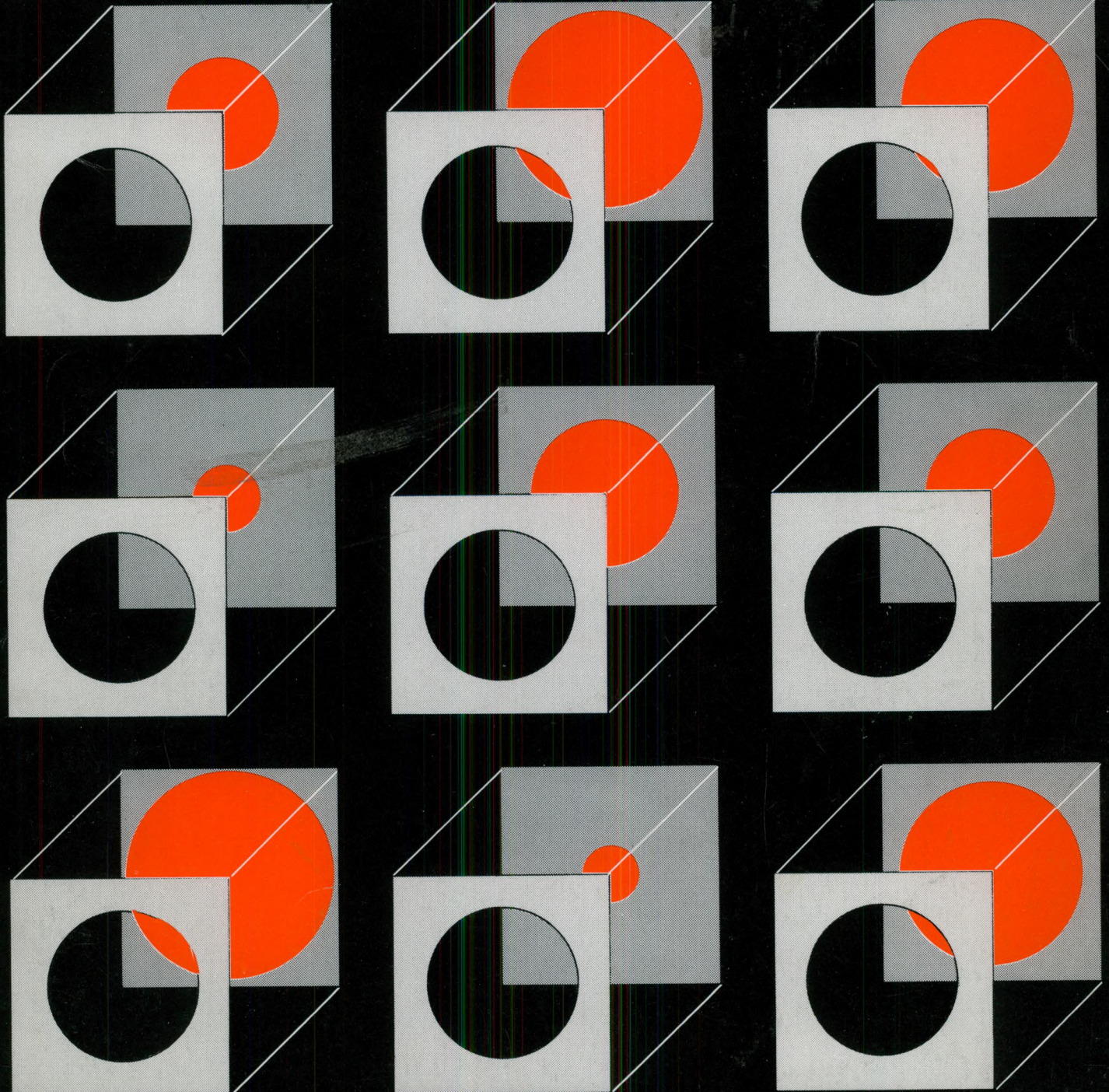




MONTHLY LABOR REVIEW

U.S. Department of Labor  
Bureau of Labor Statistics  
August 1981

*In this issue:*  
Projections of the economy, employment,  
and occupational structure to 1990







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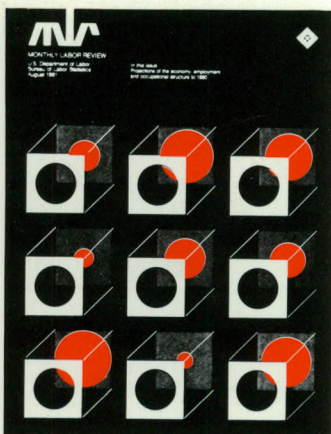
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# MONTHLY LABOR REVIEW

AUGUST 1981  
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Henry Lowenstern, Editor-in-Chief  
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# Labor Month In Review



**SMSA EXPANSION.** What do Kitsap, Onslow, Sutter, and Whatcom have in common? These counties are part of 36 new Standard Metropolitan Statistical Areas (SMSA's), bringing the total to 323. The designation of the new areas by the Office of Management and Budget is one of the first official actions resulting from the 1980 Census of Population. The areas reflect 1980 standards developed by the Federal Committee on SMSA's.

**Connective communities.** The general concept of a metropolitan statistical area is one of a large population nucleus and its adjacent communities which have a high degree of economic and social integration with that nucleus. Thus, in the simplest case, an SMSA will contain at least one city and the county in which that city is located. Under the 1980 standards, an area qualifies for recognition as an SMSA if there is a city of at least 50,000 population or if there is an urban area with a population of 50,000 within a total metropolitan population of at least 100,000. Standard definitions for metropolitan areas were introduced about 30 years ago. Such definitions enable all Federal statistical agencies to use the same geographic definition when compiling data on metropolitan characteristics. State and local governments and private statistical agencies also find the standard definitions useful in compiling their own metropolitan statistics.

**New areas.** Following are the 36 new SMSA's and their components:

- Anderson, S.C.—Anderson County.
- Arecibo, Puerto Rico—Arecibo Municipio, Camuy Municipio, and Hatillo Municipio.
- Athens, Ga.—Clarke County, Jackson County, Madison County, and Oconee County.
- Bangor, Maine—In Penobscot Coun-

ty: Bangor city, Brewer city, Eddington town, Glenburn town, Hampden town, Hermon town, Holden town, Kenduskeag town, Old Town city, Orono town, Orrington town, Penobscot Indian Island Indian Reservation, and Veazie town. In Waldo County: Winterport town.

Bellingham, Wash.—Whatcom County.

Benton Harbor, Mich.—Berrien County.

Bremerton, Wash.—Kitsap County.

Burlington, Vt.—In Chittenden County: Burlington city, Charlotte town, Colchester town, Essex town, Hinesburg town, Jericho town, Milton town, Richmond town, St. George town, Shelburne town, South Burlington city, Williston town, and Winooski city. In Franklin County: Georgia town. In Grand Isle County: South Hero town.

Casper, Wyo.—Natrona County.

Charlottesville, Va.—Albemarle County, Fluvanna County, Greene County, and Charlottesville city.

Chico, Calif.—Butte County.

Cumberland, Md.-W.Va.—Allegany County, Md. and Mineral County, W. Va.

Danville, Va.—Pittsylvania County and Danville city.

Florence, S.C.—Florence County.

Fort Walton Beach, Fla.—Okaloosa County.

Glens Falls, N.Y.—Warren County and Washington County.

Hagerstown, Md.—Washington County.

Hickory, N.C.—Alexander County and Catawba County.

Jacksonville, N.C.—Onslow County.

Joplin, Mo.—Jasper County and Newton County.

Medford, Ore.—Jackson County.

Newark, Ohio—Licking County.

Newburgh-Middletown, N.Y.—Orange County.

Ocala, Fla.—Marion County.  
Olympia, Wash.—Thurston County.

Portsmouth-Dover-Rochester, N.H.-Maine—In Rockingham County, N.H.: Greenland town, Hampton town, New Castle town, Newfields town, Newington town, Newmarket town, North Hampton town, Portsmouth city, and Rye town. In Strafford County, N.H.: Barrington town, Dover city, Durham town, Farmington town, Lee town, Madbury town, Rochester city, Rollinsford town, and Somersworth city. In York County, Maine: Berwick town, Eliot town, Kittery town, South Berwick town, and York town.

Redding, Calif.—Shasta County.

Rock Hill, S.C.—York County.

Salisbury-Concord, N.C.—Cabarrus County and Rowan County.

Sharon, Pa.—Mercer County.

Sheboygan, Wis.—Sheboygan County.

State College, Pa.—Centre County.

Victoria, Tex.—Victoria County.

Visalia-Tulare-Porterville, Calif.—Tulare County.

Wausau, Wis.—Marathon County.

Yuba City, Calif.—Sutter County and Yuba County.

More changes in metropolitan statistical areas probably will occur in 1983, following the release of commuting data based on the 1980 census.

**Dropped area.** Only one area no longer qualifies as an SMSA—Rapid City, S.D. This area was first designated as a SMSA in 1978 on the basis of 1970 standards. Rapid City does not meet the population requirements of the 1980 standards, and it no longer meets those of the 1970 standards.

Complete information on the new SMSA's and SMSA standards is available from the Office of Management and Budget, Washington, D.C. 20503. □



# Employment and unemployment in the first half of 1981

*Employment displayed sluggish growth as auto manufacturing failed to keep pace with other industries and homebuilding remained depressed; unemployment held close to the late 1980 levels*

DIANE N. WESTCOTT

Labor market signals became mixed as 1981 unfolded. During the first half of the year, total employment continued to show some signs of improvement from the recessionary declines of 1980. However, unemployment was reasonably stable, with the overall jobless rate at 7.4 percent in each of the first two quarters of 1981, not much different from the 7.5-percent rate in the last half of 1980. Although both the household and payroll employment series<sup>1</sup> were moving upward, the pace of the payroll series slowed to almost a trickle by the end of the second quarter.

Employment in 1980 had been curtailed largely as a result of job losses in manufacturing and construction—particularly in two key industries, automobile manufacturing and housing construction. Although total payroll employment expanded during the first half of the year, construction and manufacturing did not. The job count has been at a virtual standstill in these two industries since the fourth quarter 1980.

Employment in the domestic automobile industry, however, was up somewhat by the second quarter. This can be attributed, in part, to the spurt in auto sales which resulted from the rebates offered by U.S. auto manufacturers early in 1981 and from the subsequent

rebuilding of inventories of 1981 models before the close of the model year. It is questionable, though, whether this increase in U.S. auto sales will be sustained; the cost of borrowing remains high and the manufacturers' rebate program has ended.

The housing industry remained depressed in the first half. Mortgage interest rates were consistently high, and the new forms of financing by lending institutions to make borrowing more feasible did little to reassure buyers and home builders. Although interest rates have climbed to new heights, thus far, only the housing industry seems to have suffered unduly.

## **Homebuilding, auto manufacturing still struggling**

During the first half of 1981 nonfarm payroll employment continued the gains begun in the second half of 1980. From the third quarter low of 90.2 million, the payroll job count rose to 91.5 million by the second quarter of 1981; however, the rate of growth has slowed considerably since the beginning of the year. (See table 1.) Of the 172 private nonagricultural industries in the Bureau of Labor Statistics' diffusion index, only 56 percent registered gains in the first quarter, compared with 62 percent in the last quarter of 1980.

Jobs in the service-producing sector, which have traditionally been relatively immune from recession compared with the goods sector, increased throughout 1980

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and in the first half of 1981, but at a considerably slower pace than in the few years immediately preceding the recession. At midyear, employment totaled 65.8 million in this sector, up 1.3 million from the first quarter of 1980. This overall pattern masked some important differences among the industries that constitute this group. Most of the increase in the first half 1981 was in services and retail trade; transportation and public utilities and government exhibited almost no growth or actually declined.

Job expansion in the goods-producing industries was rather limited in the first 6 months of the year; consequently, employment had not yet returned to prerecession levels. Employment in construction not only did not pick up during the first half, but actually experienced further decline. At 4.3 million in the second quarter, total jobs equaled the third quarter 1980 recessionary low. While most of the economy was able to adjust to the high interest rates, the housing market remained sharply curtailed. The rate of housing starts, for example, had declined steadily and sharply from the third quarter of 1979, when it averaged 1.8 million, to below 1 million by the second quarter 1980. A year later housing starts were still low. Construction employment, which had dropped sharply in early 1980, was on the rise by yearend as mortgage interest rates declined temporarily and the Federal Government made funds available for the construction of multifamily dwellings. However, the start of 1981 saw a resumption of increasing interest rates and a corresponding decline in construction employment, especially in the residential and office building sectors. This was also reflected in the movement of the unemployment rate for workers in construction, which had declined from its high of 16.3 percent in the third quarter of 1980 to 13.8 percent in the first quarter of 1981, only to rise again in the second quarter. The following tabulation shows employment (from payroll series) in the construction and related industries and the unemployment rate (from the household series) for the construction industry, 1980-81 quarterly averages (second quarter 1981 data are preliminary):

	1980				1981	
	I	II	III	IV	I	II
Employment (in thousands):						
Construction, general						
building contractors	1,261	1,207	1,183	1,208	1,215	1,176
Manufacturing:						
Lumber and wood products	737	672	671	683	691	704
Furniture and fixtures	487	471	455	463	466	483
Stone, clay, and glass	694	663	651	656	653	657
Unemployment rate:						
Construction	11.8	15.6	16.3	14.4	13.8	15.8

Along with construction, manufacturing, particularly

the durable goods sector, bore the brunt of the business reversals in 1980. Nondurables, although not as severely cut back, experienced no growth over the year. The first half of 1981, however, saw limited job expansion in both the durable and nondurable goods sectors. By mid-1981, manufacturing employment totaled 20.4 million, only 400,000 above its third quarter 1980 low. The manufacturing layoff rate (often used as an advance indicator of cyclical changes) remained at a relatively high level throughout 1980 and 1981, reflecting curtailed job opportunities in this sector. Likewise, the quit rate, which indicates how workers assess the strength of the demand for labor, fell throughout 1980 and showed no improvement during the first 6 months of this year.

The economic reversal of 1980 was devastating in the auto industry, where one-third of the total jobs, or 320,000 workers, were cut between the first quarter of 1979 and the third quarter of 1980. Unemployment in this industry reached a record 24.7 percent in the second quarter of 1980, receded to 17.2 percent by yearend, and fell to 11.6 percent by the second quarter 1981, as some of the unemployed auto workers were recalled, while others probably found work elsewhere.

Employment in the auto industry, spurred by an extensive rebate program, showed some improvement over the first 6 months of 1981, rising by 30,000. However, by the end of the first half, manufacturers' rebates were no longer in effect and interest rates were up again leaving the continued expansion of the auto industry in doubt. The following tabulation shows employment (from payroll series) in the auto and related industries and the unemployment rate (from the household survey) in the auto industry, 1980-81 quarterly averages (second quarter 1981 data are preliminary):

	1980				1981	
	I	II	III	IV	I	II
Employment (in thousands):						
Motor vehicles and equipment	851	739	721	739	722	752
Other manufacturing:						
Primary metals	1,217	1,156	1,080	1,123	1,139	1,142
Fabricated metals	1,682	1,612	1,562	1,580	1,579	1,601
Rubber and miscellaneous plastics	761	731	706	725	732	751
Unemployment rate:						
Auto manufacturing	16.7	24.7	22.4	17.2	17.9	11.6

Employment changes in both the housing construction and auto manufacturing industries are generally thought to be key indicators of the general health and pace of the economy because of their strong ties to other industries. With the tightness in the money market, there were sizable cutbacks in industries related to home building—such as lumber, furniture, stone, clay and glass, and appliances—during 1980, and although they recovered somewhat by yearend, their employment gains were unimpressive during the first half of the year.



**Table 1. Highlights of the employment situation, seasonally adjusted quarterly averages, 1980-81**

Selected categories	1979		1980				1981	
	IV	I	II	III	IV	I	II	
Civilian labor force	103,741	104,217	104,693	104,982	105,173	105,800	106,768	
Employed	97,572	97,718	97,040	97,061	97,276	98,012	98,868	
Men, 20 years and over	52,360	52,310	51,810	51,776	52,005	52,245	52,683	
Women, 20 years and over	37,260	37,549	37,603	37,807	37,828	38,389	38,929	
Both sexes, 16 to 19 years	7,952	7,859	7,627	7,477	7,443	7,377	7,256	
Unemployed	6,169	6,499	7,652	7,921	7,897	7,788	7,900	
Unemployment rates:								
All workers	5.9	6.2	7.3	7.5	7.5	7.4	7.4	
Men, 20 years and over	4.4	4.8	6.2	6.6	6.3	6.0	6.1	
Women, 20 years and over	5.7	5.8	6.4	6.4	6.7	6.6	6.6	
Both sexes, 16 to 19 years	16.2	16.4	17.9	18.4	18.3	19.1	19.2	
White	5.2	5.5	6.5	6.7	6.6	6.6	6.5	
Black	12.1	12.6	14.1	14.9	15.2	14.4	14.9	
Hispanic	9.0	9.3	10.1	10.8	10.2	11.3	9.8	
White-collar workers	3.3	3.4	3.7	3.8	3.9	3.9	4.0	
Blue-collar workers	7.5	8.1	10.5	11.1	10.7	10.0	9.8	
Service workers	6.8	7.0	8.0	8.3	8.1	8.3	9.0	
Farm workers	4.3	4.2	4.7	4.8	4.1	5.0	5.0	
Full-time workers	5.5	5.8	7.0	7.3	7.3	7.1	7.1	
Part-time workers	8.6	8.7	8.9	8.7	8.6	9.1	9.3	
Nonfarm payroll employment	90,460	90,808	90,450	90,213	90,820	91,232	<sup>p</sup> 91,501	
Goods producing	26,424	26,329	25,678	25,306	25,594	25,670	<sup>p</sup> 25,721	
Mining	983	999	1,017	1,012	1,051	1,091	<sup>p</sup> 1,004	
Construction	4,513	4,527	4,381	4,319	4,385	4,398	<sup>p</sup> 4,334	
Manufacturing	20,928	20,803	20,280	19,976	20,158	20,181	<sup>p</sup> 20,383	
Durables	12,675	12,603	12,165	11,911	12,060	12,086	<sup>p</sup> 12,239	
Nondurables	8,253	8,201	8,115	8,064	8,098	8,095	<sup>p</sup> 8,145	
Service producing	64,036	64,479	64,772	64,907	65,227	65,562	<sup>p</sup> 65,780	
Transportation and public utilities	5,194	5,178	5,153	5,123	5,120	5,133	<sup>p</sup> 5,156	
Finance, insurance and real estate	5,052	5,104	5,142	5,189	5,237	5,281	<sup>p</sup> 5,322	
Wholesale and retail trade	20,324	20,370	20,303	20,406	20,465	20,588	<sup>p</sup> 20,677	
Retail trade	15,071	15,085	15,034	15,131	15,168	15,277	<sup>p</sup> 15,335	
Services	17,409	17,656	17,796	17,988	18,162	18,338	<sup>p</sup> 18,520	
Government	16,056	16,170	16,377	16,201	16,242	16,222	<sup>p</sup> 16,105	
Average weekly hours:								
Total private	35.6	35.4	35.2	35.2	35.3	35.3	<sup>p</sup> 35.4	
Manufacturing	40.0	39.9	39.5	39.4	39.8	39.9	<sup>p</sup> 40.2	

p=preliminary.

Likewise, automaking is linked to the production of steel and other metals and rubber and plastics. These industries followed essentially the same pattern, exhibiting substantial declines in early 1980, a brief pick-up at yearend, and limited growth in the first half of 1981. (However, the growth in steel and other metals was largely being spurred by the demand for pipes to be used in drilling equipment, and to only a limited extent by the increase in auto production.)

By mid-1981, there were other signs that economic conditions were becoming troublesome. The average workweek in manufacturing, which usually lengthens before employment expands, moved up in the fourth quarter of 1980 but held about steady during the first half of 1981. And the index of aggregate weekly hours of production or nonsupervisory workers on private nonagricultural payrolls held steady throughout the first half of 1981, after rising from a low reached during the summer of 1980. This index is perhaps the most comprehensive measure of employment activity because it reflects both the number of production worker jobs and paid hours on these jobs.

### Adult men—hardest hit, but improving

Total employment from the household survey, at 99 million in the second quarter of 1981, had grown by 1.8 million from its 1980 low. The number of employed adult men (20 years and over), which had dropped substantially during the 1980 downturn, exhibited solid growth in the first half of 1981, reaching 52.7 million by midyear. (See table 1.) Employment of adult women, which was less adversely affected by the recent cutbacks, continued on its historical upward trend, accounting for about two-thirds of the employment increase between the second quarters of 1980 and 1981. Nevertheless, the employment rise among women was not as rapid as during the previous several years.

Employment of teenagers, which declined in 1980, showed little change in the first half of 1981. The employment drop during last year was not unexpected because the effect of the postwar baby boom on the expansion of the population has run its course and the percentage of youth in the labor force has begun to decline. By the second quarter of 1981, teenage employ-



ment had dropped 700,000 from its prerecession level.

The different employment trends in 1980 and 1981 for men and women are attributable, in part, to the nature of their occupational and industrial attachment. Cyclical slowdowns in employment are generally concentrated among blue-collar workers, a factor that is heavily reflected in the situation of men. Total blue-collar employment had been declining steadily since the latter half of 1979 and had only begun to edge up during the first half of 1981. As indicated earlier, the recent recession was felt most strongly in the construction and durable goods manufacturing industries, in which men account for more than three-fourths of the employed. Consequently, employment declines among men were greater than among women. Furthermore, by the end of the first half of 1981 these industries had still not fully recovered earlier losses.

A look at the employment-population ratio provides additional information on the performance of the economy. Unlike the labor force participation rate, which measures the proportion of the population offering services in the labor market, the employment ratio measures the portion of the population whose labor is actually being used in the economy. Thus, the ratio responds primarily to a change in the number of jobholders.

Although the overall employment-population ratio moved upward in the first half of 1981, the degree varied by age-sex groups, as shown in the following tabulation of seasonally adjusted data:

	1980				1981	
	I	II	III	IV	I	II
Total	59.1	58.5	58.3	58.2	58.4	58.8
Teenagers	47.3	46.0	45.2	45.2	45.1	44.6
Adult men	73.9	72.9	72.5	72.5	72.5	72.8
Adult women	48.2	48.1	48.1	47.9	48.4	48.9

For adult men, the employment ratio had held constant at 72.5 percent during the latter half of 1980 and the first quarter of 1981 before increasing to 72.8 percent in the second quarter. The ratio for adult women has been rising steadily for over two decades, pausing only during recessions. The first half of 1981 saw a resumption in its growth, as the ratio moved steadily from its 1980 low to a record 48.9 percent by the second quarter 1981. The teenage ratio (like the teenage unemployment rate), which moves more sharply and less consistently than that of adults, was 44.6 percent in the second quarter, 3 percentage points below its prerecession level.<sup>2</sup>

Almost all of the growth in employment since last year was accounted for by persons working full time (35 hours per week or more). The number of persons at work on full-time schedules in nonagricultural industries was 73.1 million in the second quarter of 1981, up 1.6 million from 1980. But, while full-time employment

grew during the first half of 1981, the number of persons on part-time schedules for economic reasons did not begin to recede until the second quarter and had yet to return to prerecession levels, as reflected in the following tabulation of quarterly averages for non-agricultural workers (seasonally adjusted data in thousands):

	1980				1981	
	I	II	III	IV	I	II
Full-time schedules	72,839	71,647	71,427	72,156	72,876	73,083
Part time for economic reasons	3,491	4,016	4,137	4,205	4,282	3,994
Voluntary part time	12,484	12,340	12,393	12,190	12,350	12,448

In recovery periods, the number of persons working involuntarily on shortened work schedules (those who want full-time work but are working part time because employers have reduced their hours or because no full-time job was available) usually turns downward a few months prior to unemployment. That is, employers tend to restore hours before recalling those on layoff or hiring new workers. The fact that the number of involuntary part-timers had declined only slightly by midyear suggests a continued sluggishness in the job market.

### Unemployment stable

The unemployment situation was little changed during the first half of 1981; the overall unemployment rate, at 7.4 percent in each of the first two quarters, was not unlike the latter half of 1981. Likewise, the level of unemployment, at 7.9 million in the second quarter, had been relatively stable since mid-1980.

There was considerable deviation from this pattern among the various groups. Adult men, who had accounted for most of the increase in unemployment during 1980, showed strong improvement in early 1981, as their unemployment rate fell from 6.6 percent in the third quarter of last year to 6.0 percent, before edging up in the second quarter. In contrast, the unemployment rate for teenagers, at 19.2 percent at midyear was higher than anytime during 1980, while the rate for adult women, which had risen to 6.7 percent by the end of last year, held near that rate in the first half of 1981. (See table 1.)

For white workers, the only improvement was among men; as their unemployment rate dropped from 5.8 percent in the third quarter of 1980 to 5.4 percent in the first quarter of 1981 and held there in the second quarter. In contrast, the rate for white women rose much more slowly during the recession reaching 5.8 percent in the third quarter 1980 and holding there in the first half 1981. The rate for black men,<sup>3</sup> 11.5 percent in the first quarter, was down somewhat from 1980, but had edged upward in the second quarter. Black women, at 12.9 percent, had no improvement in their unemployment situation during the first half of the year.

In the second quarter, the Hispanic unemployment rate was 9.8 percent, down from its recessionary high of 11.3 percent in the previous quarter. As usual, the jobless rate for Hispanics was between the higher rate of 14.9 percent among blacks and the lower rate of 6.5 percent among whites.

Blue-collar workers, especially operatives and non-farm laborers, were the hardest hit during the 1980 cutbacks. By mid-1981 the unemployment rate for blue-collar workers was 9.8 percent, down from its high of 11.1 percent last year. In marked contrast, unemployment among white-collar workers was not as affected by the recession. However, the rate for white-collar workers had continued to edge upward in 1980 and 1981, and in the second quarter, was at its highest point (4.0 percent) since late 1977. The unemployment rate for service workers also rose during the first half of 1981 and stood at 9.0 percent at midyear.

The duration of unemployment continued rising throughout 1980; the median turned around in the fourth quarter of last year while the mean reached a high of 14.3 weeks in the first quarter of 1981. Modest improvements in both were visible by midyear. Typically, movements in the average (mean) length of time workers remain unemployed lag behind changes in the unemployment rate. When conditions first begin to improve, some of the workers recently laid off or terminated from jobs are rehired, while those with longer durations of joblessness continue without work. Thus, for a while, the average duration actually lengthens. Only after the improvement is sustained are the long-term unemployed rehired and the average duration reduced.<sup>4</sup>

The deterioration of the economy was reflected in the increased number of job losers (persons on layoff and those permanently separated) in 1980; job losers accounted for 55 percent of total unemployment by the third quarter. At the beginning of 1981, the share of the unemployed who were job losers dropped a bit to 50 percent and held about steady over the next 6 months. By the second quarter, the proportion of the unem-

ployed who had lost their last job was still well above the prerecession level of 43 percent during 1979.

Coincident with the rise in job-loser unemployment, the percentage of unemployed who voluntarily left their jobs declined steadily in 1979 and 1980. But as economic conditions began to improve somewhat, the job-leaver share of total joblessness once again began to rise in 1981.

### Participation of women continues upward

Labor force growth had slowed considerably during 1980, in response to changes in economic conditions. During the first half of 1981, however, the civilian labor force rose by 1.6 million, with sustained growth in employment. Both men and women contributed to the rise in the labor force.

After falling during the latter half of 1980, the overall labor force participation rate jumped up in the second quarter of 1981, rising to 64.3 percent. However, patterns differed substantially among major age-sex groups. The first half of 1981 saw a rise in the participation rate of adult women, from 51.4 percent in the fourth quarter of 1980 to 52.4 percent by the second quarter 1981. In contrast, the second quarter rates for men and teenagers had yet to return to prerecession levels.

As the labor force participation rate for all workers increased during the first half of 1981, the number of persons outside the labor force registered a decline of about 530,000 over this period. Most of these non-participants had no current interest in the job market. Nevertheless, the number who reported "wanting a job now" (even though not looking for one) was still sizable at 5.6 million—3.8 million women and 1.8 million men. (See table 2.) While most of these persons were not looking for work because of school attendance, home responsibilities, or ill health, more than a million reported that they were not seeking work because they thought that their search would be in vain. Changes in the number of these so-called "discouraged workers" have been consistent with cyclical changes in the demand for labor and are positively related to changes in

**Table 2. Persons not in the labor force by reason, seasonally adjusted quarterly averages, 1980-81**

[In thousands]

Reason	1979	1980				1981	
	IV	I	II	III	IV	I	II
Not in labor force .....	58,850	58,999	59,111	59,493	59,906	59,820	59,377
Do not want a job now .....	53,574	53,573	54,851	54,231	54,521	53,998	54,320
Want a job now .....	5,333	5,548	5,431	5,605	5,586	5,905	5,568
Reason not looking:							
School attendance .....	1,478	1,453	1,461	1,517	1,466	1,521	1,502
Ill health, disability .....	785	771	728	759	710	817	742
Home responsibilities .....	1,245	1,335	1,195	1,235	1,179	1,290	1,246
Think cannot get job .....	766	949	921	961	1,055	1,115	1,018
Job market factors .....	465	603	626	669	697	876	703
Personal factors .....	301	345	294	292	358	239	316
All other reasons .....	1,058	1,040	1,127	1,133	1,176	1,162	1,059



the level and rate of unemployment.<sup>5</sup> Thus, as the economy turned downward in 1980, unemployment increased and the number of discouraged workers rose from 770,000 at the end of 1979 to 1.1 million in the first quarter of 1981. The level did recede somewhat in the second quarter, however. Reflecting the serious economic situation, the cyclical increase in the number of discouraged workers was due entirely to job market fac-

tors. That is, workers became discouraged after having tried unsuccessfully to find a job or after realizing that suitable jobs were not available. There was essentially no change in the number of workers who were discouraged because of personal factors, such as perceiving themselves as too young or too old, lacking sufficient education or training, or having some other personal handicap. □

— FOOTNOTES —

<sup>1</sup> Statistics on nonagricultural payroll employment and hours from the Current Employment Statistics Program (CES) are collected by State agencies from employer reports of payroll records and are tabulated by the Bureau of Labor Statistics. Data on labor force, total employment, and unemployment are derived from the Current Population Survey (CPS), a sample survey of households conducted and tabulated by the Bureau of the Census for the Bureau of Labor Statistics. A description of the two surveys appears in the Bureau of Labor Statistics monthly publication, *Employment and Earnings*.

<sup>2</sup> For a discussion of the employment-population ratio as a cyclical indicator, see Carol Boyd Leon, "The employment-population ratio: its value in labor force analysis," *Monthly Labor Review*, February 1981, pp. 36-45 and Julius Shiskin, "Employment and unemployment: the doughnut or the hole?" *Monthly Labor Review*, February

1976, pp. 3-10.

<sup>3</sup> The term black in this article refers only to the black population and not to the "black and other" category, which includes blacks, American Indians, Alaskan Natives, and Asian and Pacific Islanders.

<sup>4</sup> For a more detailed discussion of unemployment by reason, see Curtis L. Gilroy, "Job losers, leavers, and entrants: traits and trends," *Monthly Labor Review*, August 1973, pp. 3-15, and Curtis L. Gilroy and Robert J. McIntyre, "Job losers, leavers, and entrants: a cyclical analysis," *Monthly Labor Review*, November 1974, pp. 35-39.

<sup>5</sup> For further detail on this subject, see Paul O. Flaim, "Discouraged workers and changes in unemployment," *Monthly Labor Review*, March 1973, pp. 8-16 and Carol M. Ondeck, "Discouraged workers' link to jobless rate reaffirmed," *Monthly Labor Review*, October 1978, pp. 40-42.

# New economic projections through 1990—an overview

*BLS has updated its 1978–79 projections for the decade of the 1980's to reflect recent social, political, and economic developments; three scenarios, each based on a unique set of assumptions about the future, provide a range of possible growth paths*

RONALD E. KUTSCHER

The economic and employment outlook described in the following articles was constructed as a regular part of the Bureau's medium-term projections program. This program includes a series of closely related projections encompassing the labor force by age, sex, and race;<sup>1</sup> gross national product projections, in total and by major demand and income components; industry output and employment; and occupational requirements, overall and by industry. Estimates are derived through the use of an integrated econometric framework, and are updated by BLS every 2 years.

The following articles are based on three alternative projections to 1990. These scenarios cover a number of alternative assumptions yielding a reasonably broad span of employment and GNP levels for 1990. It is likely, but of course not certain, that the actual course of economic and employment development will fall within such a wide band. Also, while alternative assumptions are used for a few of the more important variables, it was not possible to produce alternatives for all variables. This would quickly have multiplied the number of projections confronting the user, and rapidly expanded the workload entailed in their completion. The three alternatives do not conveniently fall into "high" "medium," or "low" categories. Therefore, users of the projections will find it necessary to review the

underlying assumptions to determine which of the three scenarios seems most appropriate for their purposes.

## Brief summary of the projections

*Labor force.* The Bureau of Labor Statistics developed three labor force growth scenarios for the next decade: a high-growth projection, which assumes rapid growth in the labor force participation of women and the convergence of participation rates for black men and white men under age 65; a middle-growth scenario with the work force expansion attributable mostly to women; and a low-growth path with only moderate increases in the participation of women and with the continuing divergence in male participation between races.<sup>2</sup> (See table 1.)

Some salient elements of the labor force projections:

- Because of past decline in birth rates, the labor force will grow at decreasing rates throughout the next decade.
- Women's labor force participation is expected to continue to increase. Women should account for 2 of every 3 additions to the labor force over the next decade.
- While the overall birth rate for the United States has been declining since about 1960, this has not been true for blacks and other races. Therefore, representation of these groups in the labor force will increase over the next decade. During 1985–90, their rates of entry will be at least double that for whites, and

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Table 1. Actual and projected civilian labor force based on three different growth paths, selected years, 1965-1990

Growth path	Actual labor force (in millions)			Projected labor force (in millions)		Annual percent change				Participation rate				
	1965	1975	1979	1985	1990	1965 to 1975	1975 to 1979	1979 to 1985	1985 to 1990	Actual			Projected	
						1965	1975	1979	1985	1985	1990			
Total	74.5	92.6	102.9			2.2	2.7			58.9	61.2	63.7		
Middle growth				115.0	122.4			1.9	1.3				66.5	67.9
High growth				118.3	128.4			2.4	1.6				68.4	71.1
Low growth				117.7	117.4			1.4	1.0				64.6	65.2
Men	48.3	55.6	59.5			1.4	1.7			80.7	77.9	77.9		
Middle growth				63.6	65.9			1.1	.7				77.7	77.2
High growth				64.8	68.2			1.4	1.0				79.2	79.9
Low growth				62.5	63.9			.8	.4				76.3	74.9
Women	26.2	43.4	43.4			3.5	4.1			39.3	51.0	51.0		
Middle growth				51.4	56.5			2.9	1.9				56.5	59.6
High growth				53.4	59.9			3.5	2.3				58.7	63.2
Low growth				49.2	53.5			2.1	1.7				54.1	56.4

could be even higher under one of the alternative projections developed.

- The number of young people age 16 to 24 in the labor force will fall by at least 1.5 million over the decade, reflecting the past decline in birth rates.
- The number of people age 55 and over in the labor force will not increase as much as the 25 to 54 category, largely because of trends toward early retirement.

*Economic projections.* The three alternative projections for the economy as a whole used differing assumptions for five key variables: (1) fiscal policy, (2) labor force growth, (3) productivity growth, (4) the unemployment rate, and (5) price levels. Each of the alternative assumptions for these variables and the more significant factors considered in arriving at the alternatives are discussed in detail in the subsequent articles. Proper evaluation of the 1990 projections requires careful review of these assumptions.

Among the highlights:

- Use of alternative assumptions yields a GNP for 1990 of between \$1.9 and \$2.2 trillion (in 1972 dollars), a spread of over \$270 billion. The 1980-90 real GNP average growth is 2.5 percent per year at the low end of the alternatives and 3.9 percent at the high end.
- The low-path GNP growth projected for the 1980's is roughly consistent with the experience of the 1970's. The high alternative GNP growth rate is closer to the path of the 1960's.
- Among the assumptions used in developing these alternatives, productivity (output per person-hour) shows the widest variation. The lowest alternative assumes 1980-90 productivity growth of 1.4 percent per year. The highest alternative has assumed annual growth of 2.6 percent.
- Within GNP, the component of demand most sensitive to the alternative assumptions (particularly those related to tax policy) is that for producers' du-

table equipment. In the low-path alternative, this component increases by 4.7 percent annually over the next decade, while in the two high-path scenarios, growth exceeds 8 percent per year. Exports also show a large variation among the alternatives.

- The demand category showing the most change from recent trends is Federal defense purchases, which under each of the three alternatives are assumed to grow at annual rates appreciably greater than in recent years.
- The trend toward a smaller government share of final demand is expected to continue throughout the 1980's in the two high-trend alternatives. In the low-trend projections, the defense purchases component of government demand is expected to grow sharply in real terms during the early 1980's, and then slow slightly after 1985. Defense purchases are projected to stabilize at about 5 percent of GNP over the latter half of the decade.
- In the State and local sector, the largest change from prior trends is expected in the education field. As the baby-boom generation matures, the number of school enrollees should decline over most of the decade. Thus, growth of educational purchases is projected to dampen through 1985, with absolute declines thereafter.

### Employment and output

*Employment.* Between 1955 and 1980, the total number of jobs<sup>3</sup> in the economy increased from 68.7 million to 105.6 million, or by about 1.5 million a year; during 1973-80, annual job growth exceeded 2 million. Over the next decade, major changes in employment are assumed under each of the alternatives discussed in these articles. Total employment is expected to increase by an average of 1.6 percent—or 2.2 million jobs—each year between 1980 and 1985 in the low-growth and high-trend II versions. In the high-trend I version, a higher labor force projection, combined with an even more rapid decline in the unemployment rate, yields annual employment growth of 2.4 percent between 1980 and

## Uses of projections

A wide range of persons and organizations use the BLS projections. Many are interested in only a particular element, while others use all or most of the projection components.

*Labor force estimates.* The U.S. Department of Labor, Congress, and the Congressional Budget Office use the labor force projections for analyses in which the future demographic composition of the work force is an important consideration. The Bureau of Economic Analysis and Bureau of the Census of the U.S. Department of Commerce use the detailed labor force estimates for their own projections and analyses. Other executive branch agencies use these data chiefly in EEO studies. In nearly all of the States, BLS labor force projections provide the framework for developing State labor force projections needed for planning purposes.

Private users include market researchers, corporate planners, and others who build macro-models or estimate recruitment needs. And international agencies are supplied the data for information and research.

*Projections for the overall economy and by industry.* These estimates and their underlying data bases are used by Federal agencies in preparing budget estimates or employment analyses, or as a framework for more detailed models of particular interest to their departments. The latter include projections of the energy situation; environmental developments; housing, transportation, or defense requirements; and capital availability. Also, the U.S. Department of Housing and Urban Development regularly uses the projections in *The Housing Report of the President*, as does the Labor Department's Employment and Training Administration in *The Employment and Training Report of the President*.

Among international users of the overall economic projections are international agencies which monitor the future prospects of the U.S. economy, those interested in research methods, and those specializing in unique historical aspects of the Nation's economic development, such as capital stock by industry, time series on output and employment by industry, or input-output data.

State and local governments, area planning councils, corporations, outside research organizations, and universities also use the BLS data for planning purposes, as input to more specific models by locality or industry, or as a means to evaluate projections developed by themselves or by others.

*Occupational projections.* This information is used in preparing the Bureau's *Occupational Outlook Handbook*, a tool for career guidance; education planning; policy and program analysis, evaluation, and development by government and private organizations; and research conducted by other organizations. The Survey of Career Information Systems in Secondary Schools, a National Institute of Education

study conducted by the Education Testing Service of Princeton, N.J., revealed the *Handbook* to be the most frequently chosen resource of counselors and secondary school students. The *Handbook* is used primarily in high schools, but is also of value to elementary schools, colleges, vocational schools, public employment offices, placement services for members of the Armed Forces returning to civilian life, organizations which help the economically disadvantaged, and vocational rehabilitation facilities.

National occupational employment data and projections are used at all levels of government, and by others, to formulate education plans. Included are such agencies as the National Science Foundation, and the Administration on Aging, which provide Federal funds for specialized education and training to ensure themselves of an adequate supply of qualified workers. At times such agencies have contracted with the Bureau to do special studies in these areas. Conversely, the Office of Management and Budget has relied on BLS occupational projections to evaluate the training plans of other agencies. And educational institutions and State agencies engaged in planning college-level programs also use the data.

The national data are an input to State and area projections. Such subnational estimates are being used by government bodies to plan vocational education and CETA training requirements. In fact, nearly all States currently develop their own occupational projections based on a national industry-occupation matrix.

BLS data are an integral part of other types of occupational research conducted by private organizations, non-profit organizations, universities, and government agencies. The industry-occupation matrix provides the needed occupational projections for industry scenarios developed by others. Organizations which prepare vocational guidance materials also rely upon BLS research underlying the *Occupational Outlook Handbook*.

Private employers use the Bureau's occupational projections for a variety of planning functions, including the construction of personnel policies which anticipate possible labor shortages. And, producers of machinery operated by workers in specific occupations may find the industry-occupation matrix a valuable tool for identifying potential product markets.

THE INDIVIDUAL ELEMENTS of the projections—labor force, GNP, industry output and employment, and occupational requirements—may also be integrated into a consistent analytical framework which makes possible use of the entire system. A set of analyses recently prepared for the National Science Foundation relied on this approach to determine the implications of increasing defense expenditures and synthetic energy production for the supply of and demand for scientists and engineers. (See *Science and Engineering Education for the 1980's and Beyond* (Washington, National Science Foundation and the U.S. Department of Education, 1980)).



1985, or slightly fewer than 2.7 million jobs a year.

In all alternatives, the rate of employment growth slows in the latter half of the decade, to 1.4, 1.9, and 1.5 percent, respectively, for the low, high-trend I, and high-trend II models. This reflects the projected slowdown in labor force growth after 1985.

Further important highlights:

- State and local government employment is expected to grow less rapidly than total employment, largely as a result of contraction in public education.
- As in the past, the "other services" sector is expected to experience the fastest employment growth. By 1990, "other service" industries will account for over 22 percent of all jobs in the economy in each of the three alternative scenarios. Leading the advance among service industries will be health care.
- The largest number of new jobs projected for any sector over the next decade will be in the trade sector, primarily because of its initial large size. Between 5 and 7.2 million new jobs are projected for wholesale and retail establishments between 1979 and 1990.
- Manufacturing jobs will grow by 0.8 percent a year during 1979-90 in the low-trend version and 1.6 percent in high-trend I, slower than the rates projected for total jobs but faster than recent growth in the sector. The turnaround in the rate of manufacturing job formation will be more pronounced for durable goods manufacturing than for nondurables, reflecting assumptions of strong demand for consumer durables, defense hardware, and for producers' durable equipment, especially in the high-trend versions.
- Five of the 10 industries with the greatest projected rates of employment loss are in the nondurable manufacturing sector, reflecting either falling demand or rapid productivity growth.

*Output.* Projections of final demand by industry were multiplied by an input-output table to yield projections of the domestic output needed for each industry to meet that final demand. This analysis indicates:

- Agricultural output will continue to decline in relative importance throughout the next decade, reflecting slow growth in food purchases. This slowdown will affect almost all of the food industries and indirectly, the agricultural industries.
- Although the nondurable goods manufacturing sector is expected to show only moderate overall growth, several of its component industries should experience faster-than-average output growth. These include the chemical products, drugs, apparel, and printing and publishing industries.
- Among specific industries in the durable manufac-

turing sector likely to enjoy substantial output growth are computers; optical equipment; construction, mining, and oilfield machinery; typewriters and other office machines; electronic components; material handling equipment; photographic equipment; and medical and dental instruments.

- Historically, the services sector has been increasing its share of total private output, but during the 1980's, its growth should approach that of the private economy as a whole, keeping its share constant.
- Output of the mining sector is expected to halt its historical decline as a share of the total private economy, as the expected rapid increase in coal production outweighs minimal output growth in crude oil production and absolute declines in copper mining and nonferrous ores mining.

### Occupational data

The more important occupational trends:

- The shares of total employment accounted for by white-collar jobs and blue-collar jobs do not change substantially over the projected period under any of the alternative projections. The white-collar share increases from 49.8 percent in 1978 to between 50.6 and 50.9 percent by 1990, and the blue-collar share changes from 31.8 percent in 1978 to between 32 and 31.5 percent in 1990.
- Service occupations continue to be the fastest growing major occupational category and should account for almost 16 percent of all jobs in 1990.
- Job growth in blue-collar occupations is affected relatively more by differences among the three alternative scenarios than growth in other occupational categories. Blue-collar occupations are sensitive to high-trend I assumptions because they are concentrated in manufacturing industries, and the demand for manufactured goods is relatively greater in this version of the economy. Demand for manufactured goods is also greater in the high-trend II scenario, but the need for additional blue-collar workers is moderated by assumed higher productivity gains.
- Over the past two decades, the professional and technical category has been one of the fastest growing occupational groups. Although employment is projected to continue to increase faster than employment in all occupations in each of the alternative scenarios, the differential rate of growth is narrowed.
- Employment of managers and administrators is projected to grow somewhat more slowly than overall employment during 1978-90 in each scenario.
- Employment of clerical workers is projected to grow faster than the average rate of employment growth in each of the alternative versions. Only the number of service workers is expected to grow faster.

- Employment in the craft and kindred worker group increases at about the average rate for all occupations in each of the scenarios. Most of this growth is expected before 1985.

### Impact of assumptions

A review of the sensitivity of the projections to changes in the assumptions revealed that changes, especially in tax policy, showed the largest impact on the producer durable demand component of GNP, the durable goods manufacturing industries, and a group of blue-collar occupations principally found in the durable manufacturing industries. The results here are very consistent throughout the durable goods sector. However, it would clearly not be warranted from these results to assume that the same sector, industries, and occupations would be heavily impacted by changes in other sets of assumptions. The expectation would be that these changes would be felt by differing combinations of industries and occupations.

### Evaluation of past projections

A regular part of the BLS program is the evaluation of projections when the target year has been reached. These reviews provide the BLS projections staff with insights into the causes of differences between projected and actual values, such as unwarranted assumptions, errors in historical data, or methodological problems. They also give users an idea of the uncertainties attached to any projections. A brief discussion of the results of these evaluations follows:

*Labor force.* All of the projections made by BLS in the 1952–70 period underestimated the actual labor force (age 14 and over) in 1975.<sup>4</sup> All projections also underestimated the actual 1970 labor force, although the 1956 and 1959 estimates were close. For the target years of 1960 and 1965, however, BLS was reasonably accurate, and the misses fell both below and above the true levels.

As in previous years, the labor force projections made in 1973 were based on the extrapolation of past trends in work force participation. The 1973 projection called for a civilian labor force (age 16 and over) of 99.8 million in 1980 and 110.6 million in 1990. By 1975, however, it was evident that underestimates could again be expected. The participation rate of women was projected to be 45.5 percent in 1990, but by 1975 the rate had already hit 46.3 percent, and in 1976 it reached 47.3 percent. The rate of men also was predicted to change very little. By 1980, it was expected to be 78.7 percent and in both 1985 and 1990, 79.1 percent. But by 1976, the male civilian labor force participation rate had already dropped to 77.5 percent.

BLS revised these projections in 1976. Although the

general principle of extrapolating long-term trends in work activity was retained, the methodology was modified to reduce the amount of tapering<sup>5</sup> applied to the projected labor force rates. This had the effect of raising the projected rates for women and lowering those for men. The combined effect was an increase in the overall projection for 1980 of 2 million workers—2.6 million more women and 600,000 fewer men than computed in 1973.

*Economic and industry trends.* In the mid-1960's, the Bureau first published projections of gross national product, output by industry, and industry employment for the year 1970.<sup>6</sup> The basic model assumed a full employment economy with only 4 percent unemployment. Other assumptions were that the Vietnam war would have ended and that a housing boom would be underway. Total GNP was calculated from estimates of labor force growth, hours of work, and labor productivity.

The projections of GNP and employment were within 4 percent of the actual levels for 1970. However, errors in the distribution of final demand, output for 81 industries, and employment for 74 industries fell within a broader range, with most of the larger discrepancies occurring in the smaller sectors. The absolute difference between actual and projected employment for each of 74 different industries averaged 76,800 jobs, or 10.3 percent, but the Bureau correctly anticipated the direction of change in 63 of the industries. And, when the errors were weighted by employment in each industry, the average absolute difference dropped to 8.1 percent.

The largest source of error in the industry employment data proved to be estimates of employment-output ratios or productivity by industry. Second in importance were inaccuracies in the projections of input-output coefficients, while final demand estimates contributed the least to industry employment errors.

For many of the variables used in the BLS methodology, it is difficult to draw a distinction between those "projected" and those "assumed." No well-specified model (except the Houthakker-Taylor model for the distribution of personal consumption expenditures) was used for the 1970 projections, and variables were in general projected from extrapolation of past trends modified to account for expected changes.

Events of 1970 negated the basic assumption of a full employment economy. The onset of recession brought the average unemployment rate to 5.1 percent, compared with less than 4 percent during the preceding 4 years. Moreover, military involvement in Vietnam had not ended, and the housing boom did not materialize until 1971–72. The 1970 downturn undoubtedly distorted the projections in the aggregate as well as at the industry level.

One of the conclusions drawn from the 1970



evaluation was that, because the BLS projections are for the medium term and do not take account of cyclical fluctuations, it might be more useful to specify ranges for future output and employment. This is particularly true for those industries most susceptible to fluctuations, such as some durable goods industries or construction.

Another recommendation arising from this review was to prepare more alternative scenarios, varying the assumptions for each case. Particularly, more accurate projections may result from broadening the range of values that key exogenous variables can assume. The benefits of the review of the 1970 economic and employment projections were such that the procedure became a regular part of the projections program.

Projections for the 1975 economy, prepared in 1971, were designed to reflect steady medium-term growth and could not anticipate the sharp deviation from the

path brought on by the 1974-75 recession.<sup>7</sup> Thus, the high-productivity, full employment assumptions of the 1975 projections resulted in a large percentage error in "supply gross national product"—the projected level of economic resources. This error, in turn, biased the equations of the econometric model used for simulating levels of demand and passed high estimates of final demand through the projection process, ultimately distorting projected levels of industry employment.

The 1975 evaluation of the projection methodology also revealed weakness in the estimation of demand components of GNP.<sup>8</sup> Equations used to derive the investment and import levels were found to be particularly poor, while those related to personal income, personal consumption expenditures, and government purchases performed well. The final demand industry distributions were quite inaccurate, due mainly to

### Brief history of Bureau of Labor Statistics projections

In November 1979, BLS projection work, previously spread among three Bureau organizations, was brought together under the umbrella of the Office of Economic Growth and Employment Projections. While previous interoffice efforts had been coordinated, the organizational change made possible an even closer integration of the projections for various aspects of the economy. The projections in this issue are the first developed after this organizational change.

*Labor force.* Over the years, the Bureau has developed projections for each of the major subsets of the current projections. Labor force estimates were first produced in 1959. Since that time, seven sets of these projections have been published.

*Industry output and employment projections.* In 1963, the Bureau began construction of a medium-term economic projections model. Incorporating the input-output tables then being developed by the Bureau of Economic Analysis of the U.S. Department of Commerce, this model was designed to produce industry output and employment projections 5 to 15 years into the future. Since that time, the BLS Economic Growth Model has undergone several changes in response to the need for more accurate and detailed data. Various versions of this model have been used to develop a series of seven sets of projections.

The current version of the Economic Growth Model is a system of equations and identities linked at selected points by various economic, econometric, mathematical, and programming techniques to simulate the U.S. economy. Given an explicit set of assumed values for certain target variables, this model generates industry output and employment projections. A key feature is the interlinking of input-output analysis with other econometric techniques.

*Occupational outlook.* This facet of the program originated with a report of the Advisory Committee on Education

appointed by President Franklin D. Roosevelt. In 1938, the committee recommended the establishment of an occupational outlook service within the Bureau of Labor Statistics to conduct employment studies and provide career guidance information for individuals and for vocational counselors and planners. Accordingly, the Occupational Outlook Service was organized under a specific authorization of the Congress in 1941. Preliminary studies were begun that year, but it was not until after World War II that the staff was able to focus on the publication of reports for use in career guidance. In mid-1946, a manual of occupational outlook information was prepared for use in the Veterans Administration counseling and rehabilitation program.

The first edition of the *Occupational Outlook Handbook* was published in 1949 in response to a formal resolution by the National Vocational Guidance Association and the requests of other groups and individuals that Congress authorize the development of career guidance information for sale. The public response was favorable to this first *Handbook*, and in 1951, the Bureau decided to issue a revised and enlarged edition, with the backing of the Veterans Administration.

After the end of hostilities in Korea, there was heightened public recognition of the key role of vocational guidance in channeling workers into essential occupations and effectively using the Nation's labor resources. As a result, in 1955, Congress provided continuing authorization for regular publication of the *Occupational Outlook Handbook* and related materials. In 1957, the third edition of the *Handbook* was published and a companion piece, the *Occupational Outlook Quarterly*, was introduced to report on new occupations and describe changes in the employment situation in established career fields. The 1982-83 *Handbook*, currently in preparation, will be the 15th edition, and should be available in late spring of 1982. The projections discussed in this issue of the *Review* will form the basis for the new *Handbook*.

judgmental error. Projected industry outputs were distorted more by errors in the estimates of final demand than by inaccuracies in the input-output table employed in the projection process. However, industry productivity factors also were wide of the mark, offsetting the demand error in such a way that relative accuracy in the industry employment projections resulted.

Projections of the labor force and employment for 1975 fell within 4 percent of the realized levels. GNP was overestimated by 15.4 percent. Errors for detailed industry final demand, output, and employment fell within a broader range, but, for the most part, the larger percentage errors occurred among the smaller sectors.

Employment was overestimated for three-quarters of the industries studied, reflecting the severity of the 1975 recession. The largest percent errors were recorded for the durable manufacturing and mining industries, while the largest numerical errors occurred within the construction, trade, and service industries, the three largest economic sectors. The absolute difference between actual and projected employment for each of the 71 industries studied averaged 8 percent of total employment for these industries.

Total employment for 1975 was overprojected by about 3.5 percent, although discrepancies varied widely by industry. The overprojection of GNP led to an overestimate of industry outputs; together with the misprojection of labor productivity, this resulted in the overprojection of total employment.

At the industry level, the average absolute percentage error in employment for 71 industries was 14.8 percent; when weighted by industry employment shares, the average dropped to 8 percent. This again indicates that the larger percentage errors were in the smaller industries. Estimates for more than 40 percent of the industries, accounting for more than two-thirds of employment, were within 10 percent of the actual values. The largest single concentration of error was in the construction industry; personal and business services were a close second. The third largest source of error was the trade sector; although the discrepancy was small, it became important because of the large size of the sector.

The 1975 evaluation differed from the review of the 1970 projections, chiefly because the macro model was not used in the 1970 study. In addition, the 1970 study found productivity factors to be the most important in explaining errors in projected employment, while the 1975 study found macro controls to be the major source.

*Occupational estimates.* In 1967, the Division of Occupational Outlook completed an industry-occupation matrix which described the relationship of employment in 162 occupations and 124 industries during 1960 and

projected these relationships to 1975.<sup>9</sup> The primary data sources for the project were the 1950 and 1960 censuses and, for industry employment, annual estimates from the BLS establishment surveys from 1947 onward.

A revision of the 1975 matrix based largely on additional industry data was completed in 1969. Although the revision was not published, it is a resource for the occupational outlook program, and provides more historical data for evaluating projections. Due to a major change in the occupational employment classification system beginning with the 1970 census, only 76 of the 162 detailed occupations were comparable over the 1960-75 period.

The unforeseen economic downturn of the mid-1970's reduced the accuracy of the occupational projections; although the errors were not as great as initially supposed, the target year turned out to be the trough of the recession, and the actual unemployment rate was 8.5 percent. Consequently, employment in cyclically sensitive occupations, such as craft and operative occupations, generally was overprojected. Employment in these two groups had been growing in line with projected trends through 1974, but turned down as economic conditions worsened in 1975. Interestingly, underprojections did occur in 3 of the 9 major occupational groups despite the recession, and these errors might have been somewhat higher if economic conditions in 1975 had been as favorable as originally assumed.

The difference between projected and actual employment for the major occupational groups ranged from a 6.7-percent underestimate for clerical workers to a 9.1-percent overestimate for operatives. The average of the absolute percentage difference was 6.1 percent. The projections for more detailed occupations were subject to much larger error, averaging 20.8-percent off 1975 employment levels. Again, differences between projected and actual employment tended to be smaller for the larger worker groups.

Several projection methods that would have been simpler than the matrix procedure were explored during the 1975 review. Among these, the most successful was linear extrapolation of employment trends for each occupation. These extrapolations averaged an absolute 26.2 percent off actual 1975 employment in the 76 detailed occupations, compared with the 20.8-percent error in the matrix projections.

The direction of employment change between 1960 and 1975 was correctly anticipated for all of the nine major occupational groups, although employment in five was overprojected. However, the evaluation of 1975 employment projections for detailed occupations was hampered by the previously mentioned change in the Census Bureau occupational classification system for the 1970 census. Beginning in late 1971, the revised system



was adopted for the Current Population Survey (CPS), the primary source of occupational employment data between decennial censuses. Largely as a result of this classification change, projections for only 76 of the 162 occupations in the matrix were comparable with 1975 employment data estimated from the CPS. Differences between projected and actual employment in the 76 detailed occupations ranged from a 43-percent understatement for personnel and labor relations workers to a 136-percent overestimate for plasterers. The absolute percentage errors for all 76 occupations averaged 20.8 percent. Two-thirds of the occupations, however, had errors lower than the average.

As indicated earlier, this evaluation found projection accuracy to be related to the size of employment in an occupation. When weighted by employment in each occupation, the average absolute error drops from 20.8 percent to 14 percent, indicating that projections for the largest occupations generally were more accurate. Relatively close estimates for the four occupational categories with more than 1 million workers each in 1975 contributed substantially to the final results. The following tabulation shows how projection accuracy improved with the size of the worker group:

<i>Number of workers in occupations</i>	<i>Number of occupations</i>	<i>Average absolute percent error</i>
Total . . . . .	76	20.8
Less than 50,000 . . . . .	19	32.4
50,000 to 99,999 . . . . .	14	20.3
100,000 to 299,999 . . . . .	17	15.5
300,000 to 599,999 . . . . .	14	19.8
600,000 and more . . . . .	12	11.2

A major objective of the evaluation of the 1975 occupational projections was to isolate the effects of errors in the matrix elements that determine occupational employment in the target year (projected employment by industry) on projected occupational staffing patterns for each industry (industry-occupation ratios).

Although the occupational projections were off the mark for many reasons, including the economic downturn, the 1975 review established that the ratio estimates were a far greater source of error in the occupational projections than the estimates of industry employment levels. In fact, a simulated matrix based on actual 1975 industry employment levels and the estimated ratios produced occupational totals that were no more accurate, on average, than the projections, suggesting that the quality of the ratios was so poor as to negate the effect of perfect industry employment projections.

The ratio estimates were based on scanty data for

trends in the occupational structure of industries. Although the projections were made in the late 1960's, the only comprehensive sources of historical data on ratios were the 1950 and 1960 decennial censuses. A long-recognized need for current, detailed data on industry staffing patterns prompted the initiation of the cooperative Federal-State program, Occupational Employment Statistics, in 1970.

Continuing analysis of the accuracy of projections is an important activity in improving their reliability. Thus, evaluation of previous projections has become a regular part of the BLS program. Complete employment data soon will be available for comparison with the 1980 industry and occupational projections, and an evaluation of the complete set of 1980 projections is currently planned.

The Bureau's policy of updating the medium-term scenarios every 2 years also contributes to accuracy. The three articles which follow reflect such an update of the 1990 GNP, industry output and employment, and occupational projections developed in 1978-79.

THE PREPARATION OF ECONOMIC PROJECTIONS is, to a degree, both a science and an art. Thus, misunderstandings may arise between the users, who feel the need for exact numbers, and producers, who recognize their inability to predict with such precision. Such conflicts are all the more likely because projections analysts generally employ a framework which develops numerical answers to specific questions, and users are inevitably tempted to attribute to those numbers an exactness they should not be accorded. The Bureau attempts to address this dilemma, in at least a small way, by making clear all of the important assumptions underlying its projections, by developing alternative versions which reflect at least some of the uncertainties about the future, by evaluating past projections to assist users in appreciating the unpredictable nature of certain future events, and by updating the projections on a regular 2-year cycle.

Even so, the Bureau is aware that many uses of the projections (see box) require quantitative estimates. It is incumbent on users to realize that differing assumptions can change the results, that underlying data and methods can cause errors, and that estimates should be carefully reviewed to take into account subsequent developments which could not be anticipated at the time the projections were prepared.

A final comment, from Edgar R. Fiedler, on projections, their uncertainties, and their uses: "give them a number or give them a date, but never both."<sup>10</sup> □

<sup>1</sup> The labor force projections were published earlier. See Howard N Fullerton, Jr., "The 1995 labor force: a first look," *Monthly Labor Review*, December 1980, pp. 11–21.

<sup>2</sup> See Fullerton, "The 1995 labor force."

<sup>3</sup> The employment total used in this and the subsequent articles consists of wage and salary workers, self-employed, and unpaid family workers.

<sup>4</sup> See Paul M. Ryscavage, "BLS labor force projections: a review of methods and results," *Monthly Labor Review*, April 1979, pp. 15–22.

<sup>5</sup> Tapering refers to the assumptions and formulations used to move from the most recent rate of change in labor force participation for a given age-sex group to a zero rate of change several decades in the future.

<sup>6</sup> Valerie A. Personick and Robert A. Sylvester, "Evaluation of BLS 1970 economic and employment projections," *Monthly Labor Review*, August 1976, pp. 13–16.

<sup>7</sup> *Projections of the Post-Vietnam Economy, 1975*, Bulletin 1733 (Bureau of Labor Statistics, 1972).

<sup>8</sup> Paul T. Christy and Karen J. Horowitz, "An evaluation of BLS projections of 1975 output and employment," *Monthly Labor Review*, August 1979, pp. 8–19.

<sup>9</sup> Evaluations of earlier occupational projections are described in Sol Swerdloff, "How good were manpower projections for the 1960's," *Monthly Labor Review*, November 1969, pp. 17–22. The article referenced here is Max L. Carey, "Evaluating the 1975 projections of occupational employment," *Monthly Labor Review*, June 1980, pp. 10–21.

The Bureau's occupational projections for 1975 were first published in *Occupational Employment Patterns for 1960 and 1975*, Bulletin 1599 (Bureau of Labor Statistics, 1968). The projections also were presented in a corollary report, *Tomorrow's Manpower Needs, Volume IV*, Bulletin 1606 (Bureau of Labor Statistics, 1969). The projections evaluated in this article were obtained from the latter publication. There are minor differences in estimates presented in the two publications.

<sup>10</sup> Edgar R. Fiedler, "The Three R's of Economic Forecasting—Ir-rational, Irrelevant, and Irreverent," *Across the Board*, June 1977, pp. 62–63.

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### Translating projections into action

In some respects the appraisal of forecasts puts a greater burden on the policymaker than the original task of forecasting itself. The accuracy of current forecasts is, of course, yet to be determined. Evaluation of the methodology of various forecasts may require technical sophistication at least as great as, and perhaps greater than, that of the specialist in forecasting. Yet the policymaker is rarely a specialist in forecasting techniques, nor is he often an authority on the phenomena being projected. Moreover, for the frequent case in which numerous forecasts of the same trend are available, the selection of a "most likely" forecast is in itself an act of forecasting, since the policymaker chooses the forecast which reflects assumptions and methods that appear most reasonable to him. The policymaker thus tacitly chooses a set of assumptions about the future and methodology for projecting the essence of those assumptions.

—WILLIAM ASCHER  
*Forecasting: An appraisal for  
Policy-Makers and Planners*  
(Baltimore, Md., The Johns Hopkins  
University Press, 1978), pp. 1–2.

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# The U.S. economy through 1990—an update

*Revised BLS projections of growth indicate a shift from government spending to private investment; the three alternative projections assume a broad range of values for productivity, inflation, and fiscal policy*

NORMAN C. SAUNDERS

In what ways might the U.S. economy expand during the 1980's?

The Bureau of Labor Statistics has prepared three trend projections of growth for the 1980–90 period, updating the two prior scenarios published in 1978 and adding a projection of major change in Federal fiscal policies.<sup>1</sup> The low-trend projection is characterized by assumptions of continuing high inflation, low productivity growth, and moderate expansion in real production. Alternatively, the high-trend version-I projection assumes marked improvements in both inflation and productivity, greater labor force growth, and commensurately higher real production levels. Finally, the new high-trend, version-II alternative assumes labor force growth consistent with the low-trend, but greater productivity gains and less inflation than in the version-I high-trend. None of the alternatives represents an attempt to forecast possible cyclical fluctuations during the 1980's. The three projections are intended to provide a range within which economic growth will most likely occur; however, they should not be interpreted as being representative of all likelihoods. Hereafter, the three scenarios will be referred to as the low-trend, the high-I, and the high-II alternatives.

By 1990, real gross national product (GNP) is expected to range between \$1.9 and \$2.2 trillion, with civilian employment between 120 and 129 million jobs. In all three versions, annual rates of growth in employment begin to slow in the 1980's but are more than offset by assumed improvements in productivity. Following are projected growth rates for GNP, disposable income, and employment during 1980–85 and 1985–90:

	1980–85			1985–90		
	Low	High-I	High-II	Low	High-I	High-II
Gross national product . . .	2.2	3.8	3.7	2.8	4.0	4.1
Real disposable income . . .	1.9	3.8	3.7	2.5	4.3	4.6
Employment . . .	1.5	2.4	1.7	1.4	1.9	1.5

In terms of the real rate of growth, the low-trend projections are comparable to the 1973–80 period when real GNP increased at an average rate of 2.4 percent and real disposable income grew by 2.5 percent each year. Conversely, the two high-trend projections correspond more with the 1955–68 period, when GNP grew at an average annual rate of 3.7 percent, while real disposable income was up annually by 3.8 percent.

## Major assumptions

Underlying the projections are five major groups of assumptions—fiscal, demographic, productivity, unemployment, and prices.<sup>2</sup> Other assumptions such as capital discard rates, short- and medium-term interest rates, and motor fuel usage are not discussed here. However, the impact of the latter is limited to relatively small segments of the projections. An exception is the energy area, but because of limitations in the current BLS model, neither energy prices nor the availability of imported oil play a direct role in the aggregate projections. At the industry level, the consumption of energy by type and source is generally consistent with the medium-price projections of the Department of Energy, which are discussed elsewhere in this issue.<sup>3</sup>

*Fiscal.* It is assumed that personal tax payments will be affected in 1981 by a Federal income tax cut ranging from \$12 billion in the low-trend projection to \$23 bil-

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lion in the high-I version. In addition, Federal taxes as a proportion of personal income are assumed to decline throughout the decade. During the 1973-80 period, personal taxes accounted for an average of 11.1 percent of personal income, reaching 12.0 percent in 1980. In 1990, the effective rate declines to 10.6 percent in the low-trend projection, and to 8.9 percent in the version I high-trend. After 1981, neither scenario anticipates tax cuts in specific years. Rather, tax revenues are affected smoothly over the entire period by assuming rate reductions in each year. In the high-II version, however, Federal personal effective tax rates are cut 5.0 percent in 1981, 10.0 percent each year in 1982 and 1983, and, finally, by 5.0 percent in 1984. This results in an effective rate of 8.8 percent in 1984. The rate is maintained at this level for the remainder of the decade.

The effective tax rate on corporate profits averaged approximately 35.0 percent during the 1970's. In the low-trend model, corporate tax policy has been set to lower this effective rate to 32.0 percent by 1990, with most of the decline occurring in the latter half of the decade. In contrast, both high-trend projections reach an effective rate of approximately 28.0 percent by 1990, with the largest declines occurring early in the decade. The declining share of profits allocated to taxes results from tax cuts as well as from an increase in investment tax credits and more rapid depreciation rates. The major difference between the high trends and the low trend lies more in the timing of the tax cuts than in the magnitude.

Indirect business taxes are maintained, in all three projections, at a relatively constant share of national income, moving primarily with the inflation rate.

Social insurance contributions are determined primarily by the taxable wage base and by the combined employer-employee tax rate. In the low-trend alternative, it is assumed that the provisions of the Social Security Act of 1977 will be maintained throughout the decade. This legislation increases the wage base for social security contributions from \$21,900 in 1979 to \$60,300 in 1990, accompanied by an increase in the OASDHI tax rate to 15.3 percent by 1990. Under these assumptions, social insurance contributions account for a constant proportion of national income throughout the decade.

