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Employment
in 1981





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MONTHLY LABOR REVIEW

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Henry Lowenstern, Editor-in-Chief
Robert W. Fisher, Executive Editor

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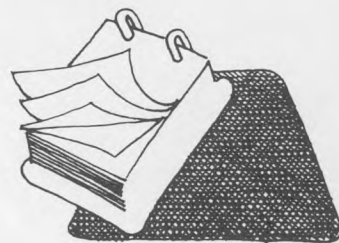
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Labor Month In Review



ECONOMIC HARDSHIP. To what extent has the link between unemployment and economic hardship been weakened? A new Bureau of Labor Statistics study sheds some light on that question. Data for the study are drawn from the March 1980 Current Population Survey. Excerpts:

Economic and social changes over the past 40 years have altered the relationship between a worker's experience of unemployment and the family's income position. Unemployment compensation and other forms of social insurance have helped to offset at least part of the reduction in family income resulting from the loss of a job. In addition, the growth of two-earner families has made family income less sensitive to fluctuations in the earnings of a single family member.

Poverty-jobless link. If it is an oversimplification to say that unemployment always means hardship for families, it is equally an oversimplification to say that the connection between the two has been broken.

The data confirm that today poverty does not always accompany unemployment. Of the 18 million workers who experienced some spells of unemployment during 1979, only 14 percent belonged to families whose incomes were below the poverty level. Similarly, about 13 percent of the workers who worked part time involuntarily belonged to families in poverty. Even for fully employed workers whose hourly earnings were at or near the minimum wage, the tie between the earnings level of individual workers and the income of their families was not a tight one. Approximately 4.8 million workers had annual earnings that implied that they were working at or near the minimum wage; less than one-quarter of these (1.1 million) were in families of households below the poverty level.

Family make-up link. On the other hand, a more intensive examination of the data suggests that the overall numbers hide important relationships. The links between a worker's low earnings, or an interruption in those earnings, and family income depend greatly on the composition of the family to which the worker belongs. For workers other than husbands in married-couple families (these workers include wives and "others," mostly youth), low earnings or interruptions in earnings occasioned by unemployment or part-time work are not, in the vast majority of cases, associated with family income that falls below the poverty level. However, the contrary is the case for workers who do not reside in a married-person household and who experience low earnings, unemployment, or part-time work. For example, the poverty rate reaches 51 percent for families maintained by women who could only find part-time work, and nearly one-half of the families of unemployed women who maintain families are below the poverty level. Much the same picture emerges for unrelated individuals (persons who do not maintain families) and, to a somewhat lesser extent, for men who maintain families.

Thus, the analysis suggests that, for many families, poverty is not a direct and inevitable result of unemployment, short workweeks, or low earnings experienced by one or more family members. But it is primarily in married-couple households having two or more earners that the traditional relationship between labor market status and the economic condition of the family is broken. For other types of households—men and women who maintain families and persons who live by themselves outside of family units—low earnings, unemployment, short workweeks, and part-year work are linked fairly closely with economic hardship.

Qualification. These conclusions must be qualified in the sense that there are many cases which cannot be thoroughly explored from the data available. For example, when a middle-income worker is laid off from a well paying job, the family may have sufficient resources to avoid falling all the way to the poverty level; nevertheless, possible consequences such as foreclosures or mounting debt can entail substantial economic hardship, even if not as extreme as a decline to poverty status. In addition, there are many cases where the interruption of labor income means severe economic distress which cannot be evaluated with existing data. For example, it is known that the unemployment rate for wives whose husbands are unemployed is much higher than that of wives whose husbands are employed. When two workers in a married-couple household are unemployed, the implications for family income are undoubtedly severe, but the present data are not detailed enough to analyze these cases.

Data include, in addition to normal wage and salary income, cash payments from such sources as unemployment compensation and other forms of social insurance. Not included are noncash forms of assistance (such as food stamps) to which a low-income family may be entitled. They are, however, the most comprehensive data on family income yet assembled that can be related to the labor force status and activities of individual family members.

The 58-page study also analyzes other aspects of insufficient employment and links these individual employment problems to family income and poverty.

Linking Employment Problems to Economic Status, BLS Bulletin 2123, is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, and from BLS regional offices listed on the inside front cover. Price \$4.50. □

The employment situation in 1981: new recession takes its toll

By yearend, joblessness had surged, propelled by cutbacks in housing, auto, and related industries; employment was back to its year-ago level; the employment-population ratio was at a 4-year low; and the number of discouraged workers and involuntary part-timers topped previous records

ROBERT W. BEDNARZIK, MARILLYN A. HEWSON,
AND MICHAEL A. URQUHART

The labor market turned sour in mid-1981 as the economy entered its eighth postwar recession following a rather weak and brief recovery. High interest rates continued to plague the housing and automobile industries, which never totally recovered from 1980, and the weakness of these two critical industries had begun to spread to related industries as 1981 unfolded. Product orders were reduced, leading to increased inventories, sharp cutbacks in production, and eventually to increased layoffs and other job losses.

The labor market, which received its second jolt in as many years, was experiencing precipitous declines by the final quarter of 1981. The number of unemployed reached 9.6 million—8.8 percent of the work force—by the end of the year. There were also large increases in the number of persons reporting discouragement over job prospects and the number still employed but reporting reduced workweeks.

Although by the end of 1981 total employment was near its year ago level, the pattern during the year was one of growth through spring, stagnation in the summer, and pronounced cutbacks at the end of the year. The percentage of the population employed was at a 4-year low by December.¹

Unemployment rises sharply at yearend

The recovery from the 1980 recession had only a marginal impact on the Nation's unemployment rate, which never dipped below the 7.2-percent mark (seasonally adjusted) during 1981. Despite an increase in total employment of 1.8 million between the second quarters of 1980 and 1981, the growth was insufficient to have a marked improvement on joblessness, as the unemployment rate only dropped from the 1980 high of 7.8 percent to 7.2 percent in July 1981. As economic activity declined in the second half, the number of jobless persons jumped by nearly 2 million from July to December, and the overall unemployment rate reached 8.8 percent, very close to the post-World War II high of 9.0 percent recorded in May 1975.

Given the persistently high rates of unemployment

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since mid-1980, the fourth quarter surge pushed the unemployment rates for many worker groups beyond those reached during the 1980 recession and, in some cases, exceeded the postwar records of the 1973-75 recession. The following tabulation shows the peak monthly jobless rates (seasonally adjusted) for major demographic groups in 1975, 1980, and 1981:

	1975	1980	1981
All workers . . .	9.0 (May)	7.8 (July)	8.8 (Dec.)
Men, age 20 and over	7.3 (May)	6.7 (July)	7.9 (Dec.)
Women, age 20 and over	8.5 (Apr.)	6.7 (July)	7.4 (Dec.)
Teenagers	20.9 (June)	19.1 (July)	21.5 (Dec.)
White	8.4 (May)	6.9 (July)	7.7 (Dec.)
Blacks	15.4 (Sept.)	15.2 (July)	17.3 (Dec.)

Joblessness among men (20 years and over), which had shown some improvement early in the recent recovery period, increased 2.2 percentage points between July and December 1981 to 7.9 percent, exceeding the postwar high reached in 1975. The rate for women showed virtually no improvement in the recovery period, remaining at about 6.7 percent before rising to 7.4 percent by December. While this was more than half a point above the 1980 high for women, it was still more than a point below the 1975 record. The greater increase in unemployment among men was primarily due to their predominance in industries experiencing extensive job cutbacks. In December, the rate for men actually exceeded that for women, an unusual labor market occurrence.

The employment situation for teenagers continued to worsen; their unemployment rate has shown a step-like pattern of deterioration since mid-1979. By the end of 1981, the teenage rate of 21.5 percent was the highest ever recorded, more than half a point above that reached in 1975. Joblessness among women who maintain families followed a similar pattern, rising from 8.1 to 9.1 percent between the third quarters of 1979 and 1980 before leaping to 10.7 percent in the third quarter of 1981, about a point above their 1975 peak.

The rise in unemployment among blacks² affected both adults and teenagers and occurred earlier in the year than was the case for white workers. Indeed, unemployment among blacks showed virtually no recovery from the 1980 recession and their jobless rate was hitting new records by summer. Their overall rate was 17.3 percent by December. The black share of total unemployment was 21 percent in 1981, double their labor force share. This was little changed from 1980, but higher than their share during the early 1970's. Unemployment for Hispanic workers seasawed over the year, ending the year at slightly above 11 percent, about a point higher than a year ago. Most of the increase was accounted for by women age 20 and over. Persons of

Puerto Rican origin experienced the highest rate of joblessness in 1981, averaging 13.6 percent for the year; the unemployment rate for persons of Mexican origin averaged 10.5 percent and those of Cuban origin, 9 percent.

Industry and occupation. Substantial fourth quarter increases pushed joblessness among workers in most major industry groups above 1980 recession rates by yearend.³ (See table 1.) Attention during the year was focused on those industries directly affected by continued high interest rates, most notably housing construction, automobile manufacturing, and related industries.

There was some slight improvement in the unemployment rate for workers in the construction industry from the third quarter of 1980 to the first quarter of 1981. The rate moved steadily higher, as the year progressed, reaching 18.1 percent in December. The patterns for the housing-related lumber and wood products, furniture and fixtures, and stone, clay and glass industries were similar. Two of the three detailed manufacturing industries whose 1981 peak jobless rates exceeded those reached in both 1980 and in 1975 were housing related; the other, food processing, has undergone several technological changes in recent years to better insulate itself against inflationary pressures. The following tabulation show peak monthly unemployment rates in selected manufacturing industries:

	1975	1980	1981
Lumber and wood products	16.0 (May)	17.0 (June)	22.0 (Dec.)
Stone, clay and glass	11.8 (Apr.)	10.7 (May)	12.7 (Dec.)
Food processing	11.5 (June)	10.4 (Dec.)	12.1 (Dec.)

Except for furniture and fixtures, the manufacturing industries whose 1981 peak jobless rates exceeded those attained in 1980, but not those in 1975, were auto related:

	1975	1980	1981
Furniture and fixtures	16.4 (Feb.)	11.3 (Sep.)	13.2 (Dec.)
Textiles	17.9 (Jan.)	11.9 (Oct.)	14.1 (Dec.)
Chemicals	7.9 (May)	5.3 (Aug.)	6.2 (Dec.)
Rubber and plastics	15.5 (Mar.)	12.9 (July)	15.1 (Jan.)

December unemployment rates for workers in primary and fabricated metals, machinery, and electrical equipment, while up from earlier in the year, were still below 1980 highs.

Joblessness among workers in the automobile industry showed improvement between the third quarter of 1980 and the second quarter of 1981, dropping from 22.4 percent to 11.8 percent, but hit 21.7 percent in December. Most of the reduction was due to workers finding jobs elsewhere (although some auto workers were

Table 1. Selected unemployment indicators, seasonally adjusted quarterly averages, 1980-81

[Unemployment rates]

Category	1980				1981			
	I	II	III	IV	I	II	III	IV
Total, 16 years and over	6.3	7.3	7.6	7.5	7.4	7.4	7.4	8.3
Men, 20 years and over	4.9	6.2	6.6	6.3	6.0	6.1	6.0	7.2
Women, 20 years and over	5.8	6.4	6.5	6.7	6.6	6.7	6.7	7.2
Both sexes, 16 to 19 years	16.4	17.9	18.7	18.2	19.1	19.2	19.1	21.1
White	5.5	6.5	6.8	6.6	6.5	6.5	6.4	7.3
Black	12.8	14.3	15.0	15.1	14.6	15.1	15.8	17.0
Hispanic origin	9.1	10.1	10.9	10.1	11.0	9.8	9.8	11.1
Married men, spouse present	3.4	4.4	4.8	4.4	4.1	4.0	4.1	5.2
Married women, spouse present	5.3	5.9	6.1	5.9	5.9	5.8	5.7	6.4
Women who maintain families	8.8	8.7	9.1	10.1	9.9	10.3	10.7	10.6
Full-time workers	5.9	7.0	7.5	7.3	7.1	7.1	7.0	8.1
Part-time workers	8.7	8.9	8.7	8.7	9.1	9.3	9.5	9.6
White-collar workers	3.4	3.7	3.8	3.9	3.9	4.0	4.0	4.3
Blue-collar workers	8.2	10.5	11.1	10.6	10.1	9.8	9.7	11.8
Service workers	7.2	8.0	8.3	8.2	8.4	9.0	8.6	9.5
Farmworkers	4.3	4.8	4.9	4.3	5.0	5.1	4.7	6.3
Nonagricultural private wage and salary workers ¹	6.3	7.7	7.9	7.7	7.5	7.4	7.4	8.5
Construction	12.0	15.3	16.1	14.2	14.0	15.4	15.9	17.8
Manufacturing	6.8	9.0	9.4	9.0	8.4	7.6	7.4	9.7
Durable goods	6.7	9.8	10.1	9.2	8.4	7.3	7.1	10.0
Nondurable goods	6.9	8.0	8.3	8.6	8.4	8.1	7.9	9.2
Transportation and public utilities	4.2	4.9	5.6	5.2	5.7	5.4	4.4	5.5
Wholesale and retail trade	6.6	7.5	7.7	7.9	7.7	7.8	8.1	8.6
Finance and service industries	4.8	5.4	5.6	5.6	5.8	5.8	5.8	6.2
Government workers	4.0	4.0	4.2	4.3	4.4	4.7	4.6	5.0
Agricultural wage and salary workers	10.0	11.4	11.7	10.8	11.8	11.2	11.3	14.1

¹Includes mining, not shown separately.

recalled to their jobs), because employment growth in the industry was essentially nonexistent after mid-1979.

The dramatic yearend surge in joblessness brought the jobless rate for all factory workers to 11.0 percent in December, 11.8 percent for those in durables and 9.6 percent for nondurables.

Among the major occupational groups, the jobless pattern showed generally little or no improvement for the first three quarters followed by a surge in the fourth, especially among blue-collar workers. Their jobless rate was up to 12.7 percent by December, as craftworkers, operatives, and nonfarm laborers all recorded increases. White-collar unemployment was also up in December to 4.5 percent, with the sharpest increase occurring among professional and technical workers, whose December rate of 3.4 percent almost equaled its previous high in 1975. Unemployment among clerical workers was also up at yearend.

Reasons for unemployment. In the household survey, jobless persons are categorized according to whether they lost their last job (due to either a layoff or a permanent separation), voluntarily left a job, entered the labor force for the first time, or began to search for work after a period of absence from the labor market. The distribution of total unemployment by these groups changes over the business cycle. During economic contractions, there, of course, are sharp increases in job-loss unemployment, especially in that due to layoff. In

contrast, there is normally a decline in the number of persons who began looking for work because they quit their last job.

As a result of the weak recovery from the 1980 recession, job losers' share of total unemployment remained high throughout the year. (See table 2.) The first quarter level of 4 million, the low for the year, was still more than a million above pre-1980 recession levels. While historically the percentage of job losers usually drops to around 40 percent during recoveries, in 1981 they represented about 50 percent of total unemployment through the third quarter. At 56 percent in December, the percentage of job losers was very close to the 58-percent high reached in the 1973-75 recession.

The number of persons on layoff, a very sensitive cyclical measure, did show a decline of a half million between the third quarters of 1980 and 1981, before rising sharply in the final quarter. At 2 million in December, the number on layoff was at the peak level reached in the 1975 recession.

Duration of unemployment. An important consideration in the evaluation of overall unemployment is the average duration of joblessness. Short spells of unemployment are often considered to be only a result of frictions in the labor market, as workers move from job to job and labor supply adjusts to changes in demand. The longer a period of unemployment, the greater the economic hardship that is normally associated with it.

Table 2. Reason for and duration of unemployment, seasonally adjusted quarterly averages, 1980-81

[Numbers in thousands]

Reason and duration	1980				1981			
	I	II	III	IV	I	II	III	IV
Reason								
Percent distribution	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Lost last job	47.4	52.4	54.2	53.2	50.4	50.5	51.3	54.1
On layoff	16.9	21.6	21.9	19.0	16.5	16.5	16.3	20.1
Other	30.4	30.7	32.4	34.2	33.9	34.1	34.9	34.0
Left last job	12.6	12.0	11.0	11.0	11.5	11.6	11.3	10.3
Reentered labor force	27.6	24.9	23.7	24.6	25.8	25.7	25.5	24.7
Seeking first job	12.5	10.8	11.1	11.2	12.4	12.1	11.9	11.0
Duration								
Less than 5 weeks	3,132	3,498	3,351	3,196	3,278	3,290	3,393	3,865
5-14 weeks	2,163	2,636	2,685	2,455	2,370	2,500	2,455	2,861
15 weeks and over	1,385	1,745	2,146	2,347	2,327	2,260	2,212	2,343
15-26 weeks	825	1,012	1,229	1,235	1,084	1,112	1,107	1,195
27 weeks and over	560	733	917	1,113	1,243	1,148	1,105	1,148
Median duration, in weeks	5.7	6.1	7.3	7.4	7.2	7.2	7.0	6.8
Average (mean) duration, in weeks	10.7	11.2	12.4	13.4	14.1	13.8	14.0	13.2

The two average measures of unemployment duration—the mean and the median—differ in regard to their sensitivity to changes in the number of persons experiencing either short- or long-term joblessness, the median being less sensitive to extreme values. While both generally move in the same direction as the overall unemployment rate, there is a definite lagged response at economic turning points. For example, during the 1980 recession, very long-term unemployment (27 weeks or longer) continued to increase—from 915,000 in the third quarter of 1980 to more than 1.2 million in the first quarter of 1981. (See table 2.) Due to the brevity of the recovery, such joblessness declined only slightly in the subsequent two quarters before increasing again in the last quarter.

The lag in the response of long-term joblessness to an economic upturn has different implications for the mean and median duration figures. For example, although the rate of unemployment in the 1980 recession never exceeded the 7.8-percent figure attained in July, the mean duration of unemployment continued upward through the first quarter of 1981. In economic downturns, the mean duration will frequently decline for a few months, as the newly unemployed enter the jobless stream. Thus, in 1981, mean duration actually fell in the fourth quarter. The median duration measure, by contrast, usually responds much faster to changing economic conditions and moves more in tandem with overall unemployment, because it is dominated by the movement of the shorter-term duration groups. During the 1980 recession, for example, the increase in the median generally followed that of the overall rate, though lagging somewhat in the recovery phase. In 1981, however, the yearend rise in unemployment was so steep that median duration also declined a bit in the fourth quarter. Both measures can be expected to increase in the months ahead.

Shortened workweeks and discouragement

Just as the health of the economy influences unemployment, it similarly influences the number of people who report that they want a job but are not looking for one because they believe no work is available—so-called “discouraged workers.” In addition, as the Nation enters a recession, employers frequently reduce hours where possible before laying off employees. Persons on such shortened workweeks are termed involuntary part-time workers. They, along with discouraged workers, are not reflected in the official count of unemployment, although information on both groups is important in achieving a full appreciation of the nature and magnitude of the underutilization of human resources.

Nonagricultural workers involuntarily on part-time schedules totaled more than 5 million, or 5.6 percent of the nonfarm “at-work” population, in the fourth quarter of 1981. This was the highest level recorded since collection of the data began in 1955. Slack work, the most cyclical component of involuntary part-time work, accounted for half of this total. The following tabulation shows the distribution of involuntary part-time workers (seasonally adjusted quarterly averages):⁴

	Number	Percent	Part time due to—	
			Slack work	Could find only part time
1980:				
I	3,546	3.9	1.9	1.5
II	4,171	4.6	2.5	1.7
III	4,290	4.8	2.5	1.8
IV	4,216	4.7	2.3	1.9
1981:				
I	4,323	4.7	2.4	2.0
II	4,166	4.6	2.2	2.0
III	4,460	4.9	2.4	2.1
IV	5,108	5.6	2.8	2.3

The number of persons on shortened workweeks had remained high during the recovery period between the 1980 and 1981 recessions, perhaps an indication of the general sluggishness and weakness in the labor market that prevailed at that time. There has been a growing tendency in recent years for employers to keep workers on a shortened workweek for a longer spell than in earlier years.⁵ Also, as shown above, the proportion of involuntary part-timers who reported they could only find part-time work has continued to grow in recent years, as it has for the last decade. Thus, just as the job picture is now characterized by higher overall average unemployment, it is also characterized by a higher proportion of involuntary part-time work.

Discouraged workers have neither worked nor have they looked for work during the 4-week period prior to enumeration. Historically, the number of such workers tends to move in tandem with overall unemployment.⁶ Given the generally weak economy and higher than average unemployment during 1981, the number of discouraged workers remained above the million mark throughout the year. (See table 3.) Even the deep 1973-75 recession did not result in such consistently high levels. The increase in the number of discouraged workers in the fourth quarter of 1981 brought the level to 1.2 million, slightly above the previous high recorded in the third quarter of 1975 and about 140,000 above the level of a year earlier. Nearly three-fourths of the recently discouraged cited job market factors as the reason for not looking for work, the component which gives discouragement its cyclical nature. Most of the 1981 increase occurred in the last quarter. Women and blacks are disproportionately represented among the discouraged. They made up 64 and 30 percent of these workers

Table 3. Discouraged workers, seasonally adjusted quarterly averages, 1980-81

[In thousands]

Category	1980				1981			
	I	II	III	IV	I	II	III	IV
Total	948	955	1,006	1,063	1,093	1,043	1,094	1,199
Job-market factors .	601	648	687	720	849	718	801	883
Personal factors . . .	347	307	319	343	244	325	293	316
Men	358	332	382	361	375	414	383	435
Women	591	623	624	702	718	630	711	764
White	670	640	699	684	744	708	744	807
Black and other . . .	301	309	310	356	387	326	351	364

in the last quarter of 1981, compared with 43 and 12 percent of the labor force.

The employment picture

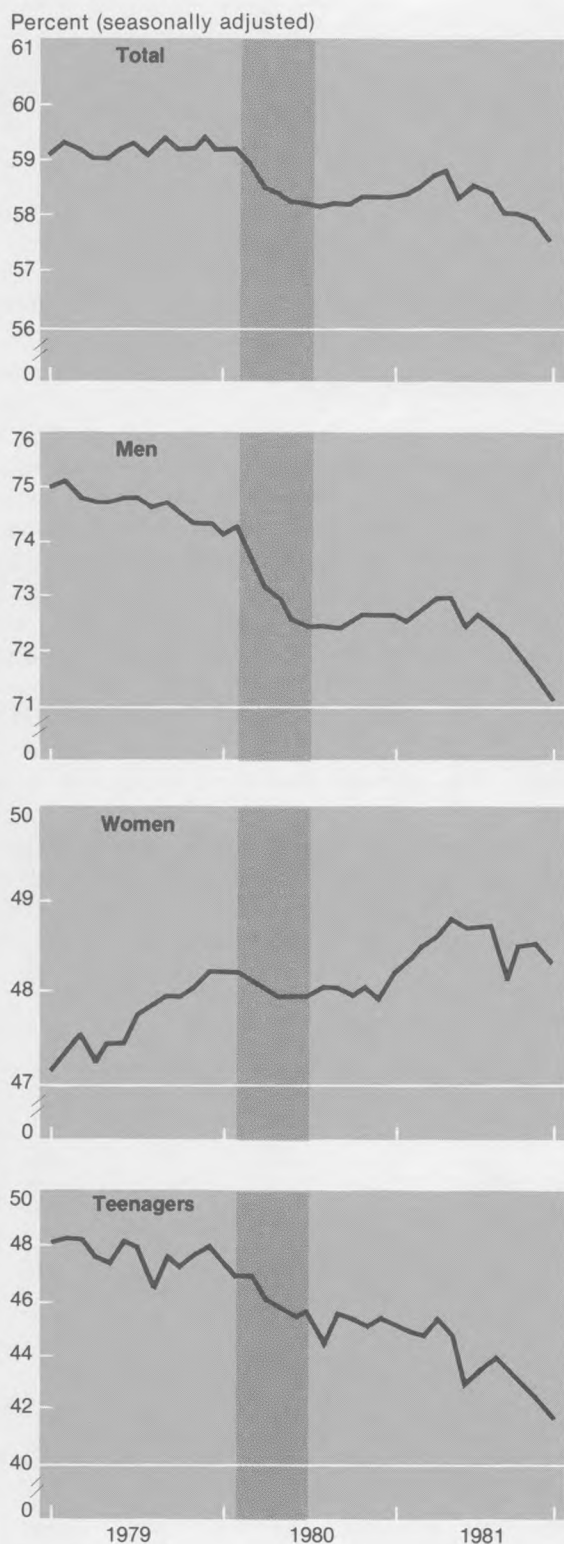
With strong growth during the first half of 1981, total employment, as measured by the survey of households, appeared to have regained much of the momentum lost during the 1980 downturn. The number of persons employed rose by 2.1 million between June's 1980 low and July 1981, reaching the 100.9-million mark in July. As the economy turned downward again in the third quarter, however, it was evident that a new recession was at hand. Especially sharp declines in the fourth quarter resulted in cutbacks totaling 1.3 million between July and December. Table 4 traces these developments on a quarterly basis for a number of worker groups.

The employment-population ratio, which measures the proportion of the population that is employed, is a useful statistic for putting these changes into perspective.⁷ It is particularly helpful in discerning the cyclical

Table 4. Employed persons by selected categories, seasonally adjusted quarterly averages, 1980-81

[In thousands]

Selected categories	1980				1981			
	I	II	III	IV	I	II	III	IV
Total, 16 years and over	99,784	98,953	99,006	99,498	100,125	100,784	100,654	100,043
Men, 20 years and over	53,478	52,887	52,849	53,211	53,448	53,767	53,786	53,327
Women, 20 years and over	38,351	38,349	38,564	38,714	39,202	39,677	39,692	39,802
Both sexes, 16 to 19 years	7,955	7,717	7,593	7,573	7,476	7,341	7,176	6,914
White	88,183	87,466	87,388	87,846	88,381	89,039	89,006	88,414
Black	9,370	9,267	9,305	9,312	9,387	9,419	9,308	9,304
Hispanic origin	5,028	5,066	5,156	5,257	5,277	5,336	5,349	5,431
White-collar workers	51,408	51,680	52,177	52,280	52,754	52,943	52,985	53,123
Professional and technical workers	15,738	15,967	16,015	16,161	16,225	16,227	16,528	16,704
Managers and administrators, except farm	10,954	11,067	11,255	11,287	11,638	11,505	11,524	11,500
Sales workers	6,363	6,162	6,329	6,357	6,384	6,455	6,435	6,423
Clerical workers	18,353	18,485	18,578	18,475	18,506	18,756	18,499	18,496
Blue-collar workers	32,397	31,325	30,860	31,297	31,211	31,673	31,486	30,660
Craft and kindred workers	13,029	12,759	12,653	12,724	12,710	12,828	12,675	12,434
Operatives, except transport	10,875	10,507	10,343	10,540	10,556	10,703	10,634	10,266
Transport equipment operatives	3,650	3,529	3,463	3,484	3,439	3,481	3,521	3,462
Nonfarm laborers	4,844	4,529	4,401	4,549	4,505	4,661	4,656	4,497
Service workers	13,247	13,213	13,253	13,209	13,358	13,384	13,400	13,611
Farmworkers	2,756	2,712	2,720	2,793	2,748	2,761	2,741	2,744

Chart 1. Employment-population ratios for selected workers, 1979-81

impact of an economic downturn on workers. Because the population is continually growing for most worker groups, a decline in the overall employment population ratio, even while employment is showing some growth, clearly reflects the inability of the economy to generate enough jobs.

From a record high of 59.4 percent in late 1979, the ratio dropped to 58.3 percent by the end of 1980, reflecting the recession and an initially weak recovery. Some improvement occurred in the first half of 1981—as the ratio inched up to 58.8 percent—but with the precipitous decline of the economy in the second half, the ratio was down to 57.5 percent by December, its lowest level in more than 4 years. During the second half, declines in the ratio were heavy among men and teenagers, while the proportion of women who were employed dipped slightly.⁸ (See chart 1.)

During the first half of 1981, strong job growth was evident among men, as they regained the job losses experienced during the 1980 downturn. By midyear, this group had registered a 550,000 advance in employment. However, employment rose only marginally during the third quarter, and then dropped by more than 400,000 in the closing months of 1981. These developments, when coupled with an increase in population, caused the employment-population ratio for men to decrease by 1.1 percentage points over the year, to 71.5 percent, a new low for this group. As industrial production declined in response to an involuntary build-up in inventories, the demand for labor in the goods-producing sector slackened accordingly. Because roughly 7 of 10 workers in the goods-producing sector are adult men, it is not surprising that they were severely affected by production cutbacks.

By contrast, women increased their employment over the year despite the recession. Their jobs are concentrated in the service-producing sector, which historically has been less responsive to cyclical movements in the economy than the goods sector. However, employment among women grew very little in the second half of the year as the downturn became more broadly based. By the fourth quarter, employment among women stood at 39.8 million, up 1.1 million from its year-earlier level. The employment-population ratio for women reached a new high of 48.7 percent in the second quarter and then slipped a bit in the last half of the year to 48.4 percent. However, this figure was still above the year-earlier level, as the percentage of employed working-age women continued its secular uptrend.

Employment among teenagers declined throughout 1981, as it has every quarter since the end of 1979. These reductions stem largely from a diminishing population, but they also reflect a marked vulnerability to cyclical fluctuations. Being less skilled and lacking the work experience of adults, teenagers suffer greater employment declines in economic downturns than the oth-

er major age-sex groups. (See chart 1.) By the end of 1981, the teenage employment-population ratio had fallen nearly 3 percentage points from the fourth quarter 1980 level and more than 5 percentage points over the 2-year period.

Employment of black workers, at 9.3 million in the fourth quarter, was unchanged from a year earlier and, in fact, has fluctuated within the narrow range of 9.2 to 9.5 million since the last quarter of 1978, while the population for this group has continued to grow. As a result, the employment-population ratio for blacks declined 3 percentage points over the last 2 years, to 50.7 percent. Inadequate job growth has also affected whites, especially men, although to a considerably lesser extent. At 58.8 percent, the ratio for all whites was down slightly over the year, while their employment rose by 600,000.

The situation facing black teenagers grew bleaker in 1981, as their employment declined by 60,000 over the year to 480,000 in the last quarter. The result was a further decline in their employment-population ratio, from 23 to about 21 percent between the fourth quarters of 1980 and 1981. The ratio had been 25 percent in the late 1970's.⁹ In contrast, almost half of all white teenag-

ers were working in the last quarter of 1981.

Hispanic employment increased gradually over the year and by the fourth quarter was about 175,000 above the level of a year earlier. Gains were about equally split among men and women, while teenage employment was down slightly. However, these gains did not keep pace with the growth of the Hispanic population and their employment-population ratio declined 0.7 point during the year, to 56.9 in the last quarter.

Industry employment. During the first half of 1981, nonfarm payroll employment showed some improvement from the recessionary levels of 1980. However, employment growth slowed markedly during the third quarter. By the fourth quarter, the weakness which had been visible all year in the housing and automobile industries had clearly spread, and nonfarm employment dropped by almost half a million. (See table 5.) The Bureau of Labor Statistics' diffusion index of private nonagricultural payroll employment provides further evidence of the pervasiveness of the 1981 decline¹⁰. In the last quarter, job gains were registered in only one-third of the 172 industries included in the index, compared to more than three-fifths a year earlier.

Table 5. Nonagricultural payroll employment, seasonally adjusted quarterly averages, 1980-81

[Numbers in thousands]

Industry	1980				1981			
	I	II	III	IV	I	II	III	IV _p
Total nonagricultural payroll employment	90,808	90,450	90,213	90,820	91,232	91,546	91,938	91,483
Goods-producing Industries	26,329	25,678	25,306	25,594	25,670	25,741	25,933	25,399
Mining	999	1,017	1,012	1,051	1,091	1,006	1,148	1,170
Construction	4,527	4,381	4,319	4,385	4,398	4,345	4,273	4,226
Manufacturing	20,803	20,280	19,976	20,158	20,181	20,390	20,512	20,003
Durable goods	12,603	12,165	11,911	12,060	12,086	12,246	12,325	11,925
Lumber and wood products	738	672	671	683	691	704	688	635
Furniture and fixtures	487	471	455	463	466	483	487	472
Stone, clay, and glass products	694	663	651	656	653	657	658	633
Primary metal industries	1,217	1,156	1,080	1,124	1,139	1,144	1,142	1,088
Fabricated metal products	1,682	1,612	1,562	1,580	1,579	1,601	1,610	1,545
Machinery, except electrical	2,533	2,510	2,460	2,487	2,483	2,508	2,542	2,520
Electric and electronic equipment	2,141	2,106	2,072	2,095	2,112	2,142	2,164	2,119
Transportation equipment	1,968	1,845	1,841	1,854	1,841	1,879	1,888	1,777
Instruments and related products	708	708	708	711	712	716	726	719
Miscellaneous manufacturing industries	436	423	412	407	410	414	421	417
Nondurable goods	8,201	8,115	8,064	8,098	8,095	8,144	8,187	8,078
Food and kindred products	1,721	1,704	1,713	1,706	1,697	1,691	1,676	1,673
Tobacco manufactures	68	70	69	70	72	71	72	70
Textile mill products	874	855	838	844	839	844	851	823
Apparel and other textile products	1,285	1,266	1,259	1,253	1,243	1,257	1,274	1,248
Paper and allied products	706	694	686	692	690	693	699	686
Printing and publishing	1,256	1,256	1,257	1,265	1,272	1,282	1,295	1,301
Chemicals and allied products	1,115	1,112	1,099	1,103	1,108	1,109	1,109	1,105
Petroleum and coal products	176	194	208	209	210	212	212	210
Rubber and miscellaneous plastics products	761	731	706	725	732	751	761	733
Leather and leather products	238	233	229	231	231	232	237	229
Service-producing industries	64,479	64,772	64,907	65,227	65,562	65,805	66,005	66,084
Transportation and public utilities	5,178	5,153	5,123	5,120	5,133	5,153	5,174	5,141
Wholesale and retail trade	20,370	20,303	20,406	20,465	20,588	20,689	20,843	20,826
Wholesale trade	5,285	5,269	5,275	5,297	5,311	5,343	5,368	5,353
Retail trade	15,085	15,034	15,131	15,168	15,277	15,346	15,475	15,473
Finance, insurance, and real estate	5,104	5,142	5,189	5,237	5,281	5,324	5,355	5,361
Services	17,656	17,796	17,988	18,162	18,338	18,525	18,694	18,825
Government	16,170	16,377	16,201	16,242	16,222	16,114	15,938	15,931
Federal	2,832	3,004	2,828	2,797	2,792	2,776	2,771	2,748
State and local	13,338	13,373	13,373	13,445	13,431	13,338	13,167	13,183

p = preliminary

The economy's slow recovery from the recession of 1980, which halted before all industries had rebounded fully, was largely due to the extremely high interest rates prevailing throughout most of 1981. The major victims of the 1980 recession were concentrated in the goods-producing sector—primarily in construction and automobile manufacturing and supplier industries tied to these two industries. As the cost of borrowing remained high, these highly interest-rate sensitive industries, after showing slightly higher employment in the first part of 1981, fell to more depressed levels than those experienced in 1980. The major source of employment strength during the year was generally in industries less sensitive to rising interest rates, such as services and mining. However, in the closing months of the year, the recession had begun to adversely affect virtually all industries. The goods-producing sector was clearly the hardest hit, notably manufacturing and construction. (See chart 2.) But even the service-producing sector felt the impact of the recession, as reflected in the considerably reduced pace of employment growth for some industries and sizable declines in the usually robust retail trade industry as the year drew to a close.

Employment in construction deteriorated significantly in 1981, following steady growth in the last half of 1980 and a modest increase in the first quarter. Mortgage interest rates remained high throughout most of the year, and the resulting sharp contraction in residential construction activity gave rise to steep job declines in construction employment. Housing starts, falling below 900,000 units in the last quarter, were the lowest since 1966; building permits, which provide an indication of future construction activity, declined steadily from April to November. By the third quarter of 1981, employment in the industry had plummeted to a level that was below its July 1980 recession low, and an additional 47,000 jobs were lost in the last quarter. The job loss totaled 192,000 from April's employment high. Moreover, the situation would have been worse were it not for relative continued strength in heavy construction.

After rising 350,000 in the first three quarters of 1981, the number of jobs in manufacturing declined by 500,000 in the final quarter to 20 million, almost 1.2 million below the all-time high reached in July 1979. More than two-thirds of this decrease was in durable goods, where every industry experienced a decline in employment in the fourth quarter. By December, durable goods manufacturing employment was 11.7 million, a level below its 1980 recession low.

The hardest hit manufacturing industry was transportation equipment, where the deterioration in the job situation has continued for nearly 3 years. After reaching a high of more than 2 million workers in early 1979, more than 330,000 jobs were lost by the end of 1981. The small recovery which took place in the first part of

1981 was due to automobile buyer and dealer incentive programs such as rebates, discounts, and low-interest financing that served to temporarily boost sales; however, automobile sales virtually collapsed in the fourth quarter, forcing automobile manufacturers to slash production and layoff workers. As a result, automobile employment fell by more than 50,000 in the final quarter. These declines, in turn, meant a drop in orders for a number of other manufacturing industries, ranging from primary and fabricated metals to textiles and rubber and plastics. With reduced orders and rising inventories, sharp cutbacks in industrial production were soon evident throughout durable goods manufacturing and among nondurable goods industries as well.

With the prolonged slump in housing activity, there were also sizable cutbacks in industries heavily dependent upon construction activity. Most notably, employment in lumber and wood products slipped significantly during the year, falling to a level 24,000 below its June 1980 recession low. Stone, clay and glass and major appliances—which are closely tied to construction activity—also witnessed significant declines over the year. (See table 5.)

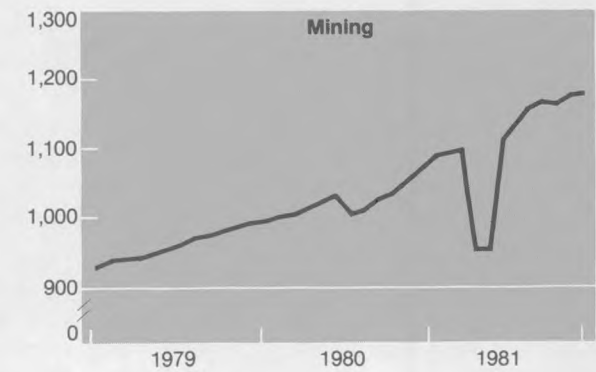
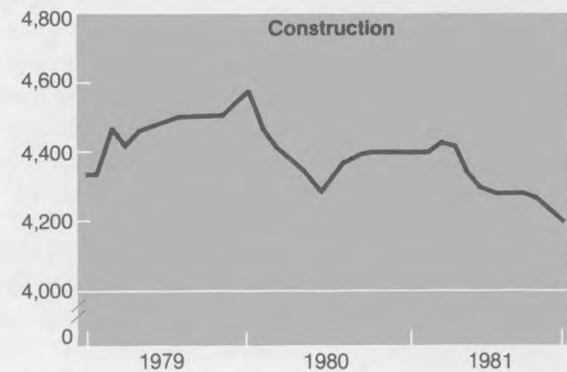
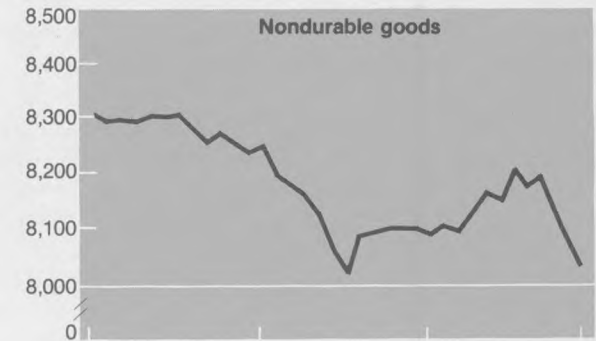
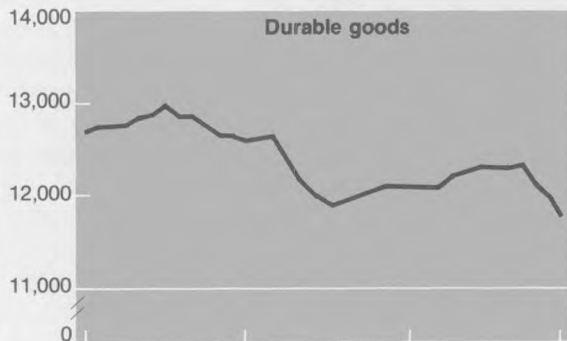
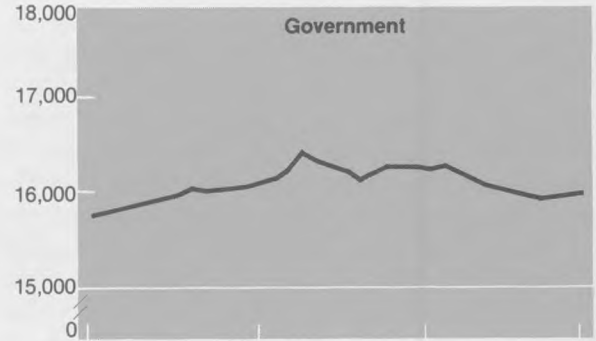
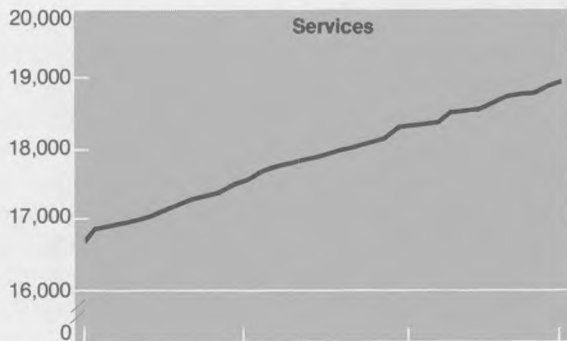
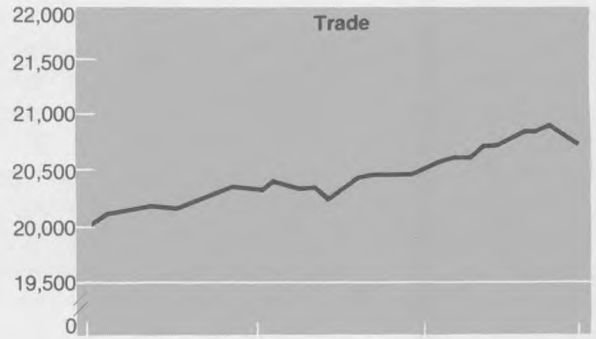
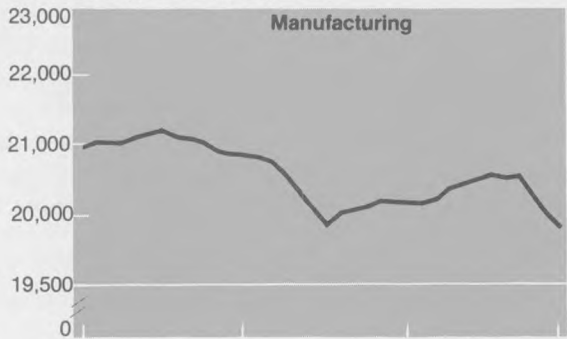
Employment in nondurable goods manufacturing rose in the first 3 quarters of 1981 but then dropped sharply in the final quarter. The largest cutback occurred in food processing, which has been following a long-term downtrend. Conversely, the only major nondurable industry to post a significant increase for the year was printing and publishing; this industry had also been largely unaffected by the 1980 downturn, possibly because of its strong ties with the less-cyclically vulnerable service-producing sector.

In marked contrast to the job declines registered in construction and manufacturing, mining grew rapidly in 1981, sustaining the pattern of growth that began in the aftermath of the 1973 oil embargo. While representing slightly more than half of the employment in the industry division, the oil and gas extraction industry accounted for more than 90 percent of the job gains during the year, a reflection of the rapid expansion in exploration and development activity. Despite a slight drop in employment in the second quarter, relating to temporary losses that stemmed from a coal strike, mining industry employment rose at a faster rate than any other nonfarm industry, climbing 11.3 percent in 1981. (See chart 2.)

Employment in the service-producing sector expanded throughout 1981, more than offsetting the employment decline in the goods sector. However, as evidence that the sector is not totally immune to recessions, the rate of increase was significantly below that witnessed during the few years just prior to the 1980 and 1981 recessions. The number of jobs rose by 860,000 from the fourth-quarter 1980 level to 66.1 million at the end of

Chart 2. Nonfarm payroll employment by selected industries, 1979-81

Thousands (seasonally adjusted)



Note: Data for November and December 1981 are preliminary.

1981. The advance was dominated by increases in the division comprising such diverse industries as legal, health, business, and educational services, hotels and other lodging, amusement and recreation, and auto repair. This amalgam of service industries posted a gain of 660,000 jobs. The increases were concentrated in the fast-growing health and business service industries. Jobs in wholesale and retail trade, after sustaining growth through the first three quarters, tapered off near yearend, as pre-Christmas hiring in 1981 was less than normal. Employment in transportation, public utilities, and finance, insurance, and real estate followed a similar pattern. These three divisions posted gains for the year, however. In contrast, government employment dropped by more than 300,000 in 1981, to 15.9 million, as a result of stringent budgets and severe staffing limitations, particularly in primary and secondary education. State and local government had the largest decline, falling 260,000 over the year to 13.2 million, while Federal government employment dropped almost 50,000.

The varied impact of the weak recovery and subsequent economic contraction are summarized in table 6. As can be seen, the goods-oriented industries were the principal job losers in 1981. For example, job losses amounted to at least 7 percent in the automobile manufacturing and lumber industries. Government—State and local as well as Federal—was the only service-producing area to register over-the-year job losses. Among job gainers, the fast-growing mining industry experienced the largest relative increase, while the other gainers were concentrated in the service-producing sector.

Hours. One of the earliest signs of the stifled recovery and subsequent downturn in economic activity was the manufacturing workweek, which began decreasing rapidly from its May 1981 peak of 40.3 hours. By the fourth quarter, the factory workweek had fallen to 39.3

hours, only 0.1 hour above its 1980 recession low. Factory overtime hours, which were largely responsible for the decline in the manufacturing workweek, had declined by 0.7 hour to 2.5 hours by the end of the year.

As a further indication of the weakening economic environment, the index of aggregate weekly hours for production or nonsupervisory workers, which reflects changes in both employment and the workweek, peaked in July and declined steadily throughout the remainder of the year.¹¹ Likewise, the manufacturing hours index began falling at midyear and continued to decline so that by yearend, it was at its lowest level in more than 5 years.

Occupations. Because employment in the goods industries is more vulnerable to cyclical contractions, it follows that the occupations which are concentrated in these industries—blue-collar—are also more adversely affected by economic downturns. Exhibiting a decline of nearly 1.9 million between the third quarters of 1979 and 1980, the number of blue-collar workers increased by only 800,000 during the short recovery through mid-1981. Subsequently, the economic situation worsened and blue-collar employment dropped 1.0 million by the end of the year. At 30.7 million in the last quarter, employment of blue-collar workers was 200,000 below the third-quarter 1980 level and 600,000 below the same quarter a year before. (See table 4.)

All of the major blue-collar occupational groups registered declines from their second quarter 1981 levels. Because 80 percent of the workers who are operatives (excluding transport) are employed in the goods-producing sector, it is not surprising that this group showed the largest decline when employment turned downward in the second half of the year. Among the other major groups, the larger the share of their employment that was in the goods sector—craftworkers (60 percent), nonfarm laborers (40 percent), and transport equipment operatives (30 percent)—the greater the extent of their decline.

Employment growth in white-collar occupations was sustained through the second quarter of 1981 but slowed markedly in the last half of the year, as the economic deterioration which set in for blue-collar workers at midyear spread. The 850,000-million job gain between the fourth quarters of 1980 and 1981 occurred almost exclusively among persons in the professional and technical and managerial fields, as salesworkers and clerical workers together accounted for only about 10 percent of the total increase in white-collar employment.

Among the other occupational categories, the number of service workers increased by 400,000 above the fourth quarter 1980 level, while the number of farmworkers, which had been on a slow downtrend

Table 6. Major payroll employment changes, by industry, fourth quarter 1980 to fourth quarter 1981

[Numbers in thousands]

Industry	Number	Percent
Job losers:		
Construction	-159	-3.6
Residential building construction	-32	-5.3
Lumber and wood products	-48	-7.0
Stone, clay, and glass products	-23	-3.5
Primary metal industries	-36	-3.2
Fabricated metal industries	-35	-2.2
Transportation equipment	-77	-4.2
Motor vehicles and equipment	-55	-7.4
Food and kindred products	-33	-1.9
Textile mill products	-21	-2.5
State and local government	-262	-1.9
Job gainers:		
Mining	119	11.3
Printing and publishing	36	2.8
Retail trade	305	2.0
Finance, insurance, and real estate	124	2.4
Services	663	3.7

throughout the postwar period until the late 1970's, showed little movement.

The labor force

The civilian labor force grew at a slower pace in 1981 than in the late 1970's. Between the fourth quarters of 1980 and 1981, the labor force was up by 1.6 million, slightly above the increase of the previous year but down from increases of about 3 million or more in the years following the 1973-75 recession. Diminished growth has not been altogether unexpected, however. The number of persons reaching labor force age has been smaller in recent years because the baby-boom generation, now aged 20 to 30, was followed by a "baby-bust" generation. The growth in the number of women in the labor force continued, although it did slow considerably in the latter half of the year. Such growth still accounted for two-thirds of the total labor force increase. At 6.9 million in the last quarter, women accounted for about 43 percent of the work force.

Overall, the percentage of the working-age population employed or unemployed—the labor force participation rate—was up slightly in 1981 to 63.9 percent. (See table 7.) The participation of women has increased from rates slightly above 30 percent in the late 1940's to more than 52 percent in 1981, while the rates for men declined. Early postwar increases were concentrated among older women, those who had largely completed the time-consuming portion of their child-rearing responsibilities. But in the past two decades, the greatest labor force increases have occurred among women under age 35. Many of these women delayed marriage, and childbearing, to pursue careers. Even when they had children, many retained their jobs rather than leave the labor force, as in earlier times. The trend may have gotten an added push in the 1970's by a desire to maintain family buying power in the face of inflationary pressures. The labor force participation rate for women near normal retirement ages has recently turned downward, joining a long-standing trend for men.

The participation rate for men, down slightly to 79.0

Table 7. Labor force participation rates for selected demographic groups, annual averages, 1951-81

	1951	1961	1971	1981
Total	59.3	59.3	60.2	63.9
Teenagers, 16-19 years	52.2	46.9	49.7	55.4
Men, 20 years and over	88.2	85.7	82.1	79.0
20-24 years	88.4	87.8	83.0	85.5
25-34 years	96.9	97.5	95.9	94.9
35-54 years	96.8	96.6	95.2	93.5
55-64 years	87.2	87.3	82.1	70.6
65 years and over	44.9	31.7	25.5	18.4
Women, 20 years and over	34.0	38.0	43.3	52.1
20-24 years	46.5	47.0	57.7	69.6
25-34 years	35.4	36.4	45.6	66.7
35-54 years	39.7	46.8	52.9	64.2
55-64 years	27.6	37.9	42.9	41.4
65 years and over	8.9	10.7	9.5	8.0

percent between 1980 and 1981, has declined fairly steadily over the postwar years, primarily a result of the continued early labor force withdrawal among older men. For example, there was an especially large decline among those 55 to 64 years in the past decade, indicative of an improved financial ability to retire. Participation rates have actually increased for young adults, and they remained quite high (and little changed) for men in the prime working ages. The rate for teenagers had increased steadily since 1965, reaching a high of 57.9 percent in 1979, before declining in the last 2 years.

AS 1981 ENDED, the country was mired in a recession, the eighth in the post-World War II era. All recessions are separate and distinct in terms of magnitude, duration and breadth. However, this episode is unique from the previous seven by the fact that there was a rather limited recovery from its 1980 predecessor, and that two key industries—notably construction and automobile—were essentially in a continued depressed state through the recovery period. While, as of this writing, it is too early to see the end of the tunnel, it was clear at yearend that most leading economic indicators were pointing toward further deterioration and that industrial production was still heading downward. □

—FOOTNOTES—

¹ 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. 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. A description of the two surveys appears in the Bureau of Labor Statistics monthly publication, *Employment and Earnings*.

² The proportion of blacks in the "black and other" group has been declining; it was 83 percent in 1980. This has resulted from a gradual influx of Asians, particularly Vietnamese, into the U.S. labor force in the 1970's. For this reason, and because of the availability and increased reliability of data for blacks, it is not as necessary as in the past to use data for "black and other" when discussing black work-

ers. Thus, unless otherwise stated, the term black in this article refers exclusively to the "black only" population and not to the "black and other" category, which, in addition to blacks, includes American Indians, Alaskan Natives, and Asian and Pacific Islanders.

³ Because of movement between industries and into and out of the labor force, unemployment rates by detailed industry are difficult to interpret. For example, a decline in joblessness among workers in a particular industry does not necessarily indicate the reemployment of laid-off workers. It could mean that these workers have found work elsewhere or simply left the labor force.

⁴ Data do not include the small number of workers on shortened workweeks because of material shortages and those who began or ended a job during the survey week.

⁵ See Robert W. Bednarzik, "Worksharing in the U.S.: its preva-

lence and duration," *Monthly Labor Review*, July 1980, pp. 3-12.

⁶ 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.

⁷ 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.

⁸ For a discussion of the relative impact of recessions on different

demographic groups, see Norman Bowers, "Have employment patterns in recessions changed?" *Monthly Labor Review*, February 1981, pp. 15-28.

⁹ The employment-population ratio for black and other youth was down about 13 points over the past quarter century.

¹⁰ For a detailed discussion of indexes of diffusion of changes in the number of employees on nonagricultural payrolls, see John F. Early, "Introduction of Diffusion Indexes," *Employment and Earnings*, December 1974, pp. 7-11.

¹¹ Aggregate hours is a joint measure of the change in both hours and employment. For basic industries, aggregate hours are the product of average weekly hours and production-worker or nonsupervisory-worker employment.

The role of apprenticeship

Apprenticeship is only one of the many ways in which a vocational aptitude may be gained. In most occupations, training is acquired on the job, in trade or vocational schools, in the Armed Forces, or in Federal or State training courses, or principally by 'picking up the trade'—that is, working with journeymen on a variety of jobs until proficiency is achieved. Only about one-fourth of all unions actually participate in apprenticeship regulation. Moreover, most employees who do work in apprenticeable trades have learned their trade without having served an apprenticeship. Thus, studies have estimated that as many as 80 percent of all carpenters and 30 percent of all electricians became journeymen without serving apprenticeships. These studies also show that it is more difficult to become a journeyman in the electrical, mechanical, and plumbing trades without formal training than in the carpentry, painting, and trowel trades (bricklaying, cement finishing, and so on).

