmasters and mail superintendents . Property and real estate managers . Public administration chief executives, legislators, and general administrators Purchasing managers .	10,583 7,369 288 638 509 2,383 323 151 28 128 128 66 230	12,900 8,939 316 747 628 2,820 402 183 29 166 73 248	13,616 9,441 325 792 663 2,965 427 194 30 178 75 260	14,105 9,780 336 824 685 3,052 444 201 31 184 77 266	2,316 1,570 28 109 120 437 80 32 2 38 7 18	3,033 2,071 37 154 154 582 105 43 2 50 9 30	3,521 2,411 48 185 176 669 122 50 4 56 11 36	22 21 10 17 24 18 25 21 7 30 11 8	29 28 13 24 30 24 32 28 8 39 14	33 33 17 29 35 28 38 33 14 44 17
Management support occupations Accountants and auditors Claims examiners, property and casualty insurance Inspectors and compliance officers, except construction Construction and building inspectors Cost estimators Employment interviewers, private or public employment service Loan officers and counselors Management analysts Personnel, training, and labor relations specialists Purchasing agents, except wholesale, retail, and farm products Tax examiners, collectors, and revenue agents Underwriters Wholesale and retail buyers, except farm products	3,214 945 34 125 50 157 75 98 126 230 188 57 99 192	3,961 1,251 43 137 54 180 122 123 155 264 181 181 181 65 127 200	4,175 1,322 45 142 55 188 129 131 165 278 193 67 134 209	4,324 1,371 46 146 57 197 134 137 173 288 200 69 136 213	747 306 9 12 4 23 47 26 29 34 47 26 29 34 -7 8 8 8 8	962 376 11 17 5 31 54 33 40 49 5 10 34 17	1,110 426 12 21 7 7 39 58 39 47 58 39 47 58 21	23 32 27 9 8 15 62 26 23 15 -3 13 28 4	30 40 33 13 11 20 71 34 31 21 3 17 34 9	35 45 36 17 14 25 77 40 38 25 7 20 37 11
Engineers, architects, and surveyors Engineers Aeronautical and astronautical engineers Chemical engineers Civil engineers, including traffic engineers Electrical and electronics engineers Industrial engineers, except safety engineers Mechanical engineers Architects, except landscape and marine Surveyors	1,567 1,371 53 52 199 401 117 233 84 94	1,917 1,683 53 57 238 544 140 286 102 108	2,062 1,815 58 60 249 592 152 309 108 113	2,138 1,883 60 64 257 616 158 320 112 117	350 312 0 5 39 143 22 53 18 13	495 444 6 8 50 192 35 76 25 19	571 512 8 11 58 215 41 87 29 22	22 23 1 9 20 36 19 23 22 14	32 32 11 15 25 48 30 33 30 20	36 37 15 21 29 54 35 37 34 24
Natural, computer, and mathematical scientists Computer systems analysts, electronic data processing Life scientists Biological scientists Mathematical scientists, actuaries and statisticians Operations and systems researchers Physical scientists Chemists Geologists, geophysicists, and oceanographers	738 331 140 61 48 38 180 86 44	1,014 544 163 72 58 55 194 92 46	1,077 582 170 75 61 59 205 96 50	1,122 607 176 62 63 62 214 95 49	275 212 23 11 11 17 13 5 2	339 251 30 14 14 21 24 10 6	384 276 35 16 23 34 15 8	37 64 16 18 22 44 7 6 6	46 76 21 23 29 54 13 11 13	52 83 25 27 33 61 19 17 19
Teachers, librarians, and counselors . Teachers, preschool, kindergarten, and elementary . Teachers, preschool . Teachers, kindergarten and elementary . Teachers, secondary school . College and university faculty . Other teachers and instructors . Adult and vocational education teachers . Instructors, adult (nonvocational) education . Teachers and instructors, vocational education and training	4,949 1,702 176 1,527 1,128 754 1,097 427 202 225 144 136 123	5,558 2,011 233 1,778 1,246 703 1,296 489 229 260 159 150 150 144	5,720 2,066 240 1,826 1,280 722 1,340 509 241 268 165 155 148	5,906 2,131 248 1,883 1,320 745 1,386 529 251 278 170 159 154	610 308 57 251 118 -51 199 62 26 35 15 15 14 21	772 363 64 299 152 -32 243 82 39 43 20 18 25	957 428 72 356 192 -9 289 102 49 53 25 25 23 32	12 18 33 16 10 -7 18 14 13 16 10 10	16 21 36 20 13 -4 22 19 19 19 19 14 13 21	19 25 41 23 17 -1 26 24 24 24 24 18 17 26
Health diagnosing and treating occupations	2,592 151 40 37 151 26 491 1,406 240 29 61 29 56 45 37 3,692 176	3,528 184 52 52 179 645 1,951 352 43 109 41 74 58 52 4,421 218	3,674 196 54 55 187 41 679 2,018 366 45 115 43 76 61 54 4,660 235	3,785 203 55 57 1911 42 700 2,077 378 46 118 44 44 78 63 57 7 4,842 246	935 33 12 15 29 13 154 546 112 48 12 17 13 15 729 43	1,081 45 14 18 36 15 188 612 126 15 53 14 19 15 17 967 59	1,192 52 15 20 41 16 209 671 138 671 138 77 57 57 22 18 19 1,150 70	36 22 29 40 19 49 31 39 46 46 46 46 29 30 29 39 20 24	42 30 34 49 24 57 38 44 52 52 87 87 49 34 34 34 34 26 34	46 34 38 54 27 62 43 48 57 58 94 52 38 39 52 31 40
Musicians Photographers and camera operators	259 189 109	322 218 137	235 343 231 146	357 239 153	43 63 30 28	59 84 42 37	97 50 44	24 24 16 25	34 32 23 33	40 38 27 41

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

		Total em	ployment	1986–2000 employment change						
Occupation		Pi	rojected, 200	0		Number		Percent		
	1986	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Photographers Producers, directors, actors, and entertainers Public relations specialists and publicity writers Radio and Tv announcers and newscasters Reporters and correspondents Writers and editors, including technical writers Economists Psychologists Clergy Directors, religious activities and education Recreation workers Social service technicians Social workers Judges, magistrates, and other judicial workers Lawyers	100 73 61 75 214 37 110 295 46 164 88 365 38 527	126 87 71 84 268 47 140 291 43 190 117 468 46 676	133 97 122 76 88 287 50 148 304 45 196 122 485 47 718	140 103 127 84 93 301 52 153 313 46 202 125 500 48 748	25 15 28 10 9 54 10 30 -4 -3 26 29 103 8 149	33 24 35 13 73 13 37 9 -1 33 34 120 9 191	40 30 39 23 15 43 18 0 88 37 134 10 221	25 20 32 16 12 25 27 27 -1 -7 16 33 28 21 28	33 34 40 24 18 34 34 34 34 3 -3 20 38 33 23 36	40 41 45 38 25 41 40 39 6 0 23 42 37 27 42
Technician occupations	3,650	4,791	5,053	5,226	1,141	1,403	1,576	31	38	43
Health technicians and technologists	1,598	2,171	2,261	2,326	573	663	728	36	41	46
Dental hygienists	87	134	141	145	47	54	58	54	63	67
Emergency medical technicians	65	73	75	77	8	10	12	12	15	18
Licensed practical nurses	631	835	869	891	204	238	260	32	38	41
Medical and clinical lab technologists and technicians	239	285	296	307	46	57	67	19	24	28
Medical records technicians	40	67	70	72	28	30	32	69	75	80
Opticians, dispensing and measuring	50	69	72	74	19	23	24	39	46	49
Radiologic technologists and technicians	115	183	190	196	67	75	80	58	65	70
Surgical technicians	37	48	49	51	11	12	14	30	33	37
Engineering and science technicians and technologists Engineering technicians Electrical and electronic technicians and technologists Drafters Physical and life science technicians, technologists, and mathematical	1,264 689 313 348	1,454 874 428 331	1,549 933 459 354	1,604 964 473 366	190 185 114 -17	285 245 145 5	340 276 160 17	15 27 37 -5	23 35 46 2	27 40 51 5
technicians	227	250	262	274	23	35	47	10	15	21
	788	1,166	1,243	1,297	377	454	509	48	58	65
	26	27	28	29	1	2	3	4	8	10
	27	31	33	37	3	5	9	12	20	34
	479	758	813	850	279	335	371	58	70	78
	170	258	272	282	87	102	112	51	60	66
	61	118	125	130	56	64	68	92	104	112
	30	34	36	37	5	6	7	15	22	25
	51	56	57	59	5	7	8	10	13	16
Marketing and sales occupations	12,606	15,522	16,334	16,760	2,916	3,728	4,153	23	30	33
Cashiers	2,165	2,616	2,740	2,798	450	575	633	21	27	29
Counter and rental clerks	178	221	238	246	43	60	68	24	34	38
Insurance salesworkers	463	535	565	581	73	102	118	16	22	25
Real estate agents and brokers	376	507	542	562	131	166	186	35	44	49
Brokers, real estate	63	86	91	94	23	28	31	36	45	49
Sales agents, real estate	313	422	451	468	108	138	155	35	44	49
Real estate appraisers	36	48	51	53	12	15	17	33	41	46
Salespersons, retail	3,579	4,563	4,780	4,871	984	1,201	1,291	28	34	36
Securities and financial services salesworkers	197	266	279	290	69	82	93	35	42	47
Stock clerks, sales floor	1,087	1,255	1,312	1,333	168	225	246	15	21	23
Travel agents	105	146	154	159	41	49	53	39	46	51
Administrative support occupations, including clerical	19,851	21,028	22,109	22,885	1,177	2,258	3,034	6	11	15
	762	852	894	920	90	132	158	12	17	21
	136	157	165	170	20	29	34	15	21	25
	126	157	167	174	32	42	49	25	33	39
	355	367	385	393	13	30	38	4	9	11
	119	147	154	158	29	36	39	24	30	33
	85	84	88	90	-1	3	5	-1	4	6
	151	136	142	145	-15	-9	-6	-10	-6	-4
	86	98	100	103	12	14	17	14	16	20
Communications equipment operators	365	381	404	422	16	39	57	4	11	16
	353	369	391	408	15	38	55	4	11	16
	42	32	34	37	-10	-8	-5	-25	-18	-13
	32	24	27	28	-8	-6	-4	-24	-18	-12
	279	313	330	343	34	51	64	12	18	23
Computer operators and peripheral equipment operators	309	430	457	475	121	148	166	39	48	54
Computer operators, except peripheral equipment	263	364	387	403	101	124	140	39	47	53
Peripheral electronic data processing equipment operators	46	66	70	73	19	24	26	42	51	57
Duplicating, mail, and other office machine operators	166	169	178	185	3	12	19	2	7	11
Financial records processing occupations Billing, cost, and rate clerks Billing, posting, and calculating machine operators Bookkeeping, accounting, and auditing clerks Payroll and timekeeping clerks General office clerks Information clerks Hotel desk clerks Interviewing clerks, except personnel and social welfare New accounts clerks, banking	5,093 307 105 2,116 204 2,361 1,111 109 104 94	5,350 298 108 2,085 171 2,688 1,452 146 143 110	5,637 313 114 2,208 180 2,824 1,534 156 150 117	5,832 322 117 2,291 186 2,916 1,587 163 158 122	257 -10 4 -31 -34 327 341 37 39 16	544 5 9 -25 462 423 47 46 23	739 14 12 175 -18 554 476 54 54 54 28	5 -3 4 -1 -16 14 31 34 37 17	11 2 9 4 -12 20 38 43 45 24	15 5 12 8 -9 23 43 49 52 30

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

		Total en	ployment		1986-2000 employment cha				yment change		
Occupation		Р	rojected, 200	0		Number			Percent		
	1986	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High	
Receptionists and information clerks	682	913	964	997	232	282	315	34	41	46	
Reservation and transportation ticket agents and travel clerks.	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 envice clerks	370	383	388	408	12	18	37	3	5	10	
Material recording, scheduling, dispatching, and distribution occupations Dispatchers Dispatchers, except police, fire, and ambulance Dispatchers, police, fire, and ambulance Meter readers, utilities Order fillers, wholesale and retail sales Procurement clerks Production, planning, and expediting clerks Stock clerks, stockroom, warehouse, or yard Traffic, shipping, and receiving clerks Weighers, measurers, checkers, and samplers, recordkeepers	2,173 185 124 61 48 195 41 213 726 548 40	2,151 206 138 67 42 200 33 210 668 557 37	2,264 215 146 69 43 208 35 228 703 585 39	2,330 221 151 71 44 211 37 239 721 604 41	-22 21 14 6 -6 5 -7 -3 -57 9 -3	91 30 22 8 -5 13 -5 15 -23 38 0	157 36 26 10 -4 16 -4 26 -4 56 1	-1 11 11 -12 3 -18 -1 -18 -1 -8 2 -7	4 16 18 13 -10 7 -13 7 -3 7 -1	7 20 21 16 -7 8 -9 12 -1 10 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 Bank tellers Court clerks Credit checkers Customer service representatives, utilities Data entry keyers, except composing Data entry keyers, composing First-line supervisors and managers Loan and credit clerks Real estate clerks Statistical clerks Teacher aides and educational assistants	3,732 539 40 41 102 400 29 956 159 26 71 648	4,009 576 49 315 41 1,106 191 35 49 752	4,206 610 51 45 99 334 43 1,161 207 36 52 773	4,358 635 52 47 104 347 45 1,200 217 37 54 797	277 37 9 1 -9 -85 13 150 32 9 -21 104	475 71 10 4 -3 -66 15 205 47 10 -19 125	627 96 12 6 2 -53 17 244 57 11 -17 150	7 7 23 3 -9 -21 44 16 20 33 -30 16	13 13 26 10 -3 -16 51 21 30 39 -26 19	17 18 30 15 2 -13 58 25 36 42 -24 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	
Housekeepers, institutional	123	157	165	170	34	42	47	28	34	38	
Janitors and cleaners, including maids and housekeeping cleaners	2,676	3,144	3,280	3,382	468	604	706	17	23	26	
Pest controllers and assistants	50	56	58	59	6	8	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	
Chefs, cooks, and other kitchen workers	2,563	3,299	3,427	3,501	736	864	938	29	34	37	
Cooks, except short order	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	
Cooks, institution or cafeteria	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 occupations	4,204	5,611	5,832	5,948	1,407	1,628	1,744	33	39	41	
Bartenders	396	530	553	566	134	157	170	34	40	43	
Dining room and cafeteria 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	
Pharmacy assistants	64	77	79	81	13	15	17	20	24	27	
Physical and corrective therapy assistants and aides	36	62	65	67	26	29	31	74	82	87	
Personal service occupations Amusement and recreation attendants Baggage porters and bellhops Barbers Child care workers Cosmetologists and related workers Hairdressers, hairstylists, and cosmetologists Flight attendants Social welfare service and home health aides Home health aides	1,799 184 31 80 589 595 562 80 197 138	2,135 228 39 76 664 666 627 101 320 236	2,259 239 41 81 708 702 662 105 336 249	2,341 246 43 85 739 724 683 683 683 106 349 258	336 43 8 4 75 71 65 21 123 98	460 55 10 1 118 107 99 26 139 111	542 62 12 4 150 129 121 26 152 120	19 24 24 -5 13 12 12 26 63 71	26 30 32 1 20 18 18 32 71 80	30 34 37 5 25 22 22 33 77 87	

Total employment 1986-2000 employment change Occupation Projected, 2000 Number Percent Moderate Moderate Low High Low High Low Moderate High Social welfare service aides Social welfare service aidesUshers, lobby attendants, and ticket takers -1 -2 Private household workers -98 -26 -11 -10 -3 -2 Housekeepers and bullers Child care workers, private household Cleaners and servants, private household Protective service occupations Correction officers and jailers. Eirafighting occupations -2 -6 -66 -38 -33 -16 -8 -10 -30 -62,055 2,589 2,700 2,813 39 Firefighting occupations 14 14 17 20 Firefighting and prevention supervisors . Police and detectives . Police and detectives supervisors . Police detectives and investigators . Police patrol officers . Crossing guards . Guards . 21 23 74 17 73 15 17 Guards 1.104 1.177 1.241 Agriculture, forestry, fishing, and related occupations 3 556 3.229 3 393 3.497 -327 -163 -59 -9 -5 -2 Animal caretakers, except farm Gardeners and groundskeepers, except farm 1,005 1,033 Supervisors, farming, forestry, and agricultural-related occupations -6 -3 -9 -4 Farm occupations Farm workers -227 -149 -180 -23 -18 -15 -235 -190 -161 -25 -20 -17 Farm workers Nursery workers Farm operators and managers Farmers Farmers Fishers, hunters, and trappers Forestry and logging occupations Forest and conservation workers Timber cutting and logging occupations Fallers and buckers Logging tractor operators -21 1,336 1,001 1,051 1,078 -335 -285 -258 -25 -19 1,182 -372 -332 -311 -31 -28 -26 -2 5 -11 -8 18 -15 -3 -15 -3 -7 -4 -3 -18 -11 -8 -2 -1 -2 -8Blue-collar worker supervisors 1.823 1,854 1,967 2,051 Construction trades and extractive workers . Bricklayers and stone masons . Carperters . Carpet installers . Concrete and terrazzo finishers . Drywall installers and finishers . Electricians . Glaziers . Hard tile setters . Highway maintenance workers . Insulation workers . 4.006 4,500 4,710 4.940 21 1.010 1.134 1,192 1.252 19 31 11 22 47 32 39 10 16 13 Insulation workers 90 Plumbers, pipefitters, and steamfitters Roofers Structural and reinforcing metal workers Oil and gas extraction occupations Roustabouts 34 26 17 17 -5 -5 -7 -8 -4 -14 Mechanics, installers, and repairers 4,678 5.060 5.365 5.547 Communications equipment mechanics, installers, and repairers -30 -23 -27 -17 -21 Central office and PBX installers and repairers -22 -17 -13 -29 -23 -18 Electrical and electronic equipment mechanics, installers, and repairers Data processing equipment repairers . Electrical powerline installers and repairers Electronic home entertainment equipment repairers 17 10 23 21 Electronics repairers, commercial and industrial equipment Station installers and repairers, telephone -22 -18 -16 -37 -32 -28 Television and cable TV line installers and repairers -18 -11 -4 -15 -9 -4 Machinery and related mechanics, installers, and repairers 1.712 1.545 1,810 1.881 0 Industrial machinery mechanics 1.039 1.205 1,270 1,314 Millwrights . . Vehicle and mobile equipment mechanics and repairers 1.559 1.654 1.759 1.806 Aircraft mechanics Automotive body and related repairers 82 Automotive mechanics . . . Bus and truck mechanics and diesel engine specialists Farm equipment mechanics . . Small engine specialists

Table 3. Continued—Civilian employment in occupations with 25,000 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]

		Total en	nployment		1986-2000 employment change					
Occupation	1006	Р	rojected, 200	10		Number			Percent	
	1900	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Other mechanics, installers, and repairers Coin and vending machine servicers and repairers Heating, air conditioning and refrigeration mechanics and installers Home appliance and power tool repairers Office machine and cash register servicers Precision instrument repairers Tire repairers and changers	931 27 222 76 56 49 83	1,039 29 260 79 75 48 98	1,095 30 272 84 78 52 103	1,132 31 283 86 80 54 105	108 2 38 3 19 -1 15	164 3 50 8 22 3 20	200 4 61 10 24 5 22	12 6 17 4 34 -2 18	18 12 22 10 40 5 24	21 15 27 13 43 10 26
Precision production and plant systems occupations Precision food workers	3,066 317 38 248	2,993 312 34 251	3,200 322 35 259	3,329 330 37 264	-73 -6 -4 2	134 5 -3 11	263 13 -1 16	-2 -2 -10 1	4 2 -7 4	9 4 -3 7
Precision metal workers Boilermakers Jewelers and silversmiths Machinists Sheet metal workers Tool and die makers Precision printing workers Compositors, typesetters, and arrangers, precision Lithography and photoengraving workers, precision	939 30 36 378 222 160 112 30 48	889 30 42 345 226 152 117 24 57	962 32 44 373 240 168 122 25 59	994 33 45 385 249 174 128 26 62	-51 0 -34 4 -8 5 -6 9	22 2 8 -5 19 8 10 -5 11	55 3 9 6 28 14 16 -4 14	-5 -1 16 -9 2 -5 5 -21 18	2 5 22 -1 8 5 9 -17 22	6 10 25 2 13 9 14 -13 29
Precision textile, apparel, and furnishing workers . Custom tailors and sewers . Shoe and leather workers and repairers, precision Upholsterers . Precision woodworkers Inspectors, testers, and graders	285 108 35 74 204 694	287 116 28 75 214 640	306 123 29 82 234 692	320 127 30 87 250 722	1 7 -7 1 10 -55	21 15 -6 8 30 -3	34 19 -5 13 46 28	0 7 -20 1 5 -8	7 13 -17 10 15 0	12 17 -14 17 23 4
Other precision workers Dental lab technicians, precision Chemical plant and system operators	223 46 33	250 60 23	267 64 23	278 67 25	28 14 -11	44 18 -10	55 21 -8	12 31 -32	20 39 -30	25 46 -25
Electric power generating plant operators, distributers, and dispatchers Power generating and reactor plant operators Gas and petroleum plant and system occupations Stationary engineers Water and liquid waste treatment plant and systems operators	45 25 31 41 74	48 27 19 41 83	50 28 20 42 85	51 29 21 44 88	3 3 -11 9	5 3 -11 2 11	6 4 -9 4 14	7 10 -37 0 13	11 14 -34 5 15	14 16 -30 9 19
Machine setters, set-up operators, operators, and tenders Numerical control machine tool operators and tenders, metal and plastic Combination machine tool setters, set-up operators, operators, and tenders Machine tool cutting and forming set-up operators and tenders, metal and plastic . Drilling machine tool setters and set-up operators, metal and plastic . Grinding machine setters and set-up operators, metal and plastic . Lathe machine tool setters and set-up operators, metal and plastic . Machine forming operators and tenders, metal and plastic . Machine tool cutters operators and tenders, metal and plastic . Machine tool cutters operators and tenders, metal and plastic . Punching machine setters and set-up operators, metal and plastic . Punching machine setters and set-up operators, metal and plastic Punching machine setters and set-up operators, metal and plastic	4,964 56 92 822 63 88 96 170 167 61	4,470 55 88 668 51 72 78 141 134 50	4,770 60 97 737 57 80 86 156 148 55	5,012 61 100 766 58 82 89 163 153 58	-494 -2 -3 -155 -11 -16 -18 -29 -33 -11	-194 4 5 -85 -6 -8 -9 -15 -19 -6	47 5 8 -56 -4 -6 -7 -7 -14 -4	-10 -3 -4 -19 -18 -18 -18 -17 -20 -18	-4 7 6 -10 -9 -10 -9 -11 -9	1 9 9 -7 -7 -7 -6 -7 -4 -8 -6
Metal fabrication machine setters, operators, and related workers	180 37 126	152 35 101	167 38 112	172 39 115	-28 -2 -25	-13 1 -15	-8 3 -11	-16 -4 -20	-7 4 -12	-4 7 -9
Metal and plastic process machine setters, operators, and related workers Electric plating machine operators and tenders, setters and set-up operators, metal and plastic.	300 47 27	296 41	320 45	338 46	-3 -6	21 -1	39 0	-1 -12	7 -3	13 0 7
Plastic moting machine operators and tenders, setters and set-up operators	37 147 412 72 222 73 115 29 37	458 86 252 92 126 37 35	33 183 478 90 262 96 131 38 36	34 193 505 95 278 101 140 40 37	- 6 27 46 14 29 19 11 7 -2	-4 36 66 17 40 23 17 9 -1	93 22 56 28 25 11	19 11 19 13 27 10 24 -6	25 16 24 18 32 15 29 -3	31 23 31 25 39 22 36 2
Textile and related setters, operators, and related workers Pressing machine operators, and tenders, textile, garment, and related workers Sewing machine operators, garment Sewing machine operators, nongarment Textile draw-out and winding machine operators and tenders Textile machine setters and set-up operators Woodworking machine setters, operators, and other related workers Head sawyers and sawing machine operators and tenders, setters and	1,165 89 633 135 219 54 147	959 83 526 119 156 45 140	995 88 541 125 164 47 159	1,048 90 567 131 175 51 173	-206 -6 -106 -16 -62 -9 -7	-170 -1 -92 -10 -55 -7 12	-117 2 -66 -3 -43 -3 26	-18 -7 -17 -12 -28 -16 -5	-15 -2 -14 -7 -25 -13 8	-10 2 -10 -2 -20 -6 18
set-up operators . Woodworking machine operators and tenders, setters and set-up operators Other machine setters, set-up operators, operators, and tenders . Cementing and gluing machine operators and tenders . Cooking and roasting machine operators and tenders . Cousing and mixing machine operators and tenders . Cutting and slicing machine eiters, operators, and tenders . Cutting and slicing machine setters, operators, and tenders . Electronic semiconductor processors	74 74 1,700 42 73 26 132 82 29	68 72 1,575 39 50 22 117 79 13	78 81 1,668 41 52 22 123 82 14	85 88 1,754 45 55 23 129 88 88 14	-5 -2 -125 -3 -24 -4 -16 -3 -15	5 7 -32 -1 -22 -4 -9 0 -15	12 14 54 3 -18 -3 6 -15	-7 -2 -7 -8 -33 -17 -12 -4 -53	7 9 -2 -30 -14 -7 0 -51	16 19 3 6 -25 -11 -2 7 -52

