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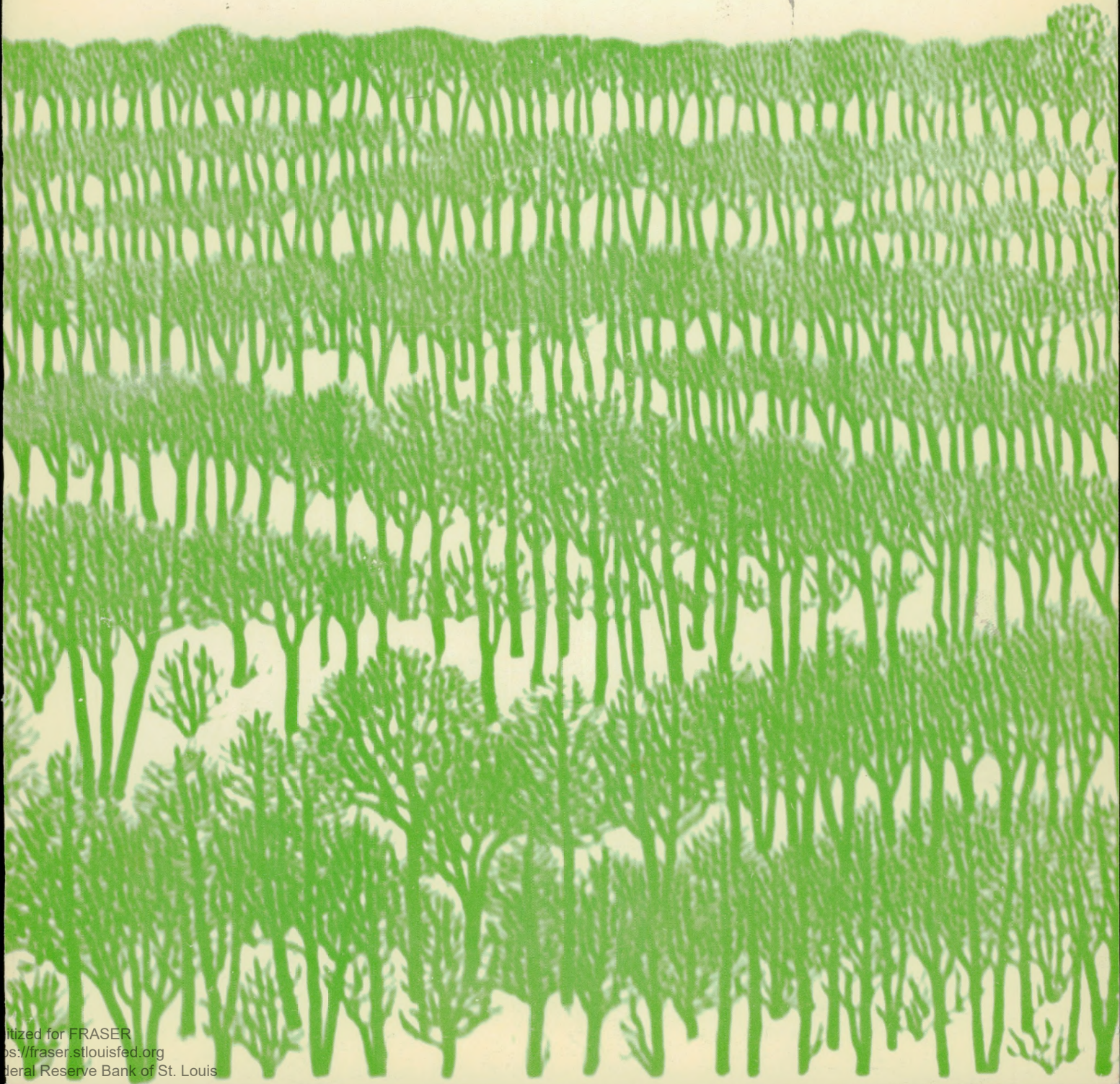


MONTHLY LABOR REVIEW

U.S. Department of Labor  
Bureau of Labor Statistics  
December 1984  
JAN 2 1 1985

*In this issue:*

- Two articles on productivity
- Work experience in 1983
- White collar pay





**U.S. DEPARTMENT OF LABOR**  
**Raymond J. Donovan, Secretary**

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## MONTHLY LABOR REVIEW

DECEMBER 1984  
VOLUME 107, NUMBER 12

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

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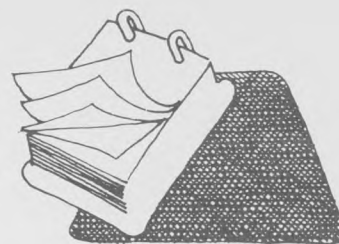
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# Labor Month In Review



**MULTIFIRM PENSION PLANS.** The Secretary of Labor reported to Congress on the funding status of multiemployer pension plans and on the feasibility of requiring collective bargaining on contributions to and benefits from such plans.