—GORDON F. BLOOM AND HERBERT R. NORTHRUP

Economics of Labor Relations,
9th ed. (Homewood, Ill., Richard D. Irwin,
Inc., 1981), p. 228.

New worklife estimates reflect changing profile of labor force

The worklife expectancy of men continued to level off between 1970 and 1977, while that of women increased significantly

SHIRLEY J. SMITH

The Bureau of Labor Statistics has developed a new set of working life tables based on labor force patterns observed in 1977. On the basis of these patterns, the Bureau estimates that the average man 16 years of age can expect to spend 38.5 years in the labor force while a typical woman of that age can expect 27.7 years of labor force involvement.

Patterns of lifetime labor force attachment for both men and women are constantly changing. Comparisons of labor force participation rates from year to year suggest evolving patterns of labor force entry and withdrawal, as well as significant changes in economic activity at midlife. However, it is difficult to identify the current "lifetime pattern of labor force involvement" from these rates alone.

Working life tables were developed to isolate such lifetime patterns. The results of the model are synthetic. That is, they summarize the behavior of all age groups in the population during a given year, rather than trace the history of any one group through its lifetime. The tables estimate how frequently members of a population would enter and leave the labor force, and how long the average person would remain economically active, if

rates of behavior remained as they were in the reference year.

Recent participation trends affect methodology

Of course, these rates do not remain constant over time. In fact, activity rates of men and women have changed substantially since 1970, the reference year of the Bureau's previous working life tables. Between 1970 and 1977, the entire cross-sectional profile of participation for both sexes changed. (See table 1.) Persons age 16 to 24 became increasingly active; those above age 55 showed a weakening attachment to the labor force. The participation rates of younger women showed the most remarkable change, increasing by more than one percentage point per year. The rate for those 25 to 34 increased by 14.5 percentage points in just 7 years. At the same time, rates of older persons were dropping, with that of men 60 to 64 declining by 12.1 percentage points.

In the prime working ages, the labor force attachment of men slackened somewhat, while that of women increased substantially. The net effect was a decline in the mean age of labor force members, reinforcing the drop related to the age structure of the population itself. The magnitude and character of these changes have rendered the 1970 worklife estimates obsolete.

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Table 1. Civilian labor force participation rates by sex and age, annual averages, 1970 and 1977

Age	Men		Change	Women		Change
	1970	1977	1970-77	1970	1977	1970-77
16-19	56.1	61.0	4.9	44.0	51.4	7.4
20-24	83.3	85.7	2.4	57.7	66.5	8.8
25-34	96.4	95.4	-1.0	45.0	59.5	14.5
35-44	96.9	95.7	-1.2	51.1	59.6	8.5
45-54	94.2	91.2	-3.0	54.4	55.8	1.4
55-59	89.5	83.2	-6.3	49.0	48.0	-1.0
60-64	75.0	62.9	-12.1	36.1	32.9	-3.2
65 and over ...	26.8	20.1	-6.7	9.7	8.1	-1.6

Moreover, there is now much evidence that adults, particularly women, move in and out of the labor force repeatedly during their lifetimes. This movement contradicts a basic assumption of conventional worklife methodology, that workers remain in the labor force continuously from age of entry to age of final withdrawal. The growing conflict between model and reality appears to have adversely affected estimates published for the years 1950-70.

The new worklife estimates for 1977 are drawn from a dynamic new model known as the increment-decrement working life table. This model is markedly different from the original (or conventional) worklife technique used to produce the estimates previously published by the Bureau. The new values are not entirely comparable with previously published figures,¹ because they reflect not only changes in the behavior of American adults, but also several fundamental changes in modeling procedures.²

The key feature of this model is that it rests on observed probabilities of movement into and out of the labor force—a flow variable, rather than labor force participation rates, which are a measure of stocks. In the new tables, persons are assumed to pass through life, at each age facing the “probabilities of transition” observed for that age group in the base population during the reference year. Worklife expectancies summarize the length of time the average adult would spend in the labor force during his or her lifetime, if these probabilities did not change. Rates of labor force accession and separation summarize the volume of labor turnover which would occur within each age group if mobility patterns remained constant.

Unlike previously published estimates for women, the new tables do not spell out expectancies separately by marital or parental status. Such tables imply a fixed status for life. Instead, the new model presents a summary table for all women. The transition probabilities underlying this table reflect the impact of normal life cycle changes on labor force attachment at each age.

For purposes of comparison, 1970 estimates have been reestimated using the new increment-decrement

methodology. Selected revised values are included in this report.

New estimates and trends in worklife expectancy

Tables of working life for 1977, estimated by the increment-decrement method, indicate that given a continuation of mortality and labor force behavior observed at that time, a boy born in 1977 was likely to spend 37.9 years in the labor force and a girl, 27.5 years. (See table 2.) Those surviving to age 16 would have slightly higher average worklife expectancies—38.5 and 27.7 years, respectively. At age 50, the average man could anticipate 11.7 more years of labor force involvement, the average woman, 7.5 years.

Within any age group, persons currently active have a higher worklife expectancy than those not in the labor force. Although previous studies have hinted at this relationship, the new estimates for the first time spell out the magnitude of the differential. Among teenagers it is relatively small; most are likely to enter and leave the labor force repeatedly before settling into adult roles. However, at midlife the active and inactive groups are no longer so similar. For those not in the labor force, the probability of reentry declines with age. At age 45 the active group is expected to work about 4 years longer than its inactive counterpart.

Historic comparisons of the worklife index are impeded by the fact that patterns of labor force attachment have changed, forcing a revision in methodology. During the first half of this century, when worklives tended to be more continuous, the conventional model gave relatively unbiased estimates of their duration. However, as work patterns became increasingly irregular after World War II, the quality of the estimates declined. The problem was greatest for groups having high rates of labor turnover. For such groups, the conventional model tended to underestimate the size of the labor force, and to overstate the average worklife duration. Estimates for women workers were especially tenuous,

Table 2. Worklife expectancies of the population and of active and inactive persons by age and sex, 1977

[In years]

Age	Men			Women		
	Total	Active	Inactive	Total	Active	Inactive
At birth	37.9	—	37.9	27.5	—	27.5
16	38.5	39.6	38.1	27.7	28.8	27.4
20	36.8	37.3	35.9	26.0	26.7	25.2
25	33.4	33.7	32.0	23.0	23.7	21.7
30	29.2	29.3	27.2	19.9	20.9	18.2
35	24.7	24.9	21.7	16.8	17.9	14.8
40	20.3	20.4	16.9	13.7	14.9	11.4
45	15.9	16.2	12.0	10.5	11.9	8.0
50	11.7	12.2	7.2	7.5	9.3	4.9
55	7.8	8.5	3.6	4.8	6.8	2.5
60	4.3	5.2	1.9	2.5	4.4	1.2
65	1.9	3.4	1.1	1.1	3.1	.6
70 .....	.9	2.6	.6	.5	2.4	.2

Table 3. Changes in life and worklife expectancies, by sex, 1900-77

Worklife model, sex, and year	Life expectancy		Worklife expectancy			Inactive years (total population)		Percent of lifespan active		Ratio of female to male worklife expectancies
	At birth	At age 20	All persons		Workers	From birth	From age 20	From birth	From age 20	At age 20
			At birth	At age 20	At age 20					
Men										
Conventional model:										
1900	46.3	42.2	32.1	37.8	39.4	14.2	4.4	69.3	89.6	(¹)
1940	61.2	48.6	38.1	39.7	41.3	23.1	7.1	62.3	84.8	(¹)
1950	65.5	48.9	41.5	41.4	43.1	24.0	7.5	63.4	84.7	(¹)
1960	66.8	49.6	41.1	40.9	42.9	25.7	8.7	61.5	82.5	(¹)
1970	67.1	49.6	40.1	39.4	41.5	27.0	10.2	59.8	79.4	(¹)
Increment-decrement model:										
1970	67.1	49.6	37.8	37.3	38.0	29.4	12.3	56.3	75.2	(¹)
1977	69.3	51.3	37.9	36.8	37.3	31.5	14.5	54.7	71.7	(¹)
Change:										
1900-77 ²	23.0	9.1	5.7	-1.0	-2.1	17.3	10.1	-14.8	-17.9	(¹)
1970-77 ³	2.2	1.7	0.1	-0.5	-0.7	2.1	2.2	-1.7	-3.5	(¹)
Women										
Conventional model:										
1900	48.3	43.8	6.3	(⁴)	(⁴)	42.0	(⁴)	13.0	13.7	(⁴)
1940	65.7	50.4	12.1	11.9	(⁴)	53.6	38.5	18.4	23.6	30.0
1950	71.0	53.7	15.1	14.5	(⁴)	55.9	39.2	21.3	27.0	35.0
1960	73.1	55.7	20.1	18.6	37.3	53.0	37.1	27.5	33.4	45.0
1970	74.8	56.7	22.9	22.0	40.6	51.9	34.7	30.6	38.8	55.8
Increment-decrement model:										
1970	74.8	56.7	22.3	21.3	22.1	52.4	35.4	29.8	37.6	57.1
1977	77.1	58.6	27.5	26.0	26.7	49.7	32.6	35.7	44.4	70.7
Change:										
1900-77 ²	28.8	14.8	21.1	(³)	(³)	7.7	(³)	22.5	30.7	(⁴)
1970-77 ³	2.3	1.9	5.0	4.7	4.6	-2.7	-2.8	5.6	6.8	13.6

¹Not applicable.
²Based on conventional model estimates for 1900 and increment-decrement model estimates for 1977.
³Based on the increment-decrement model.
⁴Data not available.

growing increasingly biased from 1950 to 1970. Only the 1970 values have been reestimated using the increment-decrement model. Conventional estimates for 1950 through 1970 seriously overstate work durations for women in the labor force during that period. When these data are excluded, however, the results of previous models give a credible picture of the evolution of labor force attachments in this century. (See table 3.)

In 1900, the life and worklife expectancies of men were very similar. At age 20, the average man could expect to spend only 4.4 years outside of the labor force. During the next 77 years, men's life span increased by 23 years, with the bulk of the increase—about 17 years—going into nonlabor force activities. The growth in worklife expectancy was less than 6 years. Between 1970 and 1977, virtually the entire increase in life expectancy (2.2 years) went to nonlabor force activities. At the turn of the century, the average man spent 69 percent of his lifetime in the labor force, but by 1977, this figure had dropped to about 55 percent.

In contrast, the formal worklife of women has increased dramatically during this century. In 1900, women averaged little more than 6 years of formal labor force involvement. Over the next 77 years, their average

life span increased by almost 29 years, of which 21 were allocated to labor market activities. The shift has been especially pronounced in recent years. Between 1970 and 1977, worklife durations rose by 5 years, while life expectancy increased by only 2.3 years. This was accomplished by a reallocation of time—nearly 3 years per woman—from home to labor market activities. At the turn of the century, women spent an average of 13 percent of their lifetimes in the labor force, compared to nearly 36 percent in 1977.

Because of these countervailing trends, the worklife durations of men and women have been converging. It is estimated that in 1940, the average expectation of working life for young women was just 30 percent of that for men. By 1970, it was 57 percent and by 1977, it represented 71 percent that for men. While these figures do not take account of differences in hours worked, an important distinction, they do illustrate how fundamentally the roles of men and women have changed.

Measures of labor force mobility

A second function of the working life table is to quantify movements into and out of the labor force. The conventional model derived aggregate estimates of

these flows from age-to-age comparisons of labor force participation rates. The results, taken to describe net flows, gave little insight into the process of labor turnover. The new model rests on observed probabilities of labor force entry and exit at each age. It estimates both net and gross rates of mobility, and provides information on the frequency and timing of these movements in the average person's life.

The new estimates indicate that most people establish their first contact with the labor force as teenagers. In the 1977 life table population, half of all young men had become members of the labor force by age 16.4. (See table 4.) The median age of first entry for women was marginally higher, 16.6 years. Because entries and reentries occur at all ages, the mean age of male labor force entrants was 26.9 years, and that of female entrants was even higher, 28.7 years.

Given a continuation of the work life patterns observed in 1977, it is estimated that the average man would enter the labor force 3 times in his lifetime. The average woman would do so 4.5 times. Men are likely to complete the phase of intermittent work more quickly than women. At age 25, they would anticipate an average of just 1.1 more labor force entries, while women could look forward to 2.7 additional entries.

According to the 1977 tables, men would average 12.6 years of labor force involvement for every entry

Table 5. Population-based rates of labor force accession and separation by age and sex, 1977

[Per 1,000 persons in the stationary population]

Age	Accessions		Separations		Net flow	
	Men	Women	Men	Women	Men	Women
16-19	211.6	207.2	124.3	127.9	87.3	79.3
10-24	136.3	158.3	93.9	142.0	42.5	16.2
25-29	54.4	109.6	38.6	116.0	15.8	-6.5
30-34	23.8	88.4	23.0	84.1	0.8	4.3
35-39	14.9	75.2	17.6	73.5	-2.7	1.7
40-44	15.5	66.3	21.6	69.0	-6.1	-2.7
45-49	16.4	57.9	28.2	68.1	-11.8	-10.2
50-54	17.1	46.8	37.1	63.7	-20.0	-16.9
55-59	19.1	37.4	59.3	66.2	-40.2	-28.8
60-64	30.8	32.0	113.1	77.8	-82.3	-45.8
65-69	44.5	27.8	92.9	52.2	-48.4	-24.4
70-74	35.7	16.1	56.3	27.1	-20.6	-11.1

during their lifetime. The average duration per entry for women was expected to be less than half this figure, or 6.1 years. Because most men were firmly attached to the job market by age 25, they would spend an average of 29.1 years in the labor force for every entry beyond that age, but the typical woman would engage in several shorter periods of activity, averaging just 8.6 years per entry.

Working life tables show two forms of labor force withdrawal: voluntary separation and death. Given the work and mortality patterns of 1977, the average young man could expect to leave the labor market voluntarily 2.7 times. About 27 percent of men would die before reaching retirement. The average young woman was likely to leave the labor force voluntarily 4.4 times, and fewer than 1 in 10 were likely to die before retiring.

Because the age distribution of labor force withdrawals is bimodal, with heavy outflows at both ends of the age spectrum, the mean age of all exits (38.7 years for men and 33.9 years for women) tells us little about final retirement. It is very difficult to identify retirement norms, because the retiree can and often does reenter the labor force. However, the 1977 tables indicate that among persons leaving the labor market at or beyond the age of 50, the life table median age of exit was 63.4 years for men, and 60.6 years for women. It appears that the age at retirement has dropped for both sexes since 1970. This may help to explain the concurrent drop in proportions likely to die as members of the labor force.

At the aggregate level, the new tables show a much greater volume of movement in and out of the labor force than has been quantified in the past. Although men and women in their teens have roughly comparable rates of labor force entry and withdrawal, the retention of young men exceeds that of women in this age group. (See table 5.) The pace of labor force entries for both sexes slows by age 20. However, as men begin to settle into their role as workers—as evidenced by a drop in their separation rate—female labor force exits actually

Table 4. Selected indexes of working life by sex, 1970 and 1977

Worklife measure	Men		Women	
	1970	1977	1970	1977
Median age at first labor force entry	16.5	16.4	16.8	16.6
Mean age of all first and repeat labor force entrants	26.6	26.9	29.2	28.7
Worklife expectancy (in years):				
At birth	37.8	37.9	22.3	27.5
At age 25	34.4	33.4	19.0	23.0
Number of labor force entries per:				
Person born	2.9	3.0	4.6	
Person age 25	1.2	1.1	2.8	4.5
Expected duration in labor force per entry remaining (in years):				2.7
At birth	13.0	12.6	4.8	6.1
At age 25	29.4	29.1	6.8	8.6
Number of voluntary exits from labor force per:				
Person born	2.6	2.7	4.5	4.4
Person age 25	1.9	2.0	3.3	3.3
Percent of workers expected to die while in the labor force	36.3	27.0	10.8	9.5
Mean age of all persons leaving the labor force:				
Total first and repeat exits	38.7	38.7	33.5	33.9
Voluntary withdrawals	36.1	37.0	32.9	33.4
Deaths of workers	57.3	55.6	58.1	56.3
Median age of persons leaving labor force at age 50 and above	65.0	63.4	61.4	60.6

rise. By age 25, the share of all men in the labor force substantially exceeds that of all women. Because a larger proportion of the female population remains outside the job market but may enter at any time, the accession rates of women are greater than those of men throughout midlife. Net retirements peak between the ages of 60 and 64. Thereafter, men are more likely than women to reenter the labor force. The rise in male entry rates at age 60 highlights the fact that retirement is often a temporary state.

The separation rates shown in table 5 are expressed as a ratio of withdrawals to population. A more common form is the ratio of withdrawals to labor force members. (See table 6.) Changing the denominator in this way has little effect on the rates of separation for prime working-age men, because most members of this population are also in the labor force. However, because of the disparity between population and labor force counts for other groups, the change to a labor force base inflates the rates of these other groups. This gives a better illustration of their relative propensities to leave the job market. Among persons working in the prime ages, women are as much as five times more likely than men to withdraw from economic activity. Only at age 65 and above do working men show a greater propensity to retire.

Trends in mobility rates

The pace of net labor force entries for young people increased markedly between 1970 and 1977. (See table 7.) Although the gross accession rates of teenagers rose slightly during this period, they had less bearing on the net influx than did the drop in labor force withdrawals. As young people showed increasing reluctance to leave the job market, the process of labor force expansion with age became more efficient. At the same time, the pace of net labor force withdrawals among persons age 45 and older accelerated. The separation rates of men 45 to 64 increased sufficiently to outweigh (and perhaps to have caused) slight increases in labor force entries.

Table 6. Labor force based rates of separation by age and sex, 1977

[Per 1,000 workers in the stationary labor force]

Age	Men	Women
16-19	254.7	290.5
20-24	125.0	226.3
25-29	42.7	182.9
30-34	24.3	134.7
35-39	18.5	112.8
40-44	22.9	105.3
45-49	30.5	107.7
50-54	42.1	110.8
55-59	74.6	136.2
60-64	209.7	251.9
65-69	376.2	369.7
70-74	441.9	388.7

Table 7. Comparison of labor force mobility rates by age and sex, 1970 and 1977

[Life table rates per 1,000]

Sex and age	Accessions in population		Separations in labor force		Net flows in population	
	1970	1977	1970	1977	1970	1977
Men:						
16-19	191.9	211.6	299.0	254.7	66.9	87.3
20-24	145.7	136.3	160.6	125.0	41.7	42.5
25-29	72.0	54.4	47.1	42.7	32.4	15.8
30-34	27.6	23.8	20.5	24.3	8.0	0.8
35-39	14.8	14.9	20.6	18.5	-5.1	-2.7
40-44	13.5	15.5	24.3	22.9	-9.5	-6.1
45-49	14.6	16.4	27.6	30.5	-11.0	-11.8
50-54	14.5	17.1	35.3	42.1	-17.3	-20.0
55-59	18.8	19.1	58.7	74.6	-31.1	-40.2
60-64	32.2	30.8	137.5	209.7	-64.9	-82.3
65-69	38.2	44.5	264.2	376.2	-75.1	-48.4
70-74	36.7	35.7	343.1	441.9	-38.1	-20.6
Women:						
16-19	204.1	207.2	455.7	290.5	54.3	79.3
20-24	164.6	158.3	321.0	226.3	14.5	16.2
25-29	102.2	109.6	231.2	182.9	-7.6	-6.5
30-34	90.7	88.4	206.3	134.7	-1.1	4.3
35-39	83.7	75.2	162.6	112.8	7.2	1.7
40-44	72.3	66.3	132.7	105.3	4.7	-2.7
45-49	60.3	57.9	121.9	107.7	-2.9	-10.2
50-54	49.7	46.8	115.4	110.8	-8.7	-16.9
55-59	43.3	37.4	131.5	136.2	-17.4	-28.8
60-64	38.9	32.0	200.8	251.9	-33.0	-45.8
65-69	29.4	27.8	308.9	369.7	-33.4	-24.4
70-74	16.0	16.1	402.8	388.7	-19.9	-11.1

The increased frequency of retirement in these age groups contributed to a drop in participation rates.

The situation for women was more complex. They too showed a rise in net labor force separations between the ages of 45 and 64. However, the increased net outflow of those 45 to 54 was evidence of a tightening, rather than a loosening of female labor force attachments. Below the age of 55, working women showed a drop in propensity to leave the job market. The slowdown of youthful separations limited the size of the labor reserve from which to draw older entrants. Hence, entries at midlife also declined. The decrease in labor turnover led to higher participation rates for women 45 to 54. Nonetheless, the share of women attached to the labor force, and at risk of leaving, had increased. Between 1970 and 1977, the ratio of withdrawals to population increased, and with it net labor force losses for women in this age range. Only among women over 55 is there evidence that intentions to retire were becoming stronger. Within this group, an increase in separation rates was accompanied by a drop in rates of labor force reentry.

THE WORKLIFE EXPECTANCIES of men and women in the United States have been converging since the end of World War II. This trend accelerated between 1970 and 1977, primarily because of the strengthening of female labor force attachments. Although the average worklife duration of men remained nearly constant, that for women increased by about 12 years. There remained

significant differences in time allocation by sex; women were far more likely than men to withdraw from and reenter the labor force at midlife. Nevertheless, by 1977, women spent an average of 70 percent as many years in the labor force as did men.

The new worklife model quantifies a substantial flow of persons into and out of the labor force for both sexes at every age. The pace of entries for teenagers increased between 1970 and 1977. For men 20 to 34, and for

most women above age 20, entries actually slowed. However, a greater drop in withdrawals brought about the net expansion of the labor force seen as increased participation rates for many age groups during this period.

The complete increment-decrement working life tables for men and women, 1970 and 1977, are available upon request from the Bureau of Labor Statistics and will appear in reprints of this article. □

—FOOTNOTES—

¹ Previous BLS publications on this subject include Howard N Fullerton, Jr. and James J. Byrne, "Length of working life for men and women, 1970," *Monthly Labor Review*, February 1976, pp. 31-35; Howard N Fullerton, Jr., "A new type of working life table for men," *Monthly Labor Review*, July 1972, pp. 20-27; Howard N Fullerton, Jr., "A table of expected working life for men, 1968," *Monthly Labor Review*, June 1971, pp. 49-55; Stuart H. Garfinkle, *Work life expectancy and training needs of women*, Manpower Report No. 12 (Bureau of Labor Statistics, 1967); Stuart H. Garfinkle, "Table of working life for men, 1960," *Monthly Labor Review*, July 1963, pp. 820-23; Stuart H. Garfinkle, *The length of working life for males, 1900-60*, Manpower Report No. 8 (Bureau of Labor Statistics, 1963); Stuart H. Garfinkle, *Tables of working life for women, 1950*, Bulletin 1204

(Bureau of Labor Statistics, 1957); and Seymour L. Wolfbein and Harold Wool, *Tables of working life: the length of work life for men*, Bulletin 1001 (Bureau of Labor Statistics, 1950).

² They are comparable with estimates published by Robert Schoen and Karen Woodrow in "Labor Force Status Life Tables for the United States, 1972," *Demography*, August 1980, pp. 297-322. The technical details of the increment-decrement model are described in a forthcoming BLS report. For other discussions of multistate working life tables, see Jan Hoem and Monica Fong, "A Markov Chain Model of Working Life Tables," Working Paper 2 (Laboratory of Actuarial Mathematics, University of Copenhagen, 1976), and Frans Willekens, "Multistate Analysis: Tables of Working Life," *Environment and Planning*, Vol. 12, pp. 563-88.

A note on communications

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

A centennial view

The AFL and a national BLS: labor's role is crystallized

From the labor federation's first convention in 1881 to the establishment of the Labor Department in 1913, relations between the union movement and the BLS often were influenced by the needs of the times and by the personalities of Samuel Gompers, and Commissioners Carroll Wright and Charles Neill

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The American trade union movement, which last year celebrated the centennial of its founding, and the Bureau of Labor Statistics, which soon will observe its own 100th anniversary, grew up together, sometimes in confrontation, but more often in mutual—though distant—respect. The relationship between the American Federation of Labor and the Bureau was affected both by the needs of the times and by the personalities of the leaders, AFL President Samuel Gompers and BLS Commissioners Carroll D. Wright and Charles P. Neill.

This article reports on some of the common and divergent interests of the two organizations, from their beginnings until 1913, when BLS became part of the present Department of Labor.

Campaign for a bureau

The convention in 1881 of the Federation of Organized Trades and Labor Unions of the United States

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and Canada, which marks the centennial beginning of the AFL-CIO, included in its statement of principles and action a call for a national Bureau of Labor Statistics:

“. . . we recognize the wholesome effects of a Bureau of Labor Statistics as created in several States, and we urge upon the Congress the passage of an act establishing a national Bureau of Labor Statistics, and recommend for its management the appointment of a proper person identified with the laboring classes of the country.”¹

Earlier, the short-lived National Labor Union had called for a Department of Labor in 1867. By 1878, when the Knights of Labor called for national and additional State bureaus of labor statistics, Massachusetts (1869), Pennsylvania (1872), Missouri (1876), and Ohio (1877) had established such bureaus.²

The efforts of the labor organizations, and the growing awareness of the national political parties of the potential governmental influence of labor and the socio-

economic effects of industrial growth, culminated in the establishment of a Bureau of Labor within the Department of Interior in 1884. The uncertainty of Federal policies during this period resulted in metamorphoses of the agency as an autonomous, but non-Cabinet-level Department of Labor from 1888 to 1903; combination with other agencies in the new Cabinet-level Department of Commerce and Labor in 1903; and ultimately transference to the new Department of Labor in 1913.

Samuel Gompers, along with other union officials, strongly supported the establishment of a national Bureau in the Senate hearings on Capital and Labor in 1883. He felt that there had been excessive pleading of ignorance by Congress of workers' conditions to justify Congressional inaction on labor matters. A national Bureau "would give our legislators an opportunity to know, not from mere conjecture, but actually, the condition of our industries, our production, and our consumption, and what could be done by law to improve both [sic]." He cited the useful role of existing State statistical agencies as exemplified by a recent investigation of factory working conditions by the Massachusetts Bureau of Labor under the direction of Carroll D. Wright.³

Wright also appeared as an expert witness at the hearings, providing a look at such a bureau's role, which largely paralleled Gompers' view. He had administered the State bureau "as a scientific office, not as a Bureau of agitation or propaganda, but I always take the opportunity to make such recommendations and draw such conclusions from our investigations as the facts warrant." He stressed the need for Federal "investigations into all conditions which affect the people, whether in a moral, sanitary, educational, or economic sense," and thus "add to the educational forces of the country a sure and efficient auxiliary." He saw the resultant statistical progress of the Nation as indicating "its great progress in all other matters."⁴ This background and philosophy were major factors in Wright's subsequent appointment as U.S. Commissioner of Labor.

In 1884, backed by the then powerful Knights of Labor and the newly organized Federation, the establishment of a national Bureau was part of both parties' platform.⁵ In that same year, overwhelming majorities in both houses of Congress voted to establish the Bureau of Labor in the Department of the Interior. Approved by President Chester Arthur on June 27, the action provided for a Commissioner of Labor appointed by the President for a 4-year term. The Commissioner's mission was to "collect information upon the subject of labor, its relation to capital, the hours of labor and the earnings of laboring men and women, and the means of promoting their material, social, intellectual and moral prosperity." After considering sev-

eral candidates, President Arthur finally appointed Wright, whom the Senate confirmed about 6 months after the act's passage.⁶

Wright swiftly established professionalism and impartiality in the national Bureau, as he had in Massachusetts. Striving to obtain labor interest, he invited Gompers and other delegates to visit the Bureau during the 1885 Federation convention. Gompers had known Wright for years, and had long been actively interested in the role of government labor agencies. The two men had previously discussed the plans and methods of the newly established New York State Bureau of Labor Statistics. Their meeting left mutual favorable impressions.⁷ The Bureau's value was further confirmed by the Commissioner's first annual report, a comprehensive treatment of the causes of the depression of 1882-86. The study was included in Gompers' periodic references to the intensification of the displacement of manual labor by machinery over the years.⁸ While the report noted the advantages of mechanization, it also asserted that the effect of the temporary displacement of labor was to assist "in crippling the consuming power of the community."⁹ Among the remedies suggested for coping with the depression, Wright included some general proposals suggesting that capital and labor "each shall treat with the other through representatives" in disputes, and that "the party which declines resort to conciliatory methods of arbitration [is] morally responsible for all ill effects growing out of the contest."¹⁰

The growing status of the Bureau, and a campaign by the still powerful Knights of Labor resulted in the transformation of the Bureau in 1888 into an independent Department of Labor, without Cabinet status. Reflecting Wright's concerns, the enabling act specifically called for studies of: the domestic and foreign costs of production of dutiable goods for the ongoing tariff debates, national trade and industrial production, the causes and circumstances of strikes, and other special topics. The basic functions of the agency had not changed, but for 15 years it was more independent. Moreover, Congress, in a separate statute relating solely to railroad disputes (Arbitration Act of 1888), had authorized the President to designate the Commissioner of Labor, with two other *ad hoc* commissioners, to act as a board of inquiry in such disputes. This investigatory provision was used only once—during the aftermath of the Pullman strike of 1894.¹¹

Gompers and Wright

Although the AFL had not pressed for an independent labor department, it maintained a keen interest in the work of the agency. Gompers' thoughts on the development and expansion of information on the status of workers, labor-management relations, and the statistical supports for these developments, were expressed regu-

larly during Wright's stewardship. He requested studies that would explore "the influence of the labor organizations upon the moral and national welfare of the wage earners in particular, and the whole community in general." Increased contact between the Department of Labor and State bureaus, according to Gompers, would achieve greater uniformity, simultaneous investigation, and assistance by the States.¹²

Asked to comment on the forthcoming 1890 census, Gompers called for inclusion of the number of unemployed, and the duration of their unemployment.¹³ Gompers endorsed the establishment of a permanent Census Bureau in the Department of Labor, citing Wright's performance in Massachusetts.¹⁴

By 1893, there were a national Department of Labor and 32 State Departments of Labor and Bureaus of Labor Statistics, with factory inspectors in 19. Gompers could cite these as the results of successful labor efforts in obtaining measures which "a few years ago were regarded as chimerical and useless expenditures of public money [which] have come to be looked upon as a prime necessity to the proper conduct of governmental affairs." He also suggested that the men appointed as administrators should be sympathetic to the laws enacted and should not be subject to political change. Furthermore, he proposed that the U.S. Department of Labor follow the example of its British counterpart, by publishing a regular journal or bulletin which would provide information on existing industrial and other working conditions.¹⁵ (In 1895, the Bureau began publishing a bimonthly *Bulletin*, a forerunner of the *Monthly Labor Review*.)

Congress was soon to authorize the establishment of the Bulletin of the Department of Labor in response to an AFL proposal, which drew conditional support from Wright. By endorsing the proposal he obtained congressional approval for departmental independence from Congress in the preparation and publication, and the opportunity to deal with current issues of vital importance, "rather than theoretical or debatable matters."¹⁶

Direct requests from labor organizations to the Department of Labor were infrequent. However, proposals which Wright circulated to the unions did cause Gompers to react. He advised the Department to conduct a study of the padrone system, publish abstracts of government contracts so that unions could check on enforcement of the 8-hour law, and he opposed a proposal for a census of unions.¹⁷ These suggestions were met expeditiously.¹⁸ Gompers duly noted Commissioner Wright's response at the annual AFL convention.¹⁹

While opposed to a census of unions, Gompers had only limited success in persuading the affiliated unions to provide information to the AFL which could be used to reflect the status of membership, finances, and support recognition for the AFL. This only made him more

alert to Department of Labor reports on the subject, as he responded quickly to the release of the 10th Annual Report on strikes, "which sets forth clearly that in those States or localities, the industries in which the workers were organized, the largest numbers of successes were secured and concessions granted."²⁰ When Wright found that unions did not always cooperate in investigations and studies, Gompers urged cooperation. "Let there be light," he wrote, "confident that impartial investigations create numberless sympathizers in our great cause."²¹

Labor-management disputes

Wright and Gompers played prominent roles in two landmark labor-management disputes during this period. The investigative reports and recommendations on the Pullman dispute in 1894 and the anthracite coal strike in 1902 bore the imprint of Wright's evolving awareness of the importance of labor organization and its capacity to balance employer domination and achieve stability and continuity through agreement. Gompers could appreciate the fair treatment accorded the labor position in these reports, trailblazing in an era of employer opposition to incipient union organization. But he was against the recommendations for legislation for government involvement in strikes.

During the Pullman dispute, marked by Presidential use of Federal troops and injunction, the U.S. Strike Commission, with Wright as chairperson, was established by President Grover Cleveland. This was only after the failure of the strike by the American Railway Union led by Eugene Debs. The commission was established as an investigative body under the Act of 1888. Gompers, along with Debs and others, appeared before the commission. During the hearings, Wright asked Gompers whether sympathetic strike action such as that of the Pullman strike was justifiable when it could "paralyze, to any degree, the commercial industry of the country." Gompers replied, "I believe that labor has the right—the natural as well as the inherent right to endeavor to improve its condition . . . If industry or commerce is incidentally injured it is not their fault; the better course and the most reasonable course would be for employers to grant the reasonable requests that labor usually makes and thus avert the disaster of commerce or industry that you have mentioned." The social losses of widespread unemployment, both persistent and intermittent, were greater than disadvantages from strikes, he insisted, citing Wright's earlier reports. To Wright's queries regarding legislation for arbitration, Gompers expressed opposition, fearing it would lead to compulsory arbitration, with labor at a disadvantage.²²

The recommendations of the Wright-chaired commission cited the quasi-public nature of railroad corpora-

tions as permitting the exercise of congressional authority over strikes in protecting the public. It urged employers to recognize unions, stressing that their interests were reciprocal, though not identical. A permanent commission was proposed to investigate and make recommendations in disputes having a major impact on the public, with enforcement by the courts. It was advised that yellow dog contracts be outlawed.²³

Gompers eloquently praised the commission's report, although he implicitly disagreed about special legislation for mediation and arbitration in the railroad industry. He wrote, "Whatever may be the ultimate result of U.S. interference between the railroad managers and the railroad laborers of this country, we have confidence that none today will refuse to bestow a generous meed of praise on Carroll D. Wright and his companion commissioners for their lucid and conscientious report on the Chicago strike of 1894."²⁴

The commission's recommendations became the basis for the consideration of legislation to deal with disputes having a major impact on the public. Ultimately, the result was to revise the 1888 statute by the Erdman Act of 1898, applicable to the railroads, providing for mediation, and for arbitration on request. The Commissioner of Labor and the Chairman of the Interstate Commerce Commission were designated as mediators. Yellow dog contracts were prohibited, but this provision was later voided by judicial decision.²⁵

President Theodore Roosevelt's handling of the anthracite coal strike of 1902 contrasted with the Pullman situation. Wright and Gompers helped to ensure impartiality on the part of the Federal Government in the investigation of the ongoing strike, the dispute resolving machinery, and the resultant findings and recommendations.

At the President's request, Wright personally investigated the dispute. He also acted as intermediary between Roosevelt and Gompers as to means of settling the dispute. Wright prepared a well-received report. Subsequently, with the United Mine Workers willing to accept arbitration, Roosevelt prevailed on the mine operators to cooperate, and a commission was appointed. Wright was a member and recorder of the commission, and his earlier recommendations were apparent in the commission's award, which settled the strike. A side effect of the commission's role was abortive congressional consideration of a so-called national arbitration bill, which Gompers feared would lay the groundwork for compulsory arbitration. As he stated before the 1902 AFL Convention, Gompers believed that "the men of organized labor want arbitration, but only arbitration as a last resort after conciliation has absolutely failed, and then arbitration only, voluntarily entered into by both the organized workers and employers, the award voluntarily and faithfully adhered to by both sides."²⁶

Department of Commerce and Labor

The labor effort to obtain a Cabinet-level Department of Labor was not a primary concern of the AFL for much of Wright's stewardship. This issue was only articulated as the pressure for a Department of Commerce and Industry representing business needs intensified in the late 1890's. Raising the Department of Labor to Cabinet-level status was proposed in a bill in 1894, and discussed in an article in the *American Federationist* entitled "Should the Commissioner of Labor be Made a Cabinet Officer?" The writer, who responded to Wright's opposition to the bill on the grounds that it would politicize the office, called attention to the growth in the importance of labor and labor-management developments as warranting such action.²⁷ In 1897, Gompers expressed his opposition to a proposal for a Department of Commerce and Industries to absorb the autonomous Department of Labor "introduced by a U.S. Senator, generally known for his hostility to labor's interests," and instead supported a bill for a Department of Labor with a seat in the Cabinet. The need was reasserted in 1901.²⁸

President Roosevelt's enthusiasm for a Department of Commerce and Industries, with Republican control of the Congress, made the matter a foregone conclusion. But the Democratic minority fought hard. The proponents of the bill, including Senator Mark Hanna of Ohio, prominent in the National Civic Federation, which included Gompers along with leading industrialists, saw no conflict in the interests of capital and labor, and insisted that the interests of labor would be well represented in such a department. Wright was praised on all sides in the congressional debate, and it was urged that his role and that of his agency would only gain if transferred to the new department. The AFL and the unaffiliated railroad unions opposed the merger, supporting the establishment of a Cabinet Department of Labor. Only the near defunct Knights of Labor favored the merger.²⁹

The controversy was resolved by altering the name to the Department of Commerce and Labor, which was established in 1903.³⁰ There was ambivalence in the AFL reaction to the new agency. Shortly thereafter, Gompers expressed some hope in that: "while there is cause for regret that the Department of Labor has been deprived of its independent existence, we yet have the assurance of the Honorable George B. Cortelyou, Secretary of the Department of Commerce and Labor, that it is his purpose to have the Department serve the best interests of labor."³¹

AFL interest in a separate Department of Labor waxed during the following decade, as its political interests and influence grew. But the AFL relations with Wright and his successor in 1905, Charles P. Neill, in-

creased and were generally constructive. This was enhanced by President Roosevelt's concern with labor-management relations and the important role he assigned to Wright, and later, to Neill. Roosevelt wrote that the anthracite strike brought him "into contact with more than one man who was afterward a valued friend and fellow worker. On the suggestion of Carroll Wright, I appointed Charles P. Neill as assistant recorder to the Commission, whom I afterward made labor commissioner, to succeed Wright himself."³²

As Gompers sized it up, Neill was recognized by labor officials "as the man in the administration closest to the President." Neill was regularly present when the President discussed major matters with union officials. Gompers' own respect for Neill was reflected in his assessment of the steel industry study, saying that "Dr. Neill performed a very comprehensive and valuable piece of work which caused the officials of the steel corporation to 'cuss him' and gnash their teeth."³³

Compulsory investigation

The role of Government in the 1902 anthracite strike settlement was an augury of the Roosevelt policy of seeking to reduce the impact of strikes on the Nation, recognizing the right of unions to organize, and urging the need for public airing of labor dispute issues. Roosevelt's message to Congress in 1904 cited the positive role of Government in labor matters "merely by giving publicity to certain conditions," and praised the Bureau of Labor for doing excellent work of this kind. He asked that the Department of Commerce and Labor's Labor Bureau provide Congress with information on the labor laws of the various States, and be given "the means to investigate and report to the Congress upon the labor conditions in the manufacturing and mining regions throughout the country, both as to wages and hours of labor, as to the labor of women and children, and as to the effect on the various labor centers of immigration from abroad."³⁴ All of these subjects were concerns of the AFL, and their study was to be effectuated by the Bureau in the next few years.

Subsequently, Roosevelt proposed the compulsory investigation of disputes by the Federal Government, as a means of reducing the incidence of strikes.³⁵ In the hearings on proposed legislation, Commissioner Neill testified in support of this proposal, but only for controversies which became "sufficiently large and sufficiently troublesome to the public as to be a grave menace."³⁶ Although legislation was not enacted, the Bureau was called upon by the President and Congress to make investigations of several difficult situations. Although the AFL did not support labor dispute-handling legislation, the Bureau's investigative reports generally were cited with approbation.

After the anthracite coal report there was a series of

landmark investigations of labor-management relations. They covered the background, origin, and points of view of labor organizations and management. President Roosevelt called for publication of the Bureau's report on the labor disturbance in a Colorado gold field, and coal mines in 1903-04, which contained an account of the violations of civil law and constitutional rights of the State's striking miners. While unaffiliated with the AFL, the Western Federation of Miners received the Federation's support. Wright, in his introduction to the lengthy report, referred to the public attention given to the deportation of striking miners by State militia, pointing to similar actions by citizens committees over a 25-year period.³⁷

Under Neill's stewardship, the demands on the Bureau for investigative reports became more frequent. Neill's personal involvement in dispute situations was also compounded by the activation of the Erdman Act mediation provisions on the railroads from 1906 forward, and by his participation in mediation efforts in other situations as a member of the National Civic Federation. A threatened strike of telegraphers against the Postal Telegraph and Western Union Companies was referred to Neill by Roosevelt. Neill, Gompers, and Ralph Easley of the National Civic Federation failed in their effort to mediate the dispute. Subsequently, an intensive study of the telegraph companies, their methods of handling public business, and their labor relations and working conditions was prepared by the Bureau at the request of Congress. Among the findings regarding the situation after the unsuccessful 1907 strike, was that the Postal Telegraph Company formed "an organization of its own employees . . . restricted to employees of the Postal Company, and each employee desiring membership is required to agree not to retain membership or accept membership in any union while in the employ of the company."³⁸ A strike in the Nevada gold field district in 1907 resulted in Roosevelt's sending Federal troops in response to the Governor's appeal, but following this up promptly with an investigating commission which included Neill. Within 5 days, the commission reported that there was no insurrection when the troops were called, and that there was no statutory basis for such action; Roosevelt withdrew the troops.³⁹

A series of strikes among immigrant workers in unorganized or partially organized situations involved Neill and the Bureau of Labor, with AFL activity and interest affected by the varying circumstances. A strike at the Pressed Steel Car Company of McKees Rock, Pa., where immigrant workers protested the failure to post rates of pay, was investigated by Neill, and cited by Gompers as evidence of the need for legislative provisions for better regulation of immigration.⁴⁰

The steel industry became the focus of strike activity in 1909-10, and the AFL was forced to draw on both

economic and political actions, as union organization faltered. In June 1909, U.S. Steel Corp. announced that it would henceforth operate completely on an open-shop basis, provoking a walkout by the Amalgamated Association of Iron, Steel and Tin Workers. During the unsuccessful strike which persisted for a year, the AFL provided support through organizers, and presented grievances against U.S. Steel at a meeting with President William H. Taft.

Conditions in the steel industry were again highlighted when a widely publicized strike of several thousand unorganized workers occurred at Bethlehem Steel in February 1910. The Senate passed a resolution, supported by the AFL, authorizing the Bureau of Labor to investigate the strike.⁴¹ Authorized in March, with daily findings released almost immediately, and a final report published in May, the investigation had much impact. Conducted under the direction of Ethelbert Stewart, later Commissioner of Labor Statistics, the report pointed to the company's widespread practice of a 12-hour workday, 7-day workweek. U.S. Steel was noted as abolishing most Sunday work, as the Bethlehem study got underway.⁴² When Charles Schwab of Bethlehem Steel protested that the report was unfair in failing to clarify that these conditions existed throughout the American steel industry, Commissioner Neill did issue such a statement.⁴³ Gompers commented that the reported conditions emphasized the physical hazards of overwork.⁴⁴

A month after the publication of the Bethlehem report, the Senate authorized the Bureau to examine working conditions in the iron and steel industry. The resultant study, published within a year, was based on personal visits to plants with about 90 percent of the industry's employees. Wages, hours of work, and accidents were covered in the report. Its four volumes showed continued 6- and 7-day workweeks with 12-hour days, and questioned the need for Sunday work in view of U.S. Steel's workweek adjustment. The majority of the labor force was found to consist of recent immigrants who had come from rural backgrounds, were unskilled, and could neither speak nor understand the language of supervisors and skilled workers. Attention was called to the dilution of skills in the industry as mechanical developments spread, adding further to the large proportion of unskilled workers.⁴⁵ Gompers cited excerpts from the report to reply to "public opinion" that labor was well-treated in the industry.⁴⁶

Gompers had occasion to analyze the findings of the Bureau of Labor concerning the Lawrence, Mass., strike of textile workers in 1912. He commented on the low wages of women employed in the mills, and the "outburst of unorganized workers" over the unannounced *pro rata* reduction of earnings because of the statutory

reduction in hours of work for women and children, from 56 to 54 hours per week. The Bureau commented on the onset of the strike "started by a few unskilled, non-English speaking employees, which developed into an organized strike of more than 20,000 employees, with increases obtained."⁴⁷

Field of work expands

The basic statistical work of the Bureau grew during its residence in the Department of Commerce and Labor. Despite the extensive demands on Commissioner Neill and the Bureau for special studies, new continuous statistical series were developed. The food price collection in 150 cities was continued from Wright's time. The annual collection of union wage scales in many cities was begun in 1907, and a regular strike statistics series was launched. Special studies and reports were directed at particular industrial situations.⁴⁸

The involvement of Commissioner Neill and the Bureau of Labor in other matters of direct concern to the AFL was prominent and regular. During the Roosevelt and Taft administrations, labor's political influence grew, despite the opposition by much of industry to dealings with the unions. The Bureau was more actively sought as an avenue to enlightenment on a variety of issues and as an administrative agent to the enforcement of the Government's 8-hour law.

The presentation of Labor's Bill of Grievances to President Roosevelt in March 1906 produced prompt presidential concern for the negligence of the executive departments in enforcing the 8-hour law on Government contracts which had been on the statute books for a long time. Neill was immediately requested to investigate the charges. He found that there were violations of work laws, but enforcing them was difficult. Neill made recommendations which were followed by the President in an executive order. The next year, Gompers reported that there were fewer violations with the Bureau serving as a clearinghouse for complaints which were investigated and rectified.⁴⁹

The immigration issue

The subject of immigration figured prominently among labor's grievances, and Neill was called upon by President Roosevelt to play a role. The Immigration Act of 1903, while making it unlawful to pay for the transportation or to encourage the importation of aliens or to advertise for them in foreign countries, did not apply to State agencies. Subsequently, South Carolina's establishment of a Department of Agriculture, Commerce, and Immigration to encourage immigration, with agents maintained abroad, was upheld by the attorney general.⁵⁰ Roosevelt called on Secretary of Commerce Oscar Straus to review the matter thoroughly, because "a

great deal of feeling has arisen over the decision and many of the people most affected sincerely believe that it is the end of any effort to stop the importation of laborers under contract in the Southern States, and that this means further damage to laborers in the Northern States." Roosevelt also consulted with Neill because he had "exceptional advantages in the way of keeping in touch with the labor people and of knowing their feelings as well as their interests."⁵¹

The Immigration Act of 1907 subsequently closed the loophole. A provision in the new act setting up a Bureau of Information was originally viewed by the AFL as permitting "workmen lawfully coming to the United States . . . a more intelligent choice in which to seek employment and if administered fairly is calculated to be of least injury to labor."⁵² Within a year, widespread domestic unemployment and the promotional activities of the Bureau of Information, headed by Terence Powderly, precipitated criticism of the Bureau. Secretary Straus called a conference of labor union officials attended by Gompers and Commissioner Neill. Straus and Powderly proposed extending the Bureau's activities to aid the domestic unemployed. The AFL position was that strengthening the Bureau would only make for more immigration, and that the Department of Commerce and Labor should devote its energies solely to meeting the problem of the domestic unemployed.

Neill also spoke out on aid to the domestic unemployed. He cited the deplorable wages and hours of work in the steel industry as largely caused by the constant stream of immigrants, who replaced other workers at lower wages. Further dissemination of information abroad would only increase the flow of immigrants, and there would be opposition to any information by the division to discourage immigration into any part of the country.⁵³

Industrial education

Special reports were also prepared at the initiation of the AFL, with participation from other public interest groups. The Bureau had covered U.S. industrial education in 1892 and 1902 reports; but there was growing and intensified interest from the AFL, which corresponded with educators, academicians, and social work groups on the subject in 1908. In that year a committee was formed, which included Neill, union officials, and public interest representatives. Industrial education, along with the raising of the age limit of child employees and compulsory school attendance were basic principles of labor, and as Gompers expressed it, "working methods of manufacturing with their division and subdivision and specialization have, to a large extent, rendered nearly superfluous and therefore largely eliminated the all-around skilled worker. Some so-called

modern apprenticeship systems are narrow, producing a line of trained specialists."⁵⁴ At the committee's request, the Bureau of Labor conducted a study of industrial education in 1910.⁵⁵ The AFL termed the resultant report the "most comprehensive inquiry ever made on the subject in the United States." The study provided support for legislative proposals by the AFL for Federal aid to the States for industrial education on the basis that, as Gompers expressed it, "the fact that industrial education, like academic education [has] become a public function and . . . that it should be paid for by public funds, is fast gaining supporters."⁵⁶ Success on the legislative front was finally achieved in 1917.

Women and children at work

A historic study of the conditions of working women and children, conducted by the Bureau over a 5-year period beginning in 1907, came after much encouragement by the AFL and welfare reform organizations to do so. The complementary interests of the Bureau and the AFL were reflected in a 1903 symposium in the *American Federationist* on employment of women and children. An article by Ethelbert Stewart called attention to results of the 1900 census, which showed the 10-year rates of growth of industrial employment were largest among children under age 16 and greater for women than for men more than 16 years old.⁵⁷ When Roosevelt asked for a sociological investigation with Commissioner Neill's support, Gompers and other union officials encouraged Congressional approval of the study, urging that it was necessary, and was not covered by the statistical records and work of the Census Bureau.⁵⁸ Assignment of the study to the Commissioner met with approval. The AFL and representatives of welfare organizations agreed at a conference to "cooperate with the Commissioner of Labor in the investigation, if necessary, to ascertain all the facts obtainable with a view to such cooperative action as shall at an early date free our country and our people from the stigma of exploiting young people for profit."⁵⁹ As the investigation proceeded, AFL representatives met with Neill to set up a division in the Bureau of Labor to deal with the conditions of working women and children.⁶⁰

The 19 volumes of the study appeared over a 3-year period. Personal inspections and interviews, along with the analysis of published and establishment data, were used by Bureau staff and outside experts from universities, welfare organizations, and medical facilities in the conduct of the study. Among the subjects covered were the working and living conditions of workers in such industries as cotton textiles, men's clothing, glass, silk, retail trade, metal trades, and laundries; State legislation on child labor; causes of school leaving; the effect of employment on juvenile delinquency, on infant mortality

ty and on criminality of women; family budgets of cotton mill workers; causes of death among female and child cotton mill operatives; and women in trade unions.⁶¹

Gompers claimed that the results of the study had "fully justified the action of the AFL in behalf of such an inquiry being made." Calling specific attention to the findings on accidents in metal trades, which showed hazards for women equal to those of men, hazards for children rare and decreasing, and that the most frequent accidents were largely preventable, Gompers went on to say: "what more can be said other than to extend a creditable recognition to the public officials who will make such a faithful, honest report."⁶²

The scope and probing character of such a sensitive type of study made some adverse reaction inevitable. Compounded by public accusations by two disaffected Bureau employees, controversy arose in the Senate. Several southern members charged that the report overstepped the bounds of governmental investigations.⁶³ Although the study received resounding support from many sources, Neill was confronted with opposition which delayed his reappointment by President Taft. Appointed by Woodrow Wilson and confirmed shortly after the establishment of the new Department of Labor,

in which the Bureau was to be lodged as the Bureau of Labor Statistics, Neill resigned soon afterward for financial reasons.⁶⁴

THE RELATIONSHIP BETWEEN the AFL and the Bureau during the pre-Department of Labor period was one of mutual awareness and generally high regard. The AFL, and notably Gompers, followed the work of the Bureau, and used it in organizational, political, and educational activities. The Bureau's broad-gauge projects were self-determined, with substantial support from Presidents and Congress. These shed light on socioeconomic developments, national and international labor news, and industrial characteristics, reflecting the needs of the time for growing comprehension of the status of labor. While Gompers differed with Wright and Neill over the role of Government in handling strikes with a national impact, the commissioners' fair and balanced analyses of major disputes was accepted as a tempering influence on possibly more stringent approaches. With its growing political influence, the AFL pressed for and achieved a Cabinet-level Department of Labor. Although the Bureau then became one of several bureaus in the new Department of Labor, that did not obscure its unique role in furnishing a major foundation for the new agency. □

— FOOTNOTES —

¹ Samuel Gompers, *Seventy Years of Life and Labor* (New York, E. P. Dutton, 1925), vol. 1, p. 224; and *Federation of Organized Trades and Labor Unions, Proceedings, 1881*, p. 4. For a contemporary account of the 1881 convention see Stuart Bruce Kaufman, "Birth of a federation: Gompers strives 'not to build a bubble,'" *Monthly Labor Review*, November 1981, pp. 23–26.

² Terence V. Powderly, *Thirty Years of Labor* (Philadelphia, Excelsior Press, 1890), pp. 158–63.

³ *Senate Committee on Labor and Education, Hearing on Capital and Labor, 1883*, vol. 1, pp. 271, 382.

⁴ *Ibid.*, vol. 2, pp. 278–80.

⁵ *Federation of Organized Trades and Labor Unions, Proceedings, 1883*, pp. 10–11.

⁶ Arthur had received assurances from President-elect Cleveland that Wright would continue in office after March 4. See John Lombardi, *Labor's Voice in the Cabinet: A History of the Department of Labor from Its Origins to 1921* (New York, Columbia, 1942), pp. 31–35.

⁷ *Federation of Organized Trades and Labor Unions, Proceedings, 1885*; and Gompers, *Seventy Years*, vol. 1, p. 229.

⁸ *American Federation of Labor, Proceedings, 1887*, p. 9; *Ibid., Proceedings, 1888*, p. 9.

⁹ *Commissioner of Labor, First Annual Report, Causes of Depression, 1886*, p. 76.

¹⁰ *Ibid.*, pp. 290–93.

¹¹ Lombardi, *Labor's Voice*, p. 43.

¹² *AFL, Proceedings, 10th Convention, 1890*, pp. 16, 18.

¹³ *Ibid., 9th Convention, 1889*, p. 16.

¹⁴ *Ibid., Proceedings, 11th Convention, 1891*, p. 17.

¹⁵ *Ibid., Proceedings, 13th Convention, 1893*, p. 15.

¹⁶ Carroll D. Wright, to the National Association of Officials of Bureau of Labor Statistics, *Proceedings, 1895*; Carroll D. Wright, *The*

Working of the United States Bureau of Labor, Bulletin of the Bureau of Labor, No. 54, September 1904, pp. 975–76.

¹⁷ James Leiby, *Carroll Wright and Labor Reform* (Cambridge, Mass., Harvard, 1960), pp. 103–04.