Under the act, a 1.0-percentage-point increase in the combined employer-employee tax rate is mandated for 1990 over 1989. The resultant jump in social insurance contributions leads to a projected Federal Government surplus of \$76 billion. Had the tax rate increase not been specified for 1990, the surplus would have been about \$30 to \$35 billion in the low-growth alternative.

In the high-I alternative, it is assumed that, after 1981, the Social Security Act will be amended. The wage base in this alternative is assumed to reach

\$56,100 in 1990, with a combined tax rate of 14.3 percent. This leads to social insurance contributions accounting for 10.6 percent of national income over the first years of the decade. Thereafter, contributions decline in share terms, accounting for 10.1 percent of national income by 1990.

In the high-II model, the wage base reaches \$54,900 in 1990, with a combined tax rate of 13.4 percent (that is, no change in the rate is assumed over the entire decade). In this scenario, Federal social insurance contributions account for 9.4 percent of national income by 1990.

To summarize the tax assumptions, Federal receipts are expected to account for somewhat more than 21.0 percent of GNP during the first years of the 1980's in the low-trend projection and decline moderately to about 20.0 percent by 1990. The high-I alternative is characterized by revenues accounting for 19.5 percent of GNP in 1985 and 18.1 percent by 1990. Finally, in the high-II model, revenues drop to 18.5 and 17.9 percent of GNP in 1985 and 1990, respectively.

The assumed goal for Federal expenditures in the three alternatives is to lower expenditures as a proportion of GNP throughout the decade. In the low-trend version, Federal purchases of goods and services, excluding employee compensation, are assumed to grow at a real rate of 5.5 percent a year between 1980 and 1985 and at 2.5 percent between 1985 and 1990. In both high-trend versions, purchases less compensation increase at a real rate of approximately 5.0 percent in the first half of the decade, slowing to a 2.5-percent average growth during the 1985-90 period. In all alternatives, it has been assumed that real defense expenditures increase by 4.0 to 5.0 percent each year during 1980-85 and by 2.0 to 3.0 percent during 1985-90.

The three alternatives assume that military forces reach 2.129 million by 1985 and remain at that level for the remainder of the decade. This level is approximately 27,000 more than in 1980. (The implication is that all real increases in defense spending are aimed at providing more materiel, rather than more personnel.) Federal civilian employment is assumed to increase by approximately .7 percent, or 13,000 jobs, each year between 1980 and 1990 in the low-and high-I alternatives. In the high-II alternative, rather sharp cuts in Federal civilian employment are assumed for the early 1980's, leaving employment at 2.08 million employees in the 1985-90 period. This is a cut of approximately 100,000 jobs from 1980 levels.

Federal transfer payments are comprised of: (1) unemployment insurance benefits; (2) social security; (3) Federal civilian employee retirement; (4) military retirement; (5) hospital and supplementary medical insurance; (6) supplemental security income; and (7) all other Federal benefit programs. Projections for each category



are prepared using the expected rate of inflation, estimated changes in recipient population, and a discretionary change which represents real changes in offered benefits. Real average benefit payments decline by about  $-.3$  percent during 1980–90 in the low-trend scenario. In contrast, the high-I projection assumes virtually no real growth in average transfer payments in the early half of the decade but a relatively strong real growth of about 1.5 percent a year during 1985–90. This is based on the assumption that the stronger growth in real incomes in this alternative will renew interest in expansion of social welfare programs. The high-II version is characterized by sharp cuts in real average benefits of about 4.0 percent a year during the 1981–84 period, with very little real growth in average benefits after 1984.

Real grants-in-aid to State and local governments are assumed to decline over the decade in all projections. This assumption reflects declining expenditures of the highway trust fund and a phasing out of general revenue-sharing programs. From 1980 to 1990, real grants are assumed to decline by 1.9 percent a year in the low-trend alternative and by 0.9 percent in the two high-trend alternatives. Net interest payments and subsidies to government enterprises are essentially unchanged in real terms throughout the projection period. The effects of these assumptions on the national income accounts measures of Federal receipts and expenditures are shown in table 1.

*Demographic assumptions.* The primary determinants of the demographic data are the level and the age and sex distribution of the population. Three projected population series were developed by the Bureau of the Census, differing primarily in the assumed fertility rate. The Series-II population projections were used in the economic projections, as were the associated Series-B household projections.<sup>4</sup> The BLS middle-growth labor force projection is used in the low-trend and high-II versions, and the high-growth labor force projection is used in the high-I projection.<sup>5</sup>

*Unemployment and productivity.* The unemployment rate is viewed as a policy objective. Projected unemploy-

ment rates represent possible recovery paths from the 1980 economic slowdown, and, then, long-run targets approaching full-employment. Following are the assumed unemployment rates, 1981–90:

	Low	High-I	High-II
1981	8.1	8.1	7.8
1982	7.7	7.6	7.2
1983	7.4	7.0	6.6
1984	7.2	6.3	6.4
1985	7.0	5.5	6.0
1986	6.8	5.1	5.6
1987	6.6	4.8	5.3
1988	6.4	4.5	5.0
1989	6.2	4.2	4.7
1990	6.0	4.0	4.5

Some of the post-1985 declines can be ascribed to the changing age structure of the labor force. However, continuing real declines are assumed for the entire 1981–90 period in the projections.

For the private nonfarm sector, the long-term average annual rate of productivity growth was 2.6 percent between 1955 and 1968. Between 1968 and 1973, this rate dropped to 2.1 percent annually and even further to .7 percent during the 1973–80 period. The slowdown in productivity growth over the last years has been attributed to many factors, including the influx of new workers into the labor force; slowing in capital accumulation per worker; an emphasis on nonproductive types of investment, such as pollution control investment; and the remarkable increase in energy prices since 1973.

Quite different assumptions are made about possible paths of productivity growth in the alternatives. The low-trend projection assumes a continuation of slow growth in nonfarm productivity—.9 percent real growth each year between 1980 and 1985, and 1.8 percent between 1985 and 1990. In contrast, the high-I projection assumes productivity growth of 1.4 percent each year during 1980–85 and 2.5 percent for 1985–90. The most optimistic assumptions appear in the high-II version, with nonfarm output per hour increasing at a 2.2-percent rate each year between 1980–85 and at a 3.0-percent rate during the latter portion of the decade.

Some of the factors which contributed to the productivity slowdown in the 1970's are expected to improve in the coming decade. Members of the postwar baby boom will become more experienced and productive during the 1980's. The rapid rate of growth in expenditures for environmental and energy conservation equipment should slow somewhat during the first half of the decade, and a slower rate of growth in energy prices coupled with smaller increases in the demand for energy is expected to have an impact. Finally, policies which increase investment incentives should have an impact later in the decade. However, some argue that technological breakthrough cannot continue at the rate it did

**Table 1. Federal Government receipts and expenditures, 1980, and projected to 1985, and 1990, on a National Income Accounts basis**

(Current dollars in billions)

	Receipts	Percent of GNP	Expenditures	Percent of GNP	Surplus or deficit
1980	538.9	20.5	601.2	22.9	-62.3
1985 Low	978.8	21.1	982.7	21.2	-3.9
High-I	921.1	19.5	916.0	19.4	5.1
High-II	825.5	18.5	817.9	18.3	7.6
1990 Low	1,594.4	19.9	1,518.4	19.0	76.0
High-I	1,431.3	18.1	1,409.3	17.9	21.9
High-II	1,234.5	17.9	1,186.7	17.2	47.8

during the 1970's. Others argue that poor productivity performance will continue.<sup>6</sup> Because these factors are difficult to quantify in terms of their impact on future productivity changes, the range of possible productivity growth has purposefully been kept broad.

*Prices.* The final major assumption deals with the inflation rate. The key item is the implicit deflator for private GNP. Long-term movements of this deflator, compared with movements in the Consumer Price Index for Urban Wage Earners and Clerical Workers, are as follows:

	<i>Private GNP deflator</i>	<i>CPI</i>
1955-68 .....	2.1	2.0
1968-73 .....	4.6	5.0
1973-80 .....	7.8	9.2

A relatively pessimistic view of inflation possibilities is taken in the low-trend alternative. The private GNP deflator is assumed to increase at a 9.2-percent growth rate in the 1980-85 period and at an 8.3-percent rate during 1985-90. The high-I version assumes that inflation will moderate over the longer run. The 1980-85 rate of inflation is set at 7.9 percent; it drops to 6.4 percent over the latter half of the projection period. The greatest improvement in inflation is assumed to occur in the high-II projection as the rate of growth of the private GNP deflator drops to 7.0 percent in the 1980-85 period, followed by a further decline to a 4.7-percent rate between 1985 and 1990.

Prices do not directly affect the determination of real GNP in the BLS model, but they do enter into the projections in several important ways. First, wages and interest rates are greatly influenced by inflation. These, in turn, affect consumption expenditures and residential investment. Second, prices have an impact on the Federal budget. They enter implicitly into the determination of various expenditure levels and, on the revenue side, they affect personal income taxes because of the progressive tax structure. The future movement of prices is quite uncertain. The price assumptions used in these projections are a judgment as to the relative strengths of the various factors which affect price determination, as well as an attempt (as with the productivity assumption) to define a relatively broad band around probable future price change. The linkage of higher productivity growth and lower rates of inflation is, to some extent, an arbitrary decision in that other combinations of assumptions could logically be justified as well.

### Aggregate demand

Gross national product consists of personal consumption expenditures, gross private domestic investment, net foreign trade, and government purchases of goods

and services. Total GNP and its various components are presented in table 2 in constant 1972 prices for selected years from 1955 to 1990. Between 1980 and 1985, low-trend GNP is projected to increase at an average rate of 2.2 percent each year, roughly the same rate prevalent in the 1973-80 period, but below the long-term rate of 3.3 percent between 1955 and 1980. In the high-I and high-II versions, GNP is projected to increase by 3.8 and 3.7 percent, respectively, during 1980-85, well above the long-term rate.

After 1985, the growth potential continues to improve as better productivity performance more than offsets slower labor force growth. Low-trend GNP growth increases to a 2.8-percent average rate and the high-trend versions to approximately a 4.0-percent rate over the last years of the decade.

Although all components of GNP are projected to grow more rapidly in the high-trend versions, the major difference between these two alternatives and the low-trend version is in investment. The timing of business tax incentives for investment in the low-trend model is such that little impact is noticed on plant and equipment investment before the middle of the decade. In the high-trend versions, plant and equipment expenditures are projected to grow strongly over the entire projection horizon. The other components of demand are also projected to exceed long-term trend rates of growth in the high-trend versions and to lag behind these historical patterns in the low-trend model.

*Consumption.* Personal consumption expenditures have traditionally accounted for the largest share of final production. In 1955, personal consumption made up about 60.0 percent of real GNP and has steadily increased its share to over 63.0 percent in 1980. This trend is projected to end, at least temporarily, in the three projections as the greater emphasis on capital formation becomes apparent. By 1990, total personal consumption expenditures are expected to account for 61.3 percent of GNP in the low-trend projection, 62.0 percent in the high-I version, and 62.8 percent in high-II.

The long-term trend toward relatively more expenditures on durables and services and relatively fewer purchases of nondurable goods is projected to continue in all three alternatives. In 1955, 13.0 percent of real personal consumption expenditures was accounted for by durable goods purchases, which include autos and parts, furniture and appliances, and recreational items, such as radios, televisions, and sporting goods; by 1980, durables accounted for just under 14.5 percent. Purchases of durable goods are projected to increase 3.4 percent a year between 1980 and 1985 in the low-trend projection and by about 6.3 percent a year in both high-trend versions. After 1985, such purchases will accelerate to 3.7 percent each year in the low-trend ver-



sion, and will slow to 5.4 and 5.7 percent, respectively, in high-I and high-II versions. Durables purchases in all projections are expected to rebound sharply from the 1980 slowdown, increasing their share of total consumption to about 16.0 percent in 1990 in the low-trend version, and to just under 17.0 percent in the high-trend alternatives.

As with durables, consumers have allocated an increasing proportion of their incomes to purchases of services over the post-World War II period. In 1955, services accounted for 40.0 percent of consumption, but by 1980 had reached 47.2 percent. This trend is expected to continue, as services purchases attain be-

tween 48.0 and 49.0 percent of personal consumption expenditures in 1990 in the three alternatives.

As families' real incomes increase, expenditures for necessities such as food, basic clothing, and shelter tend to reach saturation levels. Further real income growth yields greater amounts of discretionary income for purchasing luxuries. This is one of the reasons for the increases in durable and service purchases relative to nondurable expenditures. Nondurable purchases accounted for 47.0 percent of consumer spending in 1955, dipping to 38.3 percent by 1980.

*Investment.* Gross private domestic investment consists

**Table 2. Gross national product by major component, 1955, 1968, 1973, 1980, and projected to 1985 and 1990**

[1972 dollars in billions]

Component	Actual				Projected					
	1955	1968	1973	1980	1985			1980		
					Low	High-I	High-II	Low	High-I	High-II
Gross national product	657.5	1,058.1	1,255.0	1,480.7	1,653.3	1,784.7	1,775.1	1,902.4	2,172.6	2,171.8
Personal consumption expenditures	394.1	634.4	768.5	935.1	1,001.0	1,094.5	1,091.3	1,166.5	1,346.0	1,364.0
Gross private domestic investment	103.8	161.6	217.5	203.7	263.6	310.1	309.7	315.8	420.2	422.6
Nonresidential structures	25.4	42.8	47.4	48.4	46.4	49.3	49.2	55.5	62.4	62.8
Producers' durable equipment	35.9	66.8	90.7	110.0	135.3	163.5	164.8	172.6	240.9	243.5
Residential investment	34.8	43.1	62.3	48.2	67.6	78.5	77.0	70.9	92.1	91.6
Change in business inventories	7.7	9.0	17.2	-3.0	14.3	18.8	18.7	16.8	24.8	24.7
Net exports	7.3	1.9	15.5	52.0	60.8	55.6	49.0	73.4	62.2	37.7
Exports	30.7	61.2	97.3	161.1	202.0	209.7	203.4	246.2	270.3	249.1
Imports	23.4	59.3	81.8	109.1	141.2	154.1	154.4	172.8	208.1	211.4
Government purchases	152.3	260.2	253.5	290.0	327.9	324.7	324.9	346.9	344.4	347.6
Federal	88.2	128.1	95.9	108.2	128.9	126.6	125.9	140.3	135.3	137.5
Defense	( <sup>1</sup> )	( <sup>1</sup> )	68.3	70.9	93.4	91.6	93.7	103.3	98.8	104.1
Nondefense	( <sup>1</sup> )	( <sup>1</sup> )	27.6	37.2	35.5	35.0	32.2	37.0	36.5	33.4
State and local	64.1	132.1	157.6	181.9	199.0	198.1	199.0	206.6	209.1	210.1
Percent distribution										
Gross national product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Personal consumption expenditures	59.9	60.0	61.2	63.2	60.5	61.3	61.5	61.3	62.0	62.8
Gross private domestic investment	15.8	15.3	17.3	13.8	15.9	17.4	17.4	16.6	19.3	19.5
Nonresidential structures	3.9	4.0	3.8	3.3	2.8	2.8	2.8	2.9	2.9	2.9
Producers' durable equipment	5.5	6.3	7.2	7.4	8.2	9.2	9.3	9.1	11.1	11.2
Residential investment	5.3	4.1	5.0	3.3	4.1	4.4	4.3	3.7	4.2	4.2
Change in business inventories	1.2	.9	1.4	-.2	.9	1.1	1.1	.9	1.1	1.1
Net exports	1.1	.2	1.2	3.5	3.7	3.1	2.8	3.9	2.9	1.7
Exports	4.7	5.8	7.8	10.9	12.2	11.7	11.5	12.9	12.4	11.5
Imports	-3.6	-5.6	-6.5	-7.4	-8.5	-8.6	-8.7	-9.1	-9.6	-9.7
Government purchases	23.2	24.6	20.2	19.6	19.8	18.2	18.3	18.2	15.9	16.0
Federal	13.4	12.1	7.6	7.3	7.8	7.1	7.1	7.4	6.2	6.3
Defense	( <sup>1</sup> )	( <sup>1</sup> )	5.4	4.8	5.6	5.1	5.3	5.4	4.5	4.8
Nondefense	( <sup>1</sup> )	( <sup>1</sup> )	2.2	2.5	2.1	2.0	1.8	1.9	1.7	1.5
State and local	9.7	12.5	12.6	12.3	12.0	11.1	11.2	10.9	9.6	9.7
Average annual rate of change										
	1955-68	1968-73	1973-80		1980-85			1985-90		
Gross national product	3.7	3.5	2.4		2.2	3.8	3.7	2.8	4.0	4.1
Personal consumption expenditures	3.7	3.9	2.8		1.4	3.2	3.1	3.1	4.2	4.6
Gross private domestic investment	3.5	6.1	-.9		5.3	8.8	8.7	3.7	6.3	6.4
Nonresidential structures	4.1	2.1	.3		-.8	.4	.3	3.6	4.8	5.0
Producers' durable equipment	4.9	6.3	2.8		4.2	8.2	8.4	5.0	8.1	8.1
Residential investment	1.7	7.6	-3.6		7.0	10.2	9.8	1.0	3.2	3.5
Change in business inventories	1.2	13.8	( <sup>2</sup> )		( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	3.3	5.7	5.7
Net exports	-9.8	52.2	18.9		3.2	1.3	-1.2	3.8	2.3	-5.1
Exports	5.5	9.7	7.5		4.6	5.4	4.8	4.0	5.2	4.1
Imports	7.4	6.6	4.2		5.3	7.2	7.2	4.1	6.2	6.5
Government purchases	4.2	-.5	1.9		2.5	2.3	2.3	1.1	1.2	1.4
Federal	2.9	-5.6	1.7		3.6	3.2	3.1	1.7	1.3	1.8
Defense	( <sup>1</sup> )	( <sup>1</sup> )	.5		5.7	5.3	5.7	2.0	1.5	2.1
Nondefense	( <sup>1</sup> )	( <sup>1</sup> )	4.4		-.9	-1.2	-2.8	.8	.8	.7
State and local	5.7	3.6	2.1		1.8	1.7	1.8	.8	1.1	1.1

<sup>1</sup> Not available.

<sup>2</sup> Not computable.

NOTE: Gross national product data reflect the benchmark revisions released in December 1980 by the U.S. Department of Commerce.

of (1) purchases of residential structures; (2) investment in nonresidential structures; (3) purchases of producers' durable equipment; and (4) changes in inventories of businesses. Historically, gross domestic investment has accounted for 15.0 to 16.0 percent of GNP. At the same time, on a year-over-year basis, it is one of the most volatile elements of final output. This is because investment, more than any other component of GNP, represents the anticipations of business for future profits and potential growth and, thus, tends to fluctuate rather sharply as those expectations change.

For example, in 1975, domestic investment fell to \$155 billion in real terms (more than \$60 billion below the 1973 level), a 12.5-percent share of GNP (down from more than 17.0 percent in 1973). But, by 1980, investment had recovered and accounted for about 15.0 percent of GNP. Because of its anticipatory role, investment is an important key in determining the long-run growth potential of the economy. In essence, it represents current commitments to future growth and is an important source of productivity gains. In the three alternatives, gross investment is expected to grow far more rapidly than during the 1970's. Between 1973 and 1980, gross investment declined at an average annual rate of .9 percent. The low-trend model projects an average growth rate of 5.3 percent during 1980-90, while the expectations in the high-trend versions are for 8.8-percent annual growth.

The housing sector of the economy is one of the more volatile segments of fixed investment expenditures. The demand for new housing has been expanding steadily throughout the postwar period. The number of households increased by more than 30 million during 1955-80, an average annual increase of 2.1 percent, or 1.3 million new households every year. The rate of new household formation has also accelerated, from 2.0 percent in 1955 to 2.7 percent in 1980, not only because of the baby-boom bulge, but also because of an increasing tendency toward single-person households.

At the same time, the ability of the housing sector to meet the demand for new housing is greatly dependent on financial considerations, especially the availability of credit. Because interest rates and credit availability are closely tied to the business cycle, swings in real output can have a substantial impact on housing. For example, during the 1975 recession, total private housing starts dropped more than 43.0 percent from the peak of 2.4 million in 1972. Real expenditures for residential investment fell by 34.0 percent during the same period.

When the supply and demand considerations are combined, it is reasonable to assume that the recessions of 1970, 1975, and 1980 have created much pent-up demand for new housing. However, demand for housing has been changing. Many families are giving up the "American dream" of a single-family home because of

increasing costs and also because of greater interest in leisure-time pursuits. The shift toward more energy-efficient, less costly multifamily homes is expected to continue throughout the 1980's. The rate is difficult to predict, however, and is the major difference between the low- and high-trend versions.

A final demographic factor affecting the projection of residential investment is the prediction that new household formation will slow dramatically in coming years, declining from 2.7 percent in 1980 to 1.9 percent in 1985 and to 1.6 percent in 1990. Although the slowdown is apparent over the entire decade, the effects are not expected to be seen until the latter half because of the pent-up demand left over from the recessions of the 1970's.

In the low-trend projection, a moderate recovery from the 1980 slowdown is expected as real residential investment increases at a rate of 7.0 percent between 1980 and 1985, reaching \$67.6 billion in 1985. In both high-trend alternatives, a sharp comeback from the 1980 recession is expected. In the high-I projection, the expected rate of growth is 10.2 percent, attaining a level of \$78.5 billion. The high-II version attains a growth rate of 9.8 percent over the five-year period. In all three cases, housing starts are expected to rebound to the 2.0-million unit level by 1984 or 1985. The primary reason for less growth in the low-trend alternative is that continued high inflation is expected to hasten the shift from single-family to multifamily dwellings. Because multifamily units usually cost somewhat less than single-family homes, increases in total real expenditures will be lower. In all alternatives, real residential investment expenditures account for between 4.1 and 4.3 percent of GNP in 1985, approximately the share attained at the prior peak in the 1977-78 period.

After 1985, the demographic effects become apparent as growth in high-trend residential investment falls to an annual rate of 3.2 and 3.5 percent between 1985 and 1990 in versions high-I and high-II. In the low-trend model, virtually no growth is anticipated during the latter half of the decade. Annual housing starts are expected to decline from about 2.0 million units in 1985 to between 1.7 and 1.9 million units by 1990.

Between 1955 and 1968, business fixed investment grew by 4.6 percent a year. Between 1968 and 1973, growth remained virtually the same at 4.7 percent a year. During the remainder of the 1970's, however, growth of real business expenditures for plant and equipment slowed sharply to a rate of 2.0 percent growth in the 1973-80 period. In the low-trend version, 2.8-percent growth per year is projected for the 1980-85 period. In other words, the rate of change in business investment apparent in the 1970's will continue for the first half of the 1980's after an initial upsurge in 1981. After 1985, the more representative long-term growth



rates (4.7 percent) will return, as a result of the impact of corporate tax assumptions and increasing corporate revenues.

In the high-trend versions, quite different assumptions are made regarding both the timing and intensity of fiscal incentives for business investment. Investment in plant and equipment is expected to increase by 6.2 percent a year during 1980–85, then accelerate to 7.3 percent growth, topping \$300 billion in 1990. This component accounts for 14.0 percent of GNP in 1990 in both high-trend projections, up from an average of about 11.0 percent in the 1970's. The tax assumptions and the resulting impact on business investment are based on the growing realization that long-term improvements in productivity growth will depend on new plant and equipment purchases. The impact of fixed business investment on the stock of private nonfarm capital<sup>7</sup> is shown in the following growth rates:

	Actual		
	Low	High-I	High-II
1955–68 .....		3.7	
1968–73 .....		4.4	
1973–80 .....		3.7	
	Projected		
	Low	High-I	High-II
1980–85 .....	3.4	4.1	4.1
1985–90 .....	4.2	5.4	5.5

The slowing growth of the capital stock in the 1973–80 period will continue through 1985 in the low-trend version, before improving slightly during 1985–90. The assumptions underlying the high-trend versions lead to expectations of a strong recovery over the entire 1980 decade.

The ratio of capital to hours paid in the nonfarm sector is a general measure of how much plant and equipment is available to workers for producing output. The ratio is considered an important determinant of labor productivity growth. Between 1955 and 1975, this ratio expanded at an annual rate of 2.7 percent in real terms, increasing from \$7,000 of capital available per worker-hour in 1955 to \$12,000 in 1975. Between 1975 and 1980, however, the ratio rose by only .6 percent each year, to \$12,400.

Only slight recoveries are projected for this ratio during the first half of the 1980's in the low- and high-I projections. In the low-trend version, this is a result of continuing slow growth in investment. In the high-I case, the much higher investment rates are offset by the higher assumed labor force growth rates (and consequent increases in total hours paid). In the high-II version, the high investment rates combined with lower employment levels lead to the fairly strong annual growth of 2.2 percent over the 1980–85 period. After 1985, all three projections attain strong growth in the capital-hours ratio, ranging from 2.9 percent in the low-

trend version to 4.0 percent average growth in the high-II case. The stock of business inventories is expected, in all projections, to expand slowly relative to GNP, reflecting historical trends.

*Foreign trade.* Both imports and exports have accounted for an increasing share of GNP, and this trend is expected to continue throughout the 1980–90 period. In current dollars, the balance on the current and long-term capital account is assumed to be a policy variable with the long-term value of zero. Such a policy would maintain the current-dollar balance on goods and services at a relatively low positive level. In the past, because import and export prices tended to move together in terms of both levels and rates, a zero current-dollar balance implied a zero constant-dollar balance. During the 1970's, average import prices grew at a much faster rate did average export prices. The disparity was primarily due to much higher petroleum prices, although world inflation generally was higher than in the United States. It is assumed that foreign prices will once again move at roughly the same pace as export prices during the projection period, but it is also expected that the difference in level will never be made up. Therefore, as the United States strives to maintain a current-dollar balance of trade, the impact on constant dollar trade will be a generally more rapid rate of growth in exports relative to imports, thereby improving the real balance of trade over time.

*Government.* The government portion of GNP comprises purchases of goods and services and compensation of employees. All other expenditures are excluded by definition. Real purchases by Federal, State, and local governments accounted for almost 25.0 percent of GNP in 1968; since then, the share of GNP accounted for by purchases of goods and services has declined, reaching the 19.6-percent level by 1980. This drop was due almost entirely to the cessation of U.S. military involvement in Vietnam.

Real Federal purchases fell at an average rate of 1.4 percent during the 1968–80 period because of large declines in defense spending. Federal purchases as a share of GNP fell sharply, from 12.1 percent in 1968 to 7.3 percent in 1980. State and local government purchases also declined as a proportion of GNP during 1968–70.

The trend toward a smaller share of production accounted for by government purchases is expected to continue throughout the 1980's in the two high-trend versions. In all projections, Federal defense purchases grow sharply in real terms during the early 1980's, and slow slightly after 1985. Defense purchases are projected to stabilize at about 5.0 percent of GNP over the latter half of the decade. As noted earlier, virtually no change in military force levels is assumed during the 1980's. Therefore, the increases in real defense expendi-

tures are expected to be replacing obsolete materiel and performing research and development for more sophisticated weapons systems.

Nondefense purchases, in contrast, are expected to decline at a 1.0 to 3.0 percent annual rate between 1980 and 1985, and to grow by less than 1.0 percent each year after 1985 in all projections. This reflects the assumption that many programs will experience relatively slower growth or be scaled back in the 1980's, while the primary emphasis shifts to defense preparedness. The net effect is to drop Federal purchases of goods and services from 7.3 percent of GNP in 1980 to about 6.5 percent by 1990 in the high-trend versions. In the low-trend projection, Federal purchases will continue to account for roughly the same proportion of GNP throughout the decade.

In the State and local sector, the largest change from prior trends is expected in the education sector. As the baby-boom generation matures, the number of school enrollees should decline smoothly over the entire decade. A sharp slowdown in the growth of educational purchases is projected to 1985, with absolute declines subsequently. The children of the baby-boom generation are expected to increase educational demand beginning around 1985, but the effect will be mild and relatively short-lived.

Purchases of goods less compensation for public safety are projected to decline sharply in the early 1980's as the rapidly increasing cost of fuel affects the purchases of new equipment for police and firefighters. The remaining categories of State and local purchases are expected to grow much less rapidly over the coming decade. The net effect of these considerations is to lower State and local purchases from 12.3 percent of GNP in 1980 to the 10.0- to 11.0-percent range in 1990.

It should be emphasized that government's declining share of GNP during the 1980's does not mean that government purchases are expected to decline in absolute terms. Rather, the expected growth rate—1.8 percent between 1980 and 1990—is somewhat lower than the overall GNP growth rate.

In summary, three scenarios have been set for economic growth in the 1980's: the first reflecting moderate increases and the others showing a return to the strong growth of the 1950's and 1960's. With the assumptions underlying the projections, the most notable occurrence in the 1980's is the shift in spending from the public sector to the private sector, especially for investment. However, the change depends on the fiscal assumptions discussed earlier; with other assumptions, the results could be different.

### Employment and hours

The number of jobs, the average number of hours paid per job, and the level of real output per hour are key determinants of potential output in the economy.

These factors are detailed in table 3. During the 25 years between 1955 and 1980, the number of jobs increased from 68.7 million to 105.6 million, or about 1.5 million jobs a year. During this period, many important shifts occurred. Military force levels declined from 3 million in 1955 to 2.1 million in 1980. Agricultural employment also declined, from 6.4 million to 2.8 million jobs, because of increases in farm productivity. Civilian government employment, in contrast, grew from 9.4 percent of total employment in 1955 to 14.6 percent in 1980, an increase of 8.9 million. Most of this growth—8.3 million jobs—occurred in State and local government. Private nonfarm employment increased by 33 million jobs, a growth of more than 1.3 million each year, increasing its share of employment from 76.8 percent in 1955 to 80.8 percent in 1980.

Several major changes in employment are expected to occur in the alternatives. Total employment is expected to increase at an average rate of 1.6 percent each year between 1980 and 1985 in the low-growth and high-II versions. This amounts to 2.2 million jobs a year, a more rapid increase than that projected for the total labor force—1.7 percent each year, or 1.9 million new labor force entrants. The higher employment growth reflects the relatively rapid decline in the unemployment rate following the 1980 slowdown. In the high-I version, a higher labor force projection, combined with an even more rapid decline in the unemployment rate, yields total annual employment growth of 2.4 percent between 1980 and 1985, or slightly fewer than 2.7 million jobs a year.

In all alternatives, the rate of employment growth begins to slow in the latter half of the decade, to 1.4, 1.9, and 1.5 percent, respectively, for the low-, high-I, and high-II models. This reflects the projected slowdown in labor force growth after 1985.

The share of jobs between the public and private sectors is an important determinant of the level of real supply GNP, because productivity in the public sector is assumed to be nearly constant.<sup>8</sup> Therefore, if public employment accounted for larger shares of total employment, the associated growth in real GNP would be reduced. Federal employment is expected to expand during the 1980-90 period, but the rate of growth (.1 percent annually) is considerably less than the total employment growth expected in all three alternatives. The military force level is projected to virtually stabilize at the current level of 2.1 million persons for all alternatives. State and local government employment is also expected to grow less rapidly than total employment. In the latter half of the 1950's and during all of the 1960's, the growth in State and local employment was due, in large part, to very rapid growth in public education. School enrollment, however, moderated during the latter 1970's. The echo effect from the baby-boom generation will begin to be seen around 1985, but will be



**Table 3. Labor force, employment, productivity, and gross national product, 1955, 1968, 1973, and 1980, and projected to 1985 and 1990**

[Employment data in thousands]

Category	Actual				Projected					
	1955	1968	1973	1980	1985			1990		
					Low	High-I	High-II	Low	High-I	High-II
Total labor force (including military)	68,072	82,272	91,040	106,821	117,114	120,381	117,114	124,504	130,252	124,504
Unemployed	2,853	2,817	4,305	7,448	8,049	6,504	6,899	7,342	5,125	5,507
Employed (persons concept)	65,219	79,455	86,735	99,373	109,065	113,877	110,215	117,162	125,127	118,997
Adjustment factor (persons to jobs)	3,438	4,409	4,557	6,188	4,697	5,090	4,705	4,796	5,524	4,947
Employment (jobs concept)	68,657	83,864	91,292	105,561	113,762	118,967	114,920	121,958	130,651	123,944
General government	9,520	14,521	15,185	17,481	17,587	17,587	17,441	18,106	18,106	17,886
Federal	4,779	5,670	4,354	4,402	4,355	4,355	4,209	4,429	4,429	4,209
Military	3,049	3,535	2,326	2,102	2,129	2,129	2,129	2,129	2,129	2,129
Civilian	1,730	2,135	2,028	2,300	2,226	2,226	2,080	2,300	2,300	2,080
State and local	4,741	8,851	10,831	13,079	13,232	13,232	13,232	13,677	13,677	13,677
Private	59,137	69,343	76,107	88,080	96,175	101,380	97,479	103,852	112,545	106,058
Agriculture	6,424	3,663	3,206	2,823	2,622	2,922	2,922	2,334	2,634	2,634
Nonagriculture	52,713	65,680	72,901	85,257	93,553	98,458	94,557	101,518	109,911	103,424
Private average annual hours per job	2,126	2,001	1,961	1,884	1,856	1,865	1,862	1,819	1,825	1,824
Agriculture	2,473	2,354	2,290	2,311	2,301	2,301	2,301	2,246	2,246	2,246
Nonagriculture	2,083	1,981	1,943	1,870	1,844	1,852	1,848	1,809	1,815	1,814
Private GNP per hour (1972 dollars)	4.56	6.67	7.48	7.99	8.35	8.58	8.89	9.17	9.75	10.36
Agriculture	1.84	3.36	4.30	6.21	6.05	6.25	6.26	7.18	7.95	8.00
Nonagriculture	4.95	6.89	7.65	8.06	8.43	8.66	8.99	9.23	9.80	10.43
Total GNP (billions of 1972 dollars)	657.5	1,058.1	1,255.0	1,480.7	1,653.3	1,784.7	1,775.1	1,902.4	2,172.6	2,171.8
General government	84.6	132.4	139.1	155.2	163.0	163.0	161.4	169.7	169.7	167.1
Private	572.9	925.7	1,115.9	1,325.5	1,490.3	1,621.7	1,613.7	1,732.7	2,002.9	2,004.7
Agriculture	29.3	29.0	31.6	40.5	36.5	42.0	42.1	37.6	47.0	47.3
Nonagriculture	543.6	896.7	1,084.3	1,285.0	1,453.8	1,579.7	1,571.6	1,695.1	1,955.9	1,957.4
Average annual rate of change										
	1955-68	1968-73	1973-80	1980-85	1980-85	1980-85	1985-90	1985-90	1985-90	1985-90
Total labor force (including military)	1.5	2.0	2.3	1.9	2.4	1.9	1.2	1.6	1.2	1.2
Unemployed	-1.1	8.9	8.1	1.6	-2.7	-1.5	-1.8	-4.7	-4.4	-4.4
Employed (persons concept)	1.5	1.8	2.0	1.9	2.8	2.1	1.4	1.9	1.5	1.5
Adjustment factor (persons to jobs)	1.9	.7	4.5	-5.4	-3.8	-5.3	.4	1.6	1.0	1.0
Employment (jobs concept)	1.5	1.7	2.1	1.5	2.4	1.7	1.4	1.9	1.5	1.5
General government	3.3	.9	2.0	.1	.1	( <sup>1</sup> )	.6	.6	.5	.5
Federal	1.3	-5.1	.2	-2	-2	-9	.3	.3	( <sup>1</sup> )	( <sup>1</sup> )
Military	1.1	-8.0	-1.4	.3	.3	.3	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Civilian	1.6	-1.0	1.8	-7	-7	-2.0	.7	.7	( <sup>1</sup> )	( <sup>1</sup> )
State and local	4.9	4.1	2.7	.2	.2	.2	.7	.7	.7	.7
Private	1.2	1.9	2.1	1.8	2.9	2.0	1.5	2.1	1.7	1.7
Agriculture	-4.2	-2.6	-1.8	-1.5	.7	.7	-2.3	-2.1	-2.1	-2.1
Nonagriculture	1.7	2.1	2.3	1.9	2.9	2.1	1.6	2.2	1.8	1.8
Private average annual hours per job	-5	-4	-6	-3	-2	-2	-4	-4	-4	-4
Agriculture	-4	-6	.1	-1	-1	-1	-5	-5	-5	-5
Nonagriculture	-4	-4	-5	-3	-2	-2	-4	-4	-4	-4
Private GNP per hour (1972 dollars)	3.0	2.3	.9	.9	1.4	2.2	1.9	2.6	3.1	3.1
Agriculture	4.7	5.1	5.4	-5	.1	.2	3.5	4.9	5.0	5.0
Nonagriculture	2.6	2.1	.7	.9	1.4	2.2	1.8	2.5	3.0	3.0
Total GNP (billions of 1972 dollars)	3.7	3.5	2.4	2.2	3.8	3.7	2.8	4.0	4.1	4.1
General government	3.5	1.0	1.6	1.0	1.0	.8	.8	.8	.7	.7
Private	3.8	3.8	2.5	2.4	4.1	4.0	3.1	4.3	4.4	4.4
Agriculture	-1	1.7	3.6	-2.1	.7	.8	.6	2.3	2.4	2.4
Nonagriculture	3.9	3.9	2.5	2.5	4.2	4.1	3.1	4.4	4.5	4.5

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

relatively insignificant until after 1990. The result is an annual growth in the number of education-related employees of .3 percent during the 1980-85 period, and annual declines of .5 percent during 1985-90. The declines, however, will be somewhat offset by continued growth in other programs and the administrative employment associated with these programs, although at a less rapid rate than in the past. As a result, private employment is expected to expand more rapidly than total employment over the entire projection period in all alternatives. Following are the proportion of private and

government employment for 1980, 1985, and 1990:

	1980	1985			1990		
		Low	High-I	High-II	Low	High-I	High-II
Private	83.4	84.5	85.2	84.8	85.2	86.1	85.6
Farm	2.7	2.3	2.5	2.5	1.9	2.0	2.1
Nonfarm	80.8	82.2	82.8	82.3	83.2	84.1	83.4
Government	16.6	15.5	14.8	15.2	14.8	13.9	14.4
Federal	4.2	3.8	3.7	3.7	3.6	3.4	3.4
State and local	12.4	11.6	11.1	11.5	11.2	10.5	11.0
Education	6.5	5.9	5.6	5.8	5.3	5.0	5.2
Other	5.9	5.8	5.5	5.8	5.9	5.5	5.8

The declining share of government employment reflects the impact of demographic shifts, as well as the apparent public preference for a smaller government role in the civilian sector of the economy.

*Hours.* Average weekly hours paid are projected to continue to decline at approximately the long-term historical rate. In the private nonfarm sector, the long-term decrease in weekly hours has been influenced by the trend toward more service employees, which lowers average hours because many work short weeks or on a part-time basis, and by the increase in female labor force participation, which began in the mid-1960's. Many of these women took part-time positions. This contributed to the service sector effect which is projected to continue and will cut average weekly hours. Female labor force participation rates are also projected to grow at a rather strong pace during the 1980's. However, it is assumed that the disparity between part-time jobholding rates of men and women will diminish during the 1980's; thus, the growth of female labor force participation will no longer have an appreciable impact

on the average workweek. Women are expected to be increasingly employed in all sectors of the economy.

THE ALTERNATIVE PATHS of growth encompass reasonable possibilities for expansion of the economy during the 1980's. The low-trend projection examines the implications of a moderately expanding labor force, continued low growth in productivity, and high inflation. The high-trend projections study the effects of a more rapidly expanding labor force (high-I) coupled with more optimistic assumptions regarding both productivity and inflation. The projected range of real GNP growth averages between 2.5 and 3.9 percent annually over the 1980-90 period, yielding a difference among the alternative scenarios of \$270 billion by 1990. The projections hinge on the underlying assumptions and could be significantly affected by even small changes in the latter. These are medium-term projections of the U.S. economy, and no attempt has been made to forecast cyclical fluctuations. The projections should not be construed as a forecast of a likely growth path but as the probable range of economic growth during the 1980's. □

FOOTNOTES

<sup>1</sup> The projections are part of a BLS program of studies aimed at analyzing long-run economic growth. The primary objective is to develop projections of employment and occupational requirements under alternative assumptions. Other articles in the series discuss industry projections of output and employment and future trends in occupational demand. As part of a continuing program to assess the validity of BLS projections, future articles will evaluate the projections of the U.S. economy for 1980. For previous articles, see Norman C. Saunders, "The U.S. economy to 1990: two projections for growth," *Monthly Labor Review*, December 1978, pp. 36-46; Arthur Andreassen, "Changing patterns of demand: BLS projections to 1990," *Monthly Labor Review*, December 1978, pp. 47-55; Valerie A. Personick, "Industry output and employment: BLS projections to 1990," *Monthly Labor Review*, April 1979, pp. 3-14; Thomas Nardone, "The Job Outlook in Brief, Based on the Occupational Outlook Handbook, 1980-81 Edition," *Occupational Outlook Quarterly*, Spring 1980, pp. 2-21; Paul T. Christy and Karen J. Horowitz, "Evaluation of BLS projections of 1975 output and employment," *Monthly Labor Review*, August 1979, pp. 8-19; and Max L. Carey, "Evaluating the 1975 occupational employment projections," *Monthly Labor Review*, June 1980, pp. 10-21.

<sup>2</sup> See Lester C. Thurow, "A Fiscal Policy Model of the United States," *Survey of Current Business*, June 1969, pp. 45-64. The BLS economic growth model is a software system comprised of a modified version of the Thurow macroeconomic model, several demand submodels, and an input-output and industry level employment model. A detailed methodological description of the current model is being prepared for publication, as is a description of the operating system.

<sup>3</sup> The Department of Energy projections are taken from the energy forecasts developed for the Energy Information Agency's *Annual Report to Congress*, 1979 (June 1980), a medium international oil price version. They assume an average landed crude oil price of \$37 per barrel by 1990, in 1979 dollars.

<sup>4</sup> Projections of the Population of the United States: 1977 to 2050, *Current Population Reports* (Bureau of the Census, Series P-25, No. 704, 1977) and Projections of the Number of Households in the United States: 1979 to 2000, *Current Population Reports* (Bureau of the Census, Series P-25, No. 805, 1979).

<sup>5</sup> Howard N. Fullerton, Jr., "The 1995 labor force: a first look," *Monthly Labor Review*, December 1980, pp. 11-21.

<sup>6</sup> A tremendous amount of material has been written on the reasons behind the slowdown in productivity growth. Major studies include R. Kutscher, G. Mark, and J. R. Norsworthy, "The productivity slowdown and the outlook to 1985," *Monthly Labor Review*, May 1977, pp. 3-8; J. R. Norsworthy, M. Harper, and J. Kunze, "The Slowdown in Productivity Growth: an Analysis of Some Contributing Factors," *Brookings Papers on Economic Activity*, Vol. 2, 1979; P. Clark, "Capital Formation and the Recent Productivity Slowdown," *Journal of Finance*, June 1978, pp. 967-75; D. Hudson and E. Jorgenson, "Energy Prices and the U.S. Economy, 1972-1976," *Data Resources Review*, September 1976, pp. 1.24-1.37; J. Beebe, "A Note on Intersectoral Shifts and Aggregate Productivity Change," *Annals of Economic and Social Measurement*, Summer 1975, pp. 389-95; and E. Denison, *Accounting for Slower Economic Growth* (Washington, D.C. Brookings Institution, 1979).

<sup>7</sup> The estimates of capital stock developed in the projections are consistent with the gross stocks series presented in *Fixed Non-residential Business and Residential Capital in the United States, 1925-75* (U.S. Department of Commerce, Bureau of Economic Analysis, 1976).

<sup>8</sup> By national income accounting conventions, there is no change over time in government productivity. Rather, it is assumed that real output for a government employee is equal to that person's compensation in the dollar base year (1972 in this case). Apparent changes in average real compensation reflect shifts in the grade structure of government employees over time.



# The outlook for industry output and employment through 1990

*The future looks bright for service, durable goods, and high-technology industries; projections assume lower unemployment and taxes, higher investment and productivity, and continued oil scarcity*

VALERIE A. PERSONICK

The structure of employment in the United States has undergone considerable change in recent decades. Although employment is growing in virtually all sectors of the economy, growth has been much more rapid in service-producing industries than in goods-producing industries. This trend is projected to continue under the economic conditions assumed by the Bureau of Labor Statistics in its revised projections for the next decade, although at a different pace.

Three alternative scenarios for industry output and employment growth were prepared. The low-trend version assumes a decline in the rate of expansion of the labor force, continued high inflation, moderate productivity gains, and modest increases in real output and employment. In high-trend version I, the economy is buoyed by larger labor force growth, much lower unemployment rates, higher production, dampening of price increases, and greater improvements in productivity. The third alternative, high-trend II, is characterized by the rapid output growth of high-trend I but assumes the same labor force as the low-trend version. Productivity gains are quite substantial in this alternative.

## Summary of employment trends

Between 1959 and 1969, total employment in the United States rose by 2.0 percent a year. The most rapid increase was posted by the government sector, which grew at an average annual rate of 4.0 percent. Expan-

sion of public sector employment during the 1960's reflected strong demand for teachers and other educational personnel as the baby-boom generation entered school, effects of the Vietnam war buildup, and increases in government services resulting from "Great Society" and other programs. Job growth in miscellaneous service industries was also stronger than for the economy as a whole, while manufacturing, the largest sector in 1959, had a growth rate just about equal to the all-industries average.

During the 1970's, job growth accelerated in the sectors defined as service-producing but slowed in manufacturing and government. Between 1969 and 1979, employment rose 4.0 percent annually in other (or miscellaneous) services, 3.6 percent in finance, insurance, and real estate, and 3.0 percent in trade, but only 0.5 percent in manufacturing and 1.1 percent in government. By the end of the decade, wholesale and retail trade had replaced manufacturing as the largest employment sector. The fast-growing miscellaneous services sector ranked third, having overtaken government. Thus, while almost 1 out of every 4 jobs was in a manufacturing industry in 1959, by 1979 this sector accounted for only 1 out of every 5 jobs. In contrast, jobs in other services represented less than 1 of 7 in 1959, but by 1979 had expanded to almost 1 of 5.

During the 1980's, these trends are expected to continue under the conditions assumed by BLS for the 1990 economy. Other services is projected to continue to be the fastest-growing sector, accounting for more jobs than manufacturing by 1985. The employment shares of trade, mining, and finance, insurance, and real estate are

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also expected to rise over the next decade, while manufacturing, agriculture, transportation, communications, and public utilities, although posting gains during the 1980's, are projected to represent smaller portions of all jobs.

Under the low-trend assumptions, total employment will rise from 104.1 million in 1979 to 122.0 million by 1990, a net increase of 17.9 million jobs. In the high-trend high-employment model (version I), 26.5 million new jobs will be added to the 1979 level, for total employment of 130.7 million in 1990. In the high-trend low-employment model (version II), employment would reach 124.0 million by 1990.

The rates of job increase between 1979 and 1990 in the low-trend and high-trend II versions (1.4 and 1.6 percent a year, respectively) represent a slowdown over the previous two decades, while the high-trend I rate of 2.1 percent represents a somewhat faster pace.

### Characteristics of the 1990 economy

**Labor force.** The civilian labor force is expected to grow 1.6 percent a year between 1979 and 1990 in the low-trend and high-trend II models, and 2.0 percent a year in the high-trend I model. Both rates are considerably smaller than the 2.7 percent average annual rate of expansion posted during 1975-79. The slowdown should occur as the last of the baby-boom generation enter the labor force.

Under both labor force scenarios, two-thirds of the growth is provided by women. The first assumes that the proportion of women age 20 to 44 in the labor force will rise at an increasing rate until 1983; participation rates of men in most age groups are expected to decline, although not as fast as they did during the 1970's. The second scenario assumes even faster growth for women's participation rates, and a reversal of the decline in men's rates:

	<i>Actual</i>		<i>Projected</i>			
			<i>Low labor force scenario</i>		<i>High labor force scenario</i>	
	1975	1979	1985	1990	1985	1990
Labor force						
(in millions) . . . .	92.6	102.9	115.0	122.4	118.3	128.1
Men . . . . .	55.6	59.5	63.6	65.9	64.8	68.2
Women . . . . .	37.0	43.4	51.4	56.5	53.4	59.9
Participation rate . .	61.2	63.7	66.5	67.9	68.4	71.1
Men . . . . .	77.9	77.9	77.7	77.2	79.2	79.9
Women . . . . .	46.3	51.0	56.5	59.6	58.7	63.2

**Unemployment rate.** Somewhat offsetting the effects of slower labor force growth on job creation are assumptions about unemployment. The unemployment rate is assumed to decline following the 1980 recession and then level off within a range of possible full employment levels. In the low-trend forecast, the rate is assumed to

fall from 7.1 percent in 1980 to 7.0 percent by 1985 and 6.0 percent by 1990. The more optimistic high-trend assumptions are for a 5.5-percent unemployment rate in 1985 and 4.0 percent in 1990 in version I, and 6.0 percent in 1985 and 4.5 percent in 1990 in version II.

**Gross national product.** Gross national product (GNP) is projected to expand 2.4 percent annually between 1979 and 1990 in the low-trend version, and 3.8 percent in the high-trend versions. The low-trend estimate roughly corresponds to the experience of the 1973-79 period, when real GNP increased at an average rate of 2.8 percent a year. Assumptions underlying the high-trend projections more closely resemble the growth path of an earlier period, 1955-68, during which the economy was expanding at a 3.7-percent annual pace.

**Taxes.** In all cases, reductions in both personal income taxes and the effective corporate tax rate are assumed to take place throughout the decade. The high-growth alternatives, in particular, incorporate an assumption of a vigorously pursued policy of investment incentives.

**Productivity.** The productivity slowdown which characterized the 1970's is assumed to at least stabilize during the 1980's, as some of the contributory factors are minimized or even reversed. The rate of productivity growth in the private sector declined from 3.0 percent a year during 1955-68 to 2.3 percent between 1968 and 1973 and 0.9 percent between 1973 and 1980. Among the reasons cited for this drop are an influx of inexperienced labor force entrants, energy price shocks, investment in environmental protection and energy conservation rather than in production, and less per-employee capital accumulation in general. In the coming decade, however, the baby-boom generation will be in the prime working age groups, creating a proportionately more experienced labor force. Investment in capital goods is projected to be stimulated by specific government policies, and businesses are expected to become more adept at responding to changes in energy resources. As a result, annual labor productivity growth in the private sector is projected to be 0.9 percent during 1980-85 and 1.9 percent during 1985-90 in the low-trend forecast, 1.4 percent and 2.6 percent in the high-trend I version, and 2.2 percent and 3.1 percent in the high-trend II model.

### Energy assumptions

Higher prices and uncertain supply for oil and natural gas, both domestic and foreign, have begun to force both conservation and a shift to other energy sources. During the 1980's, these trends are projected to intensify. Domestic production of crude oil and natural gas and refined petroleum products is expected to remain virtually unchanged or decline slightly throughout the



decade, while oil imports are assumed to be cut back drastically. In 1977, imports of crude oil accounted for almost one-third of total U.S. supply. That ratio has begun to turn down somewhat, and is expected to continue to decline to 21.5 percent by 1990 in the low-trend version, or to between 24.2 and 24.5 percent in the high-trend models.

To the degree possible, the energy assumptions are based on the "1979 Annual Report to the Congress" of the U.S. Department of Energy.<sup>1</sup> (See table 1.) The mid-price case of the department was chosen as the basis for the BLS projections. This case assumes that crude oil nominal prices will rise from \$31.37 a barrel in 1979 to \$51.14 in 1985, and to \$81.33 in 1990. The department's projected rates of growth for domestic output and imports under these price conditions were applied to BLS data to derive the 1985 and 1990 levels of domestic production of various types of energy and the level of oil imports.

Coal output is projected to boom as electric utilities and other industrial users substitute it for scarcer, more expensive oil in their production processes. This return to coal as an important energy source has already had an impact on the industry—coal production increased 20.3 percent in 1979 and 8.3 percent in 1980; employment jumped 25.6 percent in 1979 to a 25-year high of 265,000 jobs and held close to that level in 1980. Coal output in the low-trend projection is estimated to sustain an 8.1 percent yearly growth, at least through 1985, after which the rate is expected to taper to 3.6 percent annually during 1985–90. In the high-trend versions, coal production will increase 9.1 to 9.4 percent a year during 1979–85, and 4.5 to 4.7 percent annually thereafter.

The vigorous rates of growth projected for coal production result not only from the assumption of strong domestic demand, but from substantial foreign demand as well. Exports of coal are expected to expand 5.7 percent annually between 1977 and 1990 in the low-trend

version, and 9.9 to 10.8 percent a year in the high-trend versions.

Consumption of electricity will rise during the 1980's as an alternative energy source for both home heating and industrial production. Output is projected to grow 3.3 percent a year between 1979 and 1990 in the low-trend version, and 4.4 percent a year in both high-trend scenarios. Coal is expected to be an increasingly important input in the production of electricity, while nuclear power sources are assumed to expand only slightly over the next decade and account for a very small fraction of total electricity production.

### Final demand trends

*Personal consumption dominant.* Personal consumption expenditures accounted for nearly two-thirds of total gross national product in 1979, and while these outlays are projected to grow somewhat more slowly than total GNP over the next decade, they will still be by far its largest component.

Among consumption categories, expenditures for nondurable items, such as food and household supplies, are expected to continue to grow more slowly than outlays for durable goods and services. This long-term trend reflects the tendency of consumers to spend less of their budget on necessary staples and shift more discretionary income to higher-priced durable goods or to recreation and other services as disposable incomes rise.

Food and tobacco, which together accounted for almost 29 percent of the personal consumption budget in 1955, are projected to represent only 17 to 19 percent in 1990. Tobacco expenditures, in particular, are expected to have the second-fastest rate of decline of all personal consumption categories. (The most rapid drop is projected for gasoline and oil purchases.)

One of the fastest-growing components of personal expenditures projected is medical care services. This item accounted for 8.3 percent of personal consumption expenditures in 1972 and 8.7 percent in 1979, but is expected to represent more than 10 percent of such consumption in 1990. One of the main causes for rapid projected growth of real medical care expenditures will be an aging population. In 1979, the number of persons age 65 or older was 24.7 million, or 11.2 percent of the total population. In 1990, 29.8 million people, or 12.2 percent of the total, will be in this age group.<sup>2</sup>

Other categories of personal consumption expenditures projected to rise rapidly include amusements and recreation services, and airline transportation. Expenditures for recreation have been steadily growing as a share of all personal consumption expenditures, from about 5.7 percent in 1955 to 6.3 percent in 1968 and 7.9 percent in 1979. In 1990, they are projected to account for between 8.7 and 9.7 percent of all personal consumption expenditures. Airline transportation is

**Table 1. U.S. energy supply by source, actual and projected, selected years, 1965–90**

Item	Actual				Projected	
	1965	1973	1978	1979	1985	1990
Total domestic energy supply:						
Quadrillion BTU per year	53.7	75.0	78.4	79.3	81.6	89.1
Coal:						
Quadrillion BTU per year	13.4	14.4	15.0	17.4	25.0	29.3
Percent of total supply	25.0	19.2	19.1	21.9	30.6	32.9
Domestic oil and gas:						
Quadrillion BTU per year	34.2	44.3	40.2	39.6	36.9	38.3
Percent of total supply	63.7	59.1	51.3	49.9	45.2	43.0
Net oil and gas imports:						
Quadrillion BTU per year	5.4	14.0	17.6	17.7	12.9	12.5
Percent of total supply	10.1	18.7	22.4	22.3	15.8	14.0
Nuclear:						
Quadrillion BTU per year	...	.9	3.0	2.8	5.6	8.2
Percent of total supply	...	1.2	3.8	3.5	6.9	9.2

Source: U.S. Department of Energy, Energy Information Administration.

expected to be the second-fastest growing component.

Outlays for consumer durables are projected to increase as a percentage of total personal consumption expenditures, particularly for household furnishings; home electronic equipment such as radios, televisions, video recorders, and personal computers; and motor vehicles. Under the low-trend version, most of the gains will occur in the second half of the decade, while the high-trend models assume the recovery from the 1980 recession will be swifter and purchases of consumer durables will rise rapidly throughout the decade.

*Investment growth the strongest.* Investment, currently about 15 percent of final demand, is projected to show significantly more growth than the 0.6-percent annual rate posted between 1973 and 1979, especially in the second half of the next decade. The largest category of investment, producers' durable equipment, rises 5.0 percent annually in the low-trend version during the latter years of the 1980's, in line with the long-term historical rate of growth; the high-trend versions predict an 8.1-percent annual expansion over the same period. The rapid gain in the high-trend models reflects the better business conditions and strong tax incentive programs assumed in these versions.

A list of the specific types of equipment for which demand is projected to be greatest reflects the full fruition of the "age of electronics." Leading the advance will be purchases of computers and peripheral equipment. Rapidly growing investment demand is also expected for optical equipment, typewriters and other office equipment, radio and communication equipment, and scientific and controlling instruments. These products are all characterized by or contribute to rapid advances in technology. As older machines or production processes become less efficient or even obsolete, businesses are expected to buy more of these high-technology items in relation to other capital goods to remain competitive.

Equipment for which slow growth in investment demand is expected includes special industry machinery; engines, turbines, and generators; and office furniture.

Business investment in new plants is projected to recover more slowly from the 1980 recession than investment in equipment, due to the longer lead-times required. After 1985, construction of new plants and other business structures is expected to rebound at a rate of growth in line with the long-term, pre-recession rate of 4.7 percent.

Projections of residential investment show a very different pattern than those for other types of investment. This sector was the most severely hit by the 1975 and 1980 recessions—new housing starts plummeted from a decade-high 2.4 million in 1972 to 1.3 million in 1980; expenditures for residential investment declined by 0.9 percent a year during 1973–79. Over the same period,

however, the rate of new household formation was accelerating, reflecting both the maturing of the baby-boom generation and a trend toward more single-person households. The demand for homeownership that was pent up during the recession years is projected to spur residential investment expenditures during the first half of the 1980's; growth is estimated at 2.2 percent a year between 1979 and 1985 in the low-trend model and 4.5 to 4.8 percent in the high-trend models. After 1985, however, the rate of new household formation is expected to decline, and residential investment growth drops to 1.0 percent annually in the low-trend version and 3.2 to 3.5 percent in the high-trend scenarios.

*Foreign trade will grow rapidly.* Exports and imports have been rising over time as a share of GNP, reflecting the growing economic interdependence of the United States and the rest of the world. This trend is projected to continue into the next decade in all scenarios. In 1955, exports accounted for 4.7 percent of final demand; by 1979 that share had risen to 9.9 percent, and is expected to climb to between 11.5 and 12.9 percent in 1990. Imports represented 3.6 percent of GNP in 1955, 7.4 percent in 1979, and are projected to account for 9.1 to 9.7 percent in 1990.

A wide variety of products is exported from the United States each year. Chief among them in the past have been food and feed grains, and other agricultural products; motor vehicles and parts; aircraft; chemicals; and construction, mining, and oilfield machinery. These goods are projected to continue to account for a sizable share of exports in the coming years, but they are expected to be joined by computers, electronic components, and coal as important export goods. Plastic products exports are expected to grow much faster than the average for all exports, but not as rapidly as in the past.

As the import share of GNP rises, raw materials purchases are becoming less significant compared to imports of finished capital and consumer goods, and this trend is expected to continue. Imports of crude petroleum are assumed to decline drastically, from 31 percent of the total supply of oil and natural gas in 1977 to between 21.5 and 24.5 percent by 1990.

The largest share of imported merchandise is accounted for by motor vehicles and parts—13.5 percent in 1977. As a percentage of the total value of output of all cars, trucks, buses, vans, and spare parts purchased in the United States, imports grew from less than 2 percent in 1963 to 12.5 percent by 1977 and to 13.8 percent in 1979. Further gains for imported motor vehicles are projected as the domestic auto industry struggles to recover from the devastating 1980 recession. The value of the import share is projected to top 15 percent in 1985 in all three scenarios. After that point, however, it declines somewhat to about 14.4 per-



cent by 1990. The downturn is expected to occur as American cars begin to compete effectively with gas-economizing imports, and more foreign automakers set up factories in the United States.

Motorcycle and bicycle manufacturing is the industry with the largest proportion of imports; it is expected to rank first during the next decade as well, with imports holding an almost steady 65-percent share. Radio and television imports are projected to continue to dominate the output of that industry, rising from 39 percent of total output in 1977 to about 49 percent in 1990 in the low-trend forecast, and to about 46 percent in the high-trend models. Among other industries with large volumes of imports, rising import shares are projected for steel and primary nonferrous metals; steady or declining shares are expected for imports of apparel, leather products (including footwear), electronic components, and paper products.

*Government share dipping.* Government purchases<sup>3</sup> as a whole are projected to grow somewhat more slowly than total GNP in the coming decade, but wide variation is assumed for different functions within the public sector. For example, emphasis at the Federal level is expected to swing back to national defense. In past years, defense purchases have been declining in real terms as a proportion of GNP. Real outlays for defense dropped 7.3 percent annually between 1968 and 1973 as the Vietnam war drew to a close, and then contracted further, by an average of 0.3 percent each year through 1979. Sharp increases in defense spending are expected for the 1980's, particularly during the first half. Purchases are projected to grow 5.3 to 5.7 percent a year between 1979 and 1985, rising 1.5 to 2.1 percent annually thereafter.

All of the extra real defense expenditures are assumed to be for materiel; the size of the armed forces is projected to remain unchanged at 2.1 million. Among the industries particularly affected by the projected defense buildup are ordnance (which includes tanks), guided missiles, aircraft, ship and boat building and repair, and radio and other communication equipment.

In contrast, the nondefense portion of Federal purchases of goods and services is expected to show no growth over the next decade. As a share of total final demand, Federal nondefense purchases decline from 2.3 percent of GNP in 1979 to 1.9 percent by 1990 in the low-trend version, 1.7 percent in high-trend version I, and 1.5 percent in high-trend version II.

Expenditures for goods and services by State and local governments, which accounted for 12.1 percent of GNP in 1979, will show only minimal growth during the 1980's. Education expenditures are actually projected to decline between 1985 and 1990, as the school- and college-age population shrinks. In the latter year, there will be only about 45.3 million children age 5 to 17 and

25.1 million young adults between 18 and 24, compared with 46.9 million and 29.3 million in 1979.<sup>4</sup>

The only area of State and local spending expected to show any increase is the health field. It is assumed that purchases of goods and services for public health will just about keep pace with the rate of growth of the economy as a whole.

### Industry output

The projections of final demand by industry were multiplied by an input-output table to yield projections of the domestic output required by each industry to meet that final demand. The table was based on the 1972 input-output matrix published by the Department of Commerce,<sup>5</sup> with several of the original coefficients modified to reflect 1977 Commerce Department data or other information on recent trends. Among the industries for which special studies or assumptions were made are the metals sectors, textiles, motor vehicles, the service sectors, and the energy industries.

*Food production slows.* As real incomes rise, purchases of food for home consumption tend to level off. Food purchases are projected to grow only slightly faster than the population, and considerably more slowly than purchases of other commodities. This slowdown will affect almost all of the food industries, and indirectly, the agricultural industries. The only food industries expected to post output gains at least equal to total GNP growth are those producing alcoholic beverages and soft drinks. Domestic output of alcoholic beverages, including beer and wine, is assumed to keep pace with rising incomes, while growth in the soft drink industry will arise from higher levels of exports.

*Little growth in other nondurable goods industries.* Several other nondurable manufacturing industries, such as tobacco manufacturing, paper products, cleaning preparations, and leather products, are also expected to exhibit only moderate output growth over the next decade. The output of the refined petroleum products industry is assumed to actually decline as demand shrinks dramatically. Partly as a result of the petroleum cutback, output of the nondurable goods sector will decline steadily as a share of total output. (See table 2.)

Although the output of the nondurable goods manufacturing sector is projected to show only moderate overall growth, several component industries are expected to post faster-than-average gains. These include the chemical products, drugs, apparel, and printing and publishing industries.

*Growth strong for durable goods.* The durable goods portion of manufacturing, unlike nondurables, is projected to grow faster than the all-industries average. Between 1979 and 1990, production is expected to expand

Table 2. Gross product originating<sup>1</sup> by major sector, actual and projected, selected years, 1959-90

Industry sector	Billions of 1972 dollars								
	Actual			Projected					
	1959	1969	1979	1985			1990		
				Low-trend	High-trend I	High-trend II	Low-trend	High-trend I	High-trend II
Total private	629.5	951.9	1,329.1	1,490.3	1,621.7	1,613.7	1,732.7	2,002.9	2,004.7
Agriculture	27.8	29.5	34.9	36.5	42.0	42.1	37.6	47.0	47.3
Nonagriculture	601.7	922.4	1,294.2	1,453.8	1,579.7	1,571.6	1,695.1	1,955.9	1,957.4
Mining	13.3	18.2	21.0	25.2	26.9	26.6	27.1	30.1	29.7
Construction	45.5	55.8	58.3	70.8	75.5	75.5	76.3	87.1	88.0
Manufacturing	171.2	277.2	368.0	411.6	448.4	444.2	474.6	554.3	550.9
Durable goods	100.9	170.3	223.5	251.7	277.9	274.7	294.6	354.7	350.6
Nondurable goods	70.3	106.8	144.5	159.9	170.5	169.5	180.0	199.6	200.3
Transportation, communications, and public utilities	55.4	92.6	141.1	175.7	187.3	186.3	218.7	244.8	244.0
Transportation	29.9	43.4	55.9	63.3	67.9	67.5	73.7	83.8	83.3
Communications	11.5	23.8	50.3	73.0	77.6	77.2	99.5	110.4	109.8
Public utilities	14.0	25.3	34.8	39.4	41.8	41.6	45.5	50.6	50.9
Wholesale and retail trade	115.4	173.6	248.1	271.8	296.1	294.4	316.0	365.0	366.6
Wholesale	42.0	70.6	103.4	114.4	124.2	123.5	132.6	154.8	154.6
Retail	73.4	103.0	144.8	157.4	171.9	170.9	183.4	210.2	212.0
Finance, insurance, and real estate	98.5	152.9	227.5	245.8	266.9	266.9	284.9	324.7	329.4
Other services <sup>2</sup>	83.6	127.2	183.3	205.2	220.1	218.9	239.0	276.9	278.1
Government enterprises	11.8	16.8	21.0	25.1	26.7	26.6	28.5	31.9	32.1
Rest of world and statistical discrepancy	7.9	8.1	25.9	22.6	31.8	32.2	30.0	41.1	38.6
	Average annual rate of change								
	Actual		Projected						
	1959-69	1969-79	1979-85			1985-90			
			Low-trend	High-trend I	High-trend II	Low-trend	High-trend I	High-trend II	
Total private	4.2	3.4	1.9	3.4	3.3	3.1	4.3	4.4	
Agriculture	.6	1.7	.7	3.1	3.2	.6	2.3	2.4	
Nonagriculture	4.4	3.4	2.0	3.4	3.3	3.1	4.4	4.5	
Mining	3.2	1.4	3.1	4.2	4.0	1.5	2.3	2.2	
Construction	2.1	.4	3.3	4.4	4.4	1.5	2.9	3.1	
Manufacturing	4.9	2.9	1.9	3.3	3.2	2.9	4.3	4.4	
Durable goods	5.4	2.8	2.0	3.7	3.5	3.2	5.0	5.0	
Nondurable goods	4.3	3.1	1.7	2.8	2.7	2.4	3.2	3.4	
Transportation, communications, and public utilities	5.3	4.3	3.7	4.8	4.7	4.5	5.5	5.5	
Transportation	3.8	2.6	2.1	3.3	3.2	3.1	4.3	4.3	
Communications	7.5	7.8	6.4	7.5	7.4	6.4	7.3	7.3	
Public utilities	6.1	3.2	2.1	3.1	3.0	2.9	3.9	4.1	
Wholesale and retail trade	4.2	3.6	1.5	3.0	2.9	3.1	4.3	4.5	
Wholesale	5.3	3.9	1.7	3.1	3.0	3.0	4.5	4.6	
Retail	3.4	3.5	1.4	2.9	2.8	3.1	4.1	4.4	
Finance, insurance, and real estate	4.5	4.1	1.3	2.7	2.7	3.0	4.0	4.3	
Other services <sup>2</sup>	4.3	3.7	1.9	3.1	3.0	3.1	4.7	4.9	
Government enterprises	3.6	2.3	3.0	4.1	4.0	2.6	3.6	3.8	
Rest of world and statistical discrepancy	.3	12.3	-2.2	3.5	3.7	4.8	5.3	3.7	

<sup>1</sup> Gross product originating represents the value added by an industry after costs of materials and secondary products made in other industries have been subtracted from total output.

<sup>2</sup> Includes private households.

2.5 percent a year in the low-trend version, compared to 2.4 percent for total private-sector output. Corresponding figures for the high-trend version are 4.2 to 4.3 percent for durable goods versus 3.8 percent for the total. Spurring the rapid increase in durable goods output are the investment, defense, and personal consumption assumptions discussed previously.