**Background.** Reflecting congressional concern that current collective bargaining practices and actions by boards of trustees have led to serious underfunding of multiemployer pension plans, the Multiemployer Pension Plan Amendments Act of 1980 directed the Secretary of Labor to prepare a report on such plans.

Results of the Secretary's study, which was based on Internal Revenue Service records and provisions of collective bargaining agreements, show that, contrary to expectations, multiemployer plans as currently bargained are relatively well funded. Nothing in the study indicates that failure to bargain over benefit levels has hurt the funding status of the plans. Other highlights:

**Contract provisions.** An analysis of a sample of multiemployer collective bargaining agreements indicated that the typical pension plan provision required employers to make a specified contribution to a pooled central fund from which pension benefits are paid. Only rarely did a contract require employers to provide specified types and levels of benefits, as is common in single-employer plans.

In approximately 75 percent of the agreements examined, the contribution rate was based on hours worked for each covered employee. About 15 percent of the agreements required the employer to contribute a fixed percentage of each employee's earnings or of total payroll. A few agreements provided for other

contribution methods.

**Plan characteristics.** The average multiemployer plan was established about 20 years ago. Only 20 percent of the plans in effect in 1979, the reference year of the study, had been established after 1970.

Approximately 2,200 multiemployer defined benefit plans and 400 defined contribution plans established through collective bargaining were in effect in 1979. These plans involved more than 700,000 employers and covered 9.1 million active and retired workers.

The top 68 multiemployer plans covered almost 5 million participants, more than half of all participants in multiemployer plans. Plans with fewer than 2,500 participants accounted for 80 percent of all multiemployer plans, but only 15 percent of all participants.

Almost three-fifths of all multi-employer plans (covering one-third of total participants) were in the construction industry. About 30 percent of the plans with almost half of the participants were in other nonmanufacturing industries, such as motor and water transportation, retail and wholesale trade, and services. The remaining plans and participants were found in manufacturing industries, with concentrations in apparel and printing.

Members of 94 unions participated in the plans studied. Ten unions covered 250,000 or more participants each, accounting for two-thirds of total participants—Teamsters, Ladies Garment Workers, United Mine Workers, Hotel and Restaurant Employees, Food and Commercial Workers, Electrical Workers (IBEW), Plumbers, Carpenters, Laborers, and Operating Engineers.

During the 1975-79 period, the market value of assets of multiemployer plans almost doubled, rising from \$22.7

billion to \$40.8 billion. More than 50 percent of assets of multiemployer plans were found in 75 large plans, each with \$100 million or more in assets.

**Funding status.** The typical defined benefit multiemployer plan was well funded in 1979, with an average funding ratio of 90 percent. (The funding ratio is the ratio of reported assets to reported present value of vested benefits, as valued using the plan interest rate.) This was somewhat better than the average for single-employer negotiated plans (84 percent). Overall, 35 percent of the multiemployer plans with 18 percent of all participants were fully funded, with assets equal to or greater than the present value of vested benefits for active and retired participants. Twenty-four percent of plans with 20 percent of all participants had funding ratios of 75-99 percent. Twenty-seven percent of the plans with 33 percent of participants were characterized by funding ratios in the 50-74 percent range.

Thirteen percent of all plans had funding ratios of 25-49 percent, while 2 percent had ratios of less than 25 percent. These plans with funding ratios of less than 50 percent tended to be much larger in size than average, covering 29 percent of all participants. However, funding problems with these plans are probably attributable to factors such as poor industry performance, rather than to the structure of multiemployer bargaining itself.

The full report on the study, entitled *The Funding Status of Multiemployer Pension Plans and Implications for Collective Bargaining, Report of the Secretary of Labor*, is available from the National Technical Information Service, 5258 Port Royal Road, Springfield, VA, 22161, Order No. PB8-5-12005-3. Cost: \$19. □

# Strong post-recession gain in productivity contributes to slow growth in labor costs

*Hourly compensation growth was modest, with the advance in output per hour in line with other postwar recoveries; spanning 2 years, the productivity rise was the longest sustained increase since 1971-73*

LAWRENCE J. FULCO

How do changes in productivity and costs during the current economic recovery compare with earlier ones? Does the six-quarter recovery reflect a resurgence of the higher pre-1973 trend in the growth of output per hour?