¹⁸ In Department of Labor Bulletin 6, *Recent Governmental Contracts*, September 1896, pp. 690–91; *Ibid.*, Bulletin 9, *The Padrone System and Padrone Banks*, March 1897, pp. 113–29.

¹⁹ *AFL, Proceedings, 15th Convention, 1895*, p. 38; *Ibid., 16th Convention, 1896*, p. 18.

²⁰ *Ibid., 1896*, p. 20.

²¹ *American Federationist*, vol. IV, no. 4, June 1897, p. 76.

²² *U.S. Strike Commission of 1894, Report, 1895*, pp. 194–201.

²³ *Ibid.*, p. 52.

²⁴ *American Federationist*, vol. 1, no. 10, 1894, pp. 231–33.

²⁵ The AFL opposed the legislation, and, as Gompers later stated, when the unaffiliated railway brotherhoods continued to support the legislation, the AFL considered itself successful in eliminating any possible application but to the railway unions. *American Federationist*, vol. V, no. 3, May 1898, pp. 70–1; *Ibid.*, vol. IX, no. 6, June 1902; *Industrial Commission, 1901*, vol. XVII, pp. cv-cvi; *AFL, Proceedings 16th Convention, 1906*, pp. 28–29; Gompers, *Seventy Years*, vol. 2, p. 137.

²⁶ Gompers, *Seventy Years*, vol. 2, p. 120; *AFL, Proceedings of 22nd Annual Convention, 1902*, pp. 12–13; *House Committee on Labor, Hearings National Arbitration Bill, 1904*, p. 63.

²⁷ Geo. L. McMurphy, *American Federationist*, vol. 1, no. 4, pp. 95–96.

²⁸ *AFL, Proceedings, 17th Convention, 1897*, p. 22; *AFL, Proceedings, 21st Convention, 1901*.

²⁹ *Organization of the Department of Commerce and Labor, 1904*, pp. 478–79, 520–22.

³⁰ *Ibid.*, p. 499.

- ³¹ *AFL, Proceedings, 23rd Convention, 1903*, p. 24, 173.
- ³² Theodore Roosevelt, *Autobiography, Works*, vol. XX, 1925, p. 460.
- ³³ Gompers, *Seventy Years*, vol. 1, pp. 530–32, vol. 2, pp. 129–30.
- ³⁴ *American Federationist*, vol. XIII, no. 1, January 1905.
- ³⁵ Message to the Congress, 59th Cong., 2nd sess., Dec. 3, 1906 in *The Works of Theodore Roosevelt*, vol. V, pp. 924–26; Message to the Congress, 60th Cong., 1st sess., Dec. 3, 1907 in *The Works of Theodore Roosevelt*, vol. VI, pp. 152–55.
- ³⁶ Neill expressed the view that: “the employers’ side generally has the advantage in getting a hearing before the public,” and compulsory investigation and a public report would force “both sides to show up the actual things that were being done, and the actual merits of their claims.” House Committee on Interstate and Foreign Commerce, Hearing, *Investigation of Controversies Affecting Interstate Commerce, 1906*, pp. 6, 11.
- ³⁷ Senate Document 122, 58th Cong., 3d sess., *Labor Disturbances in the State of Colorado, 1880 to 1904; 1905*, pp. 31–34; 278–80.
- ³⁸ *The New York Times*, June 17, 1907, p. 1; July 13, 1907, p. 2; Aug. 12, 1907, p. 2; *National Civic Federation Review*, September 1907, p. 17; Senate Document No. 725, 60th Cong., 2nd sess.; *Investigation of Western Union and Postal Telegraph Cable Cos.*, 1909, pp. 39–42.
- ³⁹ Edward Berman, *Labor Disputes and the President of the United States* (New York, Columbia University Press, 1924), pp. 64–65.
- ⁴⁰ *The New York Times*, Sept. 7, 1909; Sept. 11, 1909; *AFL, Proceedings of 29th Convention, 1909*, p. 30.
- ⁴¹ *AFL, Report of Proceedings of 30th Convention, 1910*, pp. 20–21; *American Federationist*, vol. XVII, no. 2, February 1910, pp. 113–15.
- ⁴² Senate Document No. 521, 61st Cong., 2nd sess., *Report on Strike at Bethlehem Steel Works, 1910*, pp. 70, 128.
- ⁴³ *The New York Times*, May 12, 1910, p. 9.
- ⁴⁴ *American Federationist*, vol. XVII, no. 6, June 1910.
- ⁴⁵ Senate Document No. 110, 62nd Cong., 1st sess., *Report on the Iron and Steel Industry, 1911*, vol. 1, pp. XIV–XVI; vol. 3, 1913, pp. 13–15.
- ⁴⁶ *American Federationist*, vol. XIX, no. 2, February 1912, pp. 101–14.
- ⁴⁷ Senate Document No. 870, 62nd Cong., 2nd sess., *Report of the Strike of Textile Workers in Lawrence, Massachusetts, 1913*, p. 17.
- ⁴⁸ Ewan Clague, *The Bureau of Labor Statistics* (New York, Frederick Praeger, 1968), p. 13.
- ⁴⁹ *AFL, Proceedings, 27th Convention, 1907*, pp. 38–39.
- ⁵⁰ Richard G. Balfe, “Charles P. Neill and the United States Bureau of Labor,” Ph. D. diss. (University of Notre Dame, 1956), p. 112.
- ⁵¹ Oscar S. Straus Papers; Correspondence from Roosevelt to Straus, Jan. 18, 1907.
- ⁵² *AFL, Proceedings, 27th Convention, 1907*, p. 40.
- ⁵³ Department of Labor and Commerce, Labor Conference, 1909, pp. 11, 29, 31, 46, 80–81; *AFL, Proceedings, 29th Convention, 1909*, pp. 34–35.
- ⁵⁴ *AFL, Proceedings, 29th Convention, 1909*, p. 35.
- ⁵⁵ Commissioner of Labor, *25th Annual Report, Industrial Education in the United States, 1910, 1911*.
- ⁵⁶ *AFL, Proceedings, 30th Convention, 1910*, pp. 41–43; *AFL, Proceedings, 32nd Convention, 1912*, pp. 137–39; 269–76.
- ⁵⁷ *American Federationist*, vol. X, no. 5, May 1903, p. 354.
- ⁵⁸ *AFL, Proceedings, 26th Convention, 1906*, p. 30–31.
- ⁵⁹ *AFL, Proceedings, 27th Convention, 1907*, p. 28.
- ⁶⁰ Legislation was also pending calling for the establishment of a Children’s Bureau in the Department of Commerce and Labor. *AFL, Proceedings, 30th Convention, 1910*, pp. 124, 224–25.
- ⁶¹ Senate Document No. 645, 61st Cong., 2nd sess., *Report on the Condition of Women and Child Wage-Earners in the United States*, vols. 1–19, issued between 1910 and 1913.
- ⁶² *AFL, Proceedings, 31st Convention, 1911*, p. 35.
- ⁶³ Daniel J. B. Mitchell, “A furor over working children and the Bureau of Labor,” *Monthly Labor Review*, October 1975, pp. 34–36; and Judson McLaury, “A senator’s reaction to report on working women and children,” pp. 36–38.
- ⁶⁴ Balfe, “Neill and the Bureau of Labor,” pp. 139–40; See also Jonathan Grossman, “The origin of the U.S. Department of Labor,” *Monthly Labor Review*, March 1973, pp. 3–7.

Nonwool yarn mills experience slow gains in productivity

During 1958–80, new equipment and techniques aided productivity growth; although the 2.3-percent rate of increase was less than for manufacturing as a whole, it accelerated during the last 8 years of the period

JAMES D. YORK

As measured by output per employee hour, productivity in the nonwool yarn mill industry increased at an average of 2.3 percent during 1958–80, somewhat below the 2.8-percent rate for all manufacturing.¹ (See table 1.) Output increased at an average annual rate of 4.5 percent while employee hours advanced at a rate of 2.1 percent. For the most recent period, 1973–80, productivity has risen at a faster annual rate—averaging 3.0 percent. Improved preparatory and spinning equipment have contributed to these gains.

Growth varied over the period of study. From 1958 to 1965, productivity increased every year, rising at an average annual rate of 5.2 percent. The largest jump occurred in 1961 with a rise of 9.3 percent. The 5.2-percent average gain in productivity reflected an average annual growth of 6.7 percent in output and 1.5 percent in employee hours. Since 1965, productivity gains have slowed considerably. During 1965–73, output per employee hour grew at an average annual rate of only 1.2 percent. Output increased at a 4.6-percent rate—just slightly faster than that of 3.4 percent for employee hours. Productivity movements displayed much year-to-year fluctuation during this time. There were increases in only 5 of 9 years, with the largest—7.1 percent—occurring in 1971.

In contrast to productivity movements for most industries, the growth in this industry accelerated during

1973–80, rising at an average annual rate of 3.0 percent. Output grew at a rate of 2.6 percent, while employee hours declined at a rate of 0.4 percent. Recessionary conditions in the economy in 1974 and 1975 had a strong impact on the trends in output and employee hours. In 1974, the yarn industry began sharp reductions in employee hours, as output fell 3.5 percent. The more than proportional drop in employee hours of 7.9 percent led to a 4.8-percent rise in productivity. In 1975, output posted a further decline of 4.2 percent. In the face of this continuing deterioration in output, employee hours experienced their largest single-year decline in the entire 1958–80 period, 15.7 percent. The resulting productivity increase, 13.6 percent, was the largest of the two-decade period.

Employment and plant size

Total employment in the spun yarn industry increased by more than 28 percent between 1958 and 1980, rising at an average annual rate of 2.1 percent. There were 67,800 employees in 1958, but by 1980 the total had risen to 86,900. However, the increase in employment was not steady; cyclical patterns were evident throughout the period, which were related to trends in the overall economy.

The establishments which produce yarn vary in size but, generally, are rather large. According to the 1977 Census of Manufactures, nearly 40 percent of all establishments employ 100 to 249 employees and these account for more than 30 percent of industry value of

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Table 1. Productivity and related indexes for nonwool yarn mills, 1958-80

[1977=100]

Year	Output per employee hour	Output	Employee hours	Employees
1958	59.5	39.4	66.2	72.9
1959	62.3	44.8	71.9	72.9
1960	65.3	42.5	65.1	68.6
1961	71.4	45.1	63.2	65.6
1962	74.7	48.7	65.2	66.3
1963	76.3	50.3	65.9	66.3
1964	80.6	57.4	71.2	69.1
1965	84.6	66.5	78.6	73.8
1966	81.8	66.7	81.5	78.0
1967	77.5	61.7	79.6	80.1
1968	80.2	68.2	85.0	83.3
1969	84.5	74.4	88.0	89.3
1970	84.3	70.9	84.1	86.3
1971	90.3	82.0	90.8	89.2
1972	91.0	91.2	100.2	96.4
1973	85.0	88.9	104.6	102.7
1974	89.1	85.8	96.3	101.2
1975	101.2	82.2	81.2	87.7
1976	93.5	89.7	95.9	97.7
1977	100.0	100.0	100.0	100.0
1978	104.2	103.8	99.6	100.3
1979	103.9	99.0	95.3	95.8
1980	106.1	97.5	91.9	93.4
Average annual rates of change (in percent)				
1958-80	2.3	4.5	2.1	2.1
1975-80	1.7	3.4	1.7	0.7

shipments. Of the 456 establishments in the industry, almost 20 percent employ 250 to 499 employees and also account for more than 30 percent of total value of shipments. Only about 7 percent of all establishments employ 500 to 999 employees but these produce more than 20 percent of industry value of shipments.

Production workers have always represented a high proportion of total industry employment and that proportion has changed very little over time. In 1958, they accounted for slightly more than 94 percent of total employment and in 1980 their share was still about 92 percent. The proportion of female employees has increased in recent years, rising from approximately 44 percent of the work force in 1972 to 46 percent in 1980.

Average hourly earnings in the spun yarn industry have remained well below those of all manufacturing. In 1972, the first year for which such data are available, average hourly earnings were \$2.53, significantly less than the \$3.82 for all manufacturing. By 1980, average hourly earnings in the industry had risen about 89 percent to \$4.78. However, this was still well below the average for all manufacturing, which was up to \$7.27.

Diverse industry markets

Spun yarn is used for the manufacture of the great majority of textile products; household items which contain yarn include carpets and rugs, bedspreads, draperies, and towels. Its demand can be influenced by

population changes, housing starts, changes in lifestyle or consumer tastes, and general economic conditions.

Nonwool yarn is purchased by many different manufacturers. Broad woven fabric mills are major users of spun yarn. These mills produce goods made from cotton, synthetic fibers, and silk, such as sheets, pillowcases, draperies, and towels. The firms which use synthetic fibers and silk are the largest purchasers of spun yarn. From 1963 to 1977, purchases by nonwool spinning mills increased nearly 90 percent, but those by broad woven cotton mills changed very little.²

Mills which produce knit fabric also account for a large proportion of total spun yarn purchases. These mills knit tubular or flat fabric and dye or finish knit fabric; their output increased rapidly from 1963 forward. This increase in output translated into rising yarn purchases by these mills. It is estimated that between 1963 and 1967, purchases of spun yarn by both circular and warp knit fabric mills increased by approximately 136 percent.

Other types of knitting mills also use spun yarn, including knit outerwear and underwear mills and hosiery mills. The first type manufactures products such as suits, slacks, shirts, neckties, and skirts. Although complete information is not available for all years, estimates indicate that purchases of spun yarn by knit outerwear mills decreased during the 1963-77 period.

Exports have historically accounted for a negligible portion of the total market. In 1979 and 1980, although exports increased rapidly, they only accounted for approximately 2 percent of yarn shipments. Imports have had little impact on the domestic market, making up less than 1 percent of apparent consumption in recent years.³

Advances in technology

The production of spun yarn involves a number of different operations. Improvements in technology have taken place at different stages of the production process and have contributed to the industry's overall growth. Much of the advance has resulted from gradual improvements in the equipment over time.

The raw material arrives at the mill as bales. The adoption of automatic bale opening and blending equipment, which eliminates the need for manual performance of this operation, has led to greater efficiency in this initial stage of the production process.

Likewise, improvements have occurred in the carding operation. In it, the fibers of the raw material are made parallel to each other and most of the foreign matter is removed. The fibers emerge in a form known as sliver. Formerly, the yarn entered a picker which formed it into a roll before being fed into the carding machine. However, the introduction of the automatic chute feed which permits the blended fibers to be fed directly into

the carding machine, has eliminated the need for a picker. The carding machinery itself has increased in speed, further contributing to productivity gains.

The drawing and roving operations follow the carding process. The drawing operation makes the slivers more uniform. In the roving process, a twist is imparted to the sliver by the roving frame. This results in greater strength. The product that emerges is known as roving and is wound onto bobbins which are taken up when full. The adoption of larger bobbins has reduced the amount of tending necessary because they do not have to be removed as often. Improved roving equipment has been introduced which is faster and eliminates the need to remove the flyers (which insert twist into the fibers) for doffing (removal of the bobbins).

After the roving operation, the roving bobbin proceeds to the spinning operation. The spinning drafts (draws out) the fibers to size the yarn and puts the desired twist into it, providing necessary strength. Yarn is spun onto bobbins; the use of larger ones on spinning machines has reduced the frequency with which bobbins have to be removed. The introduction of automatic doffing equipment—equipment which removes the full bobbins and replaces them with empty ones—has also improved productivity. Increased operating speed of the spinning equipment itself has also contributed to productivity gains.

After spinning, the yarn is taken to the winding department. Here, winding machines remove the yarn from the spinning bobbins and wind it onto cones for direct customer shipment or onto tubes for dyeing. Automation in winding equipment has taken place and has increased productivity growth immensely.⁴

A number of plants have introduced open-end spinning, which has also aided productivity. This combines into one process the three separate operations of roving, spinning, and winding, thus eliminating the need for a separate roving and winding operation. Open-end spinning can wind the yarn onto a package rather than a spinning bobbin; thus, a separate winding operation to transfer the yarn from the spinning bobbin to a cone is no longer needed.⁵

Capital spending

Rises in labor productivity are frequently linked to increases in capital formation. Data available through 1979 indicate that, over 1958–79 as a whole, current-dollar new capital expenditures rose at an average annual rate of 9.4 percent. However, the advances were not uniform throughout the period, and the most rapid ones took place in the earlier years. From 1958 to 1966, new capital expenditures increased at a 22.1-percent rate. This acceleration in capital spending coincided with

rapid productivity growth. During 1958–66, the rate of increase in output per employee hour was 4.6 percent. Both productivity and capital expenditures posted increases in all but one year of the 1958–66 subperiod.

The tremendous growth in capital expenditures during this time caused the ratio of capital expenditures per employee to go up far more rapidly than for all manufacturing. In 1958, capital spending per employee was only \$229 in the spun yarn industry, compared with \$619 for all manufacturing. However, by 1966, capital spending per employee in the industry had risen to \$1,368, compared with \$1,112 for all manufacturing.

From 1966–79, the trends in both capital expenditures and productivity were quite different from the preceding years. The rate of increase in capital expenditures declined to 4.9 percent. There were even substantial decreases in a number of years. Productivity growth likewise experienced a slowdown, dropping to an average annual rate of increase of 2.2 percent. As in the case of capital expenditures, there were declines in some years. The decline in the growth rate of capital expenditures caused the rate of increase in the ratio of capital expenditures per employee to fall behind that of all manufacturing. From 1966–79, capital spending per employee in the spun yarn industry advanced at an average annual rate of only 3.0 percent, compared with a rate of 9.2 percent for all manufacturing. Consequently, capital spending per employee was only \$1,607 in 1979, compared with \$3,118 for all manufacturing.

PRODUCTIVITY SHOULD CONTINUE to increase as improvements in production equipment take place and as more manufacturers take advantage of these. Some of the newer equipment, which embodies more advanced technologies than past models, is capable of producing better quality yarn with fewer imperfections and weak spots. This top quality is increasingly demanded by customers as they adopt higher speed weaving and knitting machinery.⁶ This is accelerating the adoption of more modern production equipment by nonwool yarn mills.

Some industry officials expect labor market conditions to provide added stimulus for use of improved production equipment.⁷ Relocation of the manufacturing operations of many industries into major textile producing areas exerts additional pressure on existing labor and wages. This, in turn, is impelling more yarn manufacturers to utilize the equipment and techniques which provide the greatest levels of output per employee hour.

Open-end spinning will continue to contribute to productivity gains as it becomes more widely adopted. This form of spinning has a particularly favorable effect on production efficiency because, as noted earlier, it combines the separate operations of roving, spinning, and winding into a single process. □

¹ The nonwool yarn mill industry consists of establishments primarily engaged in spinning yarn wholly or chiefly by weight of cotton, synthetic fibers, or silk. It is designated as industry 2281 in the 1972 Standard Industrial Classification (SIC) Manual. All average annual rates of change are based on the linear least squares trend of the logarithms of the index numbers. Extension of the indexes will appear in the annual BLS Bulletin, *Productivity Measures for Selected Industries*.

² The discussion of yarn purchases from nonwool yarn mills by the consuming industries is based on constant-dollar estimates.

³ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1981), p. 402.

⁴ See McAllister Isaacs III, "Winding a 138 Percent Boost in Operator Pounds," *Textile World*, February 1980, pp. 79-82.

⁵ See Brenda V. Lloyd, "Meeting the Challenges of Modernization," *Textile Industries*, September 1979, pp. 114-17. Also, see McAllister Isaacs III, "Avondale Open-End Cuts Labor, Ups Output," *Textile World*, May 1980, pp. 63-66.

⁶ W. Bud Newcomb, "U.S. Sales-Yarn Firms Are Poised For Future Growth," *Textile World*, September 1980, p. 203.

⁷ See Douglas A. Bowen, "Linn-Corriher: Yarn Making Pioneer," *Textile Industries*, March 1980, p. 50. Also, see Joseph L. Lanier Jr., "Plants and Equipment," *America's Textiles*, June 1976, p. 21.

APPENDIX: Measurement techniques and limitations

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

The preferred output index for manufacturing industries would be obtained from data on quantities of the various goods produced by the industry, each weighted (multiplied) by the employee hours required to produce one unit of each good in some specified base period. Thus, those goods which require more labor time to produce are given more importance in the index.

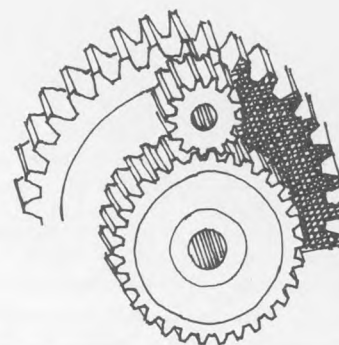
In the absence of adequate physical quantity data, the output index for this industry was constructed by a deflated value technique. The value of shipments of the various product classes were adjusted for price changes by appropriate Producer Price Indexes to derive real

output measures. These, in turn, were combined with employee hour weights to derive the overall output measure. The result is a final output index that is conceptually close to the preferred output measure.

Employment and employee hour indexes were derived from data published by the Bureau of the Census because BLS data were not available. Employees and employee hours are each considered homogeneous and additive, and thus do not reflect changes in the qualitative aspects of labor, such as skill and experience.

The indexes of output per employee hour do not measure any specific contributions, such as that of labor or capital. Rather, they reflect the joint effect of factors such as changes in technology, capital investment, capacity utilization, plant design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

Productivity Reports



Labor and material requirements for hospital construction

DAWN E. DOUGHERTY

In 1980, each \$1,000 of contract cost for hospital construction generated an estimated 51.4 hours of work, according to a Bureau of Labor Statistics survey.¹ This means that each \$1 billion spent on hospital construction in 1980 would have created 27,129 jobs—12,850 in the construction industry and 14,279 in industries which produce and deliver the materials, equipment, and supplies used in construction. The 1975 survey indicated that each \$1 billion of hospital construction would have provided 21,528 jobs in construction and 24,256 in related industries.²

The survey covered hospital and nursing home construction. However, this summary presents data for hospitals only; a detailed report covering both hospital and nursing home construction is being prepared. This was the third survey for hospitals and the second for nursing homes. It measured employee hours per \$1,000 of contract cost and per 100 square feet of construction. A sample of 34 hospitals and 8 nursing homes completed in 1976 was drawn to represent a universe of 90 hospitals and 16 nursing homes. All projects were funded under the former Department of Health, Education, and Welfare's Hill-Burton program. Data for onsite employee hours, material and labor costs, and project characteristics were obtained through visits to general and special trade contractors.

Employee hours

For each \$1,000 of contract cost for hospitals completed in 1976, 87.7 employee hours were required. The following tabulation shows the distribution of employee hours per thousand current dollars for hospitals constructed in 1975, and estimates for 1980.

	1975	1980
Construction	39.2	23.4
Onsite	34.7	20.7
Offsite	4.5	2.7
Manufacturing	29.3	16.5
Trade, transportation, and services	15.1	9.1
Mining and all other industries	4.1	2.4

Nearly 89 percent of the hours required in the construction industry in 1975 were spent onsite. The remaining hours represent builders' offsite administrative, office, and warehousing duties.³ The employee-hour requirements in other industries, which were greater than construction employee hours, composed 55 percent of all hours.⁴ Manufacturing accounted for the largest number of these indirect hours with 60 percent.

Onsite hours. Onsite employee-hour requirements per \$1,000 of contract cost decreased between each of the three studies. Hospitals surveyed in 1960 and 1966 required 88.8 and 76.1 onsite hours, respectively, compared with 34.7 in 1975.⁵ In constant (1972) dollars, 46.7 employee hours were required in 1975, compared with 52.7 in 1960 and 49.9 in 1966. This means that onsite hours declined at an average annual rate of 0.8 percent between 1960 and 1975 and 0.7 percent between 1966 and 1975. Factors contributing to the decline include improvements in construction methods, changes in the types of materials used, differences in individual project characteristics, and increases in productivity. Although onsite hours cannot be used as an exact measure of productivity, changes in onsite hours give an indication of productivity trends in the construction industry.

By occupation. Skilled workers contributed 68.6 percent of all onsite hours in 1975 (table 1). In 1960, skilled workers accounted for 67.8 percent of all hours and in 1966, 70.3 percent. Plumbers (including pipefitters and steamfitters), carpenters, and electricians accounted for the largest proportion of skilled employee hours in all three studies. The proportion of hours contributed by electricians increased with each study, reflecting a growing sophistication and complexity in the electrical equipment and lighting systems used by hospitals.

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Semiskilled and unskilled workers accounted for 22.4 percent of all onsite hours in 1975; in 1960 and 1966, they represented 28.4 percent and 26.4 percent, respectively. The proportion of hours contributed by professional, clerical, and supervisory workers, which was 3.9 percent in 1960 and 3.2 percent in 1966, increased to 8.6 percent in 1975. Supervisory workers' hours accounted for most of this increase.

By type of contractor. General contractors accounted for the greatest proportion in onsite hours with 26.6 percent. In comparison, general contractors contributed 39.1 percent in 1960 and 36.5 percent in 1966. This decline indicates that general contractors are subcontracting more of their onsite duties to special trade contractors. Plumbing and heating, ventilating, and air-conditioning contractors had the second highest proportion of onsite hours, reflecting the extensive amount of plumbing done in hospital construction. Electrical contractors made up the third largest group. This was true for both of the earlier studies, although the proportion contributed by electrical contractors increased between the studies.

Project characteristics

Hospitals completed in 1976 were larger and cost more to build than those previously studied (table 2).

Table 1. Onsite labor requirements per \$1,000 of contract cost, by occupation and type of contractor, 1975

Occupation	Percent	Type of contractor	Percent
All occupations	100.0	Total	100.0
Skilled workers	68.6	General contractors	26.6
Brickmasons	3.5	Special trade contractors	73.4
Carpenters	12.5	Plumbing, heating and air-conditioning	23.8
Concrete finishers	2.5	Electrical	13.0
Drywall installers	1.0	Plastering and lathing	6.5
Electricians	11.9	Masonry	5.5
Elevator installers	0.7	Concrete work	4.4
Glaziers	0.5	Roofing and sheet metal work	2.4
Insulation workers	2.2	Ornamental and structural metal work	2.2
Lathers	2.1	Wallboard	2.1
Operating engineers	2.1	Painting and wallpapering	1.9
Painters	1.6	Terrazzo and tile work	1.7
Pipefitters and steamfitters	6.0	Carpentry	1.6
Plasterers	1.5	Excavations, foundations, footings, and grading	1.4
Plumbers	6.6	Elevators	1.2
Reinforcing ironworkers	1.6	Insulating	1.1
Roofers	0.6	All other types	4.6
Sheet metal workers	5.4		
Structural metal and ornamental ironworkers	2.6		
Tile setters, hard	0.6		
Other skilled workers	3.1		
Semiskilled and unskilled workers	22.4		
Laborers	19.0		
Helpers	1.6		
Truck drivers and other semiskilled or unskilled workers	1.8		
Supervisory, professional, technical, and clerical workers	8.6		

NOTE: Detail may not add to totals due to rounding.

Table 2. Selected project characteristics for hospital construction, 1960, 1966, and 1975

Characteristic	1960	1966	1975
Number of projects	46	61	90
Floor space (1,000 square feet)	56.5	63.5	163.6
Average total cost	\$1,463,723	\$1,811,459	\$8,097,826
Cost per square foot	\$25.93	\$28.51	\$49.48
Number of beds per project	86	82	128
Cost per bed	\$16,947	\$22,172	\$63,448
Proportion of average total cost for —			
Onsite wages and salaries	28.2	29.6	27.7
Materials, built-in equipment, and supplies	53.2	50.4	42.2
Construction equipment	1.2	1.3	2.4
Residual	17.4	18.7	27.7

Additions to existing hospitals continued to outnumber new hospital buildings. The proportion of additions increased from 57.4 percent of all projects in 1966 to 81.9 percent in 1975, which may help to explain the large increase in project cost between the two studies. Cost per square foot is generally higher for additions than for new hospitals, because extensive alterations to the original building are often required before new construction can begin.

Between the earliest and latest studies, the average number of square feet per project increased twice as much as the number of beds. This suggests that the newer hospitals contain more space for equipment and special purpose areas (such as diagnostic and therapy rooms, laboratories, and x-ray rooms) than the hospitals in the earlier studies.

Costs

Components of cost. The proportion of total hospital contract cost for onsite wages and salaries declined between 1966 and 1975, after increasing between the first and second studies (table 2). Materials, built-in equipment, and supplies showed a large decrease, from 53.2 percent of total contract cost in 1960 to 42.2 percent in 1975. The proportion of total cost for contractor's equipment increased slightly between the first and most recent studies. Profit and overhead (which includes interest expenses, salaries of offsite workers, supplementary wage benefits, office and other overhead expenses, and profit) jumped from 17.4 percent in 1960 to 27.7 percent in 1975. Higher interest rates and increases in salaries and supplementary benefits were the major factors contributing to this rise.

Materials costs. Materials, built-in equipment, and supplies accounted for the largest proportion of contract cost. Of the types of materials used, fabricated metal products had the highest cost per \$1,000 of construction value (table 3). Stone, clay, glass, and concrete products were next, followed by electrical machinery and equipment. These three product groups accounted for more than half of all the materials used in hospital

construction in 1975. The proportion of total material cost for electrical products increased between 1966 and 1975, replacing built-in equipment and nonelectrical machinery as the third most important product group.

Regional data

Project characteristics. Data compiled by region⁶ reflect differences in project design, size, and cost (table 4). On average, the largest projects were in the South. Hospitals built in the South had the highest average cost, the most floor space, and took longer to build than those in all other regions. Hospitals in the Northeast were the smallest and the most expensive (per square foot). The majority of projects in the Northeast were small additions to existing hospitals; they contained relatively little floor space, and several included extensive rehabilitation work. Fewer hospitals were built in the West than in any of the other regions; thus, the difference between the proportion of additions and new buildings for that region and the United States as a whole.

Hours and wages. The South had both the lowest average hourly wage and the smallest ratio of wages to total contract cost. Onsite employee-hour requirements per \$1,000 were highest in the South, which suggests that the relatively low wage rates in the region encouraged the use of labor intensive construction methods. Thus, the low wage rate is thought to be responsible for the South having the smallest ratio of wages to total contract cost, even though employee-hour requirements were highest. The North Central region had the highest average hourly wage, and was tied with the West for the largest ratio of wages to total cost. Employee-hour requirements were lowest in the Northeast, where the

Table 4. Selected project characteristics for hospital construction, by region, 1975

Project characteristic	United States	Northeast	North Central	South	West
Average number of square feet per project (100 sq. ft.)	1,636.4	859.5	1,798.9	2,091.1	990.0
Average cost per project	\$8,097,826	\$6,400,883	\$7,963,530	\$10,009,634	\$5,435,938
Average cost per square foot	\$49.48	\$74.48	\$44.27	\$47.87	\$54.91
Average number of weeks of construction	154	145	149	174	121
Additions as a percent of all projects	81.9	87.7	85.7	84.3	49.5
New buildings as a percent of all projects	18.2	12.3	14.6	15.7	49.5
Percent of projects in metropolitan areas	49.9	62.6	44.5	48.9	49.5
Percent of projects in non-metropolitan areas	50.1	37.4	55.5	51.1	49.5
Employee hours per \$1,000 of contract cost	34.7	32.0	33.8	36.3	35.4
Average hourly wage	\$7.99	\$8.60	\$8.70	\$7.18	\$8.29
Wages as a percent of total contract cost	27.7	27.5	29.4	26.1	29.4

majority of projects were located in metropolitan areas. Because hourly wages and the availability of skilled workers are usually greater in metropolitan areas, employee-hour requirements tend to be lower for projects built in metropolitan rather than nonmetropolitan areas. □

—FOOTNOTES—

¹ Employee-hour estimates for 1980 were based on 1975 onsite employee-hour data, adjusted for price and productivity change. The deflator used to adjust the onsite hours for price change was the Bureau of the Census' cost index for nonresidential buildings: 1965-66—65.6; 1974-75—134.65; 1980—217. Productivity change was calculated by adjusting the change in onsite hours for prices between the 1966 study and the latest study. The average annual rate of change was 0.7 percent. Although most of the projects in the latest survey were completed in 1976, most of the construction value was put in place during 1974-75.

² Employment estimates were derived using 1,800 hours per year for onsite construction; 2,000 for offsite construction; 2,068 for manufacturing; 1,779 for trade, transportation, and services; and 2,025 for mining and all others.

³ Offsite employee hours were estimated using the ratio of nonconstruction employees to total employees for special trade contractors in the contract construction industry, as reported in *Employment and Earnings*, Bulletin 1312-11 (Bureau of Labor Statistics, 1979). This ratio was applied to the onsite hours obtained in the survey, which had been adjusted for the hours worked by administrative and clerical employees.

⁴ Indirect employee hours were calculated using inter-industry growth models. Data on materials and equipment were grouped by type, and the dollar amounts for each group were adjusted by the appropriate producer price index. The data were then processed through the Bureau of Labor Statistics' input-output model to determine the number of employee hours required per \$1,000 of construction for each industry group.

⁵ The first two surveys are referred to as the 1960 and 1966 studies; however, most of the construction occurred during 1959-60 and 1965-66, respectively. See *Labor Requirements for Hospital Construction*, Bulletin 1340 (Bureau of Labor Statistics, 1962); Herman J. Rothberg, "Labor requirements for hospital construction, 1959-60," *Monthly Labor Review*, October 1962, pp. 1120-24; *Labor and Material Requirements for Hospital and Nursing Home Construction*, Bulletin 1691

Table 3. Cost of materials, equipment, and supplies used in hospital construction, 1975

Type of material	Cost per \$1,000 of contract cost	Percent
All materials, equipment, and supplies	\$442.24	100.0
Materials, built-in equipment, supplies	417.84	95.5
Agricultural products	.40	.1
Mining of nonmetallic minerals, except fuels	1.44	.3
Textile mill products	1.06	.2
Lumber and wood products, except furniture	13.18	3.0
Furniture and fixtures	10.06	2.3
Paper and allied products	1.73	0.4
Chemicals and allied products	4.48	1.0
Petroleum refining and related products	4.96	1.1
Rubber and miscellaneous plastic products	4.65	1.0
Stone, clay, glass, and concrete products	81.90	18.5
Primary metal products	43.73	9.9
Fabricated metal products	105.26	23.8
Machinery, except electrical	58.77	13.3
Electrical machinery, equipment, and supplies	66.74	15.1
Measuring, analyzing, and controlling instruments	15.11	3.4
Other materials and supplies	4.36	1.0
Construction equipment	24.40	5.5

NOTE: Detail may not add to totals due to rounding.

(Bureau of Labor Statistics, 1971); and Martha Farnsworth Riche, "Man-hour requirements decline in hospital construction," *Monthly Labor Review*, November 1970, p. 48.

⁶Data were provided for the continental United States and four broad geographic regions. The States included in each region were: *Northeast*—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *North Central*—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and *West*—Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Impact of new electronic technology

RICHARD W. RICHE

The steady stream of technological progress that has characterized our society in America has resulted in higher productivity, elimination of many menial and dangerous jobs, higher wages and shorter hours, and a continuous flow of new products and services which have resulted in a higher standard of living. New industries employing thousands of workers have been formed to manufacture computers, electronic products, and technologies to provide energy and control the environment.

To be sure, innovation in industries such as longshoring, agriculture, and printing, to name a few, has eliminated jobs and required workers to acquire the unfamiliar skills associated with new technology. For some, the adjustment has been painful. But on balance, there is general agreement that the benefits of new technology far outweigh the disadvantages, and that innovation has led to economic progress, new job opportunities, and a more prosperous society.

At this point, early in the decade of the 1980's, there is widespread agreement that the pace of diffusion of technologies which incorporate advanced electronics will be accelerated over the next few years. The experience in the United States suggests that as long as the economy is growing, the introduction of innovations with potential for productivity gains can be compatible with rising employment. When computers were first introduced for office data applications, for example, fre-

quently predictions were made that large numbers of clerical and kindred workers would be displaced and that job opportunities for millions would be curtailed. What actually did happen was quite different. In 1960, clerical workers in the United States numbered about 10 million and accounted for about 15 percent of total employment. By 1980, there were more than 18 million clerical workers and they accounted for about 19 percent of the total. Thus, instead of decreasing as had been predicted, clerical employment increased about 85 percent. And, it is projected to grow significantly to 1990.

Why did clerical employment increase instead of decreasing as predicted? First, normal growth in the volume of clerical work exceeded jobs eliminated by the computer. Second, computers made possible work that was previously impractical because it would have been too costly and too time consuming. Using computers, managers can now prepare reports and analyses that previously were desirable but too costly.

In addition to creating employment by expanding the scope of activities for many industries, the computer required new occupations such as systems analysts, programmers, keypunch operators, console operators, and tape librarians. And new industries were established to manufacture computers and related equipment, creating a variety of occupations and employing thousands.

Technological change can cause job displacement, especially when the industry is concentrated in a particular region or locality. Sometimes the employment impact is direct, as in the case of agriculture. In most cases, however, the effect is less obvious. Output does not advance at the same rate as productivity in all industries or plants, and consequently some industries register employment declines while others register increases. Regardless of the reason, displacements are costly for both the individual and the Nation.

This report examines four major technological changes under way in the United States and discusses prospects for their further diffusion. The four areas are microelectronics, industrial robots, telecommunications, and office automation.

The development of *microprocessors and microcomputers* in the early 1970's, and their widespread diffusion as we enter the 1980's, is a major innovation in electronics. Over the past three decades, the transistor that replaced the bulky vacuum tube was a first step in the development of miniaturized semiconductor integrated circuits which provide more power and reliability in a significantly smaller package. A microprocessor unit contains thousands of electronic components and complex circuits on a silicon chip less than one centimeter square. The unit can be combined with memory and input-output capability to build a microcomputer.

The use of microelectronics has had a significant im-

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impact on American consumers, workers, and manufacturing operations. A vast array of products—calculators, digital watches, video games, TV sets, and microwave ovens, to name a few—incorporate microprocessors and microcomputers. But behind the scenes in American manufacturing plants, production technologies and manufacturing methods are undergoing equally dramatic changes. Microelectronics are being incorporated in systems which control key production equipment, such as industrial robots and numerically-controlled machine tools. Moreover, microelectronic devices increase the processing capability of word processors, computers, data transmission and copying devices, automatic checkout counters, and other such equipment used by banks, insurance companies, and retail and wholesale establishments.

The *industrial robot* is a second major technological innovation capturing current attention. The Robot Institute of America defines a robot as “a reprogrammable multifunctional manipulator designed to move material, parts, tools, or specialized devices through variable programmed motions for the performance of a variety of tasks.” According to the institute, about 4,000 robots are in use in U.S. establishments, with a large share in automobile manufacturing plants. They perform tasks such as material transfer, die casting, spot welding, spray painting, and limited assembly. Although U.S. industry is increasing its use of robots, Japan leads the world in robot use with more than triple the number of installations in the United States.

There is little information on the impact of robots on productivity and employment. However, evidence suggests that, following installation of robots, productivity is increased, unit labor requirements frequently are lowered, and quality control is improved. At one large manufacturer of refrigerators, for example, a robot sprays paint on refrigerator liners twice as fast as the two-person crew that it replaced.¹ The future impact of robots on productivity and employment will depend on the extent of development and diffusion of new generations of robots that can “see and feel.”

Technological changes in *telecommunications* are underway in all major segments of the industry. These innovations are boosting productivity and changing the type of labor required in the two basic processes of telephone communication—call switching and signal transmission. The electronic computer is used extensively in both processes, as well as in other operational tasks and in management and accounting functions.

In call switching, electronic switching systems use high speed computers to handle local and long-distance calls. A growing share of calls is handled by electronic switching systems; total conversion is anticipated by the year 2000. These systems can handle three to four times more calls than electromechanical systems.

Sharp gains in long-distance volume have led to two innovative and important technologies in signal transmission—the millimeter waveguide and fiber optic cables. Both have far greater call-handling capabilities than the existing coaxial cables and microwave relays. The millimeter waveguide is essentially an underground tube through which signal-carrying waves are transmitted. It is designed for use on high density communication routes. Currently, this technology is being tested; future diffusion will depend on call volume growth.

Fiber optic cables for signal transmission are expected to become a major transmission medium in the 1980's. In this technology, glass fiber cables are combined with semiconductor light sources for very high capacity transmission. The fiber cables are compact, resist electrical interference, and interface well with digital switching and transmission techniques.

Other major changes anticipated for the telecommunications industry include further expansion of satellite communication, digital transmission, computerized systems for maintenance and testing, and automation of switching and billing tasks. Experts also foresee nontraditional uses of the communications network for electronic funds transfer in banking, electronic postal service functions, and data systems for the home which will combine communications and data processing capabilities.

Office *data handling and communication* is a fourth area where major technological change has occurred. A large segment of the Nation's work force, including more than 18 million clerical workers, is engaged in producing and processing data. Historically, capital investment in the office has lagged that of other operations, with investment per office worker amounting to less than \$2,000, compared with about \$25,000 per factory worker.²

This “investment gap” may be closed in the years ahead. Investment in office technologies will likely accelerate during the 1980's, as managers turn to modern data handling technologies to reduce labor, material, and related expenses. The largest share of office costs are deemed to be labor-related—a strong incentive for further mechanization.

Specific technologies to be diffused more widely include more powerful electronic computers; advanced model word processors; new equipment and techniques to store, retrieve, and transmit data on microfilm; and electronic mail networks. Increasingly, paper will be replaced by electronic images on a screen which can be transmitted by telecommunication methods.

General impact of innovations

Following are conclusions from the Bureau of Labor Statistics' research on the implications of technological change for the work force.

- While all industries are experiencing technological change, the pace varies among and within industries. Each industry has its own story and it is not always in terms of computer technology and advanced automation. But even conventional changes, such as materials handling mechanization or the installation of larger capacity equipment or machines with faster speeds, are often major developments requiring workers to obtain new skills.
- The size of investment required, the rate of capacity utilization, and institutional arrangements are some of the factors that act as an "economic governor" on the speed of diffusion of technological change and, in turn, possible employment implications.
- Industries with greater application of technological advances generally experience larger increases in productivity (examples, air transportation and telephone communication); industries lagging in application of technological advances generally experience smaller or negative changes in productivity (examples, footwear and wood household furniture).
- The content of jobs and the qualities required of workers are being modified by technological changes. There is less demand for manual dexterity, physical strength for material handling, and for traditional craftsmanship. In contrast, employers are placing more emphasis on formal knowledge, precision, and perceptual aptitudes. As many manual tasks are

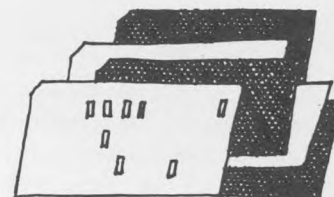
mechanized, unskilled workers become monitors of very expensive equipment. The reduction in repetitive tasks that are so dissatisfying to the industrial worker may be welcomed, but the isolation and constant monitoring associated with advanced technology can create new stresses.

- Higher educational achievement of workers is becoming essential. The ability to read and write at a functional level is mandatory to interpret operating instructions of complex equipment, and to be retrained for the new skills demanded by changing technology.
- Many new occupations created by new technologies can be filled by retraining employees. Most retraining is accomplished in-plant and includes on-the-job and classroom instruction.
- In general, relatively few employees have been laid off because of technological change. This is due, in part, to the use of various techniques by the private sector to minimize adverse effects to the worker—techniques such as providing advance notice, retraining, and reassigning displaced employees to new jobs. □

— FOOTNOTES —

¹ "Robots Join the Labor Force," *Business Week*, June 9, 1980, pp. 62-76.

² Philip H. Dorn, "The Automated Office—The Road to Disaster?" *Datamation*, Nov. 15, 1978, pp. 154-62.



Forgotten unemployment: recall bias in retrospective data

FRANCIS W. HORVATH

It is a well documented fact that the ordering and specific wording of a survey questionnaire can produce different "readings" of the same underlying event. Differences can also arise when the same general question is asked of individuals at different times.

One area in which such discrepancies have been found is in comparisons of unemployment data collected on a monthly basis with those obtained from a once-yearly survey. The source of the monthly unemployment figures is the Current Population Survey (CPS), conducted by the Census Bureau for the Bureau of Labor Statistics. Each month, representatives of approximately 60,000 households are asked questions about their labor force activity and that of other household members during a given reference week. Annual unemployment estimates are constructed by averaging monthly data for the year.

Annual unemployment data are also obtained, on a retrospective basis, from the Work Experience Supplement to the Current Population Survey in March of each year. Persons responding to the supplement questions are asked to recall events which occurred from January through December of the previous year. These respondents are asked to aggregate the year's labor force activities into summary figures. That is, they are asked questions such as: "How many weeks was (household member's name) looking for work?" and "How many weeks was (household member's name) working?" However, no attempt is made to ascertain the months in which these events took place.

The supplement data reflect the number of persons with unemployment at any time during the previous year; a person experiencing two or more spells of unemployment is counted only once. Recently, this estimate has been about 18 to 21 million persons a year. In con-

trast, the annual average of the unemployment data collected monthly—simply the sum of the 12 monthly estimates (unadjusted for seasonality), divided by 12—represents the mean number of persons unemployed during a "typical" week of the year. This figure was about 5 to 7 million during 1975–79. On the surface, these two figures appear unconnected. However, because the Work Experience Supplement also includes questions on the duration of unemployment in the previous year, it is possible to directly relate the retrospective supplement information to the annual averages of the monthly data.

The basic method, developed by Daniel Suits and Richard Morgenstern,¹ derives the total number of weeks of unemployment occurring in the labor force during the full year from the Work Experience Supplement. Specifically, persons are grouped according to the supplement information into "duration of unemployment" intervals. Multiplying the number of persons in each group by the midpoint (in weeks) of the duration interval yields an estimate of the total weeks of unemployment occurring to persons within that particular cell. The sum over all cells provides an estimate of the total weeks of unemployment occurring in the labor force over the year. Dividing this total by 52 gives the adjusted supplement estimate of a typical week's unemployment, roughly comparable to the results from the monthly studies.

Exhibit 1 shows this basic relationship, using hypothetical data. Over a given year, there are 155 individuals reporting some unemployment. Suppose that most of these are unemployed in 1 month only, and during all other months they are either employed or not in the labor force. However, assume that 25 of the 155 report unemployment in 2 consecutive months. In the monthly survey, then, the total reported instances of unemployment would be 180; annual average unemployment would be 180 divided by 12, or 15 individuals. With an accurate annual retrospective survey, the number of persons reporting some unemployment during the entire year would be 155—180 less the 25 who were unemployed over a 2-month period. Dividing reported weeks of total unemployment by 52 yields the "adjusted" retrospective estimate, which is exactly equal to the annual

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Exhibit 1. Derivation of annual average unemployment from the monthly CPS and from the annual Work Experience Survey

Based on monthly measurements:

- Annual average unemployment = $\frac{180 \text{ reports}}{12 \text{ months}} = 15$

Based on retrospective annual survey:

- Of 155 persons with any unemployment, 130 were unemployed for 1 month (4.33 weeks) and 25 were unemployed for 2 months (8.67 weeks).
- Annual average unemployment = $\frac{(130 \text{ persons} \times 4.33 \text{ weeks}) + (25 \text{ persons} \times 8.67 \text{ weeks})}{52 \text{ weeks per year}} = 15$

average from the monthly survey.

It has previously been noted that these adjusted Work Experience Supplement estimates are usually less than the comparable annual average figures, particularly among women and youth.² However, the reasons offered for the overall understatement have been largely conjectural.

One plausible reason for the difference between the two sets of estimates is that respondents to the supplement forget events which took place further in the past. Unless very recent or relatively long, a spell of unemployment might be forgotten by the person who encountered it, and it is even more likely to be overlooked by another household member who may be answering the work experience questions for the entire household. This forgetting should be greater for unemployment

which took place long ago than for that which occurred in the recent past.

Two studies on underreporting of past unemployment form the basis for this hypothesis. During 1969-71, the Census Bureau conducted a special reinterview program in which the same respondents were asked labor force questions in 2 consecutive months.³ The second month's survey included a retrospective interview on events occurring in the first month. Analysis of the results revealed that people did not consistently place themselves in the same labor force categories they had earlier. In particular, *unemployment in the first month was understated significantly in the second interview.* Analysts noted that: "biases in labor force status due to recall are quite high and at an unacceptable level of quality." A follow-up study found the same pattern among both men and women. Apparently, recall errors are a serious problem even over as brief an interval as 1 month.

The question of "recall bias" has also been the subject of an inquiry by Statistics Canada in relation to its retrospective Annual Work Patterns Survey.⁴ During January of each year since 1978, the Canadian statistical agency has conducted this supplemental survey, in which respondents are asked labor force questions pertaining to the previous calendar year. The Canadian survey differs from the U. S. Work Experience Supplement in that persons are asked to describe their labor force activities in each of the 12 preceding months. For example, the Canadian respondent actually identifies "July" as a month in which he or she worked or looked for work. When Canadian analysts compared the answers to these retrospective questions to their ongoing monthly labor force surveys, they found a "substantial, systematic recall bias." *In the early months of the year,*

Table 1. Comparison of adjusted Work Experience Survey unemployment with annual average of monthly unemployment from the CPS, 1967-79

[Numbers in thousands]

Year	Annual unemployment data from Work Experience Survey			Annual average of CPS unemployment for a typical week (4)	Percent understatement ² (5)
	Total with unemployment during the year (1)	Average duration of unemployment (in weeks) (2)	Adjusted estimate of weekly unemployment ¹ (3)		
1967	11,561	10.05	2,234	2,976	24.9
1968	11,372	9.55	2,088	2,817	25.9
1969	11,741	9.73	2,197	2,832	22.4
1970	14,565	12.33	3,453	4,088	15.5
1971	15,852	14.06	4,286	4,993	14.2
1972	15,280	13.41	3,941	4,840	18.6
1973	14,499	11.99	3,343	4,304	22.3
1974	18,535	13.04	4,647	5,076	8.5
1975	21,101	16.27	6,601	7,830	15.7
1976	20,447	15.82	6,221	7,288	14.6
1977	19,512	14.64	5,495	6,855	19.8
1978	17,758	13.73	4,682	6,047	22.6
1979	17,972	13.27	4,585	5,963	23.1
Average	16,167	12.91	4,136	5,069	19.1

¹ (Column 1 × Column 2)/52.

² (Column 3 - Column 4)/Column 4.

Table 2. Half-year averages of monthly unemployment from the CPS, 1967-79

[Numbers in thousands]

Year	Total		Men		Women	
	January through June	July through December	January through June	July through December	January through June	July through December
1967	3,008	2,944	1,602	1,413	1,406	1,531
1968	2,950	2,683	1,555	1,284	1,395	1,400
1969	2,798	2,865	1,419	1,387	1,379	1,478
1970	3,756	4,421	2,092	2,379	1,664	2,042
1971	5,101	4,885	2,927	2,625	2,174	2,260
1972	5,090	4,590	2,916	2,355	2,175	2,236
1973	4,476	4,134	2,438	2,043	2,037	2,091
1974	4,788	5,364	2,600	2,735	2,188	2,628
1975	8,143	7,516	4,676	4,093	3,467	3,423
1976	7,430	7,146	4,195	3,742	3,235	3,404
1977	7,281	6,430	3,993	3,183	3,288	3,247
1978	6,264	5,830	3,302	2,800	2,962	3,030
1979	6,022	5,905	3,129	2,907	2,893	2,998
Average	5,162	4,978	2,834	2,534	2,328	2,447

unemployment is seriously understated, with the bias declining and then reversing towards the end of the year. That is, some of the unemployment in January of the previous year is "forgotten," while recent unemployment in December is overstated.

Because the U. S. Work Experience Supplement relies on recall of events which took place as much as 15 months earlier, it seems logical to expect the forgetting of past unemployment to affect this survey as well. The following discussion illustrates one method with which this intuitive expectation can be tested.

A new look at retrospective bias

Table 1 lists annual averages from the monthly surveys and the adjusted supplement estimates for the years 1967-79. As previously indicated, the retrospective unemployment figures from the supplement are consistently less than the annual averages from monthly data. For the labor force as a whole, the degree of understatement ranged from about 9 to 25 percent and averaged 19.1 percent over the period.⁵ The understatement appeared to be smaller during periods of increasing unemployment, such as 1974-75.

The annual averages in table 1 treat each month equally, in the sense that each month constitutes one-twelfth of the average. If the Work Experience survey provided completely parallel estimates of both the incidence and total duration of unemployment, figures from the supplement and from the monthly surveys should be exactly equal. Because the annual averages weight each month equally, it is perfectly acceptable to combine the monthly data into two sets—January through June, and July through December—and treat them each as contributing one-half the annual average. While this treatment is nothing more than a mathematical identity, it provides a convenient tool which may be used to examine the retrospective bias of the March

supplement. That is, each half year average of monthly information can be examined for correspondence with the Work Experience data.

Table 2 shows the 6-month averages of monthly unemployment figures for the total, and by sex, for the 1967-79 period. In general, total unemployment has been greater during the 6 six months of the year. Note, however, that this does not hold for women, who report higher levels of unemployment during the last 6 months.

Because the corresponding adjusted supplement figures (not shown) all fall below these half-year averages, a simple comparison of the data would make it appear that the 6-month period with lower observed unemployment is "closer" to the Work Experience estimates. For men, the second half of the year is "more similar" to the supplement figures, while the first-half averages are closer for women.

Obviously, each of the 6-month averages contributes one-half to the annual average. If the adjusted supplement count is exactly analogous to the annual average of monthly data, then it too should be a composite of the two periods. That is, given:

$$(1) \text{ Annual average} \equiv (0.5) \text{ January-June} + (0.5) \text{ July-December} \\ \text{unemployment} \quad \text{6-month average} \quad \text{6-month average}$$

and

$$(2) \text{ Annual average} = \text{Adjusted Work Experience} \\ \text{unemployment} \quad \text{unemployment}$$

then

$$(3) \text{ Adjusted Work} = (0.5) \text{ January-June} + (0.5) \text{ July-December} \\ \text{Experience} \quad \text{6-month average} \quad \text{6-month average} \\ \text{unemployment}$$

A simple test is proposed to examine this relationship. The adjusted Work Experience figure, W_e , is re-

gressed on the two 6-month averages as:

$$W_c = a + b_1 (J\text{JAV}) + b_2 (J\text{DAV}) + u$$

where a is a constant term, JJAV is the 6-month average of the unemployment counts for January through June, JDAV is the average for July through December, and u is the disturbance term, assumed to be independently distributed, with a zero mean and constant variance.

Because both halves of the year should figure equally into the cumulative total, we should expect $b_1 = b_2$. More specifically, if the adjusted supplement unemployment were an exact measure of the incidence and the length of unemployment, we should find $a = 0$, and $b_1 = b_2 = 0.5$. That is, there would be no understatement, and each half of the year would count equally towards the cumulative total. This should hold regardless of any size differences in unemployment between the two halves of the year.