Among specific industries in the durable manufacturing sector projected to enjoy substantial output growth are computers; optical equipment; construction, mining, and oilfield machinery; typewriters and other office machines; electronic components; material handling equipment; photographic equipment; and medical and dental instruments.

The computer industry, in fact, is expected to lead all industries studied in terms of output increase. As is well known, output of computer equipment has burgeoned

in the past few decades; its 11.6-percent annual rate of increase between 1958 and 1979 surpassed that of all other industries studied. Growth came in response to greater demand for information processing as well as from expanding applications of computer technology to such fields as biotechnology and industrial robots. New uses and markets for computer technology will continue to spur output in the coming decade, at projected rates of increase ranging from 7.6 to 10.1 percent a year.

*Services output growth in line with rest of economy.* In 1959, service industries accounted for 13.3 percent of total private output; in 1979 the share was 13.8 percent. Service industries are expected to hold this steady share of output throughout the 1980's in all three scenarios.

Within the service sector, the most rapid output growth is projected for the amusement and recreation



industry and the medical industries. Amusement and recreation services expanded by about 4.1 percent annually between 1958 and 1979. The same pace is expected for the 1979-90 period in the low-trend version, while the high-trend models project average annual growth of 5.4 to 5.6 percent. For the medical industries, an increase in output of doctors' and dentists' services is expected to average 3.3 to 4.7 percent a year between 1979 and 1990; output of hospitals is projected to expand by 3.6 to 5.1 percent; and annual output growth of other medical services is projected to be in the 3.0- to 5.0-percent range. These average rates are all higher than the 2.4- to 3.8-percent range forecast for output of the total private economy during 1979-90.

*Construction pattern mixed.* In all scenarios, the construction sector grows faster than the all-industries average between 1979 and 1985, but more slowly between 1985 and 1990. In the first half of the decade, rising residential construction is projected to stimulate this industry, but in the second half, a dropoff in new home construction is expected to more than offset the beginnings of a rebound in business construction of factories, offices, and public utilities. Shrinking government outlays for school and road construction are also expected to dampen the output growth of this sector.

*Variations expected in other industry sectors.* Trade, which represented 18.7 percent of total private-sector output in 1979, is projected to hold about the same share in 1990. Both the wholesale and retail portions will grow at about the same pace, although within retail trade, output of eating and drinking establishments is

expected to expand more rapidly than that of other retail businesses.

Output of the mining sector is projected to keep pace with total private output after decades of slower-than-average growth. The rapid increase projected for coal production is expected to outweigh the minimal growth assumed for crude oil production and the absolute declines anticipated in copper mining and nonferrous ores mining. In addition to coal, above-average domestic output gains are also projected for iron ores and chemical mining.

Table 3 summarizes the low-path industry output forecast, showing the most- and least-rapidly growing or declining industries for 1979-90. In the high-trend versions (which assume more purchases of durable equipment), transportation services, amusement and recreation services, electronic components, and chemical mining drop off the list of the 10 fastest-growing industries (but remain within the top 20), and are replaced by those manufacturing radios and televisions, typewriters and other office equipment, material handling equipment, and telephone and telegraph apparatus.

**Industry employment**

Employment projections at the industry level are derived from the projections of output by industry, but the two are far from strictly parallel. The differences stem from the varying estimates of labor productivity by industry and of expected changes in the average workweek. Thus, although output in the low-trend version is projected to decline in only 4 of the 150 industries studied, employment drops are expected for 33 industries as a result of expected productivity growth in the private economy. In high-trend version I, only two industries experience output declines, but 24 show employment reductions. For the high-trend II case, output drops in two industries but employment falls in 30. (See table 4.)

The projected upturn in productivity is somewhat offset by a continued decline in the average workweek. Average weekly hours in the private sector dropped from 39.9 in 1959 to 38.3 in 1969, and further, to 36.6, in 1979. By 1990, hours paid are projected to average 35.0 a week in the low-trend model and 35.1 in the high-trend models.

While employment is expected to grow more slowly than in the recent past, at least in the low-trend version and high-trend II (which are based on a smaller labor force than high-trend I), the distribution of employment among major industry sectors in all versions will continue to change largely in line with past trends. (See tables 5 and 6.)

*Services continue to pace growth.* The fastest-growing employment sector is projected to be services, as it has

**Table 3. Low-trend projected output changes for selected industries, 1979-90**

Industry	Average annual rate of output change (in percent)
All private industries .....	2.4
<b>Fastest-growing:</b>	
Computers and peripheral equipment .....	7.6
Communications, except radio and television .....	6.4
Coal mining .....	6.0
Radio and television broadcasting .....	5.7
Transportation services .....	4.3
Optical and ophthalmic equipment .....	4.2
Amusement and recreation services .....	4.0
Electronic components .....	3.9
Chemical and fertilizer mineral mining .....	3.8
Construction, mining, and oilfield machinery .....	3.8
<b>Slowest-growing or declining:</b>	
Petroleum refining and related products .....	-1.6
Copper ore mining .....	-.3
Private households .....	-.3
Nonferrous metal ores mining .....	-.3
Logging .....	.0
Barber and beauty shops .....	.0
Railroad equipment .....	.1
Gas utilities .....	.5
Tobacco manufacturing .....	.5

**Table 4. Employment by industry, actual and projected, selected years, 1959-90**

[In thousands]

Industry	Actual			Projected					
	1959	1969	1979	Low-trend		High-trend I		High-trend II	
				1990	Average annual rate of change, 1979-90	1990	Average annual rate of change, 1979-90	1990	Average annual rate of change, 1979-90
<b>Agriculture:</b>									
Dairy and poultry products	1,551	814	511	354	-3.3	395	-2.3	411	-2.0
Meat and livestock products	979	756	528	452	-1.4	506	-4	524	-1
Cotton	565	178	142	121	-1.4	136	-3	135	-5
Food and feed grains	960	635	639	591	-7	674	.5	661	.3
Other agricultural products	1,436	1,111	995	813	-1.8	920	-7	903	-9
<b>Mining:</b>									
Iron and ferroalloy ores mining	33	30	30	34	1.3	38	2.2	33	1.0
Copper ore mining	23	34	33	34	.4	37	1.2	36	.8
Nonferrous metal ores mining, except copper	31	25	39	40	.3	42	.8	40	.3
Coal mining	201	138	265	411	4.1	472	5.4	412	4.1
Crude petroleum and natural gas	200	157	211	311	3.6	325	4.0	307	3.5
Stone and clay mining and quarrying	105	99	103	103	.1	109	.5	100	-3
Chemical and fertilizer mineral mining	19	18	25	31	2.1	33	2.8	32	2.1
<b>Construction:</b>									
Maintenance and repair construction	662	792	1,292	1,423	.9	1,532	1.6	1,460	1.1
New construction	3,163	3,594	4,605	5,497	1.6	5,977	2.4	5,643	1.9
<b>Manufacturing:</b>									
<b>Durable goods:</b>									
Ordnance	50	175	75	102	2.8	111	3.7	98	2.5
Complete guided missiles and space vehicles	94	107	81	70	-1.3	72	-9	77	-5
Logging	143	138	148	113	-2.4	120	-1.8	108	-2.8
Sawmills and planing mills	305	230	237	222	-6	231	-2	215	-9
Other millwork, plywood, and wood products	261	310	386	344	-1.0	370	-4	374	-3
Wooden containers	43	36	25	20	-1.6	22	-1.0	22	-1.3
Household furniture	259	316	331	379	1.2	408	1.9	390	1.5
Furniture and fixtures, except household	124	153	176	180	.2	214	1.8	194	.9
Glass	153	188	205	239	1.4	252	1.9	242	1.5
Cement and concrete products	209	228	254	253	-0	267	.5	261	.2
Structural clay products	78	64	52	44	-1.5	45	-1.2	43	-1.7
Pottery and related products	49	45	51	57	1.1	60	1.5	55	.7
Other stone and clay products	125	140	164	171	.4	186	1.2	181	.9
Blast furnaces and basic steel products	588	644	569	583	.2	586	.3	583	.2
Iron and steel foundries and forgings	269	312	324	375	1.4	387	1.6	377	1.4
Primary copper and copper products	137	160	159	163	.3	170	.7	165	.3
Primary aluminum and aluminum products	111	153	169	173	.3	181	.6	170	.0
Primary nonferrous metals and metal products	78	93	90	111	2.0	114	2.2	108	1.7
Metal containers	75	87	81	91	1.1	99	1.9	95	1.4
Heating apparatus and plumbing fixtures	71	76	76	100	2.6	105	3.0	103	2.8
Fabricated structural metal products	344	440	538	583	.7	640	1.6	601	1.0
Screw machine products	88	114	117	140	1.6	151	2.4	143	1.9
Metal stampings	189	255	243	266	.8	290	1.6	277	1.2
Cutlery, handtools, and general hardware	135	165	186	226	1.8	240	2.4	227	1.8
Other fabricated metal products	231	315	378	443	1.5	472	2.0	461	1.8
Engines, turbines, and generators	90	112	145	149	.3	175	1.7	160	.9
Farm machinery	128	141	183	217	1.6	239	2.5	224	1.9
Construction, mining, and oilfield machinery	162	202	282	369	2.4	474	4.8	369	2.4
Material handling equipment	65	95	113	148	2.5	183	4.5	150	2.6
Metalworking machinery	251	347	379	411	.7	547	3.4	424	1.0
Special industry machinery	164	206	205	227	1.0	234	1.2	231	1.1
General industrial machinery	221	291	329	393	1.6	430	2.5	390	1.6
Other nonelectrical machinery	166	246	309	344	1.0	381	1.9	373	1.7
Computers and peripheral equipment	111	224	350	552	4.2	614	5.2	555	4.3
Typewriters and other office equipment	28	52	48	77	4.5	89	5.8	73	3.8
Service industry machines	97	147	188	199	.6	226	1.7	208	.9
Electric transmission equipment	157	207	219	236	.7	277	2.2	247	1.1
Electrical industrial apparatus	176	223	251	307	1.9	355	3.2	315	2.1
Household appliances	157	187	180	192	.6	198	.9	190	.5
Electric lighting and wiring	134	205	226	309	2.9	335	3.7	324	3.3
Radio and television receiving sets	114	156	115	98	-1.4	120	.5	116	.0
Telephone and telegraph apparatus	105	146	169	201	1.6	231	2.9	229	2.8
Radio and communication equipment	252	409	357	424	1.6	433	1.8	418	1.5
Electronic components	213	394	525	666	2.2	669	2.2	669	2.2
Other electrical machinery and equipment	111	125	180	174	-3	211	1.5	176	-2
Motor vehicles	696	912	996	921	-7	1,049	.5	940	-5
Aircraft	722	805	632	768	1.8	839	2.6	779	1.9
Ship and boat building and repair	151	193	228	271	1.6	305	2.7	279	1.9
Railroad equipment	41	51	74	65	-1.0	81	.8	81	.8
Motorcycles, bicycles, and parts	9	14	20	24	1.8	30	4.0	32	4.4
Other transportation equipment	23	89	105	120	1.2	147	3.1	121	1.3



Table 4. Continued—Employment by industry, actual and projected, selected years, 1959–90

[In thousands]

Industry	Actual			Projected					
	1959	1969	1979	Low-trend		High-trend I		High-trend II	
				1990	Average annual rate of change, 1979–90	1990	Average annual rate of change, 1979–90	1990	Average annual rate of change, 1979–90
Scientific and controlling instruments . . . . .	166	195	218	252	1.4	296	2.8	246	1.1
Medical and dental instruments . . . . .	45	82	141	189	2.7	224	4.3	183	2.4
Optical and ophthalmic equipment . . . . .	85	75	82	92	1.1	102	2.0	97	1.5
Photographic equipment and supplies . . . . .	69	111	134	144	.7	165	1.9	152	1.2
Watches, clocks, and clock-operated devices . . . . .	30	35	28	25	-.7	28	.3	25	-.9
Jewelry and silverware . . . . .	67	78	93	91	-.2	92	-.1	91	-.2
Musical instruments and sporting goods . . . . .	116	149	145	164	1.2	175	1.8	175	1.7
Other manufactured products . . . . .	229	233	244	263	.7	269	.9	262	.6
Nondurable goods:									
Meat products . . . . .	324	344	364	379	.4	403	.9	372	.2
Dairy products . . . . .	326	260	189	158	-1.6	168	-1.0	147	-2.2
Canned and frozen foods . . . . .	249	291	306	289	-.5	307	.0	323	.5
Grain mill products . . . . .	139	137	146	154	.5	165	1.2	151	.3
Bakery products . . . . .	313	286	240	204	-1.5	217	-.9	209	-1.2
Sugar . . . . .	38	36	30	33	1.1	34	1.4	33	1.0
Confectionery products . . . . .	79	87	79	70	-1.0	75	-.5	73	-.7
Alcoholic beverages . . . . .	107	97	88	62	-3.1	64	-2.7	65	-2.7
Soft drinks and flavorings . . . . .	111	142	151	156	.3	166	.9	152	.1
Other food products . . . . .	144	151	163	147	-.9	157	-.3	156	-.4
Tobacco manufactures . . . . .	95	83	70	64	-.7	67	-.3	67	-.4
Fabric, yarn, and thread mills . . . . .	619	616	532	534	.0	545	.2	529	-.1
Floor covering mills . . . . .	39	58	60	62	.3	68	1.3	64	.6
Other textile mill products . . . . .	74	82	70	74	.6	82	1.5	73	.4
Hosiery and knit goods . . . . .	221	251	229	238	.4	261	1.2	232	.1
Apparel . . . . .	1,100	1,244	1,132	1,190	.5	1,319	1.4	1,205	.6
Other fabricated textile products . . . . .	143	182	200	233	1.4	251	2.1	236	1.5
Paper products . . . . .	415	483	493	546	.9	548	1.0	545	.9
Paperboard containers and boxes . . . . .	175	231	215	221	.3	233	.8	230	.6
Newspaper printing and publishing . . . . .	328	376	435	506	1.4	549	2.1	526	1.7
Periodical and book printing and publishing . . . . .	156	210	230	303	2.5	329	3.3	305	2.6
Other printing and publishing . . . . .	446	550	641	664	.3	717	1.0	693	.7
Industrial inorganic and organic chemicals . . . . .	260	296	323	417	2.4	426	2.6	425	2.5
Agricultural chemicals . . . . .	54	65	70	73	.5	75	.7	71	.1
Other chemical products . . . . .	82	124	100	113	1.2	118	1.5	122	1.8
Plastic materials and synthetic rubber . . . . .	81	108	101	97	-.3	107	.6	106	.5
Synthetic fibers . . . . .	79	132	118	93	-2.1	101	-1.4	102	-1.3
Drugs . . . . .	106	143	194	228	1.5	247	2.2	232	1.6
Cleaning and toilet preparations . . . . .	89	123	140	145	.4	162	1.3	152	.8
Paints and allied products . . . . .	62	72	69	71	.3	74	.7	69	.1
Petroleum refining and related products . . . . .	217	182	210	184	-1.2	201	-.4	184	-1.2
Tires and inner tubes . . . . .	105	119	122	126	.3	129	.5	126	.3
Miscellaneous rubber and plastics products . . . . .	178	162	167	179	.7	181	.8	183	.8
Other plastics products . . . . .	94	320	493	658	2.7	669	2.8	645	2.5
Leather tanning and industrial leather . . . . .	36	29	20	14	-2.7	15	-2.2	15	-2.6
Leather products including footwear . . . . .	341	316	234	212	-.9	226	-.3	214	-.8
Transportation:									
Railroad transportation . . . . .	930	651	561	462	-1.7	493	-1.2	468	-1.6
Local transit and intercity buses . . . . .	311	315	303	304	1.4	364	1.7	339	1.0
Truck transportation . . . . .	1,001	1,214	1,558	1,922	1.9	2,052	2.5	1,906	1.8
Water transportation . . . . .	239	234	223	196	-1.1	204	-.8	183	-1.8
Air transportation . . . . .	184	357	442	493	1.0	525	1.6	497	1.1
Pipeline transportation . . . . .	24	18	20	22	1.1	22	1.2	22	.7
Transportation services . . . . .	70	111	192	240	2.1	262	2.9	246	2.3
Communications:									
Radio and television broadcasting . . . . .	90	131	193	266	3.0	277	3.4	267	3.0
Communications except radio and television . . . . .	749	919	1,121	1,280	1.2	1,454	2.4	1,300	1.4
Public utilities:									
Electric utilities, public and private . . . . .	430	460	606	650	.6	758	2.1	654	.7
Gas utilities, excluding public . . . . .	215	220	223	242	.8	274	1.9	235	.5
Water and sanitary services, excluding public . . . . .	61	88	93	108	1.4	128	2.9	114	1.8
Trade:									
Wholesale trade . . . . .	3,349	4,163	5,501	6,366	1.3	6,964	2.2	6,412	1.4
Eating and drinking places . . . . .	1,960	2,812	4,924	6,836	3.0	7,179	3.5	6,843	3.0
Retail trade, except eating and drinking places . . . . .	7,936	9,729	11,952	13,830	1.3	15,088	2.1	14,190	1.6
Finance, insurance, and real estate:									
Banking . . . . .	644	987	1,492	1,981	2.6	2,013	2.8	1,957	2.5
Credit agencies and financial brokers . . . . .	389	652	898	1,174	2.5	1,329	3.6	1,303	3.4
Insurance . . . . .	1,137	1,370	1,753	2,120	1.7	2,193	2.1	2,133	1.8
Real estate . . . . .	753	855	1,371	1,732	2.1	1,926	3.1	1,716	2.1

**Table 4. Continued—Employment by industry, actual and projected, selected years, 1959–90**

[In thousands]

Industry	Actual			Projected					
	1959	1969	1979	Low-trend		High-trend I		High-trend II	
				1990	Average annual rate of change, 1979–90	1990	Average annual rate of change, 1979–90	1990	Average annual rate of change, 1979–90
<b>Services:</b>									
Hotels and lodging places	868	1,065	1,543	1,887	1.8	2,126	3.0	2,035	2.5
Personal and repair services	1,157	1,232	1,278	1,281	.0	1,555	1.8	1,424	1.0
Barber and beauty shops	538	634	613	649	.5	770	2.1	733	1.6
Miscellaneous business services	814	1,691	3,144	4,314	2.9	4,757	3.8	4,509	3.3
Advertising	121	134	166	192	1.3	213	2.3	198	1.6
Miscellaneous professional services	746	1,046	1,720	2,179	2.2	2,413	3.1	2,292	2.6
Automobile repair	422	569	837	1,168	3.1	1,208	3.4	1,148	2.9
Motion pictures	228	248	308	315	.2	329	.6	306	-.1
Amusement and recreation services	372	497	761	1,029	2.8	1,042	2.9	1,019	2.7
Doctors' and dentists' services	605	806	1,317	1,896	3.4	1,982	3.8	1,875	3.3
Hospitals	974	1,776	2,621	3,967	3.8	4,206	4.4	3,954	3.8
Other medical services	283	652	1,403	2,312	4.6	2,553	5.6	2,403	5.0
Educational services (private)	839	1,229	1,683	2,098	2.0	2,149	2.2	2,075	1.9
Nonprofit organizations	1,331	1,764	2,244	2,638	1.5	2,839	2.2	2,722	1.8
Forestry and fishery products	47	41	76	78	.3	82	.8	76	.1
Agricultural, forestry, and fishery services	261	296	447	542	1.8	593	2.6	543	1.8
Private households	2,574	2,322	1,723	1,576	-.8	1,593	-.7	1,587	-.7
<b>Government enterprises:</b>									
Post Office	574	732	661	675	.2	700	.5	680	.3
Other Federal enterprises	104	152	153	202	2.6	236	4.0	207	2.8
Local government passenger transit	71	87	130	185	3.3	200	4.0	190	3.5
Other state and local government enterprises	225	351	492	695	3.2	774	4.2	701	3.3

been in the past. In 1959, service industries accounted for 13.6 percent of total employment; by 1979, that share had risen to 19.4 percent. It is expected that in 1990, service industries will account for about 22 percent of all jobs in the economy.

Leading the advance among service industries will be health care. Employment in doctors' and dentists' offices and in hospitals is expected to grow faster than the all-industries average, but the most rapid gains are projected for other related medical care services, such as nursing homes, medical laboratories, therapists' offices, and nurses' services. Between 1958 and 1979, employment in these establishments expanded by 8.8 percent a year, the fastest growth rate for any industry in the economy. During the 1980's, other medical services employment will again post the fastest rate of growth under all scenarios: 4.6 percent a year in the low-trend model, 5.6 percent in high-trend I, and 5.0 percent in high-trend II.

*Trade will offer most new jobs.* The trade sector is expected to continue to increase its share of all jobs, but within the sector the pattern of job growth varies. Wholesale trade is projected to show only modest gains, while eating and drinking establishments in the retail portion enjoy more rapid growth. Although the anticipated rate of job increase for eating and drinking places is higher than for many other industries in the economy, it is still below the historical rate, due to an assumption of more rapid productivity gains. Other retail trade establishments are projected to average job

growth at about the same pace as the total private economy.

The greatest increase in employment opportunities over the next 11 years is expected to be in the trade sector, primarily because of its initial large size. Between 4.7 and 6.9 million new jobs are projected to appear in wholesale and retail trade establishments between 1979 and 1990.

*Manufacturing growth to pick up.* Manufacturing jobs will grow by 0.8 percent a year during 1979–90 in the low-trend version, 1.6 percent in high-trend I, and 1.0 percent in high-trend II, slower than the rates projected for total jobs but faster than manufacturing sector growth in recent years. Between 1969 and 1979, manufacturing employment rose by only 0.5 percent a year, and its share of total jobs dropped from 23.7 percent to 20.6 percent. Manufacturing will account for between 19.2 and 19.5 percent of all jobs in 1990.

The projected turnaround in the rate of manufacturing job growth is more pronounced for durable goods manufacturing than for nondurables, reflecting assumptions of strong demand for consumer durables and for producers' durable equipment, especially in the high-trend versions. Employment in durable manufacturing industries will expand by 1.0 percent a year during 1979–90 in the low-trend model, 1.9 percent in high-trend I, and 1.2 percent in high-trend II. Annual growth averaged only 0.7 percent in the 1969–79 period.

Within the durable goods sector, rapid job gains are projected for industries manufacturing typewriters and

other office equipment; computers; electric lighting and wiring equipment; and medical and dental instruments. Employment in guided missiles and space vehicles is projected to decline between 1979 and 1990, despite output growth related to defense demand, because of productivity advances.

In the motor vehicles industry, the high-trend assumption is for employment to rebound from the layoffs of 1980, but under low-trend assumptions, the recovery will not be as complete. In 1977, 1978, and 1979, em-

ployment in the industry hovered around the 1 million mark. In 1980, however, it plunged to 776,000. In the high-trend I case, these lost jobs are expected to be recouped and employment is projected to be 1.049 million in 1990. In the low-trend case, 1990 motor vehicle employment will be about 921,000.

The number of jobs in basic steel declined steadily during the 1970's, but is projected to stabilize over the next 10 years. Employment is expected to rise slightly from the 1979 level of 569,000 to between 583,000 and

**Table 5. Employment by major sector, actual and projected, selected years, 1959-90**

Industry sector	Thousands of jobs									
	Actual			Projected						
	1959	1969	1979	1985			1990			
				Low-trend	High-trend I	High-trend II	Low-trend	High-trend I	High-trend II	
Total employment	70,512	86,278	104,120	113,775	118,981	114,935	121,971	130,665	123,958	
General government <sup>1</sup>	9,973	14,818	16,523	17,587	17,587	17,441	18,106	18,106	17,886	
Federal	4,289	5,614	4,223	4,355	4,355	4,209	4,429	4,429	4,209	
Military	2,552	3,506	2,103	2,129	2,129	2,129	2,129	2,129	2,129	
Civilian	1,737	2,108	2,120	2,226	2,226	2,080	2,300	2,300	2,080	
State and local	5,684	9,204	12,300	13,232	13,232	13,232	13,677	13,677	13,677	
Education	2,687	5,036	6,642	6,679	6,679	6,679	6,513	6,513	6,513	
Noneducation	2,997	4,168	5,658	6,553	6,553	6,553	7,164	7,164	7,164	
Total private	60,539	71,460	87,597	96,188	101,394	97,494	103,865	112,559	106,072	
Agriculture	5,491	3,494	2,815	2,621	2,921	2,922	2,333	2,633	2,634	
Nonagriculture	55,048	67,966	84,782	93,566	98,472	94,572	101,531	109,925	103,438	
Mining	612	501	706	898	946	896	967	1,059	959	
Construction	3,825	4,386	5,897	6,747	7,080	6,810	6,920	7,509	7,104	
Manufacturing	16,985	20,469	21,433	22,609	23,855	22,895	23,476	25,520	23,905	
Durable goods	9,560	12,081	13,009	13,833	14,644	14,036	14,560	16,045	14,872	
Nondurable goods	7,425	8,388	8,424	8,775	9,210	8,859	8,916	9,475	9,033	
Transportation, communications, and public utilities	4,304	4,718	5,535	5,903	6,213	5,898	6,239	6,815	6,241	
Transportation	2,759	2,900	3,299	3,488	3,627	3,468	3,693	3,924	3,671	
Communications	839	1,050	1,314	1,447	1,535	1,459	1,546	1,731	1,567	
Public utilities	706	768	922	968	1,051	971	1,000	1,160	1,003	
Wholesale and retail trade	13,245	16,704	22,377	24,868	26,150	24,961	27,032	29,231	27,445	
Finance, insurance, and real estate	2,923	3,864	5,514	6,096	6,427	6,252	7,008	7,464	7,108	
Other services	9,606	13,680	20,161	23,249	24,497	23,642	26,553	28,824	27,313	
Government enterprises	974	1,322	1,436	1,606	1,681	1,625	1,758	1,911	1,778	
Private households	2,574	2,322	1,723	1,586	1,618	1,592	1,576	1,593	1,587	
	Percent distribution									
	Actual			Projected						
	#	1959	1969	1979	1985			1990		
					Low-trend	High-trend I	High-trend II	Low-trend	High-trend I	High-trend II
Total employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
General government <sup>1</sup>	14.1	17.2	15.9	15.5	14.8	15.2	14.8	13.9	14.4	
Federal	6.1	6.5	4.1	3.8	3.7	3.7	3.6	3.4	3.4	
Military	3.6	4.1	2.0	1.9	1.8	1.9	1.7	1.6	1.7	
Civilian	2.5	2.4	2.0	2.0	1.9	1.8	1.9	1.8	1.7	
State and local	8.1	10.7	11.8	11.6	11.1	11.5	11.2	10.5	11.0	
Education	3.8	5.8	6.4	5.9	5.6	5.8	5.3	5.0	5.3	
Noneducation	4.3	4.8	5.4	5.8	5.5	5.7	5.9	5.5	5.8	
Total private	85.9	82.8	84.1	84.5	85.2	84.8	85.2	86.1	85.6	
Agriculture	7.8	4.0	2.7	2.3	2.5	2.5	1.9	2.0	2.1	
Nonagriculture	78.1	78.8	81.4	82.2	82.8	82.3	83.2	84.1	83.4	
Mining	.9	.6	.7	.8	.8	.8	.8	.8	.8	
Construction	5.4	5.1	5.8	5.9	6.0	5.9	5.7	5.7	5.7	
Manufacturing	24.1	23.7	20.6	19.9	20.0	19.9	19.2	19.5	19.3	
Durable goods	13.6	14.0	12.5	12.2	12.3	12.2	11.9	12.3	12.0	
Nondurable goods	10.5	9.7	8.1	7.7	7.7	7.7	7.3	7.3	7.3	
Transportation, communications, and public utilities	6.1	5.5	5.3	5.2	5.2	5.1	5.1	5.2	5.0	
Transportation	3.9	3.4	3.2	3.1	3.0	3.0	3.0	3.0	3.0	
Communications	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Public utilities	1.0	.9	.9	.9	.9	.8	.8	.9	.9	
Wholesale and retail trade	18.8	19.4	21.5	21.9	22.0	21.7	22.2	22.4	22.1	
Finance, insurance, and real estate	4.1	4.5	5.3	5.4	5.4	5.4	5.7	5.7	5.7	
Other services	13.6	15.9	19.4	20.4	20.6	20.6	21.8	22.1	22.0	
Government enterprises	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.4	
Private households	3.7	2.7	1.7	1.4	1.4	1.4	1.3	1.2	1.3	

<sup>1</sup> National Income Accounts basis.



**Table 6. Average annual percent change in employment by major sector, actual and projected, selected years, 1959-90**

Industry sector	Actual		Projected					
	1959-69	1969-79	1979-85			1985-90		
			Low-trend	High-trend I	High-trend II	Low-trend	High-trend I	High-trend II
Total employment	2.0	1.9	1.5	2.3	1.7	1.4	1.9	1.5
General government <sup>1</sup>	4.0	1.1	1.0	1.0	.9	.6	.6	.5
Federal	2.7	-2.8	.5	.5	.0	.3	.3	.0
Military	3.2	-5.0	.2	.2	.2	.0	.0	.0
Civilian	2.0	.1	.8	.8	-.3	.7	.7	.0
State and local	4.9	2.9	1.2	1.2	1.2	.7	.7	.7
Education	6.5	2.8	.1	.1	.1	-.5	-.5	-.5
Noneducation	3.4	3.1	2.5	2.5	2.5	1.8	1.8	1.8
Total private	1.7	2.1	1.6	2.5	1.8	1.5	2.1	1.7
Agriculture	-4.4	-2.1	-1.2	.6	.6	-2.3	-2.1	-2.1
Nonagriculture	2.1	2.3	1.7	2.5	1.8	1.6	2.2	1.8
Mining	-2.0	3.5	4.1	5.0	4.0	1.5	2.3	1.4
Construction	1.4	3.0	2.3	3.1	2.4	.5	1.2	.8
Manufacturing	1.9	.5	.9	1.8	1.1	.8	1.4	.9
Durable goods	2.4	.7	1.0	2.0	1.3	1.0	1.8	1.2
Nondurable goods	1.2	.0	.7	1.5	.8	.3	.6	.4
Transportation, communications, and public utilities	.9	1.6	1.1	1.9	1.1	1.1	1.9	1.1
Transportation	.5	1.3	.9	1.6	.8	1.1	1.6	1.1
Communications	2.3	2.3	1.6	2.6	1.8	1.3	2.4	1.4
Public utilities	.8	1.8	.8	2.2	.9	.7	2.0	.6
Wholesale and retail trade	2.3	3.0	1.8	2.6	1.8	1.7	2.3	1.9
Finance, insurance, and real estate	2.8	3.6	1.7	2.6	2.1	2.8	3.0	2.6
Other services	3.6	4.0	2.4	3.3	2.7	2.7	3.3	2.9
Government enterprises	3.1	.8	1.9	2.7	2.1	1.8	2.6	1.8
Private households	-1.0	-2.9	-1.4	-1.0	-1.3	-.1	-.3	-.1

<sup>1</sup> National Income Accounts basis.

586,00 by 1990. An increase in steel jobs is projected despite an assumption that imports will account for a larger share of total steel output, because demand for basic steel products is expected to be strong in the next decade as the result of rapid investment growth.

The projected increase in nondurable goods employment, although positive compared to the zero growth posted during 1969-79, is much slower than the all-industries average. Nondurable goods industries accounted for 8.1 percent of all jobs in 1979, but are expected to represent only 7.3 percent in 1990.

In fact, 5 of the 10 industries with the greatest rate of projected job loss are in the nondurable goods sector. (See table 7.) The five industries have already experienced job declines either because of falling demand or rapid productivity growth, and these trends are expected to continue. Sluggish demand for leather tanning services and processed foods (especially dairy and bakery products) is expected to cause employment to fall; for alcoholic beverages and synthetic fibers, productivity gains are assumed to more than offset rapidly rising demand.

Employment in textiles will remain essentially unchanged from the 1979 level of 892,000 in the low-trend and high-trend II versions, and rise by about 65,000 jobs in high-trend I. Demand for textile products is projected to expand in all models, but imports are expected to hold a 6.7- to 7.5-percent market share 1990, somewhat larger than at present.

Jobs in apparel are projected to rise from 1.1 million to between 1.2 and 1.3 million between 1979 and 1990. Demand will increase with disposable incomes, out-

weighing the assumption that the import share of total apparel output will rise to between 14 and 16 percent.

*Public sector growth will halt.* Although most major economic sectors are expected to follow past trends in terms of shares of total jobs, State and local governments are an exception. Their employment share rose from 8.1 percent of the total in 1959 to 11.8 percent in 1979, but by 1990, it will account for 11.2 percent of all jobs in the low-trend version and 10.5 percent in high-trend I. The slow growth is expected to result primarily from reductions in school enrollment, which will more than offset gains expected in the public health and hospitals field.

Federal employment is assumed to change only slightly from the 1979 level, and in one case (high-trend II) is projected to decline. Government employment in high-trend I, the model with the largest labor force, is the same as in the low-trend model because of assumptions that investment and tax policies will allow the private sector to completely absorb the larger labor force.

*Other sectors show mixed patterns.* Finance, insurance, and real estate employment is projected to continue to rise as a share of total jobs during the 1980's, despite slower than average output growth. Demand for credit and banking services, in particular, is expected to stimulate employment growth in this area despite sluggish demand for real estate services.

The rate of employment increase in construction is projected to parallel the output trends discussed earlier, accelerating in the first half of the decade in response to

**Table 7. Low-trend projected employment changes for selected industries, 1979-90**

Fastest growing	Average annual rate of job growth
Other medical services .....	4.6
Typewriters and other office equipment .....	4.5
Computers and peripheral equipment .....	4.2
Coal mining .....	4.1
Hospitals .....	3.8
Crude petroleum and natural gas .....	3.6
Doctors' and dentists' services .....	3.4
Local government passenger transit .....	3.3
Other state and local government enterprises .....	3.2
Automobile repair .....	3.1
Most rapidly declining	Average annual rate of job decline
Dairy and poultry products .....	-3.3
Alcoholic beverages .....	-3.1
Leather tanning and industrial leather .....	-2.7
Logging .....	-2.4
Synthetic fibers .....	-2.1
Other agricultural products .....	-1.8
Railroad transportation .....	-1.7
Wooden containers .....	-1.6
Dairy products (processed) .....	-1.6
Bakery products .....	-1.5
Largest job gains	Employment gain (in thousands)
Eating and drinking places .....	1,912
Retail trade, except eating and drinking places .....	1,878
Hospitals .....	1,347
Miscellaneous business services .....	1,171
Other medical services .....	909
New construction .....	892
Wholesale trade .....	866
Doctors' and dentists' services .....	580
Banking .....	490
Educational services (private) .....	416

the shifting energy picture. Coal mining is projected to be one of the fastest growing of all industries during the next decade. Over the past 30 years, employment in the coal industry has experienced major cycles. Following severe job cutbacks between 1950 and 1965, employment stabilized during 1965-69, then expanded steadily over the next 10 years. Although a shift from underground mines to more capital-intensive surface mines will cause output per worker-hour to grow faster in the coal industry than in the private nonfarm economy as a whole, employment is expected to continue to rise rapidly in response to increased demand for coal. Annual growth of 4.1 to 5.4 percent is projected for 1979-90. In the crude petroleum and natural gas drilling industry, employment is expected to rise faster than domestic output, as exploration for new oil creates demand for more workers but yields a decreasing rate of return.

### Previous projections for 1990

In April 1979, BLS published its first look at industry output and employment for the year 1990, in the form of a base case and a high-employment alternative. The first case, intended as a base-line projection, incorporated a moderately expanding labor force, a relatively slow decline in inflation and unemployment, and moderate government expenditures. The high-employment alternative assumed a much larger labor force, and a heavy emphasis on job creation which would lower the unemployment rate. What are the differences between

strong housing demand, then slowing somewhat during the second half as demand for residential construction tapers. Between 1.0 million (low-trend) and 1.6 million (high-trend I) new jobs will be added in the construction industry between 1979 and 1990.

Farm employment is expected to continue to decline through the next decade, but the drop is not expected to be as rapid as in the last few decades; in the high-trend versions there is even a small gain between 1979 and 1985. Past productivity advances in agriculture have been very great: Between 1959 and 1979, output per hour of all persons in the farm sector rose by almost 5 percent annually, compared with about 2 or 3 percent for the private nonfarm economy before 1973 and less than 1 percent a year thereafter. These advances have already begun to slow, however, and the continued tapering of increases in farm productivity during the 1980's is expected to moderate the rate of decline in farm jobs.

*Mining job growth above average.* The largest industries within the mining sector in terms of jobs—coal mining and crude petroleum and natural gas extraction—are expected to experience employment changes in line with

**Table 8. Comparison of previous and current employment projections for 1990**

[In thousands]

Industry sector	Previous		Current	
	Base case	Low-trend	High-trend I	High-trend II
Total employment .....	121,204	121,971	130,665	123,958
General government <sup>1</sup> .....	18,066	18,106	18,106	17,886
Federal .....	4,389	4,429	4,429	4,209
Military .....	2,089	2,129	2,129	2,129
Civilian .....	2,300	2,300	2,300	2,080
State and local .....	13,677	13,677	13,677	13,677
Education .....	6,513	6,513	6,513	6,513
Noneeducation .....	7,164	7,164	7,164	7,164
Total private .....	103,138	103,865	112,559	106,072
Agriculture .....	2,634	2,333	2,633	2,634
Nonagriculture .....	100,504	101,531	109,925	103,438
Mining .....	787	967	1,059	959
Construction .....	6,033	6,920	7,509	7,104
Manufacturing .....	23,882	23,476	25,520	23,905
Durable goods .....	14,692	14,560	16,045	14,872
Nondurable goods .....	9,189	8,916	9,475	9,033
Transportation, communications, and public utilities .....	5,658	6,239	6,815	6,241
Transportation .....	3,332	3,693	3,924	3,671
Communications .....	1,473	1,546	1,731	1,567
Public utilities .....	1,104	1,000	1,160	1,003
Wholesale and retail trade .....	27,370	27,032	29,231	27,445
Finance, insurance, and real estate .....	6,695	7,008	7,464	7,108
Other services .....	26,742	26,553	28,824	27,313
Government enterprises .....	1,779	1,758	1,911	1,778
Private households .....	1,307	1,576	1,593	1,587

<sup>1</sup> National Income Accounts basis.

those initial 1990 forecasts and the present ones?

One important change has been the development of a range of possible values for 1990 rather than a single base-line case plus an alternate. The new low-trend and high-trend I versions are intended to present a band within which a "base case" might fall.

In addition, estimates of the 1990 civilian labor force have been revised upward in all of the new scenarios. (For both 1990 employment projections, BLS prepared three alternative labor force projections—a low growth path, a middle growth path, and a high growth path. The old base case and the new low-trend and high-trend II models were based on the BLS middle labor force growth path. The old high-employment alternative and the new high-trend I model were based on the high labor force growth path.) Between 1977, the last year for which data were available for the first projections, and 1979, the last year for which data were available for the new ones, labor force participation rates of women have risen faster than expected. Consequently, the new 1990 labor force projections are higher than the old ones for all three labor force scenarios:

	Old projection (000's)	New projection (000's)
Low growth path . . .	113,521	117,394
Middle growth path .	119,366	122,375
High growth path . .	125,603	128,123

Somewhat offsetting a larger labor force are new assumptions about the unemployment rate in light of the recent recession; except in the case of the 1990 high-trend I version, the new rates are higher than in the old projections:

	1985	1990
Old projections: Base case . . . . .	4.7	4.5
High-employment alternative . . . . .	4.0	4.0
New projections: Low-trend . . . . .	7.0	6.0
High-trend I . . . . .	5.5	4.0
High-trend II . . . . .	6.0	4.5

Military force levels are virtually unchanged in the new scenarios from those previously assumed. The result is a projection of total employment for 1990 that is

higher than the old base case in all new scenarios:

	1985 (000's)	1990 (000's)
Old projections: Base case . . . . .	114,440	121,204
High-employment alternative . . . . .	119,627	128,400
New projections: Low-trend . . . . .	113,775	121,971
High-trend I . . . . .	118,981	130,665
High-trend II . . . . .	114,935	123,958

At the industry level, the new assumptions raise the employment projections for most sectors, although the 1978-79 experience has altered the original outlook for many individual industries. For example, the synthetic fibers industry was projected to be one of the top 10 job gainers (in terms of rate of growth) in the first set of projections, but this time ranks among the top 10 losers. Rising prices which curbed demand, and gains in productivity contributed to this reversal.

The distribution of final demand also changed between the old and new scenarios, affecting both industry output and employment projections. Defense procurement was originally assumed to experience a slowdown during the 1980's but is now projected to increase its share of GNP; personal consumption expenditures are not expected to grow as rapidly as initially forecast; and levels of exports and imports are both higher in the new versions. These revisions contribute to a change in the 1990 distribution of output and jobs at the industry level. (See table 8.)

The earlier forecasts assumed a shift in energy resources from oil and gas to coal, as do the new forecasts, but oil price shocks have been even more severe than originally anticipated, leading to a more pronounced shift in the new projections.

And finally, the previous forecasts used Department of Commerce input-output tables for 1963 and 1967 and a BLS-estimated table for 1973. Subsequently, a 1972 input-output table was published by the Department of Commerce. Use of this table in the new projections resulted in widespread data revisions in many historical series and provided more current information on technological trends. □

— FOOTNOTES —

<sup>1</sup> *Annual Report to Congress, 1979, Volume 3*, (Energy Information Administration, U.S. Department of Energy, 1980).

<sup>2</sup> *Projections of the Population of the United States: 1977 to 2050, Current Population Reports*. Series P-25, No. 704 (Census Bureau 1977).

<sup>3</sup> Government purchases are outlays for goods and services, while

government expenditures include not only purchases but also grants, transfers, and net interest payments.

<sup>4</sup> *Projections of the Population of the United States: 1977 to 2050*.

<sup>5</sup> *The Detailed Input-Output Structure of the U.S. Economy: 1972*, (U.S. Department of Commerce, Bureau of Economic Analysis, 1979).



# Occupational employment growth through 1990

*Three alternative sets of occupational employment projections for the 1978-90 period all show high growth for white-collar and service categories, but slow growth for blue-collar workers and decreases among farmworkers*

MAX L. CAREY

The Bureau of Labor Statistics has developed three sets of occupational employment projections for 1978 to 1990 based on varying outlooks of the future economy.<sup>1</sup> Although the assumptions that differentiate these scenarios result in various rates of growth for most jobs, changes in the occupational composition of total employment during these years are similar for all versions and generally correspond to past trends. Employment continues to expand more rapidly in service occupations than it does in other categories, and the number of farmworkers still declines. White-collar jobs increase faster than total employment in each scenario, and the number of blue-collar jobs grows slower than the total. However, growth rates are expected to vary greatly within these broad categories, because demographic changes, technological developments, and shifts in the demand for products and services affect major occupational categories differently. For example, anticipated decreases in the teenage population and increases in the number of elderly persons in the 1980's will reduce the need for secondary schoolteachers while increasing it for nurses.

Although the occupational structure of total employment in 1990 is similar in each version of the economy,

some occupations are more sensitive than others to the differences in underlying assumptions. Generally, jobs which are concentrated in manufacturing industries that produce durable goods are most affected, as projected increases in the demand for these goods vary greatly among the scenarios. In contrast, occupations which are concentrated in government are relatively unaffected, because projections of its total employment change very little from one version to another. None of the scenarios attempts to forecast cyclical employment fluctuations.

This article summarizes projections from the first national industry-occupation matrix to be developed on the basis of staffing patterns from the Occupational Employment Statistics Surveys. Previous matrices were based on the decennial census.<sup>2</sup>

The matrix is a major input to the Bureau's occupational outlook program which conducts research on future occupational requirements and resources for use in planning education and training programs and for career guidance and counseling. The results of the research are published in the *Occupational Outlook Handbook* and the *Occupational Outlook Quarterly*, which also contain information on the nature of work in different occupations, educational and training needs, earnings and working conditions, and other subjects of interest to people who are planning careers. The projections described in this article will be used in the 1982-83 edition of the *Handbook*, scheduled for release in spring 1982.

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## Alternative scenarios

Three projections of economic growth for the 1980's have been developed by BLS. Referred to as the low-trend, high-trend I, and high-trend II scenarios, they are based on different assumptions concerning growth of the labor force, output, productivity, and other factors. The low-trend alternative assumes a decline in the rate of labor force expansion, continued high inflation, and modest increases in production and productivity. The two high-trend alternatives are more optimistic; both being based on large increases in the gross national product. Whereas scenario I assumes higher labor force growth, scenario II assumes greater productivity.

In all three alternatives, reductions in both personal income taxes and the effective corporate tax rate are expected to stimulate investment, and it is anticipated that expenditures for new equipment by the private sector will grow somewhat faster than other types of investment. Sharp increases in defense spending for materials and supplies are expected in the 1980's, but the nondefense portion of Federal purchases is foreseen to show no growth. Drastic cutbacks in imports of crude oil are assumed in each scenario. However, oil imports, as well as domestic output of crude oil and other fuels, are greater in the high-trend alternatives, reflecting the high overall levels of industrial production anticipated in these versions of the economy. More details about the assumptions and economic projections are given in other articles in this issue of the *Review*.

Total employment in the low-trend scenario increases by 22.5 percent between 1978 and 1990, from 97.6 to 119.6 million.<sup>3</sup> In high-trend I, employment is expected to rise by 31 percent during the same period, to 127.9 million in 1990; in high-trend II, it is projected at 121.4 million, or 24.4 percent above the 1978 level. The rate of employment growth in high-trend I is somewhat faster than during the previous two decades, while the rates for the other two scenarios are slower.

Employment in white-collar occupations is expected to expand faster than total employment in each version of the economy. In the low-trend scenario, white-collar jobs rise from 48.6 million in 1978 to 60.7 million in 1990. The 1990 high-trend projections range from 61.6 to 64.7 million. Employment in blue-collar occupations is projected to grow slower than total employment in each version. Blue-collar jobs increase from 31.8 million in 1978 to 37.7 million in 1990 in the low-trend projection, while high-trend projections for 1990 range from 38.3 to 40.7 million.

Despite the difference in these estimates among the alternatives, the proportions of total employment accounted for by white-collar and blue-collar jobs do not change substantially. The former increases from 49.8 percent in 1978 to between 50.6 and 50.9 percent in

1990, while the latter declines from 32.6 percent in 1978 to between 31.8 and 31.5 percent in 1990.

Service workers continue to be the fastest growing major occupational category. The number of service jobs rises from 14.4 million in 1978 to 18.9 million in 1990 in the low-trend version, while the high-trend projections range from 19.2 to 20.1 million. The share of total jobs accounted for by service occupations increases from 14.8 percent in 1978 to between 15.7 and 15.8 percent in 1990. On the other hand, the number of farmworkers, is expected to continue declining. Their share of total jobs is projected to decrease from 2.8 percent in 1978 to between 1.9 and 1.8 percent in 1990.

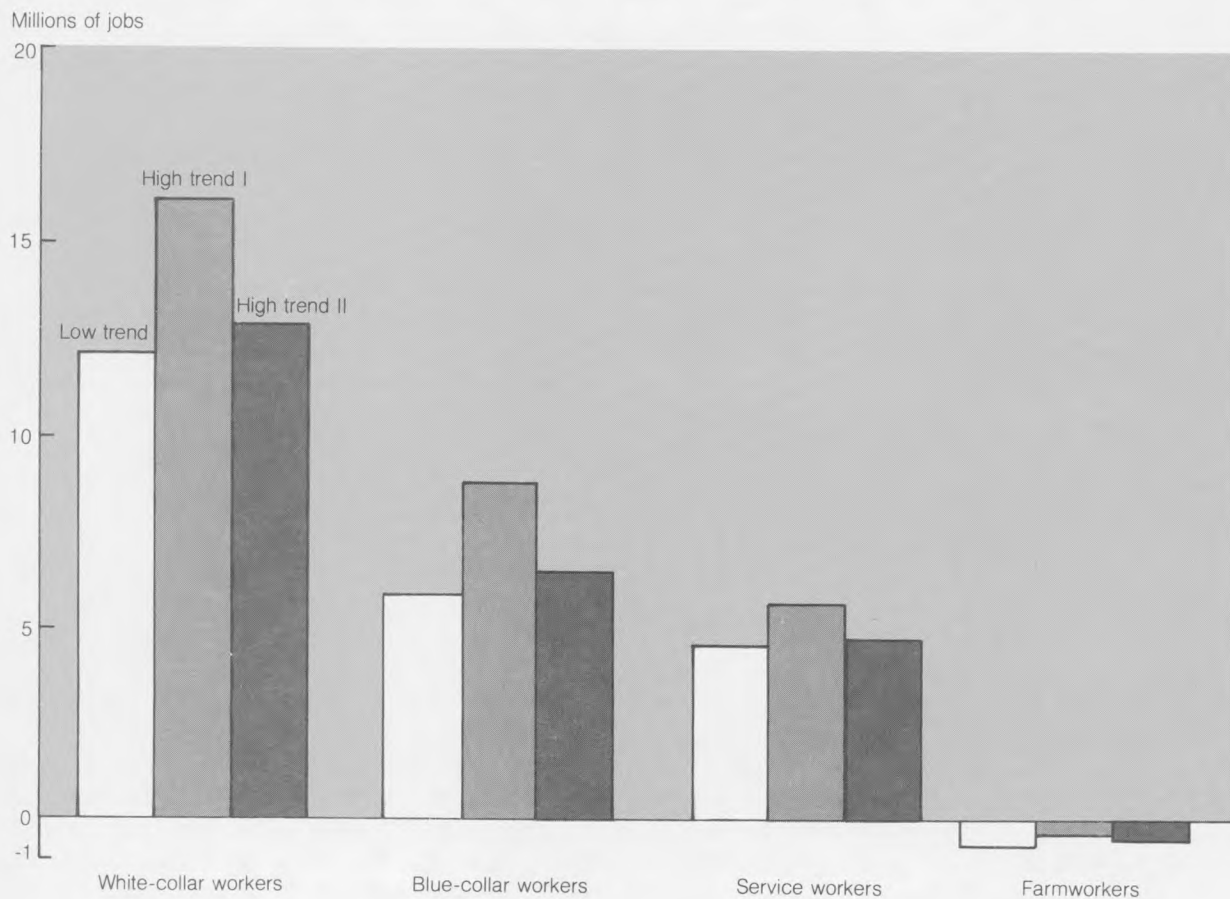
Although service occupations, with projected employment increases ranging between 31.4 and 39.3 percent, are expected to be the fastest growing occupational group during 1978-90, the largest number of new jobs will occur in the white- and blue-collar categories. (See chart 1.) The projected increase in white-collar jobs for this period ranges from about 12.1 to 16.1 million, and the corresponding range for blue-collar jobs is approximately 5.9 to 8.9 million. The number of new service jobs is expected to run between 4.5 and 5.7 million.

Job growth in blue-collar occupations is affected relatively more by differences among the three scenarios than in other major occupational categories. The number of new jobs projected for all occupations during 1978-90 is almost 22 million in the low-trend version, compared with 30.3 million in high-trend alternative I, a difference of 37.8 percent. However, the difference is 50.1 percent for blue-collar occupations alone. These occupations are sensitive to high-trend I because they are concentrated in manufacturing industries, and the demand for manufactured goods is relatively greater in this version of the economy. Demand for manufactured goods also is greater in the high-trend II scenario, but the need for additional blue-collar workers is moderated by the higher productivity gains assumed in this version. For all occupations, about 8.5 percent more new jobs are projected in high-trend II than in the low-trend scenario. The difference for blue-collar jobs is 10.3 percent. Job growth in the white-collar and service categories generally is less affected by differences in the scenarios than blue-collar job growth. However, among the major occupational groups and detailed occupations within these large categories, the sensitivity to these differences varies.

### Growth among white-collar groups

*Professional and technical workers.* Employment in professional and technical jobs was 15.6 million in 1978—about 15.9 percent of the national total. Although this group includes a wide variety of occupations, generally requiring postsecondary education, approximately two-thirds of the jobs were accounted for by teachers, medi-

**Chart 1. Job growth for major occupational categories under alternative economic projections, 1978-90**



cal professionals, health technologists and technicians, engineers, and engineering and science technicians.

Over the past two decades, the professional and technical group has been one of the fastest growing occupational categories. For example, between 1966 and 1978 employment in this group increased almost twice as fast as it did in all occupations. Between 1978 and 1990, employment is projected to continue to rise faster than employment in all occupations in each of the alternative scenarios, but the difference is anticipated to be less than in the past. In the low-trend version of the economy, employment of professional and technical workers is projected to increase by 28.7 percent over the same period. The growth in the high-trend I version is 35.7 percent and that for high-trend II is 30.4 percent. (See table 1.)

While employment in professional and technical jobs as a whole is expected to increase faster than the average rate for all occupations, there will be significant

differences among individual fields. For example, employment in most medical and health occupations is projected to expand very rapidly, while in many teaching occupations it is expected to decline. Rising incomes and greater health consciousness will boost demand for health care, as will population growth—especially the substantial increase in the number of older people, who have more need for health services. During the 1980's, the number of persons age 75 and over is expected to advance from 9.4 to 12.0 million. As a result of these factors, opportunities for professional and technical workers in hospitals, clinics, laboratories, nursing homes, and other settings are likely to increase rapidly. Demand may be very high in rural areas and inner cities, as job openings in less desirable locations have traditionally been difficult to fill. In contrast to the rapid employment growth projected in the health field, jobs for secondary, college, and university teachers are expected to decrease somewhat as a result of the decline



in births that occurred in the 1960's and 1970's. Demand for secondary schoolteachers could fall precipitously in the Northeast and North Central States, where the Bureau of the Census projects a drop of close to 25 percent in the number of 15- to 19-year-olds between 1980 and 1990. A growing number of adults have entered college in recent years, but their enrollment is not expected to completely offset the decline in traditional-age college students. In contrast, a small increase in the demand for preschool, kindergarten, and elementary teachers is anticipated, reflecting recent increases in births, as a growing number of women enter the prime childbearing ages. More opportunities for adult education teachers are also foreseen.

The demand for professional and technical workers as a group is less sensitive to differences among the scenarios than the demand for workers in all occupations. However, within the professional and technical group, sensitivity varies. The demand for teachers is not affected significantly by differences in the scenarios. But alternative versions of the economy do have an impact on the projections for engineers and engineering and science technicians because these occupations are concentrated in manufacturing industries. Because the high-trend alternatives assume lower corporate tax rates and other incentives designed to stimulate business investment in new equipment, employment requirements in manufacturing industries which produce this equipment are higher. For example, in high-trend I, engineering employment is expected to rise by 553,000 between 1978 and 1990, compared with an increase of only 433,000 in the low-trend projection, which would mean about 27.7 percent more new jobs for engineers during the period.

*Managers and administrators.* The 8.8 million workers in this broad group in 1978 included managers and administrators at all levels of business and government, from corporate executives and government officials to managers of small businesses such as restaurants and repair shops. A relatively large proportion of managers—nearly 1 of 5—were self-employed.

Employment in this group is projected to grow more slowly than the average during 1978–90 in each scenario. Projected increases range from 19.1 percent in the low-trend version to between 21.3 and 27.9 percent in the high-trend alternatives. The demand for managers is more sensitive to the differences in the three scenarios than that for all occupations.

Despite an overall increase in the managerial group, the number of self-employed managers has been declining, and this trend is expected to continue in the low-trend and high-trend II scenarios. However, in high-trend I a small increase in self-employed managers is projected.

*Salesworkers.* Employment in sales occupations totaled approximately 6.4 million in 1978, or about 6.6 percent of employment in all occupations. Nearly half of these workers were concentrated in retail trade, and most of the remainder worked in manufacturing and in service industries such as finance, insurance, and real estate. Employment in sales jobs is projected to grow faster than the average for all occupations during 1978–90 in each version of the economy.

Employment of salesworkers rises from 6.4 to 8.0 million between 1978 and 1990 in the low-trend version, or 24.4 percent. Projected increases range from 25.8 to 34.5 percent in the high-trend versions. The demand for

**Table 1. Employment by major occupational group, actual 1978, and alternative projections for 1990**

[Numbers in thousands]

Occupational group	1978		1990						Percentage change in employment, 1978-90		
			Low-trend		High-trend I		High-trend II		Low-trend	High-trend I	High-trend II
	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total .....	97,610	100.0	119,590	100.0	127,907	100.0	121,447	100.0	22.5	31.0	24.4
White-collar workers .....	48,608	49.8	60,730	50.9	64,712	50.6	61,570	50.7	24.9	33.1	26.7
Professional and technical workers .....	15,568	15.9	20,038	16.8	21,119	16.5	20,295	16.7	28.7	35.7	30.4
Managers and administrators .....	8,802	9.0	10,484	8.8	11,257	8.8	10,677	8.8	19.1	27.9	21.3
Salesworkers .....	6,420	6.6	7,989	6.7	8,632	6.8	8,079	6.7	24.4	34.5	25.8
Clerical workers .....	17,818	18.3	22,219	18.6	23,705	18.5	22,519	18.5	24.7	33.0	26.4
Blue-collar workers .....	31,812	32.6	37,720	31.5	40,694	31.8	38,330	31.6	18.6	27.9	20.5
Craft and kindred workers .....	11,705	12.0	14,366	12.0	15,555	12.2	14,668	12.1	22.7	32.9	25.3
Operatives .....	14,205	14.6	16,399	13.7	17,697	13.8	16,584	13.7	15.4	24.6	16.8
Nonfarm laborers .....	5,902	6.0	6,955	5.8	7,441	5.8	7,078	5.8	17.8	26.1	19.9
Service workers .....	14,414	14.8	18,946	15.8	20,074	15.7	19,220	15.8	31.4	39.3	33.3
Private household workers .....	1,160	1.2	982	0.8	993	0.8	988	0.8	-15.4	-14.4	-14.9
Other service workers .....	13,254	13.6	17,965	15.0	19,081	14.9	18,232	15.0	35.5	44.0	37.6
Farmworkers .....	2,775	2.8	2,193	1.8	2,426	1.9	2,327	1.9	-21.0	-12.6	-16.3

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

salespersons is slightly more sensitive to the differences in the low-trend and high-trend I scenarios than it is for workers in all occupations. However, differences between the low-trend and high-trend II scenarios have relatively little effect on the demand for salesworkers.

*Clerical workers.* Clerical occupations account for more jobs than any other occupational group. About 17.8 million persons or 18.3 percent of all workers, were in clerical occupations in 1978; nearly 1 of 5 clericals was either a secretary or a typist. Some other large occupations within this group were general office clerks, cashiers, bookkeepers, and stock clerks.

Employment of clerical workers is projected to grow faster than the average rate of employment growth in each version of the economy. Although office automation will enable clerical personnel to do more work in less time and change skill requirements for some jobs, continued increases in the demand for new workers are anticipated in most occupations. Demand should be particularly strong in the private sector, in industries such as retail trade, finance, insurance, real estate, legal services, and health services. At the same time, little increase in government employment of clericals is projected.

Employment in clerical occupations increased 24.7 percent between 1978 and 1990 in the low-trend version of the economy. In high-trend I, the projected increase is 33 percent, and in high-trend II, 26.4 percent. For clerical workers, demand is slightly less sensitive to the differences in the low-trend and high-trend I scenarios than it is for workers in all occupations. For example, the number of new clerical jobs in high-trend I is 33.8 percent greater than that projected in the low-trend version, compared with a difference of 37.8 percent for all occupations.

### **Growth among blue-collar groups**

*Craft and kindred workers.* The 11.7 million craftworkers employed in 1978 represented about 12 percent of total employment. Construction trade workers and mechanics, the two largest occupational categories in the craft group, accounted for more than half of the group's employment. Other blue-collar categories are supervisors, metalworking craftworkers, and printing trades workers. Employment in the craft group is projected to increase slightly faster than the average rate for all occupations in each of the scenarios.

In the low-trend version of the economy, employment in the construction crafts grows from almost 3 million in 1978 to about 3.7 million in 1990, an increase of 27 percent. However, most of this growth is expected before 1985. Demand for homeownership that was thwarted during the recession years of 1975 and 1980 should

spur residential investment expenditures in the first half of the 1980's. However, after 1985 it is anticipated that the rate of new household formation will decline, reflecting the decrease in births that began in the 1960's. Business investment in construction of new plants and buildings is expected to offset some of the slack in residential construction during the late 1980's.

Employment of mechanics in the low-trend version is projected to rise from almost 3.8 to 4.8 million between 1978 and 1990, or 26.8 percent. However, rates of change vary considerably among the individual occupations. For example, the number of data processing machine mechanics is projected to increase 147.6 percent, while that of railroad car repairers is expected to decline. The number of workers in the metalworking crafts expands almost as fast as the average rate for all occupations in the low-trend version, but printing trades workers are projected to increase much more slowly than average. Improvements in printing technology have increased productivity and this trend should continue.

The demand for craftworkers is more sensitive to differences in the alternative scenarios than the demand for workers in all occupations. The projected number of new jobs for craftworkers in the high-trend alternatives is 11.3 to 44.7 percent higher than in the low-trend version. In comparison, the projected number of new jobs in all occupations in the high-trend alternatives ranged from 8.5 to 37.8 percent greater than those in the low-trend version of the economy.

Craft occupations that are concentrated in manufacturing industries, such as the metalworking crafts and printing trades, are particularly sensitive to differences in the scenarios. For example, employment in metalworking crafts increases by 283,000 in the high-trend I projection, which is 65 percent greater than the projected increase of 172,000 in the low-trend version. A large proportion of metalworking craft employment is found in factories that produce equipment for business and industrial use. Because growth in investment for equipment is much faster in high-trend I, employment requirements will be greater in most industries that manufacture fabricated metal products, machinery, electrical equipment, and transportation equipment. In some industries, the number of new metalworking craft jobs in high-trend I is more than twice the number in the low-trend version.

*Operatives.* Included in this group are many of the blue-collar workers associated with manufacturing and transportation operations. About 14.2 million operatives were employed in 1978. More than 80 percent worked at manufacturing jobs such as assembler, machine tool operator, welder, and inspector. Outside of manufactur-

ing, operatives were concentrated in transportation and trade. Many were transport equipment operators, such as truck or bus drivers.

Employment of operatives is projected to grow slower than the average for all occupations in the 1978-90 period. More efficient production as a result of greater investment in new plants and equipment should limit increases in the demand for operatives in factories. However, growth rates for individual occupations will vary, depending on the particular industries in which they are employed. Generally, occupations that are concentrated in the durable goods sector are projected to grow faster than those in industries that make nondurable goods. As family incomes rise, consumers are expected to spend an increasing proportion of income on automobiles, furniture, and other durable goods, and a decreasing proportion on nondurables, such as food and basic clothing.

High-trend alternative I affects the growth of operatives more than that of any other occupational group. In the low-trend version, operative employment is projected at 6.4 million in 1990, an increase of 2.2 million over the 1978 level. The anticipated operative growth in high-trend I is 3.5 million, or 59.2 percent greater than the low-trend number. By comparison, the gain in growth for all occupations is only 37.8 percent. On the other hand, high-trend alternative II results in only an 8.3-percent greater number of new jobs than the low-trend version, which is about the same as the percentage gain for all occupations under this alternative.

Manufacturing output is much greater in high-trend I than in the low-trend scenario, which results in a higher demand for operatives, although the difference in the employment projections is moderated by the assumption that productivity will also be greater. In contrast, the dissimilarity in the two high-trend employment projections for operatives is largely a result of different projected increases in manufacturing productivity. Between 1978 and 1990, productivity in manufacturing industries rises 33.7 percent in alternative II compared with 26.3 percent in alternative I. A slightly higher rate of increase in manufacturing output in alternative I also contributes to the difference in the employment projections.

### Service workers

*Service workers, except private household.* Numbering 13.2 million in 1978, these service jobs accounted for about 13.6 percent of total employment. Employment in this group is expected to increase faster than in any other occupational group through the 1980's in each scenario of the economy. Projected 1978-90 increases range from 35.5 percent in the low-trend version to 44 percent in high-trend I. Employment growth is expected to be particularly rapid in food service occupations,

to be such as waiters' assistants and in health service occupations, such as nurses' aides and medical assistants. The greater health care needs of a growing elderly population will spur demand for service workers in hospitals and nursing homes. The demand for food service workers should also grow as incomes rise and more families have both husbands and wives working. Employment of police officers, firefighters, and most other protective service workers is projected to grow slower than the average for service occupations, but faster than that for all occupations. Projected growth rates are mixed among personal service occupations. For example, rapid increases in the demand for childcare workers and welfare service aides are anticipated, but only moderate increases in employment are expected for barbers and cosmetologists.

Demand for this group of service workers is less sensitive to differences in the three scenarios than for most other occupational groups. For example, employment in the high-growth projection I is only 23.7-percent greater than employment in the low-growth projection, compared with the 37.8-percent difference for all occupations. It is assumed that the additional increases in personal income in the high-trend versions will be spent primarily on goods rather than on services.

*Private household workers.* In contrast to the rapid employment gain anticipated for other service workers, the number of private household workers is projected to decrease from almost 1.2 million in 1978 to between 993,000 and 982,000 in 1990. A continued decline is expected, despite an increase in job opportunities for private household workers. The demand for maids and other private household workers should rise as more women work outside the home and personal incomes rise, but fewer people will seek employment in private households because of low wages, lack of advancement opportunities, and low social status associated with these jobs.

### Farmworkers

More than half of the almost 2.8 million farmworkers employed in 1978 were farmers, including both owners and tenant farmers; most of the remainder were farm laborers. A small proportion were managers and supervisors. Employment of farmworkers has declined for decades as farm productivity has risen as a result of larger, more efficient farms, improvements in mechanized equipment, and technological innovations in seed, feed, and fertilizer. Continued drops in the number of farmworkers are expected through the 1980's. In the low-trend version, employment falls, from almost 2.8 million in 1978 to 2.2 million in 1990, a decrease of 21 percent. The projected declines are more moderate in



the high-trend versions, 12.6 percent in I and 16.3 percent in II. The number of farmers is projected to fall less rapidly than the number of farm laborers in each alternative.

**Detailed occupations**

Table 2 presents 1978-90 employment projections for all detailed occupations in the industry-occupation matrix with employment of 25,000 or more in 1978.<sup>4</sup> Approximately 340 occupations were in this category, and they accounted for about three-fourths of total employment in 1978. Projected rates of employment change for these selected occupations cover broad ranges in the three scenarios. For example, low-trend projections run from a 25.4-percent decline for farm laborers to a 147.6-percent increase for data processing machine mechanics. Rankings of occupations by projected growth rates are very similar for the three scenarios. The following list presents the 20 most rapidly growing detailed occupations among the low-trend projections:

Occupation	Percent growth in employment, 1978-90
Data processing machine mechanics . . . . .	147.6
Paralegal personnel . . . . .	132.4
Computer systems analysts . . . . .	107.8
Computer operators . . . . .	87.9
Office machine and cash register servicers . . . . .	80.8
Computer programmers . . . . .	73.6
Aero-astronautic engineers . . . . .	70.4
Food preparation and service workers, fast food restaurants . . . . .	68.8
Employment interviewers . . . . .	66.6
Tax preparers . . . . .	64.5
Correction officials and jailers . . . . .	60.3
Architects . . . . .	60.2
Dental hygienists . . . . .	57.9
Physical therapists . . . . .	57.6
Dental assistants . . . . .	57.5
Peripheral EDP equipment operators . . . . .	57.3
Child-care attendants . . . . .	56.3
Veterinarians . . . . .	56.1
Travel agents and accommodations appraisers . . . . .	55.6
Nurses' aides and orderlies . . . . .	54.6

In high-trend alternative I, correction officials and jailers, dental hygienists, and dental assistants drop off the list of the 20 fastest growing occupations, and are replaced by real estate sales agents and representatives, dental lab technicians, and security sales agents and representatives. In high-trend II, dental assistants and travel agents drop off the list and are replaced by real estate sales agents and representatives, and economists. However, in both high-trend alternatives the displaced occupations remain among the 30 fastest growing.

The rank of occupations by growth in numbers of jobs also changes little from one scenario to another. The 20 occupations with the largest numbers of new

jobs in the low-trend version are presented in the list which follows. In both high-trend alternatives, licensed practical nurses drop from this list (but remain in the top 25), and are replaced by carpenters:

Occupation	Growth in employment (in thousands), 1978-90
Janitors and sextons . . . . .	671.2
Nurses' aides and orderlies . . . . .	594.0
Sales clerks . . . . .	590.7
Cashiers . . . . .	545.5
Waiters/waitresses . . . . .	531.9
General clerks, office . . . . .	529.8
Professional nurses . . . . .	515.8
Food preparation and service workers, fast food restaurants . . . . .	491.9
Secretaries . . . . .	487.8
Truckdrivers . . . . .	437.6
Kitchen helpers . . . . .	300.6
Elementary schoolteachers . . . . .	272.8
Typists . . . . .	262.1
Accountants and auditors . . . . .	254.2
Helpers, trades . . . . .	232.5
Blue-collar worker supervisors . . . . .	221.1
Bookkeepers, hand . . . . .	219.7
Licensed practical nurses . . . . .	215.6
Guards and doorkeepers . . . . .	209.9
Automotive mechanics . . . . .	205.3

The low-trend version projects employment declines for 22 of the detailed occupations and high-trend II projects drops for 21; the rankings by rates of decline are similar for both scenarios. The number of occupations with projected employment decreases falls to 18 in high-trend I. However, the reversals in the direction of change are not dramatic, and usually make relatively little difference in the projected employment levels.