		Total en	ployment			1986-20	00 emplo	yment c	hange	
Occupation	1000	Р	rojected, 200	0		Number			Percent	
	1986	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 Painting machine operators, tenders, setters, and set-up operators Painters, transportation equipment 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 58 140 299 100 66 35 60 39 26 27	91 49 160 280 94 62 31 58 45 22 18	96 53 170 293 102 68 34 60 48 23 18	102 56 175 308 107 72 35 66 51 24 18	-9 -9 21 -19 -7 -3 -4 -2 6 -4 -8	-3 -5 31 -5 1 2 -1 0 9 -3 -9	2 -2 36 10 6 6 0 6 12 -2 -8	-9 -16 15 -6 -7 -5 -10 -4 16 -16 -31	-3 -8 22 -2 1 3 -2 0 24 -12 -32	2 -3 26 3 6 9 1 10 32 -7 -31
Assembler and other handwork occupations Precision assemblers Electrical and electronic equipment assemblers, precision Electromechanical equipment assemblers, precision Machine builders and other precision machine assemblers	2,701 351 170 59 50	2,389 315 155 57 44	2,589 348 171 62 48	2,695 358 177 64 49	-312 -36 -15 -2 -6	-113 -3 1 4 -2	-6 7 6 5 -1	-12 -10 -9 -3 -12	-4 -1 1 7 -4	0 2 4 9 -1
Other hand workers, including assemblers and fabricators . Cannery workers . Coil winders, tapers, and finishers . Cutters and trimmers, hand . Electrical and electronic assemblers . Grinders and polishers, hand . Machine assemblers . Meat, poultry, and fish cutters and trimmers, hand . Painting, coating, and decorating workers, hand . Solderers and brazers . Welders and cutters .	2,350 78 34 50 249 73 50 101 42 25 287	2,074 69 25 48 105 62 44 105 42 24 284	2,240 72 28 50 116 69 49 106 46 27 307	2,338 76 29 53 119 72 50 108 48 28 320	-277 -8 -9 -2 -145 -11 -6 3 0 -1 -1 -4	-110 -5 -6 0 -134 -4 -1 4 4 2 19	-13 -1 -5 3 -131 -2 0 7 6 3 32	-12 -11 -26 -4 -58 -15 -12 3 -1 -3 -1	-5 -7 -19 1 -54 -6 -2 4 9 7 7	-1 -2 -16 6 -52 -2 1 7 14 10 11
Transportation and material moving machine and vehicle operators Aircraft pilots and flight engineers Motor vehicle operators Bus drivers Bus drivers, except school Bus drivers, school Taxi drivers and chauffers Truck drivers Driver-salesworkers Truck drivers, light and heavy	4,789 76 3,089 478 143 334 88 2,463 252 2,211	5,029 94 3,520 541 172 369 88 2,821 222 2,599	5,289 98 3,693 555 177 378 94 2,968 232 2,736	5,456 99 3,798 572 182 390 98 3,050 239 2,811	240 17 431 63 29 34 0 358 -30 388	500 22 604 77 34 44 6 505 -20 525	667 23 709 94 39 56 10 587 -13 600	5 23 14 13 20 10 0 15 -12 18	10 29 20 16 24 13 7 21 -8 24	14 30 23 20 27 17 11 24 -5 27
Rail transportation workers Railroad brake, signal, and switch operators Railroad conductors and yardmasters	117 42 29	66 22 15	74 25 17	79 27 18	-51 -20 -14	-43 -17 -12	-39 -15 -11	-44 -47 -48	-37 -40 -41	-33 -36 -37
Water transportation and related workers	50	43	46	49	-8	-4	-1	-15	-8	-3
Other transportation and related workers Parking lot attendants Service station attendants	416 30 299	401 34 272	421 37 285	430 38 291	-15 4 -28	5 7 -14	15 8 -8	-4 12 -9	1 21 -5	4 25 -3
Material moving equipment operators Crane and tower operators Excavation and loading machine operators Grader, dozer, and scraper operators Industrial truck and tractor operators Operating engineers	998 58 70 92 426 150	857 56 75 100 265 167	905 60 79 104 283 172	947 64 83 109 296 180	-140 -2 6 8 -161	-93 3 9 11 -143 23	-51 7 13 17 -131 30	-14 -4 8 -38	-9 5 13 12 -34	-5 11 19 18 -31
Helpers, laborers, and material movers, hand Freight, stock, and material movers, hand Hand packers and packagers Helpers, construction trades Machine feeders and offbearers Refuse collectors Vehicle washers and equipment cleaners	4,273 831 566 519 278 113 189	4,295 768 606 570 242 130 190	4,522 811 639 587 262 135 203	4,705 838 662 616 280 138 208	22 -63 40 51 -36 17 1	23 249 -19 73 68 -16 22 14	432 8 96 97 2 25 19	11 -8 7 10 -13 15 0	15 6 -2 13 13 -6 19 7	10 1 17 19 1 22 10

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

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-

Teachers, librarians, and counselors. This group of occupations 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. Employment 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 and

Table 4. Fastest growing occupations, 1986–2000, moderate alternative

Occupation	Em	ployment	Char emplo 1986	Percent of total	
	1986	Projected, 2000	Number	Percent	job growth, 1986-2000
Paralegal personnel	61	125	64	103.7	.3
Medical assistants	132	251	119	90.4	.6
Physical therapists Physical and corrective therapy	61	115	53	87.5	.2
assistants and aides	36	65	29	81.6	.1
repairers	69	125	56	80.4	.3
lome health aides	138	249	111	80.1	.5
Podiatrists	13	23	10	77.2	0
Computer systems analysts,					
electronic data processing	331	582	251	75.6	1.2
Employment interviewers, private or public employment	40	70	30	75.0	.1
service	75	129	54	71.2	.3
Computer programmers	479	813	335	69.9	1.6
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
researchers	38	59	21	54.1	.1
Decupational therapists Peripheral electronic data processing equipment	29	45	15	52.2	.1
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, 1986– 2000, moderate alternative [Numbers in thousands]

Occupation	Emj	ployment	Char emplo 1986	Change in employment, 1986-2000		
	1986	Projected, 2000	Number	Percent	1986-2000	
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 Janitors and cleaners, including maids and housekeeping	1,406	2,018	612	43.6	2.9	
cleaners	2,676	3,280	604	22.6	2.8	
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	
related workers	1,500	1,949	449	29.9	2.1	
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 Teachers, kindergarten and	949	1,273	324	34.2	1.5	
elementary	1,527	1,826	299	19.6	1.4	
clerks Computer systems analysts.	682	964	282	41.4	1.3	
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	
utility	1.039	1,270	232	22.3	1.1	
Stock clerks, sales floor	1,087	1,312	225	20.7	1.0	
managers Dining room and cafeteria attendants and	956	1,161	205	21.4	1.0	
barroom helpers	433	631	197	45.6	.9	
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.

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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. Employment 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

moderate alternative

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,

[Numbers in thousands]			
	Em	ployment	Percent decline
Occupation	1986	Projected, 2000	in employment
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 Gas and petroleum plant and system	42	25	-39.9
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 Chemical equipment controllers, operators	58	40	-31.8
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
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 Compositors, typesetters, and arrangers,	32	27	-17.7
precision	30	25	-17.1

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

Occurrentien	1000	Projected, 2000						
occupation	1986	Low	Moderate	High				
Total, all occupations	100.0 9.5	100.0 10.2	100.0 10.2	100.0 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				
Health-diagnosing and trasting specialists	4.4	4.4	4.3	4.3				
Other professional specialists	2.0	2.0	2.0	2.0				
Technicians	3.3	3.8	3.8	3.8				
Marketing and salesworkers	11.3	12.3	12.3	12.2				
Administrative support, including 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 Precision production and plant systems	4.2	4.0	4.0	4.0				
occupations	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	Employment difference
Salespersons, retail	216,000
Secretaries	188,000
General managers and top	
executives	145,000
Truck drivers, light and heavy	138,000
Janitors and cleaners	136,000
General office clerks	136,000
Cashiers	125,000
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

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 alternative¹

Occupation	Projected percent	Percent of total employment in 1986					
	change, 1986–2000	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			
Fechnicians	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			

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.

-FOOTNOTES-

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 Industry-Occupation 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). 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.

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

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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 employment—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]

	1982	1984		19		19	987	
Characteristic	IV	IV	I	П	Ш	IV	1	I
Total								
Civilian labor force	110,959 64.1 99,120 3,471 95,649 57.3 11,839 10.7	114,259 64.5 105,938 3,323 102,615 59.8 8,321 7.3	117,008 65.1 108,752 3,212 105,540 60.5 8,256 7.1	117,628 65.2 109,249 3,171 106,078 60.6 8,379 7.1	118,171 65.3 109,980 3,108 106,873 60.8 8,191 6.9	118,558 65.4 110,420 3,179 107,241 60.9 8,138 6.9	119,202 65.5 111,254 3,222 108,032 61.1 7,948 6.7	119,615 65.5 112,180 3,268 108,912 61.5 7,435 6.2
Men, 20 years and over								
Civilian labor force Percent of population Employed . Employment-population ratio Unemployment rate	58,375 78.8 52,553 70.9 5,822 10.0	60,014 78.3 56,249 73.4 3,765 6.3	61,137 78.2 57,428 73.5 3,710 6.1	61,189 78.1 57,417 73.2 3,772 6.2	61,329 78.0 57,579 73.2 3,750 6.1	61,646 78.1 57,860 73.3 3,786 6.1	61,968 78.2 58,320 73.6 3,647 5.9	62,063 78.1 58,636 73.8 3,427 5.5
Women, 20 years and over								
Civilian labor force Percent of population Employed . Unemployed . Unemployed . Unemployment rate	44,112 52.9 40,127 48.1 3,985 9.0	46,348 54.0 43,243 50.3 3,105 6.7	47,990 55.0 44,902 51.5 3,088 6.4	48,451 55.4 45,362 51.9 3,089 6.4	48,916 55.8 45,910 52.3 3,006 6.1	48,993 55.7 46,048 52.4 2,945 6.0	49,288 55.9 46,411 52.6 2,877 5.8	49,651 56.1 46,990 53.1 2,661 5.4
Both sexes, 16 to 19 years								
Civilian labor force Percent of population Employed Employment-population ratio Unemployed Unemployment rate	8,472 54.3 6,935 41.3 2,032 24.0	7,898 54.2 6,446 44.2 1,451 18.4	7,880 54.5 6,422 44.4 1,458 18.5	7,988 55.2 6,470 44.7 1,518 19.0	7,926 54.7 6,492 44.8 1,434 18.1	7,919 54.4 6,512 44.8 1,407 17.8	7,946 54.6 6,522 44.8 1,424 17.9	7,901 54.1 6,554 44.9 1,347 17.0
White								
Civilian labor force Percent of population Employed Employment-population ratio Unemployed Unemployment rate	96,623 64.4 87,452 58.3 9,171 9.5	98,812 64.7 92,608 60.7 6,204 6.3	101,126 65.3 94,945 61.3 6,182 6.1	101,571 65.4 95,366 61.4 6,205 6.1	102,098 65.6 96,013 61.7 6,086 6.0	102,418 65.7 96,320 61.8 6,098 6.0	102,812 65.7 96,903 61.9 5,909 5.7	103,191 65.8 97,702 62.3 5,489 5.3
Black								
Civilian labor force Percent of population Employed . Employment-population ratio Unemployed Unemployment rate	11,503 61.5 9,155 48.9 1,309 20.4	12,251 62.9 10,403 53.4 1,848 15.1	12,589 63.4 10,732 54.0 1,857 14.7	12,707 63.7 10,822 54.3 1,885 14.8	12,605 62.9 10.779 53.8 1,826 14.5	12,715 63.2 10.924 54.3 1,791 14.1	12,877 63.7 11,051 54.7 1,827 14.2	12,822 63.1 11.131 54.8 1,691 13.2
HIspanic origin								
Civilian labor force Percent of population Employed Employment-population ratio Unemployed Unemployment rate	6,826 63.5 5,783 53.8 1,043 15.3	7,612 65.4 6,813 58.5 799 10.5	7,881 64.7 7,027 57.7 855 10.8	8,020 65.3 7,163 58.3 857 10,7	8,143 65.7 7,268 58.6 876 10.8	8,249 66.0 7,409 59.3 839 10.2	8,427 66.4 7,607 59.9 820 9,7	8,508 66.4 7,756 60.6 751 8,8

"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 any edged 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



gitized for**66**RASER ps://fraser.stlouisfed.org deral Reserve Bank of St. Louis 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	!													Per	cent	chan	ge
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 1986–11 1987 employment change
Total	. 100	100
Men	. 52	44
Women	. 42	54
Teenagers	. 6	2

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:				0
1979	. 59.8	76.5	47.4	48.5
1983	. 57.5	71.0	48.4	40.8
1984	. 59.6	73.2	50.3	44.0
1985	. 60.0	73.2	50.9	44.2
1986	. 60.6	73.2	51.9	44.7
1987	. 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

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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-

h da da	1982	1984		19		19	87	
Industry	IV	IV	T	Ш	Ш	IV	1	II
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
oods-producing	22,980	24,943	24,767	24,702	24,629	24,624	24,733	24,76
Oil and gas extraction	1,029 651	957 610	864 529	789 461	750 429	730 411	720 406	732
Construction	3,837 959	4,501 1,188	4,817 1,298	4,910 1,300	4,939 1,292	4,941 1,285	5,035 1,304	5,007 1,268
Manufacturing	18,115	19,485	19,086	19,003	18,939	18,953	18,979	19,02
Durable goods . Lumber and wood products . Furniture and fixtures . Stone, clay, and glass products . Primary metal industries . Blast furnaces and basic steel products . Fabricated metal products . Machinery, except electrical . Electrical and electronic equipment . Transportation equipment . Motor vehicles and equipment . Instruments and related products . Miscellaneous manufacturing .	10,484 596 425 558 824 1,349 2,051 1,953 1,662 659 699 367	11,634 703 493 593 844 318 1,463 2,235 2,248 1,931 877 721 382	11,343 703 495 588 779 291 1,444 2,102 2,134 2,019 883 715 364	11,267 706 496 589 760 282 1,437 2,075 2,118 2,013 868 710 363	11,195 711 498 584 737 268 1,423 2,046 2,122 2,012 855 703 359	11,173 723 499 582 733 260 1,421 2,016 2,119 2,018 854 700 362	11,171 733 501 587 733 260 1,420 2,013 2,105 2,019 855 695 364	11,17 73 50 58 74 27 1,42 2,02 2,08 2,01 84 69 36
Nondurable goods . Food and kindred products . Tobacco manufactures . Textile mill products . Apparel and other textile products . Paper and allied products . Printing and publishing . Chemical and allied products . Publer and miscellaneous plastics products . Rubber and miscellaneous plastics products . Leather and leather products .	7,631 1,628 68 729 1,139 654 1,271 1,055 200 679 209	7,851 1,607 64 726 1,156 682 1,404 1,056 188 792 176	7,743 1,608 61 700 1,110 673 1,443 1,028 172 788 158	7,737 1,615 60 702 1,104 673 1,452 1,022 170 787 152	7,744 1,618 58 707 1,102 673 1,462 1,021 168 787 148	7,780 1,626 58 713 1,105 678 1,472 1,019 165 797 147	7,808 1,631 58 722 1,103 678 1,482 1,018 164 805 147	7,84 1,63 5 72 1,10 67 1,49 1,02 16 81 15
ervice-producing	65,737	70,939	74,134	74,619	75,175	75,773	76,399	76,92
Transportation and public utilities Transportation Communication and public utilities	5,023 2,735 2,288	5,201 2,964 2,237	5,261 3,035 2,226	5,211 3,023 2,188	5,231 3,038 2,193	5,272 3,067 2,204	5,317 3,099 2,218	5,34 3,12 2,22
Wholesale trade Durable goods Nondurable goods	5,213 3,034 2,179	5,643 3,336 2,307	5,740 3,391 2,350	5,735 3,378 2,357	5,736 3,383 2,352	5,728 3,381 2,347	5,755 3,391 2,363	5,77 3,40 2,37
Retail trade . General merchandise stores . Food stores . Automotive dealers and service stations . Eating and drinking places .	15,189 2,141 2,510 1,634 4,872	16,923 2,316 2,685 1,834 5,527	17,679 2,345 2,831 1,922 5,829	17,792 2,359 2,864 1,934 5,857	17,906 2,371 2,888 1,950 5,901	17,999 2,376 2,908 1,964 5,928	18,119 2,370 2,938 1,979 5,955	18,20 2,38 2,95 1,97 5,97
Finance, insurance, and real estate Finance Insurance Real estate	5,356 2,664 1,715 977	5,779 2,890 1,785 1,105	6,157 3,079 1,899 1,180	6,257 3,132 1,930 1,196	6,349 3,181 1,961 1,207	6,421 3,214 1,990 1,217	6,502 3,245 2,017 1,241	6,57 3,27 2,03 1,26
Services	19,131 3,289 5,892	21,231 4,195 6,177	22,695 4,673 6,439	22,973 4,749 6,508	23,268 4,816 6,591	23,455 4,883 6,665	23,757 4,985 6,747	23,98 5,07 6,82
Government	15,824 2,745 3,641 9,438	16,161 2,830 3,771 9,560	16,602 2,916 3,871 9,815	16,651 2,896 3,882 9,873	16,685 2,885 3,884 9,916	16,899 2,900 3,916 10,082	16,949 2,917 3,929 10 104	17,03 2,92 3,94

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 construction 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.

— FOOTNOTES —

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

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.

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.

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 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

Industry or activity	Employer and location	Labor organization ¹	Number of workers
Private			
Construction	Southeastern States Area agreement (Interstate) Painting and Decorating Contractors Association (California)	Boilermakers	7,000 1,000
Food products	Kellogg Co. (Battle Creek, MI) Kellogg Co. (Interstate)	Grain Millers Grain Millers	2,500 2,150
Apparel	Infant and Juvenile Manufacturers Association (Interstate)	Clothing and Textile Workers	3,000
Chemicals	Union Carbide Corp. (Oak Ridge, TN)	Oil, Chemical and Atomic Workers	1,300
Fabricated metal products	Bendix Corp., Kansas City Division (Missouri) Rockwell International Corp., Rocky Flats Plant (Golden, CO) Atlas Crankshaft Corp. (Fostoria, OH)	Machinists Steelworkers Auto Workers	4,000 3,000 1,250
Machinery	Borg-Warner Corp., York Division (York, PA)	Auto Workers	1,200
Transportation equipment	National Steel and Shipbuilding Co. (San Diego, CA) Hughes Aircraft Co. (Tucson, AZ)	Machinists; Carpenters; Painters Machinists	3,000 2,200
Utilities	Jersey Central Power and Light Co. (New Jersey) Duke Power Co. (North Carolina) Hawaiian Electric Co. (Honolulu, HI)	Electrical Workers (IBEW) Electrical Workers (IBEW) Electrical Workers (IBEW)	2,700 1,850 1,000
Wholesale trade	Associated Liquor Wholesalers of Metropolitan New York (New York, NY)	Distillery Workers	1,050
Retail trade	Kroger Co. (Interstate) Acme Food Stores (Northern New Jersey) Chain and independent food stores (Spokane, WA)	Food and Commercial Workers Food and Commercial Workers Food and Commercial Workers	3,700 2,500 1,500
Restaurants	On-sale liquor dealers (Minneapolis, MN)	Hotel Employees and Restaurant	1,100
	Delicatessen Dealers Association (New York, NY)	Employees Hotel Employees and Restaurant Employees	1,000
Finance	Depository Trust Co. (New York, NY)	Office and Professional Employees	1,400
Insurance	Prudential Insurance Co. of America (Interstate)	Life Insurance Agents (Ind.)	1,600
Real estate	Building Operators Labor Relations Inc. (Philadelphia, PA)	Service Employees	3,000
Services	Elevator Industries Association (New York, NY)	Electrical Workers (IBEW)	1,700
Hospitals	Washington Hospital Center, clerical, technical, services (Washington, DC)	Service Employees	1,500
Public			
Transit	Georgia: Metropolitan Atlanta Rapid Transit Authority	Transit Union Transit Union	2,000 2,700
Education	Ohio: University of Cincinnati, classified	State, County and Municipal	1,500
	Wisconsin: Madison Board of Education, teachers	Education Association (Ind.)	1,700

 $^{\rm l}$ Affiliated with <code>AFL-CIO</code> except where noted as independent (Ind.).
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 4percent 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 payments—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 2percent 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. 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

Bell agreed to continue paying the full cost of the health

Auto Workers settled for 17,000 employees in Los Angeles and Santa Susana, CA, Columbus, OH, and Tulsa and McAlester, OK. 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.

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

Other 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 work the 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 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 Wisconsin, 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. 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 children are 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 surprising; 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 anyone—student, business administrator, or policymaker who needs a clear guide to the present system of employerprovided benefits.

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Publications received

Economic and social statistics

- Blitzer, Charles R, Partha Dasgupta, Joseph E. Stiglitz, Project Appraisal and Foreign Exchange Constraints: A Simple Exposition. Cambridge, MA, National Bureau of Economic Research, Inc., 1987, 18 pp. (Working Paper Series, 2165.) \$2, paper.
- Holzer, Harry J., Hiring Procedures in the Firm: Their Economic Determinants and Outcomes. Cambridge, MA, National Bureau of Economic Research, Inc., 1987, 39 pp. (Working Paper Series, 2185.) \$2, paper.
- Pfeffer, Jeffrey and Charles A. O'Reilly III, "Hospital Demography and Turnover Among Nurses," *Industrial Relations*, Spring 1987, pp. 158–73.
- Weiss, Andrew, *Incentives and Worker Behavior: Some Evidence*. Cambridge, MA, National Bureau of Economic Research, Inc., 1987, 21 pp. (Working Paper Series, 2194.) \$2, paper.

Economic growth and development

- Greenwald, B. and J. E. Stiglitz, "Keynesian, New Keynesian and New Classical Economics," Oxford Economic Papers, March 1987, pp. 119–33.
- Maddison, Angus, "Growth and Slowdown in Advanced Capitalist Economies: Techniques of Quantitative Assessment," *Journal* of Economic Literature, June 1987, pp. 649–98.

Education

- "Migrants' Children at School," *The OECD Observer*, June-July 1987, beginning on p. 16.
- "The Changing Shape of Post-Graduate Education," The OECD Observer, June-July 1987, beginning on p. 13.
- "The Cost of Education: Doing Better With Less," The OECD Observer, January 1987, pp. 25-27.