Table 3 shows the coefficients obtained when the relationship was tested on total, male, and female unemployment. The differences between expectations and the results of this simple test are stunning.

In each case, the second half of the year appears to have much more weight in the adjusted supplement estimates than the first half. The coefficients for the second half of the year are all greater than 0.5, and are significantly related to the degree of unemployment reported in the Work Experience Supplement. On the other hand, the coefficients for the first half of the year indicate little relationship at all; no estimate of b_1 was significantly different from zero at a 90-percent confidence level. All of the second-half coefficients are at least four times as great as those of the first half.

These results seem to support the contention that unemployment in the first half of the year is "forgotten" in the Work Experience Supplement relative to the more recent second half, which is closer to the week in March when supplement questions are asked. The Work Experience data still unexplainably understate the un-

employment of certain demographic groups by differential amounts. However, the foregoing analysis indicates that recall bias does play an important part in the general shortfall, which appears strongly in evidence even when the data are disaggregated by sex. □

— FOOTNOTES —

¹ Daniel B. Suits and Richard D. Morgenstern, "Duration as a Dimension of Unemployment," Paper presented at the Econometric Society Meetings, Washington, December 1967.

² Richard D. Morgenstern and Nancy S. Barrett, "The Retrospective Bias in Unemployment Reporting by Sex, Race and Age," *Journal of the American Statistical Association*, June 1974, pp. 355-57; and Wayne Vroman, "Measuring Annual Unemployment," Unpublished paper (Washington, The Urban Institute, 1979).

³ See Louis E. Williams, "Methods Tests Phase III, First Report on the Accuracy of Retrospective Interviewing and Effects of Nonself Response on Labor Force Status," Memo, Bureau of the Census, June 24, 1969; Charles Jones and Robert Aquilino, "Methods Tests Phase III, Second Report . . .," Memo, Bureau of the Census, Jan. 29, 1970; and Robert Aquilino, "Methods Tests Phase III, Third Report . . .," Memo, Bureau of the Census, Apr. 2 1971. These special studies should not be confused with the regular CPS reinterview program, in which a percentage of households are reinterviewed as a quality check on the data. The special program allowed separate study of proxy response versus self-response, as well as "recall" bias.

⁴ For a description of the Canadian Annual Work Patterns Surveys and selected data from them, see *Patterns of Full- and Part-Year Employment and Unemployment: Results From the Annual Work Patterns Surveys for 1977 to 1980* (Statistics Canada, Catalog No. 71-531, forthcoming).

⁵ These figures are slightly higher than estimates provided by Barrett and Morgenstern, and Vroman. One reason for the difference is that this study used unpublished Work Experience data which shows finer detail for duration-of-employment intervals. The midpoints of the most detailed interval size available were used for all years. For the open-ended interval, "40 weeks or more" of unemployment, 44 weeks was used as the midpoint, rather than 46. The procedure indicated was used by Morgenstern and Barrett in the original article on unemployment underreporting. Unpublished information on persons unemployed 27-39 weeks was also used.

Easing the hardship of plant shutdowns

The Bureau of Labor Statistics' 1980-81 study of major collective bargaining agreements found that companies are providing more protection for covered employees affected by plant shutdowns and movements, greater opportunities for interplant transfers, and more frequent relocation allowances. The study reviewed 1,593 agreements, each covering 1,000 workers or more in private industry, excluding railroads and airlines.

Among a sample of 522 of the contracts, 36 percent placed some restriction on management's right to close or relocate plants—up from 22 percent in a 1966-67 study. Although the majority of the sample agreements were in the nonmanufacturing sector, more than two-thirds of the contracts imposing restrictions were in manufacturing.

Table 3. Regression of adjusted Work Experience unemployment on half-year averages of monthly unemployment from the CPS, 1967-79

[t-statistics in parentheses]

Adjusted Work Experience unemployment	Estimates of —			R ²
	a	January-June coefficient b ₁	July-December coefficient b ₂	
Total	-416.30 (-2.20)	0.07 (0.53)	0.84 (5.34)	0.98 —
Men	-107.28 (-1.17)	.18 (1.64)	.81 (6.26)	.98 —
Women	-222.93 (-1.78)	.06 (0.25)	.73 (2.95)	.96 —

Interplant transfer provisions were included in 552, or 35 percent, of the 1,593 contracts surveyed. Such clauses appeared in 37 percent of the manufacturing agreements, and 33 percent of those in nonmanufacturing. When a similar study was conducted 13 years earlier, 32 percent of all agreements dealt with interplant transfers.

In 1980-81, provisions that required a company to pay all or part of an employee's relocation expenses were found in 41 percent of the agreements having in-

terplant transfer clauses, compared with 34 percent in 1966-67. In manufacturing, 36 percent of the contracts specified these payments, compared with 46 percent in nonmanufacturing.

The detailed report on the study, *Major collective bargaining agreements: plant movement, interplant transfer, and relocation allowances*, BLS Bulletin 1425-20, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price \$4.75. □

Bilateral protection

The mutual accommodations and adjustments to the hard issues of collective bargaining that the parties have displayed in regard to wages, employee benefits, and institutional issues is no less in evidence when one inspects the current status of the administrative issues in our labor-relations system. Management has increasingly recognized the job-protection and working-condition problems of the industrial employee and has made important concessions in these areas. At the same time, however, there has been reciprocal recognition on the part of unions that the protection of the employee cannot be at the expense of the destruction of the business firm. The axiom that employees cannot receive any protection from a business that has ceased to exist appears to have been fully appreciated by all but the extreme recalcitrants of the labor movement, and workable compromises have been possible with respect to the areas of seniority, discipline, and the various other dimensions discussed no less than in the case of previous topics.

—ARTHUR A. SLOANE AND FRED WITNEY
Labor Relations, 4th ed.
(Englewood Cliffs, N.J., Prentice-Hall,
Inc., 1981), p. 442.

Major Agreements Expiring Next Month



This list of collective bargaining agreements expiring in April 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 ¹	Number of workers
All-Steel, Inc. (Aurora, Ill.)	Furniture	Boilermakers	1,300
American Can Co. (Wisconsin)	Paper	Paperworkers	1,650
Associated General Contractors of America, Inc.:			
Baton Rouge Chapter, 2 agreements	Construction	Operating Engineers; Carpenters	4,500
Chattanooga Chapter (Interstate)	Construction	Carpenters	2,500
East Tennessee Knoxville Chapter, 2 agreements	Construction	Operating Engineers; Laborers; Teamsters (Ind.)	3,600
Florida West Coast Chapter	Construction	Laborers	1,400
Lake Charles Chapter	Construction	Carpenters	1,900
Michigan Chapter	Construction	Laborers	1,000
Mid-Florida Chapter	Construction	Carpenters	1,700
Northeast Florida Chapter	Construction	Carpenters	1,200
Ohio Chapter, 2 agreements	Construction	Laborers; Carpenters	4,000
Wisconsin Chapter	Construction	Carpenters	2,400
Associated Producers & Packers, Inc. (Washington)	Food products	Teamsters (Ind.)	1,500
B.F. Goodrich Co. (Interstate)	Rubber	Rubber Workers	9,350
Bloomington Brothers, Inc. (New York, N.Y.)	Retail trade	Bloomington Department Store Employees Union; Distributive Workers Union (Ind.)	5,600
Building Trades Employers Association and 1 other, 2 agreements (New York)	Construction	Laborers; Carpenters	5,800
Building Trades Employers Association, 2 agreements (Interstate)	Construction	Carpenters; Bricklayers	6,300
California Conference of Mason Contractors Association, Inc.	Construction	Bricklayers	4,000
Carpenters Contractors Association of Cleveland and 2 others (Ohio)	Construction	Carpenters	5,000
Carpenters General Contracting Agreement (Georgia and Florida) ²	Construction	Carpenters	1,500
Central Maine Power Co. (Augusta, Maine)	Utilities	Electrical Workers (IBEW)	1,100
Chicago Bear Wholesalers Association (Illinois)	Wholesale trade	Teamsters (Ind.)	1,350
Cleveland Plumbing Contractors Association (Ohio)	Construction	Plumbers	1,300
Colt Industries, Inc., Firearms Division (Connecticut)	Miscellaneous manufacturing	Auto Workers (Ind.)	1,300
Consolidated Papers, Inc. and Consoweld Corp. (Wisconsin)	Paper	Paperworkers	2,700
Construction Employers Association and 3 others, 2 agreements (Ohio and Kentucky)	Construction	Laborers	5,100
Construction Employers Association, Inc., and 2 others (Kentucky)	Construction	Laborers	2,100
Contractors Association of Westchester, Putnam and Dutchess Counties, Inc. (New York)	Construction	Operating Engineers	1,250
Emhart Industries, Inc., Berlin Plant Hardware Division (Connecticut)	Fabricated metal products	Machinists	1,900
Firestone Tire & Rubber Co., Master Agreement (Interstate)	Rubber	Rubber Workers	15,250
General Foods Corp., Food Products Division (Woodburn, Oreg.)	Food products	Teamsters (Ind.)	1,400
General Telephone Co. of Indiana, Inc.	Communication	Communications Workers	2,200
Goodyear Tire & Rubber Co. (Interstate)	Rubber	Rubber Workers	22,300
GTE Automatic Electric, Inc., 2 agreements (Illinois)	Electrical products	Machinists; Electrical Workers (IBEW)	4,500
Hawaiian Telephone Co.	Communication	Electrical Workers (IBEW)	3,700
Ingersoll-Rand Co. (Painted Post, N.Y.)	Machinery	Electrical Workers (UE)	1,600
Iowa Beef Processors, Inc. (Dakota City, Nebr.)	Food products	Food and Commercial Workers	2,300
Johns-Manville Sales Corp. (Waukegan, Ill.)	Stone, clay, and glass products	Chemical Workers	1,000
Keystone Building Contractors Association and Central Pennsylvania Subcontractors Association (Pennsylvania)	Construction	Carpenters	4,000
Lynchburg Foundry Co., 2 agreements (Virginia)	Primary metals	Steelworkers	3,200

See footnotes at end of table.

Continued—Major Agreements Expiring Next Month

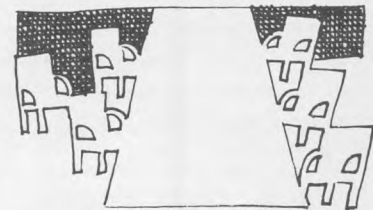
Employer and location	Industry	Union ¹	Number of workers
Magnavox Co., Magnavox Government & Industrial Electronics Co. (Ft. Wayne, Ind.)	Electrical products	Allied Industrial Workers	1,200
Mason Contractors Association (Cleveland, Ohio)	Construction	Bricklayers	1,950
Meat Industry Independent Shops in Chicago (Illinois) ²	Food products	Food and Commercial Workers	2,950
Mechanical Contractor's Association of Cleveland, Inc. (Ohio)	Construction	Plumbers	1,700
Milton Bradley Co. (Springfield and East Long Meadow, Mass.)	Miscellaneous manufacturing	Retail, Wholesale, and Department Store	1,800
National Electrical Contractors Association, 2 agreements (Minnesota and Ohio)	Construction	Electrical Workers (IBEW)	2,900
Norris Industries, Price Pfister Brass Manufacturing Co., Inc. (California)	Fabricated metal products	Teamsters (Ind.)	1,200
Northeastern Florida Construction Management Negotiating Council	Construction	Operating Engineers	1,000
Northwestern Mutual Life Insurance Co. (Milwaukee, Wis.)	Insurance	Office and Professional Employees	1,500
Ohio Contractors Association (Interstate)	Construction	Carpenters	1,400
Owens-Corning Fiberglas Corp. (South Carolina)	Stone, clay, and glass products	Glass Bottle Blowers	1,400
Pan American World Airlines (Interstate) ³	Air transportation	Airline Pilots	2,300
Public Service Electric & Gas Co. (New Jersey)	Utilities	Electric Workers (IBEW)	4,100
Quaker City Lumber Products Association (Pennsylvania)	Lumber	Carpenters	1,500
Ralston Purina Co., Van Camp Sea Food Co. (Delaware)	Food products	The Congress of Industrial Unions of Puerto Rico (Ind.)	1,850
Realty Advisory Board on Labor Relations, Inc. (New York)	Real estate	Service Employees	20,000
Retail Meat Cutters Contract (Kansas and Missouri) ²	Retail trade	Food and Commercial Workers	1,200
Rock Hill Printing & Finishing Co. (South Carolina)	Textiles	Clothing and Textile Workers	1,250
Rock Products & Ready Mixed Concrete Employers of Southern California	Mining and quarrying	Teamsters (Ind.)	5,000
Schiffli Lace & Embroidery Manufacturers Association, Inc. (New Jersey)	Apparel	Textile Workers	1,000
Southwestern Michigan Contractors Association and 1 other	Construction	Laborers	1,450
Steel & Iron Contractors Association (Cleveland, Ohio)	Construction	Iron Workers	2,100
Truck Owners Association of Seattle, Inc. (Washington)	Trucking	Teamsters (Ind.)	1,000
Uniroyal, Inc., Production & Maintenance Employees (Interstate)	Rubber	Rubber Workers	8,300
United Parcel Service, Inc., 8 agreements (Interstate)	Trucking	Teamsters (Ind.)	43,600
Upholstered Furniture Manufacturers Association of Southern California	Furniture	Upholsterers	1,550
Wagner Electric Corp. and 1 other (St. Louis, Mo.)	Electrical products	Electrical Workers (IUE)	1,700
Waldbaum Inc., Food Mart Division (Connecticut and Western Massachusetts)	Retail trade	Food and Commercial Workers	1,500
Warner Lambert & Co. (Michigan)	Chemicals	Oil, Chemical and Atomic Workers	1,100

¹ Affiliated with AFL-CIO except where noted as independent (Ind.).

² Industry area (group of companies signing same contract).

³ Information is from newspaper reports.

Developments in Industrial Relations



Second round of concessions at Uniroyal

The 4,200 Uniroyal, Inc., employees represented by the Rubber Workers have agreed to a second round of wage and benefit concessions expected to save the company \$54.9 million. The first round, in July 1980, totaled \$40 million. (See *Monthly Labor Review*, September 1980, p. 60.) Although Uniroyal earned a profit of \$38.7 million during the first 9 months of 1981, compared with a \$12.5 million loss during the first months of 1980, the company said the latest concessions were needed to further its "long-term plan for financial viability." Uniroyal also said the concessions will reduce the possibility that it will have to sell any of its operations to obtain money to strengthen its "core" operations.

Under the new concession accord, the union agreed to accept the same new contracts as the union negotiates with other major rubber companies when current agreements expire on April 20, 1982, modified to provide for up to \$10 million a year less in wage and benefit improvements. They also agreed to continue the suspension of 69 cents an hour in cost-of-living adjustments that was initiated as part of the 1980 concession settlement (this amounts to about \$8.3 million dollars a year, including the impact on those benefits that change when wages change).

There was speculation that the action would lead the other companies to press the union for concessions to maintain their competitive position relative to Uniroyal, even though their compensation costs are reportedly about \$5 an hour less than Uniroyal's. These companies have won concessions at a few plants but not on a companywide basis as at Uniroyal.

In return for the union concessions, Uniroyal agreed to—

- Study its work force to determine if it has too many salaried employees.
- Establish a joint council to discuss mutual problems.
- Permit union president Milan Stone to make annual

presentations to the company's board of directors.

- Open its financial records to the union.
- Establish a profit-sharing plan.
- Seek comparable wage and benefits concessions from other unions that represent some of its employees and to impose cuts on nonunion employees.

Gulf contract sets pattern for petroleum industry

Gulf Oil Corp. and the Oil, Chemical and Atomic Workers (OCAW) negotiated a 2-year contract which set a pattern for the petroleum refining, pipeline, and petrochemical industries. The terms covered more than 50,000 workers at 400 facilities owned by 100 companies. The only work stoppages were at the Texaco, Inc., and American Petrofina refineries in Port Arthur, Tex., where the companies declined to extend the current agreements on a day-by-day basis, pending completion of negotiations. The Texaco negotiations were further complicated by company efforts to reduce the lump-sum amount employees may choose to receive at retirement in lieu of receiving regular monthly pensions.

The Gulf accord provided for a 9-percent wage increase in January 1982 and for a 90-cent-an-hour increase in January 1983 that will average about 7.1 percent. The union did not win its demand for a no-layoff clause to protect workers from the recent job cutbacks that have hit the industry. According to union president Robert F. Goss, the companies have closed 50 facilities since 1980, eliminating 5,000 jobs in OCAW bargaining units. The industry is currently operating at about 70 percent of capacity.

The contracts also provide for the employers to raise their obligation for family health benefits by \$17.50 a month in the first year and \$13.50 in the second, bringing the total to \$151.50 at Gulf. Gulf employees, who had been paying \$30 a month, will pay the full amount of any increase in premium above \$151.50. Gulf's obligation for single employees' health benefits also was raised, by \$6 a month in the first year and \$4 in the second. Gulf previously paid \$47 a month, which covered the full premium cost for these employees.

The agreements also call for the companies that have instituted pension improvements for nonunion employees to extend those improvements to unionized employ-

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

ees. Among the companies that settled were Cities Service, Exxon, Shell, and Arco.

Shipyard employees paid for settling early

After 3 months of negotiations, General Dynamics Corp.'s Electric Boat Division and 11 unions agreed on a 3-year contract that supersedes the balance of a contract scheduled to expire July 1, 1982. In return for settling early, the 12,000 covered employees at the Groton, Conn., shipyard received a 25-cent-an-hour wage increase effective January 3. On July 1, 1982, they will receive an increase ranging from 20 cents an hour for those in the lowest pay grade to 75 cents for those in the highest grade, followed by a 30- to 65-cent increase July 1, 1983, and a 30- to 60-cent increase on July 1, 1984. All employees will also receive a 10-cent cost-of-living adjustment on November 27, 1983, and December 2, 1984, regardless of the movement of the Consumer Price Index. Prior to the settlement, pay rates ranged from \$4.75 for certain accounting clerks to \$10.83 for some skilled trades workers, with about 70 percent of the workers clustered at the \$8.97 rate for first class mechanics.

The agreement also provided for each employee to receive a \$100 payment in settlement of several thousand grievances they had filed over job assignments; a \$2 increase in the pension rate, raising the amount to \$14 a month for each year of credited service; adoption of a "magic 85" pension clause permitting workers to retire when their age and years of service total 85; and a change in the investment plan permitting employees to invest 10 percent of their earnings, instead of the previous 4 percent, with the company continuing to match half the amount.

Employee concessions aid steel company

McLouth Steel Corp.'s efforts to reorganize its operations under protection of Federal bankruptcy laws were aided when its 3,000 employees represented by the Steelworkers agreed to give up a 15- to 47-cent an hour wage increase scheduled for October 1982, all of the quarterly cost-of-living adjustments that would normally be effective in 1982, and \$1.45 in wage increases that had gone into effect in the last 5 months of 1981. They also voted to give up 3 of the 11 holidays scheduled for 1982, and a week of vacation. McLouth estimated that the changes would save about \$14 million in labor costs in 1982.

The settlement provides for restoration of wages and benefits to the proper level at the end of 1982—subject to court approval—if McLouth resumes dividend payments. The company lost about \$40 million in 1981,

compared with \$56 million in 1980.

In conjunction with the settlement, McLouth announced a 27.5-percent reduction in its nonunion work force. A 10-percent pay reduction and a cut in paid vacation also were imposed on the retained nonunion employees.

Many of McLouth's problems resulted because the severe decline in automobile sales in the last few years has reduced the demand for flat-rolled steel, the company's major product.

Court bans withdrawal from multiemployer talks

In a 5 to 4 decision, the Supreme Court held that a contract bargaining stalemate does not justify employer withdrawal from a multiemployer collective bargaining association. The ruling validated the position of the National Labor Relations Board, which permits employers to withdraw before contract bargaining begins, but permits withdrawal only in "unusual circumstances" during the talks. Generally, the board has held that bargaining impasses and strikes are not unusual circumstances.

The court's ruling was in accord with the position of most unions, which view the prohibition of employer withdrawals as vital to the collective bargaining process. On the other hand, employers generally contend that the prohibition gives unions an unfair advantage and will reduce the number of firms joining multiemployer units.

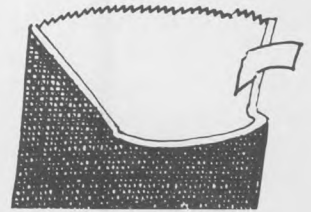
The case arose in 1975 when Charles D. Bonanno Linen Service, Inc. of Medford, Mass., attempted to withdraw from an association of linen supply companies after bargaining with a Teamsters local reached an impasse, leading to a strike against the Bonanno company and a lockout of employees by the other companies.

Plumbers accept lower pay

In the Portland, Oreg., area, members of Plumbers Local 51 agreed to lower compensation for residential and repair work to counter a 38-percent unemployment rate for the local's 900 members. The manager of one plumbing company said the action will enable him to compete more effectively with nonunion companies by reducing the cost for a service call to \$35-\$40, from the \$48.90 "break even" rate previously charged.

The new \$14.39-an-hour compensation level the local negotiated with the Plumbing, Heating and Contractors Association consists of \$12.25 in pay and \$2.14 in employer payments for various benefits. The previous \$23.74-an-hour level (\$20.08 in pay and \$3.66 for benefits) continues to apply to commercial work. □

Book Reviews



Jevons, labor, and the state, 100 years later—a centennial essay

H. M. DOUTY

W. Stanley Jevons' *The State in Relation to Labour*¹ appeared in 1882, the year of his death by drowning at the age of 46 off the south coast of England. Milton R. Konvitz, then professor of industrial and labor relations and of law at Cornell University, observed in 1948 that this book, together with some related lectures, ". . . will always have significance for persons concerned with principles of social legislation and the theoretical aspects of labor relations."²

The appearance of Jevons' book was one indication, among many, that the final quarter of the 19th century, and perhaps the 1880's in particular, marked ideological and institutional turning points for labor in the economies of both Great Britain and the United States.³ In essence, the book provided a case for limited government intervention in the labor market within the confines of a generally competitive economic system. It also contained analyses of particular issues, such as arbitration and conciliation in labor disputes, that have not lost their force. Such general observations as, "All classes of society are trade-unionist at heart, and differ chiefly in the boldness, ability, and secrecy with which they push their respective interests" have a distinct air of modernity. In his preface, Jevons acknowledges indebtedness to two Americans, Joseph D. Weeks and Francis A. Walker, and there is a text citation to a study coauthored by Carroll D. Wright, then chief of the Massachusetts Bureau of Labor Statistics, and later the first U.S. Commissioner of Labor Statistics. Jevons was well known in academic circles in the United States, and *The State in Relation to Labour* circulated here.

Jevons was a man of extraordinary ability. He occupies a secure position in the history of economic doctrine through the development in his *Theory of Polit-*

ical Economy (1871) of the marginal utility theory of value. But his interest also extended to a wide range of economic and social problems of his day. His first substantial publication (1865) dealt with the extent to which British industrial power rested on the exhaustible resource of coal. His investigations of problems of currency and finance, and of seasonal and cyclical movements in business activity, were inductive studies representing an immense achievement at a time when statistical data were hand-tabulated. In his monetary studies, Jevons solved virtually all the basic problems in the construction of price indexes.

Early in life, Jevons evidenced an interest in the working poor. His *Letters and Journals* (edited by his wife, 1886) indicate that Jevons, during his first years at University College in the early 1850's, took long walks through the poorest parts of London in an effort to gain practical insight into their condition. He continued to take such walks in Sidney, Australia, where, from 1853 to 1858, he worked as assayer at the mint, after the bankruptcy of his father's firm interrupted his formal education. Among his early projects, of which apparently only fragments were completed, were social studies of London and Sidney. More than a quarter of a century was to elapse before the appearance of his only major work relating directly to labor.

In *The State in Relation to Labour*, Jevons begins with a chapter on the principles of industrial legislation. A firm believer in individual liberty, he nevertheless suggests that a difficult question arises "whether, out of respect to some supposed principle of individual liberty, the state ought to allow men to go on working and living in the midst of needless risks." He concludes that "the first step must be to rid our minds of the idea that there are any such things as abstract rights, absolute principles, indefeasible laws, inalterable rules, or anything whatever of an eternal and inflexible nature." He draws a useful distinction between science, as embodied in general economic principles, and the adaptations and exceptions to principles that may be necessary for the practical betterment of society.

As a Benthamite, Jevons argues that the state is justified in passing any law "which, without ulterior consequences, adds to the sum of total happiness." Social

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legislation "becomes a complex calculus of good and evil. All is a question of probability and degree."

Jevons warns that legislation should be approached cautiously in an effort to anticipate its consequences. It should be rooted in experience and, if possible, based upon direct experiment. He cites the Poor Law Reform of 1834 as an instance of legislation based upon much empirical evidence, and Robert Owen's humane treatment of the workers in his cotton mills in New Lanark as an experiment that greatly contributed to the origin of the Factories Acts. Surely Jevons would have approved of recent experiments in this country with income maintenance programs.⁴ Other "experiments" relating to proposed labor legislation can be imagined. After legislation has been enacted, Jevons holds that "the common practice of . . . remedying its mistakes, oversights, omitted cases, inconveniences, or unforeseen wrongs in successive amendment acts is really an application of the tentative or experimental method."

Jevons points to the need, in effect, for cost-benefit analysis in the enactment of social legislation. It is necessary not only to show, by evidence or direct experiment, that a measure will add to the sum of happiness within the community, but that there will not be an equivalent or greater subtraction of happiness. He believes this second factor is the more difficult to determine, but something for which science may offer some general guidance to the legislator, who "must gather to a focus the complex calculus of probabilities, the data of which are supplied by separate investigators." In the case of social legislation, the science primarily involved is economics, but the legislator should not "attribute exclusive value to the economic probabilities, and overlook moral, sanitary, political, and other probabilities."

After a discussion of general principles, Jevons considers the practical application of legislation as it relates to the liberty of the citizen. He begins with legislation for the inspection of certain commodities such as butter and meat, for weights and measures, and for sanitation. In these cases, the general criterion is the ability of the purchaser or consumer to make an informed judgment. Where this ability is poor or lacking altogether, there is room for government intervention, which, if judiciously undertaken, may increase rather than diminish the liberty of the individual.

A similar effect may result from state intervention in the labor market. Jevons notes that in England prior to the 19th century, "Legislation with regard to labour has almost always been class legislation . . . the effort of some dominant body to keep down a lower class, which had begun to show inconvenient aspirations." The Factories Acts, which had their origin in 1802, were different. He terms their consolidation in 1878 "one of the brightest achievements of legislation in this or any other country." This legislation had gradually improved the

hours of work of children, young people, and women in manufacturing employment. Jevons justifies this legislation on the pragmatic grounds that its effects on health, the education of children, and the family enhanced general social well-being. He argues further that the principle of individual liberty would not preclude state imposition of labor standards on behalf of men, where, as in factory employment, workers must conform, in terms of working conditions, to the wishes of the majority, the will of the employers, or the customs of the trade "if it could be clearly shown that the existing customs are injurious to health, and that there is no other possible remedy."

Jevons presented a case, in light of 19th century conditions, for the prohibition of factory employment of married women, especially those with young children. Out of such work, he wrote, "arises a considerable part of the shocking infantile mortality prevailing in many parts of the manufacturing districts, accompanied by much immorality and intemperance not unnaturally produced by the destruction of home influences." He cites at some length a report on this subject issued in 1875 by the Massachusetts Bureau of Labor Statistics.

Jevons' discussion of trade union legislation is preceded by an analysis of the economics of wage determination, drawing in part upon the work of the American economist, Francis A. Walker. He concludes that "the rate of wages which workmen can demand will depend upon the relation of supply to demand of [each] particular kind of labour. The demand depends upon the expected value of the produce." He explicitly rejects the wages fund doctrine. There is certainly a foretaste of current human capital theory in his observation that one can argue, "In his education and training a skilled operative expends no small amount of capital, which remains invested in him, to be repaid by an annuity of higher wages during his available working life." But he rejects this argument when it involves restrictions on entry to employment, except where necessary in the public interest to ensure adequate worker training. His general view is that "whosoever tries to raise his own wages by preventing other persons from working at his trade, and thus makes his own kind of labour scarce, attempts to levy contributions from other people. It is simply a case of private taxation."

One might suppose that Jevons, in light of his general position on the adverse effects of trade restraint, would be sympathetic to state action to curb trade union intervention in the labor market. But, for two reasons, he rejects any return to the Combination Laws, which were intended for this purpose, and which had been effectively repealed many years earlier. The first reason was practical—"Our grandfathers and great-grandfathers, not to speak of earlier ancestors, did their best to crush all societies of working men, and ignominious was their

failure. Are we likely to succeed better when the working-class order has become immensely increased in numbers, and increased almost equally in intelligence, organization, wealth, and general resources?" The second reason was that the prohibition of trade unionism, even if possible, "would suppress with much evil many germs of good." Jevons expresses approval of legislation, enacted in 1871 and 1876, that enabled British unions to register as friendly societies and thus secure protection of their funds and other property.⁵

At the same time, in a brief but interesting analysis, he assigned a minor role to strikes as a factor in wage advance, citing other causes, including changes in technology and in the capital-labor ratio, that had influenced the upward movement in wages in Great Britain in recent years. He pointed out that the rise in wages had been general, and had extended to mercantile and bank clerks, government employees, and other unorganized groups of workers. The law of supply and demand had even operated advantageously for "domestic servants, an exceedingly numerous class of persons quite devoid of organization, and often of an age and character little suited, it might be thought, to enforce concessions."

Jevons' book concludes with chapters on the law of industrial conspiracy, which considers the implications of the substantial repeal, in 1875, of the old common law doctrine regarding industrial disputes; on cooperation and industrial partnership, where profit-sharing is suggested as the ultimate solution to labor-management conflict; and on arbitration and conciliation. On arbitration, Jevons comes out strongly for grievance or rights arbitration, as now found almost universally in labor-management contracts in the United States but not in Britain. However, he argues against interest arbitration, because in the settlement of new contract terms, "There can be no certainty that the arbitrator knows better than the other parties." He sees, however, an important role for conciliation, and remarks that "a trade dispute, especially when it has reached the acute phase of a strike, has little or nothing to do with economics . . . and there is no theoretic reason why conciliators should not be called in, if experience shows that they are usually able to compose matters." He cites an 1879 report on arbitration and conciliation in England by an American, Joseph D. Weeks, as "probably the most valuable document published on the subject, describing both the successes and failures of the system," and an 1881 report on the same subject, also by Weeks, relating to New York, Ohio, and Pennsylvania. Jevons' final suggestion is that "in all probability success will best be obtained in the settlement of trade disputes by keeping lawyers and laws as much at a distance as possible."

Jevons wrote with admirable clarity. His small book on the role of the state in labor standards and labor re-

lations was intended primarily for the lay reader. It presented a case for legislative intervention in the industrial relations process, based upon the careful accumulation and evaluation of evidence and, if possible, the use of experimentation, and divorced, to use John Stuart Mill's terminology when he repudiated the wages fund doctrine, from the unbending necessities of political economy. As such, it helped usher in the modern era in industrial relations in both Great Britain and the United States. In this country, it was cited as late as 1905 as supplementary reading in the admirable text on labor problems by Thomas Adams and Helen Sumner.⁶ And after 100 years it can still be read with interest and profit. □

—FOOTNOTES—

¹ W. Stanley Jevons, *The State in Relation to Labour* (London: Macmillan, 1882). The book went through four editions, the most recent in 1910.

² See Milton R. Konvitz, "An Empirical Theory of the Labor Movement: W. Stanley Jevons," *The Philosophical Review*, January 1948, p. 60.

³ In terms of ideology, a major development was the attack on and gradual abandonment among economists of the wages fund doctrine in both Great Britain and the United States. Institutionally, a relatively stable trade union movement had been created by 1880 in Great Britain through "new model" unions mainly of skilled workers, featuring high dues, sickness and other benefits, and apprenticeship programs. Union legal disabilities had been removed, and protective legislation for women and children in factory employment had been consolidated and improved. In the United States, the 1880's witnessed the meteoric rise and fall of the Knights of Labor, the establishment of the American Federation of Labor as a permanent trade union center, and the growth of labor statistics through State agencies and a Federal bureau.

⁴ Robert A. Moffitt, "The negative income tax: would it discourage work?" *Monthly Labor Review*, April 1981, pp. 23-27.

⁵ Jevons' views on trade unionism were also set forth in an address to the Trades Unionists' Political Association, Manchester, in 1868. The address was published after his death by his wife in a collection of papers entitled *Methods of Social Reform* (London, Macmillan, 1883), pp. 101-21.

⁶ Thomas Sewall Adams and Helen L. Sumner, *Labor Problems* (New York, Macmillan, 1905), p. 501.

Probing labor market dualism

Dualism and Discontinuity in Industrial Societies. By Suzanne Berger and Michael J. Piore. New York, Cambridge University Press, 1980. 159 pp. \$17.95.

In this work, Michael Piore continues to develop the theory of labor market dualism which he was among the first to articulate in the late 1960's and early 1970's. Here he identifies the sources of dualism as located in the division of labor, the instability of market economies, and the rigidities of large-scale production. Suzanne Berger lends a political dimension to the analysis: a dual labor force is fostered not only by economic conditions requiring cheap labor or the performance of

“undesirable” jobs. It is also associated with the survival of “traditional” social classes or strata of small entrepreneurs.

The authors in effect reject conventional (that is, neoclassical) approaches to labor market theory. They hold that the segmentation of labor markets, exemplified by the “internal” labor markets of corporate and government bureaucracies, or by the relegation of racial and national minorities to the less desirable and less stable jobs, cannot be explained by the assumption that individuals seek to maximize their personal well-being in a presumptively competitive society. “In our perspective,” they write, “the variations in human behavior and values are explained as responses elicited by different institutions, not as differences intrinsic to the persons who manifest them.” Thus, they approach labor market analysis from the demand side. The reactions of workers to their labor market situation are never ignored—Piore devotes long chapters to them in his other recent work, *Birds of Passage*, in which he deals with migrant and immigrant workers, the prime examples of the work force that populates secondary labor markets. Yet, the authors see the dominant force in labor markets as originating among those who organize and control the production process, and in whose interest it is to secure a “variable” labor force so as to complement their “fixed” capital. True, labor, by means of collective bargaining, can to some extent impose the requirement of stable employment. But the persistence, even expansion, of dual labor markets demonstrates the resistance of owners of capital to accept labor as a “fixed” factor. The fragmentation of jobs incident to the division of labor in the workplace represents an added source of demand for “variable” labor: although meant to raise efficiency, the capacity demand for which such fragmentation is ultimately designed cannot be sustained over the business cycle. Labor’s struggle for job tenure and job integrity thus tends to be rendered ineffective when it is not repressed. The assumption of a harmony of interests between labor and capital, implied by neoclassical labor market theory, is vitiated.

The dual labor market theory and the conflicts it postulates is akin to aspects of Marxism. Yet, the authors reject the relevant Marxist teachings of struggle between broadly defined classes, inasmuch as their own concerns—the differentiation *within* both the class of workers and the class of capitalists—are not central to Marxism. In fact, the persistence of the “traditional” sector of small, often still craft-based entrepreneurs and, more generally, of a large self-employed middle class in all industrial and industrializing countries has been a puzzle to scholars who accept Marxism as paradigmatic social science. They have conventionally assumed that this strata of capitalist society is doomed to disappear. Berger and Piore in contrast believe that small entrepre-

neurs constitute a permanent feature of industrial society, essential to its survival. Cleavages, whether they involve racial and national minorities; the traditional and the modern sector; secondary or primary workers; small business or large corporations—cleavages transcend, so the authors argue, the “unitary” forces in importance. Hence they reject the idea of modernization—that is, the notion that social structures in time adapt to the modes of large-scale production and distribution. Likewise, the authors dismiss the idea that industrial societies tend to converge, that is, become similar in structure, for the cleavages mentioned—and they are major themes of the work reviewed here—extend historically across all these societies, and create profound differences in the ways the problems of industrialization are dealt with.

Now these are interesting propositions, but they are not consistently argued. The authors indeed recognize the universality of the sources of labor market dualism, yet they insist that the operation of dual labor markets, and the ways by which they resolve the problems that give rise to them in the first place, are specific to individual societies, hence differ from one society to the other, since value systems and the status of the traditional sector (or its equivalent in such countries as the United States where no traditional sector exists) have undergone different historical evolutions. But why do those problems—uncertainty, cyclical instability, fragmentation of work—occur and recur everywhere, notwithstanding the supposed historical individuality of given societies and social processes? Whence the universality of dual labor markets (or, more generally, of wage labor—a phenomenon that stamps like no other the capitalistic or, to use a more aseptic term, the modern character of industrial societies)? Isn’t the historical individuality of the various industrial societies diminished by the supersession of the *universal* processes, of which dual labor markets are one manifestation?

True, Marx was not much concerned about the diversity and segmented nature of labor markets; nor were any of his contemporaries. However, he established the centrality of wage labor to industrial society and its development. This development stems from the accumulation of capital. The accumulation of capital is essentially intolerant of national borders and cultural barriers to its expansion. It is a process that subordinates “cleavages,” rather than being subordinate to them. As Piore and Berger themselves show, labor market segmentation and secondary labor markets represent decidedly subordinate processes; they arise from the recurrent need to deal with the rigidities and uncertainties generated by the industrial system. It is not precluded that the progressive cheapening of the supply of labor that is associated with the spread of dualism will gradually undermine some of the foundations of industrialism

(for example, consumer durables manufacture). But if as this happens, the primary labor force should shrink, and the secondary labor force come to dominate the labor market, which would thus lose its "dual" character, a new epoch in the evolution of the labor market would emerge.

Both authors cite the events in Italy in 1969, when widespread industrial protests and strikes transformed labor-management relations. These could no longer be confined to wage issues, they now began to involve broad-ranging negotiations which, for the first time, concerned work discipline, promotion and discharge, work allocation, as well as work content and technology, as matters bearing upon job satisfaction. All this spelled a shift of power to the workers and their organizations, and a corresponding loss of management control over the production process. For example, management was rendered unable to discipline workers for infractions of work rules or tardiness, or to institute layoffs when demand slowed. "The response of management to this rigidification has been an effort to restore its flexibility by transferring productive activity to a secondary sector." In time, this meant what Berger calls a "massive decentralization of industrial production." What effects this shift had upon the primary work force, Piore and Berger do not discuss, but it surely weakened it gravely.

Management's ability to weaken the primary work force which it employs is often noted by Piore. It undermines his argument bearing on the cleavage within the working class and raises questions about the validity of the entire dual labor market theory. At the risk of repeating some thoughts alluded to earlier, I quote from Piore's *Birds of Passage*, where he comments upon labor's unceasing effort to impose "upon the system the obligation to treat it . . . like a fixed factor"—so that it cannot be used to compensate for market-caused instabilities in demand, nor for efficiency-related changes in the workplace. But management resists this effort and labor remains unable to dominate the process of production so as to safeguard its interests. Where it does begin to succeed, the burden of rigidity and uncertainty may be shifted to a secondary work force (the role assumed by migrants and immigrants in *Birds of Passage*, but by broader strata in the book here reviewed). It may well be that organized labor often helps promote this shift so as to secure the tenure of its members. But its primary position is not necessarily assured thereby. This, Piore himself confirms, pointing to such management practices as avoidance of permanent hiring by using temporary help; subcontracting; long probation periods; locating of plants in nonunion areas; and hiring of youths and women, who appear to have a lower propensity than men to join unions. The status of the primary work force is thus, if not uniformly threatened, certainly at risk. The differentiation between a primary

and secondary work force—already made less sharp by Piore's dividing the primary work force into two or three segments characterized by a hierarchy of intellectual skills—loses force.

Piore also theorizes on the technological foundations of dual labor markets. There are many interesting observations in the pertinent chapter, but his argument is not clear; a case for the existence of a "dualistic" technology is not convincingly set forth. As I understand it, the argument briefly runs as follows: Adam Smith related the division of labor in the workplace—and therefore productivity—to the expansion of the market. That is, the division of labor would become ever more refined, and productivity would rise, as the market expanded. The worker would innovate labor-saving apparatus as he became more specialized, permitting further increases in productivity. Smith's theory did not leave room for demand uncertainty and instability. The large-scale enterprise, which the extent of the market eventually permitted and required, adjusts to demand uncertainty by attuning its output to only the stable segment of the market, leaving the unstable segment to smaller firms. The "technological base for duality" resides in the declining average cost curves of the large firm and the traditional U-shaped average cost curves of the smaller firm. There is much evidence for the validity of the proposition that there are stable and unstable segments of demand, and I will not dwell upon this question. However, it is not at all clear how this technological dualism is related to the duality of the labor market.

Insofar as the concepts of the primary and the secondary labor market have anything to do with skill hierarchies, one could, in fact, argue the opposite of what is implied by Piore—namely that the rise of manufactures signified the rise of a "secondary" work force that gradually displaced the "primary" work force of artisans and craftsmen. Smith's famous example of the pin factory demonstrates what the division of labor meant in terms of simplifying and thus deskilling the task of the worker. Yet, this became the dominant trend in manufacturing, a trend that was accentuated as machinery was introduced, which the great mass of workers tended and only a minority of workers and engineers built. The introduction of assembly lines simply continued the trend toward simplification of tasks. Job specialization and task simplification have been pervasive tendencies in all commercialized industrial and service activities; they do not appear to be related to labor market dualism. Nor is size of enterprise necessarily a characteristic of such dualism: until perhaps the mid-1940's, ladies' garment workers would have had to be counted among "primary" workers despite the small size of the firms for which they worked, thanks chiefly to the strength of their union and the ethnic homogene-

ity of its membership. The evolution of the ladies' garment work force and of its conditions does, however, illustrate another aspect of Piore's theory: the industry's average hourly wage declined from above 100 percent of the total nondurables average in the 1940's to 75 percent in the mid-1970's, as plants located in areas where the union was weak or could not organize.

The conception of labor market dualism originated in a search to explain low wages and job instability among minorities in the late 1960's and early 1970's. Workers in the primary sector appeared then to be much more secure in their tenure than today. The theory could not likely have been formulated in the 1930's when unemployment, job instability, and low pay was the lot of a very large proportion of workers. The line between primary and secondary labor markets will probably again blur, as workers in the primary sector—for example, in automotive and steel manufacturing—are drawn into the maelstrom of insecurity.

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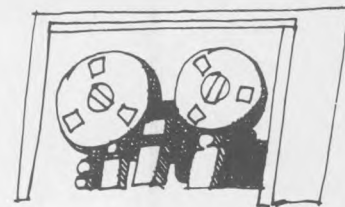
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NOTES ON CURRENT LABOR STATISTICS

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 are revised in the March 1982 issue of the *Review* to reflect experience through 1981. The original estimates have also been revised to 1970 to reflect 1980 census population controls.

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

Series	Release date	Period covered	Release date	Period covered	MLR table number
Productivity and costs:					
Nonfinancial corporations	March 1	4th quarter	.....	.....	31-34
Nonfarm business and manufacturing .....	.....	.....	April 29	1st quarter	31-34
Employment situation	March 5	February	April 2	March	1-11
Producer Price Index	March 12	February	April 9	March	26-30
Consumer Price Index	March 23	February	April 23	March	22-25
Real earnings	March 23	February	April 23	March	14-20

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 1981.

1. Employment status of the noninstitutional population, 16 years and over, selected years, 1950-81

[Numbers in thousands]

Year	Total non-institutional population	Total labor force		Civilian labor force					Not in labor force	
		Number	Percent of population	Total	Employed		Unemployed			
					Total	Agriculture	Nonagri-cultural 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	71,068	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	140,272	85,959	61.3	82,771	78,678	3,463	75,215	4,093	4.9	54,315
1971	143,033	87,198	61.0	84,382	79,367	3,394	75,972	5,016	5.9	55,834
1972	146,574	89,484	61.1	87,034	82,153	3,484	78,669	4,882	5.6	57,091
1973	149,423	91,756	61.4	89,429	85,064	3,470	81,594	4,365	4.9	57,867
1974	152,349	94,179	61.8	91,949	86,794	3,515	83,279	5,156	5.6	58,171
1975	155,333	95,955	61.8	93,775	85,846	3,408	82,438	7,929	8.5	59,377
1976	158,294	98,302	62.1	96,158	88,752	3,331	85,421	7,406	7.7	59,991
1977	161,166	101,142	62.8	99,009	92,017	3,283	88,734	6,991	7.1	60,025
1978	164,027	104,368	63.6	102,251	96,048	3,387	92,661	6,202	6.1	59,659
1979	166,951	107,050	64.1	104,962	98,824	3,347	95,477	6,137	5.8	59,900
1980	169,848	109,042	64.2	106,940	99,303	3,364	95,938	7,637	7.1	60,806
1981	172,272	110,812	64.3	108,670	100,397	3,368	97,030	8,273	7.6	61,460

NOTE: Data for 1970-81 have been revised to reflect 1980 census population controls.

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

[Numbers in thousands]

Employment status	Annual average		1981												1982	
	1980	1981	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	
TOTAL																
Total noninstitutional population ¹	169,848	172,272	171,229	171,400	171,581	171,770	171,956	172,172	172,385	172,559	172,758	172,966	173,155	173,330	173,495	
Total labor force	109,042	110,812	110,048	110,155	110,492	110,906	111,420	110,565	110,827	110,978	110,659	111,170	111,430	111,348	111,038	
Civilian noninstitutional population ¹	167,745	170,130	169,104	169,280	169,453	169,641	169,829	170,042	170,246	170,399	170,593	170,809	170,996	171,166	171,335	
Civilian labor force	106,940	108,670	107,923	108,034	108,364	108,777	109,293	108,434	108,688	108,818	108,494	109,012	109,272	109,184	108,879	
Employed	99,303	100,397	99,901	100,069	100,406	100,878	101,045	100,430	100,864	100,840	100,258	100,343	100,172	99,613	99,581	
Agriculture	3,364	3,368	3,445	3,346	3,343	3,470	3,405	3,348	3,342	3,404	3,358	3,378	3,372	3,209	3,411	
Nonagricultural industries	95,938	97,030	96,456	96,723	97,063	97,408	97,640	97,082	97,522	97,436	96,900	96,965	96,800	96,404	96,170	
Unemployed	7,637	8,273	8,022	7,965	7,958	7,899	8,248	8,004	7,824	7,978	8,236	8,669	9,100	9,571	9,298	
Unemployment rate	7.1	7.6	7.4	7.4	7.3	7.3	7.4	7.2	7.2	7.3	7.6	8.0	8.3	8.8	8.5	
Not in labor force	60,806	61,460	61,181	61,246	61,089	60,864	60,536	61,608	61,558	61,581	62,099	61,797	61,724	61,982	62,456	
Men, 20 years and over																
Civilian noninstitutional population ¹	71,138	72,419	71,850	71,951	72,037	72,142	72,251	72,359	72,472	72,559	72,670	72,795	72,921	73,020	73,120	
Civilian labor force	56,455	57,197	56,803	56,816	57,028	57,157	57,479	57,094	57,172	57,250	57,262	57,355	57,459	57,665	57,368	
Employed	53,101	53,582	53,342	53,383	53,618	53,820	53,884	53,597	53,874	53,791	53,693	53,504	53,354	53,122	53,047	
Agriculture	2,396	2,384	2,409	2,349	2,352	2,419	2,390	2,379	2,383	2,422	2,383	2,413	2,382	2,311	2,390	
Nonagricultural industries	50,706	51,199	50,933	51,034	51,266	51,401	51,494	51,218	51,491	51,369	51,310	51,091	50,972	50,811	50,657	
Unemployed	3,353	3,615	3,461	3,433	3,410	3,337	3,595	3,497	3,298	3,459	3,569	3,851	4,105	4,543	4,322	
Unemployment rate	5.9	6.3	6.1	6.0	6.0	5.8	6.3	6.1	5.8	6.0	6.2	6.7	7.1	7.9	7.5	
Not in labor force	14,683	15,222	15,047	15,135	15,009	14,985	14,772	15,265	15,300	15,309	15,408	15,440	15,462	15,355	15,752	
Women, 20 years and over																
Civilian noninstitutional population ¹	80,065	81,497	80,856	80,966	81,076	81,193	81,308	81,434	81,561	81,671	81,792	81,920	82,038	82,151	82,260	
Civilian labor force	41,106	42,485	41,833	41,974	42,152	42,332	42,608	42,581	42,682	42,666	42,344	42,831	42,987	42,888	42,868	
Employed	38,492	39,590	39,029	39,211	39,365	39,536	39,737	39,757	39,810	39,841	39,426	39,814	39,878	39,713	39,764	
Agriculture	584	604	626	616	610	609	605	585	590	609	608	596	635	572	649	
Nonagricultural industries	37,907	38,986	38,403	38,595	38,755	38,927	39,132	39,172	39,220	39,232	38,818	39,218	39,243	39,141	39,115	
Unemployed	2,615	2,895	2,804	2,763	2,787	2,796	2,871	2,824	2,872	2,825	2,918	3,017	3,109	3,175	3,104	
Unemployment rate	6.4	6.8	6.7	6.6	6.6	6.6	6.7	6.6	6.7	6.6	6.9	7.0	7.2	7.4	7.2	
Not in labor force	38,959	39,012	39,023	38,992	38,924	38,861	38,700	38,853	38,879	39,005	39,448	39,069	39,051	39,263	39,392	
Both sexes, 16 to 19 years																
Civilian noninstitutional population ¹	16,543	16,214	16,397	16,363	16,341	16,305	16,270	16,249	16,213	16,169	16,131	16,093	16,037	15,995	15,955	
Civilian labor force	9,378	8,988	9,287	9,244	9,184	9,288	9,206	8,759	8,834	8,902	8,888	8,826	8,826	8,631	8,643	
Employed	7,710	7,225	7,530	7,475	7,423	7,522	7,424	7,076	7,180	7,208	7,139	7,025	6,940	6,778	6,771	
Agriculture	385	380	410	381	381	442	410	384	369	373	367	369	355	326	373	
Nonagricultural industries	7,325	6,845	7,120	7,094	7,042	7,080	7,014	6,692	6,811	6,835	6,772	6,656	6,585	6,452	6,398	
Unemployed	1,669	1,763	1,757	1,769	1,761	1,766	1,782	1,683	1,654	1,694	1,709	1,801	1,886	1,853	1,872	
Unemployment rate	17.8	19.6	18.9	19.1	19.2	19.0	19.4	19.2	18.7	19.0	19.7	20.4	21.4	21.5	21.7	
Not in labor force	7,165	7,226	7,110	7,119	7,157	7,017	7,064	7,490	7,379	7,267	7,243	7,267	7,211	7,364	7,312	
White																
Civilian noninstitutional population ¹	146,122	147,908	146,976	147,132	147,335	147,539	147,670	147,804	147,976	148,144	148,370	148,562	148,631	148,755	148,842	
Civilian labor force	93,600	95,052	94,332	94,552	94,756	95,199	95,666	94,887	95,126	95,163	94,884	95,365	95,535	95,329	95,120	
Employed	87,715	88,709	88,101	88,388	88,653	89,080	89,237	88,799	89,170	89,221	88,628	88,734	88,498	88,010	87,955	
Unemployed	5,884	6,343	6,231	6,164	6,103	6,119	6,429	6,088	5,956	5,942	6,256	6,631	7,037	7,319	7,165	
Unemployment rate	6.3	6.7	6.6	6.5	6.4	6.4	6.7	6.4	6.3	6.2	6.6	7.0	7.4	7.7	7.5	
Not in labor force	52,522	52,856	52,644	52,580	52,579	52,340	52,004	52,917	52,850	52,981	53,486	53,197	53,096	53,426	53,722	
Black																
Civilian noninstitutional population ¹	17,824	18,219	18,045	18,076	18,105	18,137	18,170	18,206	18,239	18,266	18,297	18,333	18,362	18,392	18,423	
Civilian labor force	10,865	11,086	10,998	10,951	11,036	11,126	11,126	11,033	10,971	11,069	11,134	11,188	11,207	11,226	11,188	
Employed	9,313	9,355	9,428	9,350	9,383	9,488	9,460	9,310	9,338	9,267	9,319	9,313	9,321	9,279	9,314	
Unemployed	1,553	1,731	1,570	1,601	1,653	1,638	1,666	1,723	1,633	1,802	1,815	1,875	1,886	1,947	1,874	
Unemployment rate	14.3	15.6	14.3	14.6	15.0	14.7	15.0	15.6	14.9	16.3	16.3	16.8	16.8	17.3	16.8	
Not in labor force	6,959	7,133	7,047	7,125	7,069	7,011	7,044	7,173	7,268	7,197	7,163	7,145	7,155	7,166	7,235	

¹As in table 1, population figures are not seasonally adjusted.

1970-81 have been revised. Also, seasonally adjusted data have been revised based on the seasonal experience through December 1981.