**New data base**

The method used by BLS to develop occupational projections requires two basic inputs—projected employment by industry at a detailed industry level and projected occupational staffing patterns at the same industry detail. The occupational projections prepared by BLS are obtained by applying the projected occupational staffing patterns to the related industry employment projections and summing across the detailed industries.<sup>5</sup> The Bureau has used this procedure to develop national occupational projections since the mid-1960's.<sup>6</sup>

During the 1960's and 1970's, decennial census data were the primary data source for developing occupational staffing patterns of industries. These patterns were based largely on trends in the census data from decade to decade. However, because census data are collected only every 10 years, they were considered inadequate for analyzing trends in industry staffing patterns. In the 1970's, the Bureau initiated the Occupa-

**Table 2. Civilian employment in occupations with 25,000 workers or more, actual 1978 and projected 1990**

Occupation	Employment (in thousands)				Percent change, 1978-90		
	1978	1990 Low-trend	1990 High-trend I	1990 High-trend II	Low-trend	High-trend I	High-trend II
Total, all occupations	97,610	119,590	127,907	121,447	22.52	31.04	24.42
Professional, technical, and related workers	15,570	20,038	21,119	20,295	28.70	35.64	30.34
Engineers	1,071	1,504	1,624	1,531	40.41	51.61	42.92
Aero-astronautic engineers	57	98	104	100	70.35	80.86	74.81
Chemical engineers	53	68	73	70	28.92	37.70	31.80
Civil engineers	149	208	218	211	39.38	45.59	40.97
Electrical engineers	291	441	479	448	51.18	64.41	53.90
Industrial engineers	109	146	159	148	34.03	46.49	36.37
Mechanical engineers	199	274	300	279	37.56	50.67	40.18
Life and physical scientists	236	299	316	304	26.44	33.63	28.70
Biological scientists	42	51	54	53	21.82	28.86	24.98
Chemists	90	113	120	115	24.95	32.19	27.23
Geologists	33	50	53	51	52.08	61.36	52.69
Engineering and science technicians	1,160	1,577	1,700	1,609	35.97	46.54	38.73
Drafters	293	412	446	419	40.59	52.25	43.20
Electrical and electronic technicians	319	464	512	478	45.42	60.24	49.79
Industrial engineering technicians	31	40	44	41	30.37	41.33	32.09
Mechanical engineering technicians	45	61	67	62	35.96	49.67	38.75
Surveyors	54	73	78	76	35.19	44.73	39.91
Medical workers, except technicians	2,026	2,928	3,094	2,954	44.55	52.77	45.83
Dentists	149	208	223	212	39.59	49.24	42.37
Dietitians	41	61	65	62	49.69	58.61	53.43
Nurses, professional	1,026	1,542	1,618	1,551	50.28	57.69	51.20
Optometrists	25	33	36	33	29.66	40.65	31.20
Pharmacists	140	159	171	157	13.36	22.36	12.10
Physicians, medical and osteopathic	447	626	665	631	39.98	48.70	41.23
Therapists	139	210	220	213	51.51	58.67	53.19
Physical therapists	31	49	52	50	57.63	66.46	59.73
Speech and hearing clinicians	34	52	53	52	54.50	58.29	55.33
Veterinarians	30	47	51	50	56.13	70.27	66.11
Health technologists and technicians	1,246	1,811	1,906	1,820	45.34	52.93	46.03
Dental assistants	123	193	198	191	57.48	60.95	55.91
Dental hygienists	53	84	86	84	57.92	61.42	56.38
Health records technologists	30	44	46	44	47.10	53.57	47.26
Licensed practical nurses	491	707	752	717	43.89	52.98	45.96
Medical technicians	82	119	127	119	46.04	55.31	46.36
Medical lab technologists	98	141	149	141	43.90	52.70	44.32
Surgical technicians	30	44	46	44	48.13	54.63	48.00
X-ray technicians	86	126	133	126	47.44	54.71	47.21
Technicians, excluding health, science, and engineering	271	343	362	347	26.82	33.78	28.11
Airplane pilots	74	94	101	96	27.00	35.47	28.81
Air traffic controllers	28	34	34	34	21.67	24.18	21.93
Technical assistants, library	34	48	49	48	42.07	42.78	41.71
Computer specialists	389	738	793	754	89.83	104.05	93.94
Computer programmers	204	354	381	361	73.57	86.90	77.22
Computer systems analysts	185	384	412	392	107.75	122.97	112.38
Social scientists	176	243	256	248	38.12	45.51	41.26
Economists	27	41	43	42	54.17	62.93	56.30
Psychologists	78	107	111	109	36.79	42.69	39.31
Teachers	3,877	4,079	4,113	4,074	5.22	6.09	5.08
Adult education teachers	105	123	126	124	18.02	20.75	18.31
College and university teachers	618	557	560	556	-9.78	-9.30	-9.97
Teachers, vocational education and training	26	33	34	33	26.49	30.29	26.85
Teachers, college	454	409	410	408	-10.06	-9.72	-10.28
Graduate assistants	131	110	110	109	-16.45	-16.13	-16.65
Elementary schoolteachers	1,277	1,550	1,556	1,546	21.37	21.82	21.08
Preschool and kindergarten teachers	455	574	579	572	26.16	27.31	25.75
Secondary schoolteachers	1,229	1,071	1,075	1,068	-12.87	-12.54	-13.08
Selected writers, artists, and entertainers	888	1,117	1,198	1,134	25.78	34.93	27.75
Commercial artists	100	122	134	126	22.25	33.97	26.58
Designers	169	194	212	190	15.22	25.49	12.87
Musicians, instrumental	126	160	166	166	27.15	31.73	31.67
Photographers	77	104	113	104	35.95	47.21	35.30
Public relations specialists	81	102	109	104	26.06	34.81	29.15
Radio and TV announcers	46	66	68	66	43.02	48.74	43.35
Reporters and correspondents	54	68	74	70	27.59	37.44	31.25
Sports instructors	34	41	43	41	20.16	26.64	20.56
Writers and editors	109	142	155	146	30.33	41.59	34.03
Other professional and technical workers	4,183	5,338	5,692	5,457	27.61	36.07	30.46
Accountants and auditors	777	1,031	1,107	1,055	32.72	42.50	35.83
Appraisers, real estate	32	47	50	48	46.38	56.88	49.79
Architects	66	106	112	109	60.20	70.18	64.53
Assessors	30	38	38	38	28.03	30.27	28.26
Buyers, retail and wholesale trade	238	296	320	298	24.37	34.15	25.13
Caseworkers	236	338	350	346	43.32	48.42	46.57
Clergy	287	292	313	301	1.67	9.19	5.12
Community organization workers	49	71	74	73	46.74	51.38	49.76
Cost estimators	80	105	112	108	31.60	40.84	34.94
Directors, religious education and activities	36	37	40	38	3.29	11.13	6.96
Employment interviews	51	86	95	88	66.59	85.55	72.02

Table 2. Continued—Civilian employment in occupations with 25,000 workers or more, actual 1978 and projected 1990

Occupation	Employment (in thousands)				Percent change, 1978-90		
	1978	1990 Low-trend	1990 High-trend I	1990 High-trend II	Low-trend	High-trend I	High-trend II
Foresters	26	32	34	33	22.15	27.33	25.25
Law clerks	30	43	48	44	44.04	62.47	49.85
Lawyers	380	524	580	543	37.85	52.71	43.05
Paralegal personnel	28	66	75	69	132.35	165.68	142.99
Librarians	130	139	142	140	6.78	8.76	7.12
Personnel and labor relations specialists	169	205	217	208	21.06	28.21	22.86
Purchasing agents and buyers	164	200	214	202	21.96	30.69	23.69
Recreation workers, group	121	152	160	157	26.41	32.63	29.99
Tax examiners, collectors, and revenue agents	50	60	61	60	19.39	21.65	19.61
Tax preparers	29	47	54	51	64.52	87.75	77.93
Travel agents and accommodations appraisers	45	70	74	70	55.64	65.46	56.06
Underwriters	70	90	93	90	28.40	33.86	28.98
Vocational and educational counselors	202	212	215	213	4.66	6.29	5.27
Managers, officials, and proprietors	8,802	10,484	11,257	10,677	19.10	27.89	21.31
Auto parts department managers	48	54	59	59	13.20	23.01	23.28
Auto service department managers	60	69	75	75	15.02	24.97	25.46
Construction inspectors, public administration	44	61	62	61	37.37	39.81	37.62
Inspectors, excluding construction, public administration	104	125	128	125	20.58	22.88	20.82
Postmasters and mail superintendents	28	29	30	29	4.07	7.92	4.84
Railroad conductors	33	31	34	32	-6.63	2.93	-5.52
Restaurant, cafe, and bar managers	499	642	680	650	28.65	36.25	30.27
Sales managers, retail trade	261	323	351	323	24.14	34.83	23.93
Store managers	926	1,102	1,183	1,107	18.95	27.76	19.52
Wholesalers	234	279	307	284	19.60	31.35	21.42
Salesworkers	6,443	7,989	8,632	8,079	23.99	33.97	25.40
Real estate brokers	34	48	52	49	42.34	55.92	44.47
Sales agents and representatives, real estate	255	394	400	400	54.09	68.42	56.74
Sales agents and representatives, insurance	310	399	420	405	28.61	35.66	30.81
Sales agents and representatives, security	55	80	92	88	45.79	66.81	60.70
Sales clerks	2,771	3,362	3,601	3,362	21.32	29.96	21.32
Clerical workers	17,820	22,219	23,705	22,519	24.69	33.03	26.37
Adjustment clerks	37	45	48	46	23.89	29.83	24.57
Bank tellers	440	601	619	606	36.40	40.61	37.51
New accounts tellers	48	65	67	66	34.65	39.23	36.57
Tellers	392	536	552	540	36.62	40.78	37.62
Bookkeepers and accounting clerks	1,628	1,982	2,131	2,014	21.79	30.95	23.72
Accounting clerks	700	835	895	845	19.27	27.82	20.74
Bookkeepers, hand	927	1,147	1,236	1,168	23.69	33.32	25.96
Cashiers	1,501	2,046	2,165	2,070	36.35	44.27	37.96
Claims adjusters	65	95	98	95	46.63	51.65	47.21
Claims clerks	63	92	96	93	47.26	52.78	48.06
Claims examiners, insurance	38	58	59	58	51.53	54.74	52.29
Clerical supervisors	402	518	552	526	29.01	37.45	30.81
Collectors, bill and account	85	108	119	113	26.52	39.53	32.26
Credit clerks, banking and insurance	47	62	68	66	31.00	43.91	39.79
Desk clerks, except bowling floor	75	97	109	98	29.27	46.09	30.91
Dispatchers, police, fire, and ambulance	46	60	61	60	28.22	30.47	28.45
Dispatchers, vehicle service or work	89	108	116	107	21.58	29.62	20.55
Eligibility workers, welfare	30	38	39	39	29.67	32.16	30.28
File clerks	251	328	349	332	30.77	39.31	32.42
General clerks, office	2,269	2,799	3,002	2,839	23.35	32.28	25.11
Insurance clerks, medical	63	93	97	92	46.69	53.95	45.77
Library assistants	117	128	129	128	8.77	9.98	8.74
Mail carriers, postal service	237	260	270	262	9.77	13.83	10.58
Mail clerks	75	94	99	96	25.19	31.61	27.50
Marking clerks, trade	44	54	57	55	21.24	27.88	23.46
Messengers	47	60	64	61	28.24	37.38	31.97
Meter readers, utilities	28	32	38	32	14.64	33.57	15.04
Office machine operators	842	1,133	1,211	1,147	34.52	43.85	36.21
Bookkeeping and billing operators	218	283	301	283	29.84	37.92	29.41
Bookkeeping, billing machine operators	166	212	228	212	27.72	37.57	27.63
Proof machine operators	44	60	61	59	37.07	39.56	35.56
Computer, peripheral equipment operators	215	389	415	397	81.32	93.19	84.73
Computer operators	169	317	338	323	87.90	100.74	91.71
Peripheral EDP equipment operators	46	72	76	73	57.26	65.55	59.15
Duplicating machine operators	31	38	41	39	22.46	31.01	24.56
Keypunch operators	295	316	341	321	7.03	15.56	8.78
Order clerks	240	289	316	288	20.25	31.49	19.88
Payroll and timekeeping clerks	172	211	226	214	22.13	31.01	24.08
Personnel clerks	90	111	118	113	23.40	30.14	24.79
Postal clerks	310	309	321	312	-.28	3.41	.46
Procurement clerks	39	46	50	47	19.53	28.38	20.72
Production clerks	192	234	257	238	22.33	34.03	24.48
Raters	51	63	66	64	23.56	28.73	24.14
Receptionists	369	505	540	511	37.00	46.36	38.57
Reservation agents	52	55	59	56	6.64	13.57	7.48
Secretaries, stenographers, and typists	3,574	4,383	4,678	4,458	22.65	30.89	24.72
Secretaries	2,319	2,807	3,007	2,860	21.03	29.64	23.31
Stenographers	262	322	341	326	22.76	30.20	24.46
Typists	993	1,255	1,330	1,271	26.40	33.98	28.09
Shipping and receiving clerks	378	448	488	452	18.52	28.92	19.38



Table 2. Continued—Civilian employment in occupations with 25,000 workers or more, actual 1978 and projected 1990

Occupation	Employment (in thousands)				Percent change, 1978-90		
	1978	1990 Low-trend	1990 High-trend I	1990 High-trend II	Low-trend	High-trend I	High-trend II
Shipping packers	340	398	431	401	17.10	26.90	17.99
Statement clerks	30	44	45	44	45.76	49.57	45.81
Statistical clerks	81	95	101	96	16.85	24.09	18.23
Stock clerks, stockroom and warehouse	787	964	1,043	977	22.44	32.47	24.16
Survey workers	40	48	52	49	17.84	27.72	21.46
Switchboard operators/receptionists	219	276	298	282	25.96	36.08	28.71
Teacher's aides, except monitors	404	497	500	495	23.00	23.79	22.59
Telephone operators	312	376	414	382	20.60	32.58	22.54
Switchboard operators	171	218	234	222	27.85	37.18	30.05
Central office operators	101	113	128	114	11.24	26.08	12.62
Directory assistance operators	35	40	45	40	13.47	28.59	14.85
Ticket agents	49	51	54	51	3.75	10.11	4.61
Town clerks	26	33	34	33	28.55	30.80	28.78
Weighers	35	42	45	42	17.92	26.90	19.15
<b>Crafts and related workers</b>	<b>11,679</b>	<b>14,366</b>	<b>15,555</b>	<b>14,668</b>	<b>23.01</b>	<b>33.19</b>	<b>25.60</b>
Construction craftworkers	2,950	3,747	4,037	3,841	27.04	36.85	30.24
Brickmasons	144	204	220	211	41.71	52.76	46.35
Carpenters	979	1,183	1,274	1,228	20.82	30.17	25.46
Carpet cutters and layers	50	65	72	67	29.41	43.35	33.48
Ceiling tile installers and floor layers	25	35	38	36	36.88	50.70	41.16
Concrete and terrazzo finishers	113	152	164	157	34.61	44.96	38.82
Dry wall installers and lathers	92	125	135	128	35.46	46.23	38.99
Dry wall applicators	51	70	76	72	39.20	50.46	43.19
Tapers	30	42	46	43	40.68	51.68	43.66
Electricians	516	678	726	693	31.44	40.77	34.33
Glaziers	35	48	51	49	35.53	44.62	40.02
Painters, construction and maintenance	363	436	477	429	20.02	31.27	18.25
Plumbers and pipefitters	375	492	526	504	31.06	40.04	34.40
Roofers	99	130	139	133	31.05	40.91	35.03
Structural steel workers	67	90	95	92	33.07	40.57	36.37
<b>Mechanics, repairers, and installers</b>	<b>3,758</b>	<b>4,764</b>	<b>5,157</b>	<b>4,863</b>	<b>26.77</b>	<b>37.24</b>	<b>29.40</b>
Air conditioning, heating, and refrigerator mechanics	165	213	230	216	29.04	39.10	30.65
Aircraft mechanics	97	125	133	126	28.32	36.20	29.47
Auto body repairers	154	189	201	193	22.67	30.40	25.13
Automotive mechanics	847	1,052	1,124	1,082	24.25	32.71	27.77
Coin machine servicers and repairers	27	29	31	25	9.53	16.43	-7.79
Data processing machine mechanics	63	156	172	162	147.62	173.02	157.14
Diesel mechanics	166	214	227	214	29.29	37.24	29.36
Electric power line installers and repairers	157	189	215	192	20.33	36.48	22.12
Cable splicers	40	48	54	48	18.54	34.14	19.99
Line installers and repairers	110	133	151	136	21.30	37.45	23.24
Engineering equipment mechanics	86	104	112	107	20.83	30.45	24.90
Gas and electric appliance repairers	57	70	78	70	21.39	35.29	21.24
Instrument repairers	36	42	45	42	14.62	24.03	15.79
Maintenance mechanics	346	411	439	418	18.83	27.06	21.10
Maintenance repairers, general utility	626	785	846	795	25.52	35.18	27.01
Millwrights	93	108	114	109	15.47	22.39	16.79
Office machine and cash register servicers	49	89	96	91	80.78	96.24	86.69
Radio and television repairers	81	112	122	117	37.56	49.60	44.10
Railroad car repairers	30	24	27	25	-18.81	-10.47	-17.85
Telephone installers and repairers	228	273	310	277	20.21	36.29	21.85
Central office repairers	47	56	63	57	19.40	35.31	20.86
Installers, repairers, and section maintainers	69	83	94	84	20.36	36.34	22.01
Station installers	55	65	74	66	19.62	35.61	21.11
<b>Metalworking craftworkers, except mechanics</b>	<b>909</b>	<b>1,081</b>	<b>1,192</b>	<b>1,106</b>	<b>18.96</b>	<b>31.11</b>	<b>21.69</b>
Boilermakers	42	52	57	54	25.56	36.70	30.12
Heat treaters, annealers, and temperers	25	29	32	30	16.06	25.79	16.70
Machine tool setters, metalworking	57	66	74	67	16.10	29.85	18.52
Machinists	272	323	358	331	18.82	31.66	21.95
Sheet metal workers and tinsmiths	205	261	280	267	27.57	36.95	30.63
Tool and die makers	166	192	221	197	15.96	33.10	18.79
<b>Printing trades craftworkers</b>	<b>386</b>	<b>442</b>	<b>476</b>	<b>458</b>	<b>14.72</b>	<b>43.55</b>	<b>18.72</b>
Compositors and typesetters	123	121	130	124	-1.92	5.96	1.03
Press and plate printers	168	197	211	204	17.42	25.92	21.68
Letter press operators	36	39	42	40	8.99	17.88	13.64
Offset lithographic press operators	75	92	99	96	22.55	31.91	27.61
Press operators and plate printers	35	41	43	42	16.10	21.82	17.87
<b>Other crafts and related workers</b>	<b>3,677</b>	<b>4,332</b>	<b>4,693</b>	<b>4,400</b>	<b>17.82</b>	<b>27.64</b>	<b>19.67</b>
Bakers	60	72	76	74	20.11	27.22	22.97
Blue-collar worker supervisors	1,274	1,495	1,616	1,520	17.36	26.87	19.33
Cabinetmakers	72	89	95	88	22.96	31.00	21.36
Crane, derrick, and hoist operators	126	146	157	149	15.72	23.73	17.75
Dental lab technicians	48	69	79	71	44.91	67.04	48.65
Furniture upholsterers	30	38	43	39	27.31	41.84	31.43
Heavy equipment operators	431	546	598	560	26.57	38.65	29.83
Inspectors	475	544	595	554	14.70	25.43	16.73
Jewelers and silversmiths	29	32	35	31	10.74	21.54	7.24
Merchandise displayers and window trimmers	26	31	33	32	17.84	26.30	20.68
Opticians	30	42	46	41	38.61	50.56	34.65
Sewage plant operators	38	43	45	43	15.01	18.28	15.26
Stationary engineers	60	68	72	68	13.48	19.89	14.40

Table 2. Continued—Civilian employment in occupations with 25,000 workers or more, actual 1978 and projected 1990

Occupation	Employment (in thousands)				Percent change, 1978-90		
	1978	1990 Low-trend	1990 High-trend I	1990 High-trend II	Low-trend	High-trend I	High-trend II
Tailors	66	75	83	77	14.34	25.05	16.75
Testers	105	120	130	122	14.55	23.83	16.48
Water treatment plant operators	27	32	33	32	15.98	21.15	16.30
Operatives	14,205	16,399	17,697	16,584	15.44	24.58	16.75
Assemblers	1,672	1,997	2,192	2,029	19.44	31.07	21.33
Electrical and electronic assemblers	207	278	305	281	34.24	47.30	36.07
Electro-mechanical equipment assemblers	53	69	78	71	29.89	46.37	32.13
Machine assemblers	100	124	144	127	24.76	44.67	27.48
Bindery operatives	81	86	94	90	6.57	15.63	10.72
Bindery workers, assembly	41	43	47	45	6.64	15.99	10.95
Laundrying, drycleaning, and pressing machine operators	316	356	404	375	12.48	27.76	18.68
Laundry operators, small establishment	34	48	53	49	39.62	56.00	44.80
Pressers:							
Hand	30	32	36	33	7.18	19.30	10.79
Machine	54	56	65	59	2.41	18.80	8.76
Machine, laundry	66	74	84	78	11.76	26.65	18.08
Washers, machine and starchers	56	79	87	82	41.42	55.69	47.19
Metalworking operatives	1,650	1,970	2,211	2,025	19.38	33.97	22.71
Drill press and boring machine operators	123	148	167	151	19.57	35.39	22.60
Electroplaters	35	44	48	45	24.38	34.56	27.29
Grinding and abrading machine operators, metal	131	154	173	157	17.43	32.37	20.01
Lathe machine operators, metal	153	186	210	191	22.03	37.69	25.29
Machine tool operators:							
Combination	170	200	226	206	17.91	33.43	21.47
Numerical control	49	61	70	63	24.18	41.49	27.45
Tool room	40	46	52	47	15.31	31.63	17.99
Milling and planing machine operators	68	83	95	86	21.58	39.59	25.21
Power brake and bending machine operators, metal	41	48	54	49	19.01	32.29	21.31
Punch press operators, metal	195	217	240	222	11.25	23.05	13.80
Welders and flamecutters	570	696	784	720	22.14	37.60	26.45
Mine operatives, not elsewhere classified	170	239	259	243	41.00	52.69	43.44
Roustabouts	61	81	85	79	31.42	37.94	29.43
Packing and inspecting operatives	906	981	1,041	993	8.30	14.93	9.67
Baggers	215	238	250	242	10.64	16.32	12.75
Production packagers	612	661	704	669	7.94	15.08	9.35
Selectors, glasswares	32	35	35	33	8.84	10.93	3.75
Painters, manufactured articles	166	205	222	206	23.42	33.46	24.05
Painters, automotive	40	56	59	55	40.04	45.96	37.34
Painters, production	113	132	145	134	17.34	28.04	19.02
Sewers and stitchers	919	967	1,065	987	5.25	15.93	7.39
Sewing machine operators:							
Regular equipment, garment	616	634	702	647	2.96	14.02	5.15
Special equipment, garment	89	96	106	98	8.61	19.98	11.00
Regular equipment, nongarment	144	161	175	164	12.08	21.22	13.58
Special equipment, nongarment	40	45	49	46	13.10	21.74	14.41
Textile operatives	394	399	419	396	1.36	6.53	.58
Folders, hand	27	29	32	30	8.64	19.29	9.13
Spinners, frame	31	32	32	31	1.38	4.18	-.57
Weavers	37	33	33	32	-11.18	-8.85	-11.45
Transport equipment operatives	3,468	4,152	4,428	4,140	19.70	27.68	19.35
Ambulance drivers and attendants	28	41	42	40	45.30	48.79	40.86
Busdrivers	266	326	329	321	22.49	23.76	20.65
Chauffeurs	39	48	52	48	24.63	34.13	24.76
Delivery and route workers	802	916	991	901	14.28	23.52	12.33
Industrial truck operators	408	459	493	464	12.50	20.69	13.60
Parking attendants	37	44	51	58	21.56	40.23	58.07
Railroad brake operators	74	67	73	68	-10.27	-1.26	-9.06
Taxi drivers	79	69	78	72	-12.59	-.87	-8.98
Truckdrivers	1,672	2,110	2,246	2,102	26.16	34.30	25.69
All other operatives	4,311	4,882	5,189	4,936	13.25	20.38	14.52
Asbestos and insulation workers	42	58	62	60	37.75	47.32	41.52
Cutters, machine	29	32	34	32	9.86	16.86	11.83
Dressmakers, except factory	53	49	53	50	-8.33	-.54	-5.41
Filers, grinders, buffers, and chippers	127	151	168	155	19.56	33.04	22.66
Fuel pump attendants and lubricators	434	475	492	481	9.51	13.40	10.96
Furnace operators and tenders, except metal	62	65	67	65	4.97	9.15	4.98
Stationary boiler firers	47	51	53	51	6.80	10.99	7.13
Miscellaneous machine operatives:							
Lumber and furniture	51	59	60	56	16.21	18.45	9.74
Chemicals and allied products	153	167	176	172	9.13	15.20	12.82
Rubber and miscellaneous plastics	229	284	292	282	23.99	27.67	23.40
Miscellaneous operatives, not elsewhere classified:							
Durable goods	103	123	128	123	19.27	24.60	18.90
Nondurable goods	249	257	275	258	3.11	10.46	3.69
Mixing operatives	53	51	55	52	-2.36	4.32	-1.31
Oilers	40	48	52	49	19.52	30.02	21.65
Photographic process workers	66	81	89	81	22.68	34.55	22.40
Rotary drill operator helpers	31	42	45	42	34.02	41.28	32.91
Shear and slitter operators, metal	32	37	40	38	15.46	26.45	17.92
Shoemaking machine operators	68	54	59	55	-19.98	-13.07	-19.24
Surveyor helpers	48	68	70	68	39.92	45.20	41.45

Table 2. Continued—Civilian employment in occupations with 25,000 workers or more, actual 1978 and projected 1990

Occupation	Employment (in thousands)				Percent change, 1978-90		
	1978	1990 Low-trend	1990 High-trend I	1990 High-trend II	Low-trend	High-trend I	High-trend II
Tire changers and repairers	60	71	77	73	17.47	27.18	20.94
Winding operatives, not elsewhere classified	48	58	62	59	21.91	30.43	24.02
Coil winders	29	37	40	38	27.30	39.55	30.02
Writers, electronic	28	35	38	36	24.46	36.15	28.08
Wood machinists	27	33	34	32	23.67	27.82	22.10
<b>Service workers</b>	<b>14,414</b>	<b>18,946</b>	<b>20,074</b>	<b>19,220</b>	<b>31.44</b>	<b>39.27</b>	<b>33.34</b>
Food service workers	5,610	7,774	8,192	7,827	38.57	46.02	39.53
Bakers, bread and pastry	45	57	59	57	27.08	33.19	27.91
Bartenders	347	453	480	457	30.35	38.05	31.64
Butchers and meat cutters	178	212	225	214	18.64	25.84	19.90
Cooks, except private household	1,024	1,367	1,438	1,379	33.50	40.48	34.74
Cooks, institutional	296	370	386	378	25.19	30.68	27.69
Cooks, restaurant	320	445	471	448	39.18	47.43	40.12
Cooks, short order and specialty fast foods	408	552	580	554	35.07	42.13	35.63
Food preparation and service workers, fast food restaurant	714	1,206	1,265	1,210	68.84	77.10	69.37
Hosts/hostesses, restaurant, lounge, coffee shop	104	154	163	155	48.61	57.14	49.05
Kitchen helpers	771	1,072	1,131	1,084	38.98	46.74	40.53
Pantry, sandwich, and coffee makers	64	92	97	92	43.07	51.80	43.28
Waiters/waitresses	1,539	2,071	2,186	2,084	34.56	42.09	35.43
Waiters' assistants	252	363	384	366	43.72	52.20	45.03
Janitors and sextons	2,585	3,257	3,504	3,317	25.96	35.52	28.30
Selected health service workers	1,251	1,921	2,051	1,963	53.53	63.93	56.90
Medical assistants	81	116	123	116	44.20	52.27	43.52
Nurses' aides and orderlies	1,089	1,683	1,801	1,725	54.56	65.40	58.43
Psychiatric aides	77	115	120	116	49.50	56.20	49.86
Selected personal service workers	1,547	2,028	2,206	2,108	31.08	42.56	36.20
Barbers	114	142	160	149	23.90	40.06	30.14
Child-care attendants	35	55	60	59	56.26	67.85	66.53
Child-care workers	398	581	615	600	46.10	54.55	50.76
Cosmetologists and women's hair stylists	434	530	603	566	22.22	38.89	30.43
Elevator operators	45	59	64	60	30.70	40.89	32.30
Flight attendants	51	64	68	65	26.82	34.56	27.75
Game and ride operators and concession workers	28	37	38	36	33.10	35.85	29.47
Housekeepers, hotel and motel	49	67	74	69	35.70	50.95	39.86
Recreation facility attendants	65	83	85	82	28.33	31.02	27.63
Reducing instructors	26	29	35	32	12.22	35.84	25.21
School monitors	37	38	38	38	3.03	3.41	2.78
Ushers, lobby attendants, and ticket takers	40	46	46	46	15.44	14.50	13.87
Welfare service aides	84	126	132	130	51.15	57.25	55.24
<b>Protective service workers</b>	<b>1,586</b>	<b>2,098</b>	<b>2,189</b>	<b>2,120</b>	<b>32.28</b>	<b>38.02</b>	<b>33.71</b>
Correction officials and jailers	95	152	154	152	60.28	63.08	60.55
Crossing or bridge tenders	27	32	33	32	18.07	20.76	18.21
Crossing guards, school	38	48	49	49	28.55	30.81	28.79
Firefighters	200	256	260	256	27.62	29.88	27.86
Fire officers	46	59	60	59	28.56	30.81	28.79
Guards and doorkeepers	591	801	868	820	35.52	46.80	38.73
Police detectives	59	72	74	72	23.06	25.33	23.30
Police officers	94	119	121	119	26.68	28.93	26.91
Police patrolmen/women	358	459	467	460	28.02	30.26	28.25
Private household workers	1,160	982	993	988	-15.41	-14.39	-14.87
Child-care workers, private household	486	412	417	414	-15.32	-14.29	-14.78
Housekeepers, private household	118	100	101	100	-15.40	-14.39	-14.86
Maids and servants, private household	530	449	455	452	-15.20	-14.19	-14.67
Supervisors, nonworking, service	189	254	270	256	34.12	42.27	35.10
All other service workers	484	633	670	640	30.76	38.33	32.29
<b>Laborers, except farm</b>	<b>5,902</b>	<b>6,955</b>	<b>7,441</b>	<b>7,078</b>	<b>17.83</b>	<b>26.07</b>	<b>19.92</b>
Animal caretakers	88	113	122	124	27.63	38.19	40.57
Construction laborers, excluding carpenter helpers	277	348	365	352	25.74	31.67	27.01
Highway maintenance workers	170	211	215	212	24.44	26.61	24.66
Pipelayers	43	54	60	55	25.48	38.32	27.80
Reinforcing-iron workers	31	42	45	43	34.50	41.55	37.99
Cannery workers	82	80	84	89	-2.53	3.18	8.85
Cleaners, vehicle	118	150	159	160	27.04	35.07	35.76
Conveyor operators and tenders	55	62	68	63	13.82	23.96	15.65
Garbage collectors	110	137	148	137	24.37	34.39	24.34
Gardeners and groundkeepers, except farm	639	738	789	765	15.58	23.50	19.71
Helpers, trades	928	1,161	1,255	1,193	25.04	35.20	28.49
Line service attendants	27	32	34	32	17.74	25.49	18.61
Off-bearers	25	28	28	26	9.73	10.76	3.94
Riggers	28	33	35	34	16.99	24.70	19.58
Stock handlers	918	1,131	1,210	1,137	23.18	31.82	23.82
Order fillers	352	407	445	405	15.52	26.18	15.08
Stock clerks, sales floor	566	724	766	731	27.95	35.34	29.26
Timbercutting and logging workers	70	59	63	61	-15.96	-10.90	-13.58
Fallers and buckers	43	36	38	37	-16.60	-11.51	-14.18
<b>Farmers and farmworkers</b>	<b>2,775</b>	<b>2,193</b>	<b>2,426</b>	<b>2,327</b>	<b>-20.97</b>	<b>-12.57</b>	<b>-16.13</b>
Farmers and farm managers	1,486	1,231	1,355	1,281	-17.18	-8.81	-13.76
Farmers (owners and tenants)	1,445	1,200	1,321	1,248	-16.96	-8.61	-13.65
Farm managers	41	31	34	34	-25.02	-15.78	-17.65
Farm supervisors and laborers	1,289	963	1,071	1,046	-25.35	-16.90	-18.87
Farm supervisors	32	25	28	27	-22.40	-13.00	-14.25
Farm laborers	1,257	938	1,044	1,019	-25.42	-17.00	-18.99



tional Employment Statistics (OES) Survey to collect data on occupational staffing patterns of industries more frequently. These data are obtained directly from establishments by mail survey. The survey is a Federal-State cooperative program in which data are collected by State employment security agencies according to standards, procedures, and methods developed by the BLS. All nonagricultural industries, except private households, are covered in this survey on a 3-year cycle—manufacturing industries during the first year, and roughly half of nonmanufacturing industries in each of the next 2 years. Each industry is therefore surveyed every 3 years. Survey questionnaires are tailored to an industry's occupational structure. For example, the iron and steel industry questionnaire does not list barber as an occupation. Each questionnaire is limited to a maximum of 200 occupations; residual categories, such as "other professional and technical workers" are included so that an establishment can list its total employment. Employers are requested to identify large or emerging occupations in their establishments, which are not found on the questionnaire.

Because data for all States were not available until the late 1970's, it was not until 1980 that national matrix for 1978 based on OES survey data could be developed. Occupational staffing patterns for the 1978 matrix were derived from the OES surveys of manufacturing industries in 1977; nonmanufacturing, except trade and regulated industries in 1978; and trade and regulated industries in 1979. Occupational employment estimates for 1978 were obtained by applying the occupational staffing pattern for each industry to the total wage-and-salary employment in that industry in 1978. The Bureau's Current Employment Survey (CES) was the source of the industry totals. As a result of using the OES survey as the data base, the number of detailed industries and occupations in the Bureau's industry-occupation matrix will increase substantially.

### Differences among surveys

Wage-and-salary employment totals for agricultural and private household industries were obtained from the Current Population Survey (CPS) because the OES survey and the CES do not cover employment in these industries. Occupational distributions of employment in these industries were developed from the census-based matrix; detailed occupations in the census-based matrix were reclassified in the OES occupational framework.

Because an establishment may have workers in more occupations than the 200 listed on the questionnaire for the employer's industry, the OES surveys do not obtain complete employment counts for all occupations. In general, if survey data accounted for less than an esti-

mated 90 percent of total employment in an occupation, the data were collapsed into residual categories in the matrix. (About 400 occupations were treated in this manner.) If the survey accounted for more than an estimated 90 percent of an occupation's employment, the remainder was estimated on the basis of patterns from the census-based matrix. Estimates of employment in selected industries for about 200 occupations were developed through this procedure, but the sum of these estimates accounted for less than 4 percent of total national employment.

The OES surveys do not cover self-employed workers and unpaid family workers. Occupational employment estimates for these classes of workers also were developed from CPS and census-based matrix data and reclassified into the OES occupational framework. However, because of data limitations and resource constraints the occupational estimates for self-employed and unpaid family workers were not distributed across industries. Consequently, industry/occupation cross-tabulations are available only for wage-and-salary employment. To develop total employment estimates by occupation, employment of wage-and-salary workers was added to totals of self-employed and unpaid family workers.

Detailed occupational employment estimates in the OES survey-based matrix for 1978-90 generally are not comparable with those in previous census-based matrices because of many major differences in the underlying data sources. The census counts persons, whereas the OES survey counts jobs. The employment total in the OES matrix is higher than the total in the census matrix, because one person may hold more than one job. The difference between the numbers of jobs and of persons employed in 1978 was roughly 10 percent, but it varied among occupations. The census is a household survey, while the OES study is directed at employers. Household surveys generally are completed by one individual, who reports for all members of the household. Employer surveys are completed by an official of the responding establishment and generally are based on records.

In the census, individuals report themselves in the occupation in which they work the most hours. Respondents to the OES surveys are instructed to report employees performing more than one job in the one that requires the highest skill level; also, definitions that imply a specific skill level for each occupation are listed on the questionnaire. In the census, the titles reported by respondents are grouped into categories which may include workers with greatly different skill levels; categories usually take the title of the most prominent occupation in that group. For example, the title "lawyer" includes lawyers and law clerks which are separate titles in the OES survey.<sup>7</sup> □

<sup>1</sup> This article is one in a series presenting data from the ongoing projections program. The first article reported on new labor force projections (see Howard N. Fullerton, Jr., "The 1995 labor force: a first look", *Monthly Labor Review*, December 1980, pp. 11-21). The second article, appearing in this issue of the *Review*, gives new macroeconomic projections for 1985 and 1990. The third article, also in this issue, describes projections of industry output and industry employment for 1985 and 1990.

<sup>2</sup> For the most recent census-based matrix, see George T. Silvestri, *The National Industry-Occupation Employment Matrix, 1970, 1978, and Projected 1990*, Bulletin 2086 (Bureau of Labor Statistics, 1981).

<sup>3</sup> Statistics on employment in this article are based on a count of jobs, as used in the Bureau's Current Employment Surveys and Occupational Employment Statistics Surveys, rather than a count of persons as used in the Current Population Surveys and decennial census. Because one worker may hold more than one job, employment on a "jobs" concept is greater than employment on a "persons" concept. Differences between these surveys are discussed in more detail elsewhere in this article.

Employment in this article is slightly different than that in the other ones in this issue. Self-employed and unpaid family workers by industry are estimated by different methods. In addition, government employment in this article is based in the BLS establishment survey. In the other articles, government employment is based on National Income Accounts data from the Department of Commerce.

<sup>4</sup> Later in 1981, employment projections for occupations with base-year employment of 5,000 or more will be published in the industry-occupation matrix.

<sup>5</sup> An important limitation should be kept in mind when evaluating occupational employment projections that were generated by applying the industry-occupational matrix to the various industry projections. The occupational projections assume that all industries will have an average occupational composition regardless of the changes that occur in industry employment under the different scenarios. However, occupational composition of an increase or decrease in an industry's total employment may differ from the average occupational composition of the industry as a result of changes in product mix, capacity utilization, and other factors. For example, differences in the assumptions embodied in the various scenarios can produce shifts in an industry's product mix which increase employment requirements in some occupations, while reducing requirements in others.

<sup>6</sup> For a detailed description of how the occupational employment projections were developed, see Richard P. Oliver, *Methodology for Labor Force, Industry and Occupational Employment Projections to 1990*, a BLS report to be published later this year.

<sup>7</sup> For more information on the differences between the OES survey-based matrix and the census-based matrix, write to the Bureau of Labor Statistics, Office of Economic Growth and Employment Projections, Division of Occupational Outlook, Washington, D.C. 20212.

# Family Budgets



## Taxes, transportation mark 6-year high in rise of autumn 1980 family budgets

Rising personal income taxes, and transportation and homeowner costs contributed to the largest increases since 1974 in the three hypothetical four-person family budgets. In autumn 1980, average urban budget costs totaled \$14,044 at the lower level, \$23,134 at the intermediate level, and \$34,409 at the higher level (table 1). From autumn 1979 to autumn 1980, the lower budget rose 11.6 percent, the intermediate, 12.8 percent, and the higher, 13.5 percent (table 2).

**Consumption costs.** Consumption costs rose by approximately 10 percent in the lower budget and 10.5 percent in the intermediate and higher budgets between autumn 1979 and autumn 1980. For each of the three levels, the increase in transportation costs was higher than that of any other consumption category. Homeowner costs also showed a large percentage change for the intermediate and higher budgets (there is no homeowner category in the lower budget). Transportation and homeowner costs also rose sharply during the previous year, autumn 1978 to autumn 1979.

**Personal income taxes.** The budgets include estimated 1980 Federal, State, and local tax payments. The large increases in taxes, approximately 30 percent at the lower level and 25 percent at both the intermediate and

**Table 2. Percent change in four-person family budgets, autumn 1979 to autumn 1980**

Component	Budget level		
	Lower	Intermediate	Higher
Total budget .....	11.6	12.8	13.5
Total consumption .....	9.9	10.5	10.4
Total consumption less shelter .....	10.2	10.1	9.9
Food .....	10.5	10.4	10.4
Housing .....	8.3	11.1	11.1
Shelter <sup>1</sup> .....	8.2	11.9	12.1
Renter costs .....	8.2	8.2	8.2
Homeowner costs <sup>2</sup> .....	.....	12.6	12.6
Housefurnishings and operations .....	8.5	8.5	8.5
Transportation .....	15.5	14.3	14.1
Clothing .....	4.7	4.6	4.7
Personal care .....	9.0	8.8	9.0
Medical care .....	10.8	10.8	10.8
Other family consumption .....	8.5	8.6	8.6
Other items .....	8.2	9.1	8.9
Social security and disability .....	12.8	13.6	13.8
Personal income taxes .....	29.6	24.7	24.6

<sup>1</sup> Includes only rental housing in the lower budget.

<sup>2</sup> On the assumption that the home was purchased 6 years ago, these costs reflect changes in purchase prices and mortgage interest rates from 1973 to 1974 and changes in property taxes, insurance, fuel and utilities, and repairs and maintenance from 1979 to 1980.

higher levels, are a result of the Federal income tax structure, and that of many States, which call for higher tax rates as income rises. Although the percentage increase in income taxes for the lower budget was higher than for the other levels, the impact of the increases was more pronounced at the intermediate and higher levels because taxes constitute a larger share of the total budget at these levels.

**Housing and utilities.** Housing increased by 8.3 percent between autumn 1979 and autumn 1980 in the lower budget, which includes only rental units. Both rentals and homeownership are included in the intermediate and higher budgets and these costs rose by 11.1 percent for both levels. As in the previous year, large increases in homeowner costs for mortgage interest, and fuel and utilities contributed to greater increases in housing costs at the intermediate and higher levels than at the lower level. Also, the impact of the increases on total consumption was greater at the higher levels because housing accounts for a larger share of the consumption dollar at these levels.

**The program and its methods.** The family budgets represent the costs of three hypothetical lists of goods and

**Table 1. Annual budgets for a four-person urban family at three levels of living, autumn 1980**

Component	Budget level		
	Lower	Intermediate	Higher
Total budget .....	\$14,044	\$23,134	\$34,409
Total family consumption .....	11,243	16,969	23,266
Food .....	4,321	5,571	7,024
Housing .....	2,608	5,106	7,747
Transportation .....	1,160	2,116	2,751
Clothing .....	907	1,292	1,888
Personal care .....	352	471	668
Medical care .....	1,298	1,303	1,359
Other family consumption .....	597	1,109	1,829
Other items .....	583	957	1,610
Social security and disability .....	881	1,427	1,608
Personal income taxes .....	1,337	3,781	7,924

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



services that were specified in the mid-1960's to portray three relative standards of living described as lower, intermediate, and higher. These budgets are for a precisely defined urban family of four including: a 38-year-old husband employed full time, a wife not employed outside the home, a boy age 13, and a girl age 8. The budget level includes for each, average inventories of clothing, house furnishings, major durables, and other articles. The budgets pertain only to an urban family with these specified characteristics; no budget program exists for rural families. The budgets are not intended to represent a minimum level of adequate income or a subsistence level of living, nor do they indicate how families do or

should spend their money.

The 1980 consumption budgets were estimated by applying price changes for individual areas from autumn 1979 to autumn 1980, as reported in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-w), to the appropriate autumn 1979 budget costs for each main class of goods and services. As a result of the revision of the CPI program in January 1978, individual area price changes from autumn 1979 to autumn 1980 were available for only 25 of the 44 geographic areas (table 3). The urban U.S. average includes estimates for the areas previously shown, however, using price data for the appropriate region and

**Table 3. Indexes of comparative costs based on an intermediate budget for a four-person family,<sup>1</sup> autumn 1980**

(U.S. urban average cost = 100)

Area	Total budget	Cost of family consumption											Personal income taxes	
		Total consumption	Food		Housing			Transportation <sup>7</sup>		Clothing	Personal care	Medical care <sup>8</sup>		Other family consumption <sup>9</sup>
			Total	Food at home	Total <sup>4</sup>	Renter <sup>5</sup>	Homeowner <sup>6</sup>	Total	Auto-mobile owners					
Urban United States . . . . .	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Metropolitan areas <sup>2</sup> . . . . .	102	102	101	100	102	104	103	100	102	101	102	103	103	104
Nonmetropolitan areas <sup>3</sup> . . . . .	91	93	94	98	90	82	85	98	93	97	93	88	85	83
<b>Northeast:</b>														
Boston, Mass. . . . .	117	113	104	106	130	113	143	117	133	110	96	92	111	137
Buffalo, N.Y. . . . .	104	101	102	104	99	96	100	107	101	116	90	82	101	117
New York-Northeastern N.J. . . . .	116	109	111	109	122	110	132	92	104	93	103	102	108	147
Philadelphia, Pa.-N.J. . . . .	105	103	112	107	103	86	109	97	110	72	91	106	100	118
Pittsburgh, Pa. . . . .	97	97	103	103	88	84	86	104	103	99	95	91	101	97
Nonmetropolitan areas <sup>3</sup> . . . . .	101	100	100	104	107	88	115	105	100	100	84	88	85	102
<b>North Central:</b>														
Chicago, Ill.-Northwestern Ind. . . . .	101	103	101	101	103	105	106	104	118	91	99	109	114	94
Cincinnati, Ohio-Ky.-Ind. . . . .	98	99	102	103	92	82	93	99	94	116	92	95	99	95
Cleveland, Ohio . . . . .	101	103	101	98	103	86	109	99	98	106	125	100	105	96
Detroit, Mich. . . . .	100	100	99	100	102	95	109	97	95	96	106	105	99	100
Kansas City, Mo.-Kans. . . . .	97	98	99	100	89	87	86	106	101	106	121	99	102	93
Milwaukee, Wis. . . . .	104	101	97	95	104	99	108	101	96	107	102	99	104	118
Minneapolis-St. Paul, Minn. . . . .	102	98	99	98	96	107	93	98	94	100	104	85	106	123
St. Louis, Mo.-Ill. . . . .	96	97	105	105	87	88	82	105	104	97	106	90	98	91
Nonmetropolitan areas <sup>3</sup> . . . . .	92	93	93	97	92	97	87	96	91	105	99	84	87	86
<b>South:</b>														
Atlanta, Ga. . . . .	91	93	95	94	82	80	76	102	97	110	97	89	99	83
Baltimore, Md. . . . .	101	99	97	95	100	108	92	97	96	103	104	95	101	113
Dallas, Tex. . . . .	90	95	95	92	85	97	79	104	99	97	107	110	98	65
Houston, Tex. . . . .	93	98	98	95	88	85	84	100	95	109	120	117	98	70
Washington, D.C.-Md.-Va. . . . .	109	105	105	106	106	113	105	100	98	98	110	104	111	130
Nonmetropolitan areas <sup>3</sup> . . . . .	85	89	93	96	82	70	73	96	91	89	93	87	84	70
<b>West:</b>														
Denver, Colo. . . . .	99	100	94	93	97	87	94	103	98	133	99	93	105	94
Los Angeles-Long Beach, Calif. . . . .	97	99	97	94	93	123	87	104	103	95	98	129	92	87
San Diego, Calif. . . . .	98	100	96	92	99	106	102	101	96	94	99	119	101	89
San Francisco-Oakland, Calif. . . . .	107	107	101	101	108	154	100	108	107	111	118	116	104	105
Seattle-Everett, Wash. . . . .	101	105	100	98	108	143	101	101	96	114	115	111	108	81
Honolulu, Hawaii . . . . .	123	115	125	130	115	145	108	103	98	106	115	107	112	165
Nonmetropolitan areas <sup>3</sup> . . . . .	95	94	94	97	90	90	84	97	92	111	99	93	86	98
Anchorage, Alaska . . . . .	128	130	117	121	148	181	132	127	121	114	138	160	98	128

<sup>1</sup> The family consists of an employed husband age 38, a wife not employed outside the home, an 8-year-old girl, and a 13-year-old boy.

<sup>2</sup> As defined in 1960-61. For a detailed description of these and previous geographical boundaries, see the 1967 edition of *Standard Metropolitan Statistical Areas*, prepared by the Office of Management and Budget.

<sup>3</sup> Places with population of 2,500 to 500,000; data for some previously shown are no longer available.

<sup>4</sup> Housing includes shelter, housefurnishings, and household operations.

<sup>5</sup> Renter costs include average contract rent plus the cost of required amounts of heating fuel, gas, electricity, water, specified equipment, and insurance on household contents.

<sup>6</sup> Homeowner costs include interest and principal payments plus taxes, insurance on house and contents, water, refuse disposal, heating fuel, gas, electricity, specified equipment, and home repairs and maintenance cost.

<sup>7</sup> The average costs of automobile owners and nonowners in the intermediate budget were weighted by the following proportions of families: Boston, New York, Chicago, and Philadelphia 80 percent for owners, 20 percent for nonowners; Baltimore, Cleveland, Detroit, Los Angeles, Pittsburgh, San Francisco, St. Louis, and Washington, D.C., with populations of 1.4 million or more in 1960, 95 percent for automobile owners and 5 percent for nonowners; all other areas 100 percent for automobile owners.

<sup>8</sup> In total medical care, the average costs of medical insurance were weighted by the following proportions: 30 percent for families paying full cost of insurance; 26 percent for families paying half costs; 44 percent for families covered by noncontributory insurance plans (paid by employer).

<sup>9</sup> Other family consumption includes average costs for reading, recreation, tobacco products, alcoholic beverages, education, and miscellaneous expenditures.

population size classes, which are available from the CPI. Nonmetropolitan areas, which have always been shown as a separate class, have been similarly updated.

A comprehensive revision of the Family Budgets Program, in line with past revisions, is currently being considered by the Bureau. A committee of experts has completed an in-depth study of the family budget methodology and has recommended a new approach.<sup>1</sup> The

committee's report is being reviewed by the Bureau staff and by other concerned persons. □

—FOOTNOTE—

<sup>1</sup> See Harold W. Watts, "Special panel suggests changes in BLS Family Budget Program," *Monthly Labor Review*, December 1980, pp. 3-10.

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### Upward pressures on prices

Among the most exasperating and puzzling of recent economic phenomena is the apparent intractability of the inflation rate. Once started, an inflation becomes difficult to subdue. It seems to develop a momentum of its own, independent of other basic economic conditions. It resists or at best responds only sluggishly to traditional restrictive policies. Its persistence in the face of high unemployment and excess capacity has resulted in the addition of the term *stagflation* to the economist's lexicon.

What accounts for the stickiness of the inflation rate? Why is it so policy-resistant and difficult to control? Why is it so slow to decelerate even when demand is slack? Many economists believe that the answers lie in the mechanism through which inflationary impulses are transmitted through the economy. Embedded in this mechanism are certain delays or lags that may slow the spread of inflation over the total price structure and may also prolong its duration. Particular prices that lag behind general inflationary movements have to catch up later to reestablish their relative position in the price structure. This lag/catchup characteristic of the inflationary transmission mechanism is offered by some as an explanation of why strong upward pressures on prices persist long after demand slackens.

—THOMAS M. HUMPHREY  
*Essays on Inflation*, 2d ed.  
(Richmond, Va., Federal  
Reserve Bank of Richmond,  
1980), p. 49.

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# Major Agreements Expiring Next Month



This list of collective bargaining agreements expiring in September is based on contracts on file in the Bureau's Office of Wages and Industrial Relations. The list includes agreements covering 1,000 workers or more.

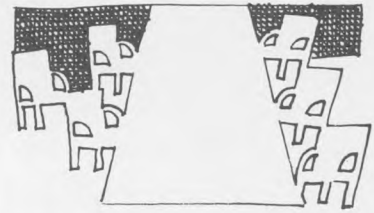
Employer and location	Industry	Union <sup>1</sup>	Number of workers
AFC Industries, Inc., W-K-M Valve Division (Missouri City, Tex.)	Machinery	Machinists	1,050
Borg-Warner Corp., Morse Chain Division (Ithaca, N.Y.)	Machinery	Machinists	1,150
Cessna Aircraft Co. (Wichita, Kans.)	Transportation equipment	Machinists	6,000
Columbia Broadcasting System, Inc. (Interstate)	Communication	Electrical Workers (IBEW)	1,400
Confectioners Industrial Relations Board, Inc. (New York & New Jersey)	Food products	Bakery, Confectionery and Tobacco Workers	1,100
Dresser Industries, Inc., Transportation (Depew, N.Y.)	Primary metals	Steelworkers	1,300
Duquesne Light & Allegheny County Steam Heating Companies (Pittsburgh, Pa.)	Utilities	Electrical Workers (IBEW)	1,900
Hotel Association of Washington, D.C.	Hotels	Hotel and Restaurant Employees	10,000
Kellogg Co., Master Agreement (Interstate)	Food products	Grain Millers	5,350
National Electrical Contractors Association, Inc. (Texas)	Construction	Electrical Workers (IBEW)	2,700
National Steel & Shipbuilding Companies, 2 Agreements (San Diego, Calif.)	Transportation equipment	Machinists; Carpenters; Painters and Iron Workers	5,200
Northeastern States Boilermakers Employers (Interstate) <sup>2</sup>	Construction	Boilermakers	1,000
Northern California Association Bakery Employers (California)	Food Products	Teamsters (Ind.)	3,800
Ohio Valley Field Agreement (Interstate) <sup>2</sup>	Construction	Boilermakers	2,600
Pet Inc., Dairy Group (Interstate)	Food Products	Teamsters	1,200
Philadelphia Hotel-Motor Inn Association (Philadelphia, Pa.)	Hotels	Hotel and Restaurant Employees	1,500
Prudential Insurance Co. of America (Interstate)	Insurance	Insurance Workers	16,500
Raytheon Co. (Massachusetts)	Electrical products	Electrical Workers (IBEW)	9,000
Rockwell International Corp., 2 Divisions (Reading, Pa.)	Machinery	Steelworkers	1,300
Scott Paper Co., Chester Plant (Chester, Pa.)	Paper	Paperworkers	1,850
Square D Co. (Lexington, Ky.)	Electrical products	Electrical Workers (IBEW)	1,000
Sweetheart Cup Corp. & Northwest Cone Co. (Chicago, Ill.)	Paper	Retail, Wholesale, and Department Stores	1,400
Wire & Metal Products Manufacturers Guild, Inc. (New York and New Jersey)	Fabricated metal products	Teamsters (Ind.)	1,800
	Government activity	Employee organization <sup>1</sup>	
California: Stockton Fire Department	Public safety	Fire Fighters	1,500
Florida: Dade County Transit Agency	Transportation	Transport Workers	1,200
St. Petersburg Blue Collar Bargaining Unit	Multidepartments	Firemen and Oilers	1,150
Tampa Transportation Department, General Employees	Transportation	Transit Union	2,750
Ohio: Columbus Police Department	Law enforcement	Police (Ind.)	1,100

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

<sup>2</sup> Industry area (group of companies signing same contract).



# Developments in Industrial Relations



## Mineworkers get 'set' quarterly wage adjustments

The United Mine Workers settled on May 28 with the Bituminous Coal Operators Association (BCOA), ending a strike that began March 27. The union later negotiated a separate but similar agreement for 10,000 mine construction workers who had been on strike since May 1, and also negotiated a less costly agreement for the 20,000 miners it represents in the nine-county hard coal region in Eastern Pennsylvania. These workers had been on strike since the May 1 expiration of their prior contract.

The 40-month bituminous coal production contract was ratified on June 6 by a 2 to 1 margin, but some 50,000 of the 160,000 miners missed work after the scheduled resumption of production because of picket lines at some locations by the mine construction workers. Union members apparently approved the latest agreement because the operators made concessions on some of the provisions of a March settlement that the miners had rejected by a 4 to 1 margin.

One of the disputed points was resolved when the operators agreed to continue paying royalties to the workers' benefit funds on coal purchased for sale or resale. The miners had contended that elimination of the royalty payment would have led to widespread purchase of coal from nonunion mines. The royalty rate for purchased coal was raised, in stages, to \$2.236 per ton, from the \$1.895-rate that applied under the March 1978 agreement. (Royalty rates also were increased on coal produced by the 130 BCOA-member companies and the 980 other companies that had agreed in advance to accept the same terms as the BCOA.) This concession was partly offset by providing that current and future widows of miners who retired prior to December 6, 1974, will receive a monthly pension of \$95, effective March 1, 1982, instead of the \$100-a-month benefit that would have been effective January 1, 1982, under the rejected contract. The 1978 agreement did not call for a pension for these widows.

The latest accord terminated the Arbitration Review

Board, as had the rejected accord, but the union agreed that the board's existing decisions would serve as precedents in settling future grievances. There also was a provision for a joint committee to recommend a substitute for the board. The board was established by the 1978 contract to make final decisions on grievances and had been criticized by miners as favoring management. The parties dropped a provision of the March settlement that would have established a 45-day probationary period for new employees.

The approved contract also gave miners more protection against layoffs than the rejected settlement by prohibiting operators from contracting out work or leasing coal lands or operations if it deprives UMW members of work they had normally performed in the past. The 1978 contract had required contractors and lessees to employ only UMW members but this provision had been invalidated by a 1980 court decision.

The union did not win its demand for restoration of a cost-of-living clause providing automatic pay adjustments based on the movement of the BLS Consumer Price Index. (The cost-of-living clause was established in the 1974 settlement, but was terminated in the 1978 settlement.) However, it did win "set" quarterly pay increases designated as cost-of-living adjustments. The 15-cent increases (followed by a final 30-cent increase in June 1984) begin in March 1982.

The wage package totaled \$3.60 an hour (compared with \$3.30 under the rejected agreement) to compensate for the longer term of the agreement. Included were increases of \$1.20 an hour effective on resumption of work, 50 cents in June 1982, and 40 cents in June 1983. (The remainder of the \$3.60 is comprised of the "set" quarterly adjustments.) After the final increase in June 1984, hourly rates will range from \$12.524 to \$14.165 for underground workers in deep mines, \$13.546 to \$14.928 for workers in strip and auger mines, and \$13.507 to \$14.114 for workers in preparation plants and other surface facilities for deep or surface mines.

Virtually all other terms of the rejected settlement were incorporated without change into the May contract. These provisions included:

- Establishment of a joint committee to make a recommendation on the employers' demand that each company should establish its own pension plan

"Developments in Industrial Relations" is prepared by George Ruben and other members of the staff of the Office of Wages and Industrial Relations, Bureau of Labor Statistics, and is largely based on information from secondary sources.

providing a standardized schedule of benefits, in place of the current common plan funded by all companies. The employers said that the change was necessary to control pension costs, asserting that they were faced with substantial unfunded liabilities because the joint fund is required to provide benefits to retirees for some service accrued while working for companies no longer in business.

- Changes in pension benefits, including a three-step increase totaling \$40 a month for employees who retired prior to December 6, 1974, after 20 years of service, bringing their pension to \$315. Employees who retired between December 6, 1974, and the effective date of the new contract received a \$25-a-month increase. The pension rate for future retirees was increased by \$1 in both the second and third years, bringing it to \$15.50 a month for each of the first 10 years of service, \$16 for each of the next 10 years, \$16.50 for each of the next 10 years, and \$17 for each year of service in excess of 30.
- The adoption of a dental plan for miners and their dependents that covers up to \$750 of services a year for each person. Employees contribute \$2 a month toward the cost of this plan. Life insurance for active miners was increased to \$25,000 from \$12,000, and the double indemnity coverage for accidental death was retained. The current \$150-a-week sickness and accident benefit was increased, in three steps, to \$185 in the last contract year.

Under the May settlement, miners received a \$150-bonus on resumption of work. The March settlement did not provide for such a bonus but miners had received a \$100-bonus when they ended their 111-day strike in 1978. Other economic provisions included a \$25-increase in the \$125 annual protective clothing allowance; a 10-cent-an-hour increase in the 20-cent evening shift differential and in the 30-cent midnight shift differential; an additional paid holiday, bringing the total to 11; and a revision giving employees the right to work on their existing birthday holiday (or a scheduled workday if the birthday falls on a day for which work was not scheduled) at triple-time pay.

Despite the duration of the walkout, there was no major impact on the operations of coal users. According to the Department of Energy, electric utility companies had built up larger than normal stockpiles of coal in anticipation of a walkout; when the strike ended, they had consumed less than 10 percent of their reserves. Also, nonunion coal operators generally continued to produce during the walkout. According to the BCOA, the operators that bargain with the UMW accounted for only 44 percent of the Nation's soft coal production in 1980, compared with 70 percent in 1970.

## Anthracite settlement

The May 27 accord between the United Mine Workers and the Anthracite Operators Wage Negotiating Committee provided for a total of \$1.70 an hour in "set" wage increases over the 3-year term—\$1 effective on June 1, 1981, and 35 cents on the first and second anniversaries. The 2,500 workers also will be eligible to receive up to 48 cents in increases as a result of the continuation of the provision for automatic semiannual cost-of-living increases calculated at 1 cent an hour for each 0.4-point increase in the BLS Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100). Under the prior contract, they had received the 50-cent maximum in cost-of-living increases plus \$1.10 in set increases.

The employers' payment to the pension fund—which is separate from the funds for soft coal miners—was increased to \$1.60 a ton, from \$1.50, and a 20-cent rate was established for high ash coal. There was no indication if the additional financing will enable the fund trustees to increase the \$30-a-month pension being paid to the 10,500 retirees. When the fund was established in 1946, retirees received \$100 a month.

Other terms included a \$100-a-year clothing allowance (formerly \$75); a 3-step increase in the \$450 pay for the 2-week vacation period, bringing it to \$625; two additional paid personal days, bringing the total to four a year (employees continue to receive 10 paid holidays a year); and \$125-a-week sickness and accident benefit (formerly \$100).

## 'Comparable work' decision

A recent Supreme Court ruling was hailed as a major step toward acceptance of the "comparable worth" approach to ending unwarranted disparities between earnings of men and women. In general, proponents of the "comparable worth" theory contend that women should be paid the same as men—even if their jobs are different—if the jobs are of comparable worth to society. The court broadened the basis for pay discrimination cases by finding that a woman may not be paid less for a job simply because she is a woman. As a result of this decision, women who claim that their wage rates have been undervalued because of intentional sex discrimination may file suit under Title VII of the Civil Rights Act, even though they do not perform work equal to that of male coworkers. Previously, the only remedy for a pay discrimination claim was under the Equal Pay Act of 1963, which bars unequal pay for equal work.

The case was initiated in 1973 by four matrons at the Washington County, Oreg., jail who charged that they were paid 35 percent less than male guards at the facili-

ty, despite a county study that indicated only a 5-percent difference was justified. The matrons sought a remedy under Title VII of the Civil Rights Act of 1964, which prohibits sex discrimination in employment.

In the majority opinion, Justice William J. Brennan, Jr., said that Congress has indicated that a "broad approach" to the definition of equal employment opportunity is essential to overcoming and undoing the effect of discrimination . . . We must therefore avoid interpretations of Title VII that deprive victims of discrimination of a remedy, without clear congressional mandate."

In the minority opinion, Justice William Rehnquist, joined by three other judges, accused Brennan of making "public policy." Rehnquist said the legislative history of the two acts "clearly establishes" that Congress intended Title VII of the Civil Rights Act to be limited to violations of the Equal Pay Act.

As a result of the majority finding, the case was remanded to the Federal District Court, which had initially ruled that the matron jobs were not equal to the guard jobs and, therefore, did not meet the requirements of the only applicable law, the Equal Pay Act.

### Supreme Court upholds cotton dust standard

The Supreme Court ruled that the Occupational Safety and Health Administration must protect workers from exposure to toxic substances to the greatest extent feasible, without regard to the balance between cost and benefits. The decision involved OSHA's cotton dust standard, issued in 1978 and later challenged in Federal district court by the American Textile Manufacturers Institute and 12 individual textile companies. The companies asserted that the Occupational Safety and Health Act of 1970 required the agency to determine that the industry's cost to implement the regulation bear a reasonable relationship to its benefit to workers.

Justice William J. Brennan, Jr., writing for the majority, said that the Congress made the only necessary cost-benefit analysis 11 years ago when, in enacting the Occupational Safety and Health Act, "It chose to place preeminent value on assuring employees a safe and healthful working environment.

"Congress itself defined the basic relationship between costs and benefits," Brennan said, "by placing the 'benefit' of worker health above all other considerations save those making attainment of this 'benefit' unachievable. Any standard based on a balancing of costs and benefits by the Secretary [of Labor] that strikes a different balance than that struck by the Con-

gress would be inconsistent with the command set forth in the statute itself."

Brennan said that the legislative history of the Act "demonstrates conclusively that Congress was fully aware that the Act would impose real and substantial costs of compliance on industry and believed that such costs were part of the cost of doing business."

Justice William H. Rehnquist, joined by Chief Justice Warren E. Burger, dissented on grounds that the Congress had not provided adequate guidance to the executive branch in administration of the law. Justice Potter Stewart contended that OSHA had not adequately supported its estimate of the cost of the regulation. Justice Lewis F. Powell did not participate in the case.

While upholding the overall decision of the U.S. Court of Appeals for the District of Columbia, the Supreme Court did disagree with the lower court's finding that workers who must be transferred for health reasons to other jobs within a textile factory be protected against loss of earnings. The Court held that OSHA had not proven the need for this requirement, and ordered the lower court to hold further hearings on the matter.

### Value of meals or lodging found not taxable

The extent to which fringe benefits can be taxed was further defined when the Supreme Court ruled 6 to 3 that the Internal Revenue Service (IRS) cannot collect unemployment and social security taxes on the value of meals or lodging provided by employers. The ruling did not apply to *cash allowances* for meals or lodging, which the court had previously ruled as being taxable.

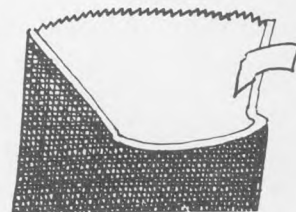
The Rowan Cos., a Houston oil and gas drilling concern, provided meals and lodging to its employees on offshore drilling rigs so that they would not have to be transported to shore each night. The IRS ordered the company to treat the value of the meals and lodging as wages in determining the social security taxes to be paid by the company and its employees and unemployment taxes to be paid by the company. Rowan sued for a refund but lost in Federal district court and on appeal, leading to the appeal to the Supreme Court.

Justice Lewis Powell, writing for the majority, said it would be contradictory to consider these benefits as wages for social security and unemployment insurance tax purposes because the IRS does not subject such benefits to income taxes.

In a dissenting opinion, the other three justices said that the IRS regulations were "a permissible interpretation" of Federal tax laws. □



# Book Reviews



## Industrial relations research: begging for answers

*Collective Bargaining and Industrial Relations: From Theory to Policy and Practice.* By Thomas A. Kochan. Homewood, Ill., Richard D. Irwin, Inc., 1980. 523 pp. \$18.95.

At the 1979 Industrial Relations Research Association meeting, Thomas A. Kochan and others observed that the years 1960 through 1975 had not been productive in spawning meaningful industrial relations research. Kochan encouraged researchers to relate studies to measurable indicators, such as duration of strikes or employee turnover, and to use these indicators as dependent variables in analyzing parts of the industrial relations system. At about the same time, one of Kochan's former students, John C. Anderson, criticized John Dunlop's "Industrial Relations System" of 1958, the model which has been the focus of industrial relations research for a score of years. He termed it a "taxonomy which fosters descriptive rather than explanatory research . . . due in part to the failure of the industrial relations system to present testable hypotheses" and a neglect of "possible influences from the wider economic, political, legal, and social systems."

Kochan, one of the foremost industrial relations researchers today, attempts to correct the perceived deficiencies in the focus of industrial relations research in "Collective Bargaining and Industrial Relations: From Theory to Policy and Practice." He sees the industrial relations field to be at the "preparadymic" stage of development and offers a model or paradym within which future industrial relations and collective bargaining research can be structured. The book, seemingly intended as a textbook for courses in industrial relations research, also contains a wealth of research questions which are begging for answers.