Industrial relations

- Cappelli, Peter, "Bargaining Structure and Wage Outcomes in the British Coal Industry," *Industrial Relations*, Spring 1987, pp. 127–45.
- DiPrete, Thomas A., "The Professionalization of Administration and Equal Employment Opportunity in the U.S. Federal Government," *American Journal of Sociology*, July 1987, pp. 119– 40.
- Fiorito, Jack, Christopher Lowman, Forrest D. Nelson, "The Impact of Human Resource Policies on Union Organizing," *Industrial Relations*, Spring 1987, pp. 113–26.
- Haggard, Thomas R. and Mark S. Pulliam, *Conflicts Between Labor Legislation and Bankruptcy Law*. Philadelphia, University of Pennsylvania, The Wharton School, Industrial Research Unit, 1987, 278 pp.
- Kelly, Matthew A., Labor and Industrial Relations: Terms, Laws, Court Decisions, and Arbitration Standards. Baltimore, The Johns Hopkins University Press, 1987, 200 pp.
- Laurdan Associates, A Report on a Survey of Employment-Related Liabilities. Potomac, MD, Laurdan Associates, Inc., 1987, 51 pp.

- "Testing for Drug Use in the American Workplace: A Symposium," Nova Law Review, Winter 1987, pp. 291-823.
- U.S. Chamber of Commerce, Analysis of Workers Compensation Laws, 1987. Washington, U.S. Chamber of Commerce, 1987, 48 pp. \$12, paper.

Industry and government organization

- Computer and Business Equipment Manufacturers Association, *The Computer, Business Equipment, Software, and Telecommunications Industry, 1960–1995.* Washington, 1986, 209 pp., \$99.50, paper. Available from Global Engineering Documents, Inc., Santa Ana, CA.
- Itami, Hiroyuki, with Thomas W. Roehl, *Mobilizing Invisible Assets*. Cambridge, MA, Harvard University Press, 1987, 186 pp. \$20.

International economics

- "Recent Trends in International Direct Investment," The OECD Observer, June-July 1987, pp. 32-34.
- Sheen, Jeffrey, "Inflation Debt and Fiscal Policy Attitudes," Oxford Economic Papers, March 1987, pp. 90–110.

Labor force

- Brown, Clair and Joseph A. Pechman, eds., *Gender in the Work-place*. Washington, The Brookings Institution, 1987, 316 pp. \$32.95, cloth; \$12.95, paper.
- Industrial Relations Research Association, Working Women: Past, Present, Future. Edited by Karen Shallcross Koziara, Michael H. Moskow, Lucretia Dewey Tanner. Washington, The Bureau of National Affairs, Inc., 1987, 419 pp.
- Johnston, William B. and Arnold E. Packer, *Workforce 2000: Work and Workers for the 21st Century*. Indianapolis, IN, Hudson Institute, Inc., Herman Kahn Center, 1987, 117 pp.
- Kamerman, Sheila B. and Alfred J. Kahn, The Responsive Workplace: Employers and a Changing Labor Force. New York, Columbia University Press, 1987, 329 pp. \$30.
- Klein, Roger, Richard Spady, Andrew Weiss, Factors Affecting the Output and Quit Propensities of Production Workers. Cambridge, MA, National Bureau of Economic Research, Inc., 1987, 45 pp. (Working Paper Series, 2184.) \$2, paper.
- Seeborg, Michael and Larry DeBoer, "The Narrowing Male-Female Employment Differential," *Growth and Change*, Spring 1987, pp. 24–37.
- Williams, Donald R., Labor Force Participation of Black and White Youth. Ann Arbor, UMI Research Press, 1987, 125 pp., bibliography. (Research in Business Economics and Public Policy, No. 11.)

Monetary and fiscal policy

- Buiter, Willem H., "A Fiscal Theory of Hyperdeflations? Some Surprising Monetarist Arithmetic," Oxford Economic Papers, March 1987, pp. 111–18.
- McGibany, James M. and Farrokh Nourzad, "Interest Rate Volatility and the Demand for Money," *The Quarterly Review* of Economics and Business, Autumn 1986, pp. 73–83.

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Schedule of release dates for BLS statistical series

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	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: 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 X-11 ARIMA, which was developed at Statistics Canada as an extension of the standard x-11 method previously used by BLS. A detailed description of the procedure appears in The X-11 ARIMA Seasonal Adjustment Method by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at midyear for the July-December period. However, revisions of historical data continue to be made only at the end of each calendar year.

Seasonally adjusted labor force data in tables 1 and 4-10 were revised in the February 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 × 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

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

COMPARATIVE INDICATORS (Tables 1–3)

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

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonagricultural payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation**, **prices**, **and productivity** are presented in table 2. Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in: consumer prices for all urban consumers; producer prices by stage of processing; and the overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors. Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later

sections of these notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, 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*, 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 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. Members of the Armed Forces stationed in the United States are also included in the employed total. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff or waiting to start new jobs within the next 30 days are also counted among the unemployed. The overall unemployment rate represents the number unemployed as a percent of the labor force, including the resident Armed Forces. The civilian 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 12th of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and 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 non-supervisory 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

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

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—firstyear—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, al-though 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 selfemployed)—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.

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.

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

Output is constant value output (value added), generally taken from the national accounts of each country. While the national accounting methods for measuring real output differ considerably among the 12 countries, the use of different procedures does not, in itself, connote lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

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

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

Notes on the data

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

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

Additional sources of information

For additional information, see the *BLS Handbook of Methods*, Bulletin 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 employee worked at a permanent job less than full time; or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

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

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

Notes on the data

Estimates are made for industries and employment-size classes and for severity classification: fatalities, lost workday cases, and nonfatal cases without lost workdays. Lost workday cases are separated into those where the employee would have worked but could not and those in which work activity was restricted. Estimates of the number of cases and the number of days lost are made for both categories.

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

Comparable data for individual States are available from the BLS Office of 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

			1985	5		1986	3		1987	7
Selected indicators	1985	1986	III	IV	1	11	ш	IV	1	Ш
Employment data										
Employment status of the civilian noninstitutionalized population										
(household survey) ¹									05.5	
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	61.5
Unemployment rate	7.2	7.0	7.2	7.1	7.1	7.1	6.9	6.9	6.7	6.2
Men	7.0	6.9	7.0	6.9	6.9	7.0	6.9	6.9	6.7	6.3
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	53	5.4	5.3	5.2	5.3	5.3	5.4	5.4	5.2	4.8
25 years and over	7.4	71	74	7.3	7.3	7.2	6.9	6.8	6.6	6.1
women	12.0	12.8	12.0	13.1	13.1	13.1	12.6	12.5	12.6	11.8
16 to 24 years	5.0	5.0	5.0	5.6	57	57	54	53	5.1	4.6
25 years and over	5.9	5.5	0.0	1.0	1.0	1.0	1.9	1.8	1.8	17
Unemployment rate, 15 weeks and over	2.0	1.9	2.0	1.9	1.5	1.5	1.0	1.0	1.0	
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
Goode producing	24 859	24,681	24,788	24,788	24.767	24,702	24,629	24,624	24,733	24,757
Monufacturing	19 260	18 994	19 183	19 133	19.086	19.003	18,939	18,953	18,979	19.015
Manufacturing	72 660	74 030	72 987	73 656	74 134	74,619	75,175	75,773	76.399	76,951
Service-producing	12,000	74,930	12,001	15,000	14,104	14,010	10,110			
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	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
Goode-producing ²	3.4	3.1	.6	.6	1.1	.9	.6	.5	.5	.7
Convice producing	4.4	32	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
State and local government workers	0.1									
Workers by bargaining status (private industry):							-		-	-
Union	2.6	2.1	.8	.5	1.0	.2	.5	.3	.5	.5
Nonunion	4.6	3.6	1.4	.6	1.2	.9	.8	.7	1.1	.7

Quarterly data seasonally adjusted.
 Goods-producing industries include mining, construction, and manufacturing. Service-

producing industries include all other private sector industries.

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

Coloris d monome	1005	1000	198	5		198	6		198	17
Selected measures	1985	1986	III	IV	I	11	Ш	IV	1	Ш
Compensation data ¹ , ²										
Employment Cost Indexcompensation (wages, salaries, benefits):										
Civilian nonfarm	4.3	3.6	1.6	0.6	1.1	0.7	1.1	0.6	0.9	0.7
Private nonfarm	3.9	3.2	1.3	.6	1.1	.8	.7	.6	1.0	.7
Employment Cost Indexwages 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 data1										
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	-23	-14	25	-31	5	-7	11		14
Finished consumer goods	1.5	-3.6	-1.4	25	-4.1	4	-7	8	.8	1.8
Capital equipment	27	21	-14	25	2	6	-7	20	.9	4
Intermediate materials supplies components	-3	-4.4	-5	4	-29	- 9	-2	- 4	.1	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	10					2.2	1.2	15	2	4
Nonfarm business sector	1.8	1.9	2.5	1.9	2.8	2.0	1.0	1.5	-1	3
Nonfinancial corporations 4	1.2	1.6	1.7	1.0	2.3	1.9	1.1	1.5	0	.0
	2.1	1.6	3.3	2.3	2.6	1.8	./	1.5	0	.0

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.

Quarterly percent changes reflect annual rates of change in quarterly in-dexes. The data are seasonally adjusted. ⁴ Output per hour of all employees.

3. Alternative measures of wage and compensation changes

			Quarterly	average				Fo	ur quarte	ers ended	i—	
Components		19	86		19	87		19	86		19	87
	1	II	Ш	IV	Ib	Пb	I	II	Ш	IV	Ib	Пb
Average hourly compensation:1								-2-4				
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	4.0	3.6	3.6	3.4	3.3
Private nonfarm	1.1	.8	.7	.6	1.0	./	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	1.0	1.9
Nonunion	1.2	.9	.8	./	1.1	./	4.2	4.2	3.5	3.0	5.0	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:						-			0.5	0.5	0.5	0.0
Civilian nonfarm ²	1.0	.8	1.1	.6	1.0	.5	4.2	4.1	3.5	3.5	3.5	3.2
Private nonfarm	1.0	.9	.7	.5	1.0	./	3.9	3.7	3.1	3.1	3.2	3.0
Union	.7	.4	.6	.2	.4	.5	3.2	2.5	2.3	2.0	1.7	1./
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	(4)	.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	(4)	(4)	.1	.1	.2	.8	.7	.2	.2	1.1	.3
Negotiated wage adjustments from settlements:3												
First-year adjustments	.8	1.3	.8	2.0	1.2	2.6	2.0	1.6	1.2	1.2	1.2	1.5
Annual rate over life of contract	1.5	2.0	1.5	2.1	1.8	2.9	2.5	2.2	1.7	1.8	1.8	2.0
Negotiated wage and benefit adjustments from settlements:5											1	10
First-year adjustment	.6	.7	.7	2.7	1.7	4.2	2.3	1.4	.9	1.1	1.2	1.9
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./	2.1

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

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

- Data not available.

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	nual average 1986							1987						
Employment status	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
TOTAL															
Noninstitutional population ¹ , ² Labor force ² Participation rate ³ Total employed ² Employment-population ratio ⁴ Resident Armed Forces ¹ Civilian employed Agriculture Nonagricultural industries Unemployed	179,912 117,167 65.1 108,856 60.5 1,706 107,150 3,179 103,971 8,312	182,293 119,540 65.6 111,303 61.1 1,706 109,597 3,163 106,434 8,237	182,354 119,789 65.7 111,559 61.2 1,672 109,887 3,124 106,763 8,230	182,525 119,821 65.6 111,764 61.2 1,697 110,067 3,057 107,010 8,057	182,713 119,988 65.7 111,703 61.1 1,716 109,987 3,142 106,845 8,285	182,935 120,163 65.7 111,941 61.2 1,749 110,192 3,162 107,030 8,222	183,114 120,426 65.8 112,183 61.3 1,751 110,432 3,215 107,217 8,243	183,297 120,336 65.7 112,387 61.3 1,750 110,637 3,161 107,476 7,949	183,575 120,782 65.8 112,759 61.4 1,748 111,011 3,145 107,866 8,023	183,738 121,089 65.9 113,122 61.6 1,740 111,382 3,236 108,146 7,967	183,915 120,958 65.8 113,104 61.5 1,736 111,368 3,284 108,084 7,854	184,079 121,070 65.8 113,570 61.7 1,735 111,835 3,290 108,545 7,500	184,259 121,719 66.1 114,173 62.0 1,726 112,447 3,335 109,112 7,546	184,421 121,235 65.7 113,975 61.8 1,718 112,257 3,178 109,079 7,260	184,605 121,672 65.9 114,447 62.0 1,720 112,727 3,219 109,508 7,224
Unemployment rate ⁵ Not in labor force	7.1 62,744	6.9 62,752	6.9 62,565	6.7 62,704	6.9 62,725	6.8 62,772	6.8 62,688	6.6 62,961	6.6 62,793	6.6 62,649	6.5 62,957	6.2 63,009	6.2 62,540	6.0 63,187	5.9 62,933
Men, 16 years and over															
Noninstitutional population ¹ , ² Labor force ² Participation rate ³ 	86,025 65,967 76.7 61,447 71.4 1,556 59,891 4,521 6.9	87,349 66,973 76.7 62,443 71.5 1,551 60,892 4,530 6.8	87,373 66,968 76.6 62,402 71.4 1,518 60,884 4,566 6.8	87,460 66,911 76.5 62,483 71.4 1,541 60,942 4,428 6.6	87,556 67,128 76.7 62,528 71.4 1,560 60,968 4,600 6.9	87,682 67,130 76.6 62,565 71.4 1,590 60,975 4,565 6.8	87,773 67,407 76.8 62,833 71.6 1,592 61,241 4,574 6.8	87,868 67,425 76.7 62,986 71.7 1,593 61,393 4,439 6.6	88,020 67,672 76.9 63,187 71.8 1,591 61,596 4,484 6.6	88,099 67,764 76.9 63,335 71.9 1,584 61,751 4,429 6.5	88,186 67,644 76.7 63,282 71.8 1,575 61,707 4,362 6.4	88,271 67,603 76.6 63,417 71.8 1,575 61,842 4,186 6.2	88,361 67,816 76.7 63,562 71.9 1,566 61,996 4,254 6.3	88,442 67,556 76.4 63,471 71.8 1,559 61,912 4,085 6.0	88,534 67,656 76.4 63,715 72.0 1,561 62,154 3,941 5.8
Women, 16 years and over															
Noninstitutional population ¹ , ² Labor force ²	93,886 51,200 54.5 47,409 50.5 150 47,259 3,791 7,4	94,944 52,568 55.4 48,861 51.5 155 48,706 3,707 7 1	94,981 52,821 55.6 49,157 51.8 154 49,003 3,664	95,065 52,910 55.7 49,281 51.8 156 49,125 3,629 6 9	95,156 52,860 55.6 49,175 51.7 156 49,019 3,685 7 0	95,253 53,033 55.7 49,376 51.8 159 49,217 3,657	95,341 53,019 55.6 49,350 51.8 159 49,191 3,669	95,429 52,911 55.4 49,401 51.8 157 49,244 3,510	95,556 53,110 55.6 49,572 51.9 157 49,415 3,538	95,639 53,325 55.8 49,787 52.1 156 49,631 3,538	95,729 53,314 55.7 49,822 52.0 161 49,661 3,492	95,808 53,467 55.8 50,153 52.3 160 49,993 3,314	95,898 53,903 56.2 50,611 52.8 160 50,451 3,292	95,979 53,679 55.9 50,504 52.6 159 50,345 3,175	96,071 54,016 56.2 50,733 52.8 159 50,574 3,283

The population and Armed Forces figures are not adjusted for seasonal variation.
 Includes members of the Armed Forces stationed in the United States.
 Labor force as a percent of the noninstitutional population.

 ⁴ Total employed as a percent of the noninstitutional population.
 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)

	Annual	average				19	86						1987		
Employment status	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
TOTAL															
Civilian popinetitutional															
population ¹	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			100,007	110,007	100,007	110,102	110,402	110,007	111,011	111,002	111,000	111,000			
ratio ²	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	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	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	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	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			0,	0,020	0,110	0,011	0,102	0,0	0,02.	0,001			-,	0,011	0,011
ratio ²	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	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	65.6	65.6	65.6	65.7	65.7	65.7	65.8	65.7	65.7	66.1	65.7	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	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 ¹	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
Civilian labor force	12 364	12 654	12 611	12 553	12 652	12 720	12 719	12 707	12 831	12 957	12 844	12 743	12,860	12 863	13 047
Participation rate	62.9	63.3	63.0	62.7	63.1	63.3	63.2	63.1	63.6	64.1	63.4	62.8	63.3	63.2	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	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.

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

(Numbers in thousands)

	Annual a	verage				198		1987							
Employment status	1985	1986	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Hispanic origin Civilian noninstitutional population' Civilian labor force Participation rate Employed	11,915 7,698 64.6 6,888	12,344 8,076 65.4 7,219	12,290 8,006 65.1 7,136	12,326 8,085 65.6 7,224	12,362 8,121 65.7 7,269	12,397 8,130 65.6 7,248	12,432 8,179 65.8 7,286	12,469 8,200 65.8 7,345	12,505 8,226 65.8 7,437	12,540 8,320 66.3 7,446	12,653 8,431 66.6 7,538	12,692 8,457 66.6 7,644	12,732 8,392 65.9 7,639	12,848 8,452 65.8 7,730	12,887 8,411 65.3 7,744
Employment-population ratio ² Unemployed Unemployment rate	57.8 811 10.5	58.5 857 10.6	58.1 870 10.9	58.6 861 10.6	58.8 852 10.5	58.5 882 10.8	58.6 893 10.9	58.9 855 10.4	59.5 789 9.6	59.4 874 10.5	59.6 893 10.6	60.2 813 9.6	60.0 753 9.0	60.2 722 8.5	60.1 667 7.9

¹ The population figures are not seasonally adjusted.

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 a	average		198	36						1987				
Selected categories	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
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
Married women spouse	00,210	00,000	00,001	00,100											
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 industrian															
Part time for economic reasons	5 500	5 599	E 440	5 471	E EAA	5 740	5 562	5 506	5 505	5 790	5 456	5 301	5 282	5 184	5 508
Part time for economic reasons .	3,590	0,000	0,442	5,471	0,044	5,740	0,003	0,090	5,505	0,700	0,400	0,001	0,202	2 317	2,456
Slack work	2,430	2,450	2,473	2,417	2,472	2,401	2,510	2,444	2,473	2,000	2,440	2,322	2,223	2 570	2,700
Voluntony nort time	12,019	12,000	2,001	2,741	12,772	2,826	2,/14	12,00/	2,095	14.061	2,098	12 962	14 572	15 054	14 422
Noncericultural industrias:	13,489	13,935	13,967	13,981	13,922	14,178	14,021	13,8//	14,170	14,001	14,107	13,002	14,573	10,004	14,422
Nonagricultural industries:	E 004	EDAE	5 000	E 000	E 000	E 450	E 040	5 0 40	E 004	E 450	5 164	5 110	5 000	4 919	5 235
Cleak work	5,334	0,045	5,222	5,269	5,303	5,450	5,319	5,342	5,201	0,459	0,104	0,110	0,029	2 155	2 205
Gould only find not time work	2,2/3	2,305	2,317	2,283	2,314	2,314	2,300	2,200	2,201	2,340	2,218	2,137	2,071	2 477	2,200
Voluntary part time	12,730	12 500	12,579	12,0/8	2,710	12 700	12 567	12 455	12,599	13 507	13 692	13 300	14 060	14 485	13 946
voluntary part time	13,038	13,502	13,578	13,006	13,520	13,730	13,567	13,400	13,750	13,597	13,002	13,399	14,009	17,700	.0,040

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

7. Selected unemployment indicators, monthly data seasonally adjusted

(Unemployment rates)

	Annual	average			19	86			1987						
Selected categories	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
CHARACTERISTIC															
Total all civilian workers	72	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.

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

(Civilian workers)

Say and are	Annaver	ual age				19	86						1987		
Sex and age	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Total 16 years and over	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
16 to 24 years	13.6	13.3	13.2	12.9	13.6	13.0	12.9	12.9	13.1	13.1	12.9	12.6	12.0	12.2	11.7
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	10.9	17.1
16 to 17 years	21.0	20.2	19.8	19.8	20.0	19.3	20.6	18.8	20.1	20.3	20.0	19.2	21.4	10.0	12.0
18 to 19 years	17.0	17.0	16.2	16.8	17.2	16.5	16.7	16.3	16.2	16.6	16.5	16.3	15.0	10.0	13.9
20 to 24 years	11.1	10.7	10.8	10.3	11.1	10.5	10.2	10.7	10.7	10.5	10.2	10.1	9.8	10.2	9.0
25 years and over	5.6	5.4	5.4	5.4	5.4	5.5	5.5	5.2	5.2	5.1	5.1	4.8	4.8	4.0	4.7
25 to 54 years	5.8	5.7	5.7	5.7	5.6	5.7	5.8	5.5	5.6	5.5	5.4	5.0	5.0	4.9	2.1
55 years and over	4.1	3.9	3.8	3.7	4.0	4.1	3.8	3.5	3.2	3.0	3.4	3.4	3.7	3.2	3.1
Mon 16 years and over	7.0	6.9	7.0	6.8	7.0	7.0	6.9	6.7	6.8	6.7	6.6	6.3	6.4	6.2	6.0
16 to 24 years	14.1	13.7	13.6	13.3	14.3	13.2	13.4	13.4	13.4	13.6	13.2	13.2	13.4	12.6	11.9
16 to 10 years	19.5	19.0	18.4	19.1	19.1	18.2	18.3	17.8	18.5	18.6	19.3	19.2	20.0	16.4	15.5
	21.9	20.8	20.3	20.9	21.0	19.8	21.3	19.1	21.4	21.2	20.2	21.5	23.2	18.7	16.6
10 to 17 years	17.9	17.7	16.7	18.0	17.5	17.0	16.2	17.0	16.9	17.0	18.6	17.5	17.7	14.4	13.8
10 to 19 years	114	11.0	11.1	10.3	11.9	10.7	10.9	11.3	10.7	11.1	10.1	10.1	10.0	10.7	10.0
20 to 24 years	53	54	54	5.3	5.4	5.5	5.5	5.2	5.4	5.1	5.1	4.8	4.9	4.7	4.7
25 years and over	5.6	5.6	57	5.6	5.5	5.7	5.7	5.5	5.7	5.4	5.4	5.0	5.1	5.0	4.9
25 to 54 years	A 1	41	40	4.1	4.2	4.4	4.1	4.0	3.5	3.3	3.6	3.7	4.1	3.4	3.4
55 years and over			4.0												
	74	71	70	6.9	7.0	6.9	6.9	6.7	6.7	6.7	6.6	6.2	6.1	5.9	6.1
Women, 16 years and over	120	128	127	12.4	12.8	12.7	12.4	12.4	12.7	12.4	12.5	12.0	11.7	11.7	11.6
16 to 24 years	17.0	176	17.2	167	177	17.2	18.2	16.8	16.8	17.4	16.7	15.6	15.4	15.4	15.4
16 to 19 years	20.0	10.6	10.0	18.7	18.8	18.6	19.8	18.4	18.7	19.2	19.7	16.7	19.6	18.9	17.7
16 to 17 years	20.0	16.0	15.2	15.4	16.9	16.0	17.2	15.7	15.3	16.1	14.2	15.1	12.4	13.0	14.0
18 to 19 years	10.0	10.0	10.4	10.7	10.0	10.3	94	10.0	10.6	9.8	10.3	10.1	9.7	9.7	9.5
20 to 24 years	10.7	10.3	10.4 E 4	54	5.5	5.4	5.5	5.2	5.1	5.1	5.0	4.7	4.7	4.4	4.7
25 years and over	0.9	5.0	5.4	5.8	5.8	5.7	5.8	5.5	5.5	5.6	5.4	5.0	4.9	4.7	5.0
25 to 54 years	0.2	0.9	0.0	3.9	3.6	36	34	2.9	2.7	2.6	3.2	3.0	3.0	2.8	2.6
55 years and over	4.1	3.0	3.0	0.0	0.0	0.0	0.4				1				

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

(Numbers in thousands)

	Annual a	average			198	36						1987			
Reason for unemployment	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1.5 1	4 139	4.033	4 063	3.824	4.044	3.984	3,947	3,890	3,971	3,839	3,822	3,732	3,611	3,565	3,522
JOD IOSERS	1 157	1 090	1.078	1 017	1.029	1.072	1.073	1.078	1,118	998	1,011	958	906	901	918
On layoff	2,092	2,042	2,095	2 807	3.015	2912	2.874	2.812	2.854	2,842	2,811	2,774	2,705	2,664	2,604
Other job losers	2,902	2,940	2,905	2,007	1 041	1 027	1.056	1.036	891	1.046	1.000	923	906	949	1,007
Job leavers	8//	1,015	1,025	990	1,041	0,100	2 1 10	2,010	2 054	2 042	2 111	1.940	2.018	1,969	1,913
Reentrants	2,256	2,160	2,205	2,199	2,145	2,190	2,119	2,015	1.004	1 040	956	911	1.018	798	801
New entrants	1,039	1,029	989	1,014	1,038	972	1,076	1,015	1,004	1,040	350		1,010		
PERCENT OF UNEMPLOYED				-											
Inh leasers	49.8	48.9	49.1	47.6	48.9	48.7	48.1	48.9	49.6	48.2	48.4	49.7	47.8	49.0	48.6
JOD IOSETS	13.0	13.2	13.0	12.7	12.4	13.1	13.1	13.5	14.0	12.5	12.8	12.8	12.0	12.4	12.7
On layoft	05.0	25.7	26.0	25.0	36.5	35.6	35.1	35.3	35.7	35.7	35.6	37.0	35.8	36.6	36.0
Other job losers	35.8	30.7	30.0	10.0	126	126	12.9	13.0	11.1	13.1	12.7	12.3	12.0	13.0	13.9
Job leavers	10.6	12.3	12.4	12.3	12.0	06.0	25.9	25.4	25.7	25.6	26.8	25.8	26.7	27.0	26.4
Reentrants	27.1	26.2	26.6	27.4	25.9	20.0	20.0	10.9	10.6	12.1	121	12 1	13.5	11.0	11.1
New entrants	12.5	12.5	11.9	12.6	12.6	11.9	13.1	12.0	13.0	13.1	12.1	12.1	10.0		
PERCENT OF															
CIVILIAN LABOR FORCE							1								
Jak Jacon	36	3.4	3.4	3.2	3.4	3.4	3.3	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.9
JOD IOSEIS		0.4	0.4	8	9	.9	.9	.9	.7	.9	.8	.8	.8	.8	.8
Job leavers		1.0	1.0	10	1.8	18	18	1.7	1.7	1.7	1.8	1.6	1.7	1.6	1.6
Reentrants	2.0	1.0	1.9	1.9	1.0	1.0	0	9	9	9	.8	.8	.8	.7	.7
New entrants	9	.9	.8	.9	.9	.0									

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

	Annual	average				19	86						1987		
Weeks of unemployment	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Less than 5 weeks	3,498	3,448	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
	2,509	2,557	2,521	2,407	2,524	2,563	2,613	2,389	2,530	2,477	2,447	2,232	2,118	2,114	2,141
	2,305	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
	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
	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
Mean duration in weeks	15.6	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
Median duration in weeks	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	June 1986	June 1987	State	June 1986	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
lowa	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
Maryland	4.4	4.2	Virginia	5.2	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

database.