NOTE: Effective with January 1982 data, population counts derived from the 1980 census are incorporated into the estimation procedures used in the Current Population Survey. Data for

3. Selected employment indicators, seasonally adjusted

[Numbers in thousands]

Selected categories	Annual average		1981												1982
	1980	1981	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CHARACTERISTIC															
Total employed, 16 years and over	99,303	100,397	99,901	100,069	100,406	100,878	101,045	100,430	100,864	100,840	100,258	100,343	100,172	99,613	99,581
Men	57,186	57,397	57,323	57,331	57,531	57,792	57,793	57,279	57,640	57,551	57,471	57,266	57,051	56,725	56,629
Women	42,117	43,000	42,578	42,738	42,875	43,086	43,252	43,151	43,224	43,289	42,787	43,077	43,121	42,888	42,952
Married men, spouse present	39,004	38,882	38,959	38,944	39,036	39,186	39,120	38,930	38,961	38,961	38,855	38,746	38,553	38,342	38,234
Married women, spouse present	23,532	23,915	23,806	23,824	23,920	23,979	24,192	24,106	24,159	24,043	23,626	23,874	23,820	23,691	23,744
OCCUPATION															
White-collar workers	51,882	52,949	52,662	52,739	52,860	52,855	53,016	52,957	52,907	53,141	52,908	53,199	53,086	53,084	52,836
Professional and technical	15,968	16,420	16,270	16,185	16,219	16,178	16,093	16,410	16,364	16,621	16,598	16,681	16,657	16,774	16,803
Managers and administrators, except farm	11,138	11,540	11,561	11,629	11,725	11,616	11,488	11,411	11,578	11,460	11,533	11,616	11,461	11,424	11,091
Salesworkers	6,303	6,425	6,384	6,397	6,372	6,290	6,562	6,513	6,373	6,490	6,441	6,400	6,418	6,450	6,520
Clerical workers	18,473	18,564	18,447	18,528	18,544	18,771	18,873	18,623	18,592	18,570	18,336	18,502	18,550	18,436	18,423
Blue-collar workers	31,452	31,261	31,151	31,193	31,288	31,685	31,796	31,538	31,580	31,611	31,266	30,953	30,683	30,344	30,203
Craft and kindred workers	12,787	12,662	12,621	12,684	12,826	12,825	12,911	12,749	12,787	12,724	12,514	12,446	12,411	12,446	12,370
Operatives, except transport	10,565	10,540	10,586	10,618	10,464	10,691	10,716	10,703	10,719	10,658	10,524	10,410	10,220	10,169	9,966
Transport equipment operatives	3,531	3,476	3,425	3,446	3,447	3,483	3,466	3,493	3,526	3,530	3,506	3,580	3,438	3,368	3,415
Nonfarm laborers	4,567	4,583	4,519	4,445	4,551	4,686	4,703	4,593	4,699	4,722	4,517	4,614	4,614	4,361	4,451
Service workers	13,228	13,438	13,250	13,347	13,478	13,468	13,470	13,214	13,526	13,282	13,391	13,525	13,670	13,639	13,709
Farmworkers	2,741	2,749	2,786	2,728	2,730	2,826	2,748	2,710	2,727	2,753	2,743	2,770	2,802	2,660	2,817
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,425	1,464	1,505	1,389	1,391	1,560	1,499	1,437	1,495	1,501	1,461	1,502	1,436	1,352	1,377
Self-employed workers	1,642	1,638	1,650	1,637	1,638	1,661	1,654	1,664	1,593	1,638	1,643	1,631	1,641	1,602	1,674
Unpaid family workers	297	266	284	306	299	286	235	263	244	256	256	261	321	228	380
Nonagricultural industries:															
Wage and salary workers	88,525	89,543	89,005	89,104	89,592	89,913	90,402	89,508	89,971	89,995	89,376	89,460	89,238	88,991	88,759
Government	15,912	15,689	15,988	15,875	15,930	15,885	15,776	15,707	15,637	15,526	15,475	15,491	15,397	15,585	15,578
Private industries	72,612	73,853	73,017	73,229	73,662	74,028	74,626	73,801	74,334	74,469	73,901	73,969	73,841	73,406	73,181
Private households	1,192	1,208	1,214	1,190	1,242	1,249	1,192	1,177	1,216	1,259	1,102	1,162	1,204	1,291	1,248
Other industries	71,420	72,645	71,803	72,039	72,420	72,779	73,434	72,624	73,118	73,210	72,799	72,807	72,637	72,115	71,932
Self-employed workers	7,000	7,097	7,028	7,080	7,065	7,150	6,966	7,128	7,071	7,103	7,217	7,152	7,141	7,057	6,971
Unpaid family workers	413	390	421	384	374	325	356	376	389	387	399	451	425	410	410
PERSONS AT WORK¹															
Nonagricultural industries	90,209	91,377	91,322	91,287	91,405	91,094	91,745	91,500	92,532	91,569	90,878	91,384	91,323	90,922	90,125
Full-time schedules	73,590	74,339	74,387	74,482	74,453	74,259	74,871	74,693	75,620	74,467	73,794	73,886	73,915	73,360	72,803
Part time for economic reasons	4,064	4,499	4,451	4,227	4,290	4,200	4,264	4,033	4,374	4,350	4,656	5,009	5,026	5,288	5,071
Usually work full time	1,714	1,738	1,688	1,650	1,660	1,593	1,657	1,465	1,680	1,729	1,759	2,006	1,945	2,121	1,783
Usually work part time	2,350	2,761	2,763	2,577	2,630	2,607	2,607	2,568	2,694	2,621	2,897	3,003	3,081	3,167	3,287
Part time for noneconomic reasons	12,555	12,539	12,484	12,578	12,662	12,635	12,610	12,774	12,538	12,752	12,428	12,489	12,382	12,274	12,251

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

NOTE: Effective with January 1982 data, population counts derived from the 1980

census are incorporated into the estimation procedures used in the Current Population Survey. Data for 1970-81 have been revised. Also, seasonally adjusted data have been revised based on the seasonal experience through December 1981.

4. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1981												1982
	1980	1981	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CHARACTERISTIC															
Total, 16 years and over	7.1	7.6	7.4	7.4	7.3	7.3	7.5	7.4	7.2	7.3	7.6	8.0	8.3	8.8	8.5
Men, 20 years and over	5.9	6.3	6.1	6.0	6.0	5.8	6.3	6.1	5.8	6.0	6.2	6.7	7.1	7.9	7.5
Women, 20 years and over	6.4	6.8	6.7	6.6	6.6	6.6	6.7	6.6	6.7	6.6	6.9	7.0	7.2	7.4	7.2
Both sexes, 16 to 19 years	17.8	19.6	18.9	19.1	19.2	19.0	19.4	19.2	18.7	19.0	19.7	20.4	21.4	21.5	21.7
White, total	6.3	6.7	6.6	6.5	6.4	6.4	6.7	6.4	6.3	6.2	6.6	7.0	7.4	7.7	7.5
Men, 20 years and over	5.3	5.6	5.5	5.4	5.3	5.2	5.6	5.3	5.0	5.2	5.5	5.9	6.4	6.9	6.6
Women, 20 years and over	5.6	5.9	5.9	5.7	5.7	5.7	5.9	5.7	5.8	5.5	5.9	6.1	6.3	6.4	6.3
Both sexes, 16 to 19 years	15.5	17.3	16.6	17.2	16.8	17.0	17.5	16.8	16.4	16.1	17.2	17.7	19.0	19.0	19.6
Black, total	14.3	15.6	14.3	14.6	15.0	14.7	15.0	15.6	14.9	16.3	16.3	16.8	16.8	17.3	16.8
Men, 20 years and over	12.4	13.5	11.5	12.0	12.1	12.1	13.0	13.7	12.7	13.6	14.5	14.7	15.5	16.5	16.3
Women, 20 years and over	11.9	13.4	12.3	13.2	13.6	12.9	13.1	13.3	13.1	13.8	14.0	13.9	13.6	14.1	13.3
Both sexes, 16 to 19 years	38.5	41.4	39.7	38.3	39.7	40.2	36.9	40.9	40.0	49.0	40.8	45.6	44.1	42.2	41.2
Married men, spouse present	4.2	4.3	4.2	4.1	4.1	3.8	4.0	4.2	3.9	4.0	4.4	4.8	5.2	5.7	5.3
Married women, spouse present	5.8	6.0	6.0	5.8	5.9	5.9	5.8	5.7	5.7	5.5	6.0	6.1	6.5	6.6	6.2
Women who maintain families	9.2	10.4	10.3	9.8	9.6	9.9	10.4	10.7	11.2	10.1	10.7	10.6	10.8	10.5	10.4
Full-time workers	6.9	7.3	7.2	7.1	7.1	6.9	7.1	7.1	6.8	6.9	7.3	7.7	8.1	8.7	8.4
Part-time workers	8.8	9.4	9.1	9.1	9.1	9.2	9.6	9.2	9.3	9.6	9.6	9.5	10.2	9.2	9.6
Unemployed 15 weeks and over	1.7	2.1	2.2	2.1	2.1	2.0	2.0	2.2	2.0	2.0	2.1	2.1	2.2	2.2	2.2
Labor force time lost ¹	7.9	8.5	8.3	8.2	8.2	8.2	8.6	7.9	7.9	7.9	8.5	9.1	9.5	10.1	10.0
OCCUPATION															
White-collar workers	3.7	4.0	3.9	3.8	3.9	4.0	4.0	3.9	4.0	3.9	4.1	4.1	4.2	4.5	4.2
Professional and technical	2.5	2.8	2.8	2.6	2.7	3.1	2.8	2.8	2.8	2.5	2.8	2.6	2.7	3.4	2.9
Managers and administrators, except farm	2.4	2.7	2.5	2.5	2.5	2.4	2.6	2.7	2.6	2.7	2.7	2.8	3.0	3.1	2.7
Salesworkers	4.4	4.6	4.3	4.1	4.1	4.2	4.6	4.3	4.9	4.7	5.0	4.9	5.0	4.9	4.5
Clerical workers	5.3	5.7	5.6	5.4	5.7	5.6	5.6	5.4	5.7	5.7	5.8	6.0	6.0	6.2	6.3
Blue-collar workers	10.0	10.3	10.2	10.2	10.0	9.7	9.9	9.8	9.5	9.5	10.2	10.9	11.8	12.7	12.5
Craft and kindred workers	6.6	7.5	6.9	7.1	7.1	6.8	7.2	7.1	6.9	7.0	7.7	8.3	8.5	9.3	9.0
Operatives, except transport	12.2	12.2	12.2	12.1	11.7	11.6	11.8	11.1	11.1	11.1	11.6	12.8	14.1	15.5	15.4
Transport equipment operatives	8.8	8.7	9.1	8.6	9.1	8.1	8.2	8.1	7.3	8.0	8.7	8.0	10.4	10.5	10.2
Nonfarm laborers	14.6	14.7	14.8	14.9	14.2	14.0	13.5	14.7	14.4	13.2	14.6	15.6	16.0	16.9	16.9
Service workers	7.9	8.9	8.2	8.7	8.3	8.5	9.4	8.9	8.0	8.9	9.0	9.3	9.7	9.6	9.2
Farmworkers	4.6	5.3	5.0	4.9	5.2	3.9	5.2	6.2	4.8	5.4	4.0	6.2	6.2	6.4	6.9
INDUSTRY															
Nonagricultural private wage and salary workers ²	7.4	7.7	7.6	7.6	7.5	7.3	7.7	7.4	7.2	7.3	7.7	8.1	8.4	9.1	8.8
Construction	14.1	15.6	13.7	13.7	14.7	14.5	15.7	16.1	15.2	16.2	16.3	17.6	17.8	18.1	18.7
Manufacturing	8.5	8.3	8.5	8.5	8.1	7.6	7.8	7.4	7.3	7.0	7.9	8.6	9.4	11.0	10.4
Durable goods	8.9	8.2	8.4	8.7	8.0	7.5	7.4	7.1	7.1	6.5	7.7	8.6	9.5	11.8	11.0
Nondurable goods	7.9	8.4	8.5	8.3	8.3	7.8	8.6	7.9	7.6	7.9	8.3	8.6	9.3	9.6	9.5
Transportation and public utilities	4.9	5.2	5.5	5.4	6.1	5.5	5.7	4.9	4.1	4.8	4.2	4.8	5.5	6.0	6.4
Wholesale and retail trade	7.4	8.1	7.7	7.7	7.6	7.5	8.3	7.7	7.9	7.9	8.5	8.4	8.6	8.9	8.7
Finance and service industries	5.3	5.9	5.8	5.9	5.6	5.8	5.8	5.8	5.7	5.7	6.0	6.2	6.1	6.4	5.9
Government workers	4.1	4.7	4.4	4.3	4.6	4.7	4.7	4.6	4.6	4.5	4.7	4.7	5.2	5.0	4.8
Agricultural wage and salary workers	11.0	12.1	11.5	11.9	12.1	9.4	11.0	13.3	10.7	12.0	11.0	13.4	14.1	14.8	16.2

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

² Includes mining, not shown separately.

NOTE: Effective with January 1982 data, population counts derived from the 1980 census are incorporated into the estimation procedures used in the Current Population Survey. Data for 1970-81 have been revised. Also, seasonally adjusted data have been revised based on the seasonal experience through December 1981.

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

Sex and age	Annual average		1981												1982
	1980	1981	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Total, 16 years and over	7.1	7.6	7.4	7.4	7.3	7.3	7.5	7.4	7.2	7.3	7.6	8.0	8.3	8.8	8.5
16 to 19 years	17.8	19.6	18.9	19.1	19.2	19.0	19.4	19.2	18.7	19.0	19.7	20.4	21.4	21.5	21.7
16 to 17 years	20.0	21.4	20.9	21.3	21.4	21.6	21.3	22.6	19.8	20.8	21.4	21.5	22.6	21.9	21.9
18 to 19 years	16.2	18.4	17.4	17.7	17.6	17.2	17.7	17.5	17.8	17.6	18.5	20.0	20.5	21.2	21.3
20 to 24 years	11.5	12.3	11.9	11.9	11.8	12.0	12.6	12.1	11.5	12.1	12.3	12.7	13.0	13.5	13.5
25 years and over	5.1	5.4	5.3	5.2	5.2	5.1	5.2	5.3	5.2	5.2	5.4	5.7	6.0	6.5	6.3
25 to 54 years	5.5	5.8	5.7	5.6	5.6	5.4	5.6	5.6	5.5	5.5	5.8	6.2	6.5	6.9	6.7
55 years and over	3.3	3.6	3.5	3.5	3.6	3.4	3.4	3.5	3.5	3.5	3.8	3.8	3.8	4.1	4.2
Men, 16 years and over	6.9	7.4	7.2	7.2	7.1	6.9	7.3	7.2	6.7	7.1	7.3	7.7	8.3	9.0	8.6
16 to 19 years	18.3	20.1	20.0	20.0	19.8	19.5	20.0	20.0	18.8	19.8	19.9	20.1	21.8	22.3	22.1
16 to 17 years	20.4	22.0	22.5	22.1	21.7	22.5	22.3	24.0	19.9	21.5	21.5	21.1	22.7	22.6	23.0
18 to 19 years	16.7	18.8	18.3	18.5	18.5	17.4	18.0	18.2	17.9	18.3	18.7	19.3	21.0	22.2	21.4
20 to 24 years	12.5	13.2	12.9	12.9	13.0	13.0	13.8	12.9	11.6	12.9	13.1	13.8	14.4	14.8	14.9
25 years and over	4.8	5.1	4.9	4.9	4.8	4.6	4.7	5.0	4.7	4.9	5.0	5.5	5.8	6.5	6.3
25 to 54 years	5.1	5.5	5.2	5.2	5.1	4.9	5.1	5.2	5.0	5.2	5.5	5.9	6.3	6.9	6.7
55 years and over	3.3	3.5	3.4	3.3	3.3	3.2	3.4	3.4	3.4	3.4	3.5	3.7	3.7	4.4	4.3
Women, 16 years and over	7.4	7.9	7.7	7.7	7.7	7.7	7.8	7.7	7.8	7.7	8.0	8.2	8.4	8.5	8.4
16 to 19 years	17.2	19.0	17.7	18.2	18.5	18.4	18.7	18.4	18.6	18.2	19.5	20.7	20.9	20.5	21.2
16 to 17 years	19.6	20.7	19.1	20.3	21.2	20.5	20.2	21.1	19.7	20.0	21.2	21.9	22.5	21.1	20.6
18 to 19 years	15.6	17.9	16.3	16.8	16.6	17.1	17.4	16.8	17.7	16.9	18.3	20.6	19.9	20.0	21.1
20 to 24 years	10.4	11.2	10.9	10.9	10.5	10.9	11.2	11.2	11.3	11.1	11.4	11.5	11.3	12.0	11.9
25 years and over	5.5	5.9	5.8	5.6	5.8	5.7	5.8	5.7	5.8	5.6	6.0	6.1	6.4	6.4	6.3
25 to 54 years	6.0	6.3	6.3	6.0	6.2	6.1	6.4	6.1	6.1	6.0	6.3	6.5	6.8	6.9	6.7
55 years and over	3.2	3.8	3.6	3.8	4.2	3.7	3.4	3.5	3.7	3.7	4.3	4.0	3.8	3.7	4.1

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

[Numbers in thousands]

Reason for unemployment	1981												1982	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	
NUMBER OF UNEMPLOYED														
Lost last job	3,982	4,050	3,989	3,958	4,032	4,173	3,867	4,106	4,426	4,573	4,905	5,343	5,205	5,205
On layoff	1,305	1,312	1,323	1,303	1,357	1,302	1,225	1,276	1,452	1,631	1,826	2,042	1,860	1,860
Other job losers	2,677	2,738	2,666	2,655	2,675	2,871	2,642	2,830	2,974	2,942	3,079	3,301	3,345	3,345
Left last job	923	911	901	903	1,004	896	926	926	879	921	976	916	923	835
Reentered labor force	2,051	2,020	2,069	2,044	2,106	2,039	2,078	2,034	2,058	2,178	2,339	2,244	2,079	2,079
Seeking first job	1,015	943	988	988	956	973	940	971	977	1,002	996	1,021	1,055	1,055
PERCENT DISTRIBUTION														
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	100.0
Job losers	50.0	51.1	50.2	50.1	49.8	51.6	49.5	51.4	52.8	52.4	53.6	56.1	56.7	56.7
On layoff	16.4	16.6	16.6	16.5	16.8	16.1	15.7	16.0	17.3	18.7	19.9	21.4	20.3	20.3
Other job losers	33.6	34.6	33.5	33.6	33.0	35.5	33.8	35.4	35.5	33.7	33.6	34.6	36.5	36.5
Job leavers	11.6	11.5	11.3	11.4	12.4	11.1	11.9	11.0	11.0	11.2	10.0	9.7	9.1	9.1
Reentrants	25.7	25.5	26.0	25.9	26.0	25.2	26.6	25.5	24.6	25.0	25.5	23.5	22.7	22.7
New entrants	12.7	11.9	12.4	12.5	11.8	12.0	12.0	12.2	11.7	11.5	10.9	10.7	11.5	11.5
UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE														
Job losers	3.7	3.7	3.7	3.7	3.7	3.8	3.6	3.8	4.1	4.2	4.5	4.9	4.8	4.8
Job leavers	.9	.8	.8	.8	.9	.8	.9	.8	.8	.9	.8	.8	.8	.8
Reentrants	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	1.9	1.9
New entrants	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0

7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1981												1982
	1980	1981	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Less than 5 weeks	3,295	3,449	3,290	3,267	3,277	3,189	3,378	3,303	3,323	3,326	3,529	3,707	3,852	4,037	3,852
5 to 14 weeks	2,470	2,539	2,324	2,379	2,408	2,472	2,606	2,423	2,312	2,469	2,585	2,686	2,882	3,016	3,068
15 weeks and over	1,871	2,285	2,391	2,322	2,269	2,187	2,231	2,363	2,170	2,217	2,248	2,292	2,364	2,372	2,399
15 to 26 weeks	1,052	1,122	1,123	1,072	1,057	1,048	1,061	1,227	1,096	1,078	1,146	1,166	1,229	1,189	1,210
27 weeks and over	820	1,162	1,268	1,250	1,212	1,139	1,170	1,136	1,074	1,139	1,102	1,126	1,135	1,183	1,190
Average (mean) duration, in weeks	11.9	13.7	14.4	14.1	13.9	13.7	13.3	14.3	14.1	14.3	13.7	13.6	13.1	12.8	13.5

NOTE: Effective with January 1982 data, population counts derived from the 1980 census are incorporated into the estimation procedures used in the Current Population Survey. Data for 1970-81 have been revised. Also, seasonally adjusted data have been revised based on the seasonal experience through December 1981.

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*, November 1981, pp. 7-8. 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	3,028	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 ¹	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	13,806	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	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	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

¹Data include Alaska and Hawaii beginning in 1959.

9. Employment by State

[Nonagricultural payroll data, in thousands]

State	Dec. 1980	Nov. 1981	Dec. 1981 ^P	State	Dec. 1980	Nov. 1981	Dec. 1981 ^P
Alabama	1,366.9	1,349.2	1,348.3	Montana	280.7	284.3	285.1
Alaska	163.9	179.0	176.1	Nebraska	634.1	636.2	634.0
Arizona	1,028.6	1,028.7	1,033.5	Nevada	403.5	423.2	420.8
Arkansas	749.7	746.9	742.9	New Hampshire	391.5	389.3	390.3
California	9,967.3	10,016.1	10,032.4	New Jersey	3,074.8	3,105.7	3,096.3
Colorado	1,277.0	1,297.6	1,298.5	New Mexico	462.8	468.4	469.4
Connecticut	1,443.6	1,432.3	1,435.0	New York	7,269.9	7,290.0	7,295.4
Delaware	263.2	257.1	260.3	North Carolina	2,416.1	2,407.6	2,383.6
District of Columbia	616.5	606.1	607.0	North Dakota	247.1	255.0	253.3
Florida	3,711.6	3,826.2	3,868.4	Ohio	4,420.1	4,380.0	4,341.9
Georgia	2,176.2	2,166.4	2,165.4	Oklahoma	1,159.6	1,199.2	1,204.5
Hawaii	407.7	403.3	406.9	Oregon	1,027.8	1,001.4	990.1
Idaho	332.0	325.3	323.1	Pennsylvania	4,765.0	4,682.4	4,649.9
Illinois	4,879.4	4,851.9	4,828.2	Rhode Island	404.3	404.9	402.3
Indiana	2,145.1	2,106.6	2,085.5	South Carolina	1,195.5	1,189.8	1,189.7
Iowa	1,097.0	1,078.1	1,071.8	South Dakota	237.2	237.1	235.8
Kansas	953.0	954.9	953.8	Tennessee	1,736.8	1,719.3	1,706.3
Kentucky	1,227.0	1,191.8	1,187.1	Texas	6,027.2	6,251.5	6,273.9
Louisiana	1,616.9	1,649.9	1,652.7	Utah	557.4	569.3	568.1
Maine	421.2	413.9	411.9	Vermont	203.9	201.9	203.4
Maryland	1,716.8	1,694.6	1,696.8	Virginia	2,150.4	2,174.7	2,176.9
Massachusetts	2,677.5	2,685.0	2,690.5	Washington	1,608.6	1,571.8	1,561.6
Michigan	3,514.2	3,447.4	3,385.0	West Virginia	650.1	632.2	628.0
Minnesota	1,769.7	1,770.4	1,765.1	Wisconsin	1,959.3	1,957.9	1,940.0
Mississippi	838.8	821.2	821.1	Wyoming	213.4	216.2	214.3
Missouri	1,965.1	1,976.1	1,966.4	Virgin Islands	36.9	35.4	35.7

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10. Employment by industry division and major manufacturing group

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1981												1982
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ^P	Jan. ^P
TOTAL	89,823	90,564	89,988	90,138	90,720	91,337	91,848	92,481	91,600	91,598	92,159	92,424	92,293	91,915	89,781
MINING	958	1,020	1,066	1,071	1,084	941	957	1,132	1,155	1,169	1,169	1,164	1,170	1,167	1,154
CONSTRUCTION	4,463	4,399	3,995	3,901	4,048	4,246	4,356	4,477	4,554	4,579	4,516	4,493	4,369	4,153	3,691
MANUFACTURING	21,040	20,300	20,075	20,065	20,160	20,253	20,342	20,531	20,337	20,473	20,600	20,368	20,122	19,818	19,449
Production workers	15,068	14,223	13,975	13,971	14,049	14,127	14,195	14,325	14,108	14,230	14,376	14,147	13,904	13,601	13,295
Durable goods	12,760	12,181	12,072	12,042	12,120	12,197	12,235	12,334	12,198	12,188	12,292	12,163	11,999	11,799	11,582
Production workers	9,110	8,438	8,305	8,279	8,345	8,412	8,438	8,500	8,347	8,323	8,440	8,313	8,153	7,953	7,774
Lumber and wood products	766.9	690.3	674.6	674.5	678.3	686.9	703.4	711.0	708.6	701.5	691.0	664.5	638.7	618.2	592.8
Furniture and fixtures	497.8	468.8	469.6	471.7	472.1	478.0	479.0	480.5	472.0	480.6	484.7	483.5	476.5	472.2	461.8
Stone, clay, and glass products	708.7	665.6	635.0	630.6	639.5	652.6	659.7	671.0	666.7	669.1	664.5	652.8	641.2	618.4	590.7
Primary metal industries	1,253.9	1,144.1	1,136.7	1,137.7	1,141.3	1,149.9	1,147.5	1,155.5	1,135.5	1,140.3	1,138.8	1,109.3	1,087.8	1,060.6	1,048.2
Fabricated metal products	1,717.7	1,609.0	1,580.2	1,578.1	1,585.4	1,593.7	1,596.1	1,606.8	1,584.5	1,590.9	1,607.5	1,584.2	1,563.5	1,530.9	1,495.7
Machinery, except electrical	2,484.8	2,497.0	2,496.9	2,498.4	2,504.3	2,506.1	2,508.6	2,531.3	2,517.4	2,511.4	2,540.7	2,528.4	2,512.3	2,497.8	2,473.9
Electric and electronic equipment	2,116.9	2,103.2	2,114.0	2,112.3	2,119.5	2,129.7	2,134.7	2,152.7	2,138.9	2,146.1	2,164.8	2,158.3	2,131.3	2,102.2	2,082.8
Transportation equipment	2,077.2	1,875.3	1,854.9	1,824.8	1,860.4	1,874.3	1,877.4	1,882.7	1,840.3	1,799.6	1,848.3	1,832.3	1,803.0	1,766.9	1,732.7
Instruments and related products	691.2	708.5	712.4	710.1	712.1	714.4	715.2	723.2	722.1	726.2	723.1	720.0	718.6	717.3	711.7
Miscellaneous manufacturing	444.8	419.3	398.0	403.3	406.7	411.3	413.4	419.5	412.3	421.8	428.7	429.9	426.2	414.2	391.9
Nondurable goods	8,280	8,118	8,003	8,023	8,040	8,056	8,107	8,197	8,139	8,285	8,308	8,205	8,123	8,019	7,867
Production workers	5,958	5,786	5,670	5,692	5,704	5,715	5,757	5,825	5,761	5,907	5,936	5,834	5,751	5,648	5,521
Food and kindred products	1,732.5	1,710.8	1,645.2	1,639.2	1,632.5	1,631.0	1,648.1	1,673.4	1,714.8	1,773.2	1,776.1	1,729.0	1,689.2	1,657.5	1,614.9
Tobacco manufactures	70.0	69.2	72.0	70.6	68.3	66.2	65.2	66.4	66.3	75.6	77.7	77.0	74.9	72.8	71.7
Textile mill products	885.1	852.7	841.0	841.1	840.9	841.6	844.3	851.0	836.5	847.3	850.2	834.3	826.8	817.8	795.7
Apparel and other textile products	1,304.3	1,265.8	1,222.8	1,238.7	1,250.2	1,255.2	1,265.9	1,283.9	1,231.1	1,276.8	1,287.3	1,274.1	1,259.5	1,223.9	1,185.1
Paper and allied products	706.8	694.0	687.7	687.7	688.6	690.9	693.1	701.0	696.4	700.3	702.0	691.4	686.4	682.1	675.3
Printing and publishing	1,235.1	1,258.3	1,269.0	1,273.6	1,278.2	1,280.4	1,281.8	1,286.2	1,286.5	1,289.4	1,294.1	1,299.7	1,305.1	1,310.7	1,301.8
Chemicals and allied products	1,109.3	1,107.4	1,100.1	1,102.9	1,106.8	1,106.2	1,110.3	1,121.1	1,116.6	1,112.0	1,110.5	1,104.4	1,100.2	1,098.2	1,092.0
Petroleum and coal products	209.8	196.6	206.5	205.7	207.0	209.5	212.9	215.4	216.1	215.4	212.7	211.4	210.4	207.2	199.2
Rubber and miscellaneous plastics products	781.6	730.7	731.8	734.2	737.2	743.5	749.2	759.0	747.0	756.8	760.8	748.2	738.6	726.6	718.5
Leather and leather products	245.7	232.6	226.9	229.5	230.4	231.7	235.9	239.1	227.5	238.6	237.0	235.7	232.1	222.3	212.3
TRANSPORTATION AND PUBLIC UTILITIES	5,136	5,143	5,063	5,076	5,095	5,120	5,148	5,195	5,177	5,175	5,222	5,204	5,183	5,140	5,047
WHOLESALE AND RETAIL TRADE	20,192	20,386	20,366	20,196	20,290	20,513	20,672	20,795	20,735	20,811	20,919	20,999	21,148	21,403	20,726
WHOLESALE TRADE	5,204	5,281	5,276	5,273	5,293	5,317	5,335	5,381	5,376	5,386	5,370	5,381	5,379	5,353	5,304
RETAIL TRADE	14,989	15,104	15,090	14,923	14,997	15,196	15,337	15,414	15,359	15,425	15,549	15,618	15,769	16,050	15,422
FINANCE, INSURANCE, AND REAL ESTATE	4,975	5,168	5,235	5,245	5,263	5,295	5,326	5,384	5,408	5,408	5,361	5,349	5,344	5,351	5,327
SERVICES	17,112	17,901	17,972	18,126	18,287	18,512	18,633	18,764	18,847	18,835	18,812	18,826	18,800	18,754	18,503
GOVERNMENT	15,947	16,249	16,216	16,458	16,493	16,457	16,414	16,203	15,387	15,148	15,560	16,021	16,157	16,129	15,884
Federal	2,773	2,866	2,773	2,774	2,769	2,773	2,782	2,825	2,833	2,803	2,735	2,737	2,729	2,726	2,708
State and local	13,174	13,383	13,443	13,684	13,724	13,684	13,632	13,378	12,554	12,345	12,825	13,284	13,428	13,403	13,176

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

[Nonagricultural payroll data, in thousands]

Industry division and group	1981												1982
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. P	Jan. P
TOTAL	91,091	91,258	91,347	91,458	91,564	91,615	91,880	91,901	92,033	91,832	91,522	91,096	90,859
MINING	1,083	1,091	1,098	950	957	1,110	1,132	1,151	1,162	1,162	1,172	1,176	1,172
CONSTRUCTION	4,390	4,389	4,416	4,418	4,334	4,284	4,272	4,275	4,272	4,259	4,229	4,191	4,052
MANUFACTURING	20,174	20,177	20,191	20,332	20,414	20,424	20,535	20,505	20,496	20,241	20,017	19,750	19,537
Production workers	14,053	14,053	14,074	14,187	14,247	14,245	14,327	14,294	14,281	14,030	13,797	13,532	13,366
Durable goods	12,084	12,074	12,099	12,207	12,254	12,278	12,333	12,332	12,311	12,115	11,932	11,727	11,588
Production workers	8,306	8,297	8,325	8,412	8,442	8,455	8,491	8,485	8,465	8,267	8,083	7,880	7,772
Lumber and wood products	689	691	692	702	710	699	702	686	677	652	634	618	606
Furniture and fixtures	464	466	467	478	484	486	488	487	485	480	470	465	456
Stone, clay, and glass products	654	654	651	656	658	658	658	660	655	644	634	621	608
Primary metal industries	1,137	1,140	1,141	1,145	1,142	1,144	1,140	1,148	1,139	1,114	1,090	1,061	1,048
Fabricated metal products	1,579	1,577	1,581	1,595	1,604	1,604	1,614	1,610	1,606	1,575	1,546	1,514	1,494
Machinery, except electrical	2,487	2,481	2,480	2,491	2,511	2,521	2,533	2,542	2,551	2,549	2,522	2,490	2,464
Electric and electronic equipment	2,110	2,110	2,117	2,134	2,143	2,148	2,163	2,166	2,163	2,150	2,119	2,088	2,077
Transportation equipment	1,840	1,833	1,849	1,878	1,872	1,886	1,886	1,889	1,889	1,811	1,783	1,736	1,719
Instruments and related products	713	711	712	714	716	717	723	727	727	723	719	716	712
Miscellaneous manufacturing	411	411	409	414	414	415	426	417	419	417	415	418	404
Nondurable goods	8,090	8,103	8,092	8,125	8,160	8,146	8,202	8,173	8,185	8,126	8,085	8,023	7,949
Production workers	5,747	5,756	5,749	5,775	5,805	5,790	5,836	5,809	5,816	5,763	5,714	5,652	5,594
Food and kindred products	1,696	1,705	1,691	1,697	1,703	1,673	1,691	1,668	1,669	1,675	1,676	1,669	1,665
Tobacco manufactures	71	72	72	72	71	71	71	73	71	70	70	69	71
Textile mill products	841	839	838	842	843	846	856	849	849	833	823	814	795
Apparel and other textile products	1,244	1,243	1,243	1,250	1,258	1,264	1,278	1,272	1,273	1,259	1,251	1,233	1,206
Paper and allied products	691	691	689	691	684	695	696	698	703	691	686	682	678
Printing and publishing	1,269	1,272	1,276	1,280	1,283	1,284	1,290	1,295	1,301	1,302	1,302	1,300	1,302
Chemicals and allied products	1,106	1,109	1,108	1,107	1,109	1,111	1,110	1,106	1,112	1,108	1,104	1,102	1,097
Petroleum and coal products	211	210	210	211	213	212	212	212	211	210	210	209	203
Rubber and miscellaneous plastics products	730	731	734	744	753	757	760	764	760	744	733	722	716
Leather and leather products	231	231	231	231	233	232	238	236	236	234	230	223	216
TRANSPORTATION AND PUBLIC UTILITIES	5,124	5,135	5,139	5,161	5,148	5,149	5,167	5,170	5,186	5,168	5,147	5,109	5,108
WHOLESALE AND RETAIL TRADE	20,529	20,600	20,635	20,636	20,714	20,717	20,796	20,862	20,872	20,916	20,838	20,725	20,893
WHOLESALE TRADE	5,305	5,313	5,316	5,333	5,346	5,349	5,360	5,375	5,370	5,360	5,363	5,337	5,331
RETAIL TRADE	15,224	15,287	15,319	15,303	15,368	15,368	15,436	15,487	15,502	15,556	15,475	15,388	15,562
FINANCE, INSURANCE, AND REAL ESTATE	5,268	5,283	5,293	5,316	5,326	5,331	5,344	5,354	5,366	5,360	5,355	5,367	5,359
SERVICES	18,300	18,343	18,371	18,475	18,540	18,560	18,642	18,667	18,774	18,788	18,838	18,848	18,842
GOVERNMENT	16,223	16,240	16,204	16,170	16,131	16,040	15,992	15,917	15,905	15,938	15,926	15,930	15,896
Federal	2,799	2,795	2,781	2,767	2,779	2,781	2,777	2,770	2,765	2,759	2,748	2,738	2,733
State and local	13,424	13,445	13,423	13,403	13,352	13,259	13,215	13,147	13,140	13,179	13,178	13,192	13,163

12. Labor turnover rates in manufacturing, 1977 to date

[Per 100 employees]

Year	Annual average	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total accessions													
1977	4.0	3.7	3.7	4.0	3.8	4.6	4.9	4.3	5.3	4.6	3.9	3.1	2.4
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	3.5	4.0	3.6	4.0	3.5	2.8	2.4	P1.7
New hires													
1977	2.8	2.2	2.1	2.6	2.7	3.5	3.7	3.0	4.0	3.5	3.0	2.2	1.6
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	2.3	2.8	2.4	2.7	2.3	1.8	1.3	P.8
Recalls													
1977	.9	1.2	1.3	1.1	.9	.8	.8	.9	1.0	.8	.6	.6	.6
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	1.0	.9	1.0	1.0	.9	.8	.9	P.7
Total separations													
1977	3.8	3.9	3.4	3.4	3.4	3.5	3.5	4.3	5.1	4.9	3.8	3.4	3.4
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	3.1	3.2	3.6	4.4	4.1	4.2	4.1	P4.0
Quits													
1977	1.8	1.4	1.3	1.6	1.7	1.9	1.9	1.9	3.1	2.8	1.9	1.5	1.2
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	1.3	1.4	1.5	2.1	1.8	1.3	.9	P.7
Layoffs													
1977	1.1	1.7	1.4	1.0	.9	.8	.8	1.5	1.0	1.1	1.1	1.1	1.5
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	1.0	1.1	1.3	1.3	1.5	2.2	2.6	P2.7

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		
	Dec. 1980	Nov. 1981	Dec. 1981 ^P	Dec. 1980	Nov. 1981	Dec. 1981 ^P	Dec. 1980	Nov. 1981	Dec. 1981 ^P	Dec. 1980	Nov. 1981	Dec. 1981 ^P	Dec. 1980	Nov. 1981	Dec. 1981 ^P	Dec. 1980	Nov. 1981	Dec. 1981 ^P
MANUFACTURING	2.2	2.4	1.7	1.2	1.3	0.8	0.8	0.9	0.7	3.1	4.1	4.0	0.9	0.9	0.7	1.6	2.6	2.7
Seasonally adjusted	3.5	3.1	2.7	2.1	1.6	1.4	1.1	1.2	1.0	3.5	4.1	3.9	1.5	1.1	1.1	1.2	2.3	2.1
Durable goods	2.0	2.1	1.5	1.0	1.0	.7	.7	.9	.6	2.6	4.2	3.9	.7	.7	.5	1.4	2.8	2.8
Lumber and wood products	2.8	2.8	2.6	1.6	1.3	.8	1.0	1.4	1.6	4.9	7.6	5.9	1.4	1.3	1.0	2.8	5.5	4.1
Furniture and fixtures	2.8	2.3	1.6	1.7	1.5	.8	1.0	.7	.7	3.3	4.5	3.9	1.3	1.2	.8	1.3	2.7	2.5
Stone, clay, and glass products	2.0	2.0	1.4	1.1	.9	.6	.8	1.0	.7	4.7	4.8	6.4	.8	.7	.6	3.1	3.5	5.3
Primary metal industries	2.3	2.7	1.6	.6	.4	.3	1.5	2.1	1.2	2.5	5.4	5.0	.3	.3	.3	1.6	4.4	4.3
Fabricated metal products	1.9	2.1	1.5	1.1	1.1	.6	.7	.8	.6	2.9	4.7	4.4	.8	.7	.6	1.6	3.2	3.3
Machinery, except electrical	1.7	1.7	1.2	1.0	1.1	.7	.5	.4	.3	1.7	2.7	2.3	.6	.6	.4	.6	1.6	1.4
Electric and electronic equipment	1.8	2.1	1.5	1.0	1.2	.8	.5	.5	.4	2.0	3.4	3.4	.7	.7	.6	.7	2.0	2.0
Transportation equipment	1.8	2.3	1.4	.6	.8	.5	.6	1.2	.7	2.5	4.9	4.0	.4	.5	.4	1.4	3.7	3.1
Instruments and related products	1.5	1.6	1.0	1.2	1.2	.8	.2	.2	1.1	1.4	1.9	1.9	.7	.7	.6	.3	.7	.8
Miscellaneous manufacturing	2.5	3.0	2.1	1.5	2.0	1.2	.8	.8	.8	5.9	6.1	6.8	1.1	1.3	.9	4.0	3.9	5.3
Nondurable goods	2.5	2.7	2.0	1.5	1.6	1.1	.9	.9	.8	3.8	4.0	4.1	1.1	1.2	.9	2.1	2.2	2.6
Food and kindred products	3.4	3.7	3.0	1.8	2.0	1.5	1.4	1.5	1.3	6.3	5.9	5.6	1.5	1.4	1.1	4.1	3.8	3.8
Tobacco manufacturers	4.8	4.4	2.8	1.5	1.1	1.0	2.7	2.7	1.6	3.7	6.5	3.6	.3	.4	.5	2.8	5.3	2.7
Textile mill products	2.0	2.4	1.6	1.4	1.4	.8	.4	.8	.7	2.6	3.7	3.6	1.1	1.1	.8	.9	1.9	2.3
Apparel and other products	3.0	3.9	2.6	1.5	2.3	1.2	1.4	1.3	1.2	5.3	5.6	5.9	1.6	1.8	1.2	3.2	3.1	4.0
Paper and allied products	1.7	1.7	1.3	.9	.8	.5	.7	.7	.6	2.5	2.6	2.9	.5	.5	.4	1.4	1.7	2.0
Printing and publishing	2.5	2.7	2.1	1.9	2.1	1.6	.5	.5	.4	3.0	2.8	2.7	1.5	1.5	1.3	.9	.8	.9
Chemicals and allied products	1.1	1.0	.8	.8	.7	.5	.2	.2	.2	1.4	1.5	1.6	.4	.4	.3	.5	.7	.8
Petroleum and coal products	1.4	1.1	1.1	1.1	.8	.9	.2	.2	.2	2.0	1.7	3.1	.4	.4	.4	1.1	.8	2.3
Rubber and miscellaneous plastics products	2.6	2.2	1.5	1.4	1.2	.8	1.0	.7	.6	3.3	4.8	4.3	1.0	.9	.7	1.7	3.1	3.0
Leather and leather products	3.4	3.4	2.4	2.2	2.1	1.2	1.0	1.0	1.1	6.0	5.5	9.6	1.8	2.0	1.4	3.5	2.7	7.5

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 ¹	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	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	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 ¹				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	96.02	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	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	351.25	39.6	8.87	176.46	32.2	5.48	209.24	36.2	5.78	190.71	32.6	5.85

¹ Data include Alaska and Hawaii beginning in 1959.

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		1981												1982
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. P	Jan. P
TOTAL PRIVATE	35.7	35.3	35.1	35.0	35.2	35.2	35.2	35.4	35.6	35.6	35.0	35.1	35.1	35.2	33.7
MINING	43.0	43.2	43.6	42.8	42.3	43.6	43.8	42.1	43.5	44.1	43.8	44.5	44.3	44.8	42.4
CONSTRUCTION	37.0	37.0	36.4	35.0	37.2	36.9	36.9	37.2	37.7	37.3	35.7	37.5	37.0	37.0	33.4
MANUFACTURING	40.2	39.7	39.9	39.5	39.9	39.7	40.1	40.2	39.6	39.8	39.5	39.7	39.6	39.9	36.8
Overtime hours	3.3	2.8	2.9	2.8	2.8	2.6	2.9	3.0	2.8	3.0	2.9	2.8	2.6	2.6	2.2
Durable goods	40.8	40.1	40.4	39.9	40.5	40.3	40.6	40.6	39.9	40.2	39.8	40.1	40.0	40.4	37.4
Overtime hours	3.5	2.8	2.9	2.8	2.9	2.7	3.0	3.0	2.8	2.9	2.8	2.7	2.5	2.6	2.0
Lumber and wood products	39.4	38.6	38.8	38.5	39.0	39.1	39.6	39.5	38.7	39.0	37.9	38.2	37.6	38.3	33.7
Furniture and fixtures	38.7	38.1	38.1	38.3	38.8	38.2	38.5	38.9	37.8	38.6	37.7	38.6	38.1	38.8	32.5
Stone, clay, and glass products	41.5	40.8	40.3	39.6	40.6	40.9	41.1	41.2	40.8	41.0	40.6	40.5	40.5	40.2	37.1
Primary metal industries	41.4	40.1	41.1	40.7	41.1	41.2	40.9	40.9	40.3	40.3	40.8	39.6	39.7	39.6	38.0
Fabricated metal products	40.7	40.4	40.4	40.0	40.6	40.2	40.7	40.8	39.9	40.3	39.6	40.1	40.0	40.5	37.8
Machinery except electrical	41.8	41.0	41.2	40.8	41.2	40.8	41.2	41.1	40.4	40.7	40.4	40.6	40.9	41.6	39.1
Electric and electronic equipment	40.3	39.8	40.1	39.6	40.2	39.8	40.1	40.2	39.7	40.0	39.7	39.9	39.8	40.4	37.6
Transportation equipment	41.1	40.6	40.9	40.1	41.1	41.0	41.6	41.3	40.7	40.5	39.9	40.9	40.8	41.4	37.2
Instruments and related products	40.8	40.5	40.6	40.5	40.6	39.9	40.3	40.4	39.9	40.4	40.4	40.4	40.8	40.5	38.0
Miscellaneous manufacturing	38.8	38.7	38.6	38.4	38.9	38.6	38.9	39.0	38.5	39.0	38.7	39.3	39.5	39.1	36.5
Nondurable goods	39.3	39.0	39.2	38.9	39.1	38.9	39.4	39.5	39.1	39.4	39.1	39.1	39.1	39.3	35.8
Overtime hours	3.1	2.8	2.9	2.8	2.7	2.6	2.9	2.9	2.8	3.0	3.1	2.9	2.8	2.7	2.4
Food and kindred products	39.9	39.7	40.0	39.3	39.2	39.3	39.8	39.8	39.6	40.0	39.8	39.6	39.9	40.3	38.7
Tobacco manufactures	38.0	38.1	38.6	38.5	37.2	37.2	38.6	38.5	38.6	40.7	40.2	39.4	38.8	38.1	35.6
Textile mill products	40.4	40.1	39.9	39.9	40.1	39.4	40.3	40.4	39.7	40.0	38.9	39.4	39.2	39.0	30.6
Apparel and other textile products	35.3	35.4	35.2	35.3	35.8	35.2	36.0	36.4	36.0	36.3	35.2	35.8	35.8	35.5	29.2
Paper and allied products	42.6	42.3	42.7	42.2	42.4	42.3	42.5	42.7	42.4	42.5	43.2	42.4	42.3	42.7	40.9
Printing and publishing	37.5	37.1	37.1	36.9	37.1	37.0	37.3	37.2	37.2	37.5	37.4	37.2	37.3	38.0	36.1
Chemicals and allied products	41.9	41.5	41.6	41.5	41.6	41.6	41.6	41.5	41.4	42.2	41.5	41.7	42.0	40.4	
Petroleum and coal products	43.8	41.8	42.6	42.5	42.6	43.9	43.6	43.5	43.7	43.0	44.4	43.1	43.0	42.7	43.9
Rubber and miscellaneous plastics products	40.5	40.1	41.0	40.2	40.7	40.4	40.9	40.9	40.0	40.4	39.8	40.2	39.9	40.0	37.3
Leather and leather products	36.5	36.7	36.5	36.7	36.8	36.3	37.4	38.1	36.6	36.9	36.0	36.7	36.6	36.4	34.8
TRANSPORTATION AND PUBLIC UTILITIES	39.9	39.6	39.4	39.5	39.4	39.3	39.3	39.8	39.8	39.5	39.2	39.1	39.3	39.2	38.5
WHOLESALE AND RETAIL TRADE	32.6	32.2	31.7	31.7	31.9	32.1	32.0	32.3	32.8	32.8	32.2	31.9	31.9	32.2	31.0
WHOLESALE TRADE	38.8	38.5	38.5	38.3	38.5	38.5	38.5	38.6	38.8	38.7	38.5	38.7	38.6	38.7	37.7
RETAIL TRADE	30.6	30.2	29.5	29.6	29.8	30.0	29.9	30.4	30.9	30.9	30.2	29.8	29.8	30.2	28.9
FINANCE, INSURANCE, AND REAL ESTATE	36.2	36.2	36.4	36.4	36.4	36.3	36.1	36.1	36.3	36.3	36.0	36.2	36.2	36.1	36.1
SERVICES	32.7	32.6	32.5	32.6	32.6	32.6	32.5	32.7	33.0	32.9	32.4	32.5	32.5	32.6	32.1

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	1981												1982
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ^P	Jan. ^P
TOTAL PRIVATE	35.3	35.2	35.3	35.4	35.3	35.2	35.3	35.2	34.9	35.0	35.0	34.9	34.1
MANUFACTURING	40.1	39.8	39.9	40.2	40.3	40.1	40.0	40.0	39.3	39.5	39.3	39.0	36.9
Overtime hours	3.0	2.8	2.8	2.9	3.2	3.0	3.0	3.0	2.7	2.7	2.5	2.4	2.2
Durable goods	40.6	40.1	40.4	40.8	40.8	40.5	40.5	40.5	39.7	39.9	39.7	39.3	37.5
Overtime hours	3.0	2.8	2.8	3.0	3.2	3.0	3.0	3.0	2.6	2.6	2.4	2.4	2.1
Lumber and wood products	39.8	39.1	39.1	39.6	39.8	39.0	38.8	38.6	37.3	37.6	37.5	37.8	34.6
Furniture and fixtures	38.5	38.6	38.6	38.8	39.0	38.9	38.5	38.6	37.5	38.1	37.7	37.6	32.8
Stone, clay, and glass products	41.3	40.6	40.7	41.2	41.0	40.8	40.9	40.8	40.3	40.0	40.0	39.6	38.0
Primary metal industries	41.1	40.7	41.0	41.2	41.0	40.8	40.5	40.7	40.6	39.8	39.7	39.2	38.0
Fabricated metal products	40.5	40.2	40.4	40.9	40.9	40.7	40.5	40.5	39.5	40.0	39.6	39.3	37.9
Machinery, except electrical	41.1	40.8	40.9	41.3	41.4	41.1	41.1	41.2	40.3	40.7	40.6	40.3	39.0
Electric and electronic equipment	40.1	39.6	40.0	40.2	40.4	40.2	40.5	40.4	39.6	39.9	39.3	39.3	37.6
Transportation equipment	41.3	40.5	40.9	42.0	41.8	41.4	41.2	41.3	39.9	40.5	40.3	39.4	37.5
Instruments and related products	40.6	40.5	40.5	40.1	40.4	40.4	40.5	40.8	40.5	40.4	40.3	39.7	38.0
Miscellaneous manufacturing	38.8	38.6	38.7	38.9	39.2	39.1	39.2	39.1	38.4	39.0	39.0	38.4	36.7
Nondurable goods	39.5	39.2	39.2	39.3	39.6	39.4	39.3	39.3	38.9	39.0	38.8	38.6	36.1
Overtime hours	3.0	2.9	2.8	2.9	3.1	3.0	2.9	2.9	2.8	2.8	2.7	2.5	2.4
Food and kindred products	40.3	39.9	39.7	40.1	40.0	39.8	39.4	39.4	39.2	39.5	39.6	39.7	39.0
Textile mill products	40.0	40.0	39.9	39.8	40.5	40.2	40.4	40.3	38.9	39.3	38.8	38.2	30.7
Apparel and other textile products	36.1	35.6	35.7	35.5	36.0	36.1	35.9	36.1	35.2	35.7	35.6	35.1	29.9
Paper and allied products	42.6	42.4	42.4	42.6	42.8	42.7	42.7	42.7	43.1	42.4	41.9	41.8	40.8
Printing and publishing	37.5	37.3	37.1	37.3	37.6	37.4	37.3	37.3	37.1	37.1	36.9	37.3	36.4
Chemicals and allied products	41.6	41.6	41.5	41.5	41.7	41.7	41.8	41.7	42.3	41.5	41.3	41.5	40.4
Petroleum and coal products	43.8	43.8	43.5	44.1	43.8	43.4	43.1	42.8	43.3	42.1	42.3	42.7	45.2
Rubber and miscellaneous plastics products	40.9	40.3	40.5	40.7	41.3	41.0	40.5	40.6	39.6	40.0	39.6	39.3	37.2
Leather and leather products	36.8	37.0	37.1	36.6	37.1	37.1	36.5	36.9	36.1	36.8	36.7	36.1	35.1
WHOLESALE AND RETAIL TRADE	32.2	32.2	32.2	32.3	32.1	32.1	32.2	32.1	32.1	31.9	32.0	31.9	31.5
WHOLESALE TRADE	38.8	38.6	38.6	38.6	38.5	38.5	38.7	38.6	38.5	38.5	38.6	38.4	37.9
RETAIL TRADE	30.1	30.2	30.2	30.3	30.1	30.1	30.1	30.1	30.1	29.9	29.9	29.8	29.5
SERVICES	32.7	32.8	32.8	32.8	32.7	32.5	32.5	32.4	32.4	32.5	32.6	32.7	32.3

NOTE: The industry divisions of mining; construction; tobacco manufactures (a major manufacturing group, nondurable goods); transportation and public utilities; and finance, insurance, and real estate are no longer shown. This is because the seasonal component in these is

small relative to the trend-cycle, or irregular components, or both, and consequently cannot be precisely separated.