The answers Kochan wants discovered must be based on empirical research. The case method or descriptive study would appear too narrow in application for the Kochan paradym, and the findings Kochan accepts generally are based on some kind of quantitative analysis. Despite the frequent comment, ". . . to date no meaningful empirical studies have emerged which conclusively support the arguments summarized here . . .," there are many studies which Kochan accepts. He emphasizes that the study of labor relations is an interdisciplinary

effort, as he draws upon the work of psychologists, management scientists, economists, and others to illuminate the theory.

Kochan proposes that industrial relations should be studied around four dependent variables: (1) the negotiations process (2) the outcomes of bargaining (3) the administration of the bargaining relationship, and (4) the union-management change process. These dependent variables are subject to the explanatory variables: (1) the union as a bargaining organization (2) management as a bargaining organization (3) the structure of bargaining, and (4) the environmental context of bargaining.

The book's organization then seems to follow a reverse of the order of taking up the variables. After describing his analytical framework, Kochan expounds first upon the explanatory variables, then the dependent variables. There are chapters on the environment of collective bargaining, the structure of collective bargaining, the union as a bargaining organization, and two chapters on management as a bargaining organization. These are followed by chapters describing the dependent variables: the negotiations process, dispute resolution (a special case in negotiations), outcomes of bargaining, administration of the agreement, and the dynamics of change in union-management relations.

The author offers numerous insights into these variables, using prior research and raw data not previously analyzed. With both kinds of inputs, Kochan skillfully analyzes or reanalyzes the data and fits them into the model. Of particular note is the analysis of a 1978 Conference Board survey of 668 large unionized firms. From this survey, much previously unknown data were analyzed to obtain indicators of concepts such as the extent of pattern bargaining in U.S. industry, the structure for decisionmaking during negotiations in the majority of firms, and the importance of economic versus noneconomic outcomes in bargaining.

Throughout the book, Kochan uses examples from both the private and public sectors. He devotes one chapter exclusively to the public sector and compares the two sectors in several instances. In the section on impasse procedures, he delves deeply into factfinding and interest arbitration as impasse resolution techniques but hastens to mention that these procedures are often used in the public sector and hardly used in the private sector.

The author skillfully weaves historical material into each subject presented. His first chapter is a historical overview, but the reader gains more historical insights from the remaining chapters concerning specific subject matter.

Kochan's work in industrial research has made him a leading authority on "quantifying the seemingly unquantifiable." Using large samples and the technique of regression analysis, he is able to show the amount of variation in a given industrial relations environment produced by each explanatory variable and then to draw inferences from the sample to the general population. These techniques are well known to researchers, yet have not been applied often because the questions for study did not require quantitative analysis. Most of the questions posed by Kochan require such analysis for proper responses.

This textbook is the best available for introducing industrial relations students to applied research. Its wealth of research questions provides a starting point for any student who wonders, "What can I do that has not been done previously?" The book should be in the possession of all industrial relations Ph.D. students and would also be a welcome addition to the shelves of anyone interested in performing industrial relations research.

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### The abuse of private power

*The Squeeze.* By James Dale Davidson. New York, Summit Books, Inc., A division of Simon and Schuster, 1980. 281 pp. \$11.95.

James Dale Davidson offers a fresh approach to analyzing "The squeeze" being put on the public by the manipulation of the "Rules of society" for the private benefit of those who have the power to make and change them.

Davidson is an excellent writer. His presentation is cynical, possibly overdone, but apparently truthful, certainly startling, very readable, humorous, and as interesting as a novel. His very serious theme is that powers used for personal advantage are having a debilitating, if not disastrous, effect on the moral fiber of this Nation.

The author apparently intends to include on his list all offenders who misuse these powers. But he appears to treat some parties lightly, or to ignore them altogether. His primary targets are government politicians, in general, and government employees, in particular, but others, such as lawyers, come in for their share of criti-

cism. Corporate executives, seemingly a most likely target, are missing from the list of those who exercise their considerable (political) power for personal advantage. Doctors and dentists come out almost unscathed, and the American Medical Association is not touched. Instead, Davidson concentrates on the medical profession in general. "The questionable effectiveness of modern medicine," at all, and "the fact that government regulations make any medical problem the property of the doctor."

Davidson argues that fluctuations in life expectancy, often credited to "advances" in medical science, are more properly related to changes in economic conditions or the mode of life adopted by the individual. In his words, "the popular impression that doctors have succeeded in making people live longer is virtually without foundation."

He maintains that the causes and cures for the declining living standards of the middle class run far deeper than conservative-liberal partisanship. For purposes of his analysis, he redefines capital as either productive, static, or transcendental.

"Productive capital" is that wealth devoted to the production of goods and services, the "basics of all capital accumulation." "Static capital," for example, diamonds and art, produces nothing but is a means of storing or increasing the wealth of an individual. But "transcendental capital" is the overlooked form of wealth, derived from (the possession of) power, which is used for the benefit of the individual at the expense of society and causes havoc in its functioning.

The factors we are accustomed to thinking of as political and noneconomic actually do impinge heavily on the economic system. Indeed, "the increasing value of transcendental claims reduces the worth of every productive asset, drawing away and consuming hundreds of billions of dollars annually." Thus, "The squeeze" is "the continued reduction in the value of productive activity as more and more burdens are loaded upon those who do produce."

With cynical good humor, Davidson, who is the founder and chairman of the National Taxpayers Union, chronicles conditions of which we are already somewhat aware, but details them in such stark terms as to dramatize their reality. For instance, he compares the social security system to a giant pyramid scheme, supported by the power of the tax collector to maintain the flow of revenues. In 1978, the system had only a few billion dollars on hand against more than 10 trillion dollars in liabilities. He maintains also that a continuation of social security taxes at the rate anticipated for 1981 will cost the typical young person \$734,885 (1977 dollars) in lost principal and interest by age 65. In other words, "this program which the Social Security Administration claims is to 'insure your financial

independence' does precisely the opposite. It all but guarantees that a young person today will face poverty in retirement," and legally you are entitled to nothing.

Davidson is "incisive" if nothing else, but at times his reasoning becomes strained because of his fervor in making his justifications all inclusive, and in some cases, his knowledge of economics is suspect. He hits hard at inflation, but maintains that recession or depression *must* follow inflation. He seems not to take into account the possibility of less than full employment at the beginning of expansion. He sees something very sinister in banks, averring that they can control their profits. I'm not sure that he doesn't confuse the banking *system* which "creates" money with the individual bank, which can't.

His case against Federal employees seems weak in that they are salaried workers executing the mandates of elected officials. Further, he alleges that a Federal annuity accumulates tax-free. However, he doesn't mention that 7 percent of the employee's salary is taxed at the source, not as capital gain, but as ordinary income; and with the exception of the amount contributed by the employee, his annuity is taxed entirely as ordinary income.

Davidson seems to descend to the ridiculous in his justification of a proportionate tax—suggesting that by impacting more heavily on the poor, the tax would make them less willing to be poor and the "advantages of escaping poverty would be greater." Question? There being considerable numbers of poor folks in colonial times, one must wonder at the insensibility of the early American in not appreciating the advantages of escaping poverty.

Where Davidson is weakest is in the rather inane remedies he suggests for coping with conditions which he has successfully represented as being of the most serious, pervasive, and possibly malignant nature.

In a chapter titled, "What You Can Do," he suggests a number of steps which obviously *You can't do*, such as "balance the budget," "restore sound money," "reduce taxes," or "put bureaucracy on an incentive plan." He also adjures to "take risks" and "become a political skeptic"—the overall effects of which I must suggest are highly problematical.

He concludes with "a new vision of justice," presenting very broad-brush solutions and calls on people to coalesce to rescue from the transcendental capitalists the power rightly belonging to society. He leaves us with a rousing cheer for a "New American Revolution."

Despite its obvious faults, every citizen concerned about America's future will find this provocative book of interest.

—TOMMY ISHEE  
Herndon, Va.

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## NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics. A brief introduction to each group of tables provides definitions, notes on the data, sources, and other material usually found in footnotes.

Readers who need additional information are invited to consult the BLS regional offices listed on the inside front cover of this issue of the *Review*. Some general notes applicable to several series are given below.

**Seasonal adjustment.** Certain monthly and quarterly data are adjusted to eliminate the effect of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might otherwise mask short-term movements of the statistical series. Tables containing these data are identified as "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 labor force data in tables 2-7 were revised in the February 1981 issue of the *Review* to reflect the preceding year's experience. Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are being seasonally adjusted with a new procedure called X-11/ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method. 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 now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year for the July-December period. Revisions of historical data continue to be made only at the end of each calendar year.

Annual revision of the seasonally adjusted payroll data in tables 11, 13, 16, and 18 begins with the August 1980 issue using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 33 and 34 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 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 1967 = 100, the hourly rate expressed in 1967 dollars is \$2 ( $\$3/150 \times 100 = \$2$ ). The resulting values are described as "real," "constant," or "1967" dollars.

**Availability of information.** Data that supplement the tables in this section are published by the Bureau of Labor Statistics in a variety of sources. Press releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule given below. The *BLS Handbook of Labor Statistics*, Bulletin 2070, provides more detailed data and greater historical coverage for most of the statistical series presented in the *Monthly Labor Review*. More information from the household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau, and in two comprehensive data books issued annually—*Employment and Earnings, United States* and *Employment and Earnings, States and Areas*. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

### Symbols

- p = preliminary. To improve 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.

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

Title and frequency (monthly except where indicated)	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation .....	August 7	July	September 4	August	1-11
Producer Price Index .....	August 14	July	September 4	August	26-30
Consumer Price Index .....	August 25	July	September 24	August	22-25
Real earnings .....	August 25	July	September 24	August	14-20
Productivity and costs:					
Nonfinancial corporations .....	August 26	2d quarter	.....	.....	31-34
Labor turnover in manufacturing .....	August 28	July	September 30	August	12-13
Work stoppages .....	August 28	July	September 30	August	37

## EMPLOYMENT DATA FROM THE HOUSEHOLD SURVEY

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 60,000 households beginning in May 1981, 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** are (1) those 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. 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 **unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population; the **total labor force** includes military personnel. Persons **not in the labor force** are

those not classified as employed or unemployed; this group includes persons 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.

**Full-time workers** are those employed at least 35 hours a week; **part-time workers** are those who work fewer hours. Workers on part-time schedules for economic reasons (such as slack work, terminating or starting a job during the week, material shortages, or inability to find full-time work) are among those counted as being on full-time status; under the assumption that they would be working full time if conditions permitted. The survey classifies unemployed persons in full-time or part-time status by their reported preferences for full-time or part-time work.

### 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 presented in table 1. 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 2-7 are seasonally adjusted, based on the seasonal experience through December 1980.

Year	Total non-institutional population	Total labor force		Civilian labor force					Not in labor force	
		Number	Percent of population	Total	Employed			Unemployed		
					Total	Agriculture	Nonagricultural industries	Number		Percent of labor force
1950	106,645	63,858	59.9	62,208	58,918	7,160	51,758	3,288	5.3	42,787
1955	112,732	68,072	60.4	65,023	62,170	6,450	55,722	2,852	4.4	44,660
1960	119,759	72,142	60.2	69,628	65,778	5,458	60,318	3,852	5.5	47,617
1964	127,224	75,830	59.6	73,091	69,305	4,523	64,782	3,786	5.2	51,394
1965	129,236	77,178	59.7	74,455	71,088	4,361	66,726	3,366	4.5	52,058
1966	131,180	78,893	60.1	75,770	72,895	3,979	68,915	2,875	3.8	52,288
1967	133,319	80,793	60.6	77,347	74,372	3,844	70,527	2,975	3.8	52,527
1968	135,562	82,272	60.7	78,737	75,920	3,817	72,103	2,817	3.6	53,291
1969	137,841	84,240	61.1	80,734	77,902	3,606	74,296	2,832	3.5	53,602
1970	140,182	85,903	61.3	82,715	78,627	3,462	75,165	4,088	4.9	54,280
1971	142,596	86,929	61.0	84,113	79,120	3,387	75,732	4,993	5.9	55,666
1972	145,775	88,991	61.0	86,542	81,702	3,472	78,230	4,840	5.6	56,785
1973	148,263	91,040	61.4	88,714	84,409	3,452	80,957	4,304	4.9	57,222
1974	150,827	93,240	61.8	91,011	83,935	3,492	82,443	5,076	5.6	57,587
1975	153,449	94,793	61.8	92,613	84,783	3,380	81,403	7,830	8.5	58,655
1976	156,048	96,917	62.1	94,773	87,485	3,297	84,188	7,288	7.7	59,130
1977	158,559	99,534	62.8	97,401	90,546	3,244	87,302	6,855	7.0	59,025
1978	161,058	102,537	63.7	100,420	94,373	3,342	91,031	6,047	6.0	58,521
1979	163,620	104,996	64.2	102,908	96,945	3,297	93,648	5,963	5.8	58,623
1980	166,246	106,821	64.3	104,719	97,270	3,310	93,960	7,448	7.1	59,425



**2. Employment status by sex, age, and race, seasonally adjusted**

[Numbers in thousands]

Employment status	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
<b>TOTAL</b>															
Total noninstitutional population <sup>1</sup>	163,620	166,246	166,105	166,391	166,578	166,789	167,005	167,201	167,396	167,585	167,747	167,902	168,071	168,272	168,480
Total labor force	104,996	106,821	106,683	107,119	107,059	107,101	107,288	107,404	107,191	107,868	107,802	108,305	108,851	109,533	108,307
Civilian noninstitutional population <sup>1</sup>	161,532	164,143	164,013	164,293	164,464	164,667	164,884	165,082	165,272	165,460	165,627	165,774	165,941	166,145	166,349
Civilian labor force	102,908	104,719	104,591	105,020	104,945	104,980	105,167	105,285	105,067	105,543	105,681	106,177	106,722	107,406	106,176
Employed	96,945	97,270	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392
Agriculture	3,297	3,310	3,232	3,267	3,210	3,399	3,319	3,340	3,394	3,403	3,281	3,276	3,463	3,353	3,265
Nonagricultural industries	93,648	93,960	93,548	93,732	93,793	93,781	93,887	93,999	93,888	94,294	94,646	95,136	95,513	95,882	95,127
Unemployed	5,963	7,448	7,811	8,021	7,942	7,800	7,961	7,946	7,785	7,847	7,754	7,764	7,746	8,171	7,784
Unemployment rate	5.8	7.1	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3
Not in labor force	58,623	59,425	59,422	59,273	59,519	59,687	59,717	59,797	60,205	59,917	59,946	59,598	59,219	58,739	60,173
<b>Men, 20 years and over</b>															
Civilian noninstitutional population <sup>1</sup>	68,293	69,607	69,532	69,664	69,756	69,864	69,987	70,095	70,198	70,320	70,413	70,481	70,574	70,687	70,788
Civilian labor force	54,486	55,234	55,182	55,344	55,403	55,475	55,495	55,539	55,470	55,443	55,445	55,816	56,013	56,395	55,876
Employed	52,264	51,972	51,624	51,714	51,791	51,823	51,963	52,007	52,045	52,091	52,134	52,511	52,750	52,849	52,451
Agriculture	2,350	2,355	2,301	2,306	2,301	2,389	2,351	2,372	2,331	2,378	2,289	2,296	2,409	2,349	2,320
Nonagricultural industries	49,913	49,617	49,323	49,408	49,490	49,434	49,612	49,635	49,714	49,713	49,844	50,215	50,342	50,500	50,131
Unemployed	2,223	3,261	3,558	3,630	3,612	3,652	3,532	3,532	3,425	3,352	3,312	3,305	3,262	3,546	3,425
Unemployment rate	4.1	5.9	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1
Not in labor force	13,807	14,373	14,350	14,320	14,353	14,389	14,492	14,556	14,728	14,877	14,968	14,665	14,561	14,292	14,912
<b>Women, 20 years and over</b>															
Civilian noninstitutional population <sup>1</sup>	76,860	78,295	78,211	78,360	78,473	78,598	78,723	78,842	78,959	79,071	79,175	79,271	79,377	79,498	79,617
Civilian labor force	38,910	40,243	40,182	40,383	40,523	40,317	40,486	40,629	40,570	40,942	41,090	41,293	41,481	41,852	41,743
Employed	36,698	37,696	37,613	37,728	37,890	37,804	37,754	37,909	37,820	38,191	38,410	38,567	38,760	39,014	39,011
Agriculture	591	575	550	564	555	592	576	574	665	621	615	606	603	583	562
Nonagricultural industries	36,107	37,120	37,063	37,164	37,335	37,212	37,178	37,335	37,155	37,570	37,794	37,961	38,157	38,431	38,449
Unemployed	2,213	2,547	2,569	2,655	2,633	2,513	2,732	2,720	2,750	2,680	2,725	2,721	2,838	2,731	
Unemployment rate	5.7	6.3	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5
Not in labor force	37,949	38,052	38,029	37,977	37,950	38,281	38,237	38,213	38,389	38,129	38,085	37,978	37,896	37,646	37,874
<b>Both sexes, 16-19 years</b>															
Civilian noninstitutional population <sup>1</sup>	16,379	16,242	16,271	16,268	16,235	16,205	16,174	16,145	16,114	16,069	16,039	16,022	15,991	15,961	15,944
Civilian labor force	9,512	9,242	9,227	9,293	9,019	9,188	9,186	9,117	9,027	9,158	9,146	9,068	9,228	9,159	8,558
Employed	7,984	7,603	7,543	7,557	7,322	7,553	7,489	7,423	7,417	7,414	7,384	7,334	7,465	7,372	6,930
Agriculture	356	380	381	397	354	418	392	394	398	404	376	374	451	421	383
Nonagricultural industries	7,628	7,223	7,162	7,160	6,968	7,135	7,097	7,029	7,019	7,010	7,008	6,960	7,014	6,951	6,547
Unemployed	1,528	1,640	1,684	1,736	1,697	1,635	1,697	1,694	1,610	1,744	1,762	1,734	1,763	1,787	1,628
Unemployment rate	16.1	17.7	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0
Not in labor force	6,867	7,000	7,044	6,975	7,216	7,017	6,988	7,028	7,087	6,911	6,893	6,954	6,763	6,802	7,386
<b>White</b>															
Civilian noninstitutional population <sup>1</sup>	141,614	143,657	143,565	143,770	143,900	144,051	144,211	144,359	144,500	144,651	144,774	144,882	145,006	145,160	145,316
Civilian labor force	90,602	92,171	92,134	92,335	92,288	92,317	92,516	92,562	92,383	92,832	93,035	93,313	93,860	94,506	93,464
Employed	86,025	86,380	86,007	86,075	86,067	86,307	86,371	86,409	86,377	86,620	86,940	87,291	87,791	88,083	87,500
Unemployed	4,577	5,790	6,127	6,260	6,221	6,010	6,145	6,153	6,006	6,213	6,095	6,022	6,069	6,422	5,964
Unemployment rate	5.1	6.3	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4
Not in labor force	51,011	51,486	51,431	51,435	51,612	51,734	51,695	51,797	52,117	51,819	51,739	51,569	51,146	50,654	51,852
<b>Black and other</b>															
Civilian noninstitutional population <sup>1</sup>	19,918	20,486	20,448	20,523	20,564	20,617	20,673	20,723	20,771	20,809	20,853	20,892	20,936	20,985	21,033
Civilian labor force	12,306	12,548	12,491	12,661	12,630	12,677	12,686	12,706	12,668	12,684	12,598	12,765	12,899	12,895	12,741
Employed	10,920	10,890	10,809	10,902	10,902	10,894	10,884	10,922	10,895	11,051	10,942	11,020	11,193	11,138	10,928
Unemployed	1,386	1,658	1,682	1,759	1,728	1,783	1,802	1,784	1,773	1,634	1,655	1,745	1,706	1,757	1,813
Unemployment rate	11.3	13.2	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2
Not in labor force	7,612	7,938	7,957	7,862	7,934	7,940	7,987	8,017	8,103	8,125	8,255	8,127	8,037	8,090	8,292

<sup>1</sup>As in table 1, population figures are not seasonally adjusted.

### 3. Selected employment indicators, seasonally adjusted

[Number in thousands]

Selected categories	Annual average		1980								1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
<b>CHARACTERISTIC</b>																
Total employed, 16 years and over .....	96,945	97,270	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392	
Men .....	56,499	55,988	55,597	55,678	55,589	55,754	55,881	55,897	55,920	56,012	56,045	56,383	56,688	56,718	56,026	
Women .....	40,446	41,283	41,183	41,321	41,414	41,426	41,325	41,442	41,362	41,684	41,882	42,029	42,288	42,517	42,366	
Married men, spouse present .....	39,090	38,302	38,220	38,049	37,987	38,027	38,142	38,167	38,231	38,182	38,113	38,365	38,510	38,498	38,216	
Married women, spouse present .....	22,724	23,097	23,131	23,118	23,126	23,027	22,993	23,065	23,063	23,352	23,356	23,513	23,529	23,831	23,763	
<b>OCCUPATION</b>																
White-collar workers .....	49,342	50,809	50,836	51,023	51,307	51,074	51,101	51,148	51,065	51,594	51,698	51,746	51,801	51,967	51,959	
Professional and technical .....	15,050	15,613	15,682	15,717	15,751	15,540	15,780	15,863	15,810	15,965	15,813	15,827	15,754	15,688	16,057	
Managers and administrators, except farm .....	10,516	10,919	10,901	10,999	11,109	11,007	10,979	11,016	11,009	11,363	11,488	11,565	11,444	11,260	11,174	
Salesworkers .....	6,163	6,172	6,046	6,130	6,140	6,316	6,277	6,155	6,175	6,265	6,271	6,220	6,145	6,461	6,440	
Clerical workers .....	17,613	18,105	18,207	18,177	18,307	18,211	18,065	18,114	18,071	18,001	18,125	18,135	18,457	18,557	18,288	
Blue-collar workers .....	32,066	30,800	30,443	30,276	30,232	30,436	30,521	30,550	30,373	30,338	30,446	30,594	31,156	31,373	30,922	
Craft and kindred workers .....	12,880	12,529	12,357	12,403	12,346	12,490	12,485	12,424	12,337	12,306	12,386	12,605	12,624	12,743	12,482	
Operatives, except transport .....	10,909	10,346	10,233	10,189	10,147	10,202	10,210	10,247	10,194	10,331	10,390	10,189	10,524	10,609	10,550	
Transport equipment operatives .....	3,612	3,468	3,429	3,354	3,478	3,434	3,443	3,429	3,402	3,322	3,361	3,363	3,411	3,390	3,425	
Nonfarm laborers .....	4,665	4,456	4,424	4,330	4,261	4,310	4,383	4,450	4,440	4,380	4,309	4,437	4,596	4,632	4,466	
Service workers .....	12,834	12,958	12,941	13,017	12,928	12,943	12,891	12,888	12,982	12,946	13,070	13,279	13,255	13,213	12,930	
Farmworkers .....	2,703	2,704	2,625	2,694	2,620	2,757	2,735	2,729	2,804	2,737	2,662	2,679	2,834	2,707	2,648	
<b>MAJOR INDUSTRY AND CLASS OF WORKER</b>																
Agriculture:																
Wage-and-salary workers .....	1,413	1,384	1,369	1,360	1,282	1,417	1,363	1,417	1,411	1,465	1,336	1,338	1,524	1,464	1,377	
Self-employed workers .....	1,580	1,628	1,606	1,631	1,640	1,688	1,640	1,612	1,655	1,615	1,610	1,615	1,648	1,644	1,657	
Unpaid family workers .....	304	297	278	295	280	309	325	324	305	284	325	312	290	231	258	
Nonagricultural industries:																
Wage-and-salary workers .....	86,540	86,706	86,370	86,432	86,490	86,395	86,587	86,643	86,513	87,125	87,236	87,870	88,195	88,877	87,734	
Government .....	15,369	15,624	15,817	15,718	15,531	15,575	15,597	15,651	15,653	15,738	15,589	15,685	15,628	15,512	15,460	
Private industries .....	71,171	71,081	70,553	70,714	70,959	70,820	70,990	70,992	70,860	71,387	71,647	72,185	72,567	73,365	72,274	
Private households .....	1,240	1,166	1,204	1,230	1,196	1,125	1,144	1,148	1,110	1,197	1,176	1,235	1,241	1,164	1,146	
Other industries .....	69,931	69,915	69,349	69,484	69,763	69,695	69,846	69,844	69,750	70,190	70,471	70,949	71,327	72,201	71,128	
Self-employed workers .....	6,652	6,850	6,728	6,801	6,881	6,977	7,005	6,943	6,973	6,839	6,923	6,896	7,021	6,761	7,005	
Unpaid family workers .....	455	404	445	426	403	416	417	405	396	422	371	354	306	338	369	
<b>PERSONS AT WORK<sup>1</sup></b>																
Nonagricultural industries .....	88,133	88,325	87,994	87,431	88,195	88,246	88,488	88,694	88,468	89,499	89,441	89,583	89,202	89,870	89,625	
Full-time schedules .....	72,647	72,022	71,454	70,825	71,526	71,929	72,071	72,265	72,131	72,807	72,945	72,875	72,761	73,375	73,115	
Part time for economic reasons .....	3,281	3,965	3,969	4,086	4,143	4,183	4,220	4,176	4,218	4,474	4,145	4,227	4,044	4,143	3,798	
Usually work full time .....	1,325	1,669	1,734	1,794	1,709	1,701	1,685	1,620	1,647	1,698	1,622	1,638	1,517	1,630	1,367	
Usually work part time .....	1,956	2,296	2,235	2,292	2,434	2,482	2,535	2,556	2,571	2,776	2,523	2,589	2,527	2,513	2,431	
Part time for noneconomic reasons .....	12,205	12,338	12,571	12,520	12,526	12,134	12,197	12,253	12,119	12,218	12,351	12,481	12,397	12,352	12,713	

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

**4. Selected unemployment indicators, seasonally adjusted**

[Unemployment rates]

Selected categories	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
<b>CHARACTERISTIC</b>															
Total, 16 years and over	5.8	7.1	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3
Men, 20 years and over	4.1	5.9	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1
Women, 20 years and over	5.7	6.3	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5
Both sexes, 16-19 years	16.1	17.7	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0
White, total	5.1	6.3	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4
Men, 20 years and over	3.6	5.2	5.7	5.8	5.8	5.8	5.7	5.7	5.5	5.5	5.4	5.4	5.2	5.6	5.3
Women, 20 years and over	5.0	5.6	5.7	5.8	5.8	5.5	5.8	5.8	5.9	6.0	5.7	5.6	5.7	6.0	5.7
Both sexes, 16-19 years	13.9	14.8	16.1	16.5	16.6	15.1	16.0	16.4	15.4	16.8	17.4	16.9	17.2	18.0	16.5
Black and other, total	11.3	13.2	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2
Men, 20 years and over	8.4	11.4	12.2	12.5	12.5	13.2	12.1	12.0	11.6	10.5	10.8	10.8	10.6	11.8	12.5
Women, 20 years and over	10.1	11.1	10.9	11.3	10.9	10.6	12.3	12.2	12.3	11.0	11.9	12.6	11.8	12.0	12.0
Both sexes, 16-19 years	33.5	35.8	34.8	35.9	37.6	37.8	37.4	36.6	37.5	36.5	35.4	37.3	36.1	33.6	38.6
Married men, spouse present	2.7	4.2	4.6	4.9	4.8	4.7	4.6	4.4	4.3	4.2	4.1	4.1	3.8	4.1	4.2
Married women, spouse present	5.1	5.8	6.0	6.1	6.0	5.7	6.0	5.9	5.8	6.2	5.8	6.0	5.9	5.9	5.6
Women who head families	8.3	9.1	8.5	8.8	9.0	9.0	10.2	9.9	10.4	10.5	9.6	9.4	9.8	10.3	10.6
Full-time workers	5.3	6.8	7.2	7.4	7.3	7.3	7.3	7.4	7.3	7.1	7.1	7.1	6.9	7.3	7.0
Part-time workers	8.7	8.7	8.8	8.8	8.7	8.7	9.1	8.6	8.2	9.2	9.1	9.0	9.0	9.7	9.2
Unemployed 15 weeks and over	1.2	1.7	1.7	1.8	2.0	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.2
Labor force time lost <sup>1</sup>	6.3	7.9	8.1	8.4	8.3	8.2	8.4	8.3	8.2	8.2	8.1	8.1	8.2	8.6	8.0
<b>OCCUPATION</b>															
White-collar workers	3.3	3.7	3.7	3.7	3.7	3.8	3.9	3.9	4.0	3.9	3.7	3.9	4.0	4.1	3.8
Professional and technical	2.4	2.5	2.5	2.4	2.4	2.5	2.6	2.5	2.6	2.8	2.6	2.7	3.2	2.9	2.8
Managers and administrators, except farm	1.9	2.4	2.5	2.6	2.5	2.4	2.5	2.4	2.5	2.4	2.4	2.6	2.4	2.7	2.8
Salesworkers	3.9	4.4	4.4	4.2	4.2	4.3	4.6	4.8	4.7	4.4	4.0	3.8	4.0	4.6	4.1
Clerical workers	4.6	5.3	5.2	5.4	5.4	5.4	5.6	5.6	5.8	5.7	5.3	5.9	5.6	5.6	5.3
Blue-collar workers	6.9	10.0	11.1	11.3	11.1	10.8	10.8	10.7	10.5	10.2	10.1	9.8	9.6	10.0	9.8
Craft and kindred workers	4.5	6.6	7.5	7.2	7.6	7.4	7.1	7.1	7.1	6.8	7.2	7.1	6.8	7.7	7.2
Operatives, except transport	8.4	12.2	13.4	14.4	13.3	13.0	13.2	13.0	12.9	12.1	11.9	11.3	11.5	11.9	11.0
Transport equipment operatives	5.4	8.8	10.0	10.0	9.8	10.4	10.6	10.6	8.8	9.1	8.3	9.3	8.1	8.2	8.4
Nonfarm laborers	10.8	14.6	15.7	15.8	16.1	15.2	15.3	15.0	14.8	15.0	14.9	14.1	13.8	13.1	14.8
Service workers	7.1	7.9	8.1	8.3	8.5	8.1	8.3	8.3	7.8	8.0	8.7	8.1	8.5	9.4	9.0
Farmworkers	3.8	4.4	4.5	4.6	5.5	4.3	4.4	4.0	4.0	5.0	4.7	5.1	3.7	5.4	6.0
<b>INDUSTRY</b>															
Nonagricultural private wage-and-salary workers <sup>2</sup>	5.7	7.4	8.0	8.0	8.0	7.8	7.8	7.8	7.7	7.5	7.5	7.3	7.2	7.8	7.4
Construction	10.2	14.2	15.6	15.8	17.3	15.9	14.6	14.8	13.8	13.3	13.2	14.7	14.4	16.3	16.6
Manufacturing	5.5	8.5	9.7	9.8	9.3	9.2	9.2	8.9	8.8	8.4	8.4	8.0	7.4	7.9	7.6
Durable goods	5.0	8.9	10.9	10.7	10.1	10.0	9.5	9.0	9.0	8.3	8.5	7.9	7.3	7.3	7.4
Nondurable goods	6.4	7.9	7.9	8.5	8.0	7.9	8.9	8.6	8.5	8.5	8.2	8.3	7.6	8.9	7.8
Transportation and public utilities	3.7	4.9	5.1	5.6	5.6	5.3	5.3	4.9	4.9	5.8	5.5	6.4	5.7	5.9	4.7
Wholesale and retail trade	6.5	7.4	7.7	7.6	7.7	7.7	7.8	8.2	8.3	7.6	7.6	7.3	7.3	8.4	7.5
Finance and service industries	4.9	5.3	5.6	5.6	5.5	5.4	5.6	5.5	5.5	5.8	6.0	5.6	5.9	5.9	5.8
Government workers	3.7	4.1	3.5	4.1	4.0	4.1	4.4	4.2	4.1	4.4	4.3	4.6	4.9	4.8	4.5
Agricultural wage-and-salary workers	9.1	10.8	10.4	10.8	13.2	10.7	11.1	10.1	10.6	11.5	12.1	11.9	9.1	11.1	13.1

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

<sup>2</sup> Includes mining, not shown separately.



### 5. Unemployment rates, by sex and age, seasonally adjusted

Sex and age	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Total, 16 years and over .....	5.8	7.1	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3
16 to 19 years .....	16.1	17.7	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0
16 to 17 years .....	18.1	20.0	20.0	20.5	22.1	20.1	20.9	21.4	19.9	21.0	21.4	21.3	22.0	21.6	22.6
18 to 19 years .....	14.6	16.1	17.6	17.4	16.5	16.0	16.7	16.5	16.4	17.5	17.9	17.7	17.2	18.2	17.3
20 to 24 years .....	9.0	11.5	12.1	12.1	12.0	12.0	12.3	12.1	11.7	11.9	11.8	11.7	12.1	12.9	12.1
25 years and over .....	3.9	5.0	5.4	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.1	5.2	5.0	5.3	5.2
25 to 54 years .....	4.1	5.4	5.8	5.9	5.9	5.9	5.9	5.9	5.8	5.7	5.5	5.5	5.4	5.6	5.6
55 years and over .....	3.0	3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.5	3.5	3.6	3.7	3.3	3.3	3.4
Men, 16 years and over .....	5.1	6.9	7.5	7.6	7.6	7.6	7.4	7.4	7.2	7.2	7.1	7.0	6.9	7.4	7.1
16 to 19 years .....	15.8	18.2	19.1	19.5	19.9	18.9	19.8	19.8	19.0	20.3	20.1	19.5	19.3	20.2	19.8
16 to 17 years .....	17.9	20.4	21.5	20.9	23.7	21.2	21.8	22.3	20.5	23.0	22.1	21.1	22.7	22.7	24.4
18 to 19 years .....	14.2	16.7	18.8	18.4	17.1	16.9	18.1	17.8	17.8	18.5	18.7	18.6	17.0	18.3	18.1
20 to 24 years .....	8.6	12.5	13.4	13.2	13.6	13.5	13.8	13.2	12.5	12.8	12.7	13.0	13.2	14.2	12.8
25 years and over .....	3.3	4.7	5.2	5.4	5.3	5.4	5.1	5.1	4.9	4.9	4.8	4.7	4.6	4.8	5.0
25 to 54 years .....	3.4	5.1	5.6	5.8	5.7	6.0	5.6	5.6	5.4	5.2	5.2	5.1	4.9	5.1	5.3
55 years and over .....	2.9	3.3	3.6	3.6	3.6	3.5	3.3	3.3	3.3	3.4	3.4	3.2	3.1	3.4	3.5
Women, 16 years and over .....	6.8	7.4	7.4	7.7	7.6	7.2	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.9	7.6
16 to 19 years .....	16.4	17.2	17.3	17.7	17.6	16.6	17.0	17.2	16.5	17.5	18.4	18.7	18.9	18.7	18.2
16 to 17 years .....	18.3	19.5	18.3	20.1	20.2	18.8	19.8	20.3	19.3	18.7	20.5	21.6	21.1	20.4	20.6
18 to 19 years .....	15.0	15.6	16.3	16.2	15.9	15.1	15.1	15.1	14.8	16.4	17.0	16.5	17.4	18.2	16.4
20 to 24 years .....	9.6	10.3	10.6	10.9	10.2	10.2	10.6	10.8	10.8	10.8	10.8	10.1	10.9	11.4	11.2
25 years and over .....	4.8	5.5	5.5	5.7	5.7	5.4	5.9	5.8	5.9	5.8	5.6	5.9	5.6	5.9	5.6
25 to 54 years .....	5.2	5.9	6.0	6.1	6.2	5.9	6.4	6.2	6.3	6.3	5.9	6.2	6.0	6.4	6.0
55 years and over .....	3.2	3.2	2.9	3.1	3.1	3.3	3.4	3.4	3.9	3.6	3.9	4.5	3.7	3.3	3.3

### 6. Unemployed persons, by reason for unemployment, seasonally adjusted

[Numbers in thousands]

Reason for unemployment	1980							1981					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
<b>NUMBER OF UNEMPLOYED</b>													
Lost last job .....	4,468	4,364	4,319	4,387	4,240	4,229	4,226	3,847	3,896	3,846	3,819	4,084	4,219
On layoff .....	1,954	1,832	1,699	1,744	1,692	1,453	1,470	1,258	1,267	1,299	1,280	1,368	1,367
Other job losers .....	2,514	2,532	2,620	2,643	2,548	2,776	2,756	2,590	2,629	2,547	2,539	2,715	2,852
Left last job .....	887	866	890	855	870	897	813	907	884	863	854	1,009	863
Reentered labor force .....	1,834	1,868	1,883	1,844	2,013	1,896	1,869	2,039	1,970	2,040	2,017	2,126	1,955
Seeking first job .....	872	893	870	862	880	890	868	1,000	928	986	987	938	956
<b>PERCENT DISTRIBUTION</b>													
Total unemployed .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job losers .....	55.4	54.6	54.2	55.2	53.0	53.5	54.3	49.4	50.7	49.7	49.7	50.1	52.8
On layoff .....	24.2	22.9	21.3	21.9	21.1	18.4	18.9	16.1	16.5	16.8	16.7	16.8	17.1
Other job losers .....	31.2	31.7	32.9	33.3	31.8	35.1	35.4	33.2	34.2	32.9	33.1	33.3	35.7
Job leavers .....	11.0	10.8	11.2	10.8	10.9	11.3	10.5	11.6	11.5	11.2	11.1	12.4	10.8
Reentrants .....	22.8	23.4	23.6	23.2	25.2	24.0	24.0	26.2	25.7	26.4	26.3	26.1	24.5
New entrants .....	10.8	11.2	10.9	10.8	11.0	11.2	11.2	12.8	12.1	12.7	12.9	11.5	12.0
<b>UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE</b>													
Job losers .....	4.3	4.2	4.1	4.2	4.0	4.0	4.0	3.6	3.7	3.6	3.6	3.8	4.0
Job leavers .....	.8	.8	.8	.8	.8	.9	.8	.9	.8	.8	.8	.9	.8
Reentrants .....	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.9	1.9	1.9	2.0	1.8
New entrants .....	.8	.9	.8	.8	.8	.8	.8	.9	.9	.9	.9	.9	.9

### 7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Less than 5 weeks .....	2,869	3,208	3,281	3,317	3,255	3,042	3,186	3,108	3,115	3,259	3,203	3,209	3,074	3,369	3,172
5 to 14 weeks .....	1,892	2,411	2,812	2,649	2,533	2,586	2,500	2,524	2,217	2,264	2,324	2,356	2,462	2,581	2,360
15 weeks and over .....	1,202	1,829	1,777	1,935	2,150	2,295	2,292	2,329	2,378	2,358	2,250	2,192	2,105	2,168	2,315
15 to 26 weeks .....	684	1,028	1,024	1,093	1,239	1,366	1,256	1,213	1,231	1,079	992	1,013	1,001	1,022	1,205
27 weeks and over .....	518	802	753	842	911	929	1,036	1,116	1,147	1,279	1,257	1,179	1,104	1,146	1,110
Average (mean) duration, in weeks .....	10.9	11.9	11.7	11.8	12.5	13.0	13.3	13.6	13.5	14.4	14.4	14.0	13.7	13.2	14.2

## EMPLOYMENT, HOURS, AND EARNINGS DATA FROM ESTABLISHMENT SURVEYS

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 166,000 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.

LABOR TURNOVER DATA in this section are compiled from personnel records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies. A sample of 40,000 establishments represents all industries in the manufacturing and mining sectors of the economy.

### Definitions

**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 blue-collar worker supervisors and all nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 14-20 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in transportation and public utilities, in wholesale and retail trade, in finance, insurance, and real estate, and in services industries. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

**Earnings** are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to eliminate the effects of price change. 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. **Spendable earnings** are earnings from which estimated social security and Federal income taxes have been deducted. The

Bureau of Labor Statistics computes spendable earnings from gross weekly earnings for only two illustrative cases: (1) a worker with no dependents and (2) a married worker with three dependents.

**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 gross average weekly hours which were in excess of regular hours and for which overtime premiums were paid.

**Labor turnover** is the movement of all wage and salary workers from one employment status to another. **Accession rates** indicate the average number of persons added to a payroll in a given period per 100 employees; **separation rates** indicate the average number dropped from a payroll per 100 employees. Although month-to-month changes in employment can be calculated from the labor turnover data, the results are not comparable with employment data from the employment and payroll survey. The labor turnover survey measures changes during the calendar month while the employment and payroll survey measures changes from midmonth to midmonth.

### 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 June 1981 data, published in the August 1981 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Complete comparable historical unadjusted and seasonally adjusted data are published in a Supplement to Employment and Earnings (unadjusted data from April 1977 through March 1981 and seasonally adjusted data from January 1974 through March 1981) and in *Employment and Earnings, United States, 1909-78*, BLS Bulletin 1312-11 (for prior periods).

Data on recalls were shown for the first time in tables 12 and 13 in the January 1978 issue of the *Review*. For a detailed discussion of the recalls series, along with historical data, see "New Series on Recalls from the Labor Turnover Survey," *Employment and Earnings*, December 1977, pp. 10-19.

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. See also *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976).

The formulas used to construct the spendable average weekly earnings series reflect the latest provisions of the Federal income tax and social security tax laws. For the spendable average weekly earnings formulas for the years 1979-81, see *Employment and Earnings*, March 1981, pp. 10-11. Real earnings data are adjusted using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

## 8. Employment by industry, 1951-80

[Nonagricultural payroll data, in thousands]

Year	Total	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale and retail trade	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government		
											Total	Federal	State and local
1951	47,819	929	2,637	16,393	4,226	9,742	2,727	7,015	1,956	5,547	6,389	2,302	4,087
1952	48,793	898	2,668	16,632	4,248	10,004	2,812	7,192	2,035	5,699	6,609	2,420	4,188
1953	50,202	866	2,659	17,549	4,290	10,247	2,854	7,393	2,111	5,835	6,645	2,305	4,340
1954	48,990	791	2,646	16,314	4,084	10,235	2,867	7,368	2,200	5,969	6,751	2,188	4,563
1955	50,641	792	2,839	16,882	4,141	10,535	2,926	7,610	2,298	6,240	6,914	2,187	4,727
1956	52,369	822	3,039	17,243	4,244	10,858	3,018	7,840	2,389	6,497	7,278	2,209	5,069
1957	52,853	828	2,962	17,174	4,241	10,886	3,028	7,858	2,438	6,708	7,616	2,217	5,399
1958	51,324	751	2,817	15,945	3,976	10,750	2,980	7,770	2,481	6,765	7,839	2,191	5,648
1959 <sup>1</sup>	53,268	732	3,004	16,675	4,011	11,127	3,082	8,045	2,549	7,087	8,083	2,233	5,850
1960	54,189	712	2,926	16,796	4,004	11,391	3,143	8,248	2,629	7,378	8,353	2,270	6,083
1961	53,999	672	2,859	16,326	3,903	11,337	3,133	8,204	2,688	7,620	8,594	2,279	6,315
1962	55,549	650	2,948	16,853	3,906	11,566	3,198	8,368	2,754	7,982	8,890	2,340	6,550
1963	56,653	635	3,010	16,995	3,903	11,778	3,248	8,530	2,830	8,277	9,225	2,358	6,868
1964	58,283	634	3,097	17,274	3,951	12,160	3,337	8,823	2,911	8,660	9,596	2,348	7,248
1965	60,765	632	3,232	18,062	4,036	12,716	3,466	9,250	2,977	9,036	10,074	2,378	7,696
1966	63,901	627	3,317	19,214	4,158	13,245	3,597	9,648	3,058	9,498	10,784	2,564	8,220
1967	65,803	613	3,248	19,447	4,268	13,606	3,689	9,917	3,185	10,045	11,391	2,719	8,672
1968	67,897	606	3,350	19,781	4,318	14,099	3,779	10,320	3,337	10,567	11,839	2,737	9,102
1969	70,384	619	3,575	20,167	4,442	14,705	3,907	10,798	3,512	11,169	12,195	2,758	9,437
1970	70,880	623	3,588	19,367	4,515	15,040	3,993	11,047	3,645	11,548	12,554	2,731	9,823
1971	71,214	609	3,704	18,623	4,476	15,352	4,001	11,351	3,772	11,797	12,881	2,696	10,185
1972	73,675	628	3,889	19,151	4,541	15,949	4,113	11,836	3,908	12,276	13,334	2,684	10,649
1973	76,790	642	4,097	20,154	4,656	16,607	4,277	12,329	4,046	12,857	13,732	2,663	11,068
1974	78,265	697	4,020	20,077	4,725	16,987	4,433	12,554	4,148	13,441	14,170	2,724	11,446
1975	76,945	752	3,525	18,323	4,542	17,060	4,415	12,645	4,165	13,892	14,686	2,748	11,937
1976	79,382	779	3,576	18,997	4,582	17,755	4,546	13,209	4,271	14,551	14,871	2,733	12,138
1977	82,471	813	3,851	19,682	4,713	18,516	4,708	13,808	4,467	15,303	15,127	2,727	12,399
1978	86,697	851	4,229	20,505	4,923	19,542	4,969	14,573	4,724	16,252	15,672	2,753	12,919
1979 <sup>1</sup>	89,823	958	4,463	21,040	5,136	20,192	5,204	14,989	4,975	17,112	15,947	2,773	13,147
1980 <sup>1</sup>	90,564	1,020	4,399	20,300	5,143	20,386	5,281	15,104	5,168	17,901	16,249	2,866	13,383

<sup>1</sup>Data include Alaska and Hawaii beginning in 1959.

r = revised.

## 9. Employment by State

[Nonagricultural payroll data, in thousands]

State	May 1980	Apr. 1981	May 1981 <sup>P</sup>	State	May 1980	Apr. 1981	May 1981 <sup>P</sup>
Alabama	1,367.9	1,344.1	1,345.1	Montana	283.0	281.5	284.2
Alaska	172.9	171.0	175.2	Nebraska	638.5	628.8	636.5
Arizona	1,012.3	1,022.0	1,019.8	Nevada	399.3	409.4	415.0
Arkansas	748.0	752.1	755.5	New Hampshire	384.1	381.6	385.2
California	9,864.4	9,896.8	9,945.7	New Jersey	3,059.4	3,070.8	3,082.1
Colorado	1,248.3	1,262.9	1,251.8	New Mexico	467.1	465.6	469.3
Connecticut	1,435.5	1,432.6	1,441.4	New York	7,241.6	7,210.0	7,260.0
Delaware	261.9	257.4	258.7	North Carolina	2,392.0	2,397.3	2,400.1
District of Columbia	614.2	612.9	613.2	North Dakota	248.8	245.2	249.4
Florida	3,559.4	3,750.5	3,736.7	Ohio	4,418.2	4,370.5	4,401.1
Georgia	2,147.2	2,166.4	2,168.4	Oklahoma	1,136.8	1,174.5	1,180.5
Hawaii	406.1	405.4	405.0	Oregon	1,042.9	1,018.0	1,022.2
Idaho	330.5	327.4	329.0	Pennsylvania	4,794.1	4,694.9	4,714.6
Illinois	4,920.9	4,797.6	4,825.0	Rhode Island	399.8	396.4	398.0
Indiana	2,152.4	2,123.8	2,133.9	South Carolina	1,199.1	1,191.6	1,194.7
Iowa	1,117.2	1,084.9	1,090.9	South Dakota	241.4	233.2	236.7
Kansas	954.9	958.8	963.1	Tennessee	1,753.1	1,722.0	1,731.7
Kentucky	1,227.3	1,177.6	1,179.0	Texas	5,820.7	6,079.0	6,101.5
Louisiana	1,549.9	1,621.0	1,623.9	Utah	552.6	554.7	554.4
Maine	420.2	413.0	419.8	Vermont	198.8	200.8	201.3
Maryland	1,711.5	1,700.8	1,705.5	Virginia	2,119.9	2,123.2	2,132.4
Massachusetts	2,664.8	2,682.1	2,691.6	Washington	1,622.2	1,595.8	1,606.1
Michigan	3,416.5	3,461.5	3,490.4	West Virginia	1,937.6	1,934.8	1,950.5
Minnesota	1,786.2	1,751.8	1,768.7	Wisconsin	204.9	202.4	205.0
Mississippi	834.4	830.8	829.0	Wyoming	1,981.5	1,981.5	1,981.5
Missouri	1,985.6	1,968.1	1,981.5	Virgin Islands	37.0	36.7	36.8



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**10. Employment by industry division and major manufacturing group**

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL</b> .....	89,823	90,564	90,955	89,711	89,969	90,638	91,244	91,599	91,750	89,988	90,138	90,720	91,337	91,816	92,378
<b>MINING</b> .....	958	1,020	1,044	1,025	1,024	1,030	1,034	1,051	1,060	1,066	1,071	1,084	941	955	1,128
<b>CONSTRUCTION</b> .....	4,463	4,399	4,545	4,562	4,637	4,613	4,619	4,533	4,343	3,995	3,901	4,048	4,246	4,344	4,455
<b>MANUFACTURING</b> .....	21,040	20,300	20,146	19,702	19,997	20,212	20,235	20,293	20,238	20,075	20,065	20,160	20,253	20,343	20,508
Production workers .....	15,068	14,223	14,047	13,614	13,907	14,131	14,141	14,190	14,126	13,975	13,971	14,049	14,127	14,201	14,343
<b>Durable goods</b> .....	12,760	12,181	12,036	11,743	11,796	11,990	12,061	12,156	12,147	12,072	12,042	12,120	12,197	12,236	12,312
Production workers .....	9,110	8,438	8,284	8,000	8,048	8,244	8,304	8,391	8,374	8,305	8,279	8,345	8,412	8,442	8,509
Lumber and wood products .....	766.9	690.3	670.8	669.4	686.5	693.6	691.4	687.9	685.9	674.6	674.5	678.3	686.9	703.5	710.4
Furniture and fixtures .....	497.8	468.8	455.9	433.4	449.8	461.6	465.0	468.6	470.5	469.6	471.7	472.1	478.0	478.8	482.5
Stone, clay, and glass products .....	708.7	665.6	663.9	654.3	661.4	665.5	663.5	665.2	652.3	635.0	630.6	639.5	652.6	660.2	669.3
Primary metal industries .....	1,253.9	1,144.1	1,123.6	1,065.7	1,069.9	1,092.0	1,103.7	1,123.3	1,136.3	1,136.7	1,137.7	1,141.3	1,149.9	1,146.2	1,153.4
Fabricated metal products .....	1,717.7	1,609.0	1,580.0	1,519.9	1,549.9	1,576.4	1,586.6	1,597.6	1,596.4	1,580.2	1,578.1	1,585.4	1,593.7	1,595.2	1,607.2
Machinery, except electrical .....	2,484.8	2,497.0	2,497.4	2,448.6	2,426.4	2,453.4	2,461.2	2,479.6	2,496.8	2,496.9	2,498.4	2,504.3	2,506.1	2,508.9	2,522.9
Electric and electronic equipment .....	2,116.9	2,103.2	2,079.7	2,043.8	2,057.5	2,079.6	2,094.8	2,109.6	2,118.0	2,114.0	2,112.3	2,119.5	2,129.7	2,134.9	2,149.4
Transportation equipment .....	2,077.2	1,875.3	1,835.1	1,798.9	1,772.5	1,842.4	1,869.0	1,894.6	1,871.4	1,854.9	1,824.8	1,860.4	1,874.3	1,880.0	1,880.3
Instruments and related products .....	691.2	708.5	711.5	707.4	707.0	705.6	706.3	711.2	713.8	712.4	710.1	712.1	714.4	715.7	719.8
Miscellaneous manufacturing .....	444.8	419.3	417.7	401.8	415.2	419.8	419.2	417.9	405.9	398.0	403.3	406.7	411.3	412.8	417.1
<b>Nondurable goods</b> .....	8,280	8,118	8,110	7,959	8,201	8,222	8,174	8,137	8,091	8,003	8,023	8,040	8,056	8,107	8,196
Production workers .....	5,958	5,786	5,763	5,614	5,859	5,887	5,837	5,799	5,752	5,670	5,692	5,704	5,715	5,759	5,834
Food and kindred products .....	1,732.5	1,710.8	1,694.9	1,731.7	1,828.7	1,823.5	1,765.2	1,719.3	1,688.5	1,645.2	1,639.2	1,632.5	1,631.0	1,648.5	1,680.6
Tobacco manufactures .....	70.0	69.2	65.2	64.6	71.2	74.9	75.9	75.3	74.4	72.0	70.6	68.3	66.2	65.1	67.1
Textile mill products .....	885.1	852.7	842.1	809.8	842.5	843.3	845.4	847.8	846.1	841.0	841.1	840.9	841.6	843.6	849.6
Apparel and other textile products .....	1,304.3	1,265.8	1,281.2	1,208.5	1,267.6	1,274.3	1,270.5	1,262.3	1,241.1	1,222.8	1,238.7	1,250.2	1,255.2	1,266.8	1,281.0
Paper and allied products .....	706.8	694.0	695.6	682.5	689.0	688.6	690.6	691.4	691.5	687.7	687.7	688.6	690.9	692.8	701.5
Printing and publishing .....	1,235.1	1,258.3	1,257.7	1,251.3	1,251.0	1,255.1	1,259.1	1,268.2	1,278.3	1,269.0	1,273.6	1,278.2	1,280.4	1,281.8	1,285.3
Chemicals and allied products .....	1,109.3	1,107.4	1,116.8	1,106.2	1,102.8	1,100.9	1,099.5	1,100.1	1,101.2	1,100.1	1,102.9	1,106.8	1,106.2	1,110.6	1,119.1
Petroleum and coal products .....	209.8	196.6	208.5	211.4	211.8	210.2	209.7	209.5	206.8	206.5	205.7	207.0	209.5	212.7	214.0
Rubber and miscellaneous plastics products .....	781.6	730.7	711.0	680.8	702.2	718.0	725.7	730.6	733.2	731.8	734.2	737.2	743.5	749.0	758.1
Leather and leather products .....	245.7	232.6	236.8	211.8	234.4	232.7	232.1	232.5	229.4	226.9	229.5	230.4	231.7	236.0	240.1
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	5,136	5,143	5,177	5,132	5,134	5,159	5,166	5,147	5,150	5,063	5,076	5,095	5,120	5,141	5,214
<b>WHOLESALE AND RETAIL TRADE</b> .....	20,192	20,386	20,347	20,300	20,373	20,495	20,533	20,761	21,138	20,366	20,196	20,290	20,513	20,672	20,759
<b>WHOLESALE TRADE</b> .....	5,204	5,281	5,287	5,280	5,287	5,293	5,315	5,312	5,315	5,276	5,273	5,293	5,317	5,337	5,377
<b>RETAIL TRADE</b> .....	14,989	15,104	15,060	15,020	15,086	15,202	15,218	15,449	15,823	15,090	14,923	14,997	15,196	15,335	15,382
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	4,975	5,168	5,206	5,234	5,238	5,201	5,211	5,223	5,237	5,235	5,245	5,263	5,295	5,322	5,382
<b>SERVICES</b> .....	17,112	17,901	18,013	18,145	18,136	18,087	18,115	18,118	18,149	17,972	18,126	18,287	18,512	18,629	18,752
<b>GOVERNMENT</b> .....	15,947	16,249	16,477	15,611	15,430	15,841	16,331	16,473	16,435	16,216	16,458	16,493	16,457	16,410	16,180
Federal .....	2,773	2,866	2,995	2,949	2,862	2,754	2,774	2,776	2,782	2,773	2,774	2,769	2,773	2,783	2,822
State and local .....	13,174	13,383	13,482	12,662	12,568	13,087	13,557	13,697	13,653	13,443	13,684	13,724	13,684	13,627	13,358

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because these revisions, establishment data in

this table may differ from data published earlier. See technical note, page 76.

### 11. Employment by industry division and major manufacturing group, seasonally adjusted

[Nonagricultural payroll data, in thousands]

Industry division and group	1980							1981					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL</b> .....	90,087	89,960	90,219	90,461	90,668	90,844	90,949	91,091	91,258	91,347	91,458	91,530	91,516
<b>MINING</b> .....	1,024	1,004	1,008	1,023	1,032	1,052	1,069	1,083	1,091	1,098	950	955	1,106
<b>CONSTRUCTION</b> .....	4,345	4,270	4,324	4,362	4,379	4,389	4,387	4,390	4,389	4,416	4,418	4,322	4,263
<b>MANUFACTURING</b> .....	20,033	19,877	19,990	20,060	20,110	20,188	20,175	20,174	20,177	20,191	20,332	20,413	20,405
Production workers .....	13,957	13,814	13,930	13,992	14,024	14,081	14,059	14,053	14,053	14,074	14,187	14,255	14,262
<b>Durable goods</b> .....	11,973	11,859	11,907	11,968	12,013	12,090	12,077	12,084	12,074	12,099	12,207	12,252	12,257
Production workers .....	8,232	8,131	8,176	8,229	8,259	8,320	8,301	8,306	8,297	8,325	8,412	8,449	8,464
Lumber and wood products .....	659	662	671	680	679	683	687	689	691	692	702	710	699
Furniture and fixtures .....	460	447	456	462	462	463	464	464	466	467	478	484	488
Stone, clay, and glass products .....	650	645	651	656	655	658	655	654	654	651	656	658	656
Primary metal industries .....	1,113	1,070	1,077	1,092	1,108	1,126	1,137	1,137	1,140	1,141	1,145	1,140	1,142
Fabricated metal products .....	1,575	1,545	1,567	1,575	1,578	1,582	1,581	1,579	1,577	1,581	1,595	1,603	1,604
Machinery, except electrical .....	2,488	2,462	2,454	2,463	2,481	2,489	2,490	2,487	2,481	2,480	2,491	2,511	2,513
Electric and electronic equipment .....	2,074	2,064	2,074	2,078	2,087	2,096	2,103	2,110	2,110	2,117	2,134	2,143	2,145
Transportation equipment .....	1,836	1,841	1,839	1,843	1,848	1,874	1,839	1,840	1,833	1,849	1,878	1,874	1,884
Instruments and related products .....	705	708	707	709	709	712	712	713	711	712	714	716	713
Miscellaneous manufacturing .....	413	415	411	410	406	407	409	411	411	409	414	413	413
<b>Nondurable goods</b> .....	8,060	8,018	8,083	8,092	8,097	8,098	8,098	8,090	8,103	8,092	8,125	8,161	8,148
Production workers .....	5,725	5,683	5,754	5,763	5,765	5,761	5,758	5,747	5,756	5,749	5,775	5,806	5,798
Food and kindred products .....	1,696	1,708	1,720	1,712	1,711	1,705	1,701	1,696	1,705	1,691	1,697	1,703	1,681
Tobacco manufactures .....	70	70	68	68	69	71	71	71	72	72	72	71	72
Textile mill products .....	837	828	844	843	845	844	842	841	839	838	842	843	845
Apparel and other textile products .....	1,261	1,254	1,263	1,261	1,256	1,253	1,250	1,244	1,243	1,243	1,250	1,259	1,261
Paper and allied products .....	689	682	687	689	691	692	692	691	691	689	691	694	695
Printing and publishing .....	1,255	1,255	1,256	1,261	1,262	1,265	1,269	1,269	1,272	1,276	1,280	1,283	1,283
Chemicals and allied products .....	1,107	1,099	1,097	1,101	1,102	1,103	1,105	1,106	1,109	1,108	1,107	1,109	1,109
Petroleum and coal products .....	205	208	208	208	208	209	209	211	210	210	211	213	211
Rubber and miscellaneous plastics products .....	709	692	708	717	722	725	729	730	731	734	744	753	757
Leather and leather products .....	231	222	232	232	231	231	230	231	231	231	231	233	234
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	5,129	5,119	5,126	5,124	5,129	5,114	5,118	5,124	5,135	5,139	5,161	5,141	5,167
<b>WHOLESALE AND RETAIL TRADE</b> .....	20,266	20,355	20,413	20,450	20,461	20,464	20,470	20,529	20,600	20,635	20,636	20,714	20,681
<b>WHOLESALE TRADE</b> .....	5,253	5,261	5,274	5,290	5,296	5,296	5,300	5,305	5,313	5,316	5,333	5,348	5,345
<b>RETAIL TRADE</b> .....	15,013	15,094	15,139	15,160	15,165	15,168	15,170	15,224	15,287	15,319	15,303	15,366	15,336
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	5,156	5,173	5,188	5,206	5,221	5,235	5,254	5,268	5,283	5,293	5,316	5,322	5,329
<b>SERVICES</b> .....	17,816	17,940	17,981	18,043	18,087	18,160	18,240	18,300	18,343	18,371	18,475	18,536	18,548
<b>GOVERNMENT</b> .....	16,318	16,222	16,189	16,193	16,249	16,242	16,236	16,223	16,240	16,204	16,170	16,127	16,017
Federal .....	2,951	2,893	2,808	2,784	2,795	2,796	2,800	2,799	2,795	2,781	2,767	2,780	2,778
State and local .....	13,367	13,329	13,381	13,409	13,454	13,446	13,436	13,424	13,445	13,423	13,403	13,347	13,239

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.

**12. Labor turnover rates in manufacturing, 1978 to date**

[Per 100 employees]

Year	Annual average	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>Total accessions</b>													
1978	4.1	3.8	3.2	3.8	4.0	4.7	4.9	4.4	5.4	4.9	4.3	3.3	2.4
1979	4.0	4.0	3.4	3.8	3.9	4.7	4.8	4.3	5.0	4.5	4.1	3.0	2.2
1980	3.5	3.8	3.3	3.5	3.1	3.4	3.9	3.8	4.5	4.3	3.6	2.7	2.2
1981	...	3.4	3.0	3.4	3.3	P3.4	...	...	...	...	...	...	...
<b>New hires</b>													
1978	3.1	2.5	2.2	2.7	2.9	3.6	3.9	3.3	4.2	3.9	3.5	2.6	1.7
1979	2.9	2.8	2.5	2.8	2.9	3.6	3.8	3.1	3.7	3.4	3.1	2.2	1.5
1980	2.1	2.4	2.2	2.3	2.0	2.1	2.4	2.1	2.5	2.6	2.2	1.6	1.2
1981	...	1.8	1.8	2.0	2.0	P2.2	...	...	...	...	...	...	...
<b>Recalls</b>													
1978	.7	1.0	.7	.8	.8	.8	.7	.8	.9	.7	.6	.5	.5
1979	.7	.9	.7	.7	.7	.8	.7	.9	.9	.8	.7	.6	.5
1980	1.1	1.1	.9	.9	.8	1.0	1.2	1.5	1.7	1.4	1.1	.9	.8
1981	...	1.3	1.0	1.1	1.1	P1.0	...	...	...	...	...	...	...
<b>Total separations</b>													
1978	3.9	3.6	3.1	3.5	3.6	3.7	3.8	4.1	5.3	4.9	4.1	3.5	3.4
1979	4.0	3.8	3.2	3.6	3.7	3.8	3.9	4.3	5.7	4.7	4.2	3.8	3.5
1980	4.0	4.1	3.5	3.7	4.7	4.8	4.4	4.2	4.8	4.1	3.8	3.0	3.1
1981	...	3.6	3.1	3.2	3.1	P3.0	...	...	...	...	...	...	...
<b>Quits</b>													
1978	2.1	1.5	1.4	1.8	2.0	2.1	2.2	2.1	3.5	3.1	2.3	1.7	1.3
1979	2.0	1.8	1.6	1.9	2.0	2.1	2.1	2.0	3.3	2.7	2.1	1.6	1.1
1980	1.5	1.6	1.5	1.6	1.5	1.5	1.4	1.4	2.2	1.9	1.4	1.1	.9
1981	...	1.2	1.1	1.2	1.3	P1.3	...	...	...	...	...	...	...
<b>Layoffs</b>													
1978	.9	1.2	.9	.9	.8	.7	.7	1.1	.8	.8	.9	1.0	1.4
1979	1.1	1.1	.8	.8	.9	.7	.9	1.4	1.3	1.1	1.2	1.5	1.7
1980	1.7	1.6	1.2	1.3	2.3	2.5	2.2	2.0	1.7	1.4	1.5	1.4	1.6
1981	...	1.6	1.2	1.2	1.0	P1.0	...	...	...	...	...	...	...

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions, establishment data in this table may differ from data published earlier. See technical note, page 76.

**13. Labor turnover rates in manufacturing, by major industry group**

[Per 100 employees]

Major industry group	Accession rates									Separation rates								
	Total			New hires			Recalls			Total			Quits			Layoffs		
	May 1980	Apr. 1981	May 1981 <sup>P</sup>	May 1980	Apr. 1981	May 1981 <sup>P</sup>	May 1980	Apr. 1981	May 1981 <sup>P</sup>	May 1980	Apr. 1981	May 1981 <sup>P</sup>	May 1980	Apr. 1981	May 1981 <sup>P</sup>	May 1980	Apr. 1981	May 1981 <sup>P</sup>
<b>MANUFACTURING</b>	3.4	3.3	3.4	2.1	2.0	2.2	1.0	1.1	1.0	4.8	3.1	3.0	1.5	1.3	1.3	2.5	1.0	1.0
Seasonally adjusted	3.1	3.4	3.0	1.8	2.1	1.9	1.0	1.1	1.0	5.5	3.2	3.3	1.5	1.3	1.3	3.2	1.1	1.3
<b>Durable goods</b>	2.8	3.1	3.1	1.6	1.8	1.9	.8	1.1	.9	5.0	2.7	2.7	1.2	1.1	1.1	2.9	.9	.9
Lumber and wood products	5.5	5.5	5.6	2.4	3.3	3.6	2.9	2.1	1.7	6.5	4.7	4.3	2.1	2.4	2.2	3.5	1.5	1.2
Furniture and fixtures	3.1	4.3	3.7	2.2	3.0	2.9	.6	1.1	.7	5.8	4.0	3.7	2.2	2.0	1.8	2.6	.9	.9
Stone, clay, and glass products	3.9	4.5	4.1	1.9	2.1	2.3	1.8	2.3	1.6	5.1	3.0	3.1	1.3	1.2	1.1	2.9	1.1	1.2
Primary metal industries	2.1	2.7	2.6	.8	1.0	1.2	.9	1.3	1.1	6.4	2.2	2.4	.5	.6	.5	5.1	.8	1.1
Fabricated metal products	3.2	3.4	3.3	1.9	2.0	2.1	1.1	1.1	1.0	5.8	3.2	2.9	1.3	1.3	1.2	3.6	1.2	1.1
Machinery, except electrical	2.2	2.3	2.5	1.6	1.5	1.7	.4	.6	.6	3.8	2.4	2.3	1.0	.9	.9	2.0	.8	.8
Electric and electronic equipment	2.5	2.5	2.5	1.7	1.6	1.7	.4	.5	.5	4.2	2.4	2.5	1.2	1.0	1.0	2.1	.7	.7
Transportation equipment	2.6	3.2	...	1.1	1.2	...	.8	1.6	...	5.6	2.4	...	.8	.8	...	3.9	.9	...
Instruments and related products	2.7	2.2	2.5	2.2	1.8	1.9	2	2	.4	2.8	2.2	2.3	1.2	1.1	1.1	.9	.4	.5
Miscellaneous manufacturing	4.0	4.4	4.5	2.6	2.7	2.9	1.2	1.4	1.4	6.0	3.6	3.9	1.9	1.5	1.6	3.1	1.3	1.5
<b>Nondurable goods</b>	4.2	3.7	4.0	2.8	2.4	2.6	1.2	1.0	1.1	4.6	3.6	3.4	1.9	1.6	1.6	1.8	1.2	1.1
Food and kindred products	6.6	5.2	6.0	3.9	3.1	3.5	2.4	1.9	2.3	5.7	4.9	4.7	2.3	1.9	1.9	2.4	2.3	2.1
Tobacco manufacturers	3.7	2.5	...	.9	.6	...	1.0	1.3	...	1.9	3.9	...	.3	2	...	.7	2.6	...
Textile mill products	3.8	3.6	3.9	3.0	2.7	3.0	.5	.6	.6	4.7	3.8	3.6	2.4	2.1	2.1	1.3	.7	.7
Apparel and other products	5.6	5.1	5.4	3.6	3.2	3.6	1.8	1.6	1.5	6.1	5.1	5.0	3.0	2.5	2.5	2.3	1.8	1.7
Paper and allied products	2.7	2.5	3.0	1.7	1.4	1.9	.8	.9	.8	3.0	2.3	2.3	.9	.8	.8	1.4	.8	.8
Printing and publishing	3.2	2.8	2.1	2.6	2.2	1.6	.5	.5	.5	3.3	2.9	2.0	1.9	1.7	1.0	.8	.6	.6
Chemicals and allied products	2.0	1.5	1.9	1.5	1.1	1.5	.3	.2	.3	2.0	1.4	1.4	.7	.6	.6	.8	.3	.3
Petroleum and coal products	3.3	2.6	2.8	2.6	1.8	2.1	.6	.7	.6	2.3	1.8	2.0	.6	.7	.7	1.1	.5	.7
Rubber and miscellaneous plastics products	3.2	3.7	4.0	2.0	2.4	2.7	.9	1.0	1.0	6.7	3.6	3.4	1.7	1.6	1.6	4.0	1.0	.9
Leather and leather products	7.0	6.1	6.8	5.3	4.1	4.8	1.5	1.7	1.7	7.4	5.5	5.9	3.5	2.8	3.1	2.9	1.8	1.8

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions, establishment data in this table may differ from data published earlier. See technical note, page 76.