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

(In thousands)

State	June 1986	May 1987	June 1987 ^p	State	June 1986	May 1987	June 1987 ^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
lowa	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
		10010		Virginia	2.585.0	2.631.4	2.656.0
Marvland	1 977 6	2 000 8	2.004.5	Washington	1,790,1	1.831.0	1.849.0
Massachusetts	30119	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		-,	2,000.0	-,00010
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

 $^{\rm p}={\rm preliminary}$ NOTE: Some data in this table may differ from data published elsewhere

because of the continual updating of the database.

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

(In thousands)

	Annual a	verage			19	86						1987			
Industry	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Junep	Julyp
TOTAL PRIVATE SECTOR	97,519 81,125	99,610 82,900	99,601 82,991	99,772 83,125	100,039 83,241	100,209 83,337	100,415 83,515	100,567 83,643	100,919 83,983	101,150 84,215	101,329 84,352	101,598 84,560	101,708 84,677	101,811 84,769	102,115 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 Oil and gas extraction	927 583	783 457	764 439	748 428	739 419	735 416	730 412	724 406	405	406	408	416	420	425	430
Construction General building contractors	4,673 1,253	4,904 1,293	4,924 1,290	4,946 1,295	4,948 1,291	4,942 1,289	4,946 1,289	4,936 1,277	5,034 1,311	5,038 1,309	5,032 1,291	5,019 1,272	4,999 1,267	5,010 1,266	5,009 1,267
Manufacturing Production workers	19,260 13,092	18,994 12,895	18,940 12,843	18,945 12,857	18,933 12,851	18,934 12,849	18,954 12,879	18,970 12,906	18,956 12,884	18,986 12,916	18,995 12,925	19,011 12,939	19,018 12,946	19,028 12,967	19,098 13,028
Durable goods Production workers	11,490 7,644	11,244 7,432	11,199 7,386	11,206 7,399	11,181 7,382	11,169 7,369	11,174 7,385	11,175 7,393	11,157 7,370	11,179 7,398	11,176 7,399	11,175 7,406	11,175 7,409	11,179 7,423	11,194 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	733	586	733	739	743	742	746	748
Primary metal industries	000	155	745	155	152	100	100	100	120						
products Fabricated metal products	303 1,465	275 1,431	278 1,423	265 1,423	260 1,424	262 1,421	260 1,419	259 1,422	254 1,422	261 1,419	266 1,419	272 1,423	272 1,420	275 1,423	275 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
equipment	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	2,080	2,087
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	1,987
Motor vehicles and equipment	884	865	848	703	703	702	700	698	697	695	694	694	693	693	695
Instruments and related products Miscellaneous manufacturing industries	367	362	359	360	359	360	361	364	363	364	366	364	366	367	370
				7 700	7 750	7 705	7 790	7 705	7 700	7 907	7 810	7 836	7 843	7 849	7 904
Production workers	7,770 5,449	7,750 5,463	7,741 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	5/	58
Textile mill products Apparel and other textile	702	705	706	1 102	1 102	1 104	1 101	1 110	1 106	1.101	1.103	1.104	1.107	1,108	1,127
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	1,01/	1,018	1,022	1,025	1,025
Petroleum and coal products	179	169	168	168	167	100	100	103	104	104	104	104	104	104	104
Hubber and misc. plastics	786	790	783	786	791	794	797	800	803	805	807	809	809	809	815
Leather and leather products	165	151	149	148	147	147	147	148	147	147	148	149	150	149	153
SERVICE-PRODUCING	5 228	74,930	74,973	75,133	75,419	75,598	5 278	75,937	76,211	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
utilities	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 Nondurable goods	3,388 2,329	3,383 2,351	3,385 2,350	3,382 2,354	3,383 2,353	3,379 2,352	3,380 2,348	3,383 2,342	3,386 2,355	3,391 2,366	3,397 2,369	3,397 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	2,900
Automotive dealers and service	1 800	1 0/3	1 9/3	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		0.000	0.000	0.000	0.071	0.005	0.440	PAFA	6 400	6 504	6 500	6 5FO	6 576	6 505	6.614
estate	5,955	6,297	6,323	6,351	6,374	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
	00.000	00.000	00.000	00.004	02 047	22.260	22 450	22 544	23 670	23 750	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
										10000	10.075	47.000	17.001	17.040	17 107
Government	16,394	16,711	16,610	16,647	16,798	16,872	16,900	16,924	16,936	16,935	2 922	2 933	2 935	2 938	2,937
Federal	3,875	2,899	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
													_		

 $^{\rm P}~=$ 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	Annaver	iual age			19	86						1987			
moustry	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June ^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	417	41.5	412	41.6	41.5	41.6
Overtime hours	35	35	35	36	36	35	35	36	37	37	37	36	30	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	30.0	40.2	40.2	40.0	39 1	30.0	40.0	40.1
Stone, clay, and class 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 0	A1 A	42.0	42 1	42.0	41.0	12.2	42.0	42.0	42.0	41.0	42.0	42.1	42.0
Blast furnaces and basic steel products	41 1	41.7	41.5	41.7	41 9	42.0	42.5	42.6	42.0	42.0	123	12.0	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

 $^{\rm p}~=$ preliminary NOTE: See "Notes on the data" for a description of the most recent

benchmark adjustment.

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

Industry	ave	rage			19	986				-		1987			
industry .	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June ^P	Julyp
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 14	8 40
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 class products	9.84	10.05	10.06	10.07	10.11	10.10	10.14	10.17	10.17	10.15	10.12	10.22	10.26	10.00	10.27
Primary metal industries	11.67	11.86	11 03	11 74	11.82	11 75	11.90	11 92	11.76	11 70	11 00	11.00	11.00	11.07	12.02
Blast furnaces and basic steel products	12.22	12 72	12.92	12.61	12.76	12.62	12.60	12.74	19.55	12.50	10.66	10.04	12.90	10.01	12.03
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	0.82	0.84	9.84	0.84	0.82	0.93	0.84	0.97
Transportation equipment	12 71	12.81	12 73	12 70	12.82	12.82	12.88	12.96	12.04	12.88	12.86	12.80	12.85	12 01	12.82
Motor vehicles and equipment	13.39	13.45	13 33	13 20	13.42	13.42	13 14	13.56	13.58	13.40	12.00	12.00	12.00	12.51	12.02
Instruments and related products	9.17	9.47	0.48	0.47	9.54	0.56	0.62	0.65	0.64	0.67	0.67	0.67	0.60	0.60	0.70
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

Data not available.
 ^p = preliminary

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

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

	Annual	average			19	86						1987			
industry	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June ^p	Julyp
PRIVATE SECTOR															
Current dollars	\$299.09	\$304.85	\$303.63	\$305.37	\$306.94	\$306.05	\$308.14	\$308.33	\$306.16	\$307.74	\$308.63	\$308.29	\$310.76	\$312.20	\$311.85
Seasonally adjusted	-	-	303.28	304.32	304.67	306.05	308.33	305.86	307.44	309.91	310.07	309.18	312.36	311.11	310.91
Constant (1977) dollars	170.42	171.07	170.67	171.36	171.47	170.88	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) dollars	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 products	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 products	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	560 73	580.02	580 45	575.88	577 58	581 02	503 74	508 02	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 equipment	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 20	537 16	546 11	562 46	549 53	546 11	547.84	536 32	542 27	540.93	526 90
Motor vehicles and equipment	592 47	572.07	555.96	550.02	570 25	562.20	569 51	505.28	585 30	577 37	582 77	566.82	571 60	568 35	549 20
Instruments and related products	075 07	000 07	200.15	000.21	370.35	200.00	200.01	407.00	207 17	200.07	401.01	204 54	200.02	402.10	206 72
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 products	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	444.01	490 50	400 77	400.51	470 71	472 46	401 46	402 50	401 10	496 52	505.74	526.02	571.02	622.25	522.62
Toutile mill and unte	444.91	400.09	499.77	490.51	470.71	4/3.40	401.40	403.00	401.19	400.00	000.04	004.04	000.75	022.00	020.00
Textile mill products	205.99	284.82	2/0.58	288.50	293.44	292.03	294.69	299.62	293.94	295.78	299.04	291.21	298.75	302.45	300.42
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 publiching	267.04	270 60	076.05	004 76	297.00	004 40	007.01	202.01	001 00	204.05	006 46	201.00	204.16	202.02	205 20
Chemicals and allied products	404.00	501.02	501.00	301.70	307.00	504.43	540.04	540.70	514.00	514.05	545.00	510.00	540.05	505.05	505.29
Detroloum and and and and and	484.30	501.90	501.28	499.98	502.85	504.94	516.01	519.72	514.00	514.04	515.30	519.00	010.20	010.07	019.94
Rubber and miscellaneous	604.58	621.08	621.62	624.26	625.34	622.94	630.08	628.28	045.45	629.73	030.55	635.10	637.43	028.28	043.00
plastics products	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	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
	200.70	200.20	200.71	200.71	200.00	200.00	200.00	200.07	200.01	210.10	212.40	LINDE	211.51		

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

Data not available.
 ^p = preliminary

revision.

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

-	1	Not seasona	ally adjusted				Seasonally	adjusted		
Industry	July 1986	May 1987	June 1987 ^p	July 1987 ^p	July 1986	Mar. 1987	Apr. 1987	May 1987	June 1987 ^p	July 1987 ^p
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
Minina ¹	182.4	181.6	182.1	181.8	-	-	-	-	-	-
Construction	150.9	154.0	154.2	153.9	151.5	153.8	153.7	154.1	155.1	154.7
Manufacturing	172.6	174.5	174.7	175.1	172.4	174.3	175.0	174.4	174.8	174.9
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	-	-	-	-	-	
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	-	-	-	-	-	-
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	-

¹ 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.

 $^{p}\;=\;$ preliminary. NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

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

(in percent)												
Time span and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
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	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	44.3	44.1	42.4
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	-	-	-	-	-	-	-	-	-	-	-

Data not available.

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

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

19. Annual data: Employment status of the noninstitutional population

(Numbers in thousands)

Employment status	1978	1979	1980	1981	1982	1983	1984	1985	1986
Noninstitutional population	163,541	166,460	169,349	171,775	173,939	175,891	178,080	179,912	182,293
Labor force:									
Total (number)	103.882	106,559	108,544	110.315	111.872	113.226	115,241	117,167	119,540
Percent of population	63.5	64.0	64.1	64.2	64.3	64.4	64.7	65.1	65.6
Employed:									
Total (number)	97.679	100,421	100,907	102.042	101,194	102,510	106,702	108,856	111,303
Percent of population	59.7	60.3	59.6	59.4	58.2	58.3	59.9	60.5	61.1
Resident Armed Forces	1,631	1,597	1,604	1.645	1,668	1,676	1,697	1,706	1,706
Civilian									
Total	96,048	98,824	99,303	100,397	99,526	100,834	105,005	107,150	109,597
Agriculture	3,387	3,347	3,364	3,368	3,401	3,383	3,321	3,179	3,163
Nonagricultural industries	92,661	95,477	95,938	97,030	96,125	97,450	101,685	103,971	106,434
Unemployed:									
Total (number)	6,202	6,137	7,637	8.273	10,678	10,717	8,539	8,312	8,237
Percent of labor force	6.0	5.8	7.0	7.5	9.5	9.5	7.4	7.1	6.9
Not in labor force (number)	59,659	59,900	60,806	61,460	62,067	62,665	62,839	62,744	62,752

20. Annual data: Employment levels by industry

(Numbers in thousands)

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	4673	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	60 760	72 660	74 020
Transportation and public utilities	4.923	5,136	5 146	5 165	5.082	4 954	5 150	5 228	5 244
Wholesale trade	4 969	5 204	5 275	5 358	5 278	5 269	5,155	5,230	5,244
Retail trade	14 573	14 989	15 035	15 189	15 170	15 612	16 545	17 256	17 045
Finance, insurance, and real estate	4 724	4 975	5 160	5 208	5 241	5,013	5 690	17,350	17,045
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	2,800
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

recent benchmark revision.

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

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

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22. Employment Cost Index, compensation,¹ by occupation and industry group

(June 1981 = 100)

		1985			19	86		1987		Percent	change
Series	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June	1987
Civilian workers ²	126.4	128.4	129.2	130.6	131.5	133.0	133.8	135.0	135.9	0.7	3.3
Workers, by occupational group:											
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:								100.0		-	
Goods-producing	123.9	124.9	125.5	126.9	128.1	128.8	129.5	130.2	131.1	./	2.3
Manufacturing	124.6	125.5	126.0	127.7	128.7	129.3	130.1	130.7	131.5	.0	2.2
Service-producing	127.9	130.7	131.5	132.9	133.7	140.4	140.0	145.0	130.9	0.	3.9
Health convision	132.0	130.4	137.1	130.0	139.4	142.4	143.0	140.2	140.0	.4	4.0
Health services	-	-	-	-	-	-	-	-	-	.0	4.7
Public administration 3	120.2	104.0	104.0	106.0	120.0	140.6	1416	144.1	1447	.0	4.0
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										10	25
Cierical	100.0	124.0	104 4	105 7	106.0	107.0	107.9	128.4	120 5	1.0	25
Drue-collar workers	122.0	124.0	124.4	120.7	120.3	121.2	127.0	120.4	129.0	.0	2.0
Machine operators assemblars and inspectors	-				-					10	27
Transportation and material moving occupations										11	30
Handlers equipment cleaners beloers and laborers							_		_	5	20
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:	120.0	120.0	120.0	100.0							
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 Hospitals	-	-	-	-	-	-	-	-	-	.7	5.0
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:	1000	107.0	100.0	440.0	110 5	445.0	1100	147.0	4475	0	50
Plue coller workers	132.9	137.6	138.6	140.0	140.5	145.0	140.0	147.2	141.0	.2	0.0
Workers by industry division:	128.5	131.9	132.7	134./	130.3	138.5	139.5	140.8	141.3	.4	3.7
Sonvices, by industry division:	100.0	107.0	120.4	140 4	140.0	145 5	146.0	147.0	147 0	0	10
Hospitale and other services4	133.2	104.1	139.1	126.0	197.0	145.5	140.0	147.3	147.0	.2	3.0
Hospitals and other services	131.5	134.1	135.2	130.8	137.9	139.4	141.1	142.0	143.3	0.	3.9
Schoole	100 7	100 1	140.0	1415	1417	147.0	149.4	149.0	140.4	0.	5.0
Elementary and secondary	133.7	140.0	140.3	141.5	141.7	147.0	140.4	150.5	150.7	1	5.2
Public administration ³	120.2	124.0	134.0	126.0	138.0	140.4	1416	144.1	144.7		4.0
	100.0	104.2	104.0	100.0	100.0	140.0	141.0				4.0

¹ 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.

- Data not available.

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)

		1985			198	86		1987		Percent	change
Series	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	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	120.5	122.0	122.3	123.4	124.1	125.0	125.6	126.2	127.1	.7	2.4
Service occupations	125.3	128.0	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	-	-	-	-	-	-	-	-	-	./	4.1
Public administration 2	127.2	131.4	132.0	133.8	134.6	137.5	138.1	140.5	141.0	.4	4.0
Nonmanufacturing	125.0	127.6	128.4	129.6	130.4	132.2	133.0	134.5	135.2	.0	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:	105.5	107.0	100.0	400.0	104.4	100.0	100 7	1040	105 4	e	00
White-collar workers	125.5	127.3	128.3	129.0	131.1	132.0	132.7	134.0	135.4	.0	3.3
Professional specialty and technical occupations	128.7	131.2	131.5	132.7	134.0	135.4	130.4	130.4	139.1	.0	5.0
Executive, administrative, and managenal	126.5	1077	109.4	120.5	122.1	122 /	133.5	135.6	136.4	6	33
Salas occupations	117 4	110.3	122.5	122.4	124.3	125.2	124.9	126.7	127 1	3	23
Administrative support occupations including	111.4	110.0	122.0	The fact of	124.0	120.2	121.0	12011			
clerical	125.6	127.1	127.9	129.6	130.8	131.7	132.7	134.3	135.5	.9	3.6
Plus coller workers	120.2	1017	122.0	102.1	122.7	124.5	125 1	125.6	126.6	8	23
Precision production, craft, and repair	120.0	100.7	100.0	105.0	105.7	106.7	107.4	127.0	129.9	.0	2.5
Accupations	122.0	123.7	123.0	120.0	120.7	120.7	12/.4	125.5	120.0	10	2.0
Transportation and material moving occupations Handlers, equipment cleaners, helpers, and	115.7	117.7	117.8	118.0	118.9	119.8	120.1	120.5	121.5	.8	2.2
laborers Service occupations	118.5 124.4	118.6 126.3	119.8 126.6	120.0 128.0	120.3 128.0	120.9 128.9	121.4 130.1	121.9 131.4	122.6 131.9	.6	1.9
Workers by industry division:											
Goods-producing	121 4	100.0	122.0	124.2	125 4	126.1	126.8	127.5	128.3	6	23
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	4.0
Hetall trade	118.9	120.8	121.9	122.5	123.7	124.4	124.5	120.2	121.1	1.5	2.1
Finance, insurance, and real estate	121.7	124.1	120.5	120.0	128.0	129.0	130.0	141.8	142.8	-1.0	43
Health services	131.0	133.9	134.1	130.2	130.9	130.2	139.5	141.0	142.0	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	100 7	100.0	124.0	105 5	106.0	140.4	141.4	149 5	142.9	0	5.0
Workers, by occupational group	128.7	133.2	134.2	135.5	130.0	140.4	141.4	142.0	142.0	.2	0.0
White-collar workers	129.6	134.3	135.3	136.6	137.0	141.8	142.8	143.9	144.1	.1	5.2
Diue-collar workers	124.5	127.9	128.4	130.4	131.9	134.5	135.1	136.3	136.9	.4	3.8
Services	100 7	1945	195.0	100.0	107 4	140 1	142.0	142.0	144.9	0	5.2
Hospitals and other services 3	129.7	134.5	130.0	130.8	107.1	125.9	197.3	128.6	130 4	.2	4.6
Health services	120.0	130.2	130.9	132.4	133.3	135.8	101.3	100.0		.0	4.0
Schools	130.2	135.8	137.0	138.0	138.2	144.1	145.1	145.5	145.6	1	5.4
Elementary and secondary	131.1	137.5	138.5	139.4	139.4	145.7	146.4	146.5	146.6	1	5.2
Public administration ²	127.2	131.4	132.0	133.8	134.6	137.5	138.1	140.5	141.0	.4	4.8

³ Includes, for example, library, social and health services.
 Data not available.

¹ 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.