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		1981												1982
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ^P	Jan. ^P
TOTAL PRIVATE	\$6.16	\$6.66	\$7.03	\$7.06	\$7.10	\$7.13	\$7.17	\$7.20	\$7.24	\$7.30	\$7.40	\$7.42	\$7.46	\$7.44	\$7.53
MINING	8.49	9.17	9.77	9.86	9.85	9.70	9.68	9.94	10.11	10.15	10.29	10.28	10.42	10.41	10.58
CONSTRUCTION	9.27	9.92	10.42	10.41	10.44	10.43	10.53	10.60	10.74	10.87	11.02	11.10	11.12	11.19	11.57
MANUFACTURING	6.70	7.27	7.73	7.75	7.80	7.88	7.92	7.97	8.02	8.02	8.15	8.15	8.20	8.25	8.38
Durable goods	7.13	7.75	8.23	8.26	8.32	8.40	8.45	8.52	8.55	8.57	8.68	8.71	8.75	8.80	8.86
Lumber and wood products	6.07	6.53	6.79	6.81	6.79	6.83	6.92	7.10	7.16	7.13	7.15	7.09	7.15	7.14	7.39
Furniture and fixtures	5.06	5.49	5.71	5.74	5.76	5.78	5.83	5.89	5.91	5.98	6.00	6.05	6.04	6.10	6.21
Stone, clay, and glass products	6.85	7.50	7.87	7.89	7.94	8.11	8.20	8.31	8.39	8.41	8.53	8.50	8.54	8.55	8.61
Primary metal industries	8.98	9.77	10.36	10.56	10.52	10.76	10.68	10.76	10.79	10.99	11.22	10.97	11.10	11.09	11.14
Fabricated metal products	6.85	7.45	7.89	7.91	8.01	8.05	8.17	8.23	8.22	8.27	8.34	8.39	8.43	8.53	8.55
Machinery, except electrical	7.32	8.00	8.53	8.56	8.62	8.67	8.75	8.81	8.85	8.86	8.98	9.05	9.10	9.19	9.18
Electric and electronic equipment	6.32	6.95	7.41	7.43	7.47	7.51	7.55	7.60	7.69	7.76	7.79	7.84	7.86	7.92	7.96
Transportation equipment	8.53	9.32	9.96	9.93	10.08	10.14	10.25	10.36	10.35	10.30	10.41	10.65	10.66	10.67	10.58
Instruments and related products	6.17	6.80	7.19	7.20	7.23	7.25	7.31	7.34	7.44	7.56	7.60	7.61	7.70	7.72	7.75
Miscellaneous manufacturing	5.03	5.47	5.82	5.83	5.85	5.91	5.93	5.93	5.98	5.97	6.07	6.06	6.12	6.21	6.34
Nondurable goods	6.01	6.56	6.97	6.98	7.01	7.08	7.11	7.14	7.23	7.24	7.37	7.34	7.39	7.45	7.69
Food and kindred products	6.27	6.86	7.21	7.24	7.29	7.37	7.43	7.43	7.47	7.50	7.58	7.53	7.63	7.71	7.83
Tobacco manufactures	6.67	7.73	8.50	8.56	8.61	8.90	9.03	9.33	9.43	8.61	8.66	8.58	8.96	8.92	9.13
Textile mill products	4.66	5.08	5.35	5.35	5.36	5.36	5.40	5.42	5.51	5.66	5.69	5.72	5.74	5.73	5.76
Apparel and other textile products	4.23	4.57	4.89	4.87	4.94	4.96	4.98	5.00	4.94	4.98	5.06	5.07	5.06	5.04	5.17
Paper and allied products	7.13	7.84	8.27	8.28	8.30	8.37	8.42	8.55	8.73	8.67	8.95	8.82	8.89	8.96	9.06
Printing and publishing	6.94	7.53	7.92	7.96	8.02	8.04	8.10	8.13	8.22	8.27	8.40	8.42	8.44	8.47	8.56
Chemicals and allied products	7.60	8.30	8.74	8.80	8.84	8.94	8.99	9.07	9.16	9.19	9.38	9.37	9.42	9.47	9.67
Petroleum and coal products	9.36	10.09	11.06	11.33	11.23	11.40	11.28	11.29	11.41	11.31	11.53	11.46	11.57	11.52	12.05
Rubber and miscellaneous plastics products	5.97	6.56	7.06	7.04	7.07	7.15	7.22	7.23	7.28	7.32	7.38	7.39	7.41	7.50	7.61
Leather and leather products	4.22	4.58	4.86	4.88	4.90	4.93	4.95	4.98	4.96	4.97	5.08	5.09	5.10	5.14	5.21
TRANSPORTATION AND PUBLIC UTILITIES	8.16	8.87	9.33	9.45	9.42	9.54	9.59	9.63	9.69	9.89	9.97	9.96	10.07	10.07	10.12
WHOLESALE AND RETAIL TRADE	5.06	5.48	5.80	5.84	5.85	5.87	5.89	5.89	5.91	5.94	6.04	6.00	6.03	6.00	6.16
WHOLESALE TRADE	6.39	6.96	7.32	7.38	7.42	7.47	7.51	7.51	7.59	7.67	7.71	7.74	7.81	7.81	7.93
RETAIL TRADE	4.53	4.88	5.18	5.20	5.20	5.22	5.23	5.23	5.24	5.26	5.37	5.29	5.32	5.30	5.44
FINANCE, INSURANCE, AND REAL ESTATE	5.27	5.78	6.10	6.21	6.19	6.20	6.24	6.24	6.27	6.37	6.38	6.42	6.51	6.47	6.57
SERVICES	5.36	5.85	6.21	6.27	6.29	6.30	6.33	6.33	6.34	6.41	6.51	6.57	6.67	6.65	6.77

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

[Seasonally adjusted data: 1977=100]

Industry	1981												1982	Dec. 1981 to Jan. 1982	Jan. 1981 to Jan. 1982
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ^P	Jan. ^P		
TOTAL PRIVATE (in current dollars) ..	133.8	135.0	135.8	136.7	137.7	138.4	139.0	140.7	141.5	141.9	143.2	143.3	144.8	1.0	8.2
Mining ¹	142.1	143.2	144.0	145.7	145.6	147.2	148.9	149.4	151.5	151.3	153.3	152.7	154.5	1.2	8.8
Construction	127.6	128.0	128.6	129.0	129.4	130.4	131.8	132.5	132.9	134.3	135.4	136.1	140.8	3.5	10.4
Manufacturing	136.5	137.5	138.5	139.9	140.7	141.6	142.5	143.6	144.8	145.5	146.4	146.8	148.3	1.0	8.6
Transportation and public utilities ..	133.7	135.4	136.1	137.3	138.9	139.8	139.3	141.8	141.7	142.0	144.0	144.2	145.1	.7	8.5
Wholesale and retail trade	133.7	135.0	135.8	136.4	137.4	137.8	138.4	140.0	141.2	140.5	141.5	141.4	142.0	.5	6.2
Finance, insurance, and real estate ..	133.2	135.0	136.0	135.4	136.8	137.1	137.4	140.4	140.3	140.9	143.2	142.1	143.3	.9	7.6
Services	132.0	133.2	134.0	134.8	136.0	136.6	136.9	139.4	139.8	140.7	142.6	142.4	143.7	.9	8.8
TOTAL PRIVATE (in constant dollars) ..	92.8	92.7	92.8	93.0	93.1	92.9	92.2	92.7	92.1	92.0	92.4	92.1	(²)	(²)	(²)

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

² Not available

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		1981												1982
	1979	1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ^P	Jan. ^P
	TOTAL PRIVATE	\$219.91	\$235.10	\$246.75	\$247.10	\$249.92	\$250.98	\$252.38	\$254.88	\$257.74	\$259.88	\$259.00	\$260.44	\$261.85	\$261.89	$253.76
MINING	365.07	396.14	425.97	422.01	416.66	422.92	423.98	418.47	439.79	447.62	450.70	457.46	461.61	466.37	448.59
CONSTRUCTION	342.99	367.04	379.29	364.35	388.37	384.87	388.56	394.32	404.90	405.45	393.41	416.25	411.44	414.03	386.44
MANUFACTURING	269.34	288.62	308.43	306.13	311.22	312.84	317.59	320.39	317.59	319.20	321.93	323.56	324.72	329.18	308.38
Durable goods	290.90	310.78	332.49	329.57	336.96	338.52	343.07	345.91	341.15	344.51	345.46	349.27	350.00	355.52	331.36
Lumber and wood products	239.16	252.06	263.45	262.19	264.81	267.05	274.03	280.45	277.09	278.07	270.99	270.84	268.84	273.46	249.04
Furniture and fixtures	195.82	209.17	217.55	219.84	223.49	220.80	224.46	229.12	223.40	230.83	226.20	233.53	230.12	236.68	201.83
Stone, clay, and glass products	284.28	306.00	317.16	312.44	322.36	331.70	337.02	342.37	342.31	344.81	346.32	344.25	345.87	343.71	319.43
Primary metal industries	371.77	391.78	425.80	429.79	432.37	443.31	436.81	440.08	434.84	442.90	457.78	434.41	440.67	439.16	423.32
Fabricated metal products	278.80	300.98	318.76	316.40	325.21	323.61	332.52	335.78	327.98	333.28	330.26	336.44	337.20	345.47	323.19
Machinery except electrical	305.98	328.00	351.44	349.25	355.14	353.74	360.50	362.09	357.54	360.60	362.79	367.43	372.19	382.30	358.94
Electric and electronic equipment	254.70	276.61	297.14	294.23	300.29	298.90	302.76	305.52	305.29	310.40	309.26	312.82	312.83	319.97	299.30
Transportation equipment	350.58	378.39	407.36	398.19	414.29	415.74	426.40	427.87	421.25	417.15	415.36	435.59	434.93	441.74	393.58
Instruments and related products	251.74	275.40	291.91	291.60	293.54	289.28	294.59	296.54	296.86	305.42	307.04	307.44	314.16	312.66	294.50
Miscellaneous manufacturing	195.16	211.69	224.85	223.87	227.57	228.13	230.68	231.27	230.23	232.83	234.91	238.16	241.74	242.81	231.41
Nondurable goods	236.19	255.84	273.22	271.52	274.09	275.41	280.13	282.03	282.69	285.26	288.17	286.99	288.95	292.79	275.30
Food and kindred products	250.17	272.34	288.40	284.53	285.77	289.64	295.71	295.71	295.81	300.00	301.68	298.19	304.44	310.71	303.02
Tobacco manufactures	253.46	294.51	328.10	329.56	320.29	331.08	348.56	359.21	364.00	350.43	348.13	338.05	347.65	339.85	325.03
Textile mill products	188.26	203.71	213.47	213.47	214.94	211.18	217.62	218.97	218.75	226.40	221.34	225.37	225.01	223.47	176.26
Apparel and other textile products	149.32	161.78	172.13	171.91	176.85	174.59	179.28	182.00	177.84	180.77	178.11	181.51	181.15	178.92	150.96
Paper and allied products	303.74	331.63	353.13	349.42	351.92	354.05	357.85	365.09	370.15	368.48	366.64	373.97	376.05	382.59	370.55
Printing and publishing	260.25	279.36	293.83	293.72	297.54	297.48	302.13	302.44	305.78	310.13	314.16	313.22	314.81	321.86	309.02
Chemicals and allied products	318.44	344.45	363.58	365.20	367.74	371.90	373.98	377.31	380.14	380.47	395.84	388.86	392.81	397.74	390.67
Petroleum and coal products	409.97	421.76	471.16	481.53	478.40	500.46	491.81	491.12	498.62	486.33	511.93	493.93	497.51	491.90	529.00
Rubber and miscellaneous plastics products	241.79	263.06	289.46	283.01	287.75	288.86	295.30	295.71	291.20	295.73	293.72	297.08	295.66	300.00	283.85
Leather and leather products	154.03	168.09	177.39	179.10	180.32	178.96	185.13	189.74	181.54	183.39	182.88	186.80	186.66	187.10	181.31
TRANSPORTATION AND PUBLIC UTILITIES	325.58	351.25	367.60	373.28	371.15	374.92	376.89	383.27	385.66	390.66	390.82	389.44	395.75	394.74	389.62
WHOLESALE AND RETAIL TRADE	164.96	176.46	183.86	185.13	186.62	188.43	188.48	190.25	193.85	194.83	194.49	191.40	192.36	193.20	190.96
WHOLESALE TRADE	247.93	267.96	281.82	282.65	285.67	287.60	289.14	289.89	294.49	296.83	296.84	299.54	301.47	302.25	298.96
RETAIL TRADE	138.62	147.38	152.81	153.92	154.96	156.60	156.38	158.99	161.92	162.53	162.17	157.64	158.54	160.06	157.22
FINANCE, INSURANCE, AND REAL ESTATE	190.77	209.24	222.04	226.04	225.32	225.06	225.26	225.26	227.60	231.23	229.68	232.40	235.66	233.57	237.18
SERVICES	175.27	190.71	201.83	204.40	205.05	205.38	206.73	206.99	209.22	210.89	210.92	213.53	216.78	216.79	217.32

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	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	235.10	172.74	188.82	138.74	206.06	151.65	288.62	212.06	225.79	165.90	247.01	181.49
1981: January	246.75	171.83	195.68	138.37	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	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	254.88	170.49	201.32	134.66	220.08	147.21	320.39	214.31	245.18	164.00	269.01	179.94
July	257.74	170.35	203.30	134.37	222.24	146.89	317.59	209.91	243.40	160.87	266.99	176.46
August	259.88	170.64	204.79	134.46	223.85	146.98	319.20	209.59	244.42	160.49	268.15	176.07
September	259.00	168.40	204.18	132.76	223.19	145.12	321.93	209.32	246.15	160.05	270.13	175.64
October	260.44	169.01	207.07	134.37	225.23	146.16	323.56	209.97	249.93	162.19	272.84	177.05
November	261.85	169.48	208.07	134.67	226.30	146.47	324.72	210.17	250.68	162.25	273.69	177.15
December ^P	261.89	169.07	208.09	134.34	226.33	146.11	329.18	212.51	253.57	163.70	276.97	178.81
1982: January ^P	253.76	(¹)	(¹)	(¹)	(¹)	(¹)	308.38	(¹)	(¹)	(¹)	(¹)	(¹)

¹ 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 Calculation," *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*, November 1981, pp. 7-8.

Notice: After release of final December 1981 data in the April issue, the Bureau of Labor Statistics will discontinue computation and publication of the spendable earnings data. The real earnings series published here will appear with the data in the preceding table.

UNEMPLOYMENT INSURANCE DATA

NATIONAL UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from monthly records of unemployment insurance activity prepared by State agencies. 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 10 percent 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	1981												
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. P
All programs:													
Insured unemployment	4,085	4,621	4,264	3,948	3,453	3,111	2,949	3,012	2,874	2,680	2,753	3,221	3,935
State unemployment insurance program:¹													
Initial claims ²	2,544	2,653	1,806	1,684	1,647	1,417	1,741	2,114	1,610	1,681	1,996	2,286	3,273
Insured unemployment (average weekly volume)	3,321	3,844	3,669	3,382	2,988	2,691	2,596	2,743	2,656	2,488	2,592	3,054	3,778
Rate of insured unemployment	3.8	4.4	4.2	3.9	3.4	3.1	3.0	3.1	3.0	2.9	3.0	3.6	4.3
Weeks of unemployment compensated	12,603	14,228	12,882	13,504	11,871	9,790	9,928	10,486	9,594	9,565	9,424	10,047	14,584
Average weekly benefit amount for total unemployment	\$101.43	\$102.34	\$101.89	\$105.63	\$105.96	\$105.49	\$99.02	\$103.47	\$105.94	\$107.39	\$108.92	\$110.44	\$112.89
Total benefits paid	\$1,242,957	\$1,416,513	\$1,313,507	\$1,393,612	\$1,226,815	\$1,006,341	\$1,012,764	\$1,061,899	\$1,004,864	\$1,001,020	\$997,757	\$1,079,704	\$1,592,546
Unemployment compensation for ex-servicemen:³													
Initial claims ¹	21	19	17	18	16	15	19	22	19	15	11	9	11
Insured unemployment (average weekly volume)	55	57	54	51	46	43	42	44	44	34	26	22	19
Weeks of unemployment compensated	261	257	221	234	214	183	192	203	190	153	116	91	93
Total benefits paid	\$27,015	\$26,646	\$22,517	\$24,668	\$23,048	\$19,965	\$21,145	\$22,785	\$21,425	\$17,144	\$12,952	\$10,068	\$10,155
Unemployment compensation for Federal civilian employees:⁴													
Initial claims	18	22	13	12	12	11	13	15	17	18	20	16	17
Insured unemployment (average weekly volume)	37	41	40	36	31	27	25	25	25	29	32	36	39
Weeks of unemployment compensated	150	160	148	156	135	107	105	105	102	100	112	127	174
Total benefits paid	\$14,184	\$15,432	\$14,573	\$15,561	\$13,701	\$11,023	\$10,705	\$10,805	\$9,543	\$10,495	\$11,719	\$13,463	\$18,891
Railroad unemployment insurance:													
Applications	11	13	5	5	6	6	26	41	13	15	21	13	....
Insured unemployment (average weekly volume)	39	53	50	44	41	35	30	28	29	34	40	44	....
Number of payments	83	118	104	115	94	79	86	32	63	74	86	83	....
Average amount of benefit payment	\$212.27	\$209.38	\$214.56	\$214.93	\$201.12	\$199.43	\$201.06	\$199.63	\$202.53	\$207.98	\$197.26	\$207.08	....
Total benefits paid	\$18,046	\$20,303	\$22,049	\$23,233	\$19,239	\$15,428	\$16,206	\$11,541	\$7,071	15,046	15,994	\$16,377	....
Employment service:⁵													
New applications and renewals	4,476	....	....	8,778	....	....	12,868	....	....	....	....	....	....
Nonfarm placements	871	....	....	1,595	....	....	2,446	....	....	....	....	....	....

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

² Includes interstate claims for the Virgin Islands. Excludes transition claims under State programs.

³ Excludes data on claims and payments made jointly with other programs.

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

⁵ 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)						
	1980	1981						1980	1981					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
All items	258.4	274.4	276.5	297.3	279.9	280.7	281.5	258.7	274.6	276.5	279.1	279.7	280.4	281.1
Food and beverages	259.3	268.9	270.1	270.7	270.3	269.9	270.5	260.5	269.4	270.6	271.0	270.7	270.3	270.8
Housing	276.9	297.0	299.7	303.7	303.5	304.2	305.2	277.1	297.0	299.6	303.6	303.3	303.8	304.7
Apparel and upkeep	183.9	184.7	187.4	190.7	191.5	191.3	190.5	182.9	185.5	187.9	190.5	190.6	190.5	189.4
Transportation	261.1	282.6	283.7	285.2	287.2	289.1	289.8	261.9	283.9	285.1	286.6	288.9	290.8	291.5
Medical care	275.8	295.6	299.3	301.7	304.8	308.2	310.2	277.6	295.4	298.6	300.9	304.0	307.1	309.1
Entertainment	212.0	221.1	222.3	224.0	225.5	226.8	227.3	210.1	218.7	219.9	221.5	223.4	224.3	224.4
Other goods and services	224.6	234.4	235.6	243.0	245.2	245.9	246.7	223.0	232.4	233.5	239.3	241.4	242.5	243.5
Commodities	243.8	255.0	256.2	257.7	257.9	258.0	258.4	244.3	255.7	256.9	258.2	258.4	258.5	258.8
Commodities less food and beverages	232.9	244.7	245.8	247.6	248.0	248.3	248.7	233.1	245.5	246.7	248.4	248.7	249.1	249.3
Nondurables less food and beverages	246.8	262.9	263.9	265.8	266.4	266.7	266.7	248.8	266.0	266.8	268.5	268.6	269.0	268.9
Durables	221.1	229.6	230.9	232.6	232.9	233.2	233.7	219.7	228.4	229.9	231.5	232.0	232.3	232.7
Services	284.7	308.8	312.2	317.3	318.6	320.6	321.8	285.5	309.6	312.7	317.7	319.2	321.1	322.4
Rent, residential	199.6	207.8	210.3	211.9	213.6	215.0	216.5	199.4	207.4	209.9	211.5	213.2	214.5	216.0
Household services less rent	338.4	374.8	379.9	387.4	387.2	389.2	390.4	341.9	379.4	384.2	392.2	391.8	393.6	394.8
Transportation services	255.8	275.0	275.7	277.7	281.0	283.2	284.2	254.7	273.8	274.3	276.3	279.9	282.3	283.6
Medical care services	297.9	319.2	323.4	326.1	329.7	333.7	335.7	300.0	318.5	322.1	324.7	328.3	332.0	334.0
Other services	228.1	237.6	239.1	245.8	247.8	248.7	249.5	228.4	236.8	238.3	243.6	246.6	247.2	248.0
Special indexes:														
All items less food	255.5	272.7	274.9	278.2	279.0	280.1	280.8	255.7	273.1	275.2	278.2	279.1	280.1	280.7
All items less mortgage interest costs	245.9	259.3	260.9	262.9	263.6	264.2	264.9	246.7	260.0	261.5	263.3	264.0	264.6	265.2
Commodities less food	231.0	242.6	243.8	245.5	245.9	246.2	246.5	231.2	243.5	244.7	246.3	246.6	247.0	247.2
Nondurables less food	242.0	257.5	258.4	260.3	260.7	261.1	261.1	243.9	260.4	261.2	262.9	263.0	263.4	263.3
Nondurables less food and apparel	274.7	297.8	298.0	299.1	299.5	300.1	300.7	276.6	299.8	300.0	301.3	301.5	302.0	302.5
Nondurables	254.1	267.1	268.1	269.5	269.5	269.5	269.8	255.6	268.7	269.7	270.7	270.7	270.7	270.9
Services less rent	300.7	328.1	331.7	337.5	338.7	340.8	342.0	302.0	329.3	332.6	338.3	339.7	341.6	342.9
Services less medical care	281.2	305.4	308.8	314.1	315.1	316.9	318.1	281.9	306.3	309.4	314.6	315.8	317.5	318.7
Domestically produced farm foods	251.1	259.5	260.6	260.8	259.5	258.3	259.1	251.1	259.0	259.9	259.9	258.6	257.8	258.2
Selected beef cuts	276.2	275.3	276.7	277.9	275.5	271.9	270.7	278.4	277.9	277.2	279.7	276.5	273.2	271.9
Energy	370.4	415.7	416.1	417.1	414.9	414.1	414.6	373.7	418.9	418.9	420.1	417.9	417.3	417.6
All items less energy	249.7	263.5	265.6	268.6	269.4	270.4	271.1	249.3	262.7	264.7	267.5	268.3	269.2	269.9
All items less food and energy	244.5	259.0	261.3	264.8	265.9	267.2	267.9	243.6	258.1	260.3	263.6	264.8	265.9	266.6
Commodities less food and energy	211.7	219.4	220.9	222.9	223.4	223.8	224.2	210.6	218.7	220.2	222.1	222.6	223.0	223.3
Energy commodities	404.9	451.3	449.9	449.3	448.2	448.2	448.0	405.9	451.9	450.6	450.0	448.9	449.0	448.7
Services less energy	282.4	304.9	308.3	313.6	315.3	317.7	318.9	283.4	305.7	308.9	314.0	316.0	318.2	319.5
Purchasing power of the consumer dollar, 1967 = \$1	\$0.387	\$0.364	\$0.362	\$0.358	\$0.357	\$0.356	\$0.355	\$0.387	\$0.364	\$0.362	\$0.358	\$0.358	\$0.357	\$0.356

MONTHLY LABOR REVIEW March 1982 • Current Labor Statistics: Consumer Prices

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				
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
FOOD AND BEVERAGES	259.3	268.9	270.1	270.7	270.3	269.9	270.5	260.5	269.4	270.6	271.0	270.7	270.3	270.8
Food	266.4	276.2	277.4	278.0	277.6	277.1	277.8	267.6	276.6	277.7	278.1	277.8	277.4	277.9
Food at home	263.9	271.6	272.8	273.2	272.1	271.0	271.7	263.9	271.1	272.2	272.3	271.3	270.4	270.8
Cereals and bakery products	258.5	272.4	272.6	274.3	275.0	276.3	277.7	259.5	271.5	272.0	273.2	274.0	275.5	276.6
Cereals and cereal products (12/77 = 100)	140.8	149.0	149.5	150.1	150.0	149.9	151.5	142.3	150.6	151.3	151.2	151.5	152.1	152.5
Flour and prepared flour mixes (12/77 = 100)	133.5	139.5	139.6	139.5	139.3	138.4	137.8	134.4	141.9	142.0	141.1	140.9	140.2	138.4
Cereal (12/77 = 100)	143.8	153.4	154.6	155.7	156.1	157.4	160.2	145.0	154.8	156.4	157.2	157.9	158.9	162.1
Rice, pasta, and cornmeal (12/77 = 100)	143.1	151.2	151.4	151.6	151.1	149.6	151.7	145.8	153.2	153.1	152.6	152.7	153.9	152.9
Bakery products (12/77 = 100)	135.4	142.5	142.4	143.5	144.0	144.9	145.4	135.7	141.4	141.5	142.4	142.8	143.7	144.3
White bread	226.3	236.4	235.6	238.2	238.4	241.3	241.5	226.6	233.9	233.0	235.9	235.5	237.6	237.4
Other breads (12/77 = 100)	134.1	140.6	140.8	141.5	141.6	142.8	143.4	137.9	142.9	143.4	143.4	143.6	144.9	145.3
Fresh biscuits, rolls, and muffins (12/77 = 100)	135.4	142.4	143.4	143.3	144.8	145.2	145.9	135.1	141.7	141.0	140.1	141.7	141.9	141.9
Fresh cakes and cupcakes (12/77 = 100)	135.3	142.7	142.7	144.4	143.9	145.0	144.9	134.2	141.4	141.2	142.3	141.7	143.2	143.7
Cookies (12/77 = 100)	134.9	143.0	143.1	143.9	145.7	146.3	147.6	136.1	142.6	144.1	144.6	146.4	146.8	148.4
Crackers, bread, and cracker products (12/77 = 100)	126.9	131.6	130.6	132.0	133.2	133.1	134.2	126.5	131.2	130.9	132.2	134.0	133.4	135.6
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	135.9	143.9	143.9	144.3	144.4	144.8	145.4	136.4	142.8	143.4	144.8	144.9	145.8	147.8
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	137.5	147.2	147.1	148.0	148.9	149.2	149.3	134.0	140.9	141.5	142.1	142.8	143.1	143.0
Meats, poultry, fish, and eggs	255.7	254.1	255.8	257.7	256.4	254.2	253.7	255.0	254.1	255.5	257.5	256.0	254.0	253.1
Meats, poultry, and fish	259.9	260.7	262.2	263.4	262.2	259.2	258.4	259.2	260.5	261.8	263.2	261.7	258.8	257.7
Meats	260.0	259.6	262.0	263.4	262.5	259.6	258.7	259.3	259.7	261.3	263.3	262.1	259.3	257.9
Beef and veal	275.3	274.5	275.9	277.1	274.9	271.5	270.5	276.8	276.5	275.9	278.3	275.3	272.2	270.9
Ground beef other than canned	276.1	264.5	267.4	270.3	267.4	266.1	264.5	281.0	267.9	269.4	273.8	268.6	268.0	265.8
Chuck roast	288.5	283.5	285.3	289.4	287.8	282.6	282.2	296.0	295.5	295.5	299.9	297.2	292.6	291.5
Round roast	245.7	245.6	247.2	244.1	245.1	245.0	242.6	246.6	249.8	247.3	249.1	250.1	248.2	245.9
Round steak	260.2	258.9	256.0	255.9	259.0	256.7	254.6	257.6	257.0	251.5	252.5	254.9	254.8	252.2
Sirloin steak	267.6	284.3	282.2	281.9	273.3	262.0	260.1	269.7	285.6	279.2	281.9	275.1	260.7	260.7
Other beef and veal (12/77 = 100)	160.4	163.5	164.3	164.9	163.4	161.1	161.0	159.2	162.4	162.6	162.8	161.3	159.2	159.1
Pork	229.1	231.5	235.3	238.1	238.6	235.6	234.3	228.2	232.6	236.5	239.4	239.3	235.9	233.8
Bacon	231.9	228.1	231.1	237.1	240.1	238.1	237.2	234.1	230.5	234.5	241.1	245.1	242.9	240.5
Chops	208.7	221.8	224.1	225.1	223.1	217.0	212.4	206.8	222.4	224.4	224.7	221.3	216.2	211.0
Ham other than canned (12/77 = 100)	107.8	102.0	105.3	106.8	109.4	108.9	109.1	105.7	100.4	103.7	105.6	107.5	106.6	106.3
Sausage	285.6	289.7	297.2	300.7	298.7	298.1	299.1	287.2	293.4	298.6	302.3	302.1	299.2	300.0
Canned ham	238.4	233.0	234.9	239.5	241.9	243.1	244.3	242.6	234.4	238.0	242.9	244.7	247.0	247.7
Other pork (12/77 = 100)	127.6	133.6	135.0	135.4	134.1	131.1	130.0	127.4	134.5	136.3	136.7	134.5	130.9	129.2
Other meats	262.8	258.4	261.4	260.7	261.6	260.5	260.6	259.4	255.6	259.6	258.7	256.5	259.9	259.7
Frankfurters	264.0	251.8	259.8	256.4	261.2	259.9	261.0	263.4	251.9	260.4	259.1	262.4	260.9	260.0
Bologna, liverwurst, and salami (12/77 = 100)	149.1	145.9	147.0	147.5	147.6	146.7	146.4	145.2	144.6	145.7	144.8	146.9	145.9	146.3
Other luncheon meats (12/77 = 100)	129.9	129.1	130.6	131.8	131.8	132.1	132.6	127.7	126.5	128.8	129.5	130.2	130.6	130.6
Lamb and organ meats (12/77 = 100)	146.6	147.6	146.8	144.4	143.4	141.7	140.7	148.5	148.9	148.3	146.0	145.0	144.6	143.9
Poultry	202.7	204.8	202.0	199.7	196.6	192.3	191.7	201.1	203.1	201.2	198.1	194.7	190.6	189.5
Fresh whole chicken	206.9	206.9	201.4	197.3	194.0	190.9	190.1	202.2	202.9	199.6	194.0	189.9	188.5	187.8
Fresh and frozen chicken parts (12/77 = 100)	131.6	133.0	131.8	130.5	129.2	127.3	128.1	132.3	133.3	131.6	130.1	129.7	126.5	126.3
Other poultry (12/77 = 100)	126.6	130.0	129.7	129.9	127.2	122.2	120.7	126.2	129.3	129.9	129.6	126.1	121.5	119.8
Fish and seafood	346.9	356.9	356.8	362.6	360.8	358.9	359.6	343.1	353.5	356.4	358.6	358.2	356.6	358.6
Canned fish and seafood (12/77 = 100)	136.4	140.6	139.8	140.9	140.5	141.5	140.7	133.7	139.0	138.5	139.4	140.3	141.0	140.2
Fresh and frozen fish and seafood (12/77 = 100)	129.6	133.1	133.6	136.5	135.6	133.9	134.7	128.8	131.9	134.1	134.9	134.0	132.7	134.4
Eggs	206.6	174.2	177.6	188.8	185.9	194.7	198.0	206.6	175.0	177.7	189.5	187.2	196.7	198.8
Dairy products	238.0	244.2	243.8	244.3	244.6	245.0	245.5	238.8	243.9	243.9	244.1	244.2	244.7	244.9
Fresh milk and cream (12/77 = 100)	131.9	134.9	134.5	134.7	134.7	134.9	135.2	132.2	134.4	134.3	134.3	134.4	134.6	134.6
Fresh whole milk	216.2	220.7	220.2	220.0	220.2	220.8	221.2	216.5	219.9	219.8	219.4	219.5	220.1	220.2
Other fresh milk and cream (12/77 = 100)	131.4	134.9	134.2	135.4	135.2	134.9	135.3	131.9	134.5	134.4	135.3	135.2	134.9	134.9
Processed dairy products (12/77 = 100)	138.2	142.5	142.5	143.0	143.3	143.5	143.9	139.2	143.1	143.3	143.4	143.6	144.0	144.2
Butter	241.0	245.8	246.2	247.1	247.2	248.0	248.7	244.1	247.7	248.5	249.9	249.7	250.2	251.3
Cheese (12/77 = 100)	137.0	140.7	140.8	140.8	140.9	141.1	141.0	137.4	141.3	141.5	140.9	140.7	141.1	141.3
Ice cream and related products (12/77 = 100)	141.4	147.6	147.9	148.7	149.9	149.3	150.3	143.2	148.0	147.9	149.1	149.9	149.4	149.4
Other dairy products (12/77 = 100)	132.4	136.6	135.6	137.3	137.0	138.7	139.7	133.1	137.2	137.2	137.6	138.1	140.2	140.5
Fruits and vegetables	255.6	284.4	286.1	281.6	275.2	272.0	276.4	253.9	281.7	282.5	276.3	270.8	268.1	272.6
Fresh fruits and vegetables	262.0	294.0	295.8	286.9	273.5	267.8	274.9	260.2	290.2	290.4	278.2	267.2	261.9	269.4
Fresh fruits	251.8	292.1	306.9	306.4	291.4	276.1	269.6	248.6	285.5	298.4	293.7	278.5	266.0	260.5
Apples	218.8	251.9	282.1	262.9	237.0	248.7	261.2	216.9	253.1	284.6	261.8	236.5	249.1	261.2
Bananas	244.1	240.6	245.2	250.7	254.9	249.4	254.9	239.2	233.8	239.9	251.3	233.3	248.3	252.8
Oranges	299.3	327.8	353.7	346.2	328.5	314.0	280.6	287.0	307.0	325.1	314.6	299.9	286.0	252.8
Other fresh fruits (12/77 = 100)	128.6	160.4	163.5	168.4	160.9	144.7	141.0	129.2	158.9	160.5	161.5	154.7	139.7	136.7
Fresh vegetables	271.5	295.9	285.5	268.6	256.8	260.1	279.8	270.9	294.4	283.2	264.4	256.1	258.2	277.6
Potatoes	297.7	414.9	375.1	329.1	290.4	286.3	286.8	298.0	404.2	362.8	316.8	287.7	281.5	280.0
Lettuce	255.3	261.3	290.6	293.5	258.3	257.1	343.1	253.8	259.2	290.0	292.9	257.2	247.4	342.7
Tomatoes	206.1	194.0	209.9	193.9	207.3	206.9	204.6							

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						
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
FOOD AND BEVERAGES—Continued														
Food—Continued														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	124.5	136.0	137.4	136.8	137.7	138.3	138.9	122.8	134.8	135.4	135.1	135.5	136.0	136.5
Other canned and dried vegetables (12/77=100)	122.9	134.6	135.4	135.6	134.6	133.1	134.8	121.0	132.8	133.7	133.8	133.3	131.8	133.2
Other foods at home	317.1	323.3	325.1	325.7	326.4	326.0	325.6	317.8	324.2	326.1	326.2	327.1	327.0	326.4
Sugar and sweets	386.3	360.0	361.3	361.4	359.9	359.1	359.3	388.9	362.8	362.7	363.1	362.2	359.0	359.3
Candy and chewing gum (12/77=100)	136.9	145.9	146.1	146.8	148.8	149.3	149.9	137.4	147.3	147.4	147.6	148.7	148.9	149.9
Sugar and artificial sweeteners (12/77=100)	230.3	164.6	164.3	163.0	157.1	155.2	153.4	231.4	166.6	165.3	164.9	158.4	157.0	155.2
Other sweets (12/77=100)	133.7	142.9	145.0	145.3	145.2	144.9	146.1	133.1	141.8	142.9	143.8	144.0	143.1	144.2
Fats and oils (12/77=100)	251.9	269.0	269.2	268.5	268.5	262.2	261.1	252.6	269.0	268.7	267.4	268.1	263.1	261.0
Margarine	253.6	255.9	258.2	256.7	256.6	255.2	255.7	254.6	256.6	255.7	254.5	255.9	254.9	254.9
Nondairy substitutes and peanut butter (12/77=100)	139.6	181.0	179.8	178.5	176.5	163.0	160.1	139.9	179.4	178.8	177.2	175.2	163.0	158.5
Other fats, oils, and salad dressings (12/77=100)	129.1	129.4	129.4	129.6	130.5	129.8	129.7	129.1	129.4	129.6	129.2	130.3	130.4	130.1
Nonalcoholic beverages	405.2	410.3	413.1	413.7	414.8	413.4	412.5	407.4	411.3	415.2	414.7	416.0	415.2	414.2
Cola drinks, excluding diet cola	285.2	294.7	298.2	298.9	301.1	298.8	298.1	284.0	290.8	296.6	295.6	297.7	296.1	295.7
Carbonated drinks, including diet cola (12/77=100)	134.8	139.6	141.5	142.4	142.3	141.4	139.3	133.5	138.3	138.9	140.3	139.6	139.3	137.2
Roasted coffee	389.7	351.4	346.0	345.1	343.1	341.0	344.4	386.2	346.6	342.8	340.5	338.9	337.3	340.1
Freeze dried and instant coffee	356.5	334.3	333.3	330.8	329.9	330.8	332.0	358.1	334.9	333.8	331.4	332.7	333.2	331.6
Other noncarbonated drinks (12/77=100)	127.5	134.2	134.9	134.9	135.6	136.4	137.0	127.7	134.0	135.0	134.6	135.5	136.4	137.1
Other prepared foods	242.4	256.3	257.9	259.0	260.5	262.7	262.8	242.8	257.9	259.7	260.5	262.3	264.5	264.4
Canned and packaged soup (12/77=100)	127.2	133.2	133.6	134.9	133.1	133.4	133.7	128.0	134.5	134.8	136.4	135.6	136.1	135.7
Frozen prepared foods (12/77=100)	137.6	143.7	143.5	144.8	144.1	146.5	145.9	134.8	142.3	142.5	142.7	142.8	145.1	145.3
Snacks (12/77=100)	138.6	147.5	148.8	149.6	152.0	152.5	152.2	140.1	150.0	151.5	152.6	155.3	155.6	154.2
Seasonings, olives, pickles, and relish (12/77=100)	134.2	142.0	144.4	144.4	146.2	148.9	148.8	133.4	141.4	142.8	142.7	144.8	147.4	147.7
Other condiments (12/77=100)	133.5	142.3	142.9	143.3	143.5	145.0	144.6	136.3	144.4	145.6	145.3	145.5	146.5	146.2
Miscellaneous prepared foods (12/77=100)	133.8	140.7	142.0	142.3	144.5	144.8	145.8	133.5	141.0	142.1	142.8	143.9	145.2	145.8
Other canned and packaged prepared foods (12/77=100)	130.3	139.0	139.5	139.9	140.5	141.8	142.5	130.2	139.8	140.8	141.1	141.9	143.0	143.9
Food away from home	277.7	292.4	293.7	294.8	296.2	297.2	297.7	281.8	295.2	296.4	297.6	299.0	299.6	300.7
Lunch (12/77=100)	135.7	142.6	143.2	143.6	143.9	144.4	144.6	137.3	143.6	144.2	144.6	145.3	145.6	146.3
Dinner (12/77=100)	134.4	141.3	141.9	142.4	143.2	143.6	144.0	136.7	143.0	143.7	144.3	144.8	145.1	145.6
Other meals and snacks (12/77=100)	133.7	141.6	142.1	143.1	143.9	144.6	144.7	135.6	142.7	143.1	143.9	144.8	145.1	145.4
Alcoholic beverages	191.6	200.5	201.4	202.5	201.4	202.3	202.7	193.7	202.8	203.8	204.6	204.3	204.6	204.9
Alcoholic beverages at home (12/77=100)	124.9	130.1	130.6	131.4	130.5	131.2	131.4	126.5	131.9	132.4	132.8	132.5	132.8	132.8
Beer and ale	192.9	201.8	202.6	203.6	202.5	204.0	204.1	192.9	204.2	203.2	203.5	203.1	203.6	203.5
Whiskey	138.9	143.7	144.7	145.4	144.0	144.8	145.0	140.2	144.7	145.6	146.2	146.4	146.2	145.9
Wine	217.6	227.5	227.4	229.7	228.2	227.5	230.0	227.2	236.9	235.5	237.6	238.1	237.4	238.0
Other alcoholic beverages (12/77=100)	112.7	116.3	117.0	117.5	116.3	117.3	117.3	112.1	155.9	117.0	117.1	115.7	116.8	117.4
Alcoholic beverages away from home (12/77=100)	125.8	134.1	134.7	135.4	135.5	135.7	135.8	126.2	134.0	135.4	136.2	136.4	136.6	137.3
HOUSING	276.9	297.0	299.7	303.7	303.5	304.2	305.2	277.1	297.0	299.6	303.6	303.3	303.8	304.7
Shelter	298.5	318.5	322.0	326.9	326.6	327.2	328.0	300.4	320.2	323.6	328.6	328.1	328.5	329.3
Rent, residential	199.6	207.8	210.3	211.9	213.6	215.0	216.5	199.4	207.4	209.9	211.5	213.2	214.5	216.0
Other rental costs	267.7	293.6	298.5	308.1	308.7	305.3	306.3	267.3	293.3	299.0	308.0	308.4	305.0	305.3
Lodging while out of town	282.6	318.3	325.7	326.3	324.2	318.6	319.9	281.0	316.3	324.4	325.3	323.3	317.9	318.0
Tenants' insurance (12/77=100)	126.9	133.3	133.9	135.9	140.0	140.4	140.7	127.2	133.7	134.5	136.4	140.1	140.3	140.6
Homeownership	334.2	358.0	361.8	367.8	366.7	367.2	367.8	337.5	361.2	364.8	371.0	369.7	369.8	370.4
Home purchase	267.2	271.4	272.6	274.5	272.5	270.2	270.5	268.0	271.2	272.3	273.8	271.4	268.6	268.7
Financing, taxes, and insurance	429.4	480.0	488.3	501.8	501.8	505.6	506.3	436.0	486.9	495.3	509.0	508.3	511.9	512.9
Property insurance	365.8	387.1	389.0	389.7	392.5	393.3	394.1	369.0	388.3	390.5	391.9	394.7	395.5	396.5
Property taxes	194.5	201.4	205.2	206.2	207.4	208.0	210.7	196.4	203.2	207.1	208.0	209.2	210.0	212.5
Contracted mortgage interest cost	555.5	630.1	641.3	662.0	661.3	666.8	666.6	558.7	632.6	643.8	664.4	662.5	667.7	668.1
Mortgage interest rates	205.1	299.4	232.4	238.2	239.5	244.1	243.9	205.5	230.3	233.3	239.2	240.5	245.3	245.3
Maintenance and repairs	296.8	319.3	320.5	321.6	320.8	322.8	324.1	294.2	316.2	315.8	318.1	319.2	319.8	321.0
Maintenance and repair services	321.5	349.0	350.6	352.5	351.1	353.8	355.4	320.3	350.5	349.5	352.5	354.2	354.9	356.5
Maintenance and repair commodities	239.1	249.3	249.5	248.7	249.3	249.7	250.3	236.2	242.4	243.1	244.1	244.0	244.5	244.9
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	139.2	146.7	146.9	146.2	146.7	146.5	147.3	134.9	138.2	139.2	139.1	139.9	140.0	140.5
Lumber, awnings, glass, and masonry (12/77=100)	123.2	125.0	124.2	125.0	124.4	124.1	124.3	122.9	123.0	122.0	123.2	122.3	121.8	121.6
Plumbing, electrical, heating, and cooling supplies (12/77=100)	124.8	132.7	132.0	131.2	132.4	133.1	131.5	124.9	130.1	130.6	131.7	132.1	132.4	131.6
Miscellaneous supplies and equipment (12/77=100)	124.2	129.2	130.5	131.2	131.7	131.6	132.5	126.3	132.5	133.3	134.3	133.7	134.2	134.7
Fuel and other utilities	289.9	325.1	327.8	331.1	330.1	329.8	331.8	290.7	326.4	328.7	332.3	330.9	330.9	332.7
Fuels	364.7	417.2	419.5	422.4	419.0	417.6	420.0	364.5	417.0	418.7	422.2	418.4	417.4	419.6
Fuel oil, coal, and bottled gas	585.3	677.9	674.6	673.4	672.7	671.6	682.5	587.0	681.1	677.9	677.0	675.9	679.3	685.5
Fuel oil	610.0	711.0	707.3	705.7	704.3	706.8	713.5	610.9	713.8	710.2	709.0	707.1	709.6	716.0
Other fuels (6/78=100)	148.4	164.0	163.6	163.8	165.0	167.7	169.4	150.1	165.4	165.1	165.3	166.4	169.1	170.8
Gas (piped) and electricity	313.9	357.6	360.8	364.5	360.6	358.3	359.9	313.4	356.7	359.4	363.6	359.3	357.5	358.8
Electricity	262.3	306.2	311.9	309.8	303.0	298.6	300.3	262.1	306.2	312.1	309.9	302.7	297.7	299.3
Utility (piped) gas	381.5	418.6	416.2	431.7	434.5	437.0	438.2	379.7	415.8	411.2	428.5	430.8	436.0	436.4

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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				
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
HOUSING — Continued														
Fuel and other utilities — Continued														
Other utilities and public services	170.6	180.8	183.7	187.4	189.4	190.7	191.9	170.7	181.3	184.3	187.8	189.8	191.0	192.2
Telephone services	140.3	147.2	149.2	152.5	154.3	155.6	156.8	140.3	147.5	149.5	152.7	154.5	155.8	156.9
Local charges (12/77 = 100)	110.5	116.7	117.3	120.5	121.5	123.5	124.4	110.6	116.9	117.6	120.7	121.8	123.8	124.6
Interstate toll calls (12/77 = 100)	101.8	109.1	113.4	114.9	116.6	116.7	116.7	101.8	109.6	113.8	115.1	116.6	116.8	116.8
Intrastate toll calls (12/77 = 100)	100.9	101.5	101.8	103.9	105.5	105.3	107.1	100.7	101.3	101.6	103.7	105.3	105.0	106.9
Water and sewerage maintenance	267.8	294.0	299.2	304.1	305.2	306.1	307.4	268.7	295.8	301.4	306.0	307.3	307.9	309.4
Household furnishings and operations	211.6	222.4	222.9	224.5	225.6	227.2	227.7	209.0	219.1	219.8	221.2	222.2	223.6	224.2
Housefurnishings	178.3	186.0	186.2	187.9	188.7	189.4	189.2	176.9	184.1	184.5	185.7	186.6	187.3	187.1
Textile housefurnishings	193.2	202.9	203.4	207.7	210.4	211.7	211.2	196.6	206.2	207.3	213.0	214.1	214.7	213.9
Household linens (12/77 = 100)	117.2	123.3	124.6	127.7	130.1	130.8	128.8	122.7	126.0	126.8	129.7	132.0	131.9	129.9
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	123.8	129.8	129.1	131.4	132.2	133.1	134.7	122.4	131.5	132.1	136.3	135.2	136.1	137.4
Furniture and bedding	197.0	206.0	205.4	207.7	207.9	209.2	209.7	194.4	202.3	201.4	203.7	203.8	205.3	206.0
Bedroom furniture (12/77 = 100)	129.2	135.0	135.9	137.6	137.4	139.6	138.6	125.7	130.7	132.2	132.9	132.3	135.2	135.2
Sofas (12/77 = 100)	115.3	117.6	116.0	118.6	119.3	118.7	119.4	114.7	116.2	115.0	117.4	119.0	118.8	119.5
Living room chairs and tables (12/77 = 100)	113.1	117.9	116.7	116.8	117.0	118.8	119.0	115.2	119.5	116.9	117.2	118.5	118.9	119.1
Other furniture (12/77 = 100)	127.8	136.2	135.9	137.3	137.3	137.1	138.4	124.7	132.9	132.2	132.3	133.0	133.1	134.0
Appliances including TV and sound equipment	142.4	147.1	147.3	147.7	147.8	148.2	147.9	142.0	146.3	146.6	146.7	147.2	147.7	147.5
Television and sound equipment (12/77 = 100)	107.2	108.8	108.6	108.7	109.1	109.0	108.9	106.1	107.7	107.8	107.8	108.1	108.3	108.0
Television	105.2	105.6	105.0	104.6	105.0	104.8	104.7	103.7	104.5	104.2	103.6	103.8	103.6	103.3
Sound equipment (12/77 = 100)	110.1	112.7	112.8	113.4	113.8	113.9	113.7	109.2	111.4	111.9	112.8	113.4	112.9	112.9
Household appliances	165.9	174.2	174.9	175.7	175.3	176.1	175.9	166.3	173.6	174.1	174.4	175.1	175.9	176.0
Refrigerators and home freezers	166.5	174.2	175.8	177.5	177.0	178.7	179.9	170.9	178.1	178.9	180.6	181.6	182.7	185.3
Laundry equipment (12/77 = 100)	123.4	128.1	129.2	129.7	130.5	130.7	130.5	121.4	128.3	129.1	128.8	129.8	130.8	130.3
Other household appliances (12/77 = 100)	113.1	119.6	119.5	119.7	118.9	119.4	118.7	112.8	117.1	117.0	117.1	117.1	117.4	116.8
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	112.0	119.2	118.5	118.8	118.2	118.7	117.9	113.9	117.1	116.4	116.0	115.9	116.8	116.2
Office machines, small electric appliances, and air conditioners (12/77 = 100)	114.3	120.1	120.6	120.8	119.8	120.1	119.6	111.5	117.1	117.7	118.3	118.4	118.1	117.3
Other household equipment (12/77 = 100)	124.8	131.2	131.7	133.1	134.2	134.4	134.0	123.1	129.8	131.0	131.6	132.4	132.4	131.9
Floor and window coverings, infants', laundry, cleaning, and outdoor equipment (12/77 = 100)	124.6	132.4	133.4	134.8	135.4	136.1	135.9	118.4	127.1	129.3	129.6	129.6	129.7	128.3
Clocks, lamps, and decor items (12/77 = 100)	121.7	125.0	125.8	128.2	128.7	129.5	128.4	118.8	122.9	122.5	123.8	124.5	125.2	124.7
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	130.8	139.5	138.9	140.4	141.1	141.2	141.0	127.6	136.4	137.0	137.8	137.9	137.5	137.1
Lawn equipment, power tools, and other hardware (12/77 = 100)	118.7	122.7	124.0	124.5	127.2	126.9	126.3	122.3	126.7	128.8	129.2	131.2	131.6	131.5
Housekeeping supplies	257.7	271.5	272.0	273.3	274.3	275.4	277.4	256.0	267.9	268.6	270.4	271.2	271.9	274.1
Soaps and detergents	254.0	266.5	267.0	268.9	269.3	269.7	271.6	252.3	263.1	263.6	265.6	265.3	265.2	268.0
Other laundry and cleaning products (12/77 = 100)	127.6	134.8	134.8	135.7	136.7	137.3	138.8	127.6	133.6	134.7	135.8	136.6	137.0	137.5
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	136.1	138.8	138.4	139.9	141.8	143.6	144.5	137.6	139.0	138.7	140.4	142.4	143.9	144.4
Stationery, stationery supplies, and gift wrap (12/77 = 100)	119.5	126.6	126.6	127.2	128.1	128.5	128.8	120.0	127.9	128.2	128.7	130.8	131.3	131.6
Miscellaneous household products (12/77 = 100)	132.5	140.5	141.7	142.8	142.8	143.0	145.4	129.5	136.6	136.9	138.1	137.8	137.4	140.4
Lawn and garden supplies (12/77 = 100)	128.4	138.8	139.2	137.8	136.6	136.8	136.7	122.5	131.7	131.8	131.1	129.0	129.6	129.4
Housekeeping services	277.1	295.3	296.9	298.3	300.5	305.2	306.9	273.8	293.4	295.1	296.9	298.9	303.9	305.4
Postage	257.3	308.0	308.0	308.0	308.0	337.5	337.5	257.3	308.1	308.1	308.1	308.1	337.5	337.5
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	134.4	143.1	143.9	144.7	145.5	147.0	147.8	131.8	142.8	143.8	144.9	145.2	146.7	147.6
Appliance and furniture repair (12/77 = 100)	121.4	127.8	128.5	129.0	131.3	132.2	133.0	120.6	126.4	127.2	128.3	130.5	131.2	131.6
APPAREL AND UPKEEP	183.9	184.7	187.4	190.7	191.5	191.3	190.5	182.9	185.5	187.9	190.5	190.6	190.5	189.4
Apparel commodities	176.0	175.1	178.0	181.4	182.1	181.8	180.7	175.3	176.6	179.0	181.6	181.5	181.5	180.1
Apparel commodities less footwear	172.5	171.2	174.3	178.0	178.4	177.9	176.6	171.6	172.8	175.2	178.1	177.7	177.3	175.6
Men's and boys'	174.3	175.6	177.6	181.1	183.6	183.6	181.6	174.4	176.9	178.4	181.4	182.9	183.2	181.7
Men's (12/77 = 100)	109.8	110.3	111.7	114.3	115.9	115.9	114.5	109.9	111.6	112.8	115.0	115.8	115.9	115.0
Suits, sport coats, and jackets (12/77 = 100)	103.5	102.5	105.6	108.8	109.8	109.9	106.4	98.2	97.4	99.7	102.1	102.0	102.0	99.5
Coats and jackets (12/77 = 100)	99.7	96.7	97.7	101.0	102.4	102.8	101.4	101.9	100.8	102.4	106.1	104.9	105.1	104.1
Furnishings and special clothing (12/77 = 100)	123.9	129.6	129.5	132.7	134.3	133.6	134.2	120.0	124.8	125.3	128.5	130.0	129.8	130.6
Shirts (12/77 = 100)	119.7	115.5	117.9	120.6	123.0	123.0	122.7	120.7	118.8	122.1	123.9	125.5	125.4	125.3
Dungarees, jeans, and trousers (12/77 = 100)	103.4	106.5	106.6	107.8	109.2	109.8	108.5	108.1	113.2	112.5	113.5	114.7	115.5	114.1
Boys' (12/77 = 100)	113.1	115.1	115.8	116.4	118.1	118.0	117.2	112.6	113.6	113.8	114.8	116.4	116.5	115.4
Coats, jackets, sweaters, and shirts (12/77 = 100)	108.6	107.0	109.2	111.3	111.9	111.6	109.9	111.8	107.6	109.5	112.3	113.5	112.8	110.9
Furnishings (12/77 = 100)	118.7	124.5	124.3	125.0	125.6	127.0	127.5	116.2	120.6	120.3	120.9	121.8	123.3	123.5
Suits, trousers, sport coats, and jackets (12/77 = 100)	114.3	117.7	117.5	117.0	119.9	119.3	118.8	112.0	115.6	114.7	114.4	116.6	116.9	115.9
Women's and girls'	157.4	153.5	157.8	162.9	161.2	160.6	159.6	158.2	157.9	161.2	164.9	162.7	162.1	160.7
Women's (12/77 = 100)	104.4	101.2	104.4	108.1	106.8	106.3	105.8	105.3	104.5	107.1	109.8	108.1	107.6	107.1
Coats and jackets	161.4	153.9	162.1	170.8	167.3	164.0	161.8	172.2	159.0	168.7	177.8	171.4	166.3	167.3
Dresses	163.8	162.2	166.2	170.8	166.9	165.0	164.0	154.3	154.1	153.4	155.5	151.5	151.9	149.5
Separates and sportswear (12/77 = 100)	101.4	95.1	97.4	101.1	100.4	101.1	100.7	102.4	99.1	101.1	103.3	102.3	101.9	101.3
Underwear, nightwear, and hosiery (12/77 = 100)	116.8	120.0	121.2	122.8	123.0	124.1	124.8	116.6	120.1	121.0	122.7	123.4	124.0	124.5
Suits (12/77 = 100)	91.9	78.6	87.0	95.4	92.4	89.5	87.7	98.2	100.6	109.8	115.0	110.2	108.5	106.0
Girls' (12/77 = 100)	106.1	106.5	107.9	109.7	109.2	109.2	107.7	104.9	106.9	107.6	108.8	108.4	108.4	106.0
Coats, jackets, dresses, and suits (12/77 = 100)	101.3	100.0	101.6	103.3	99.8	100.3	98.4	98.6	98.9	101.5	103.3	99.8	99.9	96.1
Separates and sportswear (12/77 = 100)	106.1	106.1	108.7	111.0	112.0	111.3	108.9	106.6	108.9	108.9	110.0	110.6	110.2	107.5
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	113.8	117.6	117.0	117.9	119.6	120.0	120.7	112.2	116.3	115.1	115.5	118.5	119.0	119.5