### 14. Hours and earnings, by industry division, 1950-80

[Gross averages, production or nonsupervisory workers on nonagricultural payrolls]

Year	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings
	Total private			Mining			Construction			Manufacturing		
1950	\$53.13	39.8	\$1.335	\$67.16	37.9	\$1.772	\$69.68	37.4	\$1.863	\$58.32	40.5	\$1.440
1951	57.86	39.9	1.45	74.11	38.4	1.93	76.96	38.1	2.02	63.34	40.6	1.56
1952	60.65	39.9	1.52	77.59	38.6	2.01	82.86	38.9	2.13	66.75	40.7	1.64
1953	63.76	39.6	1.61	83.03	38.8	2.14	86.41	37.9	2.28	70.47	40.5	1.74
1954	64.52	39.1	1.65	82.60	38.6	2.14	88.91	37.2	2.39	70.49	39.6	1.78
1955	67.72	39.6	1.71	89.54	40.7	2.20	90.90	37.1	2.45	75.30	40.7	1.85
1956	70.74	39.3	1.80	95.06	40.8	2.33	96.38	37.5	2.57	78.78	40.4	1.95
1957	73.33	38.8	1.89	98.25	40.1	2.45	100.27	37.0	2.71	81.19	39.8	2.04
1958	75.08	38.5	1.95	96.08	38.9	2.47	103.78	36.8	2.82	82.32	39.2	2.10
1959 <sup>1</sup>	78.78	39.0	2.02	103.68	40.5	2.56	108.41	37.0	2.93	88.26	40.3	2.19
1960	80.67	38.6	2.09	105.04	40.4	2.60	112.67	36.7	3.07	89.72	39.7	2.26
1961	82.60	38.6	2.14	106.92	40.5	2.64	118.08	36.9	3.20	92.34	39.8	2.32
1962	85.91	38.7	2.22	110.70	41.0	2.70	122.47	37.0	3.31	96.56	40.4	2.39
1963	88.46	38.8	2.28	114.40	41.6	2.75	127.19	37.3	3.41	99.23	40.5	2.45
1964	91.33	38.7	2.36	117.74	41.9	2.81	132.06	37.2	3.55	102.97	40.7	2.53
1965	95.45	38.8	2.46	123.52	42.3	2.92	138.38	37.4	3.70	107.53	41.2	2.61
1966	98.82	38.6	2.56	130.24	42.7	3.05	146.26	37.6	3.89	112.19	41.4	2.71
1967	101.84	38.0	2.68	135.89	42.6	3.19	154.95	37.7	4.11	114.49	40.6	2.82
1968	107.73	37.8	2.85	142.71	42.6	3.35	164.49	37.3	4.41	122.51	40.7	3.01
1969	114.61	37.7	3.04	154.80	43.0	3.60	181.54	37.9	4.79	129.51	40.6	3.19
1970	119.83	37.1	3.23	164.40	42.7	3.85	195.45	37.3	5.24	133.33	39.8	3.35
1971	127.31	36.9	3.45	172.14	42.4	4.06	211.67	37.2	5.69	142.44	39.9	3.57
1972	136.90	37.0	3.70	189.14	42.6	4.44	221.19	36.5	6.06	154.71	40.5	3.82
1973	145.39	36.9	3.94	201.40	42.4	4.75	235.89	36.8	6.41	166.46	40.7	4.09
1974	154.76	36.5	4.24	219.14	41.9	5.23	249.25	36.6	6.81	176.80	40.0	4.42
1975	163.53	36.1	4.53	249.31	41.9	5.95	266.08	36.4	7.31	190.79	39.5	4.83
1976	175.45	36.1	4.86	273.90	42.4	6.46	283.73	36.8	7.71	209.32	40.1	5.22
1977	189.00	36.0	5.25	301.20	43.4	6.94	295.65	36.5	8.10	228.90	40.3	5.68
1978	203.70	35.8	5.69	332.88	43.4	7.67	318.69	36.8	8.66	249.27	40.4	6.17
1979 <sup>1</sup>	219.91	35.7	6.16	365.07	43.0	8.49	342.99	37.0	9.27	269.34	40.2	6.70
1980 <sup>1</sup>	235.10	35.3	6.66	396.14	43.2	9.17	367.04	37.0	9.92	288.62	39.7	7.27
	Transportation and public utilities			Wholesale and retail trade			Finance, insurance, and real estate			Services		
1950				\$44.55	40.5	\$1.100	\$50.52	37.7	\$1.340			
1951				47.79	40.5	1.18	54.67	37.7	1.45			
1952				49.20	40.0	1.23	57.08	37.8	1.51			
1953				51.35	39.5	1.30	59.57	37.7	1.58			
1954				53.33	39.5	1.35	62.04	37.6	1.65			
1955				55.16	39.4	1.40	63.92	37.6	1.70			
1956				57.48	39.1	1.47	65.68	36.9	1.78			
1957				59.60	38.7	1.54	67.53	36.7	1.84			
1958				61.76	38.6	1.60	70.12	37.1	1.89			
1959 <sup>1</sup>				64.41	38.8	1.66	72.74	37.3	1.95			
1960				66.01	38.6	1.71	75.14	37.2	2.02			
1961				67.41	38.3	1.76	77.12	36.9	2.09			
1962				69.91	38.2	1.83	80.94	37.3	2.17			
1963				72.01	38.1	1.89	84.38	37.5	2.25			
1964	\$118.78	41.1	\$2.89	74.66	37.9	1.97	85.79	37.3	2.30	\$70.03	36.1	\$1.94
1965	125.14	41.3	3.03	76.91	37.7	2.04	88.91	37.2	2.39	73.60	35.9	2.05
1966	128.13	41.2	3.11	79.39	37.1	2.14	92.13	37.3	2.47	77.04	35.5	2.17
1967	130.82	40.5	3.23	82.35	36.6	2.25	95.72	37.1	2.58	80.38	35.1	2.29
1968	138.85	40.6	3.42	87.00	36.1	2.41	101.75	37.0	2.75	83.97	34.7	2.42
1969	147.74	40.7	3.63	91.39	35.7	2.56	108.70	37.1	2.93	90.57	34.7	2.61
1970	155.93	40.5	3.85	95.02	35.3	2.72	112.67	36.7	3.07	96.66	34.4	2.81
1971	168.82	40.1	4.21	101.09	35.1	2.88	117.85	36.6	3.22	103.06	33.9	3.04
1972	187.86	40.4	4.65	106.45	34.9	3.05	122.98	36.6	3.36	110.85	33.9	3.27
1973	203.31	40.5	5.02	111.76	34.6	3.23	129.20	36.6	3.53	117.29	33.8	3.47
1974	217.48	40.2	5.41	119.02	34.2	3.48	137.61	36.5	3.77	126.00	33.6	3.75
1975	233.44	39.7	5.88	126.45	33.9	3.73	148.19	36.5	4.06	134.67	33.5	4.02
1976	256.71	39.8	6.45	133.79	33.7	3.97	155.43	36.4	4.27	143.52	33.3	4.31
1977	278.90	39.9	6.99	142.52	33.3	4.28	165.26	36.4	4.54	153.45	33.0	4.65
1978	302.80	40.0	7.57	153.64	32.9	4.67	178.00	36.4	4.89	163.67	32.8	4.99
1979 <sup>1</sup>	325.58	39.9	8.16	164.96	32.6	5.06	190.77	36.2	5.27	175.27	32.7	5.36
1980 <sup>1</sup>	351.25	39.6	8.87	176.46	32.2	5.48	209.24	36.2	5.78	190.71	32.6	5.85

<sup>1</sup> Data include Alaska and Hawaii beginning in 1959.

r=revised.

**15. Weekly hours, by industry division and major manufacturing group**

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL PRIVATE</b> .....	35.7	35.3	35.3	35.3	35.5	35.3	35.3	35.3	35.6	35.1	35.0	35.2	35.2	35.2	35.4
<b>MINING</b> .....	43.0	43.2	43.2	42.0	43.2	43.5	43.6	43.6	44.1	43.6	42.8	42.3	43.6	43.7	43.0
<b>CONSTRUCTION</b> .....	37.0	37.0	37.9	37.7	37.3	38.0	37.9	36.8	37.2	36.4	35.0	37.2	36.9	36.8	37.6
<b>MANUFACTURING</b> .....	40.2	39.7	39.3	38.8	39.4	39.8	39.8	40.2	40.8	39.9	39.5	39.9	39.7	40.1	40.1
Overtime hours .....	3.3	2.8	2.5	2.4	2.7	3.0	2.9	3.1	3.3	2.9	2.8	2.8	2.6	2.9	3.0
<b>Durable goods</b> .....	40.8	40.1	39.7	39.0	39.7	40.2	40.3	40.7	41.5	40.4	39.9	40.5	40.3	40.6	40.6
Overtime hours .....	3.5	2.8	2.4	2.3	2.6	2.9	2.9	3.1	3.4	2.9	2.8	2.9	2.7	3.0	3.0
Lumber and wood products .....	39.4	38.6	38.4	38.1	39.2	39.3	39.2	39.2	39.7	38.8	38.5	39.0	39.1	39.6	39.4
Furniture and fixtures .....	38.7	38.1	37.3	36.2	37.6	38.3	38.5	38.4	39.6	38.1	38.3	38.8	38.2	38.5	39.0
Stone, clay, and glass products .....	41.5	40.8	41.0	40.3	40.7	41.1	41.3	41.4	41.6	40.3	39.6	40.6	40.9	41.1	40.9
Primary metal industries .....	41.4	40.1	39.1	38.6	39.0	39.9	39.9	40.8	41.6	41.1	40.7	41.1	41.2	40.9	41.0
Fabricated metal products .....	40.7	40.4	40.1	39.2	40.0	40.5	40.5	40.9	41.6	40.4	40.0	40.6	40.2	40.7	40.7
Machinery except electrical .....	41.8	41.0	40.7	39.9	40.3	41.0	40.7	41.3	42.2	41.2	40.8	41.2	40.8	41.2	41.3
Electric and electronic equipment .....	40.3	39.8	39.4	38.4	39.2	39.7	39.8	40.4	41.0	40.1	39.6	40.2	39.8	40.1	40.1
Transportation equipment .....	41.1	40.6	40.0	39.6	40.0	40.7	41.1	41.7	43.1	40.9	40.1	41.1	41.0	41.6	41.3
Instruments and related products .....	40.8	40.5	40.5	39.6	39.9	40.1	40.3	40.9	41.2	40.6	40.5	40.6	39.9	40.3	40.3
Miscellaneous manufacturing .....	38.8	38.7	38.3	37.7	38.5	39.1	38.9	39.1	39.5	38.6	38.4	38.9	38.6	38.8	39.1
<b>Nondurable goods</b> .....	39.3	39.0	38.8	38.5	39.0	39.1	39.1	39.4	39.9	39.2	38.9	39.1	38.9	39.4	39.4
Overtime hours .....	3.1	2.8	2.5	2.6	2.9	3.1	2.9	3.0	3.1	2.9	2.8	2.7	2.6	2.9	2.9
Food and kindred products .....	39.9	39.7	39.6	39.9	40.4	40.3	39.7	40.1	40.3	40.0	39.3	39.2	39.3	39.7	39.7
Tobacco manufactures .....	38.0	38.1	38.4	36.6	36.9	38.2	40.0	40.1	38.1	38.6	38.5	37.2	37.2	38.6	36.8
Textile mill products .....	40.4	40.1	39.6	38.5	39.2	39.8	39.9	40.3	40.9	39.9	39.9	40.1	39.4	40.4	40.4
Apparel and other textile products .....	35.3	35.4	35.6	35.3	35.4	35.2	35.5	35.4	35.9	35.2	35.3	35.8	35.2	36.1	36.3
Paper and allied products .....	42.6	42.3	41.7	41.4	41.8	42.3	42.2	42.8	43.7	42.7	42.2	42.4	42.3	42.6	42.6
Printing and publishing .....	37.5	37.1	36.7	36.8	37.2	37.2	37.2	37.2	38.1	37.1	36.9	37.1	37.0	37.2	37.1
Chemicals and allied products .....	41.9	41.5	41.2	40.7	40.9	41.3	41.5	42.0	42.1	41.6	41.5	41.6	41.6	41.5	41.7
Petroleum and coal products .....	43.8	41.8	42.3	42.7	42.2	43.4	43.7	43.6	43.3	42.6	42.5	42.6	43.9	43.6	43.1
Rubber and miscellaneous plastics products .....	40.5	40.1	39.3	38.6	40.0	40.3	40.7	41.1	41.6	41.0	40.2	40.7	40.4	40.8	41.0
Leather and leather products .....	36.5	36.7	37.4	36.4	36.6	36.3	36.6	36.3	36.9	36.5	36.7	36.8	36.3	37.3	37.5
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	39.9	39.6	39.5	39.9	39.7	39.7	39.8	39.7	40.0	39.4	39.5	39.4	39.3	39.3	39.5
<b>WHOLESALE AND RETAIL TRADE</b> .....	32.6	32.2	32.3	32.6	32.7	32.2	32.1	32.1	32.5	31.7	31.7	31.9	32.1	32.0	32.3
<b>WHOLESALE TRADE</b> .....	38.8	38.5	38.2	38.2	38.4	38.5	38.7	38.5	38.9	38.5	38.3	38.5	38.5	38.5	38.5
<b>RETAIL TRADE</b> .....	30.6	30.2	30.4	30.8	30.9	30.2	30.0	30.0	30.5	29.5	29.6	29.8	30.0	30.0	30.4
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	36.2	36.2	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.4	36.4	36.4	36.3	36.2	36.1
<b>SERVICES</b> .....	32.7	32.6	32.8	33.1	33.1	32.6	32.6	32.6	32.6	32.5	32.6	32.6	32.6	32.5	32.7

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.

### 16. Weekly hours, by industry division and major manufacturing group, seasonally adjusted

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	1980							1981					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL PRIVATE</b> .....	35.2	35.1	35.2	35.3	35.3	35.3	35.3	35.3	35.2	35.3	35.4	35.4	35.3
<b>MINING</b> .....	43.2	42.0	43.2	43.5	43.6	43.6	44.1	43.6	42.8	42.3	43.6	43.7	43.0
<b>CONSTRUCTION</b> .....	37.9	37.7	37.3	38.0	37.9	36.8	37.2	36.4	35.0	37.2	36.9	36.8	37.6
<b>MANUFACTURING</b> .....	39.3	39.2	39.5	39.6	39.7	39.8	39.9	40.1	39.8	39.9	40.2	40.3	40.1
Overtime hours .....	2.5	2.5	2.7	2.7	2.8	3.0	3.0	3.0	2.8	2.8	2.9	3.1	3.0
<b>Durable goods</b> .....	39.7	39.5	40.0	40.1	40.1	40.4	40.4	40.6	40.1	40.4	40.8	40.8	40.5
Overtime hours .....	2.4	2.4	2.7	2.7	2.8	3.0	3.1	3.0	2.8	2.8	3.0	3.2	3.0
Lumber and wood products .....	37.9	38.2	38.8	38.7	38.6	39.1	39.3	39.8	39.1	39.1	39.6	39.8	38.9
Furniture and fixtures .....	37.2	36.8	37.6	38.1	38.0	38.0	38.4	38.5	38.6	38.6	38.8	39.0	39.0
Stone, clay, and glass products .....	40.5	40.4	40.5	40.8	40.8	40.9	41.0	41.3	40.6	40.7	41.2	41.0	40.5
Primary metal industries .....	39.0	38.9	39.4	39.7	40.1	40.8	41.2	41.1	40.7	41.0	41.2	41.0	40.9
Fabricated metal products .....	40.0	39.8	40.2	40.4	40.4	40.5	40.4	40.5	40.2	40.4	40.9	40.9	40.6
Machinery, except electrical .....	40.7	40.6	40.8	40.9	40.8	41.0	40.9	41.1	40.8	40.9	41.3	41.4	41.3
Electric and electronic equipment .....	39.4	39.1	39.6	39.6	39.8	39.9	40.0	40.1	39.6	40.0	40.2	40.4	40.1
Transportation equipment .....	40.0	40.0	40.8	40.7	40.7	41.2	41.0	41.3	40.5	40.9	42.0	41.8	41.4
Instruments and related products .....	40.5	40.2	40.3	40.2	40.3	40.4	40.4	40.6	40.5	40.5	40.1	40.4	40.3
Miscellaneous manufacturing .....	38.3	38.4	38.6	38.8	38.6	38.6	38.9	38.8	38.6	38.7	38.9	39.1	39.2
<b>Nondurable goods</b> .....	38.7	38.6	38.9	38.9	39.0	39.1	39.2	39.5	39.2	39.2	39.3	39.6	39.4
Overtime hours .....	2.6	2.7	2.8	2.8	2.8	2.9	2.9	3.0	2.9	2.8	2.9	3.1	3.0
Food and kindred products .....	39.6	39.7	39.8	39.7	39.6	39.8	39.7	40.3	39.9	39.7	40.1	39.9	39.7
Tobacco manufactures .....	38.4	36.6	36.9	38.2	40.0	40.1	38.1	38.6	38.5	37.2	37.2	38.6	36.8
Textile mill products .....	39.4	39.1	39.5	39.8	39.8	39.9	40.1	40.0	40.0	39.9	39.8	40.6	40.2
Apparel and other textile products .....	35.3	35.2	35.2	35.2	35.4	35.2	35.5	36.1	35.6	35.7	35.5	36.1	36.0
Paper and allied products .....	41.7	41.7	42.0	42.2	42.2	42.4	42.8	42.6	42.4	42.4	42.6	42.9	42.6
Printing and publishing .....	36.9	37.0	37.0	36.9	37.1	36.8	37.4	37.5	37.3	37.1	37.3	37.5	37.3
Chemicals and allied products .....	41.3	41.0	41.2	41.4	41.5	41.6	41.6	41.6	41.6	41.5	41.5	41.6	41.8
Petroleum and coal products .....	42.2	42.1	42.1	42.4	42.8	42.9	43.2	43.8	43.8	43.5	44.1	43.8	43.0
Rubber and miscellaneous plastics products .....	39.4	39.1	40.2	40.2	40.5	40.8	40.8	40.9	40.3	40.5	40.7	41.2	41.1
Leather and leather products .....	36.7	36.2	36.6	36.4	36.7	36.3	36.6	36.8	37.0	37.1	36.6	37.0	36.8
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	39.5	39.9	39.7	39.7	39.8	39.7	40.0	39.4	39.5	39.4	39.3	39.3	39.5
<b>WHOLESALE AND RETAIL TRADE</b> .....	32.0	32.0	32.1	32.1	32.1	32.2	32.1	32.2	32.2	32.2	32.3	32.2	32.1
<b>WHOLESALE TRADE</b> .....	38.1	38.1	38.3	38.5	38.5	38.5	38.6	38.8	38.6	38.6	38.6	38.5	38.4
<b>RETAIL TRADE</b> .....	30.1	30.0	30.1	30.1	30.1	30.2	30.0	30.1	30.2	30.2	30.3	30.2	30.1
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.4	36.4	36.4	36.3	36.2	36.1
<b>SERVICES</b> .....	32.6	32.6	32.6	32.6	32.6	32.7	32.7	32.7	32.8	32.8	32.8	32.7	32.5

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.



**17. Hourly earnings, by industry division and major manufacturing group**

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL PRIVATE</b> .....	\$6.16	\$6.66	\$6.61	\$6.64	\$6.67	\$6.79	\$6.85	\$6.92	\$6.94	\$7.03	\$7.06	\$7.10	\$7.13	\$7.17	\$7.20
<b>MINING</b> .....	8.49	9.17	9.15	9.07	9.16	9.31	9.36	9.49	9.57	9.77	9.86	9.85	9.70	9.71	10.00
<b>CONSTRUCTION</b> .....	9.27	9.92	9.79	9.90	10.04	10.18	10.24	10.24	10.33	10.42	10.41	10.44	10.43	10.52	10.56
<b>MANUFACTURING</b> .....	6.70	7.27	7.20	7.29	7.30	7.42	7.49	7.60	7.70	7.73	7.75	7.80	7.88	7.92	7.96
<b>Durable goods</b> .....	7.13	7.75	7.68	7.76	7.77	7.92	8.01	8.11	8.23	8.23	8.26	8.32	8.40	8.45	8.50
Lumber and wood products .....	6.07	6.53	6.52	6.68	6.72	6.76	6.73	6.76	6.74	6.79	6.81	6.79	6.83	6.92	6.97
Furniture and fixtures .....	5.06	5.49	5.50	5.53	5.55	5.59	5.60	5.63	5.70	5.71	5.74	5.76	5.78	5.84	5.87
Stone, clay, and glass products .....	6.85	7.50	7.53	7.59	7.63	7.69	7.74	7.81	7.83	7.87	7.89	7.94	8.11	8.18	8.25
Primary metal industries .....	8.98	9.77	9.65	9.83	9.85	9.96	10.10	10.29	10.36	10.36	10.56	10.52	10.76	10.69	10.81
Fabricated metal products .....	6.85	7.45	7.43	7.44	7.49	7.63	7.69	7.77	7.88	7.89	7.91	8.01	8.05	8.17	8.23
<b>Nondurable goods</b> .....	6.01	6.56	6.50	6.62	6.65	6.71	6.74	6.82	6.89	6.97	6.98	7.01	7.08	7.11	7.14
Food and kindred products .....	6.27	6.86	6.84	6.90	6.90	6.94	6.95	7.09	7.13	7.21	7.24	7.29	7.37	7.44	7.40
Tobacco manufactures .....	6.67	7.73	8.01	8.10	7.82	7.53	7.69	7.86	8.10	8.50	8.56	8.61	8.90	9.05	9.50
Textile mill products .....	4.66	5.08	4.94	5.07	5.20	5.25	5.27	5.31	5.34	5.35	5.35	5.36	5.36	5.40	5.42
Apparel and other textile products .....	4.23	4.57	4.51	4.50	4.60	4.69	4.73	4.75	4.81	4.89	4.87	4.94	4.96	4.98	4.99
Paper and allied products .....	7.13	7.84	7.78	7.96	7.99	8.06	8.09	8.18	8.27	8.27	8.28	8.30	8.37	8.43	8.54
Printing and publishing .....	6.94	7.53	7.46	7.53	7.62	7.73	7.74	7.79	7.88	7.92	7.96	8.02	8.04	8.10	8.11
Chemicals and allied products .....	7.60	8.30	8.25	8.36	8.40	8.47	8.53	8.60	8.69	8.74	8.80	8.84	8.94	8.95	9.05
Petroleum and coal products .....	9.36	10.09	10.21	10.25	10.21	10.33	10.38	10.52	10.38	11.06	11.33	11.23	11.40	11.30	11.48
Rubber and miscellaneous plastics products .....	5.97	6.56	6.47	6.55	6.65	6.72	6.79	6.88	6.97	7.06	7.04	7.07	7.15	7.23	7.28
Leather and leather products .....	4.22	4.58	4.55	4.56	4.60	4.62	4.65	4.69	4.74	4.86	4.88	4.90	4.93	4.95	4.95
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	8.16	8.87	8.74	8.89	8.94	9.02	9.19	9.27	9.30	9.33	9.45	9.42	9.54	9.56	9.57
<b>WHOLESALE AND RETAIL TRADE</b> .....	5.06	5.48	5.44	5.48	5.49	5.56	5.59	5.64	5.62	5.80	5.84	5.85	5.87	5.89	5.89
<b>WHOLESALE TRADE</b> .....	6.39	6.96	6.94	6.98	6.99	7.07	7.09	7.19	7.23	7.32	7.38	7.42	7.47	7.50	7.51
<b>RETAIL TRADE</b> .....	4.53	4.88	4.84	4.89	4.89	4.95	4.98	5.02	4.99	5.18	5.20	5.20	5.22	5.23	5.23
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	5.27	5.78	5.77	5.77	5.83	5.87	5.91	6.02	6.00	6.10	6.21	6.19	6.20	6.23	6.20
<b>SERVICES</b> .....	5.36	5.85	5.81	5.78	5.81	5.93	6.00	6.09	6.12	6.21	6.27	6.29	6.30	6.33	6.33

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.

**18. Hourly Earnings Index for production or nonsupervisory workers on private nonagricultural payrolls, by industry division**

[Seasonally adjusted data: 1977 = 100]

Industry	1980							1981						May 1981 to June 1981	June 1980 to June 1981
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>		
<b>TOTAL PRIVATE (in current dollars)</b> ..	127.0	127.6	128.7	129.4	130.6	132.1	132.6	133.8	135.0	135.8	136.7	137.6	138.2	0.4	8.8
Mining .....	134.0	134.3	135.0	136.7	137.5	139.2	139.8	142.1	143.2	144.0	145.7	145.8	147.3	1.0	9.9
Construction .....	121.0	121.8	122.9	123.1	124.4	125.2	126.2	127.6	128.0	128.6	129.0	129.3	130.1	.6	7.5
Manufacturing .....	129.1	130.4	131.3	132.3	133.5	134.6	135.4	136.5	137.5	138.5	139.9	140.7	141.4	.5	9.5
Transportation and public utilities .....	126.7	127.7	128.1	128.1	130.9	132.6	132.8	133.7	135.4	136.1	137.3	138.4	138.9	.4	9.6
Wholesale and retail trade .....	127.4	128.2	129.3	129.9	130.8	132.3	132.4	133.7	135.0	135.8	136.4	137.5	137.8	.2	8.2
Finance, insurance, and real estate .....	127.0	126.7	128.7	129.1	129.9	132.4	131.9	133.2	135.0	136.0	135.4	136.7	136.3	-.3	7.3
Services .....	125.6	125.0	126.6	127.3	128.5	130.5	131.1	132.0	133.2	134.0	134.8	135.9	136.9	.7	9.0
<b>TOTAL PRIVATE (in constant dollars)</b> ..	93.4	93.8	93.9	93.3	93.2	93.3	92.7	92.8	92.7	92.8	93.0	93.0	....	....	....

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.

### 19. Weekly earnings, by industry division and major manufacturing group

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980							1981					
	1979	1980	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May <sup>P</sup>	June <sup>P</sup>
<b>TOTAL PRIVATE</b> .....	\$219.91	\$235.10	\$233.33	\$234.39	\$236.79	\$239.69	\$241.81	\$244.28	\$247.06	\$246.75	\$247.10	\$249.92	\$250.98	\$252.38	\$254.88
<b>MINING</b> .....	365.07	396.14	395.28	380.94	395.71	404.99	408.10	413.76	422.04	425.97	422.01	416.66	422.92	424.33	430.00
<b>CONSTRUCTION</b> .....	342.99	367.04	371.04	373.23	374.49	386.84	388.10	376.83	384.28	379.29	364.35	388.37	384.87	387.14	397.06
<b>MANUFACTURING</b> .....	269.34	288.62	282.96	282.85	287.62	295.32	298.10	305.52	314.16	308.43	306.13	311.22	312.84	317.59	319.20
<b>Durable goods</b> .....	290.90	310.78	304.90	302.64	308.47	318.38	322.80	330.08	341.55	332.49	329.57	336.96	338.52	343.07	345.10
Lumber and wood products .....	239.16	252.06	250.37	254.51	263.42	265.67	263.82	264.99	267.58	263.45	262.19	264.81	267.05	274.03	274.62
Furniture and fixtures .....	195.82	209.17	205.15	200.19	208.68	214.10	215.60	216.19	225.72	217.55	219.84	223.49	220.80	224.84	228.93
Stone, clay, and glass products .....	284.28	306.00	308.73	305.88	310.54	316.06	319.66	323.33	325.73	317.16	312.44	322.36	331.70	336.20	337.43
Primary metal industries .....	371.77	391.78	377.32	379.44	384.15	397.40	402.99	419.83	430.98	425.80	429.79	432.37	443.31	437.22	443.21
Fabricated metal products .....	278.80	300.98	297.94	291.65	299.60	309.02	311.45	317.79	327.81	318.76	316.40	325.21	323.61	332.52	334.96
<b>Machinery except electrical</b> .....	305.98	328.00	322.75	319.20	323.21	336.61	337.81	346.09	358.70	351.44	349.25	355.14	353.74	360.50	363.85
<b>Electric and electronic equipment</b> .....	254.70	276.61	270.28	266.88	274.79	282.66	285.76	293.71	302.58	297.14	294.23	300.29	298.90	302.76	303.16
<b>Transportation equipment</b> .....	350.58	378.39	368.80	369.07	373.20	388.28	400.73	411.58	434.88	407.36	398.19	414.29	415.74	426.40	426.63
<b>Instruments and related products</b> .....	251.74	275.40	275.00	271.26	273.71	277.09	279.68	286.71	293.76	291.91	291.60	293.54	289.28	294.59	296.61
<b>Miscellaneous manufacturing</b> .....	195.16	211.69	208.35	206.22	210.98	216.22	216.28	219.74	226.34	224.65	223.87	227.57	228.13	230.08	231.47
<b>Nondurable goods</b> .....	236.19	255.84	252.20	254.87	259.35	262.36	263.53	268.71	274.91	273.22	271.52	274.09	275.41	280.13	281.32
Food and kindred products .....	250.17	272.34	270.86	275.31	278.76	279.68	275.92	284.31	287.34	288.40	284.53	285.77	289.64	295.37	293.78
Tobacco manufactures .....	253.46	294.51	307.58	294.46	288.56	287.65	307.60	315.19	308.61	328.10	329.56	320.29	331.08	349.33	349.60
Textile mill products .....	188.26	203.71	195.62	195.20	203.84	208.95	210.27	213.99	218.41	213.47	213.47	214.94	211.18	218.16	218.97
Apparel and other textile products .....	149.32	161.78	160.56	158.85	162.84	165.09	167.92	168.15	172.68	172.13	171.91	176.85	174.59	179.78	181.14
Paper and allied products .....	303.74	331.63	324.43	329.54	333.98	340.94	341.40	350.10	361.40	353.13	349.42	351.92	354.05	359.12	363.80
Printing and publishing .....	260.25	279.36	273.78	277.10	283.46	287.56	287.93	289.79	300.23	293.83	293.72	297.54	297.48	301.32	300.88
Chemicals and allied products .....	318.44	344.45	339.90	340.25	343.56	349.81	354.00	361.20	365.85	363.58	365.20	367.74	371.90	371.43	377.39
Petroleum and coal products .....	409.97	421.76	431.88	437.68	430.86	448.32	453.61	458.67	449.45	471.16	481.53	478.40	500.46	492.68	494.79
Rubber and miscellaneous plastics products .....	241.79	263.06	254.27	252.83	266.00	270.82	276.35	282.77	289.95	289.46	283.01	287.75	288.86	294.98	298.48
Leather and leather products .....	154.03	168.09	170.17	165.98	168.36	167.71	170.19	170.25	174.91	177.39	179.10	180.32	178.96	184.64	185.63
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	325.58	351.25	345.23	354.71	354.92	358.09	365.76	368.02	372.00	367.60	373.28	371.15	374.92	375.71	378.02
<b>WHOLESALE AND RETAIL TRADE</b> .....	164.96	176.46	175.71	178.65	179.52	179.03	179.44	181.04	182.65	183.86	185.13	186.62	188.43	188.48	190.25
<b>WHOLESALE TRADE</b> .....	247.93	267.96	265.11	266.64	268.42	272.20	274.38	276.82	281.25	281.82	282.65	285.67	287.60	288.75	289.14
<b>RETAIL TRADE</b> .....	138.62	147.38	147.14	150.61	151.10	149.49	149.40	150.60	152.20	152.81	153.92	154.96	156.60	156.90	158.99
<b>FINANCE, INSURANCE, AND REAL ESTATE</b> .....	190.77	209.24	210.03	208.87	211.63	211.91	214.53	218.53	217.80	222.04	226.04	225.32	225.06	225.53	223.82
<b>SERVICES</b> .....	175.27	190.71	190.57	191.32	192.31	192.32	195.60	198.53	199.51	201.83	204.40	205.05	205.38	205.73	206.99

NOTE: In accordance with usual practice, BLS has revised establishment survey data to reflect a new benchmark and updated seasonal adjustment factors. Because of these revisions,

establishment data in this table may differ from data published earlier. See technical note, page 76.

**20. Gross and spendable weekly earnings, in current and 1977 dollars, 1961 to date**

[Averages for production or nonsupervisory workers on private nonagricultural payrolls]

Year and month	Private nonagricultural workers						Manufacturing workers					
	Gross average weekly earnings		Spendable average weekly earnings				Gross average weekly earnings		Spendable average weekly earnings			
			Worker with no dependents		Married worker with 3 dependents				Worker with no dependents		Married worker with 3 dependents	
	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars
1961	\$82.60	\$167.21	\$67.08	\$135.79	\$74.48	\$150.77	\$92.34	\$186.92	\$74.60	\$151.01	\$82.18	\$166.36
1962	85.91	172.16	69.56	139.40	76.99	154.29	96.56	193.51	77.86	156.03	85.53	171.40
1963	88.46	175.17	71.05	140.69	78.56	155.56	99.23	196.50	79.51	157.45	87.25	172.77
1964	91.33	178.38	75.04	146.56	82.57	161.27	102.97	201.11	84.40	164.84	92.18	180.04
1965	95.45	183.21	79.32	152.25	86.63	166.28	107.53	206.39	89.08	170.98	96.78	185.76
1966	98.82	184.37	81.29	151.66	88.66	165.41	112.19	209.31	91.45	170.62	99.33	185.32
1967	101.84	184.83	83.38	151.32	90.86	164.90	114.49	207.79	92.97	168.73	100.93	183.18
1968	107.73	187.68	86.71	151.06	95.28	165.99	122.51	312.43	97.70	170.21	106.75	185.98
1969	114.61	189.44	90.96	150.35	99.99	165.27	129.51	214.07	101.90	168.43	111.44	184.20
1970	119.83	186.94	96.21	150.09	104.90	163.65	133.33	208.00	106.32	165.87	115.58	180.31
1971	127.31	190.58	103.80	155.39	112.43	168.31	142.44	213.23	114.97	172.11	124.24	185.99
1972	136.90	198.41	112.19	162.59	121.68	176.35	154.71	224.22	125.34	181.65	135.57	196.48
1973	145.39	198.35	117.51	160.31	127.38	173.78	166.46	227.09	132.57	180.86	143.50	195.77
1974	154.76	190.12	124.37	152.79	134.61	165.37	176.80	217.20	140.19	172.22	151.56	186.19
1975	163.53	184.16	132.49	149.20	145.65	164.02	190.79	214.85	151.61	170.73	166.29	187.26
1976	175.45	186.85	143.30	152.61	155.87	166.00	209.32	222.92	167.83	178.73	181.32	193.10
1977	189.00	189.00	155.19	155.19	169.93	169.93	228.90	228.90	183.80	183.80	200.06	200.06
1978	203.70	189.31	165.39	153.71	180.71	167.95	249.27	231.66	197.40	183.46	214.87	199.69
1979 <sup>1</sup>	219.91	183.41	178.00	148.46	194.82	162.49	269.34	224.64	212.70	177.40	232.38	193.81
1980 <sup>1</sup>	235.10	172.74	188.82	138.74	206.06	151.65	288.62	212.06	225.79	165.90	247.01	181.49
1980 <sup>1</sup> : June	233.33	170.94	187.59	137.43	205.06	150.23	282.96	207.30	221.94	162.59	242.71	177.81
July	234.39	171.59	188.33	137.87	205.86	150.70	282.85	207.06	221.87	162.42	242.63	177.62
August	236.79	172.21	190.01	138.19	207.68	151.04	287.62	209.18	225.11	163.72	246.25	179.09
September	239.69	172.69	192.03	138.35	209.88	151.21	295.32	212.77	230.33	165.94	252.09	181.62
October	241.81	172.72	193.51	138.22	211.49	151.06	298.10	212.93	232.22	165.87	254.20	181.57
November	244.28	172.88	195.24	138.17	213.37	151.00	305.52	216.22	237.26	167.91	259.83	183.89
December	247.06	173.38	197.18	138.37	215.47	151.21	314.16	220.46	242.86	170.43	266.14	186.76
1981 <sup>1</sup> : January	246.75	171.83	195.68	136.27	213.96	149.00	308.43	214.78	237.60	165.46	260.36	181.31
February	247.10	170.18	195.92	134.93	214.22	147.53	306.13	210.83	236.08	162.59	258.70	178.17
March	249.92	171.06	197.88	135.44	216.34	148.08	311.22	213.02	239.37	163.84	262.38	179.59
April	250.98	170.73	198.61	135.11	217.14	147.71	312.84	212.82	240.39	163.53	263.55	179.29
May <sup>P</sup>	252.38	170.18	199.59	134.59	218.20	147.13	317.59	214.15	243.40	164.13	266.99	180.03
June <sup>P</sup>	254.88	.....	201.32	.....	220.08	.....	319.20	.....	244.42	.....	268.15	.....

<sup>1</sup> Not available.

NOTE: The earnings expressed in 1977 dollars have been adjusted for changes in price level as measured by the Bureau's Consumer Price Index for Urban Wage Earners and Clerical Workers. These series are described in "The Spendable Earnings Series: A Technical Note on its Cal-

 culation," *Employment and Earnings and Monthly Report on the Labor Force*, February 1969, pp. 6-13. See also "Spendable Earnings Formulas, 1979-81," *Employment and Earnings*, March 1981, pp. 10-11.

r= revised.



## UNEMPLOYMENT INSURANCE DATA

UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from records of State and Federal unemployment insurance claims filed and benefits paid. Railroad unemployment insurance data are prepared by the U.S. Railroad Retirement Board.

### Definitions

Data for all programs represent an unduplicated count of insured unemployment under State programs, Unemployment Compensation for Ex-Servicemen, and Unemployment Compensation for Federal Employees, and the Railroad Insurance Act.

Under both State and Federal unemployment insurance programs for civilian employees, insured workers must report the completion of at least 1 week of unemployment before they are defined as unem-

ployed. Persons not covered by unemployment insurance (about one-third of the labor force) and those who have exhausted or not yet earned benefit rights are excluded from the scope of the survey. **Initial claims** are notices filed by persons in unemployment insurance programs to indicate they are out of work and wish to begin receiving compensation. A claimant who continued to be unemployed a full week is then counted in the insured unemployment figure. The **rate of insured unemployment** expresses the number of insured unemployed as a percent of the average insured employment in a 12-month period.

An **application** for benefits is filed by a railroad worker at the beginning of his first period of unemployment in a benefit year; no application is required for subsequent periods in the same year. **Number of payments** are payments made in 14-day registration periods. The **average amount of benefit payment** is an average for all compensable periods, not adjusted for recovery of overpayments or settlement of underpayments. However, **total benefits paid** have been adjusted.

### 21. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1980								1981				
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
All programs:													
Insured unemployment	3,680	3,790	4,140	3,911	3,961	3,661	3,726	4,085	4,621	4,264	3,948	3,453	3,112
State unemployment insurance program: <sup>1</sup>													
Initial claims <sup>2</sup>	2,248	2,319	2,737	1,829	1,702	1,808	1,673	2,544	2,653	1,806	1,684	1,647	.....
Insured unemployment (average weekly volume)	3,343	3,455	3,692	3,408	3,087	2,903	2,983	3,321	3,844	3,669	3,382	2,988	2,693
Rate of insured unemployment	3.9	4.0	4.3	3.9	3.6	3.3	3.4	3.8	4.4	4.2	3.9	3.4	3.1
Weeks of unemployment compensated	12,302	12,441	14,398	12,786	11,689	11,443	9,524	12,603	14,228	12,882	13,504	11,775	.....
Average weekly benefit amount for total unemployment	\$99.55	\$99.88	\$98.75	\$99.68	\$99.86	\$92.32	\$101.96	\$101.43	\$102.34	\$101.89	\$105.63	\$105.96	.....
Total benefits paid	\$1,196,836	\$1,213,595	\$1,397,508	\$1,249,782	\$1,144,885	\$1,125,416	\$1,055,065	\$1,242,957	\$1,416,513	\$1,313,507	\$1,393,612	\$1,226,815	.....
Unemployment compensation for ex-servicemen: <sup>3</sup>													
Initial claims <sup>1</sup>	20	23	27	23	25	23	17	21	19	17	18	16	.....
Insured unemployment (average weekly volume)	50	45	58	55	56	56	54	55	57	54	51	46	43
Weeks of unemployment compensated	220	122	331	244	245	255	216	261	257	221	234	214	.....
Total benefits paid	\$22,025	\$11,761	\$33,342	\$24,560	\$24,804	\$25,880	\$21,024	\$27,015	\$26,646	\$22,517	\$24,668	\$23,048	.....
Unemployment compensation for Federal civilian employees: <sup>4</sup>													
Initial claims	12	14	17	15	19	21	14	18	22	13	12	12	.....
Insured unemployment (average weekly volume)	22	20	26	25	29	32	35	37	41	40	36	31	27
Weeks of unemployment compensated	88	50	124	93	105	130	118	150	160	148	156	135	.....
Total benefits paid	\$8,280	\$4,665	\$11,296	\$6,707	\$9,699	\$11,917	\$11,365	\$14,184	\$15,432	\$14,573	\$15,561	\$13,701	.....
Railroad unemployment insurance:													
Applications	6	24	44	13	10	9	7	11	13	5	5	6	6
Insured unemployment (average weekly volume)	23	27	44	39	40	38	38	39	53	50	44	41	35
Number of payments	54	55	66	86	89	84	70	83	118	104	115	94	79
Average amount of benefit payment	\$193.44	\$199.06	\$207.08	\$211.87	\$211.99	\$208.49	\$209.00	\$212.27	\$209.38	\$214.56	\$214.93	\$201.12	\$199.43
Total benefits paid	\$9,953	\$10,140	\$13,320	\$17,336	\$18,809	\$17,789	\$14,269	\$18,046	\$20,303	\$22,049	\$23,233	\$19,239	\$15,428
Employment service: <sup>5</sup>													
New applications and renewals	11,446	12,864	14,249	15,431	16,632	.....	.....	4,476	.....	.....	8,659	.....	.....
Nonfarm placements	2,413	2,730	3,105	3,445	3,827	.....	.....	871	.....	.....	1,574	.....	.....

<sup>1</sup> Initial claims and State insured unemployment include data under the program for Puerto Rican sugarcane workers.

<sup>2</sup> Includes interstate claims for the Virgin Islands. Excludes transition claims under State programs.

<sup>3</sup> Excludes data on claims and payments made jointly with other programs.

<sup>4</sup> Includes the Virgin Islands. Excludes data on claims and payments made jointly with State programs.

<sup>5</sup> Cumulative total for fiscal year (October 1-September 30). Data computed quarterly.

NOTE: Data for Puerto Rico included. Dashes indicate data not available.

## PRICE DATA

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).

### Definitions

The **Consumer Price Index** is a monthly statistical measure of the average change in prices in a fixed market basket of goods and services. Effective with the January 1978 index, the Bureau of Labor Statistics began publishing CPI's for two groups of the population. One index, a new CPI for All Urban Consumers, covers 80 percent of the total noninstitutional population; and the other index, a revised CPI for Urban Wage Earners and Clerical Workers, covers about half the new index population. The All Urban Consumers index includes, in addition to wage earners and clerical workers, 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, doctor's and dentist's fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items is kept essentially unchanged between major revisions so that only price changes will be measured. Prices are collected from over 18,000 tenants, 24,000 retail establishments, and 18,000 housing units for property taxes in 85 urban areas across the country. All taxes directly associated with the purchase and use of items are included in the index. Because the CPI's are based on the expenditures of two population groups in 1972-73, they may not accurately reflect the experience of individual families and single persons with different buying habits.

Though the CPI is often called the "Cost-of-Living Index," it measures only price change, which is just one of several important factors affecting living costs. Area indexes do not measure differences in the level of prices among cities. They only measure the average change in prices for each area since the base period.

**Producer Price Indexes** 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 contains about 2,800 commodities and about 10,000 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 universe includes all commodities produced or imported for sale in commercial transactions in primary markets in the United States.

Producer Price Indexes can be organized by stage of processing or by commodity. The stage of processing structure organizes products by degree of fabrication (that is, finished goods, intermediate or semifinished goods, and crude materials). The commodity structure 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.

In calculating Producer Price Indexes, price changes for the various commodities are averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1972. 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 groupings.

**Price indexes for the output of selected SIC industries** measure average price changes in commodities produced by particular industries, as defined in the *Standard Industrial Classification Manual 1972* (Washington, U.S. Office of Management and Budget, 1972). These indexes are derived from several price series, combined to match the economic activity of the specified industry and weighted by the value of shipments in the industry. They use data from comprehensive industrial censuses conducted by the U.S. Bureau of the Census and the U.S. Department of Agriculture.

### Notes on the data

Beginning with the May 1978 issue of the *Review*, regional CPI's cross classified by population size, were introduced. These indexes will enable users in local areas for which an index is not published to get a better approximation of the CPI for their area by using the appropriate population size class measure for their region. The cross-classified indexes will be published bimonthly. (See table 24.)

For further details about the new and the revised indexes and a comparison of various aspects of these indexes with the old unrevised CPI, see *Facts About the Revised Consumer Price Index*, a pamphlet in the Consumer Price Index Revision 1978 series. See also *The Consumer Price Index: Concepts and Content Over the Years*, Report 517, revised edition (Bureau of Labor Statistics, May 1978).

For interarea comparisons of living costs at three hypothetical standards of living, see the family budget data published in the *Handbook of Labor Statistics, 1977*, Bulletin 1966 (Bureau of Labor Statistics, 1977), tables 122-133. Additional data and analysis on price changes are provided in the *CPI Detailed Report* and *Producer Prices and Price Indexes*, both monthly publications of the Bureau.

As of January 1976, the Wholesale Price Index (as it was then called) incorporated a revised weighting structure reflecting 1972 values of shipments. From January 1967 through December 1975, 1963 values of shipments were used as weights.

For a discussion of the general method of computing consumer, producer, and industry price indexes, see *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976), chapters 13-15. See also John F. Early, "Improving the measurement of producer price change," *Monthly Labor Review*, April 1978, pp. 7-15. For industry prices, see also Bennett R. Moss, "Industry and Sector Price Indexes," *Monthly Labor Review*, August 1965, pp. 974-82.

**22. Consumer Price Index for Urban Wage Earners and Clerical Workers, annual averages and changes, 1967-80**

[1967 = 100]

Year	All items		Food and beverages		Housing		Apparel and upkeep		Transportation		Medical care		Entertainment		Other goods and services	
	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change
1967	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...
1968	104.2	4.2	103.6	3.6	104.0	4.0	105.4	5.4	103.2	3.2	106.1	6.1	105.7	5.7	105.2	5.2
1969	109.8	5.4	108.8	5.0	110.4	6.2	111.5	5.8	107.2	3.9	113.4	6.9	111.0	5.0	110.4	4.9
1970	116.3	5.9	114.7	5.4	118.2	7.1	116.1	4.1	112.7	5.1	120.6	6.3	116.7	5.1	116.8	5.8
1971	121.3	4.3	118.3	3.1	123.4	4.4	119.8	3.2	118.6	5.2	128.4	6.5	122.9	5.3	122.4	4.8
1972	125.3	3.3	123.2	4.1	128.1	3.8	122.3	2.1	119.9	1.1	132.5	3.2	126.5	2.9	127.5	4.2
1973	133.1	6.2	139.5	13.2	133.7	4.4	126.8	3.7	123.8	3.3	137.7	3.9	130.0	2.8	132.5	3.9
1974	147.7	11.0	158.7	13.8	148.8	11.3	136.2	7.4	137.7	11.2	150.5	9.3	139.8	7.5	142.0	7.2
1975	161.2	9.1	172.1	8.4	164.5	10.6	142.3	4.5	150.6	9.4	168.6	12.0	152.2	8.9	153.9	8.4
1976	170.5	5.8	177.4	3.1	174.6	6.1	147.6	3.7	165.5	9.9	184.7	9.5	159.8	5.0	162.7	5.7
1977	181.5	6.5	188.0	6.0	186.5	6.8	154.2	4.5	177.2	7.1	202.4	9.6	167.7	4.9	172.2	5.8
1978	195.3	7.6	206.2	9.7	202.6	8.6	159.5	3.4	185.8	4.9	219.4	8.4	176.2	5.1	183.2	6.4
1979	217.7	11.5	228.7	10.9	227.5	12.3	166.4	4.3	212.8	14.5	240.1	9.4	187.6	6.5	196.3	7.2
1980	247.0	13.5	248.7	8.7	263.2	15.7	177.4	6.6	250.5	17.7	267.2	11.3	203.7	8.5	213.6	8.8

**23. Consumer Price Index for All Urban Consumers and revised CPI for Urban Wage Earners and Clerical Workers, U.S. city average—general summary and groups, subgroups, and selected items**

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1960		1981					1980		1981				
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
All items	244.9	258.4	260.5	263.2	265.1	266.8	269.0	245.1	258.7	260.7	263.5	265.2	266.8	269.1
Food and beverages	244.1	259.3	261.4	263.7	265.0	265.7	265.4	244.7	260.5	262.1	264.3	265.5	266.1	265.9
Housing	261.7	279.9	279.1	280.9	282.6	284.8	288.5	261.7	277.1	279.1	280.7	282.2	284.3	288.1
Apparel and upkeep	177.5	183.9	181.1	182.0	185.1	186.4	186.4	176.8	182.9	180.8	181.8	184.3	186.0	186.2
Transportation	249.0	261.1	264.7	270.9	273.5	275.3	277.8	249.9	261.9	265.7	272.1	274.4	276.3	278.9
Medical care	263.4	275.8	279.5	282.6	284.7	287.0	289.0	264.9	277.6	281.4	284.4	287.0	289.1	290.8
Entertainment	204.0	212.0	214.4	216.7	218.2	219.2	220.3	202.4	210.1	212.2	215.0	216.1	217.0	217.7
Other goods and services	211.2	224.6	226.2	227.4	228.7	229.9	232.2	210.6	223.0	224.4	225.6	226.8	227.9	230.4
Commodities	231.4	243.8	245.4	248.3	249.8	250.8	251.9	231.7	244.3	245.8	248.8	250.2	251.2	252.4
Commodities less food and beverages	222.0	232.9	234.3	237.4	239.0	240.0	241.7	222.3	233.1	234.7	237.9	239.4	240.5	242.3
Nondurables less food and beverages	240.3	246.8	250.2	258.6	263.1	263.8	263.8	242.6	248.8	252.6	261.4	265.7	266.5	266.6
Durables	207.1	221.1	221.0	220.3	219.8	221.1	223.9	205.4	219.7	219.5	218.6	217.8	219.3	222.4
Services	269.2	284.7	287.7	290.1	292.5	295.4	299.6	269.9	285.5	288.4	290.8	293.1	295.9	300.0
Rent, residential	188.9	199.6	200.9	201.9	203.0	204.2	205.9	188.7	199.4	200.6	201.6	202.7	203.9	205.5
Household services less rent	319.6	338.4	342.3	345.4	348.8	353.3	360.4	322.2	341.9	345.5	348.5	351.8	356.2	363.5
Transportation services	241.5	255.8	258.7	260.5	262.5	264.4	266.6	241.5	254.7	257.7	259.7	261.3	263.1	265.5
Medical care services	284.7	297.9	302.1	305.2	307.5	309.8	311.7	286.3	300.0	304.3	307.4	310.2	312.2	313.6
Other services	215.9	228.1	230.4	232.3	233.2	234.4	235.3	216.5	228.4	230.2	232.1	233.0	233.8	234.5
Special indexes:														
All items less food	242.6	255.5	257.6	260.4	262.3	264.2	267.0	242.9	255.7	257.9	260.8	262.6	264.4	267.2
All items less mortgage interest costs	233.7	245.9	247.8	250.6	252.3	253.6	255.2	234.3	246.7	248.5	251.4	252.9	254.2	255.8
Commodities less food	220.2	231.0	232.4	235.4	237.0	238.0	239.6	220.5	231.2	232.7	236.0	237.4	238.6	240.3
Nondurables less food	235.5	242.0	245.3	253.2	257.5	258.1	258.2	237.7	243.9	247.5	255.9	259.9	260.7	260.9
Nondurables less food and apparel	267.9	274.7	281.1	292.4	297.3	297.7	298.0	270.0	276.6	283.0	294.7	299.5	299.9	300.1
Nondurables	243.2	254.1	256.9	262.3	265.2	265.9	265.8	244.6	255.6	258.3	263.8	266.6	267.3	267.2
Services less rent	284.4	300.7	304.2	306.9	309.5	312.8	317.4	285.4	302.0	305.2	307.9	310.4	313.5	318.2
Services less medical care	265.7	281.2	284.2	286.5	288.9	291.8	296.2	266.3	281.9	284.7	287.0	289.2	292.0	296.4
Domestically produced farm foods	233.6	251.1	252.4	254.0	255.4	255.3	254.7	233.4	251.1	252.1	253.9	254.9	255.0	254.2
Selected beef cuts	265.6	276.2	276.2	273.0	270.9	267.7	270.9	267.5	278.4	277.9	275.1	273.9	270.7	273.8
Energy	363.2	370.4	381.7	401.1	409.3	409.8	411.3	367.3	373.7	385.2	405.4	413.7	414.0	414.9
All items less energy	235.7	249.7	251.2	252.5	253.8	255.6	257.9	235.1	249.3	250.6	251.8	252.9	254.7	257.0
All items less food and energy	231.0	244.5	245.7	246.8	248.1	250.1	253.0	230.0	243.6	244.8	245.8	246.9	248.9	251.9
Commodities less food and energy	199.9	211.7	211.5	211.7	212.2	213.5	215.7	198.6	210.6	210.4	210.5	210.7	212.2	214.6
Energy commodities	403.0	404.9	420.4	449.0	460.0	458.4	455.4	404.7	405.9	421.3	450.1	460.9	459.3	456.0
Services less energy	267.0	282.4	285.4	287.6	289.9	292.7	296.5	267.8	283.4	286.2	288.4	290.6	293.2	297.0
Purchasing power of the consumer dollar, 1967 = \$1	\$0.408	\$0.387	\$0.384	\$0.380	\$0.377	\$0.375	\$0.372	\$0.408	\$0.387	\$0.384	\$0.380	\$0.377	\$0.375	\$0.372



23. Continued—Consumer Price Index—U.S. city average

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980		1981					1980		1981				
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
<b>FOOD AND BEVERAGES</b>	244.1	259.3	261.4	263.7	265.0	265.7	265.4	244.7	260.5	262.1	264.3	265.5	266.1	265.9
<b>Food</b>	250.4	266.4	268.6	270.8	272.2	272.9	272.5	251.0	267.6	269.2	271.4	272.6	273.2	272.9
Food at home	246.5	263.9	265.6	267.3	268.6	268.7	267.7	246.1	263.9	265.1	267.0	268.1	268.2	267.2
Cereals and bakery products	244.5	258.5	262.9	265.3	266.7	268.3	270.0	244.4	259.5	263.0	265.0	266.5	268.0	269.4
Cereals and cereal products (12/77 = 100)	131.5	140.8	143.2	144.5	145.2	145.4	146.8	132.4	142.3	144.5	145.5	146.5	146.9	148.4
Flour and prepared flour mixes (12/77 = 100)	129.0	133.5	135.9	137.5	138.5	137.1	138.8	129.9	134.4	136.8	137.9	139.4	139.2	140.3
Cereal (12/77 = 100)	131.5	143.8	145.8	146.5	146.9	147.8	149.8	132.0	145.0	147.2	148.0	148.5	148.9	151.3
Rice, pasta, and cornmeal (12/77 = 100)	133.8	143.1	146.0	147.9	148.9	149.5	149.8	135.2	145.8	147.8	149.3	150.5	151.4	152.0
Bakery products (12/77 = 100)	128.7	135.4	137.7	139.0	139.7	140.8	141.5	128.3	135.7	137.5	138.5	139.2	140.1	140.6
White bread	216.7	226.3	229.5	231.4	232.9	233.2	235.1	216.0	226.6	229.4	230.9	231.2	232.1	233.2
Other breads (12/77 = 100)	128.3	134.1	137.1	137.3	137.9	139.5	139.3	130.6	137.9	139.4	140.1	140.3	141.2	141.7
Fresh biscuits, rolls, and muffins (12/77 = 100)	127.8	135.4	137.6	138.9	140.1	140.4	141.5	126.4	135.1	136.4	136.9	138.4	138.7	139.6
Fresh cakes and cupcakes (12/77 = 100)	127.4	135.3	138.5	139.5	140.0	142.1	142.3	126.5	134.2	136.8	138.1	139.5	140.8	141.2
Cookies (12/77 = 100)	126.1	134.9	138.0	139.0	139.7	141.2	141.8	126.8	136.1	139.0	139.8	140.6	141.8	142.1
Crackers and bread cracker products (12/77 = 100)	122.2	126.9	127.0	128.6	129.1	130.9	128.2	123.0	126.5	128.8	128.6	129.6	131.1	128.9
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	128.4	135.9	138.0	140.4	141.1	141.7	142.8	129.2	136.4	138.5	140.0	140.7	141.7	142.5
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	131.0	137.5	139.7	141.4	141.9	144.0	147.0	126.0	134.0	135.2	136.3	137.6	139.0	140.1
Meats, poultry, fish, and eggs	231.5	255.7	255.1	252.5	250.5	247.7	247.0	230.7	255.0	254.1	251.6	249.9	247.1	246.3
Meats, poultry, and fish	238.2	259.9	260.6	257.9	256.2	253.0	253.2	237.2	259.2	259.4	257.0	255.7	252.2	252.4
Meats	239.2	260.0	259.7	256.4	254.4	251.0	252.3	238.1	259.3	259.2	256.0	254.2	250.7	251.7
Beef and veal	264.8	275.3	275.3	272.3	270.3	267.4	270.3	266.3	276.8	276.4	273.8	272.6	269.5	272.5
Ground beef other than canned	269.4	276.1	276.3	272.8	269.7	264.8	264.1	270.6	281.0	279.3	275.7	272.9	269.0	267.8
Chuck roast	273.0	288.5	285.3	288.1	284.1	281.4	280.3	280.0	296.0	295.2	298.6	295.6	291.8	290.8
Round roast	243.4	245.7	250.0	248.0	243.9	242.8	246.8	245.5	246.6	249.6	247.5	248.8	247.5	249.4
Round steak	250.6	260.2	262.4	259.0	256.1	252.9	256.0	250.2	257.6	255.5	254.7	253.3	251.3	253.7
Sirloin steak	256.2	267.6	264.9	262.0	259.8	261.5	271.4	257.5	269.7	266.3	263.5	264.5	262.7	275.3
Other beef and veal (12/77 = 100)	152.4	160.4	160.3	157.7	157.8	156.1	159.2	152.2	159.2	159.5	156.9	156.7	154.9	158.5
Pork	191.8	229.1	228.2	223.6	221.6	217.4	217.3	191.8	228.8	228.5	223.2	221.3	216.7	216.3
Bacon	177.4	231.9	228.1	221.7	218.5	209.0	212.7	177.7	234.1	232.5	225.7	221.6	210.0	215.2
Chops	182.4	208.7	211.6	210.3	209.3	209.2	203.7	180.9	206.8	210.2	207.6	206.9	206.3	201.5
Ham other than canned (12/77 = 100)	87.4	107.8	104.1	100.0	98.7	95.2	97.2	85.4	105.7	102.2	98.2	96.3	92.6	93.8
Sausage	250.2	285.6	287.8	282.3	281.0	277.4	277.7	253.9	282.2	288.5	282.0	282.7	280.1	278.5
Canned ham	210.0	238.4	241.1	238.0	236.6	230.1	230.5	213.0	242.6	243.3	240.6	237.9	230.8	231.4
Other pork (12/77 = 100)	107.1	127.6	127.4	125.4	124.2	123.4	122.7	106.5	127.4	127.9	125.0	124.3	123.8	122.4
Other meats	240.2	262.8	262.9	260.8	258.5	255.4	253.9	235.6	259.4	260.4	259.1	256.0	253.4	250.6
Frankfurters	234.8	264.0	262.5	259.4	257.8	253.5	247.6	234.0	263.4	262.6	261.0	257.2	252.8	247.0
Bologna, liverwurst, and salami (12/77 = 100)	133.5	149.1	151.2	149.4	147.0	143.5	143.0	129.5	145.2	148.0	146.0	144.7	142.6	146.0
Other lunchmeats (12/77 = 100)	121.4	129.9	130.3	129.8	128.1	127.9	126.9	117.6	127.7	128.1	128.6	126.4	126.4	124.8
Lamb and organ meats (12/77 = 100)	136.3	146.6	145.0	144.1	144.7	143.1	145.3	138.4	148.5	147.8	146.5	146.0	143.8	145.9
Poultry	176.5	202.7	202.4	203.7	201.6	196.8	194.7	173.8	201.1	199.2	201.3	200.6	194.6	192.9
Fresh whole chicken	172.9	206.9	202.5	207.0	203.1	198.0	190.3	168.0	202.2	197.2	201.7	200.9	194.1	187.0
Fresh and frozen chicken parts (12/77 = 100)	114.4	131.6	132.7	131.9	131.6	127.5	127.5	112.7	132.3	131.3	131.9	130.1	125.8	126.6
Other poultry (12/77 = 100)	117.4	126.6	128.7	128.5	127.6	125.9	128.3	117.7	126.2	127.9	127.8	128.9	126.3	127.9
Fish and seafood	324.5	346.9	358.0	355.0	358.8	359.7	353.2	323.0	343.1	350.0	349.5	351.5	353.7	349.5
Canned fish and seafood (12/77 = 100)	125.4	136.4	137.4	138.0	138.9	138.8	139.2	124.0	133.7	135.3	135.9	136.2	136.6	137.8
Fresh and frozen fish and seafood (12/77 = 100)	122.5	129.6	135.7	133.5	135.3	135.9	131.8	122.4	128.8	132.0	131.4	132.5	133.6	130.5
Eggs	148.4	206.6	196.2	198.2	180.5	184.3	170.5	148.9	206.6	190.1	187.0	180.5	185.5	171.5
Dairy products	226.2	238.0	240.1	242.1	242.6	243.5	243.8	226.9	238.8	240.7	242.5	242.7	243.8	243.9
Fresh milk and cream (12/77 = 100)	127.0	131.9	133.0	134.0	134.3	134.6	134.9	127.2	132.2	133.4	134.1	134.1	134.7	134.7
Fresh whole milk	208.5	216.2	218.2	219.3	219.9	220.4	220.8	208.4	216.5	218.5	219.3	219.4	220.2	220.4
Other fresh milk and cream (12/77 = 100)	125.9	131.4	132.1	134.2	134.4	134.5	134.7	126.8	131.9	132.9	134.4	134.5	135.2	134.8
Processed dairy products (12/77 = 100)	129.1	138.2	139.6	140.8	141.1	142.0	141.9	129.9	139.2	140.1	141.6	141.8	142.6	142.6
Butter	222.2	241.0	242.7	242.2	243.0	244.3	245.2	225.3	244.1	246.5	246.0	246.4	247.7	247.6
Cheese (12/77 = 100)	127.8	137.0	138.2	139.2	139.8	140.6	140.5	128.5	137.4	138.3	139.6	140.0	140.5	140.6
Ice cream and related products (12/77 = 100)	131.9	141.4	143.6	145.9	145.3	146.7	146.2	132.9	143.2	144.3	146.8	146.1	147.8	147.8
Other dairy products (12/77 = 100)	126.1	132.4	133.3	134.5	135.1	135.7	136.1	125.7	133.1	132.9	135.0	136.1	136.1	136.4
Fruits and vegetables	246.6	255.6	257.6	267.3	278.2	281.9	276.8	245.5	253.9	255.1	266.5	275.0	280.0	274.3
Fresh fruits and vegetables	255.1	262.0	263.9	278.1	293.9	296.4	284.4	254.4	260.2	260.3	277.6	289.4	294.5	281.8
Fresh fruits	264.7	251.8	245.6	256.8	265.2	271.6	276.6	263.8	248.6	241.1	254.4	250.0	268.6	271.5
Apples	276.3	218.8	220.8	217.1	227.9	231.1	235.4	277.3	216.9	216.8	218.2	225.7	232.1	232.7
Bananas	249.7	244.1	237.8	256.9	264.1	266.8	266.3	244.5	239.2	228.9	249.4	258.8	262.2	264.2
Oranges	243.9	299.3	272.9	284.9	287.4	287.5	274.1	237.6	287.0	258.9	269.4	268.4	274.3	261.1
Other fresh fruits (12/77 = 100)	140.8	128.6	127.8	135.9	141.1	147.1	154.9	140.9	129.2	128.4	137.9	139.9	147.6	153.3
Fresh vegetables	246.2	271.5	281.1	298.0	320.8	319.6	291.7	246.0	270.9	277.8	298.7	316.9	318.0	291.1
Potatoes	210.1	297.7	326.1	350.2	363.9	378.1	384.4	205.6	298.0	322.9	347.1	359.6	369.8	378.1
Lettuce	279.9	255.3	242.2	220.4	225.2	228.9	252.5	288.6	253.8	229.9	225.6	219.3	231.5	255.6
Tomatoes	230.8	206.1	247.2	312.8	367.8	375.3	200.2	228.4	204.5	239.8	308.6	354.0	370.7	193.8
Other fresh vegetables (12/77 = 100)	140.1</													

23. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
<b>FOOD AND BEVERAGES—Continued</b>														
<b>Food—Continued</b>														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	116.0	124.5	126.0	128.2	128.4	130.2	131.5	114.2	122.8	124.5	126.5	126.3	129.0	130.1
Other canned and dried vegetables (12/77=100)	115.1	122.9	123.4	124.7	126.4	128.7	129.8	113.3	121.0	122.1	123.5	125.3	127.1	128.0
Other foods at home	298.1	317.1	320.5	323.0	324.1	324.7	323.7	298.0	317.8	320.8	323.6	325.2	325.4	324.8
Sugar and sweets	326.8	386.3	385.4	385.4	383.2	375.8	367.1	328.0	388.9	387.3	387.7	384.6	377.8	368.1
Candy and chewing gum (12/77=100)	128.9	136.9	138.6	141.1	142.8	144.1	145.1	129.0	137.4	139.4	142.0	143.6	145.1	145.8
Sugar and artificial sweeteners (12/77=100)	161.4	230.3	222.8	217.7	209.7	195.5	178.4	163.3	231.4	223.4	217.9	209.6	196.0	179.2
Other sweets (12/77=100)	123.6	133.7	137.1	137.7	139.3	139.8	141.4	122.2	133.1	135.5	137.3	138.2	138.7	139.7
Fats and oils (12/77=100)	239.5	251.9	260.4	267.3	268.9	270.1	270.7	240.1	252.6	261.8	268.9	270.5	270.4	270.9
Margarine	246.1	253.6	256.9	256.8	255.7	256.1	256.1	248.4	254.6	257.4	258.3	257.7	256.1	256.7
Nondairy substitutes and peanut butter (12/77=100)	121.4	139.6	156.0	171.8	179.3	182.4	182.7	121.6	139.9	156.4	172.7	180.0	182.3	181.6
Other fats, oils, and salad dressings (12/77=100)	125.8	129.1	130.3	131.0	129.9	129.8	130.4	125.5	129.1	131.0	131.4	130.3	129.7	130.4
Nonalcoholic beverages	393.0	405.2	409.7	411.9	412.2	414.4	412.3	392.3	407.4	410.7	413.6	415.4	415.8	414.6
Cola drinks, excluding diet cola	265.4	285.2	290.8	295.3	295.9	298.0	295.7	263.2	284.0	288.2	293.4	295.4	294.9	293.7
Carbonated drinks, including diet cola (12/77=100)	126.2	134.8	137.5	140.1	140.5	141.8	140.6	124.8	133.5	135.0	137.8	138.7	139.8	139.4
Roasted coffee	433.5	389.7	380.7	364.9	359.4	356.7	354.4	430.0	386.2	376.4	360.3	355.0	352.5	350.5
Freeze dried and instant coffee	381.9	356.5	354.6	345.3	340.8	339.5	339.1	380.4	358.1	355.8	347.0	343.9	340.9	340.2
Other noncarbonated drinks (12/77=100)	120.7	127.5	129.1	130.8	132.4	133.5	134.0	120.0	127.7	129.6	130.9	132.7	133.5	133.9
Other prepared foods	229.1	242.4	244.9	246.9	249.4	251.2	252.9	229.6	242.8	245.1	247.1	250.0	252.4	254.7
Canned and packaged soup (12/77=100)	122.0	127.2	128.1	128.7	128.4	129.3	131.5	122.5	128.0	127.9	129.3	129.2	129.8	132.1
Frozen prepared foods (12/77=100)	131.3	137.6	138.6	140.0	142.3	142.3	141.6	131.0	134.8	136.9	137.8	139.6	139.8	139.6
Snacks (12/77=100)	126.1	138.6	141.1	142.3	143.9	145.6	145.9	127.3	140.1	141.7	143.5	145.5	148.1	149.1
Seasonings, olives, pickles, and relish (12/77=100)	125.4	134.2	135.2	137.2	139.1	139.9	140.0	125.5	133.4	134.5	136.3	137.9	138.7	139.3
Other condiments (12/77=100)	127.9	133.5	134.4	135.8	138.1	139.2	141.1	129.2	136.3	136.3	137.3	140.0	141.7	143.6
Miscellaneous prepared foods (12/77=100)	127.6	133.8	135.4	135.8	135.9	136.7	138.6	127.0	133.5	135.2	136.0	136.2	137.7	139.6
Other canned and packaged prepared foods (12/77=100)	124.6	130.3	131.6	132.4	134.1	135.1	136.6	124.3	130.2	132.1	132.4	134.4	135.9	137.5
Food away from home	264.6	277.7	280.9	284.7	286.1	288.2	289.3	267.6	281.8	284.2	287.3	288.6	290.7	291.9
Lunch (12/77=100)	128.5	135.7	137.2	138.6	139.2	140.7	141.0	129.9	137.3	138.5	139.8	140.3	141.4	141.8
Dinner (12/77=100)	128.7	134.4	136.2	138.2	138.8	139.4	139.9	130.5	136.7	138.2	139.4	140.1	141.1	141.7
Other meals and snacks (12/77=100)	127.4	133.7	134.7	137.0	137.9	138.8	139.9	128.6	135.6	136.4	138.5	139.3	140.1	141.1
<b>Alcoholic beverages</b>	185.4	191.6	193.7	195.9	197.1	197.8	199.1	186.9	193.7	195.5	197.6	198.7	199.4	201.2
Alcoholic beverages at home (12/77=100)	120.9	124.9	126.1	127.4	128.1	128.5	129.3	122.0	126.5	127.6	128.8	129.6	130.0	131.1
Beer and ale	187.7	192.9	194.5	197.6	198.2	199.7	201.4	187.5	192.9	194.5	197.2	198.5	199.8	201.8
Whiskey	133.9	138.9	140.0	140.0	141.6	141.3	142.5	135.1	140.2	141.5	142.0	142.3	142.3	143.2
Wine	208.5	217.6	221.7	224.0	224.3	224.7	223.9	212.0	227.2	229.4	231.6	233.6	233.2	234.3
Other alcoholic beverages (12/77=100)	109.0	112.7	113.7	113.9	115.0	114.9	115.5	108.7	112.1	113.2	113.3	114.0	114.1	114.6
Alcoholic beverages away from home (12/77=100)	121.5	125.8	127.6	129.7	131.1	131.6	132.6	121.7	126.2	127.4	129.4	129.9	130.6	132.0
<b>HOUSING</b>	261.7	276.9	279.1	280.9	282.6	284.8	288.5	261.7	277.1	279.1	280.7	282.2	284.3	288.1
<b>Shelter</b>	280.2	298.5	300.1	300.5	301.6	303.8	308.4	281.6	300.4	301.7	301.7	302.6	304.6	309.4
Rent, residential	188.9	199.6	200.9	201.9	203.0	204.2	205.9	188.7	199.4	200.6	201.6	202.7	203.9	205.5
Other rental costs	261.9	267.7	273.9	278.5	283.6	285.9	286.4	261.7	267.3	273.6	278.3	283.5	285.8	286.1
Lodging while out of town	279.9	282.6	291.5	297.4	304.8	307.5	307.2	278.6	281.0	289.9	296.0	303.2	306.0	305.5
Tenants' insurance (12/77=100)	121.2	126.9	127.6	129.3	130.1	131.2	131.9	121.4	127.2	128.0	129.9	130.8	131.6	132.3
Homeownership	312.9	334.2	335.8	335.8	336.8	339.3	345.0	315.4	337.5	338.6	338.2	338.8	341.1	347.1
Home purchase	249.7	267.2	266.2	263.0	261.1	260.7	263.0	249.8	268.0	266.4	262.7	260.2	259.7	262.2
Financing, taxes, and insurance	399.7	429.4	435.2	437.1	441.1	447.1	458.3	404.9	436.0	441.3	442.6	446.4	452.6	464.3
Property insurance	344.9	365.8	369.8	373.1	375.6	378.5	383.7	346.4	369.0	373.2	376.6	379.9	382.5	387.1
Property taxes	187.6	194.5	196.0	198.5	199.0	199.9	199.8	189.3	196.4	197.9	200.6	201.0	201.7	201.7
Contracted mortgage interest cost	513.6	555.5	563.5	565.0	570.9	579.8	596.9	515.6	558.7	565.9	566.5	572.0	580.9	598.6
Mortgage interest rates	202.4	205.1	209.0	211.9	216.0	219.5	224.0	202.8	205.5	209.4	212.3	216.7	220.3	224.9
Maintenance and repairs	284.9	296.8	296.8	302.8	306.1	309.3	312.9	283.4	294.2	294.1	299.9	302.7	304.5	307.3
Maintenance and repair services	310.1	321.5	321.3	328.7	332.6	337.0	341.2	309.1	320.3	319.8	327.7	331.3	334.1	337.6
Maintenance and repair commodities	225.8	239.1	239.7	242.4	243.9	244.4	246.3	226.5	236.2	236.7	238.6	239.9	239.7	241.1
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	128.7	139.2	139.5	141.6	143.7	143.4	143.9	128.7	134.9	135.1	136.9	138.5	136.8	137.7
Lumber, awnings, glass, and masonry (12/77=100)	118.0	123.2	123.4	124.0	123.3	124.3	125.1	118.4	122.9	122.7	122.3	122.4	123.1	123.7
Plumbing, electrical, heating, and cooling supplies (12/77=100)	119.3	124.8	125.2	127.3	127.6	127.9	130.7	122.0	124.9	124.5	127.0	127.8	127.9	128.1
Miscellaneous supplies and equipment (12/77=100)	118.7	124.2	124.7	125.2	125.9	126.4	127.6	120.1	126.3	127.9	127.8	128.8	129.9	130.8
<b>Fuel and other utilities</b>	275.9	289.9	296.7	304.5	308.4	310.5	314.9	276.4	290.7	297.5	305.6	309.4	311.4	315.7
<b>Fuels</b>	346.4	364.7	375.4	387.4	393.7	396.5	403.3	346.0	364.5	375.0	387.3	393.4	396.2	402.5
Fuel oil, coal, and bottled gas	556.0	585.3	625.9	675.6	693.4	690.6	685.8	557.1	587.0	627.9	678.5	696.3	693.7	688.6
Fuel oil	580.4	610.0	656.0	712.0	730.9	727.0	720.6	580.5	610.9	657.1	714.2	733.2	729.4	723.1
Other fuels (6/78 = 100)	139.4	148.4	152.3	157.5	161.5	162.5	163.6	141.3	150.1	154.1	159.4	162.9	164.2	164.7
Gas (piped) and electricity	298.2	313.9	318.5	322.9	326.7	330.6	339.6	297.5	313.4	317.7	322.1	325.9	329.6	338.1
Electricity	248.1	262.3	266.9	271.3	273.9	277.3	281.9	248.0	262.1	266.5	271.1	273.5	276.8	281.2
Utility (piped) gas	364.6	381.5	385.3	389.0	395.2	399.4	416.5	362.3	379.7	383.3	386.8	392.8	397.2	413.0

23. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
<b>HOUSING—Continued</b>														
<b>Fuel and other utilities—Continued</b>														
Other utilities and public services .....	163.1	170.6	171.9	173.6	174.0	175.1	176.2	163.1	170.7	172.0	173.9	174.4	175.4	176.6
Telephone services .....	134.0	140.3	141.1	142.4	142.5	143.4	144.0	133.9	140.3	141.1	142.5	142.6	143.4	144.1
Local charges (12/77 = 100) .....	104.3	110.5	111.6	113.5	113.6	114.8	115.5	104.0	110.6	111.7	113.6	113.7	114.9	115.7
Interstate toll calls (12/77 = 100) .....	97.3	101.8	101.8	101.8	101.8	101.8	101.8	97.4	101.8	101.9	101.9	101.9	101.9	101.9
Intrastate toll calls (12/77 = 100) .....	99.4	100.9	101.0	101.2	101.2	101.4	101.7	99.3	100.7	100.8	101.0	101.0	101.2	101.5
Water and sewerage maintenance .....	256.5	267.8	271.4	274.7	277.1	278.4	282.3	257.6	268.7	272.5	276.3	279.0	280.3	284.7
<b>Household furnishings and operations</b> .....	204.2	211.6	212.6	214.9	216.9	219.2	220.1	201.9	209.0	209.7	211.7	213.7	215.9	216.8
Housefurnishings .....	173.4	178.3	178.7	180.8	182.6	183.9	184.2	172.2	176.9	176.9	178.5	180.2	181.6	182.1
Textile housefurnishings .....	187.3	193.2	191.9	195.1	199.8	200.5	198.3	186.1	196.6	193.4	196.9	201.4	202.9	202.3
Household linens (12/77 = 100) .....	114.4	117.2	114.6	118.6	123.1	123.0	122.3	113.4	122.7	117.0	121.4	124.1	125.0	124.7
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100) ..	119.3	123.8	124.9	124.8	126.1	127.1	125.0	119.0	122.4	124.6	124.4	127.2	128.2	127.7
Furniture and bedding .....	191.9	197.0	196.6	199.3	201.6	203.7	204.2	190.1	194.4	193.6	195.6	198.0	200.0	200.6
Bedroom furniture (12/77 = 100) .....	125.0	129.2	128.3	131.3	133.2	134.5	133.4	121.7	125.7	125.1	127.7	129.4	130.7	129.2
Sofas (12/77 = 100) .....	111.4	115.3	114.2	114.5	115.8	116.5	117.0	112.0	114.7	113.2	113.2	114.1	114.9	115.8
Living room chairs and tables (12/77 = 100) .....	110.8	113.1	113.1	115.9	116.5	116.6	117.5	112.6	115.2	114.3	115.2	116.7	117.6	119.1
Other furniture (12/77 = 100) .....	125.6	127.8	128.7	129.1	130.8	133.4	134.7	123.5	124.7	125.6	126.6	128.3	130.1	131.2
Appliances including TV and sound equipment .....	139.9	142.4	143.1	143.9	144.2	145.3	145.5	140.2	142.0	142.7	142.9	143.4	144.2	144.4
Television and sound equipment (12/77 = 100) .....	105.7	107.2	107.4	107.9	108.0	108.6	108.3	105.4	106.1	106.5	106.6	106.4	107.1	106.9
Television .....	104.1	105.2	105.6	105.7	105.6	106.0	105.4	102.8	103.7	104.2	104.2	104.3	104.7	104.4
Sound equipment (12/77 = 100) .....	108.3	110.1	110.2	111.0	111.2	112.1	112.1	108.7	109.2	109.4	109.6	109.3	110.2	101.1
Household appliances .....	162.6	165.9	167.2	168.2	168.9	170.4	171.3	163.4	166.3	166.7	167.8	169.0	169.9	170.6
Refrigerators and home freezers .....	162.7	166.5	168.0	168.4	168.5	170.6	170.9	166.0	170.9	171.7	172.3	172.7	174.7	175.8
Laundry equipment (12/77 = 100) .....	118.2	123.4	123.6	123.7	124.5	126.1	126.2	118.5	121.4	121.9	122.8	124.3	125.7	125.3
Other household appliances (12/77 = 100) .....	112.1	113.1	114.2	115.4	115.9	116.6	117.6	111.8	112.8	114.0	113.7	114.5	114.4	115.2
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100) .....	110.3	112.0	114.8	115.1	115.1	115.8	117.2	111.9	113.9	115.7	114.2	115.2	113.9	115.1
Office machines, small electric appliances, and air conditioners (12/77 = 100) ..	114.2	114.3	113.6	115.7	116.9	117.4	118.0	111.7	111.5	112.0	113.1	113.7	115.0	115.3
Other household equipment (12/77 = 100) .....	119.0	124.8	125.6	127.9	129.1	130.0	130.7	117.8	123.1	123.8	125.6	126.9	127.9	129.0
Floor and window coverings, infants', laundry, cleaning, and outdoor equipment (12/77 = 100) ..	117.6	124.6	125.7	128.7	130.7	131.4	132.2	113.2	118.4	118.9	120.8	123.2	124.4	125.1
Clocks, lamps, and decor items (12/77 = 100) .....	117.6	121.7	122.3	124.1	125.7	125.6	124.4	114.4	118.8	119.2	121.7	121.7	120.9	120.9
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100) .....	124.1	130.8	131.9	134.8	135.6	137.1	138.8	121.7	127.6	128.0	131.0	132.1	134.1	136.0
Lawn equipment, power tools, and other hardware (12/77 = 100) ..	114.0	118.7	118.7	119.9	120.8	121.5	122.5	117.4	122.3	123.8	123.8	125.1	125.9	127.0
Housekeeping supplies .....	243.6	257.7	259.5	262.8	264.2	266.9	269.0	241.2	256.0	257.5	260.1	261.2	263.4	265.5
Soaps and detergents .....	235.0	254.0	255.6	256.2	255.3	259.4	262.6	232.1	252.3	253.4	254.3	253.8	256.7	260.2
Other laundry and cleaning products (12/77 = 100) .....	119.8	127.6	128.8	129.3	129.7	131.0	132.8	119.5	127.6	129.0	129.6	130.3	130.4	131.5
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100) ..	128.6	136.1	137.3	138.4	137.9	138.4	137.8	130.8	137.6	139.2	139.2	138.1	138.5	137.9
Stationery, stationery supplies, and gift wrap (12/77 = 100) .....	116.3	119.5	119.9	121.4	122.3	123.1	125.1	116.0	120.0	120.7	122.4	123.7	124.8	126.8
Miscellaneous household products (12/77 = 100) .....	123.0	132.5	132.6	135.9	137.3	138.1	138.4	120.9	129.5	129.3	132.2	133.2	134.5	135.0
Lawn and garden supplies (12/77 = 100) .....	125.2	128.4	130.0	134.0	136.6	139.1	140.6	118.9	122.5	122.7	126.1	128.5	131.1	132.4
Housekeeping services .....	267.6	277.1	279.6	281.6	284.8	289.9	291.6	265.6	273.8	276.4	279.4	283.3	288.6	289.9
Postage .....	257.3	257.3	257.3	257.3	274.3	308.0	308.0	257.3	257.3	257.3	257.3	274.2	308.1	308.1
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100) .....	129.4	134.4	137.0	138.2	139.0	140.7	141.6	128.5	131.8	134.3	137.8	139.0	140.2	140.7
Appliance and furniture repair (12/77 = 100) .....	117.2	121.4	122.4	123.6	124.5	125.2	125.9	116.7	120.6	121.5	122.4	123.8	124.3	124.6
<b>APPAREL AND UPKEEP</b> .....	177.5	183.9	181.1	182.0	185.1	186.4	186.4	176.8	182.9	180.8	181.8	184.3	186.0	186.2
<b>Apparel commodities</b> .....	170.1	176.0	172.6	173.2	176.3	177.6	177.2	169.8	175.3	172.6	173.3	175.8	177.5	177.6
Apparel commodities less footwear .....	166.9	172.5	168.9	169.6	172.7	174.0	173.3	166.4	171.6	168.7	169.6	172.3	173.9	173.8
Men's and boys' .....	168.0	174.3	171.1	171.6	175.0	175.6	176.8	168.9	174.4	171.7	172.2	174.9	176.1	177.3
Men's (12/77 = 100) .....	105.7	109.8	107.5	107.8	110.2	110.5	111.2	106.3	109.9	107.9	108.2	110.1	110.9	111.8
Suits, sport coats, and jackets (12/77 = 100) .....	101.2	103.5	99.9	100.5	103.2	104.1	104.7	97.1	98.2	95.1	96.1	98.5	98.3	99.3
Coats and jackets (12/77 = 100) .....	97.3	99.7	95.2	95.6	97.9	98.1	97.9	97.2	101.9	97.4	96.0	98.9	98.6	100.5
Furnishings and special clothing (12/77 = 100) .....	117.9	123.9	123.9	125.3	127.2	127.5	129.2	116.4	120.0	119.9	120.2	121.5	122.7	123.9
Shirts (12/77 = 100) .....	112.2	119.7	115.4	114.8	118.0	117.0	118.3	113.7	120.7	116.7	116.8	119.2	119.5	120.3
Dungarees, jeans, and trousers (12/77 = 100) .....	100.2	103.4	103.4	102.7	104.7	105.4	105.5	105.2	108.1	108.2	108.7	110.0	111.5	112.2
Boys' (12/77 = 100) .....	109.7	113.1	112.0	112.6	113.7	114.5	115.1	109.6	112.6	111.6	111.9	112.9	113.9	114.2
Coats, jackets, sweaters, and shirts (12/77 = 100) .....	105.2	108.6	104.8	104.3	106.5	107.2	108.8	107.7	111.8	107.9	107.0	109.5	110.9	111.8
Furnishings (12/77 = 100) .....	114.3	118.7	119.1	119.1	121.2	121.5	121.4	112.7	116.2	115.8	116.1	117.4	118.2	117.4
Suits, trousers, sport coats, and jackets (12/77 = 100) .....	111.3	114.3	114.8	116.6	116.5	117.4	117.5	109.9	112.0	112.9	114.2	113.9	114.8	114.8
Women's and girls' .....	154.1	157.4	152.1	153.4	157.5	158.8	157.2	154.1	158.2	153.9	155.4	158.9	160.7	160.0
Women's (12/77 = 100) .....	102.4	104.4	100.8	101.9	104.4	105.0	103.9	103.0	105.3	102.3	103.5	105.5	106.7	106.2
Coats and jackets .....	162.0	161.4	150.4	160.7	157.9	157.6	152.8	162.4	172.2	162.1	159.1	156.9	156.8	155.8
Dresses .....	163.9	163.8	155.5	156.9	166.4	167.8	164.8	154.5	154.3	147.3	150.5	154.3	159.8	159.7
Separates and sportswear (12/77 = 100) .....	100.3	101.4	98.2	97.1	99.3	100.2	99.0	101.2	102.4	100.1	99.7	101.6	102.6	101.5
Underwear, nightwear, and hosiery (12/77 = 100) .....	111.8	116.8	116.0	116.4	117.8	119.3	119.7	112.2	116.6	115.6	116.0	117.7	119.1	119.5
Suits (12/77 = 100) .....	88.0	91.9	87.8	90.0	93.0	91.6	90.7	98.2	98.2	95.5	103.6	109.5	108.0	106.9
Girls' (12/77 = 100) .....	102.7	106.1	102.9	102.8	106.4	108.6	107.9	100.5	104.9	102.5	102.7	106.4	107.8	107.1
Coats, jackets, dresses, and suits (12/77 = 100) .....	99.4	101.3	96.0	94.4	101.2	106.4	104.1	95.3	98.6	94.4	93.5	98.4	101.3	98.8
Separates and sportswear (12/77 = 100) .....	101.8	106.1	103.6	104.2	106.2	106.8	106.9	99.9	106.6	104.4	105.8	109.1	109.5	109.6
Underwear, nightwear, hosiery, and accessories (12/77 = 100) .....	110.0	113.8	113.1	113.9	115.6	115.5	116.1	110.0	112.2	112.2	112.5	114.6	115.4	115.9



**23. Continued—Consumer Price Index—U.S. city average**

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
<b>APPAREL AND UPKEEP—Continued</b>														
<b>Apparel commodities—Continued</b>														
Apparel commodities less footwear—Continued														
Infants' and toddlers	237.4	250.1	249.7	254.3	255.3	259.2	256.9	242.8	255.4	256.9	264.0	266.4	269.3	269.9
Other apparel commodities	202.7	213.3	214.2	212.3	212.2	214.1	212.1	197.4	204.4	205.3	204.4	204.5	205.6	204.1
Sewing materials and notions (12/77 = 100)	109.1	110.6	111.9	112.2	113.3	114.8	114.3	108.6	110.0	110.8	112.2	113.3	114.3	113.4
Jewelry and luggage (12/77 = 100)	140.4	149.5	149.7	147.9	147.3	148.4	146.8	136.3	142.3	142.8	141.3	140.9	141.4	140.5
Footwear	189.3	196.6	194.9	194.9	197.4	199.3	201.0	189.3	196.7	195.5	194.9	195.9	198.4	200.0
Men's (12/77 = 100)	120.0	124.6	124.4	125.0	125.2	126.8	127.8	122.7	126.0	126.1	125.7	125.4	128.0	128.7
Boys' and girls' (12/77 = 100)	121.3	126.6	125.7	125.3	127.6	128.2	129.3	121.5	127.8	127.0	126.2	127.3	126.7	127.7
Womens' (12/77 = 100)	115.8	120.0	118.1	117.9	120.0	121.3	122.4	112.9	117.5	115.9	115.9	117.0	119.3	120.5
Apparel services	232.2	243.4	246.3	249.9	252.4	254.3	256.4	230.8	242.2	245.5	248.7	251.5	252.7	254.2
Laundry and drycleaning other than coin operated (12/77 = 100)	136.9	143.5	145.3	147.6	149.6	150.9	152.2	135.6	143.2	145.5	147.3	149.3	150.4	151.5
Other apparel services (12/77 = 100)	124.5	130.5	131.7	133.3	133.7	134.5	135.6	125.0	129.9	131.1	132.9	133.9	134.0	134.5
<b>TRANSPORTATION</b>	249.0	261.1	264.7	270.9	273.5	275.3	277.8	249.9	261.9	265.7	272.1	274.4	276.3	278.9
<b>Private</b>	249.2	259.4	262.9	269.4	271.7	273.4	276.0	250.1	260.8	264.4	271.0	273.2	275.1	277.7
New cars	178.9	184.5	185.3	184.8	182.9	186.1	190.9	179.6	184.6	185.7	185.0	182.7	186.2	191.2
Used cars	199.3	234.4	234.0	234.3	235.4	239.1	245.2	199.3	234.4	234.0	234.4	235.4	239.1	245.2
Gasoline	375.4	373.3	385.2	410.8	420.7	419.3	416.5	377.1	374.4	386.6	412.5	422.3	420.8	417.7
Automobile maintenance and repair	266.1	280.1	282.7	285.4	287.7	289.0	290.8	266.1	280.6	283.2	285.4	288.2	289.7	291.3
Body work (12/77 = 100)	130.6	136.8	137.3	139.2	140.3	140.8	141.5	129.7	136.7	137.3	139.2	140.2	140.7	141.3
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	126.6	134.0	135.8	136.8	137.7	138.0	138.7	127.8	135.6	137.5	138.3	140.2	140.5	141.2
Maintenance and servicing (12/77 = 100)	125.9	131.6	132.5	133.7	134.8	135.5	136.5	125.4	131.7	132.7	133.5	134.7	135.7	136.4
Power plant repair (12/77 = 100)	125.1	132.7	134.4	135.5	137.0	137.8	138.6	125.4	132.2	133.5	134.7	135.9	136.7	137.7
Other private transportation	224.5	231.0	232.4	234.2	234.7	236.3	238.9	226.7	233.2	235.0	236.9	237.3	239.2	241.9
Other private transportation commodities	195.3	203.6	203.7	205.8	206.2	208.1	208.6	196.7	205.7	206.2	207.5	208.0	210.4	211.7
Motor oil, coolant, and other products (12/77 = 100)	132.2	138.8	139.1	141.6	141.6	143.5	143.1	131.5	139.0	139.2	139.0	139.8	140.5	141.4
Automobile parts and equipment (12/77 = 100)	125.4	130.6	130.6	131.8	132.1	133.2	133.6	126.5	132.0	132.4	133.4	133.7	135.4	136.1
Tires	172.6	182.1	181.5	183.5	184.1	185.8	186.4	175.6	184.7	184.8	186.6	186.9	189.6	191.1
Other parts and equipment (12/77 = 100)	126.5	127.6	128.6	129.3	129.2	130.1	130.4	125.0	127.8	128.9	129.3	129.5	130.8	130.7
Other private transportation services	234.5	240.6	242.4	244.0	244.6	246.2	249.4	236.8	242.9	244.9	247.0	247.4	249.2	252.4
Automobile insurance	247.1	252.5	252.3	253.7	254.4	255.7	256.8	246.9	252.0	251.8	253.2	253.9	255.2	256.3
Automobile finance charges (12/77 = 100)	155.0	159.4	163.4	165.1	164.3	166.5	172.9	153.8	157.9	161.7	163.9	163.4	166.3	172.5
Automobile rental, registration, and other fees (12/77 = 100)	112.1	115.8	116.2	116.7	118.2	118.2	117.7	113.1	117.5	118.2	119.3	119.9	119.3	118.1
State registration	146.4	146.9	146.9	146.9	146.9	146.9	147.5	146.5	147.0	146.9	147.0	147.0	147.0	147.7
Drivers' licenses (12/77 = 100)	104.7	105.3	105.3	105.4	105.4	105.5	105.5	104.4	105.1	105.1	105.1	105.1	105.2	105.2
Vehicle inspection (12/77 = 100)	120.4	124.3	124.8	125.8	126.1	126.0	125.8	121.0	125.1	125.6	126.6	126.7	126.6	126.5
Other vehicle related fees (12/77 = 100)	124.0	132.7	133.7	134.7	138.4	138.4	136.3	130.0	142.0	144.1	147.2	148.9	147.1	142.8
<b>Public</b>	239.5	280.1	286.4	288.1	293.9	297.2	297.7	232.9	271.8	279.0	280.6	285.1	287.7	288.2
Airline fare	270.0	327.4	331.9	334.1	343.7	348.6	348.8	270.0	325.7	330.2	332.7	342.3	346.6	346.7
Inter-city bus fare	293.6	310.1	310.7	312.8	323.2	329.1	333.4	293.4	309.8	310.6	312.2	323.9	329.2	333.0
Intracity mass transit	204.6	237.1	247.1	248.4	250.8	251.7	251.9	202.0	236.5	246.5	247.8	249.1	249.8	249.9
Taxi fare	259.9	269.7	271.0	271.4	273.8	279.9	280.4	265.7	275.9	277.5	277.7	280.5	287.4	287.9
Inter-city train fare	250.0	270.0	276.4	276.5	276.7	277.2	296.7	251.1	270.3	276.8	276.9	277.1	277.5	298.5
<b>MEDICAL CARE</b>	263.4	275.8	279.5	282.6	284.7	287.0	289.0	264.9	277.6	281.4	284.4	287.0	289.1	290.8
<b>Medical care commodities</b>	166.4	175.1	176.7	179.2	180.7	182.4	184.7	167.2	175.6	177.5	179.6	181.2	183.4	185.9
Prescription drugs	153.5	160.7	162.7	165.0	166.5	168.5	170.4	154.6	161.5	163.4	165.3	166.8	169.2	171.6
Anti-infective drugs (12/77 = 100)	118.7	124.7	127.7	129.2	130.5	130.2	130.3	120.7	126.4	128.6	129.5	131.0	132.4	132.7
Tranquilizers and sedatives (12/77 = 100)	124.1	130.2	130.7	131.9	132.8	134.4	136.0	123.8	128.6	129.4	130.7	131.5	133.3	135.2
Circulatories and diuretics (12/77 = 100)	114.6	119.1	120.6	121.9	122.2	123.9	124.9	116.8	120.2	121.3	122.9	123.7	125.3	126.1
Hormones, diabetic drugs, biologicals, and prescription and supplies (12/77 = 100)	133.2	142.3	143.9	147.4	148.2	151.2	154.6	132.4	141.7	143.8	146.5	147.8	150.9	154.5
Pain and symptom control drugs (12/77 = 100)	122.9	126.9	128.7	130.9	132.7	134.5	136.5	124.2	129.6	131.4	133.3	134.1	135.8	138.2
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	118.2	122.4	123.2	124.5	126.3	128.6	130.2	119.5	123.1	123.8	125.2	126.5	128.8	131.2
Nonprescription drugs and medical supplies (12/77 = 100)	119.5	126.2	127.1	128.9	129.9	130.9	132.6	120.1	126.5	127.9	129.4	130.5	131.9	133.6
Eyeglasses (12/77 = 100)	116.5	120.8	121.5	123.1	124.6	125.1	125.3	116.3	120.4	121.1	122.3	122.6	123.4	124.1
Internal and respiratory over-the-counter drugs	186.0	198.1	199.3	202.7	204.2	205.9	209.1	186.9	198.0	200.4	203.0	205.5	208.0	211.0
Nonprescription medical equipment and supplies (12/77 = 100)	116.5	122.5	123.6	124.5	125.0	126.2	128.6	117.1	123.7	125.1	126.5	127.1	128.2	130.5
<b>Medical care services</b>	284.7	297.9	302.1	305.2	307.5	309.8	311.7	286.3	300.0	304.3	307.4	310.2	312.2	313.6
Professional services	250.3	261.7	264.7	267.2	269.6	271.7	273.8	253.5	265.0	268.7	271.6	274.2	276.2	278.0
Physicians' services	267.5	280.3	283.9	287.7	290.3	292.2	295.5	272.3	285.7	290.0	293.9	296.3	297.9	300.3
Dental services	238.8	248.6	251.4	252.8	254.9	257.1	257.7	241.2	251.3	254.9	257.0	259.8	262.2	263.3
Other professional services (12/77 = 100)	122.2	128.5	129.3	130.0	131.5	132.6	133.7	121.6	126.6	127.6	128.5	129.9	131.3	132.1
Other medical care services	326.3	341.6	347.3	351.1	353.4	355.9	357.6	326.5	342.9	347.8	351.3	354.4	356.2	357.1
Hospital and other medical services (12/77 = 100)	130.4	141.7	144.5	146.1	147.1	148.1	148.3	129.7	141.3	143.7	145.2	146.7	147.3	147.3
Hospital room	410.1	443.7	453.8	458.2	460.9	465.0	465.1	406.7	443.1	451.9	455.9	459.2	461.4	461.3
Other hospital and medical care services (12/77 = 100)	129.5	141.4	143.7	145.5	146.7	147.3	147.6	129.1	140.6	142.7	144.4	146.3	146.8	146.8

**23. Continued—Consumer Price Index—U.S. city average**

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
<b>ENTERTAINMENT</b> .....	204.0	212.0	214.4	216.7	218.2	219.2	220.3	202.4	210.1	212.2	215.0	216.1	217.0	217.7
<b>Entertainment commodities</b> .....	207.0	215.3	217.1	219.7	222.1	223.6	225.0	203.4	210.9	213.0	216.2	218.0	219.4	220.4
Reading materials (12/77 = 100) .....	121.5	128.2	130.0	130.9	133.2	134.1	135.6	121.1	127.6	129.6	130.7	133.0	134.1	135.6
Newspapers .....	237.2	246.2	249.7	253.8	256.6	262.5	264.1	236.4	245.5	249.4	254.0	256.7	262.5	264.0
Magazines, periodicals, and books (12/77 = 100) .....	122.4	131.5	133.4	132.9	136.2	134.8	137.1	122.3	131.5	133.5	132.9	136.3	134.8	137.3
Sporting goods and equipment (12/77 = 100) .....	118.5	122.9	123.5	124.7	126.1	127.5	127.2	114.0	117.8	118.5	119.3	120.3	120.9	120.8
Sport vehicles (12/77 = 100) .....	119.9	( <sup>1</sup> )	( <sup>1</sup> )	126.5	128.5	130.4	129.5	112.5	( <sup>1</sup> )	( <sup>1</sup> )	118.1	119.5	120.0	119.3
Indoor and warm weather sport equipment (12/77 = 100) .....	112.0	116.2	115.7	115.9	116.2	116.7	117.4	110.3	113.4	114.5	115.3	115.2	115.4	116.4
Bicycles .....	179.7	184.7	185.9	187.2	188.4	188.3	190.4	180.9	184.9	186.7	188.3	189.4	189.7	191.6
Other sporting goods and equipment (12/77 = 100) .....	113.7	120.4	120.9	120.6	121.2	122.6	122.4	114.6	119.3	119.2	119.2	119.3	121.1	121.5
Toys, hobbies, and other entertainment (12/77 = 100) .....	119.4	123.5	124.4	126.3	127.2	127.8	128.8	119.1	121.8	122.9	125.8	126.3	127.2	127.7
Toys, hobbies, and music equipment (12/77 = 100) .....	118.5	121.3	122.4	124.7	125.6	126.2	127.6	115.8	118.5	119.4	123.0	123.1	124.0	125.0
Photographic supplies and equipment (12/77 = 100) .....	120.8	122.0	121.5	122.6	124.0	125.4	125.8	120.5	122.4	122.3	124.4	125.5	126.7	126.1
Pet supplies and expense (12/77 = 100) .....	120.1	128.4	130.1	132.0	132.3	132.4	133.3	120.9	127.6	129.7	131.9	132.8	133.2	133.6
<b>Entertainment services</b> .....	200.1	207.8	210.9	213.0	213.0	213.4	214.0	201.8	209.7	212.0	213.9	213.8	213.9	214.2
Fees for participant sports (12/77 = 100) .....	120.2	125.7	128.1	129.4	129.8	130.7	130.7	120.5	125.9	127.8	129.0	129.6	130.2	130.5
Admissions (12/77 = 100) .....	118.8	123.1	124.7	125.3	125.3	124.5	125.1	121.0	124.0	125.2	126.2	125.9	124.7	125.0
Other entertainment services (12/77 = 100) .....	116.4	119.4	120.1	122.0	121.0	121.1	121.7	116.5	121.8	122.0	123.0	121.7	122.4	122.5
<b>OTHER GOODS AND SERVICES</b> .....	211.2	224.6	226.2	227.4	228.7	229.9	232.2	201.6	223.0	224.4	225.6	226.8	227.9	230.4
<b>Tobacco products</b> .....	200.4	210.8	211.9	212.3	212.5	213.3	218.2	200.5	210.4	211.7	211.9	212.4	213.2	217.8
Cigarettes .....	202.9	213.5	214.6	214.8	214.8	215.5	220.8	203.2	213.2	214.5	214.5	214.9	215.5	220.3
Other tobacco products and smoking accessories (12/77 = 100) .....	119.0	124.9	125.4	126.5	128.0	129.6	130.4	118.5	124.5	125.4	126.4	128.1	130.0	131.3
<b>Personal care</b> .....	211.6	220.9	222.5	224.6	226.9	228.7	230.5	210.9	220.0	221.1	223.2	225.1	226.4	228.4
Toilet goods and personal care appliances .....	204.1	215.2	216.9	219.5	222.4	223.9	226.6	203.9	214.3	216.1	218.5	220.9	222.5	225.5
Products for the hair, hairpieces, and wigs (12/77 = 100) .....	120.0	125.2	126.3	128.3	131.4	131.9	132.4	120.0	125.3	126.2	126.7	128.4	128.8	130.1
Dental and shaving products (12/77 = 100) .....	121.0	128.4	130.8	132.9	135.3	136.6	138.6	118.8	125.4	128.3	131.2	133.3	135.1	136.1
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100) .....	116.5	122.6	122.9	123.2	123.9	125.3	127.8	116.2	121.4	122.2	122.8	123.4	124.4	126.2
Other toilet goods and small personal care appliances (12/77 = 100) .....	117.4	124.8	125.5	127.5	128.3	128.4	129.8	119.0	126.8	126.6	129.0	130.7	131.3	134.0
Personal care services .....	218.8	226.8	228.3	230.0	231.7	233.7	234.7	218.1	225.8	226.3	228.1	229.4	230.5	231.5
Beauty parlor services for women .....	220.4	228.7	230.1	231.7	233.6	236.0	236.4	219.4	227.5	227.6	229.4	230.8	231.7	232.0
Haircuts and other barber shop services for men (12/77 = 100) .....	122.2	126.4	127.3	128.5	129.2	129.9	131.1	122.0	126.0	126.7	127.6	128.4	129.1	130.5
<b>Personal and educational expenses</b> .....	229.2	251.5	253.6	254.4	255.2	256.2	256.8	229.4	251.7	254.0	255.0	256.0	257.1	257.7
Schoolbooks and supplies .....	207.1	222.1	228.6	229.8	230.5	230.8	230.8	210.9	225.8	232.4	233.6	234.4	234.6	234.7
Personal and educational services .....	234.7	258.2	259.7	260.4	261.2	262.4	263.0	234.2	258.1	259.6	260.6	261.6	262.9	263.6
Tuition and other school fees .....	118.6	132.2	132.6	132.7	132.8	132.8	132.8	118.7	132.4	132.8	132.9	133.0	133.0	133.0
College tuition (12/77 = 100) .....	117.9	131.5	132.0	132.1	132.3	132.3	132.3	117.9	131.5	132.0	132.1	132.3	132.3	132.3
Elementary and high school tuition (12/77 = 100) .....	120.9	134.4	134.4	134.4	134.4	134.4	134.4	120.7	134.3	134.3	134.3	134.4	134.4	134.4
Personal expenses (12/77 = 100) .....	127.8	133.4	135.7	137.1	138.7	141.8	143.6	125.1	132.2	134.4	136.3	138.1	141.1	142.8
<b>Special indexes:</b>														
Gasoline, motor oil, coolant, and other products .....	370.1	368.3	379.9	404.8	414.5	413.2	410.4	371.6	369.4	381.2	406.3	415.9	414.5	411.5
Insurance and finance .....	342.6	364.5	368.9	370.7	373.6	378.1	386.6	342.8	364.7	368.8	370.4	373.0	377.6	386.1
Utilities and public transportation .....	238.9	255.8	259.4	262.3	265.2	267.9	272.4	237.9	254.4	258.0	261.0	263.6	266.1	270.6
Housekeeping and home maintenance services .....	297.6	308.4	309.5	314.6	318.3	323.1	326.2	296.5	306.6	307.4	313.4	317.2	321.1	323.8

<sup>1</sup> Not available.

c—corrected.

**24. Consumer Price Index for All Urban Consumers: Cross classification of region and population size class by expenditure category and commodity and service group**

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000-1.250 million)			Size class C (75,000-385,000)			Size class D (75,000 or less)		
	1980		1981	1980		1981	1980		1981	1980		1981
	Dec.	Feb.	Apr.	Dec.	Feb.	Apr.	Dec.	Feb.	Apr.	Dec.	Feb.	Apr.
<b>Northeast</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	132.8	135.7	137.3	139.8	143.2	144.4	143.8	146.6	149.8	137.8	141.6	143.4
Food and beverages	132.8	135.2	136.8	135.8	137.6	138.3	137.7	139.8	141.4	132.8	134.8	135.2
Housing	135.2	138.0	139.1	144.6	149.0	149.1	153.7	156.3	161.5	142.0	147.5	149.7
Apparel and upkeep	114.8	114.9	116.9	116.8	114.0	118.2	124.8	119.5	121.7	120.3	119.1	123.3
Transportation	141.9	147.3	149.7	149.4	155.0	157.3	146.5	153.0	154.9	146.5	151.0	153.0
Medical care	128.0	130.5	132.9	129.3	131.2	132.9	130.1	132.1	133.8	130.7	134.4	135.9
Entertainment	120.7	124.6	126.3	123.2	127.5	130.2	120.4	124.2	125.8	126.7	126.7	128.5
Other goods and services	122.7	123.7	124.5	127.5	128.5	130.4	130.3	131.1	132.6	124.4	126.5	127.1
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	133.7	137.0	137.9	140.8	144.3	145.0	142.1	144.6	147.1	138.1	141.7	143.3
Commodities less food and beverages	134.3	138.2	138.7	143.2	147.6	148.3	144.1	146.8	149.7	140.7	145.0	147.1
Services	131.6	134.0	136.4	138.3	141.5	143.4	146.7	149.8	154.1	137.3	141.4	143.6
<b>North Central</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	143.3	144.0	145.9	140.0	142.8	143.5	136.6	139.7	140.2	136.2	139.6	141.1
Food and beverages	135.0	137.1	137.5	132.9	136.4	136.6	135.1	137.0	137.8	139.1	139.6	140.5
Housing	155.3	152.7	155.0	146.0	147.7	147.4	139.1	141.5	140.5	135.9	140.5	142.1
Apparel and upkeep	110.8	109.4	112.3	118.8	116.9	119.8	114.8	114.5	116.4	116.2	114.1	115.6
Transportation	146.4	151.8	153.9	146.8	152.3	154.3	146.2	153.1	155.1	145.4	150.3	152.6
Medical care	130.5	134.6	137.1	131.4	136.2	138.1	132.4	136.7	138.6	134.6	140.1	142.1
Entertainment	125.1	127.5	130.2	121.3	124.2	125.3	124.0	126.8	129.2	120.8	124.8	125.7
Other goods and services	124.2	126.3	127.9	130.3	132.7	134.0	123.9	126.4	127.9	129.8	131.1	131.7
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	139.9	140.3	141.7	136.5	139.5	140.1	135.2	138.2	138.6	133.4	136.0	136.9
Commodities less food and beverages	142.3	141.8	143.7	138.0	140.9	141.5	135.3	138.7	139.0	130.9	134.5	135.4
Services	148.4	149.4	152.1	145.6	148.1	149.0	138.9	142.2	142.7	140.6	145.3	147.8
<b>South</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	139.0	142.1	144.1	140.9	144.9	146.7	138.6	142.1	143.7	136.5	138.8	141.8
Food and beverages	136.8	138.8	139.0	135.4	138.6	139.8	137.2	138.4	139.0	136.9	140.2	142.3
Housing	143.1	146.1	148.7	146.7	151.5	153.0	142.5	146.6	148.3	137.5	138.4	142.4
Apparel and upkeep	120.0	119.3	121.1	117.3	117.1	121.3	114.1	113.0	115.5	108.9	105.6	109.4
Transportation	146.8	152.9	155.7	147.9	153.4	155.9	145.7	152.2	153.8	144.8	151.4	154.3
Medical care	127.9	130.4	132.5	132.1	135.1	136.5	133.7	136.8	140.0	140.7	144.0	146.4
Entertainment	120.4	123.5	123.2	127.9	129.0	130.0	127.5	129.0	130.5	130.7	131.0	131.2
Other goods and services	128.1	129.4	131.3	128.8	131.0	132.0	126.7	128.6	129.7	129.9	130.5	131.6
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	137.2	140.1	141.5	137.5	140.8	142.3	136.3	139.1	140.1	135.6	138.4	140.7
Commodities less food and beverages	137.3	140.7	142.6	138.3	141.7	143.4	135.9	139.5	140.6	135.0	137.6	140.0
Services	141.5	144.8	147.6	146.1	151.2	153.3	142.3	146.6	149.2	138.0	139.3	143.6
<b>West</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	140.7	142.6	145.7	141.4	144.0	146.7	138.4	141.2	142.1	139.8	141.0	143.6
Food and beverages	134.3	136.8	138.2	136.5	139.4	141.4	132.7	134.8	136.2	137.3	140.8	141.3
Housing	146.0	147.2	151.2	146.7	148.7	151.8	142.1	145.2	144.8	140.6	138.3	142.0
Apparel and upkeep	117.9	116.4	119.9	123.8	122.3	125.2	112.0	112.1	114.9	129.0	129.8	133.7
Transportation	146.7	150.8	154.2	146.6	151.9	154.9	148.5	152.6	155.6	148.0	154.1	156.0
Medical care	134.3	137.5	139.5	133.1	136.0	137.5	134.5	137.5	139.0	136.6	139.6	140.8
Entertainment	123.8	127.0	127.0	125.0	126.6	128.9	126.3	126.6	128.9	133.5	140.5	142.1
Other goods and services	127.7	129.1	131.8	129.0	131.4	133.3	125.2	126.8	128.6	130.4	131.5	133.0
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	135.3	137.3	139.5	137.5	140.0	142.2	135.2	137.1	139.1	137.2	139.7	141.6
Commodities less food and beverage	135.7	137.6	140.1	138.0	140.3	142.6	136.2	138.0	140.2	137.1	139.3	141.6
Services	147.8	149.6	154.0	146.7	149.4	152.9	142.9	146.9	146.4	143.8	142.9	146.5



**25. Consumer Price Index—U.S. city average, and selected areas**

[1967=100 unless otherwise specified]

Area <sup>1</sup>	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980		1981					1980		1981				
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
U.S. city average <sup>2</sup>	244.9	258.4	260.5	263.2	265.1	266.8	269.0	245.1	258.7	260.7	263.5	265.2	266.8	269.1
Anchorage, Alaska (10/67=100)	226.5	...	240.1	...	241.1	...	244.6	223.1	...	235.0	...	236.2	...	240.1
Atlanta, Ga.	...	258.3	...	263.0	...	265.9	...	...	260.3	...	266.4	...	268.8	...
Baltimore, Md.	249.1	...	264.3	...	270.3	...	269.3	247.8	...	262.6	...	269.3	...	268.6
Boston, Mass.	236.9	...	256.4	...	262.3	...	263.6	236.8	...	255.7	...	261.8	...	263.6
Buffalo, N.Y.	...	246.5	...	251.4	...	254.6	...	...	245.2	...	249.7	...	252.7	...
Chicago, Ill.-Northwestern Ind.	243.1	260.3	258.9	259.6	259.7	263.7	264.5	243.0	258.9	258.1	258.8	258.9	263.0	263.9
Cincinnati, Ohio-Ky.-Ind.	251.6	...	264.5	...	266.1	...	271.7	252.9	...	266.3	...	267.7	...	273.3
Cleveland, Ohio	...	266.5	...	273.5	...	272.0	...	...	266.7	...	273.9	...	272.1	...
Dallas-Ft. Worth, Tex.	...	269.5	...	274.4	...	279.6	...	...	268.2	...	272.9	...	276.9	...
Denver-Boulder, Colo.	258.0	...	277.3	...	281.4	...	288.2	262.4	...	282.2	...	285.8	...	293.4
Detroit, Mich.	248.4	269.7	268.5	270.2	268.2	272.4	275.2	248.9	265.5	264.4	265.5	263.6	268.0	271.3
Honolulu, Hawaii	...	236.1	...	243.3	...	250.0	...	...	237.0	...	243.5	...	250.2	...
Houston, Tex.	...	274.8	...	281.5	...	286.4	...	...	272.1	...	277.7	...	283.1	...
Kansas City, Mo.-Kansas	...	259.1	...	261.9	...	265.4	...	...	257.2	...	260.1	...	264.3	...
Los Angeles-Long Beach, Anaheim, Calif.	249.1	258.7	259.4	261.6	263.3	265.5	267.3	252.6	262.2	262.7	265.0	266.5	269.1	270.7
Miami, Fla. (11/77=100)	129.7	...	137.3	...	140.0	...	143.2	130.9	...	138.8	...	141.7	...	144.8
Milwaukee, Wis.	250.3	...	266.2	...	269.9	...	278.5	255.2	...	271.9	...	274.6	...	283.5
Minneapolis-St. Paul, Minn.-Wis.	...	259.0	...	260.6	...	266.5	...	...	260.6	...	262.4	...	267.3	...
New York, N.Y.-Northeastern N.J.	234.5	247.3	249.4	252.7	253.9	255.4	256.7	234.1	247.2	249.1	252.7	253.7	254.8	255.9
Northeast, Pa. (Scranton)	232.5	...	252.4	...	257.6	...	259.9	235.8	...	255.1	...	260.6	...	263.3
Philadelphia, Pa.-N.J.	239.4	250.5	253.2	255.9	258.3	261.0	261.9	239.9	252.3	255.5	258.1	259.5	261.5	262.9
Pittsburgh, Pa.	...	262.0	...	265.5	...	265.7	...	...	262.9	...	266.4	...	267.3	...
Portland, Oreg.-Wash.	257.3	...	266.4	...	268.1	...	278.5	255.9	...	265.0	...	267.0	...	276.1
St. Louis, Mo.-Ill.	241.8	...	255.7	...	259.3	...	268.0	242.6	...	255.9	...	259.4	...	268.4
San Diego, Calif.	269.7	...	287.7	...	293.1	...	297.5	264.8	...	282.9	...	288.0	...	292.5
San Francisco-Oakland, Calif.	...	254.9	...	260.5	...	270.3	...	...	255.7	...	261.6	...	270.9	...
Seattle-Everett, Wash.	249.6	...	264.9	...	271.1	...	274.7	246.8	...	262.3	...	267.9	...	271.5
Washington, D.C.-Md.-Va.	241.2	...	257.2	...	262.3	...	264.7	242.0	...	259.4	...	264.2	...	267.7

<sup>1</sup>The areas listed include not only the central city but the entire portion of the Standard Metropolitan Statistical Area, as defined for the 1970 Census of Population, except that the Standard Consolidated

Area is used for New York and Chicago.  
<sup>2</sup>Average of 85 cities.

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

[1967 = 100]

Commodity grouping	Annual average 1980	1980							1981					
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
<b>FINISHED GOODS</b>														
Finished goods .....	247.0	244.9	249.3	251.4	251.4	255.4	256.2	257.2	†260.9	†263.3	265.3	267.7	268.9	269.9
Finished consumer goods .....	248.9	246.8	251.7	254.1	254.1	257.0	257.9	258.9	†262.5	†265.0	267.3	269.6	270.6	271.5
Finished consumer foods .....	239.5	233.0	241.6	246.5	247.4	248.0	248.9	249.3	†251.0	†251.3	251.8	251.5	252.0	253.1
Crude .....	237.2	224.5	240.9	247.0	259.8	237.8	250.5	254.8	†257.9	†265.6	279.1	278.8	262.3	255.8
Processed .....	237.8	231.8	239.7	244.4	244.3	246.9	246.7	246.7	†248.4	†247.9	247.3	247.0	249.1	250.8
Nondurable goods less foods .....	283.9	285.9	288.4	290.0	290.9	291.7	293.9	296.2	†302.7	†308.4	314.7	318.8	319.6	321.0
Durable goods .....	206.2	204.1	207.5	208.1	206.2	214.0	213.1	213.5	†214.9	†215.1	213.7	216.2	217.7	217.9
Consumer nondurable goods less food and energy .....	191.2	191.1	192.8	193.9	194.6	195.6	196.9	197.6	†201.9	†203.5	204.5	206.5	207.1	208.0
Capital equipment .....	239.8	237.8	240.6	241.9	241.8	249.2	250.2	250.9	†254.6	†256.7	257.8	260.5	262.6	264.0
<b>INTERMEDIATE MATERIALS</b>														
Intermediate materials, supplies, and components .....	280.3	278.8	281.6	284.3	285.3	287.7	289.1	291.9	†296.1	†298.3	301.4	305.4	306.6	307.1
Materials and components for manufacturing .....	265.7	264.3	265.6	268.9	269.5	273.3	273.9	275.7	†279.6	†280.3	281.0	283.9	285.0	285.8
Materials for food manufacturing .....	264.4	259.7	264.4	277.9	275.8	295.1	299.0	279.6	†280.7	†273.2	267.9	264.0	260.3	263.9
Materials for nondurable manufacturing .....	259.5	261.0	261.7	263.4	263.2	265.0	266.7	268.5	†274.0	†276.5	278.7	283.8	286.6	287.5
Materials for durable manufacturing .....	301.0	297.0	297.3	299.2	300.5	304.7	303.8	304.3	†306.9	†305.4	306.5	310.2	311.1	310.5
Components for manufacturing .....	231.8	230.3	232.4	235.6	237.0	238.4	238.3	246.3	†250.3	†253.0	253.5	255.2	256.0	257.0
Materials and components for construction .....	268.3	266.9	269.6	271.4	271.7	272.4	274.0	276.6	†279.2	†280.3	282.6	287.7	288.3	289.3
Processed fuels and lubricants .....	503.0	502.0	514.2	517.4	519.5	516.2	521.3	539.4	551.9	†569.8	595.8	607.0	608.7	605.7
Manufacturing industries .....	425.7	425.4	431.0	436.0	440.8	440.6	445.2	457.9	469.5	†482.8	501.6	506.9	510.9	505.7
Nonmanufacturing industries .....	570.9	569.6	586.1	588.4	588.9	583.7	589.3	611.4	624.7	†646.7	678.7	695.2	695.0	694.0
Containers .....	254.5	256.2	257.0	257.4	257.9	260.1	259.5	260.6	†264.6	†268.2	270.6	274.2	276.0	277.2
Supplies .....	244.5	241.2	245.3	247.7	250.3	252.3	255.2	255.0	†257.8	†257.8	258.6	262.1	263.8	264.6
Manufacturing industries .....	231.9	232.8	234.2	235.4	236.1	237.5	238.7	239.5	†242.5	†244.8	246.7	250.3	251.7	253.4
Nonmanufacturing industries .....	251.1	245.7	251.1	254.1	257.6	259.9	263.8	263.0	†265.7	†264.6	265.0	268.4	270.1	270.5
Feeds .....	229.0	205.1	225.2	234.7	246.8	250.3	251.5	†252.0	†237.5	†232.2	239.5	243.2	243.2	235.7
Other supplies .....	253.6	253.4	254.7	255.8	256.9	258.8	261.3	262.4	†265.6	†268.3	270.1	272.4	273.6	276.1
<b>CRUDE MATERIALS</b>														
Crude materials for further processing .....	304.6	288.4	304.3	317.0	319.3	322.8	324.6	323.5	328.0	†336.5	333.0	335.2	333.2	334.3
Foodstuffs and feedstuffs .....	259.2	243.0	263.4	276.8	276.6	279.1	277.3	271.6	270.7	267.1	262.0	263.4	260.6	264.2
Nonfood materials .....	401.0	384.6	390.8	401.9	409.8	415.4	424.9	433.8	†450.1	†484.9	484.8	488.8	488.6	484.2
Nonfood materials except fuel .....	346.1	328.9	333.9	344.8	351.4	355.6	363.9	373.3	391.0	†427.9	430.6	432.7	428.6	418.3
Manufacturing industries .....	357.4	338.9	343.9	355.4	362.6	367.1	376.1	386.5	†405.1	†445.5	448.2	450.4	445.7	434.4
Construction .....	237.6	234.1	239.1	243.7	244.8	245.3	246.5	247.4	254.8	†257.2	260.2	262.3	263.4	263.5
Crude fuel .....	615.0	604.0	615.1	626.3	639.1	650.9	664.9	670.2	677.4	†697.7	685.2	697.2	715.3	739.9
Manufacturing industries .....	690.5	675.7	690.5	705.4	722.0	738.1	755.8	762.9	771.9	†798.1	781.4	795.9	819.7	851.4
Nonmanufacturing industries .....	567.0	558.8	567.1	575.5	585.4	593.8	605.2	608.9	614.9	†630.6	621.5	631.6	645.2	664.4
<b>SPECIAL GROUPINGS</b>														
Finished goods excluding foods .....	247.8	247.3	250.2	251.4	251.1	256.2	257.0	258.2	†262.4	†265.5	268.0	271.2	272.6	273.6
Finished consumer goods excluding foods .....	250.8	250.9	253.9	255.0	254.6	258.7	259.5	260.9	†265.1	†268.5	271.7	275.1	276.1	277.0
Finished consumer goods less energy .....	218.0	214.9	219.7	221.9	221.9	225.0	225.5	226.0	†233.8	†229.6	229.8	231.3	232.1	232.9
Intermediate materials less foods and feeds .....	282.3	281.5	283.8	285.8	286.6	288.2	289.3	293.5	298.0	†301.0	304.7	309.0	310.5	311.0
Intermediate materials less energy .....	265.3	263.5	265.5	268.3	269.2	272.2	273.3	274.9	†278.3	†279.1	280.0	283.4	284.6	285.4
Intermediate foods and feeds .....	252.6	242.0	251.4	263.7	265.9	280.3	285.7	270.0	270.9	†261.3	256.0	255.6	254.1	254.3
Crude materials less agricultural products .....	446.4	428.6	434.6	447.1	454.1	463.2	473.8	482.8	504.0	†547.6	547.5	551.9	552.8	547.4
Crude materials less energy .....	256.1	239.0	256.1	268.5	269.9	272.4	271.7	267.5	266.0	262.6	259.4	261.1	257.9	259.6

<sup>1</sup> Data for February 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> Not available.

† = revised.

NOTE: Figures in this table may differ from those previously reported because stage-of-processing

indexes from January 1976 through December 1980 have been revised to reflect 1972 input-output relationships.

Because of a correction for January 1981 revised data implemented after the release of data for May 1981, January 1981 figures reported previously may be erroneous. The January data in this table are corrected.

**27. Producer Price Indexes, by commodity groupings**

[1967=100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980						1981						
			June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
	All commodities	268.8	265.6	270.4	273.8	274.6	277.8	279.1	280.8	264.8	287.6	289.6	292.8	293.7	294.5
	All commodities (1957-59 = 100)	285.2	281.8	286.9	290.5	291.4	294.7	296.1	297.9	302.2	305.1	307.3	310.7	311.6	312.5
	Farm products and processed foods and feeds	244.7	234.3	246.6	255.1	256.5	259.4	260.5	257.0	257.9	255.1	253.1	253.6	252.6	254.1
	Industrial commodities	274.8	273.5	276.2	278.2	278.8	282.0	283.4	286.6	295.7	295.7	298.9	302.8	304.1	304.7
	<b>FARM PRODUCTS AND PROCESSED FOODS AND FEEDS</b>														
01	Farm products	249.4	233.4	254.3	263.8	267.0	263.6	264.9	265.3	264.5	262.4	260.6	263.2	259.5	260.3
01-1	Fresh and dried fruits and vegetables	238.6	233.5	252.0	254.0	266.2	240.9	246.6	245.1	258.7	271.5	291.6	285.2	273.9	258.6
01-2	Grains	239.0	215.3	244.8	256.5	260.6	269.2	270.9	265.2	277.7	267.5	261.8	264.7	257.7	257.1
01-3	Livestock	252.7	240.0	260.5	275.7	266.8	263.0	254.8	251.4	244.3	244.6	239.3	246.6	251.8	263.0
01-4	Live poultry	202.1	166.6	227.2	224.5	241.0	222.9	221.0	218.9	213.1	220.8	213.5	195.4	207.2	210.0
01-5	Plant and animal fibers	271.1	247.0	267.0	280.8	295.2	278.5	287.2	294.1	284.1	268.4	270.1	274.2	258.3	259.6
01-6	Fluid milk	271.2	265.5	265.8	271.6	275.5	280.9	284.7	290.5	288.4	289.5	289.5	287.2	283.6	285.0
01-7	Eggs	171.0	146.8	159.3	176.9	188.4	175.2	194.0	217.5	185.7	184.8	180.4	196.2	165.0	174.6
01-8	Hay, hayseeds, and oilseeds	247.1	207.4	251.4	261.5	280.7	284.4	298.3	310.2	311.8	295.0	289.5	296.3	299.0	285.3
01-9	Other farm products	299.0	309.4	292.4	282.7	292.0	285.8	296.6	296.0	296.1	295.1	295.9	295.9	259.7	242.7
02	Processed foods and feeds	241.2	233.9	241.5	249.4	249.8	256.1	257.2	251.5	253.3	250.2	248.1	247.4	248.0	249.7
02-1	Cereal and bakery products	236.0	233.2	234.7	235.8	238.3	241.5	245.3	248.7	251.5	252.1	251.9	253.5	255.1	256.0
02-2	Meats, poultry, and fish	243.1	226.6	248.5	259.9	257.8	256.0	250.9	248.1	248.1	243.6	242.0	239.2	244.8	248.3
02-3	Dairy products	230.6	229.5	230.1	232.6	233.7	238.0	240.2	242.3	244.7	245.0	245.5	245.8	245.0	245.6
02-4	Processed fruits and vegetables	228.7	227.2	229.8	230.7	231.3	233.8	234.7	236.6	238.4	243.7	251.8	258.7	260.1	263.3
02-5	Sugar and confectionery	322.5	325.4	313.5	347.1	341.4	404.7	409.0	339.8	344.6	323.7	302.6	286.0	265.3	277.6
02-6	Beverages and beverage materials	233.0	234.3	234.6	237.1	236.1	239.5	240.6	240.5	243.0	244.8	242.8	243.4	245.0	245.5
02-7	Fats and oils	226.8	212.8	226.9	240.2	238.3	231.0	238.0	234.1	230.2	228.2	230.0	232.6	228.6	227.5
02-8	Miscellaneous processed foods	227.2	223.4	223.5	224.9	226.8	230.6	235.0	240.5	244.2	248.0	249.2	249.9	251.1	251.5
02-9	Manufactured animal feeds	226.8	205.0	223.9	232.4	243.4	246.9	254.5	247.1	248.9	235.9	231.5	237.8	241.2	234.5
	<b>INDUSTRIAL COMMODITIES</b>														
03	Textile products and apparel	183.5	183.0	184.7	185.6	186.6	188.1	189.6	190.4	193.1	193.9	194.5	196.5	198.0	199.5
03-1	Synthetic fibers (12/75 = 100)	134.7	134.5	136.0	137.5	139.5	140.2	140.7	140.8	146.5	147.1	149.6	151.6	156.7	158.2
03-2	Processed yarns and threads (12/75 = 100)	122.5	122.8	122.4	123.2	124.3	125.1	125.8	128.2	129.8	130.3	133.9	134.6	137.1	138.9
03-3	Gray fabrics (12/75 = 100)	138.1	134.8	135.7	137.5	141.0	143.5	145.0	144.0	143.6	144.0	144.0	145.7	146.1	146.6
03-4	Finished fabrics (12/75 = 100)	115.7	115.8	116.6	116.8	117.0	118.3	119.1	120.1	122.2	122.9	122.5	124.1	124.7	124.8
03-81	Apparel	172.4	172.7	174.4	175.1	175.0	176.2	176.8	177.5	179.9	180.7	180.1	182.1	182.4	185.0
03-82	Textile housefurnishings	206.9	202.7	210.7	211.0	212.9	213.8	213.8	214.3	219.8	221.3	225.4	226.3	231.1	228.1
04	Hides, skins, leather, and related products	248.9	240.9	245.1	251.3	247.8	251.2	255.4	256.9	258.2	257.7	262.4	264.9	265.9	262.8
04-1	Hides and skins	370.9	315.7	356.6	398.4	356.1	381.5	409.1	392.8	377.5	367.4	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
04-2	Leather	310.6	284.4	292.2	314.2	298.1	301.9	317.3	332.4	332.6	310.0	322.5	337.8	337.0	321.0
04-3	Footwear	233.1	231.9	232.7	233.7	235.5	236.6	237.5	236.9	238.4	240.7	240.5	241.1	241.1	241.0
04-4	Other leather and related products	218.3	215.9	217.5	218.7	218.8	221.8	222.6	225.3	230.1	236.9	243.4	243.5	249.3	249.4
05	Fuels and related products and power	574.0	576.5	585.5	590.6	593.5	592.9	600.2	615.7	634.6	667.5	692.2	703.8	706.0	704.9
05-1	Coal	467.3	466.6	467.5	468.7	471.3	470.7	475.4	475.3	477.8	480.8	481.3	486.4	487.7	491.8
05-2	Coke	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.1	430.1	430.1	430.6	430.6	468.5	470.3
05-3	Gas fuels <sup>3</sup>	760.7	749.2	762.1	772.6	786.2	802.2	825.5	844.3	857.1	881.6	867.6	884.5	906.0	931.6
05-4	Electric power	321.6	326.0	331.1	333.6	338.3	337.4	333.8	337.6	341.4	346.2	350.4	355.8	360.7	366.9
05-61	Crude petroleum <sup>4</sup>	556.4	549.0	551.4	566.8	571.3	579.6	600.6	632.8	704.4	842.7	843.0	842.6	840.0	816.0
05-7	Petroleum products, refined <sup>5</sup>	674.7	681.7	693.9	697.6	696.4	690.4	697.6	717.0	736.9	769.6	822.4	839.1	835.4	827.7
06	Chemicals and allied products	260.3	262.8	263.3	264.4	263.4	264.8	266.7	268.1	274.3	277.6	279.4	285.8	288.2	290.3
06-1	Industrial chemicals <sup>6</sup>	324.0	329.5	328.7	330.0	327.5	330.0	332.7	334.6	344.5	352.1	352.5	360.8	366.6	369.4
06-21	Prepared paint	235.3	238.8	238.8	238.8	239.3	239.3	241.4	241.4	242.9	246.6	246.9	248.5	250.4	250.4
06-22	Paint materials	273.9	275.0	277.2	278.4	278.9	279.6	279.8	281.0	284.0	287.0	288.3	295.2	300.1	300.8
06-3	Drugs and pharmaceuticals	174.5	174.4	175.7	176.1	176.8	178.4	181.1	182.6	184.7	187.3	189.1	190.9	192.3	193.2
06-4	Fats and oils, inedible	298.0	255.8	260.0	307.6	304.5	302.0	308.2	317.1	310.7	289.7	295.7	312.7	312.1	303.1
06-5	Agricultural chemicals and chemical products	257.1	257.6	258.7	260.0	260.6	260.6	261.1	263.3	267.6	271.6	274.8	277.3	278.6	288.9
06-6	Plastic resins and materials	279.2	287.6	285.7	281.5	276.5	276.1	276.2	274.1	214.7	276.1	278.3	285.4	287.9	289.7
06-7	Other chemicals and allied products	224.5	226.9	228.5	229.0	229.1	230.9	232.4	234.1	244.4	245.1	247.8	256.4	255.8	256.0
07	Rubber and plastic products	217.4	217.3	218.8	220.5	222.0	222.8	223.4	223.3	224.8	226.4	228.8	230.9	232.0	233.7
07-1	Rubber and rubber products	237.5	236.8	239.0	240.2	242.6	244.6	245.0	244.9	246.2	248.5	253.0	253.9	255.3	257.8
07-11	Crude rubber	264.3	264.1	263.4	264.3	267.3	271.7	271.0	268.5	279.1	281.9	280.6	279.1	282.9	284.6
07-12	Tires and tubes	236.9	235.6	238.0	238.0	242.1	245.2	245.2	245.2	240.9	243.5	248.2	250.3	250.8	250.8
07-13	Miscellaneous rubber products	226.6	226.4	229.3	232.0	232.1	232.0	233.3	234.0	238.6	240.4	246.5	246.8	248.6	254.2
07-2	Plastic products (6/78 = 100)	121.1	121.4	122.0	123.2	123.7	123.6	124.0	123.9	125.0	125.5	125.9	127.8	128.3	128.8
08	Lumber and wood products	288.9	279.8	289.2	296.1	292.2	289.0	293.4	299.4	296.5	294.7	293.6	298.1	297.8	297.9
08-1	Lumber	325.8	313.0	327.2	333.7	328.0	320.6	324.9	333.0	331.3	326.9	324.7	331.3	334.9	335.0
08-2	Millwork	260.4	253.0	255.9	260.3	264.5	264.5	270.0	273.3	273.6	273.8	275.7	276.5	274.8	272.9
08-3	Plywood	246.5	241.7	252.8	266.0	252.6	252.9	256.6	263.5	251.1	251.2	246.7	254.4	248.4	250.9
08-4	Other wood products	239.1	238.7	236.9	236.2	236.8	236.7	236.6	236.2	238.5	238.1	239.3	238.2	238.1	239.7

See footnotes at end of table.