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

(June 1981 = 100)

		1985		-	198	36		1987		Percent	change
Series	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June	1987
COMPENSATION											
Workers by bargaining status											
Union	125.5	126.5	127.1	128.4	128.7	129.4	129.8	130.5	131.2	0.5	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
Service-producing	128.0	129.5	130.2	131.6	131.9	132.8	133.4	134.4	135.2	.6	2.5
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.
Nonmanufacturing	125.1	127.3	128.1	129.5	130.4	131.6	132.5	134.3	135.3	.7	3.8
Workers, by region 1											
Northeast	126.4	128.8	129.9	131.6	133.3	134.2	135.2	137.4	138.6	.9	4.0
South	125.2	126.5	127.2	128.7	129.6	130.7	131.4	132.1	133.2	.8	2.0
Midwest (formerly North Central)	122.7	124.2	124.6	125.9	126.2	127.3	128.1	129.1	130.2	.9	3.
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											
Metropolitan areas	125.7	127.3	128.1	129.5	130.5	131.4	132.2	133.5	134.4	.7	3.
Other areas	122.5	123.9	123.9	125.5	126.4	127.2	127.9	129.0	130.2		3.
WAGES AND SALARIES											
Workers, by bargaining status ¹											
Union	123.0	124.1	124.7	125.6	126.1	126.9	127.2	127.7	128.3	.5	i 1.
Goods-producing	121.3	122.2	122.7	123.4	124.1	124.5	124.8	125.0	125.8	.6	5 1.
Service-producing	125.7	127.1	127.8	129.0	129.3	130.5	130.9	131.7	132.2	.4	2.
Manufacturing	121.7	122.8	123.3	124.2	124.6	125.0	125.5	125.6	126.2		1.
Nonmanufacturing	124.1	125.3	125.9	126.9	127.4	128.5	128.7	129.5	130.1		2.
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	5 2.
Service-producing	124.4	126.9	127.7	128.9	129.9	130.8	131.7	133.6	134.6	5 .7	3.
Manufacturing	122.8	123.7	124.4	126.1	127.7	128.5	129.5	130.6	131.5	5 .7	3.
Nonmanufacturing	123.6	125.9	126.6	127.8	128.9	129.8	130.6	132.4	133.4	4 .8	3 3.
Workers, by region ¹											
Northeast	124.6	126.8	128.1	129.2	131.3	132.3	133.1	135.4	136.6		4
South	123.4	124.8	125.4	126.8	127.8	128.8	129.4	130.1	131.		2
Midwest (formerly North Central)	121.1	122.5	122.9	124.2	124.4	125.3	126.2	127.4	128.		3
West	125.1	126.6	127.1	128.1	128.9	129.3	130.1	131.2	131.	-	'l' '
Workers, by area size ¹						100.1	100.0	1010	100		
Metropolitan areas	123.8	125.5	126.3	127.4	128.5	129.4	130.2	100.0	102.4		
Other areas	120.6	121.9	122.0	123.6	124.5	125.0	125.6	120.0	127.0		2

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 1,000 workers or more (in percent)

Annual	average	Quarterly average										
1005	1000	19	85		198	36		19	87			
1985	1986	Ш	IV	1		III	IV	lb	llb			
2.6	1.1	2.0	2.0	0.6	0.7	0.7	2.7	1.7	4.2			
2.7	1.6	3.0	1.4	1.2	1.6	1.2	2.4	2.4	3.9			
2.3	1.2	2.0	2.1	.8	1.3	.8	2.0	1.2	2.6			
2.7	1.8	3.1	1.9	1.5	2.0	1.5	2.1	1.8	2.9			
3.3	2.3	1.2	.5	.6	.7	.5	.5	4	1.0			
.7	.5	.2	.1	(4)	.2	.1	.2	(4)	.1			
1.8	1.7	.5	.2	.4	.6	.5	.2	.3	.7			
.7	.2	.4	.1	.2	(4)	(4)	.1	.1	.2			
	Annual 1985 2.6 2.7 2.3 2.7 3.3 .7 1.8 .7	Annual average 1985 1986 1985 1986 2.6 1.1 2.7 1.6 2.3 1.2 2.7 1.8 3.3 2.3 .7 .5 1.8 1.7 .7 .2	Annual average 1985 1986 199 1985 1986 119 119 2.6 1.1 2.0 2.0 2.7 1.6 3.0 2.3 1.2 2.0 2.7 1.8 3.1 3.3 2.3 1.2 7.7 .5 .2 1.8 1.7 .5 .7 .2 .4	Annual average 1985 1985 1986 1985 1986 III IV 2.6 1.1 2.0 2.0 2.7 1.6 3.0 1.4 2.3 1.2 2.0 2.1 2.7 1.8 3.1 1.9 3.3 2.3 1.2 .5 .7 .5 .2 .1 1.8 1.7 .5 .2 .7 .2 .4 .1	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Annual average Quarterly average 1985 1986 1985 1986 1985 1986 III IV I II III IV 2.6 1.1 2.0 2.0 0.6 0.7 0.7 2.7 2.7 1.6 3.0 1.4 1.2 1.6 1.2 2.4 2.3 1.2 2.0 2.1 .8 1.3 .8 2.0 2.3 1.2 2.0 2.1 .8 1.3 .8 2.0 3.3 2.3 1.2 .5 .6 .7 .5 .5 3.7 .5 .2 .1 (^{(1)} .2 .1 .2 1.8 1.7 .5 .2 .4 .6 .5 .2 1.8 1.7 .2 .4 .1 .2 (^{(1)} .1	Annual average Quarterly average 1985 1986 1985 1986 19 1985 1986 III IV I II III IV IP 2.6 1.1 2.0 2.0 0.6 0.7 0.7 2.7 1.7 2.7 1.6 3.0 1.4 1.2 1.6 1.2 2.4 2.4 2.3 1.2 2.0 2.1 .8 1.3 .8 2.0 1.2 3.3 2.3 1.2 .5 .6 .7 .5 .5 .4 3.3 2.3 1.2 .5 .6 .7 .5 .5 .4 1.8 1.7 .5 .2 .1 (°) .2 .1 .2 .1 1.8 1.7 .5 .2 .4 .6 .5 .2 .3 .1			

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. ^p = preliminary.

26.	Aver	age	specifie	d compe	ensation	and wa	age adj	ustments	, major	collective	bargaining	settlements	in private
ind	ustry	situ	ations c	overing	1,000 w	orkers	or more	e during 4	-quarte	er periods	(in percent))	

0			Averag	arters endi	s ending				
Measure	198	5		1986	3		198	7	
	10	IV	1	11	111	IV ·	lb	llb	
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:									
First year of contract Annual rate over life of contract	3.1 2.7	2.6 2.7	2.3 2.5	1.4 2.0	0.9 1.4	1.1 1.6	1.2 1.7	1.9 2.1	
Specified wage adjustments, settlements covering 1,000 workers or more:									
All industries									
First year of contract	24	2.2	20	16	10	10	10	1 5	
Contracts with COLA clauses	1.0	1.0	1.6	1.0	2.2	1.2	2.0	1.0	
Contracts without COLA clauses	27	27	2.2	1.5	2.2	1.0	2.0	1.0	
Annual rate over life of contract	25	27	25	22	17	1.8	1.8	2.0	
Contracts with COLA clauses	18	25	2.5	25	20	1.7	1.8	17	
Contracts without COLA clauses	3.0	28	2.5	21	16	1.8	1.0	22	
Manufacturing	0.0	2.0	2.0		1.0	1.0	1.0	6.6	
First year of contract	1.5	8	8	1	-10	-12	-16	- 8	
Contracts with COLA clauses	1.5	.8	.8		1.1	13	13	14	
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	2								
First year of contract	1.0	1.5	1.6	2.3	2.3	2.2	2.4	2.6	
Contracts with COLA clauses	(1)	(1)	(1)	1.1	1.4	1.4	1.6	(1)	
Contracts without COLA clauses	(1)	(1)	(1)	2.4	2.4	2.3	2.4	(1)	
Annual rate over life of contract	1.7	2.1	2.2	2.5	2.6	2.5	2.5	2.8	
Contracts with COLA clauses	(1)	(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)	

^p = preliminary.

¹ Data do not meet publication standards.

² Between -0.05 and 0.05 percent.

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

	Average for four quarters ending										
Effective wage adjustment	1985		19		1987						
	IV	T	Ш	Ш	IV	lb	Ilp				
For all workers: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.

^p = 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)

Magaura	Annual		
Measure	1985	1986	First 6 months 1987
Specified adjustments: Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:			
First year of contract	12	60	
Annual rate over life of contract	5.1	6.0	5.7
Wage adjustments, settlements covering 1,000 workers or more: First year of contract Annual rate over life of contract	4.6 5.4	5.7 5.7	5.2 5.4
Effective adjustments:			
Total effective wage adjustment ³	5.7	5.5	16
From settlements reached in period	4.1	2.4	.4
Deferred from settlements reached in earlier periods	1.6	3.0	1.2
From cost-of-living-adjustment clauses	(4)	(4)	(4)

¹ Compensation includes wages, salaries, and employers' cost of employee

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 Less than 0.05 percent.

^p = preliminary

29. Work stoppages involving 1,000 workers or more

Magaura	Annua	l totals				1986		1987 ^p							
measure	1985	1986	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Number of stoppages: Beginning in period In effect during period	54 61	69 72	11 15	13 22	10 22	8 17	5 17	2	1 6	27	5 7	3 5	25	26	8 12
Workers involved: Beginning in period (in thousands)	323.9	533.0	198.0	46.7	113.3	39.4	44.3	8.7	3.0	7.3	37.6	12.2	2.7	4.5	14.9
thousands)	584.1	899.5	206.8	83.1	153.0	87.4	109.9	67.8	49.4	46.9	41.6	16.2	8.9	68.4	22.1
Days idle: Number (in thousands) Percent of estimated working time ¹	7,079.0 .03	11,861.0 .05	3,677.0 .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

¹ Agricultural and government employees are included in the total employed and total working time: private household, forestry, and fishery employees are excluded. An expla-nation 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,

^p = preliminary

pp. 54-56.
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)

	Anr	nual			19	86			_			1987			
Series	ave 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
Cereals and bakery products	296.8	305.3	305.5	308.9	309.0	309.5	309.9	310.2	315.2	310.0	315.8	316.9	318.8	320.4	319.1
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 nome	361.1	3/3.6	3/3./	3/4.0	3/3./	3/4.4	3/3.9	3/2.2	3/8./	380.0	3/8.6	3/7.6	3/7.5	3/6.4	375.9
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
Alconolic beverages	229.5	239.7	240.4	240.1	240.4	240.0	240.5	240.8	242.0	243.2	243.0	244.3	245.0	245.9	240.7
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
Benters' costs (12/82-100)	115.4	402.9	403.5	405.2	407.0	409.5	124.3	124 2	412.3	414.0	415.9	418.0	419.2	420.2	422.1
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
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
Fuel oil coal and bottled gas	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
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 operations	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
Houseturnishings	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 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
Annarel and unkeen	206.0	207.8	203.2	207.0	212 1	212.2	212.1	210.0	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' apparel	299.7	312.7	307.5	310.6	309.7	312.0	307.0	312.7	301.8	304.5	319.6	319.1	316.4 220 P	308.0	301.2
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	220.8	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 transportation	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
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 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
Protessional services	367.3	390.9 237.4	391.7 237.4	393.3 239.5	396.1 240.1	398.0 242.3	399.8 243.8	401.0	403.7 246.7	406.8	409.6	412.5	413.9 251.0	416.7 251.8	418.9 254.6
Estationent	005.0	07.1	07.1	07.17	075.6	070.5	077	077	070.0	070 5	070.0		0000	00000	
Entertainment commodities	260.6	265.0	265.8	266.1	275.3	276.5	267.6	267.4	278.3	268.1	279.8	281.3	282.0	282.3	283.5
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 and educational expenses	286.0	428.8	421.2	422.0	296.5	447.6	297.9	298.2	450.6	452.0	452.8	453.9	454.4	304.9 455.5	305.3 456.5
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.

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)

	Ann	iual			198	36						1987			
Series	1985	1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	101.0	101 5	100.0	100.0	400.0	407.4	100.0	104.5	100 E	101 5	100.2	202.1	201.2	107.5	102.6
Apparel commodities	191.3	191.5	186.3	190.8	196.2	197.1	204.6	202 1	190.5	191.5	201.9	202.1	201.2	204.0	201.7
Wern's and dirls' 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	220.2
New vehicles	214.2	223.3	223.7	223.0	223.3	225.7	229.4	230.7	231.2	220.9	220.2	229.0	229.5	229.9	231.6
New cars	214.0	223.0	223.9	223.9	350 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	2/2.8	2/4.6	275.2	2/5.8	2/0.0	277.0	279.8	201.4	202.9	200.1	200.2	200.2	290.5	100 1
Medical care services	432.7	405.7	400.9	304.0	306.6	308 /	4/0.2	400.1	403.2	400.5	409.2	432.1	493.0	430.2	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
Entortainmont	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 appliances	279.0	288.6	287.8	289.7	288.7	290.5	290.5	290.3	292.0	293.2	292.7	293.0	294.9	294.0	290.1
Personal care services	280.5	289.8	290.2	290.5	290.8	291.0	292.4	450.0	452 0	453.7	454.3	455.5	456 1	457.3	458.4
Personal and educational expenses	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
											000 5	000.0	000.4	004.0	005.0
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	201 6	202 4	2025
Commodities	286.5	283.1	281.1	281.1	282.0	202.0	203.1	203.3	200.0	321 3	321.2	322 1	323.5	325.0	324.8
Commodifies 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	200.2	204.0	200.2	202.0	200.0	204.0	200.0	200.0	100.1	1015	105.0	407.0	400.0		410.0
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
Hent of Shelter (12/84=100)	103.2	109.0	109.2	109.6	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:														0000-	
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
All items less shelter	303.4	305.1	304.3	304.6	305.9	305.7	305.9	306.3	104.0	104.5	104.0	105 5	105.0	106.4	106.6
All items less nomeowners' costs (12/84=100)	101.8	102.0	102.0	102.7	210.2	210.2	2106	210.9	221 8	222.0	224 5	326.2	327 3	328.8	320 3
All items less medical care	272.8	262.0	250 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	262.3	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	3/8.6	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
Commodities less food and energy	256.9	250.9	258 5	259 3	260.0	261 7	262 4	262 1	261 7	262.0	264.6	266.6	267.1	266.7	266.3
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
1901-08=01.00	27.0	20.0	20.0	20.0	20.5	20.5	20.4	20.4	20.2	20.1	20.0	20.0	20.0	20.1	20.0

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)

	Ann	nual			19	86		_				1987			
Series	aver 1985	age 1986	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Мау	June	July
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
Apparel commodities	101.6	102.0	259.8	200.1	201.5	107.6	197 4	104.0	190.9	1921	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	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	257.3	255.6	201.1	257.8	201.2	201.2	202.0	262.6	266.4	260.9	209.4	269.5	269.0
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	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
CONSUMED DRICE INDEX FOR LIDBAN WAGE FARNERS															
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
Eruite and vegetables	256.9	257.1	257.0	256.9	257.1	258.0	259.9	200.9	202.0	203.0	202.4	262.0	203.1	202.0	201.9
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	377.1 248.6	378.2
	LOLIO	212.0	210.1	2.0.0	210.1	210.0	2.10.1	210.0	210.1	210.2	21010		21110	210.0	2 1012
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	280.2	110.3	110.9	111.4	111.7	285.1	286.1	112.7	113.3	113.8	114.0	114.2	115.3
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
Fuel and other utilities	201.1	202.5	259.0	203.5	201.1	264.3	265.0	268.0	267.6	208.4	207.9	207.9	209.7	270.5	270.7
Fuels	487.5	462 7	469 1	469.3	467 1	449.2	437 1	437.3	442 7	4437	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
Housefurnishings	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
I Ingoorgehing ool ando	040.2	040.2	040.4	049.1	049.0	000.1	000.1	000.8	001.2	002.0	002.3	000.0	004.0	004.0	004.4
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

See footnotes at end of table.

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

(1967=100, unless otherwise indicated)

					All Urba	an Consi	umers					Urban	Wage Ea	arners		
Area ¹	Pricing sche-	Other index	198	36			1987			198	36			1987		
	dule ²	base -	July	Aug.	Mar.	Apr.	May	June	July	July	Aug.	Mar.	Apr.	May	June	July
U.S. city average	м	-	328.0	328.6	335.9	337.7	338.7	340.1	340.8	322.9	323.4	330.5	332.3	333.4	334.9	335.6
Region and area size ³ Northeast urban	м	12/77	-	175.0	179.9	181.0	181.7	182.4	182.7	-	172.2	177.0	178.2	178.9	179.5	179.9
Size A - More than 1,200,000	м	12/77	-	173.1	177.5	178.8	179.5	180.5	180.7	-	168.8	173.0	174.4	175.2	176.1	176.3
Size B - 500,000 to 1,200,000	м	12/77	-	174.7	180.7	182.3	182.8	182.0	182.5	-	171.8	177.7	179.3	179.7	179.0	179.5
500,000	M	12/77	-	182.8 176.2	188.8 179.5	188.9 180.4	189.0 180.8	189.7 182.4	190.9 182.6	-	187.2 172.2	193.1 175.3	193.1 176.2	193.5 176.7	194.1 178.3	195.1 178.6
Size A - More than 1,200,000	м	12/77	-	180.7	183.2	184.0	184.5	186.6	186.9	-	175.0	177.3	178.3	178.8	180.7	181.0
Size B - 360,000 to 1,200,000	м	12/77	-	172.5	177.8	179.5	179.5	180.2	180.2	-	168.1	173.1	174.6	174.8	175.5	175.6
Size C - 50,000 to 360,000 Size D - Nonmetro-	м	12/77	-	171.2	175.3	176.1	176.9	177.8	178.2	-	167.7	171.5	172.2	173.0	174.0	174.3
politan (less than 50,0000 South urban	M	12/77 12/77	2	171.4 176.4	174.0 180.2	174.6 180.9	174.9 181.4	176.1 182.1	176.7 182.6	-	172.4 175.3	175.1 179.0	175.7 179.7	176.2 180.3	177.4 181.0	178.2 181.6
Size A - More than 1,200,000 Size B - 450,000 to	м	12/77		176.7	180.4	181.5	182.0	182.6	183.3	-	176.1	179.6	180.7	181.4	182.1	182.7
1,200,000 Size C - 50,000 to	м	12/77	-	178.6	182.3	183.0	183.2	183.7	184.1	-	174.6	178.1	178.7	179.1	179.6	180.0
450,000 Size D - Nonmetro- politan (less	M	12/77	-	174.8	178.8	179.2	179.8	180.8	181.4	-	175.3	179.3	179.8	180.4	181.6	182.2
than 50,000) West urban	M	12/77 12/77	-	174.3 179.0	177.8 182.7	178.0 183.8	178.9 184.4	179.1 184.5	179.9 184.7	-	175.0 176.4	178.4 180.1	178.6 181.1	179.5 181.7	179.7 181.9	180.6 182.1
Size A - More than 1,250,000	м	12/77	-	182.0	186.1	187.2	188.1	187.9	188.1	-	176.9	181.0	182.1	182.9	182.8	182.9
1,250,000 Size C - 50,000 to	м	12/77	-	178.1	181.4	182.7	183.2	183.9	184.0	-	178.3	181.5	182.8	183.5	184.0	184.2
330,000	м	12/77	-	173.0	175.2	175.8	175.2	176.4	176.6	-	171.1	173.3	173.8	173.2	174.2	174.6
Size classes: A	м	12/77	-	-	101.6	102.2	102.5	103.0	103.2	322.9	323.4	330.5	332.3	333.4	334.9	335.6
В	M	12/77	-	175.0	181.0	182.1	182.4	182.7	183.0	-	173.5	178.9	179.4	179.8	180.8	181.4
D	M	12/77	-	173.8	176.9	177.4	178.2	178.8	179.5	-	174.5	177.6	178.1	178.9	179.6	180.3
Selected local areas Chicago, IL-															000.0	000.0
Northwestern IN Los Angeles-Long Beach Angheim CA	M		331.1	331.4	335.5	337.1	338.4	345.0	346.1	316.0	316.2	320.1	321.6	322.7	328.9	330.0
New York, NY- Northeastern NJ	M		325.1	325.9	334.7	337.0	339.0	340.6	340.7	316.5	317.2	325.7	328.2	330.2	331.7	331.6
Philadelphia, PA-NJ San Francisco-	M	-	323.0	323.1	329.4	333.8	336.2	339.0	339.1	324.6	324.4	330.4	334.9	337.5	340.4	340.7
Oakland, CA	M	-	-	345.5	349.6	353.0	353.5	353.5	356.0	-	339.0	343.4	346.9	347.0	347.3	349.3
Baltimore, MD Boston, MA Cleveland, OH	. 1		330.2	352.7	335.9 336.8 356.8	-	340.1 335.1 357.5		343.8 338.0 361.4 180.5	327.9	329.9	333.2 334.7 333.3 178.6		337.4 332.9 334.2 179.2		336.3 337.9 180.9
St. Louis, MO-IL Washington, DC-MD-VA	1	-	325.6		328.8 338.0		330.5 340.5	-	334.7 343.1	320.6 330.2	-	324.3 340.1	-	326.3 343.2	-	331.0 345.4
Dallas-Ft. Worth, TX Detroit, MI Houston, TX	22		- 318.4 -	346.2 323.2 332.9		351.8 330.5 341.1		354.1 330.2 341.5		307.5	339.1 312.8 330.5		344.4 319.9 338.5		347.4 319.7 339.7	
Pittsburgh, PA	2	-	-	330.1	-	338.2	-	338.9	-	-	309.2	-	310.0	-	317.8	-

¹ Area is the Consolidated Metropolitan Statistical Area (CMSA), exclusive of farms and military. Area definitions are those established by the Of-fice 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.

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

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	328 4
Percent change	7.7	11.3	13.5	10.4	6.1	32	43	3.6	1 0
Food and beverages:						0.2	4.0	0.0	1.0
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	22	38	23	3.2
Housing:							0.0	2.0	0.2
Index	202.8	227.6	263.3	293.5	314.7	323.1	336.5	349.9	360.2
Percent change	8.7	12.2	15.7	11.5	72	27	41	40	20
Apparel and upkeep:								4.0	2.0
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	19	29	207.0
Transportation:								2.0	
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	26	-3.9
Medical care:									0.0
Index	219.4	239.7	265.9	294.5	328.7	357.3	379.5	403.1	433 5
Percent change	8.4	9.3	10.9	10.8	11.6	8.7	6.2	6.2	7.5
Entertainment:								0.2	1.0
Index	176.6	188.5	205.3	221.4	235.8	246.0	255.1	265.0	274.1
Percent change	5.3	6.7	8.9	7.8	6.5	4.3	3.7	3.9	34
Other goods and services:								0.0	0.4
Index	183.3	196.7	214.5	235.7	259.9	288.3	307.7	326.6	346.4
Percent change	6.4	7.3	9.0	9.9	10.3	10.9	6.7	6.1	6.1
Consumer Price Index for Urban Wage Earners and									
Clerical Workers:									
All items:									
Index	195.3	217.7	247.0	2723	288.6	297 4	307.6	219.5	2024
Percent change	7.6	11.5	13.5	10.2	6.0	30	3.4	25	1.5

32. Annual data: Consumer Price Index all items and major groups

33. Producer Price Indexes, by stage of processing

(1967=100)