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						
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
APPAREL AND UPKEEP—Continued														
Apparel commodities—Continued														
Apparel commodities less footwear—Continued														
Infants' and toddlers'	250.1	259.8	263.6	266.4	268.5	264.9	259.4	255.4	272.9	279.3	279.8	281.6	274.1	270.6
Other apparel commodities	213.3	212.4	214.0	213.3	216.2	214.8	214.5	204.4	204.8	206.1	206.0	206.2	206.1	203.2
Sewing materials and notions (12/77 = 100)	110.6	115.3	117.5	118.3	118.1	118.6	118.3	110.0	113.6	115.3	116.4	116.3	116.4	116.2
Jewelry and luggage (12/77 = 100)	149.5	146.6	147.2	146.2	149.0	147.5	147.4	142.3	141.0	141.4	140.9	141.1	141.0	138.4
Footwear	196.6	199.0	200.0	202.4	204.2	205.4	205.7	196.7	199.2	200.8	202.3	204.1	206.2	205.9
Men's (12/77 = 100)	124.6	128.0	128.3	128.8	129.3	130.3	130.7	126.0	129.5	129.8	129.7	130.3	132.3	132.5
Boys' and girls' (12/77 = 100)	126.6	130.1	129.1	129.7	131.1	132.1	132.1	127.8	128.7	130.4	130.7	132.2	134.0	134.8
Women's (12/77 = 100)	120.0	118.7	120.6	123.5	124.9	125.2	125.4	117.5	117.8	118.9	121.2	122.5	122.9	121.6
Apparel services	243.4	258.9	260.2	262.0	263.2	264.6	266.4	242.2	256.3	258.2	260.0	262.1	262.3	264.4
Laundry and drycleaning other than coin operated (12/77 = 100)	143.5	153.8	154.7	155.7	157.1	158.2	159.2	143.2	153.1	153.9	155.0	156.4	156.3	157.8
Other apparel services (12/77 = 100)	130.5	136.7	137.2	138.2	137.5	137.9	139.1	129.9	135.1	136.5	137.4	138.3	138.6	139.6
TRANSPORTATION	261.1	282.6	283.7	285.2	287.2	289.1	289.8	261.9	283.9	285.1	286.6	288.9	290.8	291.5
Private	259.4	279.6	280.5	281.9	283.9	285.8	286.5	260.8	281.6	282.6	284.1	286.4	288.3	289.0
New cars	184.5	192.5	191.9	191.3	192.5	195.3	197.0	184.6	192.9	192.1	191.4	192.7	195.2	196.9
Used cars	234.4	260.3	266.9	272.8	278.2	281.4	281.9	234.4	260.3	266.9	272.8	278.2	281.4	281.9
Gasoline	373.3	412.9	411.7	411.2	409.9	409.5	408.4	374.4	414.0	412.9	412.4	411.3	410.9	409.8
Automobile maintenance and repair	280.1	293.5	295.5	298.7	301.3	302.8	304.1	280.6	293.4	296.1	299.3	301.8	303.4	304.8
Body work (12/77 = 100)	136.8	144.1	145.8	147.4	148.7	149.9	150.6	136.7	143.3	145.4	146.1	147.2	148.3	148.9
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	134.0	139.9	140.9	143.1	144.0	144.2	144.7	135.6	141.4	142.6	145.5	146.5	147.3	148.5
Maintenance and servicing (12/77 = 100)	131.6	137.4	137.8	138.9	140.3	140.9	141.5	131.7	137.3	138.2	139.2	140.3	140.5	141.0
Power plant repair (12/77 = 100)	132.7	139.9	141.2	142.6	144.0	144.9	145.6	132.2	139.1	140.5	141.9	143.5	144.7	145.1
Other private transportation	231.0	242.9	243.0	244.2	247.5	249.5	250.6	233.2	246.0	245.6	246.9	250.6	253.0	254.2
Other private transportation commodities	203.6	208.8	212.1	212.6	212.7	213.4	214.5	205.7	210.8	213.4	215.5	216.1	216.8	216.9
Motor oil, coolant, and other products (12/77 = 100)	138.8	144.8	146.8	147.7	148.0	148.5	148.7	139.0	143.4	144.1	145.3	144.8	146.7	147.2
Automobile parts and equipment (12/77 = 100)	130.6	133.6	135.7	136.0	136.0	136.4	137.2	132.0	135.2	137.0	138.4	138.9	139.2	139.2
Tires	182.1	185.6	189.3	189.7	189.4	189.7	191.5	184.7	188.4	191.5	194.1	194.6	195.1	195.2
Other parts and equipment (12/77 = 100)	127.6	131.7	132.4	132.8	133.4	134.1	133.9	127.8	132.2	132.9	132.3	134.3	134.1	133.9
Other private transportation services	240.6	254.3	253.6	255.0	259.1	261.5	262.6	242.9	257.7	256.6	257.7	262.2	265.1	266.6
Automobile insurance	252.5	259.8	260.3	262.0	264.6	265.4	266.0	252.0	259.6	260.1	261.8	264.3	265.0	265.5
Automobile finance charges (12/77 = 100)	159.4	180.9	177.3	178.0	184.4	188.7	190.5	157.9	179.9	176.3	176.5	183.1	187.6	189.9
Automobile rental, registration, and other fees (12/77 = 100)	115.8	118.0	119.5	120.1	120.2	120.7	120.8	117.5	118.4	119.5	119.8	120.0	121.1	121.4
State registration	146.9	147.9	147.9	147.9	147.9	149.0	149.0	147.0	147.9	148.0	148.0	148.0	149.0	149.0
Drivers' licenses (12/77 = 100)	105.3	105.9	106.2	109.6	109.9	110.4	111.9	105.1	105.6	105.9	109.5	109.8	110.3	111.9
Vehicle inspection (12/77 = 100)	124.3	128.6	(¹)	(¹)	(¹)	(¹)	(¹)	128.3	125.1	129.3	(¹)	(¹)	(¹)	129.0
Other vehicle-related fees (12/77 = 100)	132.7	136.6	140.0	140.9	141.2	141.3	141.6	142.0	143.1	145.8	145.9	146.5	148.6	149.2
Public	280.1	323.1	326.5	329.1	330.8	333.2	333.8	271.8	317.7	320.9	324.5	326.6	328.2	328.6
Airline fare	327.4	367.3	371.4	372.5	372.0	374.5	374.7	325.7	365.6	370.0	371.8	372.9	373.1	372.8
Inter-city bus fare	310.1	343.5	347.5	351.4	361.3	362.2	365.2	309.8	343.6	347.3	351.7	362.1	362.9	366.1
Intracity mass transit	237.1	290.7	294.0	298.6	301.7	304.4	304.6	236.5	291.0	293.9	299.2	301.3	303.6	303.9
Taxi fare	269.7	287.1	288.1	288.6	289.3	291.3	294.7	275.9	295.7	296.7	297.1	298.1	300.4	304.1
Inter-city train fare	270.1	304.6	304.6	305.0	315.0	319.2	319.2	270.3	304.9	305.0	305.2	314.9	318.9	318.9
MEDICAL CARE	275.8	295.6	299.3	301.7	304.8	308.2	310.2	277.6	295.4	298.6	300.9	304.0	307.1	309.1
Medical care commodities	175.1	187.7	189.4	190.8	192.1	193.1	194.9	175.6	189.2	190.6	191.9	192.9	193.8	195.4
Prescription drugs	160.7	173.7	175.4	176.5	178.6	179.6	181.0	161.5	175.0	176.5	178.0	179.4	180.3	181.9
Anti-infective drugs (12/77 = 100)	124.7	133.9	134.8	136.5	136.8	136.3	137.8	126.4	135.8	137.0	139.2	139.6	138.9	139.7
Tranquilizers and sedatives (12/77 = 100)	130.2	138.4	139.6	140.0	141.9	143.6	144.8	128.6	137.6	138.8	139.7	141.3	143.3	144.4
Circulatores and diuretics (12/77 = 100)	119.1	126.5	127.6	127.8	129.5	130.4	131.9	120.2	127.9	128.6	129.0	130.5	131.0	131.8
Hormones, diabetic drugs, biologicals, and prescription medical supplies (12/77 = 100)	142.3	158.1	160.4	160.6	161.9	163.3	164.6	141.7	158.2	160.3	161.4	162.8	164.1	165.9
Pain and symptom control drugs (12/77 = 100)	126.9	139.1	140.2	141.7	144.1	144.9	145.9	129.6	141.8	142.7	143.8	144.2	145.4	147.3
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	122.4	131.8	133.1	134.1	136.8	137.5	138.1	123.1	132.5	133.9	134.6	136.1	136.8	138.0
Nonprescription drugs and medical supplies (12/77 = 100)	126.2	134.5	135.6	136.7	137.0	137.8	139.2	126.5	135.8	136.7	137.4	137.9	138.5	139.7
Eyeglasses (12/77 = 100)	120.8	125.8	126.3	126.9	127.4	127.8	128.4	120.4	125.0	125.3	126.0	126.0	126.7	127.1
Internal and respiratory over-the-counter drugs	198.1	213.1	215.5	217.8	217.3	218.6	221.6	198.0	215.4	217.5	218.9	219.5	220.2	222.8
Nonprescription medical equipment and supplies (12/77 = 100)	122.5	129.9	130.4	131.4	132.7	133.7	134.6	123.7	132.2	132.3	132.6	133.8	134.7	135.2
Medical care services	297.9	319.2	323.4	326.1	329.7	333.7	335.7	300.0	318.5	322.1	324.7	328.3	332.0	334.0
Professional services	261.7	280.4	282.9	284.3	286.4	288.4	290.0	265.0	280.8	282.7	284.5	286.2	288.2	290.3
Physicians' services	280.3	300.7	302.7	304.9	307.9	311.3	313.0	285.7	304.7	306.7	308.6	310.9	314.1	316.0
Dental services	248.6	266.5	269.9	270.8	271.6	272.3	273.9	251.3	264.6	266.6	268.4	269.5	270.1	272.3
Other professional services (12/77 = 100)	128.5	136.8	137.3	137.7	138.9	139.5	140.3	126.6	132.7	133.6	134.3	134.9	136.2	137.2
Other medical care services	341.6	366.1	372.5	376.5	382.1	388.4	390.9	342.9	364.6	370.6	374.1	380.3	386.2	388.1
Hospital and other medical services (12/77 = 100)	141.7	151.7	154.7	156.6	159.0	161.9	162.7	141.3	150.3	153.1	154.8	157.9	160.6	161.1
Hospital room	443.7	478.0	489.4	494.6	503.0	515.4	519.3	443.1	472.2	482.6	488.5	498.9	509.6	512.6
Other hospital and medical care services (12/77 = 100)	141.4	150.4	152.9	155.0	157.2	159.2	159.6	140.6	149.4	151.8	153.4	156.1	158.3	158.4

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					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
ENTERTAINMENT	212.0	221.1	222.3	224.0	225.5	226.8	227.3	210.1	218.7	219.9	221.5	223.4	224.3	224.4
Entertainment commodities	215.3	225.5	226.5	227.9	228.9	230.3	230.6	210.9	221.1	222.2	224.0	224.2	225.5	225.4
Reading materials (12/77 = 100)	128.2	136.0	136.0	138.1	138.7	139.8	139.6	127.6	135.9	135.9	137.8	138.3	139.3	139.1
Newspapers	246.2	265.0	265.5	266.3	267.1	267.6	267.7	245.5	265.0	265.4	266.2	266.9	267.5	267.6
Magazines, periodicals, and books (12/77 = 100)	131.5	137.3	137.2	141.1	141.9	143.9	143.5	131.5	137.4	137.1	141.2	141.9	143.7	143.4
Sporting goods and equipment (12/77 = 100)	122.9	127.0	127.2	127.3	128.3	130.2	130.0	117.8	120.6	120.8	121.3	121.4	122.8	122.4
Sport vehicles (12/77 = 100)	124.0	129.0	128.6	128.4	129.4	(¹)	132.1	116.5	118.5	118.3	118.7	118.6	(¹)	120.2
Indoor and warm weather sport equipment (12/77 = 100)	116.2	117.7	118.2	119.1	119.2	119.6	119.9	113.4	117.0	116.7	117.2	117.3	118.2	117.9
Bicycles	184.7	191.0	192.2	193.2	194.4	194.3	193.9	184.9	192.1	193.5	193.9	195.9	196.3	195.2
Other sporting goods and equipment (12/77 = 100)	120.4	122.7	124.1	125.0	126.6	126.7	126.2	119.3	122.9	124.9	125.8	126.2	126.9	126.3
Toys, hobbies, and other entertainment (12/77 = 100)	123.5	129.3	130.5	131.0	131.3	131.3	132.0	121.8	128.5	129.6	130.6	130.5	130.8	130.9
Toys, hobbies, and music equipment (12/77 = 100)	121.3	127.9	129.3	129.4	129.6	129.7	130.1	118.5	125.3	126.6	127.1	126.2	126.7	126.9
Photographic supplies and equipment (12/77 = 100)	122.0	125.7	126.0	126.4	126.0	125.5	125.2	122.4	127.0	127.1	127.7	127.8	127.5	126.3
Pet supplies and expenses (12/77 = 100)	128.4	134.5	136.2	137.2	138.3	138.3	140.2	127.6	135.1	136.6	138.8	139.9	140.1	140.9
Entertainment services	207.8	215.2	216.7	218.9	221.0	222.3	223.0	209.7	215.8	217.0	218.3	223.3	223.4	223.9
Fees for participant sports (12/77 = 100)	125.7	131.6	132.0	134.3	136.4	137.3	137.6	125.9	131.6	132.4	134.0	138.9	139.1	139.3
Admissions (12/77 = 100)	123.1	125.9	128.1	128.0	128.3	128.9	129.7	124.0	125.7	126.9	127.3	128.2	128.3	128.7
Other entertainment services (12/77 = 100)	119.4	121.7	121.7	122.5	123.1	123.4	123.7	121.8	123.2	123.1	122.7	124.2	124.1	124.3
OTHER GOODS AND SERVICES	224.6	234.4	235.6	243.0	245.2	245.9	246.7	223.0	232.4	233.5	239.3	241.4	242.5	243.5
Tobacco products	210.8	219.3	219.9	221.7	225.3	226.2	226.8	210.4	218.4	219.1	220.9	224.5	225.4	225.9
Cigarettes	213.5	221.6	222.2	224.2	228.1	228.9	229.7	213.2	220.7	221.4	223.4	227.2	228.1	228.7
Other tobacco products and smoking accessories (12/77 = 100)	124.9	132.5	132.9	133.1	134.0	134.7	134.4	124.5	133.4	133.9	134.4	134.7	135.0	134.7
Personal care	220.9	233.4	235.1	236.3	236.9	237.7	239.1	220.0	231.2	232.4	233.6	234.1	235.5	237.1
Toilet goods and personal care appliances	215.2	228.7	230.1	231.2	231.6	232.5	234.7	214.3	228.4	229.4	231.1	231.4	233.1	235.4
Products for the hair, hairpieces, and wigs (12/77 = 100)	125.2	133.9	134.1	134.1	134.9	135.4	136.5	125.3	131.7	132.5	133.3	131.8	133.3	135.8
Dental and shaving products (12/77 = 100)	128.4	139.0	140.0	140.0	139.8	140.5	141.2	125.4	137.1	137.6	138.0	138.0	139.3	139.8
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	122.6	127.7	128.9	130.7	131.2	131.8	133.2	121.4	128.3	128.9	130.4	131.6	132.2	133.7
Other toilet goods and small personal care appliances (12/77 = 100)	124.8	133.0	133.9	134.2	133.7	134.3	136.0	126.8	135.9	136.4	137.4	138.2	139.1	139.1
Personal care services	226.8	238.4	240.3	241.5	242.3	243.1	243.9	225.8	234.4	235.7	236.3	237.1	238.1	239.2
Beauty parlor services for women	228.7	240.5	241.9	243.0	243.9	244.8	245.2	227.5	235.1	235.7	236.1	236.7	237.8	238.8
Haircuts and other barber shop services for men (12/77 = 100)	126.4	132.7	134.4	135.3	135.6	135.9	136.8	126.0	131.8	133.3	133.9	134.5	134.9	135.7
Personal and educational expenses	251.5	259.2	260.4	281.5	284.6	284.9	285.1	251.7	260.1	261.7	281.8	284.8	285.6	285.9
Schoolbooks and supplies	222.1	231.3	231.4	252.1	254.5	254.6	254.5	225.8	235.2	235.2	255.9	258.3	258.3	258.5
Personal and educational services	258.2	265.8	267.2	288.5	291.7	292.1	292.3	258.1	266.4	268.4	288.5	291.6	292.5	292.8
Tuition and other school fees	132.2	133.5	134.2	147.4	149.0	149.1	149.1	132.4	133.7	134.7	147.7	149.3	149.4	149.4
College tuition (12/77 = 100)	131.5	133.0	133.2	146.3	148.2	148.3	148.3	131.5	132.9	133.1	146.1	148.1	148.1	148.1
Elementary and high school tuition (12/77 = 100)	134.4	135.3	137.8	151.5	151.6	152.0	152.0	134.3	135.4	138.7	152.1	152.2	152.7	152.7
Personal expenses (12/77 = 100)	133.4	147.9	148.7	150.0	152.3	152.8	153.4	132.2	146.6	147.6	148.5	150.4	152.1	152.7
Special indexes:														
Gasoline, motor oil, coolant, and other products	368.3	407.1	405.9	405.4	404.3	403.9	402.8	369.4	408.0	406.9	406.5	405.4	405.1	404.0
Insurance and finance	364.5	402.7	408.1	417.6	419.0	422.2	423.1	364.7	402.4	407.3	416.4	417.6	420.9	422.1
Utilities and public transportation	255.8	286.5	289.7	293.3	292.7	292.6	293.9	254.4	285.6	288.5	292.4	291.6	291.5	292.6
Housekeeping and home maintenance services	308.4	332.3	334.0	335.7	335.9	339.6	341.3	306.6	322.8	333.0	335.5	337.3	339.9	341.5

¹ Not available.

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)		
	1981			1981			1981			1981		
	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.
Northeast												
EXPENDITURE CATEGORY												
All items	142.1	143.8	144.2	150.5	152.3	152.9	155.3	156.2	159.2	147.7	149.2	150.7
Food and beverages	139.4	139.7	139.6	139.9	139.9	139.6	142.3	142.6	142.8	137.6	137.4	137.0
Housing	146.2	147.8	148.0	160.4	161.4	161.9	170.4	170.1	176.3	155.2	156.6	159.3
Apparel and upkeep	117.6	118.9	117.5	118.3	124.8	123.1	123.5	124.8	125.9	125.7	126.5	125.4
Transportation	154.5	156.3	157.9	161.3	164.0	165.4	160.5	162.0	162.7	158.3	159.7	161.8
Medical care	137.6	140.0	142.0	139.2	143.6	146.6	140.8	146.5	146.3	138.9	142.3	143.0
Entertainment	129.3	131.8	131.9	129.1	129.6	131.0	127.8	129.5	133.7	131.7	133.2	134.3
Other goods and services	127.2	134.6	135.4	132.2	138.0	138.7	135.8	141.5	142.0	129.5	137.5	138.5
COMMODITY AND SERVICE GROUP												
Commodities	141.0	142.1	141.8	148.6	149.6	149.6	149.1	149.8	151.1	146.0	146.4	147.2
Commodities less food and beverages	142.0	143.7	143.2	152.7	154.3	154.5	152.3	153.1	154.9	150.0	150.7	152.1
Services	143.5	146.0	147.3	153.6	156.5	158.0	165.4	166.7	172.5	150.5	153.5	156.1
North Central region												
EXPENDITURE CATEGORY												
All items	152.3	152.6	152.6	148.1	148.8	149.2	145.4	145.9	147.4	145.3	146.7	147.6
Food and beverages	139.4	139.7	139.8	139.2	139.3	139.3	140.8	140.3	140.7	142.4	143.3	143.4
Housing	165.9	164.4	163.3	154.7	153.6	153.8	148.5	147.5	150.0	147.0	148.3	149.1
Apparel and upkeep	112.9	115.5	113.7	120.2	127.2	128.0	116.9	123.4	122.4	121.6	123.1	123.6
Transportation	158.9	161.2	162.9	158.4	159.5	160.8	159.3	161.2	162.3	157.6	158.6	160.1
Medical care	141.3	142.8	144.6	144.5	145.6	146.8	143.9	145.3	147.7	146.9	147.7	151.2
Entertainment	130.9	132.2	134.1	188.4	123.8	124.4	129.8	131.3	132.6	128.1	128.4	129.2
Other goods and services	131.2	136.0	137.0	136.5	142.4	142.9	131.5	135.1	135.6	133.6	140.4	141.7
COMMODITY AND SERVICE GROUP												
Commodities	145.7	145.7	145.1	142.9	142.9	142.9	141.7	141.4	142.2	139.4	140.7	140.7
Commodities less food and beverages	148.7	148.5	147.6	144.5	144.4	144.4	142.1	141.9	142.8	138.1	139.6	139.5
Services	162.1	162.9	163.7	156.4	158.3	159.5	151.6	153.3	156.1	154.8	156.2	158.7
South												
EXPENDITURE CATEGORY												
All items	148.2	150.9	152.0	151.6	153.4	155.9	148.5	149.2	152.3	147.2	149.4	150.8
Food and beverages	140.2	141.2	141.4	141.7	141.1	141.3	141.6	141.2	141.9	143.9	144.0	143.4
Housing	154.9	158.6	160.3	160.5	162.5	166.7	155.3	154.7	159.7	150.9	153.5	156.2
Apparel and upkeep	121.9	124.4	123.5	120.6	122.6	123.7	115.1	118.3	118.2	108.6	111.8	110.4
Transportation	158.9	160.6	161.9	160.3	162.3	164.1	158.6	160.2	162.3	159.1	160.6	161.6
Medical care	138.3	141.6	143.2	141.6	145.9	147.6	145.6	148.8	153.0	149.9	156.3	160.1
Entertainment	125.3	127.1	127.4	132.2	133.4	137.1	132.1	134.8	136.4	138.6	138.8	138.4
Other goods and services	135.3	139.2	139.7	134.6	139.5	139.5	132.7	138.5	139.9	134.8	139.5	140.5
COMMODITY AND SERVICE GROUP												
Commodities	143.5	145.0	145.9	144.7	145.7	147.5	143.1	143.6	145.3	143.2	144.1	145.1
Commodities less food and beverages	144.9	146.6	147.9	146.0	147.7	150.1	143.8	144.6	146.7	143.0	144.2	145.8
Services	154.9	159.3	160.5	161.9	164.9	168.6	156.9	157.9	163.1	153.1	157.4	159.5
West												
EXPENDITURE CATEGORY												
All items	152.4	156.3	156.1	151.2	155.0	155.1	146.4	149.2	149.4	147.7	152.1	149.1
Food and beverages	140.3	140.3	140.8	144.6	144.9	145.4	141.2	141.4	140.1	145.2	145.5	145.8
Housing	160.6	167.1	165.5	158.6	162.6	161.6	148.9	153.5	153.8	145.6	153.9	146.1
Apparel and upkeep	121.2	121.8	121.9	124.5	127.6	127.1	114.6	116.5	117.1	134.4	135.9	135.6
Transportation	159.3	161.8	162.9	161.1	163.5	165.0	160.8	162.1	162.8	161.0	162.5	164.6
Medical care	149.2	150.5	155.7	146.1	148.1	151.3	147.0	149.4	151.1	149.9	150.4	152.8
Entertainment	130.2	133.0	133.6	130.1	132.5	133.9	130.8	131.4	129.4	145.4	144.4	145.6
Other goods and services	136.4	140.1	141.0	137.3	141.4	142.8	131.3	136.1	136.8	141.0	145.5	148.0
COMMODITY AND SERVICE GROUP												
Commodities	143.4	145.1	144.9	145.2	147.0	147.2	142.6	144.4	143.7	144.5	146.2	145.5
Commodities less food and beverages	144.7	147.1	146.6	145.5	147.8	148.0	143.2	145.6	145.1	144.2	146.5	145.4
Services	164.3	171.2	170.9	159.4	166.0	166.0	151.7	156.1	157.5	152.5	160.9	154.6

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

[1967 = 100 unless otherwise specified]

Area ¹	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981						1980	1981					
	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec.
U.S. city average ²	258.4	274.4	276.5	279.3	279.9	280.7	281.5	258.7	274.6	276.5	279.1	279.7	280.4	281.1
Anchorage, Alaska (10/67=100) .....	...	246.1	...	250.5	...	253.7	...	...	241.7	...	245.9	...	249.3	...
Atlanta, Ga.	258.3	...	276.1	...	281.5	...	282.2	260.3	...	278.1	...	283.0	...	284.1
Baltimore, Md. ....	...	272.5	...	279.9	...	280.7	...	...	273.7	...	281.6	...	280.9	...
Boston, Mass. ....	...	266.3	...	272.8	...	274.2	...	...	266.5	...	273.6	...	274.3	...
Buffalo, N.Y.	246.5	...	260.3	...	262.5	...	264.3	245.2	...	259.4	...	261.2	...	262.7
Chicago, Ill.-Northwestern Ind.	260.3	272.7	275.8	276.9	276.1	277.0	273.9	258.9	271.7	274.6	275.8	276.3	277.3	274.4
Cincinnati, Ohio-Ky.-Ind. ....	...	273.3	...	275.2	...	276.6	...	...	276.3	...	277.1	...	279.0	...
Cleveland, Ohio	266.5	...	284.4	...	282.8	...	281.6	266.7	...	283.0	...	282.3	...	281.2
Dallas-Ft. Worth, Tex.	269.5	...	288.2	...	292.5	...	295.1	268.2	...	285.1	...	288.8	...	291.0
Denver-Boulder, Colo. ....	...	294.2	...	298.9	...	297.8	...	...	299.9	...	304.2	...	302.8	...
Detroit, Mich.	269.7	283.1	283.5	284.2	281.5	279.6	278.3	265.5	278.9	279.1	280.2	278.2	276.4	275.1
Honolulu, Hawaii	236.1	...	256.6	...	259.3	...	258.3	237.0	...	256.6	...	259.1	...	259.3
Houston, Tex.	274.8	...	294.7	...	300.0	...	302.7	272.1	...	291.8	...	295.9	...	298.8
Kansas City, Mo.-Kansas	259.1	...	271.3	...	272.6	...	273.5	257.2	...	270.2	...	271.3	...	272.0
Los Angeles-Long Beach, Anaheim, Calif.	258.7	272.2	274.8	279.3	281.3	281.8	282.3	262.2	276.3	278.6	282.9	284.9	285.5	286.1
Miami, Fla. (11/77=100) ....	...	146.1	...	150.2	...	153.6	...	...	143.7	...	151.0	...	154.7	...
Milwaukee, Wis. ....	...	285.6	...	286.9	...	287.5	...	...	291.2	...	292.1	...	291.5	...
Minneapolis-St. Paul, Minn.-Wis.	259.0	...	286.6	...	291.6	...	298.7	260.6	...	287.0	...	291.6	...	298.3
New York, N.Y.-Northeastern N.J.	247.3	262.5	264.8	268.8	268.0	267.8	267.9	247.2	262.3	264.0	267.8	267.0	266.9	266.9
Northeast, Pa. (Scranton) ....	...	266.0	...	271.5	...	272.2	...	...	269.0	...	275.0	...	275.2	...
Philadelphia, Pa.-N.J.	250.5	267.8	270.5	274.4	274.7	274.1	274.9	252.3	268.5	271.6	274.5	275.2	274.5	274.1
Pittsburgh, Pa.	262.0	...	277.7	...	277.7	...	281.8	262.9	...	278.1	...	278.4	...	282.6
Portland, Oreg.-Wash. ....	...	280.8	...	291.1	...	278.7	...	...	279.2	...	288.8	...	276.3	...
St. Louis, Mo.-Ill. ....	...	269.4	...	273.4	...	273.8	...	...	269.2	...	273.0	...	273.0	...
San Diego, Calif. ....	...	305.4	...	313.9	...	321.3	...	...	300.5	...	308.0	...	315.1	...
San Francisco-Oakland, Calif.	254.9	...	287.9	...	297.0	...	294.0	255.7	...	287.2	...	295.6	...	292.7
Seattle-Everett, Wash. ....	...	282.3	...	288.6	...	289.2	...	...	277.8	...	284.3	...	285.7	...
Washington, D.C.-Md.-Va. ....	...	267.1	...	271.8	...	275.5	...	...	271.4	...	275.7	...	279.3	...

¹The 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.
² Average of 85 cities.

26. Producer Price Indexes, by stage of processing

[1967=100]

Commodity grouping	Annual average 1981	1981												1982
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
FINISHED GOODS														
Finished goods	269.8	260.9	263.3	266.0	268.5	269.6	270.5	271.8	271.5	'271.5	274.0	274.5	275.3	277.4
Finished consumer goods	271.2	262.5	265.0	268.2	270.6	271.5	272.3	273.5	273.0	'273.1	274.7	274.9	275.6	277.4
Finished consumer foods	253.5	251.0	251.3	252.6	251.9	252.8	253.8	257.6	256.3	'256.2	253.7	252.7	253.0	256.4
Crude	263.6	257.9	265.6	279.7	279.3	263.1	258.9	262.7	256.9	'253.5	253.3	259.5	273.4	280.1
Processed	250.6	248.4	247.9	248.1	247.4	249.8	251.3	255.0	254.2	'254.4	251.7	250.0	249.1	252.2
Nondurable goods less foods	319.4	302.7	308.4	316.0	320.4	321.0	322.0	322.5	322.1	'324.2	323.8	325.0	325.9	328.1
Durable goods	218.5	214.9	215.1	214.0	216.6	218.1	218.2	218.1	218.3	'215.8	224.3	224.3	225.0	225.8
Consumer nondurable goods less food and energy	208.6	201.9	203.5	204.8	207.3	207.7	208.4	209.5	210.4	'211.8	212.2	213.3	213.4	216.2
Capital equipment	264.3	254.6	256.7	258.1	260.8	262.5	263.8	265.4	265.8	'265.3	271.4	272.9	274.1	276.1
INTERMEDIATE MATERIALS														
Intermediate materials, supplies, and components	306.0	296.1	298.3	302.0	305.8	306.7	307.2	308.5	310.1	'309.7	309.3	309.0	309.6	311.3
Materials and components for manufacturing	286.2	279.6	280.3	281.6	284.1	285.1	285.8	287.9	289.8	290.2	290.3	289.6	289.7	290.8
Materials for food manufacturing	260.9	280.7	273.2	267.5	263.1	259.0	262.4	260.5	261.0	'254.6	252.7	249.2	247.3	252.9
Materials for nondurable manufacturing	285.9	274.0	276.5	279.4	284.3	287.0	287.7	289.2	291.0	291.2	290.8	289.7	289.5	289.4
Materials for durable manufacturing	312.2	306.9	305.4	306.9	310.6	311.2	310.7	314.4	316.0	'317.1	317.1	315.1	314.4	314.2
Components for manufacturing	259.2	250.3	253.0	254.2	255.4	256.3	257.3	259.5	261.8	'263.8	264.7	266.3	267.7	269.7
Materials and components for construction	287.5	279.2	280.3	282.7	288.0	288.5	289.6	290.4	290.7	'290.0	289.8	289.9	290.8	291.9
Processed fuels and lubricants	595.0	551.9	569.8	598.3	608.5	608.7	605.7	602.0	607.8	'601.4	595.1	594.2	597.7	605.7
Manufacturing industries	498.2	469.5	482.8	503.9	509.0	510.7	505.4	500.3	508.3	'500.5	495.6	495.4	498.6	507.7
Nonmanufacturing industries	680.5	624.7	646.7	681.6	696.2	695.2	694.3	692.0	695.6	'690.5	683.1	681.5	683.3	692.0
Containers	276.2	264.6	268.2	270.9	274.3	276.4	277.2	278.8	280.3	'280.6	281.1	280.7	280.6	282.2
Supplies	263.9	257.8	257.8	258.9	262.4	264.0	264.6	266.0	266.1	266.1	267.1	267.4	268.7	269.8
Manufacturing industries	253.2	242.5	244.8	246.8	250.6	252.3	253.4	255.0	256.0	'256.8	258.9	259.5	261.5	262.5
Nonmanufacturing industries	269.6	265.7	264.6	265.2	268.7	270.2	270.5	272.0	271.6	'271.1	271.5	271.7	272.7	273.9
Feeds	230.4	252.0	237.5	231.7	239.2	242.9	235.4	232.8	229.1	'221.3	216.3	212.0	214.7	215.2
Other supplies	276.4	265.6	268.3	270.6	272.9	273.8	276.3	278.7	279.3	'280.7	282.5	283.9	284.4	285.8
CRUDE MATERIALS														
Crude materials for further processing	329.1	328.0	336.5	334.2	336.3	334.4	335.4	337.3	333.0	'327.4	320.3	314.1	311.6	318.2
Foodstuffs and feedstuffs	257.4	270.7	267.1	262.1	263.5	260.6	264.3	267.2	261.8	'253.4	245.6	238.3	233.7	242.5
Nonfood materials	481.6	450.1	484.9	488.4	492.1	492.4	487.4	487.2	485.3	'486.0	480.5	476.9	479.1	481.1
Nonfood materials except fuel	413.9	391.0	427.9	430.9	432.5	428.3	418.1	413.1	413.9	'410.2	405.5	398.5	396.4	399.7
Manufacturing industries	429.6	405.1	445.5	448.6	450.2	445.5	434.2	428.7	429.6	'425.4	420.0	412.2	409.9	413.2
Construction	262.4	254.8	257.2	259.2	261.5	261.7	262.6	262.6	263.1	'263.6	266.7	266.7	267.1	269.6
Crude fuel	676.5	677.4	697.7	703.6	716.6	738.4	759.2	781.2	766.7	'788.7	779.7	792.6	814.7	810.0
Manufacturing industries	865.4	771.9	798.1	805.8	821.9	850.6	877.2	902.6	883.0	'911.4	899.1	915.8	944.5	936.3
Nonmanufacturing industries	674.3	614.9	630.6	635.0	645.8	662.2	678.5	698.1	687.8	'704.8	698.4	708.4	725.3	723.6
SPECIAL GROUPINGS														
Finished goods excluding foods	273.2	262.4	265.5	268.7	272.1	273.3	274.1	274.7	274.6	'274.7	278.7	279.7	280.6	282.3
Finished consumer goods excluding foods	276.3	265.1	268.5	272.5	276.1	277.0	277.7	277.9	277.7	'277.9	281.3	282.0	282.8	284.4
Finished consumer goods less energy	233.9	233.8	229.6	230.2	231.8	232.8	233.4	235.0	235.0	'234.9	236.8	237.0	237.3	239.8
Intermediate materials less foods and feeds	310.1	298.0	301.0	305.4	309.5	310.7	311.2	312.7	314.5	'314.6	314.5	314.3	315.1	316.6
Intermediate materials less energy	285.2	278.3	279.1	280.5	283.7	284.7	285.5	287.2	288.5	'288.7	288.9	288.6	289.0	290.1
Intermediate foods and feeds	250.7	270.9	261.3	255.6	254.9	253.1	253.2	251.1	250.2	'243.5	240.6	236.9	236.4	240.4
Crude materials less agricultural products	545.8	504.0	547.6	551.8	556.0	557.5	551.3	550.6	549.1	'551.4	544.3	540.9	544.1	545.7
Crude materials less energy	254.0	266.0	262.6	259.6	261.1	257.9	259.7	261.8	258.0	'250.4	243.6	235.9	231.6	239.2

¹ Data for September 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.

² Not available.
r=revised.

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27. Producer Price Indexes, by commodity groupings

[1967 = 100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1981	1981												1982
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
	All commodities	293.4	284.8	287.6	290.3	293.4	294.1	294.8	296.2	296.4	295.7	296.0	295.5	295.9	298.2
	All commodities (1957-59 = 100)	311.3	302.2	305.1	308.0	311.3	312.0	312.8	314.3	314.5	313.7	314.1	313.5	313.9	316.4
	Farm products and processed foods and feeds	251.5	257.9	255.1	253.5	253.8	252.9	254.3	256.8	254.2	250.3	246.1	242.7	241.2	246.2
	Industrial commodities	304.1	291.5	295.7	299.6	303.5	304.7	305.1	306.2	307.2	307.4	308.8	309.1	310.1	311.7
	FARM PRODUCTS AND PROCESSED FOODS AND FEEDS														
01	Farm products	254.9	264.5	262.4	260.7	263.3	259.6	260.7	263.3	257.9	251.1	243.3	237.4	234.5	242.1
01-1	Fresh and dried fruits and vegetables	267.0	258.7	271.5	292.8	286.1	275.3	263.3	265.6	258.1	252.8	247.9	253.2	279.8	288.3
01-2	Grains	248.4	277.7	267.5	261.8	264.7	257.7	257.1	257.4	242.7	227.0	222.6	226.5	213.6	225.2
01-3	Livestock	248.0	244.3	244.6	239.3	246.6	251.8	263.0	266.5	262.0	257.3	244.4	231.1	225.0	236.8
01-4	Live poultry	201.2	213.1	220.8	213.5	195.4	207.2	210.0	215.3	210.3	196.7	185.7	175.0	171.4	186.8
01-5	Plant and animal fibers	242.0	284.1	268.4	270.1	274.2	258.3	259.6	251.3	232.5	206.5	211.7	198.5	188.4	198.2
01-6	Fluid milk	287.4	288.4	289.5	289.5	287.2	283.6	285.0	284.3	285.0	287.3	294.3	288.2	286.7	287.6
01-7	Eggs	187.1	185.7	184.8	180.4	196.2	165.0	174.6	185.1	180.7	193.2	193.8	209.7	195.5	187.0
01-8	Hay, hayseeds, and oilseeds	274.1	311.8	295.0	289.5	296.3	299.0	285.3	290.0	284.3	267.2	230.4	221.1	218.8	218.4
01-9	Other farm products	274.3	296.1	295.1	295.9	295.9	259.7	242.7	250.2	263.9	268.9	267.8	275.8	280.2	280.1
02	Processed foods and feeds	248.7	253.3	250.2	248.5	247.6	248.2	249.9	252.2	251.2	248.9	246.6	244.7	244.0	247.4
02-1	Cereal and bakery products	255.5	251.5	252.1	252.2	253.9	256.3	256.4	258.3	257.7	258.5	256.6	257.5	255.9	256.6
02-2	Meats, poultry, and fish	246.2	248.1	243.6	242.0	239.1	245.2	248.6	257.1	254.4	253.3	246.6	240.0	236.3	244.2
02-3	Dairy products	245.7	244.7	245.0	245.1	245.4	244.6	245.2	245.1	245.3	245.5	247.4	246.9	247.2	247.7
02-4	Processed fruits and vegetables	261.1	238.4	243.7	255.2	258.0	259.4	262.5	265.9	267.3	270.0	271.3	270.1	271.4	272.8
02-5	Sugar and confectionery	276.8	344.6	323.7	302.0	284.5	262.8	274.8	266.0	267.3	246.8	250.0	249.0	250.9	260.8
02-6	Beverages and beverage materials	247.5	243.0	244.8	245.4	246.0	247.6	248.1	249.0	249.4	249.1	248.3	250.8	251.5	253.5
02-7	Fats and oils	227.5	230.2	228.2	229.8	232.4	228.2	227.3	234.8	229.5	224.3	223.6	221.7	219.3	217.0
02-8	Miscellaneous processed foods	250.1	244.2	248.0	249.2	249.9	251.1	251.5	252.2	252.1	253.0	249.8	250.1	250.1	250.5
02-9	Prepared animal feeds	230.3	248.9	235.9	231.1	237.7	241.0	234.3	232.2	228.9	222.9	218.4	214.6	217.2	217.7
	INDUSTRIAL COMMODITIES														
03	Textile products and apparel	199.6	193.1	193.9	195.2	197.6	199.2	200.1	201.3	202.4	202.9	203.0	203.2	203.1	203.7
03-1	Synthetic fibers (12/75 = 100)	156.7	146.5	147.1	148.9	151.5	156.4	157.9	159.7	161.2	161.0	163.5	162.5	162.4	163.7
03-2	Processed yarns and threads (12/75 = 100)	137.8	129.8	130.3	134.6	135.0	138.6	139.3	140.3	142.0	142.3	142.0	140.3	139.8	135.3
03-3	Gray fabrics (12/75 = 100)	146.7	143.6	144.0	144.7	146.6	145.8	147.4	148.2	149.0	149.1	147.8	147.9	147.7	148.3
03-4	Finished fabrics (12/75 = 100)	125.2	122.2	122.9	123.2	124.9	125.7	125.6	126.0	126.8	126.8	126.1	126.5	125.8	126.7
03-81	Apparel	185.5	179.9	180.7	181.4	184.3	185.2	186.2	187.2	187.8	188.0	187.9	188.7	189.1	190.1
03-82	Textile housefurnishings	228.2	219.8	221.3	221.3	222.1	224.0	223.9	227.1	228.8	232.2	237.4	237.9	238.1	241.9
04	Hides, skins, leather, and related products	261.5	258.2	257.7	261.2	263.5	263.7	261.6	261.1	261.3	261.7	262.7	261.7	262.7	264.5
04-2	Leather	319.5	332.6	310.0	322.5	337.8	330.0	321.0	319.0	313.7	313.2	312.1	311.3	311.9	320.3
04-3	Footwear	241.2	238.4	240.7	240.4	241.1	241.4	241.5	242.4	242.5	242.9	241.6	241.1	241.7	241.4
04-4	Other leather and related products	243.5	230.1	236.9	238.4	238.5	244.2	244.3	242.9	245.1	245.0	250.1	250.5	250.5	252.7
05	Fuels and related products and power	694.4	634.6	667.5	696.5	707.2	709.0	707.6	704.9	704.3	703.5	697.2	697.5	702.7	705.8
05-1	Coal	497.3	477.8	480.8	481.1	486.1	487.3	491.7	505.5	507.0	510.2	511.1	513.1	515.6	526.1
05-2	Coke	456.5	430.1	430.1	430.1	430.1	467.9	469.7	469.7	469.7	469.7	470.3	470.3	470.3	470.3
05-3	Gas fuels ³	939.8	857.1	881.6	889.9	907.8	933.9	954.6	969.4	949.3	976.6	964.7	981.4	1007.7	990.2
05-4	Electric power	366.8	341.4	346.2	351.2	355.5	360.4	366.6	374.6	385.8	383.8	375.9	377.6	383.8	392.5
05-61	Crude petroleum ⁴	803.6	704.4	842.7	842.8	842.5	839.9	815.9	798.9	796.8	796.8	788.4	786.0	787.4	787.4
05-7	Petroleum products, refined ⁵	805.8	736.9	769.6	825.5	840.9	835.3	828.1	816.3	813.4	806.1	802.0	797.9	798.3	802.9
06	Chemicals and allied products	287.8	274.3	277.6	280.4	286.0	288.6	290.5	291.3	293.3	293.3	292.8	292.5	292.7	293.4
06-1	Industrial chemicals ⁶	363.8	344.5	352.1	354.5	362.4	368.5	369.7	370.4	371.5	371.8	369.4	365.6	364.6	363.8
06-21	Prepared paint	249.9	242.9	246.6	246.6	248.1	250.0	250.0	250.7	250.7	250.7	251.0	254.8	256.7	259.3
06-22	Paint materials	300.2	284.0	287.0	290.5	295.4	300.3	300.8	304.5	308.5	308.0	308.0	307.4	307.9	308.7
06-3	Drugs and pharmaceuticals	193.4	184.7	187.3	189.3	191.0	192.4	193.2	195.5	195.0	197.8	198.1	198.1	198.7	200.9
06-4	Fats and oils, inedible	295.6	310.7	289.7	295.7	312.7	312.1	303.1	290.9	305.6	285.6	277.7	282.5	280.4	272.8
06-5	Agricultural chemicals and chemical products	284.8	267.6	271.6	275.8	277.8	279.1	288.9	288.9	293.4	292.6	292.3	295.4	294.5	295.8
06-6	Plastic resins and materials	289.2	274.7	276.1	279.4	285.1	287.9	290.0	295.9	297.5	296.8	297.6	290.9	297.0	293.8
06-7	Other chemicals and allied products	254.4	244.4	245.1	248.3	255.3	254.8	256.3	254.8	257.3	257.4	258.0	260.9	260.2	262.8
07	Rubber and plastic products	232.8	224.8	226.4	228.4	230.8	231.8	233.4	232.1	234.1	235.7	237.7	238.7	239.0	239.5
07-1	Rubber and rubber products	256.7	246.2	248.5	252.1	253.0	254.4	256.8	254.7	256.9	260.3	264.3	266.2	266.4	267.3
07-11	Crude rubber	281.7	279.1	281.9	281.2	279.8	283.2	285.2	284.2	284.7	283.1	280.5	278.9	280.7	281.8
07-12	Tires and tubes	250.9	240.9	243.5	248.6	250.7	251.2	246.8	249.9	256.5	257.7	257.5	258.9	255.9	256.6
07-13	Miscellaneous rubber products	252.4	238.6	240.4	243.5	243.8	245.7	250.9	251.4	253.1	253.9	263.4	269.5	271.4	272.6
07-2	Plastic products (6/78 = 100)	128.4	125.0	125.5	126.0	128.2	128.6	129.1	128.7	129.8	129.9	130.0	130.1	130.3	130.5
08	Lumber and wood products	292.8	296.5	294.7	294.4	299.4	298.4	298.1	296.5	294.5	289.3	284.4	283.0	285.2	285.7
08-1	Lumber	325.2	331.3	326.9	326.2	336.3	336.3	332.4	329.9	320.2	320.2	312.0	308.8	309.7	310.6
08-2	Millwork	273.4	273.6	273.8	275.7	276.5	274.8	272.2	273.6	272.3	271.4	271.2	272.0	273.6	276.8
08-3	Plywood	245.7	251.1	251.2	248.8	256.0	248.3	251.5	247.8	245.6	240.8	234.4	233.0	239.2	236.8
08-4	Other wood products	239.2	238.5	238.1	236.9	238.3	238.2	239.8	240.7	239.8	240.5	240.0	239.7	239.5	239.4

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	1981												1982
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
INDUSTRIAL COMMODITIES—Continued															
09	Pulp, paper, and allied products	273.7	264.4	267.2	269.0	271.4	272.1	272.9	274.9	275.9	277.8	279.1	280.2	280.7	283.9
09-1	Pulp, paper, and products, excluding building paper and board	271.0	260.9	264.5	266.8	268.6	269.9	271.2	272.3	273.7	274.8	276.5	276.3	276.2	276.1
09-11	Woodpulp	398.1	390.2	390.2	390.2	394.1	394.2	394.2	394.2	394.2	394.2	404.7	417.0	417.0	412.8
09-12	Waste paper	175.7	191.5	186.1	185.1	184.2	182.7	182.9	182.1	182.1	178.5	165.1	144.5	143.4	135.2
09-13	Paper	280.0	271.7	272.9	273.8	275.2	275.9	278.5	279.7	282.1	285.9	288.6	287.1	287.5	288.8
09-14	Paperboard	258.2	250.2	252.8	255.1	255.7	258.8	259.2	259.4	260.6	261.6	262.6	261.6	259.3	259.7
09-15	Converted paper and paperboard products	259.0	246.9	252.1	255.3	257.3	258.8	259.9	261.2	262.4	262.8	263.9	263.9	263.9	263.9
09-2	Building paper and board	231.3	219.7	225.7	227.9	232.5	237.3	237.4	235.5	234.2	234.2	232.5	231.5	227.7	233.2
10	Metals and metal products	300.4	294.0	294.0	296.4	298.8	299.1	298.4	302.0	304.1	304.9	305.5	303.9	303.6	305.1
10-1	Iron and steel	333.8	323.0	323.2	328.2	331.0	330.4	330.1	338.8	339.9	339.8	341.5	339.8	339.7	343.1
10-13	Steel mill products	337.6	322.6	322.9	328.7	331.8	331.8	332.2	344.9	344.9	345.3	348.7	348.6	348.9	350.8
10-2	Nonferrous metals	286.0	292.1	287.4	286.5	288.4	287.7	284.5	282.8	287.3	289.4	286.8	281.4	277.5	275.4
10-3	Metal containers	315.9	311.4	313.8	314.1	314.1	314.1	314.1	315.2	318.7	318.8	319.0	318.2	318.2	323.4
10-4	Hardware	262.4	254.5	258.0	258.6	258.5	259.4	259.7	263.8	265.3	267.8	267.5	268.9	269.4	271.3
10-5	Plumbing fixtures and brass fittings	267.4	256.7	259.2	259.5	265.3	266.2	268.9	270.9	271.2	271.6	272.8	270.7	273.9	274.4
10-6	Heating equipment	223.9	216.6	217.6	219.5	219.8	222.3	223.5	226.4	227.9	228.5	228.4	227.6	229.2	232.2
10-7	Fabricated structural metal products	295.4	283.1	285.4	288.4	293.1	294.0	295.0	297.9	299.3	300.0	302.2	302.2	302.7	303.1
10-8	Miscellaneous metal products	270.8	260.5	263.1	264.7	267.2	269.7	269.4	272.0	272.9	273.7	276.2	275.2	281.4	284.3
11	Machinery and equipment	263.1	253.3	255.3	257.5	259.6	260.7	262.1	264.8	266.2	268.1	268.8	270.0	271.6	273.5
11-1	Agricultural machinery and equipment	287.7	276.4	278.4	279.8	282.5	285.7	286.8	288.1	290.3	292.8	292.1	298.7	301.3	302.2
11-2	Construction machinery and equipment	320.8	305.9	310.0	312.8	317.0	318.4	320.1	323.8	325.0	326.5	329.0	329.6	332.0	337.0
11-3	Metalworking machinery and equipment	301.2	289.7	291.6	294.9	298.7	299.9	301.3	302.9	303.5	305.3	306.5	307.5	312.2	313.7
11-4	General purpose machinery and equipment	288.5	278.6	280.2	282.3	284.4	285.9	287.0	290.6	292.3	293.9	294.4	295.6	297.2	299.6
11-6	Special industry machinery and equipment	308.0	295.6	299.2	301.0	303.2	307.2	308.8	311.0	310.3	312.8	314.7	315.2	316.5	319.5
11-7	Electrical machinery and equipment	220.1	211.9	213.7	216.0	217.4	217.5	219.2	221.1	222.8	224.2	225.0	226.0	226.9	228.3
11-9	Miscellaneous machinery	252.3	243.3	245.2	247.0	248.5	248.8	250.1	254.0	256.0	258.5	258.3	259.1	259.8	261.3
12	Furniture and household durables	198.4	194.0	195.2	195.8	196.4	197.4	197.3	199.5	199.6	201.0	201.4	201.6	202.2	202.7
12-1	Household furniture	219.4	212.9	213.8	214.5	216.5	216.4	218.6	220.0	220.7	222.2	224.1	225.4	227.0	228.2
12-2	Commercial furniture	257.6	246.7	251.6	253.4	254.5	257.7	257.9	258.7	259.1	261.6	262.5	263.2	264.1	266.6
12-3	Floor coverings	178.6	172.3	171.9	174.1	175.3	178.5	180.7	182.8	181.9	181.7	181.5	180.8	180.7	179.6
12-4	Household appliances	186.9	182.2	183.5	184.2	185.1	185.5	186.1	188.8	189.1	190.1	189.5	189.7	190.2	192.0
12-5	Home electronic equipment	89.1	91.1	91.3	91.4	90.9	90.8	86.7	87.4	87.6	87.8	88.3	88.0	87.8	87.5
12-6	Other household durable goods	280.8	278.9	280.8	278.1	275.3	276.7	276.4	282.1	280.9	285.8	285.3	284.6	285.5	282.8
13	Nonmetallic mineral products	309.5	296.6	297.9	300.9	310.8	312.0	313.6	314.3	314.1	313.2	313.1	313.5	313.6	315.1
13-11	Flat glass	212.9	203.9	204.3	204.8	210.2	210.2	210.3	218.3	218.3	218.3	218.5	218.5	218.5	216.0
13-2	Concrete ingredients	296.3	290.0	291.4	292.6	297.4	297.5	297.5	297.7	298.0	298.5	298.3	298.3	298.5	305.9
13-3	Concrete products	291.2	286.2	286.6	286.9	289.9	291.2	293.5	293.4	293.4	292.9	293.3	293.2	293.5	294.8
13-4	Structural clay products excluding refractories	249.7	239.5	239.8	244.6	246.0	250.1	250.7	250.9	250.9	255.3	255.6	255.9	257.1	257.1
13-5	Refractories	302.5	282.6	293.5	296.1	296.4	304.0	307.1	307.1	307.1	307.1	308.8	309.8	309.8	315.4
13-6	Asphalt roofing	407.0	394.8	389.5	390.5	415.9	407.4	428.5	421.9	420.9	401.6	401.3	408.9	404.2	399.7
13-7	Gypsum products	256.2	259.6	257.3	257.6	256.8	261.1	260.7	259.7	255.3	252.9	252.4	251.3	249.7	250.4
13-8	Glass containers	328.5	311.4	311.4	311.4	326.7	335.3	335.3	335.5	335.5	335.5	334.8	334.8	334.8	334.7
13-9	Other nonmetallic minerals	463.9	418.7	424.7	441.7	479.1	477.6	476.8	476.2	475.3	474.3	473.2	473.5	475.4	474.9
14	Transportation equipment (12/68 = 100)	235.4	227.4	229.1	228.1	231.9	233.6	234.3	235.0	235.9	231.8	244.4	246.2	246.7	248.3
14-1	Motor vehicles and equipment	237.5	229.0	230.9	229.5	233.9	236.0	236.7	237.4	238.4	232.8	247.5	248.6	249.2	250.4
14-4	Railroad equipment	338.2	332.5	332.5	333.9	335.7	331.2	331.4	338.1	338.7	338.7	345.0	347.5	346.3	352.4
15	Miscellaneous products	265.6	264.3	264.9	264.0	266.0	266.9	266.3	263.2	262.6	267.0	268.0	267.2	267.3	268.4
15-1	Toys, sporting goods, small arms, ammunition	212.2	208.4	210.5	211.1	211.3	211.4	211.2	213.2	212.7	213.6	213.7	213.4	213.8	219.3
15-2	Tobacco products	268.3	254.8	256.1	256.3	268.7	268.7	268.7	268.8	268.8	274.5	278.0	278.0	277.9	277.9
15-3	Notions	259.6	227.2	247.3	247.3	248.4	267.8	268.0	267.5	267.7	267.8	267.3	269.7	269.7	270.5
15-4	Photographic equipment and supplies	210.1	207.4	209.6	211.2	212.4	212.5	212.5	211.4	207.1	208.7	209.1	209.1	209.5	210.3
15-5	Mobile homes (12/74 = 100)	(²)	153.0	153.1	155.0	(²)	(²)	(²)	158.1	158.3	158.7	158.6	158.8	159.0	
15-9	Other miscellaneous products	346.9	363.3	358.1	351.3	349.0	349.4	346.9	333.1	334.6	345.5	346.7	343.4	343.2	341.9

¹ Data for September 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.

² Not available.

³ Prices for natural gas are lagged 1 month.

⁴ Includes only domestic production.

⁵ Most prices for refined petroleum products are lagged 1 month.

⁶ Some prices for industrial chemicals are lagged 1 month.

r= revised.