27. Continued—Producer Price Indexes, by commodity groupings

[1967=100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980						1981						
			June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
<b>INDUSTRIAL COMMODITIES—Continued</b>															
06	Pulp, paper, and allied products	249.2	251.1	251.7	252.4	252.8	254.3	255.0	256.7	264.4	267.2	268.4	270.6	271.6	272.7
06-1	Pulp, paper, and products, excluding building paper and board	250.6	252.4	252.9	253.8	254.1	255.6	256.2	257.9	260.9	264.5	266.9	269.1	270.4	271.9
06-11	Woodpulp	380.3	387.7	388.3	388.3	388.2	389.6	390.2	390.2	390.2	390.2	392.6	396.6	396.6	396.6
06-12	Wastepaper	208.7	206.6	194.0	193.8	192.5	193.5	192.3	191.5	191.5	186.1	185.1	184.2	182.7	182.9
06-13	Paper	256.8	257.9	258.2	258.6	258.7	262.1	264.1	269.4	271.7	272.9	274.0	275.5	276.1	278.8
06-14	Paperboard	234.6	238.9	237.1	238.4	239.5	239.9	241.7	239.6	250.2	252.8	255.9	257.8	262.3	262.7
06-15	Converted paper and paperboard products	238.5	239.8	241.2	242.3	242.7	243.7	243.5	244.7	246.9	252.1	255.1	257.4	258.6	260.1
06-2	Building paper and board	206.2	208.9	211.8	210.3	210.2	212.7	216.5	219.7	219.7	225.7	227.3	231.9	236.9	236.8
10	Metals and metal products	286.4	281.9	282.5	285.1	287.3	291.9	291.1	290.6	294.0	294.0	296.1	298.7	299.2	298.5
10-1	Iron and steel	305.2	303.4	300.6	302.6	304.5	310.5	312.7	316.4	323.0	323.2	328.0	330.9	330.6	329.9
10-13	Steel mill products	302.7	305.8	301.0	301.0	301.0	307.5	309.4	313.7	322.6	322.9	328.7	331.8	332.0	332.1
10-2	Nonferrous metals	305.0	288.8	292.6	298.4	302.2	309.4	302.1	293.4	292.1	287.4	285.5	288.0	287.8	284.9
10-3	Metal containers	298.6	302.7	303.0	303.2	303.2	304.4	303.3	303.3	311.4	313.8	314.1	314.1	314.1	314.1
10-4	Hardware	240.5	240.5	242.6	243.3	245.9	246.6	249.6	251.7	254.5	258.0	256.5	256.4	257.3	257.6
10-5	Plumbing fixtures and brass fittings	246.7	248.6	249.7	250.4	250.6	250.6	252.3	254.9	256.7	259.2	259.2	265.2	265.6	262.2
10-6	Heating equipment	206.5	205.0	296.2	208.0	208.8	210.6	212.0	214.0	216.6	217.6	217.6	218.8	221.7	222.9
10-7	Fabricated structural metal products	270.5	270.1	272.2	273.0	274.1	276.9	278.0	279.3	283.1	285.4	289.4	293.5	294.3	295.4
10-8	Miscellaneous metal products	250.0	250.4	251.1	253.2	255.0	256.3	256.9	257.6	260.5	263.1	265.7	268.1	270.6	270.4
11	Machinery and equipment	239.8	239.2	241.5	242.6	244.7	246.8	248.3	249.8	253.3	255.3	256.9	259.2	260.6	261.9
11-1	Agricultural machinery and equipment	259.2	257.1	258.6	259.9	263.9	265.4	271.6	272.9	276.4	278.4	278.7	281.2	284.4	285.9
11-2	Construction machinery and equipment	289.4	287.6	291.5	293.4	295.7	299.1	300.1	301.4	305.9	310.0	311.3	314.7	318.3	320.0
11-3	Metalworking machinery and equipment	274.4	275.4	278.0	278.8	280.2	282.5	283.9	285.7	289.7	291.6	294.7	298.1	299.5	300.9
11-4	General purpose machinery and equipment	264.6	264.8	266.1	267.0	270.0	272.5	274.3	275.6	278.6	280.2	281.3	283.1	285.3	286.6
11-6	Special industry machinery and equipment	275.8	274.3	276.7	277.1	283.0	286.0	287.7	290.9	295.6	299.2	300.9	303.8	307.4	309.1
11-7	Electrical machinery and equipment	201.7	201.6	203.7	205.0	206.0	207.0	207.5	208.9	211.9	213.7	215.9	217.8	218.0	219.0
11-9	Miscellaneous machinery	229.9	228.2	231.1	232.1	233.6	236.5	238.2	239.6	243.3	245.2	245.4	248.1	248.4	249.8
12	Furniture and household durables	187.7	186.5	188.0	188.9	189.5	190.9	191.5	193.1	194.0	195.2	195.4	196.4	197.5	197.1
12-1	Household furniture	204.8	204.0	206.5	208.0	208.5	209.8	210.9	212.1	212.9	213.8	214.4	216.9	217.6	218.9
12-2	Commercial furniture	236.0	235.5	237.2	237.3	237.8	241.4	242.2	242.4	246.7	251.6	253.2	254.3	256.9	258.1
12-3	Floor coverings	163.0	162.1	163.2	163.8	163.9	164.4	165.5	170.7	172.3	171.9	174.0	176.2	179.9	181.1
12-4	Household appliances	174.2	175.5	175.8	176.3	177.2	177.5	178.5	179.5	182.2	183.5	183.8	183.8	184.2	184.8
12-5	Home electronic equipment	91.4	91.8	91.7	91.3	91.6	91.5	91.2	91.0	91.0	91.3	91.3	91.3	91.0	86.9
12-6	Other household durable goods	278.6	266.5	271.5	275.9	276.2	281.8	281.2	285.7	278.9	280.8	277.6	276.2	277.6	275.8
13	Nonmetallic mineral products	283.0	283.4	284.8	286.0	286.8	288.6	288.7	291.2	296.6	297.9	301.2	310.2	311.7	312.8
13-11	Flat glass	196.5	193.6	194.3	199.5	199.7	200.7	203.1	203.0	203.9	204.3	204.8	208.1	208.1	208.1
13-2	Concrete ingredients	274.0	273.2	275.9	278.6	278.9	279.0	279.1	279.7	290.0	291.4	291.9	296.4	297.2	297.1
13-3	Concrete products	273.9	275.8	275.9	276.0	277.3	277.5	277.7	277.6	286.1	286.6	286.9	289.5	290.7	293.2
13-4	Structural clay products excluding refractories	231.5	230.1	230.1	229.7	230.1	233.3	233.5	233.6	239.5	239.8	245.2	245.6	249.6	249.5
13-5	Refractories	264.6	265.8	268.7	270.6	270.6	273.2	273.2	273.2	282.6	293.5	297.1	297.3	304.2	307.3
13-6	Asphalt roofing	396.8	400.9	413.8	411.2	407.9	408.5	397.1	394.6	394.8	389.5	400.7	416.3	412.4	422.5
13-7	Gypsum products	256.3	257.1	253.1	251.8	251.8	249.5	253.3	252.7	258.6	257.3	257.6	256.8	261.1	260.7
13-8	Glass containers	292.7	294.3	294.3	294.3	294.6	306.2	306.2	311.4	311.4	311.4	311.5	326.0	334.5	334.5
13-9	Other nonmetallic minerals	394.6	394.8	396.9	397.1	400.7	402.7	403.3	418.9	418.7	424.7	441.7	479.9	477.6	476.8
14	Transportation equipment (12/68 = 100)	207.0	203.1	206.2	208.8	204.4	217.4	217.8	224.3	227.4	229.1	228.5	231.5	233.2	234.1
14-1	Motor vehicles and equipment	208.8	205.2	208.6	211.7	205.6	218.2	218.6	226.2	228.9	230.9	229.9	233.2	235.3	236.4
14-4	Railroad equipment	313.1	312.2	316.4	318.0	320.0	323.3	323.6	323.9	332.5	332.5	335.8	341.8	337.1	337.4
15	Miscellaneous products	258.8	258.0	261.7	260.1	265.1	266.0	263.6	265.3	264.3	264.9	262.4	265.5	266.1	266.1
15-1	Toys, sporting goods, small arms, ammunition	198.6	197.5	200.2	201.3	202.3	202.7	202.8	205.7	208.4	210.5	210.4	211.7	212.3	212.1
15-2	Tobacco products	245.7	248.1	248.2	248.2	248.2	249.4	254.4	254.8	258.4	256.1	255.4	268.4	268.4	268.4
15-3	Notions	217.2	217.0	221.7	223.8	223.9	224.0	224.1	225.0	227.2	247.3	247.3	248.4	248.4	268.0
15-4	Photographic equipment and supplies	202.9	201.7	201.6	200.9	200.9	200.8	206.7	206.6	207.4	209.6	211.1	211.6	212.9	212.9
15-51	Mobile homes (12/74 = 100)	150.2	150.6	151.2	151.4	151.7	153.2	152.7	153.0	153.0	153.1	154.4	155.2	155.3	155.5
15-9	Other miscellaneous products	363.4	360.2	370.9	364.6	381.9	383.4	367.0	370.5	363.3	358.1	346.7	347.8	348.4	346.0

<sup>1</sup> Data for February 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> Not available.

<sup>3</sup> Prices for natural gas are lagged 1 month.

<sup>4</sup> Includes only domestic production.

<sup>5</sup> Most prices for refined petroleum products are lagged 1 month.

<sup>6</sup> Some prices for industrial chemicals are lagged 1 month.

r = revised.

NOTE: Because of a correction for January 1981 revised data implemented after the release of data for May 1981, January 1981 figures reported previously may be erroneous. The January data in this table are corrected.

**28. Producer Price Indexes, for special commodity groupings**

[1967 = 100 unless otherwise specified]

Commodity grouping	Annual average 1980	1980							1981					
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
All commodities — less farm products	269.6	267.5	270.9	273.8	274.3	278.1	279.4	281.2	285.4	↑288.8	291.1	294.3	295.6	296.4
All foods	244.7	237.7	245.9	254.1	254.3	258.8	259.7	254.3	255.8	↑253.7	253.2	251.6	250.3	252.2
Processed foods	246.6	239.9	247.3	255.7	254.9	261.7	261.9	255.5	257.0	↑253.9	252.2	250.5	250.6	253.4
Industrial commodities less fuels	243.5	242.0	243.9	245.6	246.0	249.6	250.3	252.3	255.4	↑257.2	258.2	261.4	262.6	263.4
Selected textile mill products (Dec. 1975 = 100)	124.3	123.7	125.5	126.0	126.6	127.5	128.1	129.3	131.8	↑132.5	133.1	134.6	136.3	136.0
Hosiery	123.2	122.2	123.5	125.9	126.4	126.2	126.7	126.4	129.5	↑130.3	130.5	134.1	134.5	135.6
Underwear and nightwear	185.4	187.1	188.3	189.3	189.5	189.7	190.3	190.6	199.2	↑200.9	201.6	202.1	202.3	203.5
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	250.7	253.8	254.2	254.7	254.0	255.4	257.0	258.2	264.8	↑268.3	270.2	276.0	278.7	281.0
Pharmaceutical preparations	167.1	167.6	168.1	168.4	168.8	170.8	173.7	174.6	177.1	↑179.7	181.8	184.0	185.7	186.5
Lumber and wood products, excluding millwork and other wood products	304.0	293.5	306.9	315.5	307.4	302.3	306.5	314.2	309.2	↑306.0	303.0	310.1	310.6	311.5
Special metals and metal products	258.5	254.4	256.2	259.0	257.8	265.7	268.6	271.8	285.0	↑272.7	273.5	276.4	277.7	277.7
Fabricated metal products	258.2	258.6	259.9	261.2	262.6	264.3	265.2	266.3	269.9	↑272.5	274.7	277.3	278.7	279.2
Copper and copper products	222.0	208.5	214.5	220.4	214.1	216.5	215.7	210.8	207.4	↑205.0	205.2	207.5	207.1	204.3
Machinery and motive products	230.4	228.3	231.0	232.9	232.1	239.2	240.2	244.1	247.4	↑249.4	250.0	252.6	254.2	255.4
Machinery and equipment, except electrical	263.0	261.2	263.7	264.6	270.2	273.0	275.1	276.7	277.3	↑279.7	280.9	283.5	285.5	287.0
Agricultural machinery, including tractors	267.3	264.7	266.3	268.1	272.9	274.8	280.9	281.4	285.0	↑287.3	286.7	287.8	292.2	293.6
Metalworking machinery	299.4	299.7	303.3	304.5	306.5	309.6	311.2	314.1	318.9	↑320.5	323.3	325.7	327.1	328.4
Numerically controlled machine tools (Dec. 1971 = 100)	225.6	228.5	228.7	229.3	230.0	231.7	232.1	230.6	234.6	↑235.0	236.1	236.1	237.7	241.7
Total tractors	287.3	284.0	288.3	291.1	295.8	298.3	299.9	301.2	305.8	↑311.1	310.9	315.6	321.5	322.0
Agricultural machinery and equipment less parts	261.2	258.7	260.8	262.2	266.5	268.3	273.7	274.3	278.0	↑280.2	280.2	281.7	285.5	286.9
Farm and garden tractors less parts	268.8	264.8	267.2	270.3	277.3	278.0	282.4	282.4	284.4	↑287.2	286.8	288.5	296.8	297.2
Agricultural machinery excluding tractors less parts	266.5	265.0	265.9	266.6	269.7	272.5	279.9	285.7	289.9	↑287.7	286.9	287.5	288.8	290.9
Industrial valves	287.8	290.1	291.1	291.3	292.4	294.6	296.0	297.8	300.7	↑305.5	306.8	310.4	311.0	312.0
Industrial fittings	291.8	295.9	296.1	296.1	296.1	298.6	298.6	298.6	298.6	↑296.0	298.8	302.7	303.0	303.0
Abrasive grinding wheels	( <sup>2</sup> )	261.3	261.5	261.5	261.3	263.4	273.0	273.8	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Construction materials	266.4	264.2	267.0	269.6	269.3	269.9	271.9	274.1	276.7	↑277.2	279.0	283.4	284.1	284.8

<sup>1</sup> Data for February 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup> Not available.

**29. Producer Price Indexes, by durability of product**

[1967 = 100]

Commodity grouping	Annual average 1980	1980							1981					
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
Total durable goods	251.5	248.7	251.2	253.1	253.7	258.4	258.6	261.0	↑262.7	↑263.8	264.5	267.4	268.4	268.9
Total nondurable goods	282.4	278.8	285.6	290.3	291.2	293.0	295.2	296.3	↑302.6	↑306.8	310.0	313.3	314.1	315.1
Total manufactures	261.5	259.8	263.0	265.7	265.8	269.6	270.5	272.0	↑277.3	↑279.3	281.8	284.8	286.0	286.7
Durable	250.8	248.5	251.0	252.7	253.1	257.8	257.9	260.4	↑262.3	↑263.4	264.0	266.9	268.0	268.7
Nondurable	273.0	271.7	275.9	279.5	279.5	282.1	284.0	284.3	↑293.5	↑296.4	301.0	304.3	305.4	306.2
Total raw or slightly processed goods	305.7	293.8	307.7	315.7	319.9	319.6	322.9	326.2	322.9	↑330.3	329.7	333.3	332.7	333.9
Durable	278.2	249.9	255.2	265.8	274.9	282.7	285.6	284.0	275.9	↑275.5	280.8	286.2	281.0	272.7
Nondurable	306.7	296.1	310.6	318.4	322.2	321.3	324.6	328.2	325.3	↑333.3	332.2	335.6	335.4	337.3

<sup>1</sup> Data for February 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication. r = revised.

NOTE: Because of a correction for January 1981 revised data implemented after the release of data for May 1981, January 1981 figures reported previously may be erroneous. The January data in this table are corrected.

**30. Producer Price Indexes for the output of selected SIC industries**

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980							1981					
			June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
<b>MINING</b>															
1011	Iron ores (12/75 = 100)	152.9	152.6	155.8	155.8	155.8	155.8	155.8	155.8	155.8	168.1	168.1	168.1	168.1	
1092	Mercury ores (12/75 = 100)	331.2	322.9	331.2	329.1	335.4	338.7	343.7	325.0	297.9	324.5	335.4	354.1	347.9	
1211	Bituminous coal and lignite	466.7	466.0	466.9	467.9	470.3	469.7	474.2	473.9	476.1	↑478.1	478.8	483.9	484.9	
1311	Crude petroleum and natural gas	643.8	631.5	638.0	656.7	667.6	681.8	704.6	731.7	786.5	↑897.9	889.6	895.9	904.6	
1442	Construction sand and gravel	252.7	250.0	254.8	255.8	258.5	261.8	263.2	264.3	270.1	↑272.3	274.9	277.3	277.8	
1455	Kaolin and ball clay (6/76 = 100)	136.0	136.6	136.6	136.6	136.6	137.2	132.1	133.7	137.1	137.1	137.1	137.1	137.1	
<b>MANUFACTURING</b>															
2011	Meatpacking plants	244.0	230.0	249.1	265.3	257.1	258.0	251.4	249.0	↑244.7	↑237.2	236.1	237.7	243.0	
2013	Sausages and other prepared meats	220.1	190.9	213.7	233.0	240.0	247.0	249.5	247.4	↑235.3	↑232.9	229.9	227.1	230.4	
2016	Poultry dressing plants	191.9	164.2	214.2	212.1	226.0	211.3	205.9	201.8	201.9	208.3	203.9	186.7	196.2	
2021	Creamery butter	258.5	255.7	256.3	268.5	265.8	273.2	273.3	274.8	273.6	273.5	273.6	273.4	273.6	

See footnotes at end of table.

30. Continued — Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC ccode	Industry description	Annual average 1980	1980							1981					
			June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June
<b>MANUFACTURING — Continued</b>															
2022	Cheese natural and processed (12/72 = 100)	204.4	202.5	203.4	206.8	208.0	213.7	214.9	216.1	215.9	215.6	217.5	218.1	218.0	218.0
2024	Ice cream and frozen desserts (12/72 = 100)	193.3	195.2	195.2	195.5	196.1	199.5	199.8	207.5	210.1	210.6	210.6	211.4	212.4	212.4
2033	Canned fruits and vegetables	221.4	219.9	222.9	223.4	224.3	227.6	231.1	232.0	233.3	237.4	241.7	245.0	246.9	250.0
2034	Dehydrated food products (12/73 = 100)	160.2	156.3	157.7	159.6	159.9	162.6	168.6	170.4	174.1	171.3	172.9	174.5	175.3	175.1
2041	Flour mills (12/71 = 100)	189.1	180.8	188.6	193.1	196.1	201.5	205.1	199.5	203.8	198.4	195.1	201.5	199.4	199.3
2044	Rice milling	243.4	236.0	225.3	219.9	225.9	237.2	265.8	287.2	289.6	289.6	298.0	300.9	300.3	300.3
2048	Prepared foods, n.e.c. (12/75 = 100)	124.2	116.2	122.2	126.6	129.6	129.2	133.3	133.9	132.6	129.3	127.8	128.8	130.2	127.8
2061	Raw cane sugar	414.1	402.4	381.8	484.0	458.9	588.2	563.8	402.9	418.0	367.1	318.0	275.7	224.8	263.3
2063	Beet sugar	358.0	348.0	342.3	365.5	384.5	460.1	512.2	423.3	414.5	398.1	375.0	360.7	351.3	358.1
2067	Chewing gum	290.7	282.0	282.4	282.4	302.4	322.4	322.9	323.0	323.0	323.0	323.1	303.1	303.1	303.1
2074	Cottonseed oil mills	192.9	155.1	191.3	215.1	232.9	218.7	231.8	228.0	221.2	193.7	204.4	218.3	216.6	212.3
2075	Soybean oil mills	244.3	208.6	37.4	256.9	275.2	279.2	290.5	270.5	272.0	252.5	253.0	257.7	258.1	248.2
2077	Animal and marine fats and oils	290.2	238.9	274.5	297.4	307.0	311.0	317.2	311.8	310.8	287.2	284.2	301.7	304.3	291.3
2083	Malt	249.9	244.1	244.1	244.1	244.1	267.4	267.4	267.4	286.1	286.1	286.1	286.1	286.1	286.1
2085	Distilled liquor, except brandy (12/75 = 100)	123.0	120.5	121.0	127.7	127.7	127.9	128.5	129.2	129.2	133.9	133.9	133.9	134.3	134.6
2091	Canned and cured seafoods (12/73 = 100)	174.0	175.3	175.9	177.5	178.6	180.0	183.1	183.4	187.3	187.1	187.6	187.8	187.4	187.5
2092	Fresh or frozen packaged fish	366.9	361.2	363.7	365.2	355.0	353.8	353.3	353.9	374.9	366.7	385.7	394.9	379.7	377.0
2095	Roasted coffee (12/72 = 100)	269.3	283.1	274.5	274.7	283.9	257.0	252.5	248.5	238.2	238.3	238.3	238.5	238.6	238.6
2098	Macaroni and spaghetti	233.8	230.5	230.5	230.5	239.3	243.6	243.6	243.6	243.6	243.6	243.6	243.6	243.6	246.6
2111	Cigarettes	254.6	257.4	257.4	257.4	257.4	257.8	263.5	263.6	263.6	264.1	263.9	278.3	278.3	278.3
2121	Cigars	158.6	159.8	159.9	159.9	159.9	163.7	164.0	165.1	165.1	165.3	164.2	165.6	165.6	165.6
2131	Chewing and smoking tobacco	279.8	278.6	279.5	279.7	279.7	295.0	298.0	298.0	320.7	320.7	310.4	320.4	320.4	320.8
2211	Weaving mills, cotton (12/72 = 100)	215.8	212.9	217.7	219.0	221.9	223.4	224.2	225.0	227.9	230.9	232.3	235.2	236.3	234.6
2221	Weaving mills, synthetic (12/77 = 100)	124.8	121.2	123.0	124.9	127.7	130.3	133.0	132.5	131.9	132.3	132.9	134.2	135.3	136.4
2251	Women's hosiery, except socks (12/75 = 100)	106.3	105.4	105.4	108.8	108.8	108.7	109.0	108.6	109.1	109.2	109.0	114.2	114.3	115.7
2254	Knit underwear mills	190.1	190.4	192.6	192.9	194.1	194.2	194.7	195.0	205.6	208.7	208.4	209.7	209.9	209.9
2257	Circular knit fabric mills (6/76 = 100)	104.6	105.0	105.4	105.7	105.8	106.7	107.1	107.5	109.3	109.6	107.8	109.3	109.0	108.9
2261	Finishing plants, cotton (6/76 = 100)	135.1	134.6	137.2	137.3	136.9	139.1	139.3	140.2	142.4	144.5	144.6	146.8	147.0	146.3
2262	Finishing plants, synthetics, silk (6/76 = 100)	113.6	114.1	113.8	114.1	115.3	117.3	117.9	120.5	121.7	123.1	124.2	124.8	126.4	126.2
2272	Tufted carpets and rugs	138.1	137.4	137.7	138.3	138.3	138.8	140.0	145.7	148.1	147.8	150.2	152.5	156.0	157.0
2281	Yarn mills, except wool (12/71 = 100)	203.5	202.8	202.9	204.3	206.2	207.9	209.9	215.1	216.9	218.1	220.6	221.0	224.1	225.9
2282	Throwing and winding mills (6/76 = 100)	115.5	115.8	115.0	115.8	117.2	118.2	118.4	120.1	123.2	123.2	129.5	130.6	134.9	138.1
2284	Thread mills (6/76 = 100)	139.1	142.9	143.0	143.1	143.1	143.8	143.9	143.9	144.1	144.3	148.4	150.8	150.9	151.1
2288	Cordage and twine (12/77 = 100)	123.6	125.0	125.0	125.0	125.0	127.1	129.2	129.3	129.3	129.3	130.9	132.7	134.3	134.3
2311	Men's and boys' suits and coats	212.6	211.6	214.9	214.9	214.9	216.2	216.3	216.1	218.2	219.7	220.4	220.5	220.4	221.5
2321	Men's and boys' shirts and nightwear	204.4	205.1	206.5	206.7	207.7	208.0	208.6	209.5	206.3	207.3	205.0	205.3	204.9	205.5
2322	Men's and boys' underwear	208.0	208.5	211.1	211.2	212.8	212.8	212.8	212.9	224.9	229.1	230.9	230.9	230.9	230.6
2323	Men's and boys' neckwear (12/75 = 100)	112.6	112.4	112.4	112.4	112.4	112.4	112.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4
2327	Men's and boys' separate trousers	175.3	175.1	175.3	175.3	175.3	180.2	180.2	180.3	185.3	185.3	180.4	185.7	185.8	186.1
2328	Men's and boys' work clothing	240.5	242.6	244.8	244.1	243.9	244.3	244.3	244.4	242.2	242.2	241.9	246.2	247.4	248.2
2331	Women's and misses' blouses and waists (6/78 = 100)	110.3	107.8	111.4	112.6	112.6	114.0	114.0	115.4	116.3	116.3	115.1	115.2	115.2	117.1
2335	Women's and misses' dresses (12/77 = 100)	114.7	114.0	114.0	115.4	115.4	116.3	116.3	116.3	116.5	116.9	117.9	118.2	118.7	121.4
2341	Women's and children's underwear (12/72 = 100)	154.4	155.0	155.4	156.9	155.4	156.0	157.1	158.1	165.5	167.5	168.0	169.5	169.8	171.1
2342	Brassieres and allied garments (12/75 = 100)	126.5	126.6	127.8	129.0	129.0	129.0	129.1	129.1	131.7	132.8	134.5	134.5	134.5	136.6
2361	Children's dresses and blouses (12/77 = 100)	109.9	108.0	112.7	112.7	112.2	112.7	115.1	117.4	118.1	118.9	118.0	119.2	119.4	119.4
2381	Fabric dress and work gloves	268.6	271.1	271.1	271.1	271.1	271.1	272.1	272.1	284.9	289.1	289.1	289.1	292.1	292.1
2394	Canvas and related products (12/77 = 100)	123.8	123.4	123.4	123.4	123.9	125.1	125.1	126.1	126.8	126.8	128.4	129.9	130.6	130.6
2396	Automotive and apparel trimmings (12/77 = 100)	122.4	122.3	122.3	122.3	122.3	122.3	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0
2421	Sawmills and planing mills (12/71 = 100)	227.7	218.1	228.9	234.2	229.0	223.2	226.8	233.5	232.3	228.6	228.1	231.9	233.6	233.9
2436	Softwood veneer and plywood (12/75 = 100)	144.6	140.5	150.4	160.7	149.6	149.1	152.3	158.2	149.8	149.3	145.3	151.2	145.8	147.5
2439	Structural wood members, n.e.c. (12/75 = 100)	155.6	152.1	152.1	152.2	155.5	156.2	157.0	157.1	157.1	157.0	157.1	158.3	158.2	158.2
2448	Wood pallets and skids (12/75 = 100)	160.1	159.7	157.1	156.0	154.9	154.6	154.7	154.1	153.8	152.8	152.7	153.0	153.1	153.0
2451	Mobile homes (12/74 = 100)	150.3	150.7	151.3	151.4	151.8	153.2	152.7	153.1	153.1	153.2	154.5	155.3	155.4	155.6
2492	Particleboard (12/75 = 100)	161.5	171.7	168.7	169.4	163.7	159.8	163.6	165.9	163.9	170.3	171.0	179.6	183.2	181.0
2511	Wood household furniture (12/71 = 100)	183.8	183.5	185.1	186.4	187.7	188.1	189.1	190.0	192.1	192.1	193.4	195.3	196.2	197.1
2512	Upholstered household furniture (12/71 = 100)	163.6	162.5	166.1	166.2	166.2	167.7	168.6	170.5	169.9	170.1	170.0	173.4	173.4	175.2
2515	Mattresses and bedsprings	179.1	176.0	180.8	186.4	186.4	186.5	186.5	186.5	186.3	188.3	192.1	194.5	194.5	194.6
2521	Wood office furniture	235.2	234.0	235.5	235.5	235.5	239.7	239.7	240.9	244.1	250.4	253.5	254.6	255.5	255.6
2611	Pulp mills (12/73 = 100)	240.0	243.9	244.5	244.5	244.4	246.1	246.8	246.8	246.9	246.9	249.1	253.4	253.5	253.5
2621	Paper mills, except building (12/74 = 100)	145.5	146.2	146.4	146.7	146.7	148.2	149.2	150.7	152.0	152.6	153.5	154.3	154.8	156.2
2631	Paperboard mills (12/74 = 100)	139.0	141.2	140.3	141.1	141.7	142.3	143.2	142.4	148.2	149.2	151.0	152.0	154.1	154.3
2647	Sanitary paper products	322.0	321.2	327.4	331.1	331.1	332.6	334.7	338.2	338.3	342.5	344.1	344.2	345.4	345.4
2654	Sanitary food containers	216.0	217.2	218.2	220.3	222.3	222.3	223.0	223.0	232.0	235.2	239.1	240.4	240.4	243.5
2655	Fiber cans, drums, and similar products (12/75 = 100)	150.6	150.6	155.2	155.2	155.2	155.5	155.5	155.0	157.7	160.6	159.7			



30. Continued — Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980								1981					
			June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. <sup>1</sup>	Mar.	Apr.	May	June	
3021	Rubber and plastic footwear (12/71 = 100)	177.9	173.8	181.8	181.9	182.0	182.0	182.4	182.3	182.8	183.4	184.4	183.7	184.0	184.1	
3031	Reclaimed rubber (12/73 = 100)	184.7	186.5	186.5	185.9	185.9	184.0	184.1	186.7	190.4	190.4	195.1	195.2	195.5	185.6	
3079	Miscellaneous plastic products (6/78 = 100)	121.7	122.2	122.7	123.9	124.4	124.2	124.6	124.5	125.4	125.4	126.2	128.4	128.8	129.3	
3111	Leather tanning and finishing (12/77 = 100)	146.6	134.6	137.7	147.9	140.0	( <sup>2</sup> )	149.3	156.6	157.0	145.5	151.4	158.6	158.3	150.7	
3142	House slippers (12/75 = 100)	149.1	145.4	151.1	151.1	151.1	153.5	158.2	154.9	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
3143	Men's footwear, except athletic (12/75 = 100)	159.8	158.5	158.5	159.5	161.5	161.6	162.4	162.4	164.8	166.8	167.4	168.4	168.4	168.5	
3144	Women's footwear, except athletic	213.5	213.8	214.2	214.3	215.2	217.1	217.1	217.1	217.8	220.2	218.8	218.7	219.3	219.0	
3171	Women's handbags and purses (12/75 = 100)	137.9	140.9	140.9	140.0	140.9	140.9	140.9	140.9	149.5	149.5	149.7	149.7	158.4	158.4	
3211	Flat glass (12/71 = 100)	161.3	158.9	159.5	162.6	162.8	163.8	166.4	166.3	167.1	167.5	168.1	171.7	171.7	171.8	
3221	Glass containers	292.6	294.2	294.2	294.2	294.2	306.1	306.1	311.4	311.4	311.4	311.4	325.9	334.4	334.4	
3241	Cement, hydraulic	310.8	313.8	313.3	313.1	312.3	311.8	310.5	310.5	324.3	324.3	321.3	329.0	329.0	329.0	
3251	Brick and structural clay tile	277.3	278.5	278.5	277.6	278.5	282.6	282.9	282.9	286.6	286.1	296.2	297.0	298.3	298.3	
3253	Ceramic wall and floor tile (12/75 = 100)	122.5	117.6	117.6	117.6	117.6	120.1	120.1	120.1	127.1	127.1	127.2	129.6	129.6	129.6	
3255	Clay refractories	273.6	275.9	279.2	279.5	279.7	280.2	280.7	280.7	291.5	305.2	309.9	310.3	312.7	313.9	
3259	Structural clay products, n.e.c.	202.7	204.4	204.7	205.0	204.8	204.9	205.0	205.1	209.5	212.8	213.5	213.1	224.3	224.3	
3261	Vitreous plumbing fixtures	234.8	235.8	237.2	240.4	241.1	241.5	242.6	245.0	244.7	248.9	249.4	250.2	252.5	255.8	
3262	Vitreous china food utensils	317.3	318.6	318.3	318.3	318.7	327.4	327.4	327.4	327.4	327.4	328.0	328.2	336.6	336.6	
3263	Fine earthenware food utensils	295.5	294.7	294.6	294.6	296.4	297.9	297.9	297.9	298.6	298.6	307.6	307.6	309.1	309.1	
3269	Pottery products, n.e.c. (12/75 = 100)	152.6	152.7	152.7	152.7	153.3	155.4	155.5	155.5	155.5	155.5	158.4	158.5	160.5	160.5	
3271	Concrete block and brick	257.3	259.4	259.5	259.5	260.5	259.4	259.4	259.4	264.1	265.0	263.2	267.3	271.1	271.2	
3273	Ready-mixed concrete	279.9	282.5	282.6	282.6	283.6	282.7	282.8	282.9	294.8	295.4	296.1	298.6	299.5	301.9	
3274	Lime (12/75 = 100)	157.7	157.7	159.6	160.2	158.8	160.8	160.8	161.8	165.7	171.7	172.8	172.4	172.4	173.1	
3275	Gypsum products	256.7	257.5	253.5	252.3	252.2	250.0	253.6	253.1	259.9	257.6	257.9	257.1	261.4	260.9	
3291	Abrasive products (12/71 = 100)	212.6	213.5	215.2	215.7	217.1	218.8	220.2	220.6	222.8	221.7	229.7	232.0	233.0	233.8	
3297	Nonclay refractories (12/74 = 100)	161.1	161.2	162.8	164.9	164.8	167.8	167.5	167.6	172.5	177.5	179.0	178.9	185.9	189.0	
3312	Blast furnaces and steel mills	310.5	313.5	308.6	308.5	308.6	314.8	316.6	320.7	328.7	328.9	334.0	336.6	337.6	337.6	
3313	Electrometallurgical products (12/75 = 100)	117.7	118.7	117.1	117.1	117.2	117.3	117.3	117.3	119.9	120.0	120.0	120.8	120.6	120.7	
3316	Cold finishing of steel shapes	284.0	288.2	282.2	282.3	282.3	288.1	288.8	293.3	302.8	303.1	306.1	308.3	308.3	308.5	
3317	Steel pipes and tubes	290.9	290.4	292.4	292.6	292.6	302.4	302.4	308.4	315.5	316.3	326.2	333.1	334.2	336.3	
3321	Gray iron foundries (12/68 = 100)	282.5	282.5	283.0	283.2	283.3	289.7	290.1	290.7	295.2	296.1	293.0	296.9	298.3	298.6	
3333	Primary zinc	270.5	268.6	255.9	255.9	264.0	269.9	282.0	288.7	300.3	300.0	296.0	308.0	321.6	331.0	
3334	Primary aluminum	297.9	290.1	312.1	312.2	313.0	325.6	328.5	328.0	331.7	332.3	334.8	334.6	336.0	334.4	
3351	Copper rolling and drawing	227.5	220.2	222.8	222.0	222.0	222.9	222.8	222.8	218.7	215.5	212.0	212.1	211.9	212.1	
3353	Aluminum sheet plate and foil (12/75 = 100)	158.2	157.8	158.2	157.6	157.6	161.5	163.3	165.1	169.3	170.7	172.1	173.9	174.4	176.2	
3354	Aluminum extruded products (12/75 = 100)	167.7	167.7	168.3	168.4	168.2	173.2	176.3	176.4	176.8	177.1	177.3	180.6	180.7	180.8	
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	146.2	146.7	147.4	147.6	147.5	150.7	151.2	151.1	155.3	157.1	157.5	157.5	157.5	157.4	
3411	Metal cans	291.6	294.9	295.6	295.9	296.1	297.9	297.2	297.3	302.1	303.0	304.7	304.7	304.7	304.7	
3425	Hand saws and saw blades (12/72 = 100)	182.1	181.9	183.5	185.4	185.8	186.8	187.2	190.5	195.4	196.3	197.6	197.9	199.8	199.8	
3431	Metal sanitary ware	248.3	249.9	250.9	251.4	251.4	251.5	252.2	253.8	256.0	256.4	256.6	262.9	263.7	263.9	
3465	Automotive stampings (12/75 = 100)	136.9	137.8	137.8	138.8	140.1	140.2	140.9	141.2	143.0	143.9	144.5	145.2	145.3	145.6	
3482	Small arms ammunition (12/75 = 100)	145.6	144.6	145.1	147.3	145.3	145.8	146.3	160.9	157.9	157.8	163.2	163.2	163.2	163.2	
3493	Steel springs, except wire	230.3	230.3	230.3	230.8	231.9	233.0	233.3	234.3	238.4	239.2	239.4	240.6	241.6	241.8	
3494	Valves and pipe fittings (12/71 = 100)	230.0	231.8	232.5	232.7	233.3	235.8	236.9	238.3	240.2	242.1	243.4	245.9	246.5	247.0	
3498	Fabricated pipe and fittings	315.5	313.8	317.2	317.2	319.9	325.0	329.9	329.9	335.7	335.7	338.5	358.8	359.9	361.6	
3519	Internal combustion engines, n.e.c.	275.4	271.7	276.8	278.6	283.2	285.2	289.1	289.9	298.2	299.4	298.5	304.2	304.2	305.7	
3531	Construction machinery (12/76 = 100)	141.1	140.3	141.8	142.7	143.8	146.6	146.1	147.5	150.0	151.4	151.5	154.3	155.0	156.6	
3532	Mining machinery (12/72 = 100)	258.5	258.2	259.4	262.0	264.1	266.0	268.0	270.0	272.5	273.5	275.7	279.1	279.6	280.5	
3533	Oilfield machinery and equipment	335.1	337.4	342.6	345.7	347.3	352.9	358.4	360.9	367.0	374.2	375.8	380.7	382.8	398.4	
3534	Elevators and moving stairways	239.3	242.8	244.2	243.8	246.4	248.3	248.8	249.5	250.3	250.3	250.3	251.1	251.2	251.2	
3542	Machine tools, metal forming types (12/71 = 100)	279.5	279.2	284.3	285.3	285.6	286.8	287.4	292.0	297.5	298.0	301.8	302.9	304.4	305.6	
3546	Power driven hand tools (12/76 = 100)	132.2	131.1	133.5	134.5	135.3	136.6	136.7	137.9	142.6	144.0	144.8	146.4	147.0	147.1	
3552	Textile machinery (12/69 = 100)	216.6	217.0	221.7	222.1	222.3	223.8	224.5	226.0	235.7	235.0	236.6	241.0	241.1	242.4	
3553	Woodworking machinery (12/72 = 100)	212.5	213.7	215.9	216.0	216.0	217.0	217.7	221.5	222.5	223.1	225.0	225.8	225.7	226.6	
3576	Scales and balances, excluding laboratory	215.0	208.6	215.4	226.2	226.2	226.3	226.9	217.9	220.5	221.1	224.2	225.9	230.2	230.2	
3592	Carburetors, pistons, rings, valves (6/76 = 100)	156.6	153.5	158.6	159.3	160.1	164.9	165.2	167.6	168.9	170.9	170.8	171.9	171.9	176.3	
3612	Transformers	184.9	182.9	186.0	190.6	190.7	193.9	193.0	193.3	194.9	197.1	204.4	206.2	207.9	209.6	
3623	Welding apparatus, electric (12/72 = 100)	209.9	211.0	212.1	212.1	211.7	214.4	214.9	215.8	218.9	220.9	221.1	223.8	225.4	226.8	
3631	Household cooking equipment (12/75 = 100)	133.1	134.7	134.9	134.4	134.7	134.8	135.8	137.5	140.1	141.0	140.9	140.3	140.5	140.9	
3632	Household refrigerators, freezers (6/76 = 100)	121.4	122.0	122.2	122.2	123.3	124.1	125.1	125.1	127.5	127.5	126.2	128.1	128.1	129.4	
3633	Household laundry equipment (12/73 = 100)	162.0	162.3	161.2	163.6	165.5	166.1	166.6	167.4	169.8	170.2	170.9	171.1	173.8	173.8	
3635	Household vacuum cleaners	154.4	155.8	158.4	158.5	158.6	158.8	158.8	159.1	159.1	156.3	151.8	151.8	151.9	152.0	
3636	Sewing machines (12/75 = 100)	129.1	129.2	130.0	130.0	130.0	130.3	130.3	130.3	130.3	130.3	131.3	131.2	153.1	153.1	
3641	Electric lamps	260.3	258.1	266.3	268.1	269.2	268.7	270.2	266.2	265.8	271.2	272.6	275.5	275.2	275.1	
3644	Noncurrent-carrying wiring devices (12/72 = 100)	219.7	220.4	220.3	220.7	220.9	221.8	223.7	229.2	233.1	236.3	242.9	244.9	245.2	252.9	
3646	Commercial lighting fixtures (12/75 = 100)	139.3	139.2	139.2	140.4	142.3	142.8	143.1	144.7	145.1	148.0	151.9	156.6	156.7	156.7	
3648	Lighting equipment, n.e.c. (12/75 = 100)	139.9	140.7	140.7	140.9	143.2	143.3	144.7	145.0	146.3	146.8	152.7	153.2	153.3	153.7	
3671	Electron tubes receiving type	251.8	255.2	255.5	255.6	255.7	264.6	264.8	272.7	284.3	284.4	285.1	285.1	285.2	289.2	
3674	Semiconductors and related devices	90.7	92.0	92.1	91.8	92.0	91.8	91.2	91.6	91.1	90.8	91.7	91.7	91.2	90.1	
3675	Electronic capacitors (12/75 = 100)	162.7	160.5	168.6	172.6	174.0	170.1	170.2	170.3	170.3	171.1	172.5	171.4	171.0	168.3	
3676	Electronic resistors (12/75 = 100)	134.2	135.2	135.3	136.3	136.9	137.7	137.8	137.8	139.0	139.9	139.5	139.7	140.9	141.2	
3678	Electronic connectors (12/75 = 100)	148.1	148.7	148.9	149.1	149.6	149.7	149.7	149.7	152.2	153.5					

## PRODUCTIVITY DATA

**PRODUCTIVITY DATA** are compiled by the Bureau of Labor Statistics from establishment data and from estimates of compensation and output supplied by the U.S. Department of Commerce and the Federal Reserve Board.

### Definitions

**Output** is the constant dollar gross domestic product produced in a given period. Indexes of **output per hour of labor input**, or labor productivity, measure the value of goods and services produced per hour of labor. **Compensation per hour** includes wages and salaries of employees plus employers' contributions for social insurance and private benefit plans. The data also include an estimate of wages, salaries, and supplementary payments for the self-employed, except for nonfinancial corporations, in which there are no self-employed. **Real compensation per hour** is compensation per hour adjusted by the Consumer Price Index for All Urban Consumers.

**Unit labor cost** measures the labor compensation cost required to produce one unit of output and is 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 the current dollar gross domestic product and dividing by output. In these tables, **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits. **Unit profits** include corporate profits and inventory valuation adjustments per unit of output.

The **implicit price deflator** is derived by dividing the current dollar estimate of gross product by the constant dollar estimate, making the deflator, in effect, a price index for gross product of the sector reported.

The use of the term "man-hours" to identify the labor component of productivity and costs, in tables 31 through 34, has been discontinued. **Hours of all persons** is now used to describe the labor input of payroll workers, self-employed persons, and unpaid family workers. **Output per all-employee hour** is now used to describe labor productivity in nonfinancial corporations where there are no self-employed.

### Notes on the data

In the private business sector and the nonfarm business sector, the basis for the output measure employed in the computation of output per hour is Gross Domestic Product rather than Gross National Product. Computation of hours includes estimates of nonfarm and farm proprietor hours.

Output data are 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 from the Bureau of Economic Analysis and the Bureau of Labor Statistics.

Beginning with the September 1976 issue of the *Review*, tables 31-34 were revised to reflect changeover to the new series—private business sector and nonfarm business sector—which differ from the previously published total private economy and nonfarm sector in that output imputed for owner-occupied dwellings and the household and institutions sectors, as well as the statistical discrepancy, are omitted. For a detailed explanation, see J. R. Norsworthy and L. J. Fulco, "New sector definitions for productivity series," *Monthly Labor Review*, October 1976, pages 40-42.

**31. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years, 1950-80**

[1977=100]

Item	1950	1955	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980
<b>Private business sector:</b>													
Output per hour of all persons	50.3	58.2	65.1	78.2	86.1	94.8	92.7	94.8	97.9	100.0	99.8	99.4	99.1
Compensation per hour	20.0	26.3	33.9	41.7	58.2	71.3	78.0	85.5	92.9	100.0	108.4	119.2	131.1
Real compensation per hour	50.4	59.6	69.4	80.0	90.8	97.3	95.9	96.3	98.8	100.0	100.7	99.5	96.4
Unit labor cost	39.8	45.2	52.1	53.3	67.6	75.2	84.2	90.2	94.8	100.0	108.6	119.9	132.3
Unit nonlabor payments	43.5	47.8	50.8	57.8	63.4	75.6	78.9	90.7	94.4	100.0	105.1	110.9	118.4
Implicit price deflator	41.0	46.1	51.7	54.8	66.2	75.3	82.4	90.4	94.7	100.0	107.4	116.9	127.6
<b>Nonfarm business sector:</b>													
Output per hour of all persons	56.2	62.7	68.2	80.4	86.7	95.3	93.1	95.0	98.1	100.0	99.8	99.0	98.6
Compensation per hour	21.8	28.3	35.6	42.8	58.6	71.7	78.4	86.0	93.0	100.0	108.5	118.8	130.5
Real compensation per hour	55.0	63.9	73.0	82.2	91.5	97.7	96.4	96.8	99.0	100.0	100.7	99.2	96.0
Unit labor cost	38.8	45.1	52.3	53.2	67.6	75.2	84.3	90.5	94.8	100.0	108.7	120.0	132.4
Unit nonlabor payments	42.8	47.9	50.5	58.2	64.0	71.9	76.1	88.9	94.0	100.0	103.6	108.5	117.6
Implicit price deflator	40.2	46.0	51.7	54.9	66.4	74.1	81.6	89.9	94.5	100.0	107.0	116.2	127.4
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	( <sup>1</sup> )	( <sup>1</sup> )	66.3	79.9	85.4	94.5	91.3	94.4	97.4	100.0	100.4	100.3	100.8
Compensation per hour	( <sup>1</sup> )	( <sup>1</sup> )	36.3	43.0	58.3	70.8	77.6	85.5	92.5	100.0	108.2	118.6	130.4
Real compensation per hour	( <sup>1</sup> )	( <sup>1</sup> )	74.2	82.6	91.0	96.5	95.4	96.3	98.5	100.0	100.5	99.0	95.9
Unit labor cost	( <sup>1</sup> )	( <sup>1</sup> )	54.7	53.8	68.3	74.9	85.1	90.6	95.0	100.0	107.8	118.2	129.4
Unit nonlabor payments	( <sup>1</sup> )	( <sup>1</sup> )	54.6	60.8	63.1	70.7	75.7	90.9	95.0	100.0	103.8	108.3	117.3
Implicit price deflator	( <sup>1</sup> )	( <sup>1</sup> )	54.7	56.2	66.5	73.4	81.8	90.7	95.0	100.0	106.4	114.8	125.2
<b>Manufacturing:</b>													
Output per hour of all persons	49.5	56.5	60.1	74.6	79.2	93.1	90.9	93.5	97.7	100.0	100.9	101.9	101.4
Compensation per hour	21.5	28.8	36.7	42.9	57.6	69.1	76.4	85.5	92.4	100.0	108.2	118.7	131.2
Real compensation per hour	54.1	65.2	75.1	82.3	89.9	94.2	93.9	96.3	98.3	100.0	100.5	99.1	96.5
Unit labor cost	43.4	51.0	61.1	57.4	72.7	74.2	84.1	91.4	94.6	100.0	107.3	116.5	129.4
Unit nonlabor payments	55.1	59.4	62.0	70.3	66.0	71.6	70.4	88.5	95.1	100.0	104.7	105.7	( <sup>1</sup> )
Implicit price deflator	46.8	53.4	61.3	61.2	70.7	73.4	80.1	90.6	94.7	100.0	106.5	113.4	( <sup>1</sup> )

<sup>1</sup> Not available.

**32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1970-80**

Item	Year											Annual rate of change	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1950-80	1960-80
<b>Private business sector:</b>													
Output per hour of all persons	0.9	3.6	3.5	2.7	-2.3	2.3	3.3	2.1	-0.2	-0.4	-0.3	2.5	2.2
Compensation per hour	7.4	6.6	6.5	8.0	9.4	9.6	8.6	7.7	8.4	9.9	10.0	6.0	7.1
Real compensation per hour	1.4	2.2	3.1	1.7	-1.4	0.4	2.7	1.2	0.7	-1.2	-3.1	2.4	1.9
Unit labor cost	6.4	2.9	2.9	5.2	11.9	7.2	5.1	5.5	8.6	10.4	10.3	3.5	4.8
Unit nonlabor payments	0.7	7.6	4.5	5.9	4.4	15.0	4.1	5.9	5.1	5.5	6.8	3.2	4.4
Implicit price deflator	4.5	4.4	3.4	5.4	9.4	9.7	4.7	5.6	7.4	8.8	9.2	3.4	4.7
<b>Nonfarm business sector:</b>													
Output per hour of all persons	0.3	3.3	3.7	2.5	-2.4	2.1	3.2	2.0	-0.2	-0.8	-0.4	2.1	1.9
Compensation per hour	7.0	6.6	6.7	7.6	9.4	9.6	8.1	7.6	8.5	9.6	9.8	5.7	6.8
Real compensation per hour	1.0	2.2	3.3	1.3	-1.4	0.4	2.2	1.0	0.7	-1.5	-3.3	2.1	1.6
Unit labor cost	6.6	3.1	2.8	4.9	12.1	7.4	4.7	5.5	8.7	10.4	10.3	3.5	4.8
Unit nonlabor payments	1.1	7.4	3.2	1.3	5.9	16.7	5.7	6.4	3.6	4.8	8.3	3.1	4.2
Implicit price deflator	4.8	4.5	3.0	3.7	10.1	10.3	5.1	5.8	7.0	8.6	9.7	3.4	4.6
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	0.4	4.8	3.0	2.6	-3.4	3.4	3.2	2.7	0.4	-0.1	0.5	( <sup>1</sup> )	( <sup>1</sup> ) 2.1
Compensation per hour	6.8	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	9.6	10.0	( <sup>1</sup> )	( <sup>1</sup> ) 6.7
Real compensation per hour	0.8	2.1	2.5	1.4	-1.1	0.9	2.3	1.5	0.5	-1.5	-3.1	( <sup>1</sup> )	( <sup>1</sup> ) 1.5
Unit labor cost	6.3	1.6	2.8	4.9	13.6	6.5	4.9	5.3	7.8	9.7	9.5	( <sup>1</sup> )	( <sup>1</sup> ) 4.8
Unit nonlabor payments	0.5	7.4	2.7	1.5	7.1	20.1	4.6	5.2	3.8	4.4	8.3	( <sup>1</sup> )	( <sup>1</sup> ) 3.8
Implicit price deflator	4.4	3.5	2.8	3.8	11.4	10.9	4.8	5.2	6.4	7.9	9.1	( <sup>1</sup> )	( <sup>1</sup> ) 4.3
<b>Manufacturing:</b>													
Output per hour of all persons	-0.2	6.1	5.0	5.4	-2.4	2.9	4.4	2.4	0.9	1.0	0.5	( <sup>1</sup> ) 2.6	( <sup>1</sup> ) 2.7
Compensation per hour	6.8	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	9.7	10.5	5.6	6.7
Real compensation per hour	0.8	1.8	2.0	0.9	-0.3	2.5	2.1	1.7	0.5	-1.4	-2.7	2.0	1.5
Unit labor cost	7.0	0.0	0.3	1.7	13.3	8.8	3.4	5.7	7.3	8.6	11.0	( <sup>1</sup> ) 2.9	( <sup>1</sup> ) 3.9
Unit nonlabor payments	-2.5	11.2	0.8	-3.3	-1.8	25.9	7.4	5.2	4.7	0.9	( <sup>1</sup> )	( <sup>1</sup> ) 2.8	( <sup>1</sup> ) 4.4
Implicit price deflator	4.3	3.1	0.5	0.3	9.0	13.1	4.6	5.6	6.5	6.4	( <sup>1</sup> )	( <sup>1</sup> ) 5.0	( <sup>1</sup> ) 4.2

<sup>1</sup> Not available.

r = revised.

**33. Quarterly indexes of productivity, hourly compensation, unit costs, and prices, seasonally adjusted**

[1977 = 100]

Item	Annual average		Quarterly indexes										
	1979	1980	1978		1979				1980				1981
			III	IV	I	II	III	IV	I	II	III	IV	I
<b>Private business sector:</b>													
Output per hour of all persons	99.4	99.1	100.0	99.9	99.7	99.6	99.2	99.0	99.3	98.8	99.2	98.9	( <sup>1</sup> ) 99.9
Compensation per hour	119.2	131.1	109.4	111.9	115.0	118.0	120.5	123.0	126.0	129.7	132.8	135.5	( <sup>1</sup> ) 139.3
Real compensation per hour	99.5	96.4	100.5	100.3	100.6	100.3	99.0	97.8	96.5	96.3	96.7	95.7	( <sup>1</sup> ) 95.8
Unit labor cost	119.9	132.3	109.4	112.1	115.4	118.5	121.4	124.2	127.0	131.3	133.9	137.0	( <sup>1</sup> ) 139.4
Unit nonlabor payments	110.9	118.4	106.7	109.1	109.6	110.4	111.5	112.3	115.3	116.0	119.8	122.8	( <sup>1</sup> ) 127.9
Implicit price deflator	116.9	127.6	108.5	111.1	113.4	115.8	118.1	120.2	123.0	126.1	129.1	132.2	( <sup>1</sup> ) 135.5
<b>Nonfarm business sector:</b>													
Output per hour of all persons	99.0	98.6	99.9	99.8	99.5	99.1	98.7	98.6	98.6	97.9	98.8	98.7	( <sup>1</sup> ) 99.7
Compensation per hour	118.8	130.5	109.4	111.9	114.9	117.6	119.9	122.7	125.6	129.0	131.9	135.0	( <sup>1</sup> ) 138.7
Real compensation per hour	99.2	96.0	100.5	100.3	100.4	99.9	98.6	97.6	96.2	95.7	96.1	95.4	( <sup>1</sup> ) 95.4
Unit labor cost	120.0	132.4	109.5	112.2	115.4	118.7	121.5	124.4	127.4	131.8	133.5	136.8	( <sup>1</sup> ) 139.2
Unit nonlabor payments	108.5	117.6	105.1	107.0	107.1	107.7	109.3	110.2	114.0	115.2	119.2	122.1	( <sup>1</sup> ) 128.0
Implicit price deflator	116.2	127.4	108.0	110.5	112.6	115.1	117.4	119.7	122.9	126.3	128.8	131.9	( <sup>1</sup> ) 135.4
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	100.3	100.8	100.4	100.5	100.6	100.6	100.3	99.7	100.0	99.8	101.5	101.5	P 102.9
Compensation per hour	118.6	130.4	109.2	111.5	114.5	117.5	119.8	122.4	125.3	128.9	132.1	135.1	P 138.7
Real compensation per hour	99.0	95.9	100.2	99.9	100.1	99.8	98.5	97.3	95.9	95.7	96.2	95.4	P 95.4
Total unit costs	116.8	129.7	107.6	109.6	112.2	115.3	118.2	121.3	124.2	129.2	131.1	134.1	P 136.3
Unit labor cost	118.2	129.4	108.7	111.0	113.8	116.8	119.5	122.8	125.4	129.1	130.2	133.1	P 134.9
Unit nonlabor costs	112.7	130.2	104.4	106.0	107.8	111.2	114.6	117.2	120.9	129.3	133.8	136.9	P 140.2
Unit profits	99.0	90.2	105.9	108.9	105.6	100.7	97.5	92.2	95.5	83.4	89.1	92.4	P 105.1
Implicit price deflator	114.8	125.2	107.4	109.6	111.5	113.7	115.9	118.1	121.0	124.1	126.4	129.5	P 132.8
<b>Manufacturing:</b>													
Output per hour of all persons	101.9	101.4	101.7	102.0	101.4	102.3	101.9	101.9	( <sup>1</sup> ) 101.7	( <sup>1</sup> ) 100.5	( <sup>1</sup> ) 100.2	103.0	( <sup>1</sup> ) 103.8
Compensation per hour	118.7	131.2	109.1	111.5	114.5	118.5	119.7	122.0	125.0	129.6	133.5	136.8	( <sup>1</sup> ) 140.4
Real compensation per hour	99.1	96.5	100.2	100.0	100.2	100.7	98.4	97.0	95.7	96.2	( <sup>1</sup> ) 97.2	96.7	96.5
Unit labor cost	116.5	129.4	107.3	109.3	112.9	115.9	117.5	119.8	( <sup>1</sup> ) 122.9	( <sup>1</sup> ) 128.9	( <sup>1</sup> ) 133.2	132.8	( <sup>1</sup> ) 135.2

<sup>1</sup> Not available.

r = revised.



**34. Percent change from preceding quarter and year in productivity, hourly compensation, unit costs, and prices, seasonally adjusted at annual rate**

[1977 = 100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	III 1979 to IV 1979	IV 1979 to I 1980	I 1980 to II 1980	II 1980 to III 1980	III 1980 to IV 1980	IV 1980 to I 1981	IV 1978 to IV 1979	I 1979 to I 1980	II 1979 to II 1980	III 1979 to III 1980	IV 1979 to IV 1980	I 1980 to I 1981
<b>Private business sector:</b>												
Output per hour of all persons	-1.1	1.3	-1.9	1.5	-1.2	4.3	-0.9	-0.4	-0.8	0.0	-0.1	10.6
Compensation per hour	8.6	10.4	12.2	9.7	8.4	11.7	9.9	9.6	9.9	10.2	10.2	10.5
Real compensation per hour	-4.9	-5.2	-0.8	1.8	-4.0	10.2	-2.5	-4.1	-4.0	-2.3	-2.1	-0.7
Unit labor cost	9.8	9.0	14.4	8.1	9.7	17.1	10.9	10.0	10.8	10.3	10.3	9.8
Unit nonlabor payments	2.6	11.3	2.6	13.6	10.3	17.7	2.9	5.2	5.1	7.4	9.4	10.9
Implicit price deflator	7.4	9.7	10.5	9.8	9.9	10.4	8.2	8.4	9.0	9.4	10.0	10.1
<b>Nonfarm business sector:</b>												
Output per hour of all persons	-0.3	0.0	-3.0	3.8	-0.4	4.0	-1.1	-0.9	-1.2	0.1	-0.1	1.0
Compensation per hour	9.6	9.9	11.2	9.3	9.6	11.4	9.6	9.4	9.7	10.0	10.0	10.4
Real compensation per hour	-4.0	-5.7	-1.7	1.4	-2.9	-0.0	-2.7	-4.3	-4.2	-2.5	-2.3	-0.8
Unit labor cost	9.9	9.9	14.6	5.3	10.1	7.2	10.9	10.4	11.0	9.9	9.9	9.2
Unit nonlabor payments	3.3	14.6	4.2	14.9	10.0	20.8	3.0	6.4	6.9	9.1	10.8	12.3
Implicit price deflator	7.8	11.3	11.3	8.2	10.0	11.3	8.3	9.1	9.7	9.6	10.2	10.2
<b>Nonfinancial corporations:</b>												
Output per hour of all employees	-2.4	1.2	-0.5	6.9	-0.1	5.6	-0.8	-0.6	-0.7	1.2	1.8	2.9
Compensation per hour	8.9	9.8	12.0	10.3	9.2	11.2	9.8	9.5	9.7	10.3	10.3	10.7
Real compensation per hour	-4.6	-5.7	-1.0	2.3	-3.2	-0.2	-2.6	-4.2	-4.1	-2.3	-2.0	-0.5
Total unit costs	11.0	9.8	17.0	6.2	9.4	6.6	10.7	10.6	12.0	11.0	10.5	9.7
Unit labor costs	11.6	8.6	12.6	3.2	9.4	5.3	10.7	10.1	10.5	8.9	8.4	7.6
Unit nonlabor costs	9.3	13.5	30.6	14.7	9.5	10.1	10.6	12.2	16.3	16.8	16.8	15.9
Unit profits	-20.2	15.3	-41.9	30.3	15.7	66.9	-15.4	-9.5	-17.2	-8.6	0.3	10.0
Implicit price deflator	7.8	10.3	10.5	7.9	9.9	10.7	7.8	8.5	9.1	9.1	9.6	9.7
<b>Manufacturing:</b>												
Output per hour of all persons	0.1	0.7	-4.6	-1.1	11.7	3.1	-0.1	-0.3	-1.7	-1.6	1.1	2.1
Compensation per hour	8.1	10.1	15.5	12.7	10.2	10.9	9.4	9.1	9.1	11.6	12.1	12.3
Real compensation per hour	-5.4	-5.6	2.1	4.6	-2.4	-0.5	-2.9	-4.5	-4.5	-1.2	-0.4	0.9
Unit labor cost	8.0	10.8	21.1	-14.0	-1.3	7.5	9.6	8.8	11.2	13.4	10.8	10.0

<sup>1</sup> Not available.

r = revised.

## LABOR-MANAGEMENT DATA

MAJOR COLLECTIVE BARGAINING DATA are obtained from contracts on file at the Bureau of Labor Statistics, direct contact with the parties, and from secondary sources. Additional detail is published in *Current Wage Developments*, a monthly periodical of the Bureau. Data on work stoppages are based on confidential responses to questionnaires mailed by the Bureau of Labor Statistics to parties involved in work stoppages. Stoppages initially come to the attention of the Bureau from reports of Federal and State mediation agencies, newspapers, and union and industry publications.

### Definitions

Data on wage changes apply to private nonfarm industry agreements covering 1,000 workers or more. Data on wage and benefit changes *combined* apply only to those agreements covering 5,000 workers or more. **First-year wage settlements** refer to pay changes going into effect within the first 12 months after the effective date of

the agreement. **Changes over the life of the agreement** refer to total agreed upon settlements (exclusive of potential cost-of-living escalator adjustments) expressed at an average annual rate. **Wage-rate changes** are expressed as a percent of straight-time hourly earnings, while **wage and benefit changes** are expressed as a percent of total compensation.

**Effective wage-rate adjustments** going into effect in major bargaining units measure changes actually placed into effect during the reference period, whether the result of a newly negotiated increase, a deferred increase negotiated in an earlier year, or as a result of a cost-of-living escalator adjustment. Average adjustments are affected by workers receiving no adjustment, as well as by those receiving increases or decreases.

**Work stoppages** include all known strikes or lockouts involving six workers or more and lasting a full shift or longer. Data cover all workers idle one shift or more in establishments directly involved in a stoppage. They do not measure the indirect or secondary effect on other establishments whose employees are idle owing to material or service shortages.

### 35. Wage and benefit settlements in major collective bargaining units, 1976 to date

[In percent]

Sector and measure	Annual average					Quarterly average								
	1976	1977	1978	1979	1980	1979				1980				1981 P
						I	II	III	IV	I	II	III	IV	
Wage and benefit settlements, all industries:														
First-year settlements .....	8.5	9.6	8.3	9.0	10.4	2.8	10.5	9.0	8.5	8.8	10.2	11.4	8.5	10.4
Annual rate over life of contract .....	6.6	6.2	6.3	6.6	7.1	5.3	7.8	6.1	6.0	6.7	7.4	7.2	6.1	7.3
Wage rate settlements, all industries:														
First-year settlements .....	8.4	7.8	7.6	7.4	9.5	5.7	8.9	6.8	6.3	8.2	9.1	10.5	8.3	9.0
Annual rate over life of contract .....	6.4	5.8	6.4	6.0	7.1	6.6	7.2	5.1	5.3	6.5	7.3	7.4	6.5	7.7
Manufacturing:														
First-year settlements .....	8.9	8.4	8.3	6.9	7.4	8.7	9.7	6.3	5.6	7.2	6.7	8.4	7.8	9.0
Annual rate over life of contract .....	6.0	5.5	6.6	5.4	5.4	7.7	8.1	4.7	4.2	5.7	5.1	5.6	5.8	6.7
Nonmanufacturing (excluding construction):														
First-year settlements .....	8.6	8.0	8.0	7.6	9.5	3.2	8.5	9.4	7.8	9.4	10.3	9.5	8.2	8.3
Annual rate over life of contract .....	7.2	5.9	6.5	6.2	6.6	5.6	5.8	6.5	7.4	7.6	8.5	5.9	6.8	7.6
Construction:														
First-year settlements .....	6.1	6.3	6.5	8.8	13.6	9.7	8.7	9.7	7.5	10.8	12.2	15.4	14.3	13.4
Annual rate over life of contract .....	6.2	6.3	6.2	8.3	11.5	8.2	8.3	8.5	7.6	9.1	10.4	13.0	12.0	11.6

### 36. Effective wage adjustments going into effect in major collective bargaining units, 1976 to date

[In percent]

Sector and measure	Average annual changes					Average quarterly changes								
	1976	1977	1978	1979	1980	1979				1980				1981 <sup>P</sup>
						I	II	III	IV	I	II	III	IV	I
Total effective wage rate adjustment, all industries .....	8.1	8.0	8.2	9.1	9.9	1.4	2.6	3.3	1.6	1.6	3.3	3.5	1.3	1.3
Change resulting from—														
Current settlement .....	3.2	3.0	2.0	3.0	3.6	.2	1.1	1.0	.5	.4	1.0	1.7	.5	.2
Prior settlement .....	3.2	3.2	3.7	3.0	3.5	.6	1.0	1.0	.4	.5	1.4	1.2	.3	.5
Escalator provision .....	1.6	1.7	2.4	3.1	2.8	.6	.5	1.2	.7	.7	.8	.7	.6	.5
Manufacturing .....	8.5	8.4	8.6	9.6	10.2	1.5	2.3	3.2	2.4	2.0	3.4	2.9	1.7	1.6
Nonmanufacturing .....	7.7	7.6	7.9	8.8	9.7	1.4	2.8	3.4	1.0	1.3	3.2	4.0	1.1	1.0

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

### 37. Work stoppages, 1947 to date

Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (thousands)	In effect during month (thousands)	Number (thousands)	Percent of estimated working time
1947 .....	3,693		2,170		34,600	.30
1948 .....	3,419		1,960		34,100	.28
1949 .....	3,606		3,030		50,500	.44
1950 .....	4,843		2,410		38,800	.33
1951 .....	4,737		2,220		22,900	.18
1952 .....	5,117		3,540		59,100	.48
1953 .....	5,091		2,400		28,300	.22
1954 .....	3,468		1,530		22,600	.18
1955 .....	4,320		2,650		28,200	.22
1956 .....	3,825		1,900		33,100	.24
1957 .....	3,673		1,390		16,500	.12
1958 .....	3,694		2,060		23,900	.18
1959 .....	3,708		1,880		69,000	.50
1960 .....	3,333		1,320		19,100	.14
1961 .....	3,367		1,450		16,300	.11
1962 .....	3,614		1,230		18,600	.13
1963 .....	3,363		941		16,100	.11
1964 .....	3,655		1,640		22,900	.15
1965 .....	3,963		1,550		23,300	.15
1966 .....	4,405		1,960		25,400	.15
1967 .....	4,595		2,870		42,100	.25
1968 .....	5,045		2,649		49,018	.28
1969 .....	5,700		2,481		42,869	.24
1970 .....	5,716		3,305		66,414	.37
1971 .....	5,138		3,280		47,589	.26
1972 .....	5,010		1,714		27,066	.15
1973 .....	5,353		2,251		27,948	.14
1974 .....	6,074		2,778		47,991	.24
1975 .....	5,031		1,746		31,237	.16
1976 .....	5,648		2,420		37,859	.19
1977 .....	5,506		2,040		35,822	.17
1978 .....	4,230		1,623		36,922	.17
1979 .....	4,827		1,727		34,754	.15
1980 <sup>P</sup> : May .....	388	704	116	172	2,099	.10
June .....	385	699	173	224	2,441	.13
July .....	414	733	241	336	3,954	.21
August .....	374	704	80	211	3,079	.15
September .....	420	724	126	247	3,407	.20
October .....	347	630	90	200	2,195	.11
November .....	201	427	52	101	1,110	.06
December .....	66	247	18	48	617	.03
1981 <sup>P</sup> : January .....	253	297	50	68	614	.03
February .....	347	517	90	136	647	.04
March .....	314	545	271	336	1,419	.07
April .....	371	560	101	273	5,117	.25
May .....	473	688	152	383	5,857	.31



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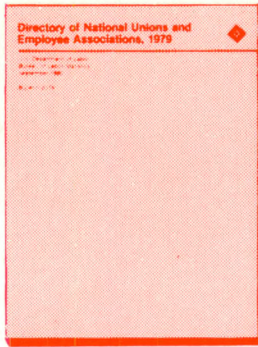
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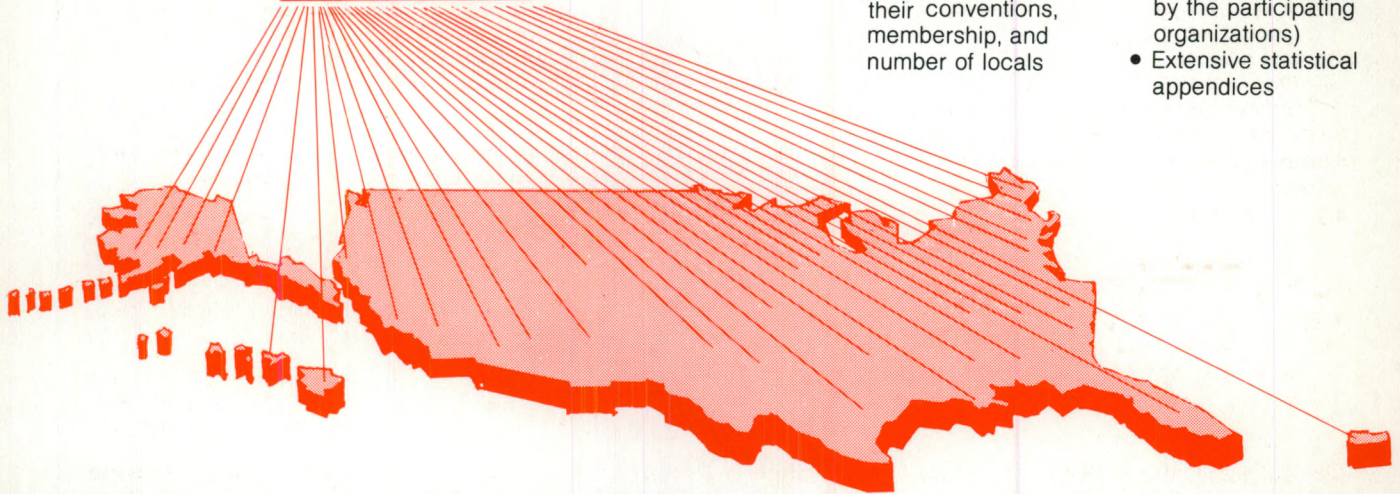
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