	Annual a	verage			1986						1987			
Grouping	1985	1986	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
			000.4	007.0	200.7	200.7	290.4	291.8	292.3	292.6	295.0	296.3	296.8	297.8
Finished goods	293.7	289.7	288.1	287.3	290.7	290.7	284.8	286.2	287.1	287.5	290.3	292.0	292.7	293.8
Finished consumer goods	291.8	284.9	283.0	282.5	200.2	200.1	282.0	280 1	280.8	280.3	283.3	286.7	287.7	287.6
Finished consumer foods	271.2	278.1	284.0	282.9	283.6	203.1	202.9	200.1	200.0					
Finished consumer goods excluding						004.0	200.0	284.4	285.3	286.3	288.9	289.6	290.1	292.0
foods	297.3	283.5	277.5	277.4	281.0	281.2	260.6	204.4	210.5	3122	315.2	316.5	317.4	320.2
Nondurable goods less food	339.3	311.2	301.6	304.5	301.9	302.2	302.1	307.7	250.7	250.6	252 1	252.0	251.9	252.3
Durable goods	241.5	246.8	245.8	241.7	253.5	253.5	252.8	203.2	200.7	210.5	3117	311.9	311.6	312.1
Capital equipment	300.5	306.4	306.2	303.9	309.9	310.4	310.1	311.2	510.7	510.5	011.7			
Intermediate materials, supplies, and						204.9	205.0	307.0	308.9	309.3	310.9	312.7	314.8	317.1
components	318.7	307.6	304.5	306.1	304.8	304.0	305.0	007.0	000.0					
Materials and components for						000 4	006 4	207.8	208 7	299.5	301.3	303.2	304.6	306.4
manufacturing	299.5	296.1	296.0	296.2	296.4	296.4	290.4	257.0	251.6	250.4	255.3	261.5	261.2	262.0
Materials for food manufacturing	258.8	251.0	255.5	254.3	253.9	253.2	253.2	201.1	292.1	283.9	286.3	287.9	291.6	293.1
Materials for nondurable manufacturing .	285.9	279.1	277.1	277.0	277.5	278.0	2/8.3	201.3	200.1	217.8	320.3	323.9	325.3	329.7
Materials for durable manufacturing	320.2	313.8	313.6	314.9	315.3	314.9	313.9	315.6	006 1	207.0	297 1	297.3	297.2	298.0
Components for manufacturing	291.5	294.4	294.9	295.0	294.9	294.9	295.2	295.8	290.1	291.0	201.1	Lorio		
Materials and components for									047.0	0107	210.2	319.9	320.2	321.8
Materials and components for	315.2	317.4	317.6	317.6	317.3	317.5	316.9	317.1	317.9	318.7	400.9	425.0	437.5	449.5
Construction	548.9	430.2	395.0	409.1	394.9	392.8	395.5	406.7	418.5	416.0	420.0	225.0	326.1	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	2027	203.2
Containers	294.2	287.3	287.1	288.0	287.5	288.0	288.2	289.0	289.5	289.6	290.7	292.1	292.1	200.2
Supplies	204.2	201.0	20111										004.0	207.9
	006 1	290.2	276.3	275.4	277.2	279.2	277.0	284.2	287.2	288.6	295.5	304.7	304.9	042.4
Crude materials for further processing	300.1	200.0	228 1	233.5	235.0	236.8	233.5	227.6	229.9	229.6	239.4	251.3	246.5	243.1
Foodstuffs and feedstuffs	235.0	201.0	358 3	365.6	367.9	370.3	370.6	394.2	398.5	402.0	405.4	414.0	420.1	431.0
Crude nonfood materials	459.2	300.0	350.5	000.0	001.0									
Special groupings						000 7	200 4	202.2	293.6	294.3	296.4	296.9	297.2	298.6
Finished goods, excluding foods	. 299.0	291.1	286.8	286.1	290.4	290.7	290.4	A77 A	489.6	495.5	511.5	516.5	520.7	527.5
Finished energy goods	. 720.9	518.5	456.2	471.7	452.1	453.7	454.0	270.7	279.5	279.5	281.1	282.2	282.5	283.1
Finished goods less energy	. 269.2	275.6	277.2	275.5	280.0	280.0	279.0	279.7	271.7	271.8	273.4	274.9	275.3	276.0
Einished consumer goods less energy	. 261.3	267.9	270.0	268.5	272.6	272.4	272.0	271.0	270.2	279.5	280.5	280.7	280.7	281.6
Finished conduiner goode red energy	. 268.7	274.9	274.8	272.9	278.9	279.1	2/8./	2/9.0	219.5	210.0	200.0			
Finished goods less food and								0004	0000	262.2	264 1	264.4	264.5	265.
Finished consumer goods loos loos and	252.1	258.4	258.4	256.7	262.6	262.6	262.2	263.4	202.9	205.5	204.1	20111		
Greenergy	1								057.0	057.0	258.2	258 7	258.9	260.
Consumer nondurable goods loss loss and	. 246.2	253.0	253.8	254.2	254.8	254.9	254.7	256.4	257.2	257.9	200.2	200.1	20010	
energy														000
Intermediate materials less foods and	005.0	0100	200.0	3115	310.4	310.3	310.5	312.8	314.7	315.3	316.8	318.1	320.3	322.
feeds	325.0	313.3	000.0	233.2	230.3	231.0	231.5	229.5	230.0	227.6	232.3	240.2	241.3	241.
Intermediate foods and feeds	232.8	230.3	202.1	200.2	280.3	378.3	380.7	391.3	402.6	400.3	404.9	408.1	420.1	431.
Intermediate energy goods	528.3	414.4	300.7	393.0	303.9	304 1	304.1	305.2	306.1	306.8	308.2	309.8	310.8	312.
Intermediate goods less energy	304.0	303.5	303.5	304.0	505.5	004.1							-	
Intermediate materials less foods and			0040	0040	204 9	304 9	304.8	306.2	307.2	308.1	309.3	310.5	311.6	313.
energy	305.2	304.4	304.2	304.6	304.0	004.0	004.0							
				500.0	E94 4	537.0	533.2	578.0	584.4	590.1	590.9	606.9	612.2	629.
Crude energy materials	748.1	575.8	520.4	533.9	004.4	007.0	231 5	228.1	230.4	230.6	238.4	248.4	247.1	246.
Crude materials less energy	233.2	229.2	232.4	229.7	231.6	233.3	201.0	250.3	252.8	254.4	257.6	263.1	271.1	276
Crude nonfood materials less energy	249.7	245.6	235.9	239.1	242.3	244.4	24/.1	200.0	202.0					

34. Producer Price indexes, by durability of product

(1967=100)

	Annual	average			1986						1987			
Grouping	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	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

36. U.S. export price indexes by Standard International Trade Classification,

(June 1977=100, unless otherwise indicated)

Category ALL COMMODITIES (9/83=100) Food (3/83=100) Meat (3/83=100) Fish (3/83=100) Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	0 01 03 04 05 08 09	Dec. 98.1 96.5 104.4 98.7 92.9 114.7 82.4 108.4	Mar. 97.5 95.8 103.9 101.0 92.4	June 97.5 94.0 104.7	Sept. 96.5 90.2	Dec. 96.7 93.6	Mar. 97.0	June 96.7	Sept. 95.1	Dec. 96.2	Mar. 97.2	June 99.9
ALL COMMODITIES (9/83=100) Food (3/83=100) Meat (3/83=100) Fish (3/83=100) Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	0 01 03 04 05 08 09	98.1 96.5 104.4 98.7 92.9 114.7 82.4 108.4	97.5 95.8 103.9 101.0 92.4	97.5 94.0 104.7	96.5 90.2	96.7 93.6	97.0	96.7	95.1	96.2	97.2	99.9
Food (3/83=100) Meat (3/83=100) Fish (3/83=100) Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	0 01 03 04 05 08 09	96.5 104.4 98.7 92.9 114.7 82.4 108.4	95.8 103.9 101.0 92.4	94.0 104.7	90.2	93.6						
Meat (3/83=100) Fish (3/83=100) Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	01 03 04 05 08 09	104.4 98.7 92.9 114.7 82.4 108.4	103.9 101.0 92.4	104.7	400.4		90.5	89.5	77.2	81.2	79.8	83.4
Fish (3/83=100) Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	03 04 05 08 09	98.7 92.9 114.7 82.4 108.4	101.0 92.4	100 6	106.1	112.2	111.5	114.7	122.0	122.6	123.4	129.0
Grain and grain preparations (3/80=100) Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	04 05 08 09	92.9 114.7 82.4 108.4	92.4	103.0	102.6	101.8	102.2	106.2	111.2	116.9	118.5	122.9
Vegetables and fruit (3/83=100) Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	05 08 09 1	114.7 82.4 108.4		90.3	82.6	87.1	82.1	79.1	59.0	64.8	62.9	66.5
Feedstuffs for animals (3/83=100) Misc. food products (3/83=100)	08 09 1	82.4 108.4	119.5	120.2	126.9	118.9	115.3	125.8	131.4	131.9	130.8	130.8
Misc. food products (3/83=100)	09	108.4	72.8	68.6	75.7	83.4	88.5	85.5	90.2	87.4	85.7	93.7
	1		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)		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) Tobacco and tobacco products (6/83=100)	11	103.7	104.0 99.5	105.3 99.6	101.8 99.5	100.9 98.4	95.1	103.0 95.9	95.8	102.9	104.7	104.8
		101.4	07.5	00.0	00.0	00.5	05.0	05.6	00.0	04.9	07.2	106 4
Crude materials (6/83=100)	2	101.4	97.5	90.8	93.3	92.5	95.8	149.0	120.0	94.8	97.3	100.4
Haw nides and skins $(6/80 = 100)$	21	74.0	71.0	71.0	64.0	62.0	130.9	65.0	130.U	62.0	60.4	191.2
Oilseeds and oleaginous null $(9/7) = 100$	22	104.0	106.4	106.2	107.1	106.0	106.0	106.1	105.3	104.4	00.4	111.8
Wood	20	125 4	128.7	125.7	124.5	128.1	128 7	128.7	120.7	135.5	139.0	146.2
Pulp and waste paper (6/92 – 100)	24	114.2	100.5	96.1	03.8	027	08.8	109.7	110.8	121.2	133.0	138.7
Fulp and waste paper $(6/63 = 100)$	20	106.7	102.4	105.8	103.6	92.7	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 unreadables allo fets and ununs		147.0	142.0	1445	1145	101.4	00.0	94.4	76 5	00.0	00 0	04.5
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)	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	87	171.7	175.5	178.3	178.7	178.8	182.1	183.8	183.8	184.8	186.4	188.5
Photographic apparatus and supplies, optical goods, watches and												
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

37. U.S. import price indexes by Standard International Trade Classification

(June 1977=100, unless otherwise indicated)

	1974		1985			19	86	-	19	87
Category	SITC	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)	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) Coffee, tea, cocoa	06 07	122.6 56.0	123.1 54.4	111.9 64.6	124.6 85.9	121.6 69.2	123.9 71.8	124.3 61.0	126.0 50.9	128.6 49.3
Reverses 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 oils (9/83=100)	4	76.7	57.6	50.6	41.4	39.3	35.5	51.6	50.8	54.5
Vegetable oils (9/83=100)	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) 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 and transport equipment (0/01 = 100)	72	97.0	101.4	104.9	1121	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
(3/80=100)	75	89.4	90.3	93.7	96.9	101.3	102.5	102.4	103.2	106.4
(2/80-100)	76	88.8	88.3	88.6	89.4	91.6	937	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
Road vehicles and parts (6/81=100)	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) Misc. manufactured articles, n.e.s. (6/82=100)	88 89	89.5 95.2	91.1 96.4	94.5 97.9	99.3 102.1	103.2 103.4	106.9 112.3	107.6 111.0	111.8 116.9	114.4 121.8
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

38. U.S. export price indexes by end-use category

(September 1983 = 100 unless otherwise indicated)

	Per-		1985			198	6		198	7
Category	of 1980 trade value	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)

	Per-		1985			198	6		198	7
Category	of 1980 trade value	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

		1985			198		1987		
Industry group	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
Manufacturing:									
Food and kindred products (6/83=100)	99.5	96.7	98.1	97.0	95.0	95.2	97.6	99.0	104.1
Lumber and wood products, except furniture									
(6/83=100)	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
Electrical machinery (12/80-100)	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
(6/77=100)	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 '

Industry group		1985			198	6		198	7
moustry group	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	1227	125.0
Textile mill products (9/82=100)	101.0	100.4	101.8	104 7	106.4	107.1	108.0	111 7	112.5
Apparel and related products (6/77=100)	133.0	133.9	134.4	133.4	135 1	137.8	130.3	146.0	150.0
Lumber and wood products, except furniture			101.1	100.4	100.1	107.0	100.0	140.0	150.9
(6/77=100)	120.6	117.5	115.8	1221	124.8	127.9	127.0	134.5	125.0
Furniture and fixtures (6/80=100)	96.1	97.7	98.2	101.2	103.5	105.4	105.6	109.6	110.2
Paper and allied products (6/77=100)	139.8	138.7	137.4	137.6	139.4	142.2	150.3	154.0	155.7
Chemicals and allied products (9/82=100)	93.9	93.3	95.8	98.6	102.1	103.8	102.4	104.0	105.7
Rubber and miscellaneous plastic products			00.0	00.0	102.1	100.0	102.4	104.7	105.7
(12/80=100)	96.7	96.6	97.5	100.9	100.6	101.9	1021	104.4	105.9
Leather and leather products	138.9	142.3	144.0	145.8	144.6	147.7	148 7	151.9	156.0
Primary metal products (6/81=100)	84.1	84.3	82.6	82.0	82.4	84.9	84.0	85.4	01.2
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	110.1	121.0
Electrical machinery (9/84=100)	95.8	94.5	95.8	97.0	100.2	102.6	104.0	105.7	106.0
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							100.2	100.0	100.4
(12/79=100)	91.7	94.6	98.8	103.9	109.1	1137	1137	110 1	122.1
Miscellaneous manufactured commodities							110.7	110.1	122.1
(9/82=100)	95.1	96.6	98.7	99.9	101.7	106.9	108.1	110.3	113.8

¹ SIC - based classification.

42. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

(1977=100)

	Quarterly Indexes												
Item	1984		198	35			198	36		198	37		
	IV	L	П	Ш	IV	1	IL	Ш	IV	T	11		
Business:													
Output per hour of all persons	105.9	106.5	107.2	108.2	107.9	109.5	109.7	109.6	109.6	109.7	110.0		
Compensation per hour	170.3	172.4	174.6	177.0	179.3	180.7	182.2	183.6	185.2	185.8	187.3		
Real compensation per hour	98.1	98.5	98.6	99.4	99.7	100.1	101.3	101.4	101.6	100.7	100.3		
Unit labor costs	160.8	161.9	162.8	163.6	166.1	165.0	166.2	167.5	169.0	169.4	170.2		
Unit nonlabor payments	157.9	158.7	160.4	161.8	160.2	163.1	163.9	165.7	162.4	166.0	168.8		
Implicit price deflator	159.8	160.8	162.0	163.0	164.0	164.3	165.4	166.9	166.7	168.2	169.7		
Nonfarm business													
Output per hour of all persons	104.8	105.2	105.7	106.4	105.0	107.7	107.7	107 5	107 5	107.0	100.0		
Compensation per hour	170.2	172.2	174 1	176.2	178 3	180.0	181 3	182.6	184 4	194.0	106.0		
Real compensation per hour	98.0	98.4	98.3	98.9	99.2	99.7	100.8	100.0	101.2	100.2	00.2		
Unit labor costs	162.4	163.6	164.7	165.7	168.3	167.2	168.4	160.8	171.5	171.8	172.5		
Unit nonlabor payments	158.5	159.5	161.5	163.4	160.8	164 7	165.2	167.0	163.0	167.4	168 7		
Implicit price deflator	161.0	162.2	163.6	164.9	165.7	166.4	167.3	168.8	168.8	170.3	171.1		
Nonfinancial corporations:													
Output per hour of all employees	106.4	107.0	107 7	109.2	108.0	100.8	100 7	100.0	110.5	100.7			
Compensation per hour	168 1	169.9	171.8	173.8	175 7	177.2	179 4	170.5	101.0	100.7	-		
Real compensation per hour	96.8	97.0	97.0	97.6	97.7	08.2	00.1	00.2	00.2	08.0	-		
Total unit costs	162.8	163.6	164.3	163.7	166.0	166.2	167.2	169.5	160 7	160.7	-		
Unit labor costs	158.0	158.9	159.5	159 1	161.4	161.5	162.6	162.2	162.0	164.0	-		
Unit nonlabor costs	176.8	177.5	178 7	177.5	170 /	180.7	190.6	103.2	103.0	104.0	-		
Unit profits	134.2	132.0	132.2	142.5	129.7	120.7	120.5	120.6	103.2	104.1	-		
Unit nonlabor payments	161.9	161.6	162.5	165.2	161.6	162.8	162.7	165.4	162 7	165.0	-		
Implicit price deflator	159.4	159.8	160.5	161.2	161.5	161.9	162.7	164.0	163.8	165.2	-		
Manufacturing													
Output per hour of all persons	120.0	121 5	124.0	125.2	126.0	127 6	128.2	120 4	120.0	120.0	101.0		
Compensation per hour	171 1	173.3	176.1	178.0	180.2	181.0	182 1	183.4	184.2	192.0	194.7		
Real compensation per hour	98.5	00.0	99.5	00.0	100.2	100.2	101.0	101.0	104.3	00.6	184.7		
Unit labor costs	142.5	142.7	142.0	142.1	143.0	141.9	142.0	141.5	141.9	140.6	140.1		

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:	00.0		00.0	00.0	100.0		100.0	100.0	100.4	100.0	110.0	122.0
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	1126	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:					1							
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:							100.0	100.1	101.0	110.0	110.0	122.0
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	1960	1970	1973	1975	1977	1979	1980	1981	1982	1983	1984	1985	1986
Business:													
Output per hour of all persons	67.6	88.4	95.9	95.7	100.0	99.6	99.3	100.7	100.3	103.0	105.6	107.5	109.5
Compensation per hour	33.6	57.8	70.9	85.2	100.0	119.1	131.5	143.7	154.9	161.5	168.0	175.9	182.8
Real compensation per hour	68.9	90.2	96.7	95.9	100.0	99.4	96.7	95.7	97.3	98.2	98.0	99.1	101.0
Unit labor costs	49.7	65.4	73.9	89.0	100.0	119.5	132.5	142.7	154.5	156.7	159.1	163.6	166.9
Unit nonlabor payments	46.4	59.4	72.5	88.2	100.0	112.5	118.7	134.6	136.6	146.4	156.5	160.3	163.8
Implicit price deflator	48.5	63.2	73.4	88.7	100.0	117.0	127.6	139.8	148.1	153.0	158.2	162.4	165.8
Nonfarm business:													
Output per hour of all persons	71.0	89.3	96.4	96.0	100.0	99.3	98.8	99.8	99.2	102.5	104.6	105.8	107.5
Compensation per hour	35.3	58.2	71.2	85.6	100.0	118.9	131.3	143.6	154.8	161.5	167.8	175.2	182.0
Real compensation per hour	72.3	90.8	97.1	96.4	100.0	99.2	96.6	95.7	97.2	98.2	97.9	98.7	100.6
Unit labor costs	49.7	65.2	73.9	89.2	100.0	119.7	132.9	144.0	156.0	157.6	160.4	165.6	169.3
Unit nonlabor payments	46.3	60.0	69.3	86.7	100.0	110.5	118.5	133.5	136.5	148.3	156.4	161.3	165.2
Implicit price deflator	48.5	63.4	72.3	88.3	100.0	116.5	127.8	140.3	149.2	154.3	159.0	164.1	167.8
Nonfinancial corporations:													
Output per hour of all employees	73.4	91.1	97.5	96.7	100.0	99.8	99.1	99.6	100.4	103.5	106.0	108.2	109.9
Compensation per hour	36.9	59.2	71.6	85.9	100.0	118.7	131.1	143.3	154.3	159.9	165.8	172.8	178.9
Real compensation per hour	75.5	92.4	97.6	96.7	100.0	99.1	96.4	95.5	96.9	97.3	96.7	97.4	98.9
Total unit costs	49.4	64.8	72.7	90.3	100.0	118.2	133.4	147.7	159.5	159.5	160.8	164.4	167.7
Unit labor costs	50.2	65.0	73.4	88.8	100.0	119.0	132.3	143.8	153.8	154.5	156.5	159.7	162.8
Unit nonlabor costs	47.0	64.2	70.7	94.9	100.0	115.8	136.7	159.1	176.4	174.3	173.6	178.3	182.2
Unit profits	59.8	52.3	65.6	77.0	100.0	94.5	85.2	98.1	78.5	110.9	136.5	133.9	129.3
Unit nonlabor payments	51.5	60.1	68.9	88.6	100.0	108.4	118.6	137.8	142.1	152.1	160.6	162.7	163.7
Implicit price deflator	50.7	63.3	71.9	88.7	100.0	115.4	127.6	141.7	149.8	153.7	157.9	160.7	163.1
Manufacturing:													
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	118.1	124.2	128.8
Compensation per hour	36.5	57.4	68.8	85.1	100.0	118.6	132.4	145.2	157.5	162.4	168.0	176.9	182.7
Real compensation per hour	74.8	89.5	93.8	95.9	100.0	99.1	97.4	96.7	98.9	98.8	98.0	99.6	100.9
Unit labor costs	58.7	71.0	73.7	91.7	100.0	117.0	130.6	140.1	148.7	145.0	142.2	142.4	141.8
Unit nonlabor payments	60.0	64.1	70.7	87.5	100.0	98.9	97.8	111.8	114.0	128.5	138.6	134.7	137.9
Implicit price deflator	59.1	69.0	72.8	90.5	100.0	111.7	121.0	131.8	138.6	140.2	141.2	140.2	140.7

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

Country otal labor force basis	Annual a	verage	1985		1986		1987		
Country	1985	1986	IV	I	11	111	IV	1	Ш
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 1, 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

¹ Quarterly rates are for the first month of the quarter. ² Major changes in the Italian labor force survey, intro-duced in 1977, resulted in a large increase in persons enu-merated 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

double the Italian unemployment rate shown.

Ouble the Italian Unemployment rate shown. - Data not available. NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjust-ment 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

1980

1981

1982

1983

1984

1985

1986

(Numbers in thousands) Employment status and country 1977 1978 1979											
Employment status and country	1977	1978	1979								
Labor force											
United States	99,009	102,251	104,962								
Canada	10,500	10,895	11,231								
Australia	6,358	6,443	6,519								
Japan	53,820	54,610	55,210								
France	22,300	22,460	22,670								
Germany	25,870	26,000	26,250								
Italy	20,510	20,570	20,850								
Netherlands	4,950	5,010	5,100								
Sweden	4,168	4,203	4,262								