28. Producer Price Indexes, for special commodity groupings

[1967=100 unless otherwise specified]

Commodity grouping	Annual average 1981	1981												1982
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
All commodities — less farm products	295.7	285.6	288.8	291.9	295.0	296.1	296.7	298.0	298.7	298.5	299.4	299.3	300.0	301.9
All foods	251.9	255.6	253.7	253.4	251.4	250.3	252.2	255.2	253.7	251.7	249.4	247.8	248.0	252.0
Processed foods	252.2	256.8	253.9	252.3	250.3	250.5	253.1	256.0	255.0	252.8	250.6	248.2	246.9	251.0
Industrial commodities less fuels	252.2	256.8	257.2	258.6	261.8	262.9	263.5	265.0	266.1	266.4	268.6	268.9	269.4	270.9
Selected textile mill products (Dec. 1975 = 100)	135.9	131.8	132.5	132.2	134.5	135.7	135.9	136.8	137.2	138.1	138.5	138.6	138.3	139.3
Hosiery	134.3	129.5	130.3	130.5	134.2	134.6	135.7	135.8	135.3	135.5	136.5	136.5	136.7	137.0
Underwear and nightwear	203.5	199.2	200.9	202.0	202.1	202.3	203.5	204.7	204.7	204.7	205.0	206.0	206.6	212.4
Chemicals and allied products, including synthetic rubber and fibers and yarns	278.6	264.8	268.3	271.0	276.1	279.0	281.2	282.3	284.0	284.4	284.2	283.8	284.0	284.9
Pharmaceutical preparations	186.8	177.1	179.7	182.1	184.0	185.7	186.6	189.0	188.4	191.6	192.7	192.4	193.0	195.5
Lumber and wood products, excluding millwork	303.1	309.0	306.0	304.8	312.3	311.5	312.2	308.7	306.2	298.0	290.3	287.7	290.4	290.2
Special metals and metal products	279.4	271.8	272.7	273.5	276.8	277.9	277.9	280.2	281.9	280.1	286.6	286.4	286.6	288.0
Fabricated metal products	280.0	270.0	272.5	274.7	277.0	278.5	279.0	281.7	283.1	283.9	285.6	286.2	287.9	290.0
Copper and copper products	204.0	207.4	205.0	204.8	207.7	206.6	203.7	202.5	206.2	205.1	203.8	199.3	195.9	195.1
Machinery and motive products	256.7	247.5	249.4	250.2	253.1	254.4	255.6	257.4	258.6	257.7	264.0	265.5	266.7	268.5
Machinery and equipment, except electrical	288.3	277.5	279.7	281.9	284.3	285.9	287.3	290.4	291.7	293.8	294.4	295.8	297.8	300.1
Agricultural machinery, including tractors	296.2	285.0	287.3	288.3	289.6	293.7	294.8	295.6	298.2	301.6	300.4	309.1	312.4	313.7
Metalworking machinery	329.4	319.2	320.5	323.5	325.9	327.1	328.3	330.1	331.4	333.9	335.6	338.1	339.8	342.1
Numerically controlled machine tools (Dec. 1971 = 100)	239.4	234.6	235.0	235.7	235.7	237.3	241.4	241.7	241.8	241.8	242.1	242.5	242.3	240.5
Total tractors	324.0	305.8	311.1	311.8	316.8	322.0	322.5	325.5	327.8	330.7	332.9	340.4	340.4	346.2
Agricultural machinery and equipment less parts	289.0	278.0	280.2	281.5	283.2	286.7	287.9	288.6	291.1	294.0	293.1	300.6	303.9	305.3
Farm and garden tractors less parts	298.9	284.4	287.2	287.6	289.3	297.7	298.0	298.0	301.4	305.5	305.0	316.5	316.5	318.5
Agricultural machinery excluding tractors less parts	294.4	285.7	287.7	289.1	290.2	290.8	292.5	293.9	295.8	298.7	297.0	303.3	309.3	310.0
Industrial valves	314.8	300.7	305.5	310.1	314.0	314.3	315.3	317.5	319.8	322.7	319.0	320.0	321.9	325.2
Industrial fittings	302.1	298.6	296.0	298.9	302.7	303.0	303.0	303.0	303.0	304.3	304.1	304.1	304.1	304.1
Construction materials	283.0	276.6	277.2	279.0	283.9	284.2	285.0	285.7	285.5	284.4	284.5	284.1	285.1	286.4

¹ Data for September 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.
c= corrected.

29. Producer Price Indexes, by durability of product

[1967=100]

Commodity grouping	Annual average 1981	1981												1982
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
Total durable goods	269.8	262.7	263.8	264.9	267.8	268.6	269.1	270.8	271.9	271.8	274.9	275.2	275.9	277.4
Total nondurable goods	312.4	302.6	306.8	310.9	314.2	314.8	315.7	316.8	316.2	315.0	312.7	311.5	311.6	314.7
Total manufactures	285.9	277.3	279.3	282.3	285.3	286.2	286.9	288.0	288.6	288.3	289.7	289.6	290.0	291.8
Durable	269.6	262.3	263.4	264.4	267.2	268.2	268.9	270.6	271.7	271.7	274.9	275.5	276.3	277.8
Nondurable	303.6	293.5	296.4	301.7	304.9	305.7	306.4	306.9	306.9	306.3	305.4	304.6	304.5	306.8
Total raw or slightly processed goods	330.7	322.9	330.3	331.2	334.6	334.2	335.4	337.9	335.8	332.7	326.2	323.2	323.8	329.0
Durable	271.4	275.9	275.5	281.7	286.0	280.4	272.4	271.2	275.9	270.4	264.3	253.8	248.4	254.4
Nondurable	334.0	325.3	333.3	333.8	337.1	337.1	338.9	341.8	339.1	336.3	329.7	327.3	328.3	333.4

¹ Data for September 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.

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1981	1981												1982
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
MINING															
1011	Iron ores (12/75 = 100)	167.3	155.8	168.1	168.1	168.1	168.1	168.1	168.1	168.1	168.1	168.1	171.3	171.3	
1092	Mercury ores (12/75 = 100)	346.0	297.9	324.5	335.4	354.1	347.9	352.0	358.3	365.4	364.5	354.1	343.7	347.9	
1211	Bituminous coal and lignite	493.9	476.1	478.1	478.5	483.5	484.5	488.4	502.1	503.4	506.0	506.6	510.7	521.3	
1311	Crude petroleum and natural gas	898.8	786.5	897.9	901.7	908.6	919.7	713.7	911.5	900.3	913.6	901.0	907.4	917.6	
1442	Construction sand and gravel	277.3	270.1	272.3	275.2	278.0	278.4	278.4	278.2	278.2	279.2	279.6	280.4	287.0	
1455	Kaolin and ball clay (6/76 = 100)	138.7	137.1	137.1	137.1	137.1	137.1	137.1	137.1	137.1	137.1	143.4	143.4	147.1	
MANUFACTURING															
2011	Meatpacking plants	243.1	244.7	237.2	236.1	237.8	243.6	245.9	252.6	250.9	252.7	244.3	236.9	234.5	236.6
2013	Sausages and other prepared meats	241.3	235.3	232.9	230.4	227.5	230.4	238.1	246.0	254.0	253.9	252.0	248.6	246.7	245.7
2016	Poultry dressing plants	192.0	201.9	208.3	203.9	186.7	196.2	198.3	203.6	201.2	188.8	175.5	172.8	166.7	NA
2021	Creamery butter	274.8	273.6	273.5	273.6	273.4	273.4	273.5	273.8	273.7	275.0	279.2	279.5	275.0	275.0

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 code	Industry description	Annual average 1981	1981												1982
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	Jan.
MANUFACTURING—Continued															
2022	Cheese, natural and processed (12/72 = 100)	215.8	215.9	215.6	215.7	216.2	216.2	216.1	213.8	214.5	215.0	215.6	215.9	217.1	218.6
2024	Ice cream and frozen desserts (12/72 = 100)	211.9	210.1	210.6	210.6	211.4	212.4	212.4	212.7	212.7	212.7	212.5	212.5	212.8	212.8
2033	Canned fruits and vegetables	248.5	233.3	237.4	241.5	244.0	245.9	248.9	251.6	252.9	254.3	256.1	255.6	258.8	259.6
2034	Dehydrated food products (12/73 = 100)	177.6	174.1	171.3	172.9	174.2	175.3	175.0	180.5	178.7	183.4	182.3	181.6	182.1	184.0
2041	Flour mills (12/71 = 100)	195.9	203.8	198.4	195.1	201.5	199.4	199.3	196.5	191.0	195.3	190.6	191.5	189.3	191.4
2044	Rice milling	277.2	289.6	289.6	298.0	300.9	300.3	300.3	297.4	284.3	268.2	247.3	235.4	215.1	205.9
2048	Prepared foods, n.e.c. (12/75 = 100)	124.6	132.6	129.3	126.6	128.5	129.8	127.5	125.9	124.8	119.6	117.5	116.4	116.4	116.6
2061	Raw cane sugar	273.5	418.0	367.1	318.8	275.7	224.8	263.3	272.2	254.6	212.3	219.9	224.3	230.8	247.6
2063	Beet sugar	320.6	414.5	398.1	370.7	350.5	334.4	339.7	274.1	287.5	270.7	272.2	262.1	272.4	292.5
2067	Chewing gum	309.8	323.0	323.0	323.1	323.1	303.1	303.1	303.1	303.2	303.2	303.2	303.2	303.2	303.3
2074	Cottonseed oil mills	199.0	221.2	193.7	204.4	218.4	216.6	212.3	212.0	206.0	182.3	172.0	167.2	182.3	184.9
2075	Soybean oil mills	245.8	272.0	252.5	253.2	259.1	258.1	248.4	253.7	245.8	234.2	230.1	221.1	221.5	222.6
2077	Animal and marine fats and oils	288.1	310.8	287.2	284.2	301.7	304.3	291.3	288.8	294.1	281.2	274.1	272.3	266.6	260.3
2083	Malt	282.5	286.1	286.1	286.1	286.1	286.1	286.1	286.1	286.1	275.4	275.4	275.4	275.4	267.1
2085	Distilled liquor, except brandy (12/75 = 100)	134.7	129.2	133.9	133.9	133.9	134.3	134.6	134.6	135.5	135.5	135.5	137.9	137.9	140.1
2091	Canned and cured seafoods (12/73 = 100)	187.8	187.3	187.1	187.6	187.7	187.3	187.5	187.4	188.4	188.8	188.2	188.3	188.5	187.2
2092	Fresh or frozen packaged fish	369.6	374.9	366.7	385.2	393.5	378.2	375.5	367.6	347.1	353.5	358.4	362.3	371.1	398.3
2095	Roasted coffee (12/72 = 100)	238.0	238.2	238.3	238.3	238.5	238.6	238.6	236.4	235.7	237.3	238.6	239.4	240.4	245.0
2098	Macaroni and spaghetti	252.0	243.6	243.6	243.6	243.6	246.6	246.6	259.5	259.5	259.5	259.5	259.5	259.5	259.5
2111	Cigarettes	277.7	263.6	264.1	264.2	278.3	278.3	278.3	278.3	278.3	284.2	288.4	288.4	288.4	288.4
2121	Cigars	169.1	165.1	165.3	167.0	168.5	168.5	168.5	169.7	169.7	174.5	171.6	171.6	171.6	171.6
2131	Chewing and smoking tobacco	320.9	298.7	320.7	320.7	320.8	320.8	320.8	321.0	321.3	325.3	327.6	327.6	326.0	326.0
2211	Weaving mills, cotton (12/72 = 100)	234.1	227.9	230.9	232.3	235.3	233.5	234.3	234.7	237.4	236.0	236.1	236.3	235.2	227.5
2221	Weaving mills, synthetic (12/77 = 100)	136.6	131.9	132.3	133.3	134.9	135.7	137.1	138.0	139.3	139.5	139.1	139.2	139.5	139.8
2251	Women's hosiery, except socks (12/75 = 100)	113.5	109.1	109.2	108.9	114.1	114.2	115.6	115.5	115.0	115.0	115.2	115.2	115.3	115.6
2254	Knit underwear mills	210.2	205.6	208.7	209.7	209.8	210.0	210.0	210.7	210.8	210.9	210.8	212.7	212.9	228.7
2257	Circular knit fabric mills (6/76 = 100)	110.8	109.3	109.6	109.1	110.8	110.5	110.4	111.0	112.0	111.0	112.3	112.1	111.7	111.8
2261	Finishing plants, cotton (6/76 = 100)	144.9	142.4	144.5	144.6	146.9	147.0	146.2	146.3	146.2	145.4	144.9	143.4	141.4	140.5
2262	Finishing plants, synthetics, silk (6/76 = 100)	126.5	121.7	123.1	124.3	125.2	126.6	126.6	127.1	127.8	129.0	129.0	129.1	128.6	129.3
2272	Tufted carpets and rugs	154.3	148.1	147.8	150.2	151.5	154.5	155.6	158.3	157.4	157.3	157.9	156.4	156.3	155.1
2281	Yarn mills, except wool (12/71 = 100)	221.8	216.9	218.1	220.7	220.9	224.1	225.8	225.1	225.4	223.8	222.3	220.1	217.9	216.0
2282	Throwing and winding mills (6/76 = 100)	138.6	123.2	123.2	131.3	131.5	139.1	139.3	142.7	146.8	148.0	148.0	145.5	146.0	135.3
2284	Thread mills (6/76 = 100)	151.4	144.1	144.3	148.4	150.8	150.9	151.1	151.1	151.1	154.8	157.0	156.9	156.8	156.8
2298	Cordage and twine (12/77 = 100)	134.8	129.3	129.3	130.9	132.7	134.3	134.3	134.3	134.3	139.3	139.3	139.3	140.7	141.0
2311	Men's and boys' suits and coats	223.9	218.2	219.7	220.1	220.3	220.4	224.6	225.9	226.2	226.5	227.0	227.1	230.7	230.7
2321	Men's and boys' shirts and nightwear	208.8	206.3	207.3	207.1	207.6	207.1	207.5	210.5	210.6	211.5	210.2	210.4	211.2	190.9
2322	Men's and boys' underwear	230.6	224.9	229.1	231.0	231.0	231.0	230.7	230.8	230.8	230.8	230.8	232.9	233.0	237.6
2323	Men's and boys' neckwear (12/75 = 100)	114.6	115.4	115.4	115.4	115.4	115.4	115.4	113.9	113.9	113.9	113.9	113.9	113.9	115.3
2327	Men's and boys' separate trousers	186.1	185.3	185.3	185.3	186.0	186.1	186.1	186.4	186.4	186.4	186.6	186.6	186.8	187.0
2328	Men's and boys' work clothing	248.4	242.2	242.2	242.3	247.0	248.2	248.3	250.8	251.1	251.2	252.4	252.5	252.5	251.9
2331	Women's and misses' blouses and waists (6/78 = 100)	119.8	116.3	116.3	116.4	118.3	118.4	118.5	121.0	121.2	121.3	123.6	123.8	123.9	123.8
2335	Women's and misses' dresses (12/77 = 100)	121.1	116.5	116.9	118.5	118.4	122.3	122.5	123.0	124.3	123.5	122.5	123.6	122.5	122.6
2341	Women's and children's underwear (12/72 = 100)	169.9	165.5	167.5	168.8	169.0	169.2	170.5	170.6	170.6	170.6	171.2	172.2	172.2	175.3
2342	Brassieres and allied garments (12/75 = 100)	136.8	131.7	132.8	134.9	135.0	135.0	136.9	138.8	138.8	138.8	139.2	139.3	140.5	145.5
2361	Children's dresses and blouses (12/77 = 100)	120.3	118.1	118.9	119.2	120.7	120.5	120.5	121.6	121.7	121.7	120.9	121.3	119.6	122.0
2381	Fabric dress and work gloves	289.3	284.9	289.1	289.1	289.1	292.1	292.1	289.2	289.2	289.2	289.2	289.2	289.2	293.8
2394	Carvas and related products (12/77 = 100)	132.1	126.8	126.8	127.8	129.3	130.0	130.1	130.1	131.0	131.0	131.0	131.0	140.3	145.5
2396	Automotive and apparel trimmings (12/77 = 100)	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0
2421	Sawmills and planing mills (12/71 = 100)	228.2	232.3	229.6	228.6	233.3	234.8	234.8	233.5	231.2	219.7	217.7	218.3	218.5	218.5
2436	Softwood veneer and plywood (12/75 = 100)	142.0	149.8	149.3	147.2	152.6	145.7	148.1	143.8	139.6	135.4	129.4	128.6	134.1	132.0
2439	Structural wood members, n.e.c. (12/75 = 100)	156.6	157.1	157.0	157.1	158.3	158.2	158.2	157.6	156.9	156.6	154.6	154.7	153.0	153.2
2448	Wood pallets and skids (12/75 = 100)	152.5	153.8	152.8	152.7	153.1	153.1	153.0	152.9	152.9	152.9	152.0	150.7	150.2	149.8
2451	Mobile homes (12/74 = 100)	156.8	153.1	153.2	155.0	155.8	155.9	156.1	158.1	158.3	158.7	159.1	159.0	160.1	160.2
2492	Particleboard (12/75 = 100)	172.8	163.9	170.3	172.3	180.9	184.5	182.3	179.6	173.6	170.5	166.8	165.7	164.7	171.3
2511	Wood household furniture (12/71 = 100)	197.4	191.2	192.1	193.3	195.4	196.2	197.5	198.6	199.2	200.1	201.6	200.9	201.9	203.3
2512	Upholstered household furniture (12/71 = 100)	174.9	169.8	170.1	170.1	171.8	169.7	173.9	175.1	175.1	175.3	178.3	182.3	184.9	184.1
2515	Mattresses and bedsprings	193.7	186.3	188.3	189.5	190.5	190.4	190.5	191.3	194.6	195.2	199.4	201.8	202.2	207.5
2521	Wood office furniture	254.6	244.1	250.4	253.5	254.5	255.4	254.6	254.7	254.7	257.1	258.1	258.0	258.6	262.9
2611	Pulp mills (12/73 = 100)	253.2	246.9	246.9	246.9	251.2	251.3	251.3	251.3	251.3	251.3	257.2	265.5	265.5	269.9
2621	Paper mills, except building (12/74 = 100)	156.3	152.0	152.6	153.3	153.9	154.3	155.7	157.0	157.4	158.8	159.8	159.6	159.8	161.8
2631	Paperboard mills (12/74 = 100)	151.8	148.2	149.2	150.8	151.0	152.1	152.3	151.7	152.4	153.7	153.7	153.8	152.7	152.6
2647	Sanitary paper products	343.8	338.3	342.5	343.0	343.2	344.3	344.4	344.2	344.3	344.3	345.3	345.3	345.8	345.6
2654	Sanitary food containers	245.3	232.0	235.2	237.9	239.2	239.2	242.2	246.0	252.9	253.2	254.8	254.7	254.7	255.3
2655	Fiber cans, drums, and similar products (12/75 = 100)	163.0	157.7	160.6	160.7	160.8	160.9	160.9	163.2	163.2	163.2	167.8			

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1981	1981												1982 Jan.
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. ¹	Oct.	Nov.	Dec.	
3021	Rubber and plastic footwear (12/71 = 100)	184.4	182.8	183.4	183.6	183.6	184.0	184.1	185.0	185.4	185.3	185.0	185.0	185.2	186.1
3031	Reclaimed rubber (12/73 = 100)	193.4	190.4	190.4	187.6	187.7	187.7	187.7	192.9	200.3	200.3	198.1	198.1	198.1	198.1
3079	Miscellaneous plastic products (6/78 = 100)	128.8	125.4	125.4	126.3	128.7	129.1	129.6	129.2	130.2	130.3	130.5	130.5	130.8	130.9
3111	Leather tanning and finishing (12/77 = 100)	150.6	157.0	145.5	151.4	158.6	154.7	150.7	151.3	148.5	148.3	147.5	146.9	147.3	150.7
3143	Men's footwear, except athletic (12/75 = 100)	169.1	164.8	166.5	167.6	168.7	168.9	169.6	170.7	171.4	170.9	169.6	170.6	171.5	172.6
3144	Women's footwear, except athletic	217.8	217.8	220.2	218.7	218.7	219.3	218.5	218.9	217.8	218.2	217.0	214.5	214.6	213.8
3171	Women's handbags and purses (12/75 = 100)	155.5	149.5	149.5	149.7	149.7	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
3211	Flat glass (12/71 = 100)	175.6	167.1	167.5	168.1	174.5	174.5	174.6	180.0	180.0	180.0	180.1	180.1	180.1	177.3
3221	Glass containers	328.4	311.4	311.4	311.4	326.6	335.2	335.2	335.4	335.4	335.4	334.7	334.7	334.8	334.7
3241	Cement, hydraulic	328.5	324.3	324.3	324.4	332.4	332.3	331.0	331.6	331.6	332.0	327.2	327.2	327.2	336.4
3251	Brick and structural clay tile	296.9	286.6	286.1	295.3	296.0	297.4	298.5	298.9	298.9	299.9	300.8	301.4	301.8	291.4
3253	Ceramic wall and floor tile (12/75 = 100)	132.5	127.1	127.1	127.1	129.6	132.1	132.1	132.1	132.1	132.1	140.4	137.7	137.7	136.8
3255	Clay refractories	310.4	291.5	305.2	308.1	308.6	311.0	312.2	312.3	312.3	312.5	315.7	317.0	317.1	327.0
3259	Structural clay products, n.e.c.	222.7	209.5	212.8	213.0	212.7	223.9	223.9	223.9	223.9	227.5	232.2	232.2	237.0	196.4
3261	Vitreous plumbing fixtures	254.9	244.7	248.9	249.4	252.0	252.5	255.8	258.7	259.6	259.0	259.9	259.3	260.1	261.1
3262	Vitreous china food utensils	335.0	327.4	327.4	328.0	328.2	336.6	336.6	336.6	336.6	336.6	336.8	344.7	344.7	347.7
3263	Fine earthenware food utensils	308.9	298.6	298.6	307.9	308.2	309.6	309.6	309.6	309.6	313.8	313.3	314.4	314.4	314.5
3269	Pottery products, n.e.c. (12/75 = 100)	160.1	155.5	155.5	158.5	158.6	160.6	160.7	160.7	160.7	161.8	161.7	163.6	163.6	164.2
3271	Concrete block and brick	270.4	264.1	265.0	263.2	267.4	271.2	271.2	271.2	271.2	274.0	274.0	274.0	274.5	275.3
3273	Ready-mixed concrete	298.7	294.8	295.4	296.0	298.5	299.4	301.7	300.7	300.0	299.2	299.7	299.2	299.5	301.1
3274	Lime (12/75 = 100)	172.5	165.7	171.7	172.6	172.4	172.6	173.0	173.1	173.9	173.7	173.9	173.8	174.0	179.1
3275	Gypsum products	257.3	259.9	257.6	257.9	257.1	261.4	260.9	261.8	258.9	252.9	251.5	252.5	256.0	250.9
3291	Abrasive products (12/71 = 100)	232.5	222.8	221.7	223.1	232.7	233.2	234.1	235.0	235.1	237.3	237.5	239.6	240.0	239.9
3297	Nonclay refractories (12/74 = 100)	185.3	172.4	177.5	178.9	178.9	186.6	189.7	189.7	189.7	189.7	189.9	190.2	190.2	191.1
3312	Blast furnaces and steel mills	342.8	328.7	328.9	334.0	337.3	338.2	350.1	350.0	350.0	350.3	353.1	352.9	353.2	354.9
3313	Electrometallurgical products (12/75 = 100)	121.8	119.9	120.0	120.0	120.8	120.6	120.7	121.2	121.5	121.4	125.4	125.4	125.3	125.3
3316	Cold finishing of steel shapes	316.2	302.8	303.1	306.1	308.2	308.2	309.5	325.0	325.7	326.2	326.4	326.4	326.7	327.0
3317	Steel pipes and tubes	341.5	315.5	316.3	326.1	333.1	334.1	336.3	348.2	350.6	350.5	362.0	362.3	363.1	363.8
3321	Gray iron foundries (12/68 = 100)	299.5	295.2	296.1	295.6	297.0	298.4	298.4	298.8	299.9	302.0	304.6	303.9	304.7	308.0
3333	Primary zinc	326.5	300.3	300.0	299.7	311.9	332.7	335.1	335.4	353.8	355.9	332.9	337.5	327.3	308.0
3334	Primary aluminum	333.5	331.7	332.3	332.2	332.8	334.2	332.5	334.2	334.4	333.6	335.8	332.5	332.8	332.4
3351	Copper rolling and drawing	212.4	218.7	215.3	211.8	213.1	212.6	210.6	209.4	212.9	214.1	212.9	209.4	208.6	205.6
3353	Aluminum sheet, plate, and foil (12/75 = 100)	175.9	169.3	170.7	172.1	173.8	174.4	176.1	177.3	177.4	178.0	180.7	179.9	180.9	181.5
3354	Aluminum extruded products (12/75 = 100)	180.1	176.8	177.1	177.3	180.6	180.7	180.8	181.2	181.3	181.2	181.3	181.4	181.1	180.7
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	159.1	155.3	157.1	157.2	157.3	157.4	157.3	157.2	157.2	157.7	163.3	166.2	166.1	166.1
3411	Metal cans	305.3	302.1	303.0	304.7	304.7	304.7	304.7	305.5	306.7	306.8	307.2	306.6	306.6	310.3
3425	Hand saws and saw blades (12/72 = 100)	201.3	195.4	196.3	198.0	198.1	200.2	200.2	204.1	204.2	204.6	204.5	204.6	205.6	211.0
3431	Metal sanitary ware	265.0	256.0	256.4	258.5	262.8	264.8	265.2	269.2	269.7	270.2	267.7	270.6	270.2	270.9
3465	Automotive stampings (12/75 = 100)	146.4	143.0	143.9	144.2	145.0	145.0	145.2	146.2	146.4	146.9	147.7	149.7	153.7	154.6
3482	Small arms ammunition (12/75 = 100)	160.5	157.9	157.8	157.2	157.8	157.8	157.8	157.8	159.9	159.9	165.3	165.3	165.3	173.2
3493	Steel springs, except wire	245.1	238.4	239.2	239.5	241.2	241.7	241.9	243.7	248.9	252.4	249.6	253.8	254.3	256.4
3494	Valves and pipe fittings (12/71 = 100)	248.4	240.2	242.1	244.8	247.6	247.9	248.5	250.0	251.0	252.7	251.4	251.9	253.8	255.8
3498	Fabricated pipe and fittings	361.4	335.7	335.7	335.8	358.8	359.9	361.6	364.6	370.0	375.1	379.1	378.8	379.4	378.6
3519	Internal combustion engines, n.e.c.	311.0	298.2	299.4	302.6	306.0	306.2	307.2	312.0	314.2	322.1	321.6	322.4	321.5	327.3
3531	Construction machinery (12/76 = 100)	157.0	150.0	151.4	152.6	154.4	155.3	156.9	159.0	159.5	160.1	161.5	161.6	162.1	164.8
3532	Mining machinery (12/72 = 100)	282.3	272.5	273.5	276.2	279.5	280.0	280.8	282.7	285.3	286.9	288.7	290.3	291.8	293.9
3533	Oilfield machinery and equipment	395.4	367.0	374.2	378.2	382.2	384.6	390.3	401.3	406.5	411.3	413.3	418.3	420.1	427.1
3534	Elevators and moving stairways	253.5	250.3	250.3	250.3	251.2	251.2	251.2	252.1	252.8	254.6	257.1	259.9	261.4	268.0
3542	Machine tools, metal forming types (12/71 = 100)	306.4	297.5	298.0	301.9	303.0	304.5	305.7	307.6	309.5	312.0	312.3	312.3	313.0	313.5
3546	Power driven hand tools (12/76 = 100)	147.1	142.6	144.9	145.2	146.4	147.0	147.1	148.2	148.4	148.6	148.8	148.7	149.3	153.3
3552	Textile machinery (12/69 = 100)	243.4	235.7	235.0	240.0	240.4	241.2	244.4	246.2	245.4	248.2	248.1	247.9	250.0	248.8
3553	Woodworking machinery (12/72 = 100)	224.5	222.5	223.1	224.7	225.5	219.1	219.7	224.0	225.4	228.9	226.9	229.0	229.0	229.4
3576	Scales and balances, excluding laboratory	226.2	220.5	221.1	224.2	230.2	230.2	230.3	226.6	226.6	226.1	226.1	226.1	226.4	228.2
3592	Carburetors, pistons, rings, valves (6/76 = 100)	177.9	168.9	170.9	171.5	172.0	172.0	176.5	180.8	181.3	182.1	185.2	187.0	187.1	185.0
3612	Transformers	209.7	194.9	197.1	204.3	206.0	207.8	209.6	210.7	212.8	214.5	216.2	221.5	219.8	220.3
3623	Welding apparatus, electric (12/72 = 100)	227.2	218.9	220.9	222.1	224.3	225.9	227.2	228.3	229.6	231.6	231.8	232.4	234.7	235.9
3631	Household cooking equipment (12/75 = 100)	141.1	140.1	141.0	141.1	140.5	140.7	141.0	140.5	141.5	141.6	141.6	142.0	142.6	144.6
3632	Household refrigerators, freezers (6/76 = 100)	132.3	127.5	127.5	127.6	129.4	129.5	130.8	135.5	135.5	136.4	136.4	136.4	136.4	138.6
3633	Household laundry equipment (12/73 = 100)	174.2	169.8	170.2	170.9	173.5	173.9	173.6	174.1	174.6	177.2	176.8	176.8	178.8	179.8
3635	Household vacuum cleaners	156.8	159.1	156.3	158.5	158.4	158.5	158.6	158.6	158.8	158.8	154.5	154.2	154.0	158.7
3636	Sewing machines (12/75 = 100)	146.6	130.3	130.3	131.9	131.8	153.8	153.8	153.8	153.8	153.8	155.4	155.4	155.4	155.4
3641	Electric lamps	277.5	265.8	271.2	272.6	275.5	275.1	276.5	275.2	280.0	283.1	285.9	286.6	282.7	282.0
3644	Noncurrent-carrying wiring devices (12/72 = 100)	250.4	233.1	236.3	240.6	242.6	242.8	251.5	253.3	253.8	258.5	261.2	264.6	264.6	261.5
3646	Commercial lighting fixtures (12/75 = 100)	154.4	145.1	148.0	151.4	156.1	156.2	156.2	154.4	155.5	157.6	156.8	157.3	158.4	159.9
3648	Lighting equipment, n.e.c. (12/75 = 100)	155.7	146.3	146.8	152.7	153.2	153.3	153.7	153.8	161.3	161.7	161.4	162.0	162.7	162.7
3671	Electron tubes receiving type	309.7	284.3	284.4	285.0	285.0	285.1	312.5	327.4	327.5	327.5	327.6	327.8	342.3	371.8
3674	Semiconductors and related devices	90.4	91.1	90.8	91.3	91.2	90.6	90.3	89.2	89.2	91.4	89.2	91.0	91.9	90.9
3675	Electronic capacitors (12/75 = 100)	170.3	170.3	171.1	173.2	168.7	168.5	171.2	171.4	178.8	172.4	172.4	169.2	168.0	166.4
3676	Electronic resistors (12/75 = 100)	141.3	139.0	139.9	139.9	140.0	140.8	141.2	142.1	142.5	142.7	142.6	142.8	142.5	142.9
3678	Electronic connectors (12/75 = 100)	154.8	152.2	153.5	154.5	154.4	153.7	154.3	155.0	155.8	156.5	156.3	155.8	156.6	157.2
3692	Primary batteries, dry and wet	182.2	179.0	183.3	184.2	182.6	181.0	181.0	181.6	182.7	182.7	182.7	1		

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, 1950-81

[1977=100]

Item	1950	1955	1960	1965	1970	1974	1975	1976	1977	1978	1979	1980	1981 ¹
Private business sector:													
Output per hour of all persons	50.3	58.2	65.1	78.2	86.1	92.7	94.8	97.9	100.0	99.8	99.5	99.3	P 100.4
Compensation per hour	20.0	26.3	33.9	41.7	58.2	78.0	85.5	92.9	100.0	108.4	119.3	131.5	P 144.6
Real compensation per hour	50.4	59.6	69.4	80.0	90.8	95.9	96.3	98.8	100.0	100.7	99.6	96.7	P 96.4
Unit labor cost	39.8	45.2	52.1	53.3	67.6	84.2	90.2	94.8	100.0	108.6	119.9	132.4	P 144.1
Unit nonlabor payments	43.5	47.8	50.8	57.8	63.4	78.9	90.7	94.4	100.0	105.1	110.9	118.3	P 130.0
Implicit price deflator	41.0	46.1	51.7	54.8	66.2	82.4	90.4	94.7	100.0	107.4	116.9	127.6	P 139.3
Nonfarm business sector:													
Output per hour of all persons	56.2	62.7	68.2	80.4	86.7	93.1	95.0	98.1	100.0	99.8	99.1	98.8	P 99.7
Compensation per hour	21.8	28.3	35.6	42.8	58.6	78.4	86.0	93.0	100.0	108.5	119.0	130.8	P 143.9
Real compensation per hour	55.0	63.9	73.0	82.2	91.5	96.4	96.8	99.0	100.0	100.7	99.3	96.2	P 95.9
Unit labor cost	38.8	45.1	52.3	53.2	67.6	84.3	90.5	94.8	100.0	108.7	120.0	132.4	P 144.4
Unit nonlabor payments	42.8	47.9	50.5	58.2	64.0	76.1	88.9	94.0	100.0	103.6	108.5	117.6	P 129.8
Implicit price deflator	40.2	46.0	51.7	54.9	66.4	81.6	89.9	94.5	100.0	107.0	116.2	127.4	P 139.6
Nonfinancial corporations:													
Output per hour of all employees	(¹)	(¹)	66.3	79.9	85.4	91.3	94.4	97.4	100.0	100.4	100.4	101.0	(¹)
Compensation per hour	(¹)	(¹)	36.3	43.0	58.3	77.6	85.5	92.5	100.0	108.2	118.7	130.7	(¹)
Real compensation per hour	(¹)	(¹)	74.2	82.6	91.0	95.4	96.3	98.5	100.0	100.5	99.1	96.2	(¹)
Unit labor cost	(¹)	(¹)	54.7	53.8	68.3	85.1	90.6	95.0	100.0	107.8	118.2	129.4	(¹)
Unit nonlabor payments	(¹)	(¹)	54.6	60.8	63.1	75.7	90.9	95.0	100.0	103.8	108.3	117.3	(¹)
Implicit price deflator	(¹)	(¹)	54.7	56.2	66.5	81.8	90.7	95.0	100.0	106.4	114.8	125.2	(¹)
Manufacturing:													
Output per hour of all persons	49.5	56.5	60.1	74.6	79.2	90.9	93.5	97.7	100.0	100.9	102.0	101.7	P 104.4
Compensation per hour	21.5	28.8	36.7	42.9	57.6	76.4	85.5	92.4	100.0	108.2	118.8	131.6	P 146.2
Real compensation per hour	54.1	65.2	75.1	82.3	89.9	93.9	96.3	98.3	100.0	100.5	99.2	96.8	P 97.4
Unit labor cost	43.4	51.0	61.1	57.4	72.7	84.1	91.4	94.6	100.0	107.3	116.5	129.4	P 140.0
Unit nonlabor payments	55.1	59.4	62.0	70.3	66.0	70.4	88.5	95.1	100.0	104.7	105.7	108.7	(¹)
Implicit price deflator	46.8	53.4	61.3	61.2	70.7	80.1	90.6	94.7	100.0	106.5	113.4	123.4	(¹)

¹ Not available.

r = revised.

32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1971-81

Item	Year											Annual rate of change	
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1950-81	1960-81
Private business sector:													
Output per hour of all persons	3.6	3.5	2.7	-2.3	2.3	3.3	2.1	-0.2	-0.3	-0.2	P 1.0	P 2.4	P 2.1
Compensation per hour	6.6	6.5	8.0	9.4	9.6	8.6	7.7	8.4	10.1	10.2	P 10.0	P 6.2	P 7.2
Real compensation per hour	2.2	3.1	1.7	-1.4	0.4	2.7	1.2	0.7	-1.1	-2.9	P -0.3	P 2.3	P 1.7
Unit labor cost	2.9	2.9	5.2	11.9	7.2	5.1	5.5	8.6	10.4	10.4	P 8.9	P 3.6	P 5.0
Unit nonlabor payments	7.6	4.5	5.9	4.4	15.0	4.1	5.9	5.1	5.5	6.6	P 9.9	P 3.3	P 4.5
Implicit price deflator	4.4	3.4	5.4	9.4	9.7	4.7	5.6	7.4	8.8	9.2	P 9.2	P 3.5	P 4.9
Nonfarm business sector:													
Output per hour of all persons	3.3	3.7	2.5	-2.4	2.1	3.2	2.0	-0.2	-0.7	-0.3	P 0.9	P 2.1	P 1.8
Compensation per hour	6.6	6.7	7.6	9.4	9.6	8.1	7.6	8.5	9.7	9.9	P 10.1	P 5.9	P 7.0
Real compensation per hour	2.2	3.3	1.3	-1.4	0.4	2.2	1.0	0.7	-1.4	-3.2	P -0.3	P 2.0	P 1.5
Unit labor cost	3.1	2.8	4.9	12.1	7.4	4.7	5.5	8.7	10.4	10.3	P 9.1	P 3.7	P 5.0
Unit nonlabor payments	7.4	3.2	1.3	5.9	16.7	5.7	6.4	3.6	4.8	8.4	P 10.4	P 3.3	P 4.4
Implicit price deflator	4.5	3.0	3.7	10.1	10.3	5.1	5.8	7.0	8.6	9.7	P 9.5	P 3.6	P 4.8
Nonfinancial corporations:													
Output per hour of all employees	4.8	3.0	2.6	-3.4	3.4	3.2	2.7	0.4	-0.0	0.6	(¹)	(¹)	P 2.1
Compensation per hour	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	9.7	10.1	(¹)	(¹)	P 6.7
Real compensation per hour	2.1	2.5	1.4	-1.1	0.9	2.3	1.5	0.5	-1.4	-3.0	(¹)	(¹)	P 1.5
Unit labor cost	1.6	2.8	4.9	13.6	6.5	4.9	5.3	7.8	9.7	9.5	(¹)	(¹)	P 4.6
Unit nonlabor payments	7.4	2.7	1.5	7.1	20.1	4.6	5.2	3.8	4.4	8.3	(¹)	(¹)	P 3.8
Implicit price deflator	3.5	2.8	3.8	11.4	10.9	4.8	5.2	6.4	7.9	9.1	(¹)	(¹)	P 4.3
Manufacturing:													
Output per hour of all persons	6.1	5.0	5.3	-2.4	2.9	4.4	2.4	0.9	1.1	-0.3	P 2.7	P 2.6	P 2.6
Compensation per hour	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	9.8	10.7	P 11.1	P 5.8	P 6.9
Real compensation per hour	1.8	2.0	0.9	-0.3	2.5	2.1	1.7	0.5	-1.3	-2.5	P 0.7	P 2.0	P 1.4
Unit labor cost	0.0	0.3	1.7	13.3	8.8	3.4	5.7	7.3	8.6	11.0	P 8.2	P 3.1	P 4.1
Unit nonlabor payments	11.2	0.8	-3.3	-1.8	25.9	7.4	5.2	4.7	0.9	2.9	(¹)	(¹)	P 1.1
Implicit price deflator	3.1	0.5	0.3	9.0	13.1	4.6	5.6	6.5	6.4	8.8	(¹)	(¹)	P 1.1

¹ 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				1981				
	1980	1981	II	III	IV	I	II	III	IV	I	II	III	IV	
Private business sector:														
Output per hour of all persons	99.3	P 100.4	99.7	99.4	99.1	99.5	99.1	99.4	99.1	100.3	¹ 101.2	100.9	P 99.0	
Compensation per hour	131.5	P 144.6	118.1	120.7	123.2	126.4	130.1	133.1	135.9	¹ 139.8	¹ 143.3	¹ 146.5	P 148.5	
Real compensation per hour	96.7	P 96.4	100.3	99.2	98.0	96.7	¹ 96.6	96.9	96.0	96.1	¹ 96.9	¹ 96.3	P 95.8	
Unit labor cost	132.4	P 144.1	118.5	121.4	124.3	127.0	131.3	133.9	¹ 137.1	139.4	141.6	¹ 145.2	P 150.0	
Unit nonlabor payments	118.3	P 130.0	110.4	111.5	112.2	115.2	116.0	119.7	122.7	127.6	129.3	¹ 132.4	P 130.6	
Implicit price deflator	127.6	P 139.3	115.8	118.1	120.2	123.0	126.1	129.1	132.2	135.4	137.5	¹ 140.9	P 143.5	
Nonfarm business sector:														
Output per hour of all persons	98.8	P 99.7	99.1	98.9	98.8	98.9	98.2	99.0	99.0	100.0	100.4	99.9	P 98.0	
Compensation per hour	130.8	P 143.9	117.7	120.2	123.0	126.0	129.4	132.3	135.4	¹ 139.2	142.4	¹ 145.7	P 148.0	
Real compensation per hour	96.2	P 95.9	100.0	98.8	97.8	96.4	96.0	96.3	¹ 95.7	95.7	96.3	¹ 95.8	P 95.5	
Unit labor cost	132.4	P 144.4	118.7	121.5	124.4	127.4	131.8	133.6	136.8	139.1	141.9	¹ 145.8	P 151.0	
Unit nonlabor payments	117.6	P 129.8	107.7	109.2	110.1	113.9	115.1	119.2	122.0	127.8	128.7	¹ 132.2	P 130.9	
Implicit price deflator	127.4	P 139.6	115.1	117.4	119.7	122.9	126.3	128.8	131.9	135.3	137.5	¹ 141.2	P 144.3	
Nonfinancial corporations:														
Output per hour of all employees	101.0	(¹)	100.7	100.5	99.9	100.2	100.1	101.8	101.8	103.3	103.9	¹ 103.8	(¹)	
Compensation per hour	130.7	(¹)	117.6	120.1	122.7	125.7	129.3	132.5	135.5	139.2	142.3	¹ 145.5	(¹)	
Real compensation per hour	96.2	(¹)	99.9	98.7	97.5	96.2	95.9	96.5	95.7	95.7	96.2	95.6	(¹)	
Total unit costs	129.7	(¹)	115.3	118.2	121.3	124.2	129.2	131.1	134.1	136.0	138.7	142.2	(¹)	
Unit labor cost	129.4	(¹)	116.8	119.5	122.8	125.4	129.1	130.2	133.1	134.7	137.0	140.2	(¹)	
Unit nonlabor costs	130.2	(¹)	111.2	114.6	117.2	120.9	129.3	133.8	136.9	139.5	143.6	¹ 147.7	(¹)	
Unit profits	90.2	(¹)	100.7	97.5	92.2	95.5	83.4	89.1	92.4	106.8	102.8	¹ 106.7	(¹)	
Implicit price deflator	125.2	(¹)	113.7	115.9	118.1	121.0	124.1	126.4	129.5	132.7	134.7	¹ 138.2	(¹)	
Manufacturing:														
Output per hour of all persons	101.7	P 104.4	102.3	102.0	102.1	102.0	100.7	100.7	103.2	¹ 104.2	¹ 105.2	105.5	P 102.4	
Compensation per hour	131.6	P 146.2	118.6	119.8	122.3	125.4	130.0	133.9	137.3	¹ 141.1	¹ 144.8	¹ 148.0	P 150.7	
Real compensation per hour	¹ 96.8	P 97.4	100.7	98.5	97.2	¹ 96.0	¹ 96.5	97.5	97.0	¹ 97.1	¹ 97.9	¹ 97.3	P 97.2	
Unit labor cost	129.4	P 140.0	115.9	117.5	119.8	122.9	¹ 129.0	133.0	133.0	¹ 135.5	¹ 137.6	¹ 140.3	P 147.1	

¹ 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					
	II 1980 to III 1980	III 1980 to IV 1980	IV 1980 to I 1981	I 1981 to II 1981	II 1981 to III 1981	III 1981 to IV 1981	III 1979 to III 1980	IV 1979 to IV 1980	I 1980 to I 1981	II 1980 to II 1981	III 1980 to III 1981	IV 1980 to IV 1981
Private business sector:												
Output per hour of all persons	1.3	-1.1	r 4.7	3.5	r -1.1	P -7.2	0.0	0.0	r 0.8	2.1	1.5	P -0.1
Compensation per hour	9.5	8.6	r 11.9	10.4	r 9.3	P 5.7	10.3	10.3	r 10.6	10.1	r 10.1	P 9.3
Real compensation per hour	1.6	-3.8	r 0.5	3.2	r -2.3	P -1.9	-2.3	-2.0	r -0.6	0.3	r -0.6	P -0.2
Unit labor costs	8.1	9.8	6.9	6.6	r 10.6	P 14.0	10.3	10.3	9.7	7.8	r 8.5	P 9.5
Unit nonlabor payments	13.7	10.2	r 17.1	5.3	r 10.1	P -5.3	7.4	9.3	10.8	11.5	r 10.6	P 6.5
Implicit price deflator	9.8	9.9	10.0	6.2	r 10.4	P 7.5	9.4	10.0	10.1	9.0	r 9.1	P 8.5
Nonfarm business sector:												
Output per hour of all persons	3.6	-0.2	r 4.4	1.4	r -1.8	P -7.6	r 0.2	r 0.2	1.1	r 2.3	0.9	P -1.0
Compensation per hour	9.0	9.8	r 11.7	9.6	r 9.5	P 6.5	10.1	10.1	r 10.5	10.0	r 10.2	P 9.3
Real compensation per hour	1.2	-2.7	r 0.3	r 2.5	r -2.2	P -1.2	-2.5	-2.2	r -0.7	r 0.3	-0.6	P -0.2
Unit labor costs	5.3	10.1	7.0	8.1	r 11.5	P 15.2	9.9	9.9	9.2	7.6	r 9.2	P 10.4
Unit nonlabor payments	15.0	9.9	20.3	3.0	r 11.3	P -4.0	9.1	10.8	12.2	11.8	r 10.9	P 7.3
Implicit price deflator	8.2	10.0	11.0	6.5	r 11.4	P 8.9	9.6	10.2	10.1	8.9	r 9.7	P 9.4
Nonfinancial corporations:												
Output per hour of all employees	6.7	0.0	6.3	2.2	r -0.5	(¹)	1.3	1.9	3.1	3.8	r 2.0	(¹)
Compensation per hour	10.2	9.4	11.4	9.3	r 9.2	(¹)	10.3	10.4	10.8	10.1	9.8	(¹)
Real compensation per hour	2.2	-3.1	0.0	2.1	-2.5	(¹)	-2.2	-1.9	-0.5	0.3	-0.9	(¹)
Total unit costs	6.2	9.4	5.6	8.4	r 10.3	(¹)	11.0	10.5	9.5	7.4	8.4	(¹)
Unit labor costs	3.2	9.4	4.8	7.0	9.7	(¹)	8.9	8.4	7.4	6.1	7.7	(¹)
Unit nonlabor costs	14.7	9.5	7.9	12.3	r 11.8	(¹)	16.8	16.8	15.4	11.1	r 10.4	(¹)
Unit profits	30.3	15.7	77.9	-13.9	r 15.7	(¹)	-8.6	0.3	11.8	23.3	r 19.7	(¹)
Implicit price deflator	7.9	9.9	10.4	6.2	r 10.7	(¹)	9.1	9.6	9.7	8.6	r 9.3	(¹)
Manufacturing:												
Output per hour of all persons	r -0.1	r 10.3	r 3.8	4.1	r 1.2	P -11.3	r -1.2	1.1	2.1	r 4.5	r 4.8	P -0.8
Compensation per hour	12.7	10.5	r 11.6	10.8	r 9.3	P 7.5	r 11.8	r 12.3	r 12.5	r 11.4	r 10.5	P 9.8
Real compensation per hour	4.5	-2.2	r -0.2	3.5	r -2.4	P -0.3	-1.0	r -0.2	r 1.1	r 1.5	r -0.2	P 0.2
Unit labor costs	r 12.8	0.1	7.5	r 6.5	r 8.0	P 21.1	13.2	11.0	10.2	6.6	r 5.5	P 10.6

¹ 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 in major bargaining units measure actual changes during the reference period, whether the result of a newly negotiated increase, a deferred increase negotiated in an earlier year, or a cost-of-living 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]

Measures and industry	Annual average					Quarterly average								
	1977	1978	1979	1980	1981 ^P	1979	1980				1981 ^P			
						IV	I	II	III	IV	I ^r	II ^r	III ^r	IV
Wage and benefit settlements, all industries:														
First-year settlements	9.6	8.3	9.0	10.4	11.3	8.5	8.8	10.2	11.4	8.5	10.5	11.6	12.3	11.1
Annual rate over life of contract	6.2	6.3	6.6	7.1	9.2	6.0	6.7	7.4	7.2	6.1	9.4	10.8	9.3	5.6
Wage rate settlements, all industries:														
First-year settlements	7.8	7.6	7.4	9.5	10.1	6.3	8.2	9.1	10.5	8.3	7.2	11.8	11.8	9.3
Annual rate over life of contract	5.8	6.4	6.0	7.1	8.1	5.3	6.5	7.3	7.4	6.5	6.5	9.7	9.4	5.6
Manufacturing:														
First-year settlements	8.4	8.3	6.9	7.4	7.3	5.6	7.2	6.7	8.4	7.8	6.7	8.1	9.4	6.0
Annual rate over life of contract	5.5	6.6	5.4	5.4	6.3	4.2	5.7	5.1	5.6	5.8	6.0	6.6	7.9	5.0
Nonmanufacturing (excluding construction):														
First-year settlements	8.0	8.0	7.6	9.5	10.2	7.8	9.4	10.3	9.5	8.2	7.9	11.7	10.3	9.8
Annual rate over life of contract	5.9	6.5	6.2	6.6	7.5	7.4	7.6	8.5	5.9	6.8	7.2	9.0	8.6	5.5
Construction:														
First-year settlements	6.3	6.5	8.8	13.6	13.5	7.5	10.8	12.2	15.4	14.3	11.4	12.9	16.4	11.4
Annual rate over life of contract	6.3	6.2	8.3	11.5	11.3	7.6	9.1	10.4	13.0	12.0	10.3	11.1	12.4	11.7

r = revised.

36. Effective wage adjustments in major collective bargaining units, 1976 to date

[In percent]

Measures and industry	Average annual changes					Average quarterly changes								
	1977	1978	1979	1980	1981 P	1979	1980				1981 P			
						IV	I	II	III	IV	I'	II'	III'	IV
Total effective wage rate adjustment, all industries	8.0	8.2	9.1	9.9	9.1	1.6	1.6	3.3	3.5	1.3	1.6	3.0	3.2	1.3
Change resulting from —														
Current settlement	3.0	2.0	3.0	3.6	2.5	.5	.4	1.0	1.7	.5	.4	1.1	.6	.4
Prior settlement	3.2	3.7	3.0	3.5	3.8	.4	.5	1.4	1.2	.3	.6	1.3	1.5	.4
Cost-of-living adjustment clause	1.7	2.4	3.1	2.8	2.8	.7	.7	.8	.7	.6	.6	.7	1.1	.4
Manufacturing	8.4	8.6	9.6	10.2	8.9	2.4	2.0	3.4	2.9	1.7	2.2	2.1	3.0	1.6
Nonmanufacturing	7.6	7.9	8.8	9.7	9.2	1.0	1.3	3.2	4.0	1.1	1.1	3.7	3.4	1.1

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

r = revised.

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	3,362	.....	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	3,885	.....	1,366	.....	33,289	.14
1981 P	2,577	.....	1,082	.....	24,670	.11
1980: December	90	380	19	77	1,228	.06
1981 P: January	187	.....	38.8	.....	942.4	.05
February	213	.....	41.5	.....	769.9	.04
March	285	.....	243.7	.....	1,697.5	.08
April	286	.....	80.3	.....	4,884.5	.24
May	301	.....	123.7	.....	5,307.6	.28
June	302	.....	241.0	.....	3,521.1	.17
July	286	.....	120.5	.....	2,472.6	.12
August	211	.....	68.5	.....	1,704.3	.09
September	225	.....	58.5	.....	1,479.3	.08
October	166	.....	36.0	.....	1,207.9	.06
November	82	.....	21.0	.....	395.2	.02
December	33	8.2	287.6	.01

NOTE: The preliminary data for 1981 have been revised.

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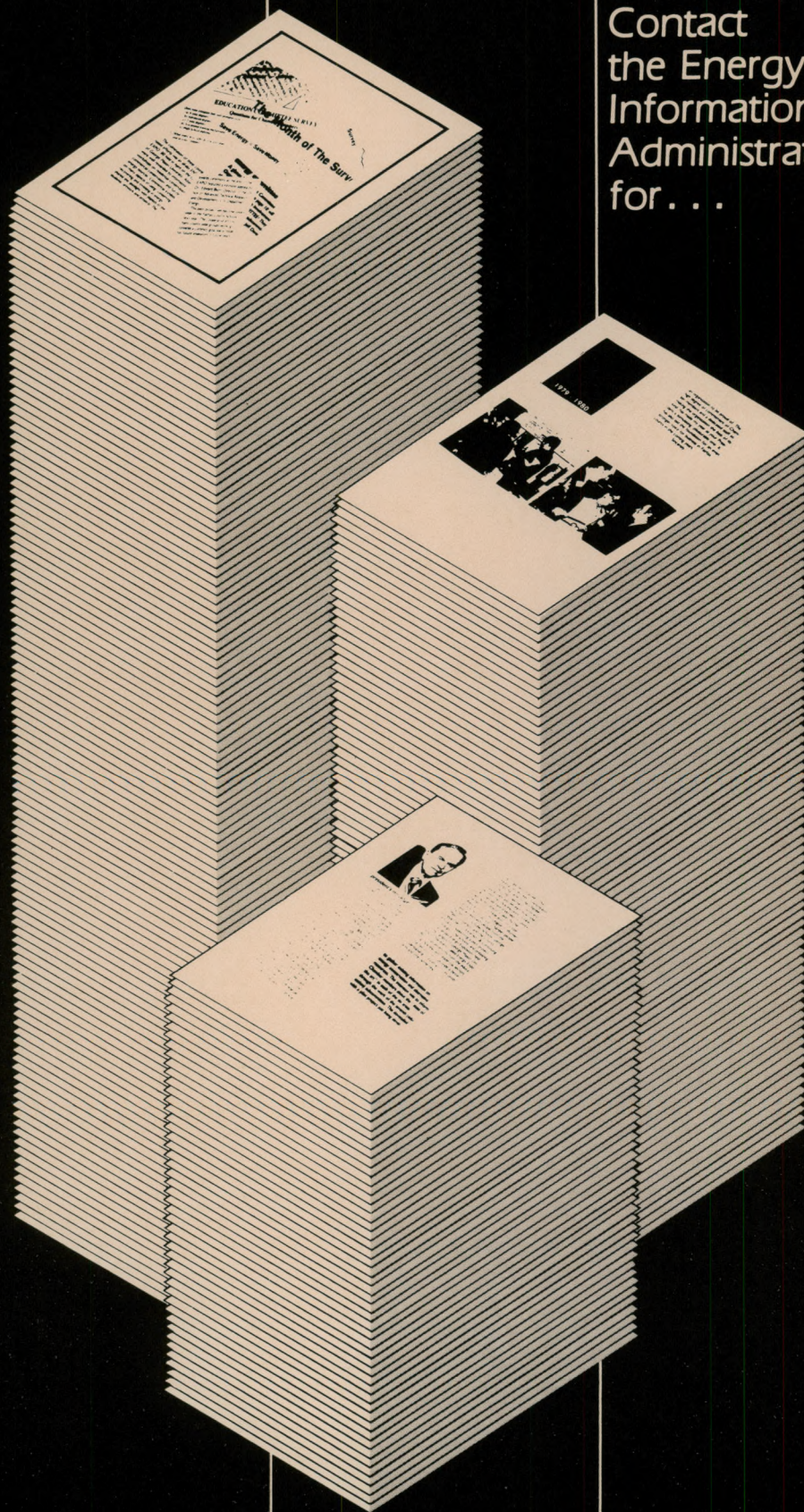
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