Canada 10.500 10.885 11.281 11.967 11.968 12.185<	United States	000 000	102 251	104 962	106 940	108 670	110 204	111 550	113 544	115 461	117 834
Justraina 6336 6437 6578 6437 6437 6437 6437 7272 7528 Japan 5528 54610 55240 5240 5250 5240 5250 25300	Canada	10,500	10 805	11 221	11 572	11,004	11 059	12 182	12 200	12 630	12 870
Abean Space Space <th< td=""><td>Australia</td><td>6.050</td><td>0,095</td><td>6.510</td><td>6,600</td><td>6.910</td><td>6.010</td><td>6 007</td><td>7 100</td><td>7 070</td><td>7 560</td></th<>	Australia	6.050	0,095	6.510	6,600	6.910	6.010	6 007	7 100	7 070	7 560
appendic b3.000 b3.00	Australia	0,358	0,443	0,019	0,093	0,010	6,910	6,997	7,100	1,212	7,302
Prance 22,400 22,400 22,400 22,400 22,400 22,400 23,400<	Japan	53,820	54,610	55,210	55,740	56,320	56,980	58,110	58,480	58,820	59,410
Germany 25,870 28,800 28,820 28,820 28,820 21,800	France	22,300	22,460	22,670	22,800	22,930	23,160	23,130	23,290	23,340	23,480
Inter- 20,510 20,570 20,850 21,120 21,470 21,600 52,160 52,160 55,200<	Germany	25,870	26,000	26,250	26,520	26,650	26,710	26,740	26,890	27,090	27,280
Netherlands 4,450 5,010 5,010 5,020 5,720 5,500 5,500 5,500 5,500 5,500 5,700 5,500 5,820 5,710 5,700	Italy	20,510	20,570	20,850	21,120	21,320	21,410	21,590	21,670	21,800	21,990
Sweden 4,168 4,203 4,327 4,327 4,350 4,369 4,365 4,418 4,475 Participation rate' 22,650 26,500 26,500 26,500 27,400 27,400 27,400 27,400 27,400 27,400 27,400 27,400 27,400 27,400 27,400 27,400 28,700 27,440 28,700 27,440 28,700 27,461 4,415 4,415 4,415 4,415 4,415 4,415 4,415 4,416 4,45 65.2 65.2 65.2 65.2 65.7 57.5 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6 57.6	Netherlands	4,950	5,010	5,100	5,310	5,520	5,570	5,600	5,620	5,710	-
United Kingdom 22,050 28,260 28,350 28,520 28,740 27,780 27,480 27,370 27,480 Participation rate ² Imined States 63.3 63.3 63.4 64.4 64.4 64.4 64.5 65.2 65.2 63.4 64.4 64.6 64.4 64.6 65.2	Sweden	4,168	4,203	4,262	4,312	4,327	4,350	4,369	4,385	4,418	4,437
Participation rate ¹ Canada 62.3 63.2 63.7 63.8 63.9 64.0 64.4 64.8 65.2 Canada 62.7 61.6 62.7 63.4 64.6 61.4 64.8 65.2 65.7 Australia 62.7 61.3 61.6 62.7 63.1 62.7 62.3 62.7 62.3 62.7 62.3 62.7 62.3 62.2 62.6 62.6 62.6 62.6 62.6 62.5 62.7 63.3 65.7 62.9 65.7 62.9 65.7 62.6 62.6 62.6 62.6 62.7 62.8 62.6 62.7 62.8 62.6 62.7 62.8 60.5 66.8 66.7 65.9 65.0 6	United Kingdom	26.050	26,260	26.350	26,520	26.590	26,740	26,790	27,180	27.370	27,460
Participation rate ¹ co.3 co.3 co.3 co.3 co.4	•										
Drinder States 62.3 63.2 63.7 63.8 63.9 64.0 64.4 64.8 65.2 65.7 Australa 62.7 63.4 64.8 64.1 64.6 65.2 65.7 Australa 62.7 61.9 61.6 62.7 61.9 61.7 57.1 57.5 57.2 67.7 57.2 65.2 65.2 65.2 55.2	Participation rate ¹										
Canada 61.6 62.7 63.4 64.1 64.8 64.4 64.8 65.2 <	United States	62.3	63.2	63.7	63.8	63.9	64.0	64.0	64.4	64.8	65.3
Australia 61.7 61.8 61.7 61.4 61.5 61.7 61.4 61.5 61.8 62.5 62.6 62.7 63.1 62.7 62.6 62.7 63.1 63.2 52.6 52.6 52.6 52.6 52.6 52.6 52.6 52.6 52.6 52.7 57.5 57.2 52.7 52.5 55.5 55.5 55.7 7.7 47.3 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 47.3 47.2 47.5 United Kingdom 62.7 62.3 62.1 62.2 62.2 62.2 62.2 62.2 62.2	Canada	61.6	62.7	63.4	64.1	64.8	64.1	64.4	64.8	65.2	65.7
Americanis Geo.5	Australia	60.7	61.0	61.6	60.1	61.0	61.7	61.4	61.5	61.0	62.0
Japan Sec. Sec. <t< td=""><td>Ausualia</td><td>02.7</td><td>01.9</td><td>60.7</td><td>02.1</td><td>01.9</td><td>60.7</td><td>60.4</td><td>60.7</td><td>60.0</td><td>60.1</td></t<>	Ausualia	02.7	01.9	60.7	02.1	01.9	60.7	60.4	60.7	60.0	60.1
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Japan	02.5	02.0	02.7	02.0	02.0	02.7	03.1	02.7	02.3	02.1
Germany 63.4 53.3 53.2 52.9 52.7 52.5 52.8 52.8 53.2 53.7 52.7 52.5 52.8 52.8 53.2 53.7 52.7 52.5 52.8 52.8 53.2 53.7 57.7 54.7.3 47.2 47.7.5 47.3 44.0 66.5 66.6 66.6 66.6 66.6 66.7 66.6 66.7 66.6 66.7 66.6 66.7 66.6 66.7 66.6 66.7 66.6 66.7 66.6 66.7 66.7 66.6 66.7 66.6 66.7 66.5 66.7 67.6 66.7 66.5 66.7 65.20 65.60 66.70 66.6 66.8	France	57.6	57.5	57.5	57.2	57.1	57.1	56.6	56.6	56.2	56.2
Italy 48.2 47.8 48.0 48.2 48.3 47.7 77.5 47.3 47.2 47.5 Sweden 66.9 66.8 66.6 66.8 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.9 66.8 66.7 66.6 66.9 66.8 66.7 66.6 66.9 66.8 66.7 66.6 66.9 66.8 66.7 66.6 66.9 66.8 66.7 66.6 66.9 66.8 66.8 66.7 66.6 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.9 66.8 66.7 66.7 66.7 66.7 66.7 66.7 66.7 66.7 67.9 12.30 21.200	Germany	53.4	53.3	53.3	53.2	52.9	52.7	52.5	52.6	52.8	53.2
Netherlands 49.0 48.8 49.0 50.2 51.4 51.2 50.9 50.5 50.7 - United Kingdom 66.9 66.6 66.8 66.8 66.2 62.2 62.3 62.1 62.6 62.5 62.2 62.3 62.1 62.6 62.5 62.2 62.3 62.1 62.6 62.5 62.2 62.3 62.1 62.6 62.5 62.2 62.3 62.1 62.6 62.5 62.5 62.5 62.6 62.5 62.6 62.5 62.6 62.5 62.6 62.5 65.5 65.6 65.7 57.740 57.8 57.770 58.5 60.1 60.7 57.8 57.740 58.5 60.5 57	Italy	48.2	47.8	48.0	48.2	48.3	47.7	47.5	47.3	47.2	47.5
Sweden 66.9 66.8 66.8 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.8 66.7 66.6 66.7 66.8 66.7 67.7 67.8 67.8 67.9 67.9 67.9 67.9 67.9 67.9 67.9 57.9 <	Netherlands	49.0	48.8	49.0	50.2	51.4	51.2	50.9	50.5	50.7	-
United Kingdom 62.7 62.8 62.6 62.5 62.2 62.3 62.1 62.6 62.7 62.5 Employed 92,017 96,049 98,824 99,303 100,397 99,526 100,844 10,704 11,006 100,444 10,745 10,005 107,150 100,567 6,822 5,800 6,400 6,500 6,520 6,520 56,807 57,80 57,90 22,800 2,100 2,1400 2,1400 2,1400 2,1400 2,4750 2,260 2,2100 2,170 2,800 2,2490 2,4750 2,560 2,220 2,220 2,490 2,460 2,400 2,4100 2,470 2,570 2,580 2,220 2,200 2,400	Sweden	65.9	66.1	66.6	66.9	66.8	66.8	66.7	66.6	66.9	67.2
Employed United States 92,017 96,046 98,824 99,303 100,397 99,526 100,834 105,005 107,155 100,557 Australe 6,000 6,038 6,111 6,224 6,415 6,300 6,495 6,520 5,560 5,560 5,560 5,550 5,577 6,550 5,577,40 2,570 2,1300 21,330 21,200 21,300 21,330 21,200 21,300 24,370 2,400 2,4,570 2,800 22,390 20,490 2,4,570 2,4800 2,4,570 2,4800 2,4,570 2,4800 2,4,570 2,4800 2,4,570 2,800 23,701 2,300 2,4,400 2,4,400 2,4,610 2,4,810 2,4,570 2,300 2,710 2,3,600 2,4,000 2,4,400 2,4,610 2,4,610 2,4,570 2,300 2,710 2,3,600 2,4,000 2,4,400 2,4,610 2,4,500 2,5,70 2,3,600 2,4,000 2,4,300 2,4,400 2,4,500 2,4,500 2,5,75 5,5,7	United Kinadom	62.7	62.8	62.6	62.5	62.2	62.3	62.1	62.6	62.7	62.5
Employed 92,017 96,048 98,824 99,333 100,397 99,526 100,844 10,304 10,505 107,150 100,857 Canada 9,651 9,937 10,395 10,708 11,006 10,644 10,734 11,005 10,644 10,734 110,005 10,644 10,734 110,005 10,644 10,734 110,005 10,644 10,734 10,005 10,755 56,705 55,600 56,705 55,600 56,705 52,800 22,900 20,900 20,900 20,900 20,900 20,900 20,900 20,490 24,900 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,400 24,600 23,700 23,700 23,700 23,600 24,900 24,400 24,400 24,600 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,900 24,90											
	Employed										
$\begin{array}{c} c_{arasda} & c_{arasda} $	United States	92 017	96 049	98 824	99 303	100 307	99 526	100 834	105 005	107 150	109 597
Currents 9,051 9,057 10,355 10,050<	Canada	0.651	0.007	10 205	10 709	11,000	10 644	10 794	11,000	11 214	11 604
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Canada	9,001	9,907	10,395	10,708	11,000	10,044	10,734	6,400	6,670	11,034
$ \begin{array}{c} \textbf{dgam} \\ \textbf{rance} \\ \textbf{rance} \\ \textbf{c} \\ \textbf{c}$	Australia	6,000	6,036	0,111	0,204	0,410	0,415	6,300	6,490	0,070	0,952
France 21,180 21,250 21,300 21,300 21,240 21,170 20,900 20,900 Germany 19,670 15,720 19,930 20,200 20,250 20,320 20,4800 24,400 24,800 24,900 24,800 24,900 24,800 24,900 24,800 24,900 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,800 24,000 24,400 24,800 24,000 24,400 24,800 24,000 24,400 24,800 24,000 24,400 24,800 24,000 24,000 24,400 24,800 24,000 26,000 26,000 <td>Japan</td> <td>52,720</td> <td>53,370</td> <td>54,040</td> <td>54,600</td> <td>55,060</td> <td>55,620</td> <td>56,550</td> <td>56,870</td> <td>57,260</td> <td>57,740</td>	Japan	52,720	53,370	54,040	54,600	55,060	55,620	56,550	56,870	57,260	57,740
	France	21,180	21,250	21,300	21,330	21,200	21,240	21,170	20,980	20,900	20,970
taly 19,670 19,720 19,890 20,200 20,280 20,280 20,280 20,280 20,380 20,400 20,400 20,400 20,400 24,000	Germany	24,970	25,130	25,470	25,750	25,560	25,130	24,750	24,800	24,960	25,210
Netherlands 4,700 4,750 4,800 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 4,900 24,900 24,400 <th< td=""><td>Italy</td><td>19,670</td><td>19,720</td><td>19,930</td><td>20,200</td><td>20,280</td><td>20,250</td><td>20,320</td><td>20,390</td><td>20,490</td><td>20,610</td></th<>	Italy	19,670	19,720	19,930	20,200	20,280	20,250	20,320	20,390	20,490	20,610
Sweden 4,093 4,174 4,228 4,219 4,218 4,248 4,249 4,283 4,319 United Kingdom 24,400 24,610 24,900 24,670 23,800 23,710 23,600 24,000 24,400 24,400 24,670 23,800 23,710 23,600 24,000 24,400 24,400 24,670 23,800 23,710 23,600 24,000 24,400 24,400 24,670 23,800 23,710 23,600 24,400 24,400 24,400 24,400 24,670 23,800 23,710 23,600 24,400 24,400 24,400 24,400 24,400 24,670 23,800 23,710 23,600 24,400 24,400 24,400 24,400 24,400 24,600 24,400 24,400 24,400 24,400 24,400 24,600 24,400 24,600 24,400 24,600 24,400 24,500 24,400 24,500 24,400 24,500 24,400 24,500 24,500 24,500 24,500 25,50	Netherlands	4,700	4,750	4.830	4,980	5.010	4,980	4,890	4,930	5,110	-
United Kingdom 24,000 24,610 24,670 24,670 23,600 24,000 24,400 24,400 24,670 23,600 24,000 24,400 24,400 24,670 23,600 24,000 24,400 24,400 24,400 24,400 24,670 23,600 24,000 24,400 24,600 24,400 <th< td=""><td>Sweden</td><td>4 093</td><td>4 109</td><td>4 174</td><td>4 226</td><td>4 210</td><td>4 213</td><td>4 218</td><td>4 249</td><td>4 293</td><td>4 319</td></th<>	Sweden	4 093	4 109	4 174	4 226	4 210	4 213	4 218	4 249	4 293	4 319
	United Kingdom	24,400	24 610	24 040	24 670	22,800	22 710	22 600	24.000	24 200	24 400
Employment-population ratio ² 57.9 59.3 59.2 59.2 59.0 57.8 57.9 59.5 60.1 60.7 Canada 59.2 56.6 57.5 58.7 59.3 59.9 57.4 58.4 59.4 59.4 59.4 59.4 59.4 59.4 59.4 59.4 59.4 59.5 60.1 60.7 Japan 51.6 51.5 51.7 51.7 51.7 51.7 51.7 51.7 51.7 51.7 51.8 51.6 51.5 51.7 51.7 51.7 51.8 44.5 44.4 44.6 Netherlands 46.3 45.9 45.1 45.9 45.4 44.7 44.5 44.2 44.4 44.6 65.6 65.1 64.7 64.4 64.6 65.6 65.1 64.7 64.4 64.6 65.7 55.3 54.7 55.3 55.7 55.6 United Kingdom 58.7 58.8 59.2 58.1 55.7 55.3 <td>offited Kingdoff</td> <td>24,400</td> <td>24,010</td> <td>24,040</td> <td>24,070</td> <td>20,000</td> <td>20,710</td> <td>20,000</td> <td>24,000</td> <td>24,000</td> <td>24,400</td>	offited Kingdoff	24,400	24,010	24,040	24,070	20,000	20,710	20,000	24,000	24,000	24,400
	Frankright a second allow and a 2										
	Employment-population ratio-										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	United States	57.9	59.3	59.9	59.2	59.0	57.8	57.9	59.5	60.1	60.7
Australia 59.2 58.0 57.8 58.3 58.4 57.3 55.3 56.0 56.6 57.9 Japan 61.2 61.4 61.3 61.4 61.3 61.2 61.2 61.4 61.0 60.6 60.4 France 51.6 51.7 51.7 50.8 48.6 48.6 48.7 44.4 44.6 Netherlands 46.3 45.9 45.1 45.9 46.1 45.9 42.7 44.3 45.7 - Swedon 64.8 64.6 65.3 65.6 65.1 64.7 64.4 64.6 65.8 65.6 65.1 64.7 64.4 64.6 65.8 65.6 65.1 64.7 64.4 64.6 65.8 65.6 65.1 64.7 64.4 64.8 64.6 65.1 64.7 64.4 64.8 64.6 65.1 65.7 55.3 54.7 55.5 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7 55.7	Canada	56.6	57.5	58.7	59.3	59.9	57.0	56.7	57.4	58.4	59.4
	Australia	59.2	58.0	57.8	58.3	58.4	57.3	55.3	56.0	56.6	57.9
France 54.7 54.4 54.0 53.5 52.8 52.3 51.8 51.0 50.4 48.6 48.6 48.7 49.1 Italy 46.3 45.9 45.1 45.9 46.1 45.9 44.1 44.5 44.5 44.5 44.5 65.6 65.1 66.7 66.7 66.7 66.7 65.3 55.7 55.3 55.7 55.6 55.7 55.8 55.7 55.8 55.7 55.8 55.7 55.3 54.7 56.4 64.2 60.2 61.37 7.637 8.273 10.678 10.717 8.539 8.312 8.237 Canada 6.991 6.202 6.137 7.637 8.273 10.678 10.717 6.150 1.280 1.380	Japan	61.2	61.3	61.4	61.3	61.2	61.2	61.4	61.0	60.6	60.4
Germany 51.6 51.5 51.7 51.7 50.8 49.6 48.6 48.7 49.1 Italy 46.3 45.9 45.9 46.1 45.9 45.2 44.7 44.5 44.5 44.7 44.5 44.5 44.3 45.7 - Sweden 64.8 64.6 65.3 65.6 65.1 64.7 64.4 65.0 65.4 United Kingdom 58.7 58.8 59.2 58.1 55.7 55.3 54.7 55.3 55.7 55.6 United States 6.991 6.202 6.137 7.637 8.273 10.678 10.717 8.539 8.312 8.237 Canada 849 908 836 865 898 1.314 1.448 1.399 1.328 1.236 Japan 1.100 1.240 1.370 1.470 1.560 1.660 1.650 1.670 1.560 1.61 1.560 1.61 1.560 1.610 1.560	France	54.7	54.4	54.0	53.5	52.8	52.3	51.8	51.0	50.4	50.2
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Germany	51.6	51.5	51.7	51.7	50.8	49.6	48.6	48.5	48.7	49.1
Netherlands 46.5 46.3 46.4 46.7 46.6 45.8 44.3 45.7 - Sweden 64.8 64.6 65.3 65.6 65.1 64.4 64.4 64.5 65.0 65.4 United Kingdom 58.7 58.8 59.2 58.1 55.7 55.3 54.7 55.6 Unemployed United States 6.991 6.202 6.137 7.637 8.273 10.678 10.717 8.539 8.312 8.237 Canada 849 908 836 865 898 1.314 1.448 1.399 1.328 1.236 Australia 358 405 408 409 394 495 697 642 602 610 Japan 1,100 1.240 1,170 1,470 1,470 1,580 1,990 2,900 2,130 2,440 2,510 Germany 900 870 780 770 1,090 1,580 1,990 2,900 2,130 2,400 2,510 Italy 840 850 </td <td>Italy</td> <td>46.3</td> <td>45.9</td> <td>45.9</td> <td>46.1</td> <td>45.9</td> <td>45.2</td> <td>44.7</td> <td>44.5</td> <td>AA A</td> <td>44.6</td>	Italy	46.3	45.9	45.9	46.1	45.9	45.2	44.7	44.5	AA A	44.6
Netherlands 40.5 55.7 55.3 55.7 55.5 55.7 55.5 55.7 55.5 55.7 55.6 65.4 64.7 64.4 64.5 66.5 66.1 64.7 64.4 64.5 66.5 66.1 64.7 64.4 64.5 66.5 66.1 64.7 64.4 64.5 66.5 66.4 67.5 55.7 55.6 65.6 65.4 64.7 64.4 64.5 66.5 66.1 64.7 64.4 64.5 64.5 64.5 66.5 66.7 64.7 64.4 64.5 60.5 64.0 60.2 61.0 70.6 70.7 70.7 70.7 70.7 70.7 70.7 70.7 70.7 70.7 70.7 70.7 <td>Nothorlande</td> <td>40.5</td> <td>46.2</td> <td>46.4</td> <td>47.0</td> <td>40.0</td> <td>45.2</td> <td>44.5</td> <td>44.0</td> <td>45.7</td> <td>44.0</td>	Nothorlande	40.5	46.2	46.4	47.0	40.0	45.2	44.5	44.0	45.7	44.0
Sweden 64.6 64.5 65.7 55.3 64.7 64.4 64.5 65.7 55.3 55.7 55.3 <	Cuedes	40.0	40.5	40.4	47.0	40.0	40.0	44.0	44.0	45.7	OF A
United Kingdom 58.7 58.8 59.2 58.1 55.7 55.3 54.7 55.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.3 54.7 55.6 Canada A 358 405 408 409 394 495 697 642 602 610 Germany 900 870 780 770 <td>Sweden</td> <td>64.8</td> <td>64.6</td> <td>65.3</td> <td>65.6</td> <td>65.1</td> <td>64.7</td> <td>64.4</td> <td>64.5</td> <td>65.0</td> <td>65.4</td>	Sweden	64.8	64.6	65.3	65.6	65.1	64.7	64.4	64.5	65.0	65.4
Unemployed 6,991 6,202 6,137 7,637 8,273 10,678 10,717 8,539 8,312 8,237 Canada 849 908 836 865 898 1,314 1,448 1,399 1,328 1,236 Japan	United Kingdom	58.7	58.8	59.2	58.1	55.7	55.3	54.7	55.3	55.7	55.6
Unemployed United States 6,991 6,202 6,137 7,637 8,273 10,678 10,717 8,539 8,312 8,237 Canada 384 908 836 865 898 1,314 1,448 1,399 1,326 1,236 Japan 1,100 1,240 1,170 1,140 1,260 1,360 1,610 1,560 1,610 1,660 1,670 France 1,120 1,210 1,370 1,470 1,730 1,920 1,960 2,310 2,440 2,510 Germany 900 870 770 1,040 1,160 1,260 1,360 1,610 1,580 1,301 1,380 Nethertands 250 260 270 330 510 590 710 680 600 - Sweden 75 94 88 86 108 137 151 136 125 118 United States 7.1 6.1 5.8 7.1											
United States 6,991 6,202 6,137 7,637 8,273 10,678 10,717 8,539 8,312 8,237 Canada 849 908 836 865 898 1,314 1,448 1,399 1,328 1,236 Japan 1,100 1,240 1,170 1,140 1,260 1,360 1,650 1,610 1,560 1,670 France 1,120 1,210 1,370 1,470 1,730 1,920 1,960 2,310 2,440 2,510 Germany 900 870 780 770 1,040 1,160 1,270 1,280 1,310 1,380 Nethertands 250 260 270 330 510 590 710 690 600 - Sweden 7 6,165 1,420 1,850 2,790 3,030 3,190 3,180 3,070 3,060 United States 7.1 6.1 5.8 7.1 7.6 9.7 <td>Unemployed</td> <td></td>	Unemployed										
Canada 849 908 836 865 898 1,314 1,448 1,399 1,328 1,236 Australia 358 405 408 409 394 495 697 642 602 610 Japan 1,100 1,240 1,170 1,140 1,260 1,360 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,560 1,610 1,520 1,310 2,440 2,510 2,410 2,510 2,070 1,410 1,420 1,316 1,226 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,314 1,440 1,430 1,420 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,310 1,400 1,420 <td>United States</td> <td>6,991</td> <td>6,202</td> <td>6,137</td> <td>7,637</td> <td>8,273</td> <td>10,678</td> <td>10,717</td> <td>8,539</td> <td>8,312</td> <td>8,237</td>	United States	6,991	6,202	6,137	7,637	8,273	10,678	10,717	8,539	8,312	8,237
Australia 358 405 408 409 394 495 697 642 602 610 Japan 1,100 1,240 1,170 1,140 1,260 1,360 1,660 1,610 1,560 1,610 1,670 France 1,120 1,210 1,370 1,470 1,480 1,980 2,310 2,440 2,510 Germany 900 870 780 770 1,090 1,580 1,990 2,090 2,130 2,070 Italy	Canada	849	908	836	865	898	1,314	1,448	1,399	1,328	1,236
Japan 1,100 1,240 1,170 1,140 1,260 1,360 1,660 1,610 1,560 1,610 1,660 1,670 France 1,120 1,210 1,370 1,470 1,730 1,920 1,960 2,310 2,440 2,510 Germany 900 870 780 770 1,090 1,560 1,960 2,130 2,440 2,510 Italy 840 850 920 1,040 1,160 1,270 1,280 1,310 1,380 Netherlands 250 260 270 330 510 590 710 680 600 - Sweden 75 94 88 66 108 137 151 136 125 118 United Kingdom 1,660 1,650 1,420 1,850 2,790 3,030 3,180 3,070 3,060 United Kingdom 1,661 5.8 7.1 7.6 1,75 7.5 <td< td=""><td>Australia</td><td>358</td><td>405</td><td>408</td><td>409</td><td>394</td><td>495</td><td>697</td><td>642</td><td>602</td><td>610</td></td<>	Australia	358	405	408	409	394	495	697	642	602	610
France 1,20 1,210 <th< td=""><td>Japan</td><td>1.100</td><td>1.240</td><td>1,170</td><td>1,140</td><td>1,260</td><td>1.360</td><td>1.560</td><td>1.610</td><td>1.560</td><td>1.670</td></th<>	Japan	1.100	1.240	1,170	1,140	1,260	1.360	1.560	1.610	1.560	1.670
Integram 1,120 1,120 1,130 1,120 1,130 1,220 1,220 1,220 2,210	France	1 120	1 210	1 370	1 470	1 730	1 920	1,960	2 310	2 440	2 510
United Kingdom 5.6 7.1 6.1 5.8 7.1 7.6 9.7 9.8 8.6 1.950 <td>Germany</td> <td>000</td> <td>970</td> <td>790</td> <td>770</td> <td>1,000</td> <td>1 500</td> <td>1,000</td> <td>2,000</td> <td>2 1 20</td> <td>2,010</td>	Germany	000	970	790	770	1,000	1 500	1,000	2,000	2 1 20	2,010
Italy B40 B50 920 920 920 1,040 1,160 1,270 1,280 1,310 1,380 Netherlands 250 260 270 330 510 590 710 690 600 - Sweden 75 94 88 86 108 137 151 136 125 118 United Kingdom 1,660 1,650 1,420 1,850 2,790 3,030 3,190 3,180 3,070 3,060 United States 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 <t< td=""><td>Germany</td><td>900</td><td>070</td><td>780</td><td>110</td><td>1,090</td><td>1,560</td><td>1,990</td><td>2,090</td><td>2,130</td><td>2,070</td></t<>	Germany	900	070	780	110	1,090	1,560	1,990	2,090	2,130	2,070
Netherlands 250 260 270 330 510 590 710 680 600 - Sweden 75 94 88 86 108 137 151 136 125 118 United Kingdom 1,660 1,650 1,420 1,850 2,790 3,030 3,190 3,180 3,070 3,060 United States 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 <td>Italy</td> <td>840</td> <td>850</td> <td>920</td> <td>920</td> <td>1,040</td> <td>1,160</td> <td>1,270</td> <td>1,280</td> <td>1,310</td> <td>1,380</td>	Italy	840	850	920	920	1,040	1,160	1,270	1,280	1,310	1,380
Sweden 75 94 88 86 108 137 151 136 125 118 United Kingdom 1,660 1,650 1,420 1,850 2,790 3,030 3,190 3,180 3,070 3,060 United Kingdom 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6	Netherlands	250	260	270	330	510	590	710	690	600	-
United Kingdom 1,660 1,650 1,420 1,850 2,790 3,030 3,190 3,180 3,070 3,060 Unemployment rate 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7	Sweden	75	94	88	86	108	137	151	136	125	118
Unemployment rate 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 5.4 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdo	United Kingdom	1,660	1,650	1,420	1,850	2,790	3,030	3,190	3,180	3,070	3,060
Unemployment rate 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 5.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.1 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8										*	
United States 7.1 6.1 5.8 7.1 7.6 9.7 9.6 7.5 7.2 7.0 Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7	Unemployment rate										
Canada 8.1 8.3 7.4 7.5 7.5 11.0 11.9 11.3 10.5 9.6 Australia 5.6 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.4 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom	United States	7.1	6.1	5.8	7.1	7.6	9.7	9.6	7.5	7.2	7.0
Australia 5.6 6.3 6.3 6.1 5.8 7.2 10.0 9.0 8.3 8.1 Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 5.4 5.9 5.9 6.0 6.3 Italy 4.1 4.4 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Canada	8.1	8.3	7.4	7.5	7.5	11.0	11.9	11.3	10.5	9.6
Japan 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.1 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Australia	56	63	63	61	5.8	7.2	10.0	9.0	83	8.1
Brance 2.0 2.3 2.1 2.0 2.2 2.4 2.7 2.8 2.6 2.8 France 5.0 5.4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.1 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	lanan	2.0	0.0	0.0	2.0	0.0	0.4	0.0	2.0	0.0	0.1
D-10 D-0 D-4 6.0 6.4 7.5 8.3 8.5 9.9 10.4 10.7 Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.1 4.4 4.4 4.9 5.4 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Franco	2.0	2.3	2.1	2.0	2.2	2.4	2.1	2.8	2.0	2.8
Germany 3.5 3.3 3.0 2.9 4.1 5.9 7.4 7.8 7.9 7.6 Italy 4.1 4.1 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Prance	5.0	5.4	6.0	0.4	1.5	8.3	8.5	9.9	10.4	10.7
Italy 4.1 4.1 4.4 4.4 4.9 5.4 5.9 5.9 6.0 6.3 Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Germany	3.5	3.3	3.0	2.9	4.1	5.9	7.4	7.8	7.9	7.6
Netherlands 5.1 5.2 5.3 6.2 9.2 10.6 12.7 12.3 10.5 - Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Italy	4.1	4.1	4.4	4.4	4.9	5.4	5.9	5.9	6.0	6.3
Sweden 1.8 2.2 2.1 2.0 2.5 3.1 3.5 3.1 2.8 2.7 United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Netherlands	5.1	5.2	5.3	6.2	9.2	10.6	12.7	12.3	10.5	-
United Kingdom 6.4 6.3 5.4 7.0 10.5 11.3 11.9 11.7 11.2 11.1	Sweden	1.8	2.2	2.1	2.0	2.5	3.1	3.5	3.1	2.8	2.7
	United Kingdom	6.4	6.3	5.4	7.0	10.5	11.3	11.9	11.7	11.2	11.1

¹ Labor force as a percent of the civilian working-age population.
² Employment as a percent of the civilian working-age population.

47. Annual indexes of manufacturing productivity and related measures, 12 countries

(1977 = 100)

Item and country	1960	1970	1973	1974	1975	1976	1978	1979	1980	1981	1982	1983	1984	1985	1986
Output per hour															
United States	62.2	80.8	93.4	90.6	92.9	97.1	101.5	101.4	101.4	103.6	105.9	112.0	116.6	121.7	126.0
Canada	50.7	75.6	90.3	91.7	88.6	94.8	101.1	102.0	98.2	102.9	100.4	106.9	110.2	112.7	112.1
Japan	23.2	64.8	83.1	86.5	87.7	94.3	108.0	114.8	122.7	127.2	135.0	142.3	152.5	163.7	168.2
Belgium	32.8	59.9	78.2	82.6	85.9	95.1	106.3	112.3	119.7	128.1	135.7	144.7	149.8	153.3	-
Denmark	37.2	65.5	83.2	86.0	94.6	98.2	101.5	106.5	112.3	114.2	114.6	120.2	118.9	117.2	116.6
France	36.4	69.6	82.2	85.2	88.5	95.0	105.7	110.3	112.0	116.4	123.5	128.8	133.8	138.3	140.9
Germany	40.3	71.2	84.0	87.4	90.1	96.5	103.1	108.2	108.6	111.0	112.6	119.1	123.5	128.9	131.4
Italy	36.5	72.7	90.9	95.3	91.1	98.9	103.0	110.5	116.9	121.0	123.4	126.6	134.7	136.8	138.4
Netherlands	32.4	64.3	81.5	88.1	86.2	95.8	106.4	112.3	113.9	116.9	119.4	127.5	141.2	145.6	-
Norway	54.6	81.7	94.6	97.7	96.8	99.7	101.8	107.1	106.7	107.0	109.8	117.2	123.9	125.2	122.1
Sweden	42.3	80.7	94.8	98.8	100.2	101.7	102.8	110.9	112.7	113.2	116.5	125.5	131.0	134.5	136.4
United Kingdom	55.5	79.7	95.6	97.4	95.2	99.5	101.5	102.4	101.7	107.0	113.6	123.0	129.5	134.2	138.2
Output						1.1.1							10000		
United States	52.5	78.6	96.3	91.7	84.9	93.1	106.0	108.1	103.2	104.8	98.4	104.7	116.0	120.4	124.4
Canada	41.3	73.5	93.5	96.3	89.9	96.5	104.6	108.5	103.6	107.4	95.6	101.0	108.4	113.6	115.4
Japan	19.2	69.9	91.9	91.7	86.2	94.8	106.7	113.9	124.1	129.8	137.3	148.2	165.4	179.3	182.1
Belgium	41.6	78.0	95.7	99.5	92.0	99.4	101.6	104.4	107.3	106.0	110.5	112.1	114.1	115.1	-
Denmark	49.2	82.0	95.9	97.4	95.0	99.6	99.7	105.4	110.1	106.6	108.3	115.6	120.0	123.6	127.0
France	35.4	73.3	88.6	91.8	90.0	96.1	103.4	106.1	106.6	105.9	106.0	107.4	108.4	108.6	108.1
Germany	50.0	86.6	96.1	95.4	91.0	98.0	101.8	106.6	106.6	104.9	102.4	103.6	106.4	111.7	114.5
Italy	37.4	78.0	90.5	96.3	86.9	97.9	101.8	108.6	115.4	114.3	111.6	109.2	113.7	115.5	119.3
Netherlands	44.8	84.4	95.8	100.0	92.7	99.0	102.8	106.1	106.6	106.7	105.0	107.0	112.9	115.3	-
Norway	55.1	86.9	99.5	104.0	101.0	101.4	98.2	100.3	98.8	97.7	97.4	97.2	102.6	105.2	107.0
Sweden	52.6	92.5	100.3	105.7	106.1	106.1	97.3	103.6	104.0	100.6	100.1	105.2	111.5	113.8	114.4
United Kingdom	71.2	95.0	104.8	103.5	96.3	98.2	100.6	100.5	91.7	86.2	86.4	88.9	92.4	95.2	96.0
Total hours															
United States	84.4	97.3	103.1	101.2	91.4	95.9	104.4	106.5	101.7	101.1	92.9	93.5	99.5	98.9	98.7
Canada	81.4	97.2	103.6	105.0	101.5	101.8	103.4	106.3	105.5	104.3	95.1	94.5	98.3	100.8	103.0
Japan	82.7	107.9	110.7	106.1	98.2	100.6	98.8	99.3	101.2	102.0	101.7	104.2	108.5	109.6	108.3
Belgium	127.1	130.2	122.3	120.4	107.1	104.6	95.5	93.0	89.6	82.8	81.4	11.5	76.2	75.1	-
Denmark	132.4	125.1	115.2	113.2	100.4	101.4	98.3	99.0	98.1	93.4	94.5	96.2	101.0	105.5	108.9
France	97.2	105.3	107.8	107.8	101.7	101.2	97.8	96.2	95.2	91.0	85.8	83.4	81.0	78.5	/0./
Germany	123.8	121.7	114.4	109.2	101.0	101.6	98.7	98.5	98.1	94.6	91.0	87.0	00.2	80.7	07.2
Italy	102.3	107.4	99.0	1101.0	95.4	102.2	90.0	90.2	90.7	94.5	90.4	00.2	70.0	70.9	00.2
Netherlands	138.4	131.2	117.0	113.5	107.0	103.3	90.0	94.4	93.0	91.2	00.0	03.9	19.9	19.2	976
Norway	101.0	1146	105.1	100.5	104.3	101.7	90.5	93.0	92.0	91.5	95.0	92.9	95.1	94.6	92.0
United Kingdom	124.4	114.0	109.5	107.0	105.9	98.7	94.0	98.1	90.2	80.6	76.1	72.3	71.3	71.0	69.5
0															
Lipited States	26.5	57.4	69.9	76.0	95.1	02.1	109.2	119.6	1224	145.2	157.5	162.4	168.2	176.7	181 0
Conada	27.5	47.0	60.2	60.1	79.0	92.1	107.6	118.6	121 2	151 1	167.3	177 4	188.0	105.0	202.2
lapan	27.5	22.0	55 1	72.2	94.2	90.5	106.6	113.4	120.7	120.8	136.6	140.7	144.9	152.0	157 3
Bolaium	12.8	34.0	52.5	65.2	70.0	80.7	107.8	117.5	120.7	144.5	150.7	150.8	173.1	183.7	107.0
Denmark	12.6	36.3	56.1	67.9	81.0	90.4	110.2	123.1	135.9	149.6	162.9	174.2	184.3	194.4	202.6
France	15.1	36.6	52.3	62.0	76.7	88.9	113.5	129.3	148.2	171.5	202.3	227.0	246.9	262.5	274.0
Germany	18.8	48.0	67.5	76.9	84.5	91.3	107.8	116.1	125.6	134.5	141.0	148.4	155.5	162.8	171.0
Italy	8.3	26.1	43.7	54.5	70.2	84.2	114.5	134.7	160.2	197.1	237.3	276.4	307.4	339.5	353.9
Netherlands	12.5	39.0	60.5	71.9	82.2	91.9	108.4	117.0	123.6	129.1	137.5	144.0	151.0	159.0	-
Norway	15.8	37.9	54.5	63.6	77.2	88.8	110.0	116.0	128.0	142.8	156.0	173.5	188.3	204.8	220.5
Sweden	14.7	38.5	54.2	63.8	77.3	91.5	111.4	120.1	133.6	148.1	158.9	173.3	189.7	208.9	223.1
United Kingdom	15.2	31.5	48.3	57.7	77.3	89.3	116.4	138.8	168.3	192.5	212.3	227.7	243.9	261.3	282.4
Unit labor costs: National currency basis															
United States	58.7	71.0	73.7	84.1	91.7	94.9	106.6	117.0	130.6	140.1	148.7	145.0	144.2	145.1	144.3
Canada	54.2	63.4	66.8	75.3	89.1	95.3	106.5	116.2	133.7	146.7	166.5	166.0	170.6	173.8	180.4
Japan	38.4	52.3	66.4	83.6	96.0	96.2	98.7	98.8	98.4	102.0	101.2	98.9	95.0	92.9	93.5
Belgium	42.0	58.2	68.4	78.9	91.9	94.2	101.4	104.7	109.0	112.8	111.1	110.5	115.6	119.8	-
Denmark	33.8	55.4	67.4	79.0	85.6	92.1	108.6	115.7	121.0	131.1	142.2	144.9	155.1	166.0	173.8
France	41.6	52.6	63.6	72.8	86.7	93.6	107.4	117.3	132.3	147.4	163.8	176.2	184.5	189.8	194.4
Germany	46.6	67.4	80.3	88.0	93.8	94.6	104.5	107.3	115.7	121.2	125.2	124.6	125.9	126.3	130.2
Italy	22.8	36.0	48.1	57.2	77.1	85.1	111.2	121.9	137.0	162.9	192.4	218.3	228.2	248.2	255.7
Netherlands	38.5	60.7	74.3	81.6	95.4	96.0	101.8	104.1	108.5	110.4	115.2	113.0	106.9	109.2	-
Norway	29.0	46.4	57.6	65.2	79.7	89.1	108.1	108.2	120.0	133.4	142.1	148.0	152.0	163.5	180.5
Sweden	34.8	47.7	57.2	64.6	77.1	90.0	108.4	108.3	118.6	130.9	136.3	138.1	144.8	155.3	163.6
United Kingdom	27.4	39.5	50.5	59.3	81.2	89.8	114.7	135.5	165.4	179.9	186.9	185.1	188.4	194.7	204.4
Unit labor costs: U.S. dollar basis															
United States	58.7	71.0	73.7	84.1	91.7	94.9	106.6	117.0	130.6	140.1	148.7	145.0	144.2	145.1	144.3
Canada	59.4	64.5	71.0	81.8	93.1	102.7	99.3	105.4	121.5	130.0	143.4	143.1	139.9	135.2	137.9
Japan	28.5	39.1	65.6	76.8	86.7	86.9	126.8	121.3	116.8	123.8	108.8	111.5	107.2	104.3	148.7
Belgium	30.2	42.0	63.1	72.7	89.7	87.5	115.6	127.9	133.7	109.2	86.9	77.4	71.7	72.3	-
Denmark	29.5	44.4	67.2	77.9	89.6	91.5	118.4	132.0	129.0	110.3	102.3	95.1	89.9	94.0	128.9
France	41.7	46.8	70.4	74.5	99.5	96.3	117.3	135.5	154.1	133.2	122.4	113.7	103.8	103.9	138.0
Germany	25.9	42.9	70.4	79.1	88.7	87.3	121.0	135.9	147.9	124.9	119.7	113.3	102.7	99.6	139.2
Italy	32.5	50.6	73.1	77.6	104.3	90.5	115.6	129.5	141.4	126.3	125.4	126.8	114.7	114.8	151.4
Netherlands	25.1	41.2	65.6	74.6	92.8	89.1	115.7	127.4	134.2	108.9	105.8	97.1	81.8	80.7	-
Norway	21.7	34.5	53.4	62.8	81.4	86.9	109.7	113.8	129.3	123.6	117.1	107.9	99.1	101.3	129.8
Sweden	30.1	41.1	58.7	65.1	83.2	92.3	107.2	112.9	125.3	115.4	96.9	80.4	/8.2	80.6	102.5
United Kingdom	44.2	54.2	70.9	79.5	103.4	92.9	126.1	164.9	220.5	208.8	187.2	160.8	144.3	144.8	1/1.9

48. Occupational injury and illness incidence rates by industry, United States

			Inciden	nce rates p	er 100 full	-time work	ers ²		
Industry and type of case ¹	1977	1978	1979	1980	1981	1982	1983	1984	1985
PRIVATE SECTOR ³									
Total cases	93	94	95	87	83	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
Agriculture, forestry, and fishing ³									
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	5.8	5.9	5.9	6.1	6.1	5.7
Lost workdays	81.1	80.7	83.7	82.7	82.8	86.0	90.8	90.7	91.3
Mining									
Total cases	10.9	11.5	11.4	11.2	11.6	10.5	8.4	9.7	8.4
Lost workday cases	128.8	143.2	150.5	163.6	146.4	137.3	125.1	160.2	145.3
Construction									
Total cases	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	119.2	129.1	128.0
Lost workdays	111.5	109.4	120.4	117.0	113.1	115.7	110.2	120.1	120.5
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:	16.0	16.6	16.6	16.3	14.9	15.1	15.4	14.9	14.5
Lost workday cases	5.7	6.2	6.7	6.3	6.0	5.8	6.2	6.4	6.3
Lost workdays	116.7	110.9	123.1	117.6	106.0	113.1	122.4	131.7	127.3
Special trade contractors:	15.0	15.0	10.0	15.5	15.0	147	14.9	15.8	15.4
l otal cases	15.0	10.0	6.9	67	6.6	6.2	6.4	7.1	7.0
Lost workdays	115.5	111.0	124.3	118.9	119.3	118.6	119.0	130.1	133.3
Manufacturino									
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
Durable goods									
Total cases	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	153.3	9.2	172.0	171.4
LOSI WORKDAYS	178.0	170.0	175.9	1/1.0	150.4	100.0	100.0	172.0	
Total cases	17.2	17.5	17.6	16.0	15.1	13.9	14.1	15.3	15.0
Lost workday cases	6.0	6.9	7.1	6.6	6.2	5.5	5.7	6.4	6.3
Lost workdays	92.0	95.9	99.6	97.6	91.9	85.6	83.0	101.5	100.4
Total cases	16.9	16.8	16.8	15.0	14.1	13.0	13.1	13.6	13.9
Lost workday cases	6.9	7.8	8.0	7.1	6.9	6.1	6.0	6.6	6.7
Lost workdays	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	6.8	7.5	8.1	7.1	6.7	5.4	5.4	6.1	5.7
Lost workdays	119.4	123.6	134.7	128.3	121.3	101.6	103.4	115.3	113.8
Fabricated metal products:	10.1	10.2	10.0	19.5	17.5	15.2	15.1	16.1	16
Lost workday cases	7.2	8.0	8.7	8.0	7.5	6.4	6.1	6.7	6.9
Lost workdays	109.0	112.4	124.2	118.4	109.9	102.5	96.5	104.9	110.
Machinery, except electrical:	110		147	107	120	10.7	0.8	10.7	101
l otal cases	4.0	14.4	14.7	13.7	5.1	4.2	3.6	4.1	4.
Lost workdays	69.9	75.1	83.6	81.3	74.9	66.0	58.1	65.8	69.
Electric and electronic equipment:									
Total cases	8.6	8.7	8.6	8.0	7.4	6.5	6.3	6.8	6.4
Lost workdays	46.7	50.3	51.9	51.8	48.4	42.2	41.4	45.0	45.
Transportation equipment:									
Total cases	. 11.8	11.5	11.6	10.6	9.8	9.2	8.4	9.3	9.
Lost workday cases	5.0	5.1	5.5	4.9	4.6	4.0	3.6	68.8	3.
Instruments and related products:	/9.3	78.0	00.9	02.4	70.1	12.2	04.0	00.0	
Total cases	. 7.0	6.9	7.2	6.8	6.5	5.6	5.2	5.4	5.
Lost workday cases	. 2.4	2.6	2.8	2.7	2.7	2.3	2.1	2.2	2.
Lost workdays	. 37.4	37.0	40.0	41.8	39.2	37.0	35.6	37.5	37.
Total cases	11.5	11.8	11.7	10.9	10.7	9.9	9.9	10.5	9.
Lost workday cases	. 4.0	4.5	4.7	4.4	4.4	4.1	4.0	4.3	4.
Lost workdays	. 58.7	66.4	67.7	67.9	68.3	69.9	66.3	70.2	73.

See footnotes at end of table.

48.	Continued—	Occupational	injury	and	illness	incidence	rates	by	industry,	United	States	\$
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Industry and type of case ¹	Incidence rates per 100 full-time workers ²								
	1977	1978	1979	1980	1981	1982	1983	1984	1985
Nondurable goods									
Total cases	19.5	10 /	10.0	18.7	17.8	16.7	16.5	167	16.7
Lost workday cases	8.5	8.9	9.5	9.0	8.6	8.0	7.9	8.1	8.1
Lost workdays	130.1	132.2	141.8	136.8	130.7	129.3	131.2	131.6	138.0
Tobacco manufacturing:									
Total cases	9.1	8.7	9.3	8.1	8.2	7.2	6.5	7.7	7.3
Lost workday cases	3.8	4.0	4.2	3.8	3.9	3.2	3.0	3.2	3.0
Textile mill products:	66.7	58.6	64.8	45.8	56.8	44.6	42.8	51.7	51.7
Total cases	10.2	10.2	97	91	88	7.6	74	8.0	7 5
Lost workday cases	2.9	3.4	3.4	3.3	3.2	2.8	2.8	3.0	3.0
Lost workdays	57.4	61.5	61.3	62.8	59.2	53.8	51.4	54.0	57.4
Apparel and other textile products:									
I Otal Cases	6.7	6.5	6.5	6.4	6.3	6.0	6.4	6.7	6.7
Lost workdays	2.0	32 4	2.2	2.2	2.2	2.1	2.4	2.5	2.0
Paper and allied products:	01.7	UL.T	04.1	04.0	55.0	50.4	40.0	40.5	
Total cases	13.6	13.5	13.5	12.7	11.6	10.6	10.0	10.4	10.2
Lost workday cases	5.0	5.7	6.0	5.8	5.4	4.9	4.5	4.7	4.7
Lost workdays	101.6	103.3	108.4	112.3	103.6	99.1	90.3	93.8	94.6
Total cases	60	7.0	7.4	0.0	0.7	0.0	0.0	0.5	
Lost workday cases	2.7	2.9	3.1	0.9	3.0	2.8	2.0	2.0	0.3
Lost workdays	41.7	43.8	45.1	46.5	47.4	45.7	44.6	46.0	49.2
Chemicals and allied products:									
Total cases	8.0	7.8	7.7	6.8	6.6	5.7	5.5	5.3	5.1
Lost workday cases	3.1	3.3	3.5	3.1	3.0	2.5	2.5	2.4	2.3
Lost workdays	51.4	50.9	54.9	50.3	48.1	39.4	42.3	40.8	38.8
Total cases	81	70	77	7.2	67	5.2	5.5	5.1	5.1
Lost workday cases	3.3	34	36	3.5	29	2.5	24	24	24
Lost workdays	59.2	58.3	62.0	59.1	51.2	46.4	46.8	53.5	49.9
Rubber and miscellaneous plastics products:									
Total cases	16.8	17.1	17.1	15.5	14.6	12.7	13.0	13.6	13.4
Lost workday cases	7.6	8.1	8.2	7.4	7.2	6.0	6.2	6.4	6.3
Leather and leather products:	118.1	125.5	127.1	118.6	117.4	100.9	101.4	104.3	107.4
Total cases	11.5	11.7	11.5	11.7	11.5	9.9	10.0	10.5	10.3
Lost workday cases	4.4	4.7	4.9	5.0	5.1	4.5	4.4	4.7	4.6
Lost workdays	68.9	72.5	76.2	82.7	82.6	86.5	87.3	94.4	88.3
Transportation and public utilities									
Total cases	9.7	10.1	10.0	9.4	9.0	8.5	8.2	8.8	8.6
Lost workday cases	5.3	5.7	5.9	5.5	5.3	4.9	4.7	5.2	5.0
	00.0	102.0	107.0	104.0	100.0	00.7	04.0	100.1	107.1
Wholesale and retail trade	77	7.0	80	7.4	7.2	7.2	7.2	7.4	7.4
Lost workday cases	2.9	3.2	3.4	3.2	3.1	3.1	3.1	3.3	3.2
Lost workdays	44.0	44.9	49.0	48.7	45.3	45.5	47.8	50.5	50.7
Wholesale trade:									
Total cases	8.5	8.9	8.8	8.2	7.7	7.1	7.0	7.2	7.2
Lost workdaye	3.6	3.9	4.1	3.9	3.6	3.4	3.2	3.5	3.5
Retail trade:	52.5	57.5	59.1	56.2	54.7	52.1	50.0	55.5	59.0
Total cases	7.4	7.5	7.7	7.1	7.1	7.2	7.3	7.5	7.5
Lost workday cases	2.7	2.8	3.1	2.9	2.9	2.9	3.0	3.2	3.1
Lost workdays	40.5	39.7	44.7	44.5	41.1	42.6	46.7	48.4	47.0
Finance, insurance, and real estate									
l otal cases	2.0	2.1	2.1	2.0	1.9	2.0	2.0	1.9	2.0
Lost workdaye	.8	.8	.9	8.	.8	.9	.9	.9	.9
Lost nonwayo	10.4	12.5	13.3	12.2	11.6	13.2	12.8	13.6	15.4
Services									
Lost workday cases	5.5	5.5	5.5	5.2	5.0	4.9	5.1	5.2	5.4
Lost workdays	35.4	36.2	38.1	35.8	35.9	35.8	37.0	41 1	45.4

 1 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: N = number of injuries and illnesses or lost workdays.

EH = total hours worked by all employees during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year.) ³ Excludes farms with fewer than 11 employees since 1976.

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