Although postwar recessions have differed in length and severity, movements of productivity and cost measures follow a common pattern. Generally, employers tend to delay trimming payrolls in the face of uncertain or slack demand in order to postpone the costs associated with layoffs until the nature of weak demand becomes apparent. The resulting delayed cutback in hours contributes to the initial drop in productivity. If a contraction persists, average weekly hours are initially reduced. Eventually, employment cuts also occur, and productivity may actually increase if the belated declines in hours outstrip the fall in output.

At the trough of the business cycle, capacity utilization is low, with plant and equipment operating below optimum or design rates because of weak demand for output. Inefficient plants and equipment may be idled completely as demand may be met using only the newest, most efficient facilities. Workers who have been retained may also perform deferred maintenance or other duties previously handled by laid-off coworkers. However, these "hoarded" employees may be those with the greatest seniority, experience, and

training specific to the firm's needs, making them the most costly to replace.<sup>1</sup>

When demand begins to revive, output can often be boosted without causing commensurate increases in the payroll. Firms respond by using some idle plants and equipment and by redirecting existing labor to production-related tasks. This results in the rapid productivity gains which have characterized the immediate posttrough period of each postwar recovery. The "productivity dividend" continues as long as output gains exceed additions to paid hours.

Employers tend to accommodate growing demand by initially lengthening the workweek. But as the uptrend continues, furloughed workers return and hiring may begin. The pace of productivity growth slackens as hours increase, and when new workers are hired, trained, and assimilated. The least efficient plants are reopened last.

## Periods of recovery

During the six quarters since November 1982 (the trough of the last recession), output per hour in the nonfarm and manufacturing sectors grew more than the postwar average trend. A period of faster-than-trend productivity growth also occurred after each of the seven previous postwar recession troughs.<sup>2</sup> Nonfarm productivity growth averaged 2.5 percent per year between 1947 and 1973. In the six quarters following the trough of the five recessions, growth was nearly half again as fast (at an annual rate). The following

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tabulation compares the productivity trend with recovery growth rates before and after 1973:

Period	Nonfarm sector		Manufacturing sector	
	Trend	Recovery	Trend	Recovery
1948-73	2.5	3.6	2.9	4.8
1973-83	0.8	3.4	1.8	5.7

After 1973, the long-term trend in productivity growth slowed in the nonfarm sector. During 1973-83, the average annual growth rate fell to 0.8 percent from 2.5 percent in 1948-73.<sup>3</sup> However, productivity advances during the six posttrough quarters slowed much less than the overall trend. As indicated, during the first five recoveries, productivity grew at a 3.6-percent annual rate during the first six quarters after the trough. Since 1973, we have experienced three additional recoveries, during which productivity advances averaged 3.4 percent per year. The reduction in the pace of productivity growth during recoveries after 1973 was smaller than the slowdown of the long-term trend. Thus, productivity increased during the pre-1973 recoveries at 1.4 times the long-term rate; after 1973, the recoveries averaged four times the slower trend which characterized the last decade.

The manufacturing sector—which is much smaller than the nonfarm business sector—tends to be more volatile. As in the nonfarm business sector, the trend also slowed; between 1948-73 and 1973-83 the average annual rate of productivity growth declined from 2.9 to 1.8 percent. But in contrast to the more comprehensive nonfarm business sector, the gains in the recovery period have been larger since 1973. In the first five recoveries, productivity advances averaged 4.8 percent annually; in the three most recent

rebounds they averaged 5.7 percent and the most recent recovery showed gains at a 4.5-percent annual rate.

The highest nonfarm productivity growth occurred after the three troughs when output per hour advanced at a 4.1-percent annual rate. The smallest posttrough gain occurred following the 1980 trough. (See table 1.)

From the standpoint of productivity advance, the current recovery is somewhat stronger than the average of similar stages of recovery in the nonfarm sector and weaker than average in manufacturing. Chart 1 compares movements in productivity and related measures in this recovery with the average of the previous seven recovery periods in the nonfarm and manufacturing sectors.

In the six posttrough quarters, nonfarm output has increased at an average annual rate of 7.0 percent in the previous cycles, but the advance after the most recent trough has been faster—9.8 percent. Hours have also rebounded from the trough level more rapidly than during past recoveries.

Table 1 shows the annual rates of change in output, hours, and related measures. Manufacturing output and hours also advanced more rapidly in this recovery, although the rate of productivity gain is smaller than average.

Hourly compensation increases during the present recovery have been smaller than during earlier upturns. This measure, which includes wages and salaries, supplements, and employer payments to all employee benefit plans, represents the largest cost to most producers. In the seven previous recoveries, hourly compensation increased at a 6.4-percent annual rate in the nonfarm business sector, while in the present recovery, the increase was 4.2 percent over the six quarters. Moreover, in recent recovery periods, hourly

**Table 1. Changes in productivity and related measures six quarters after the trough of postwar recessions**

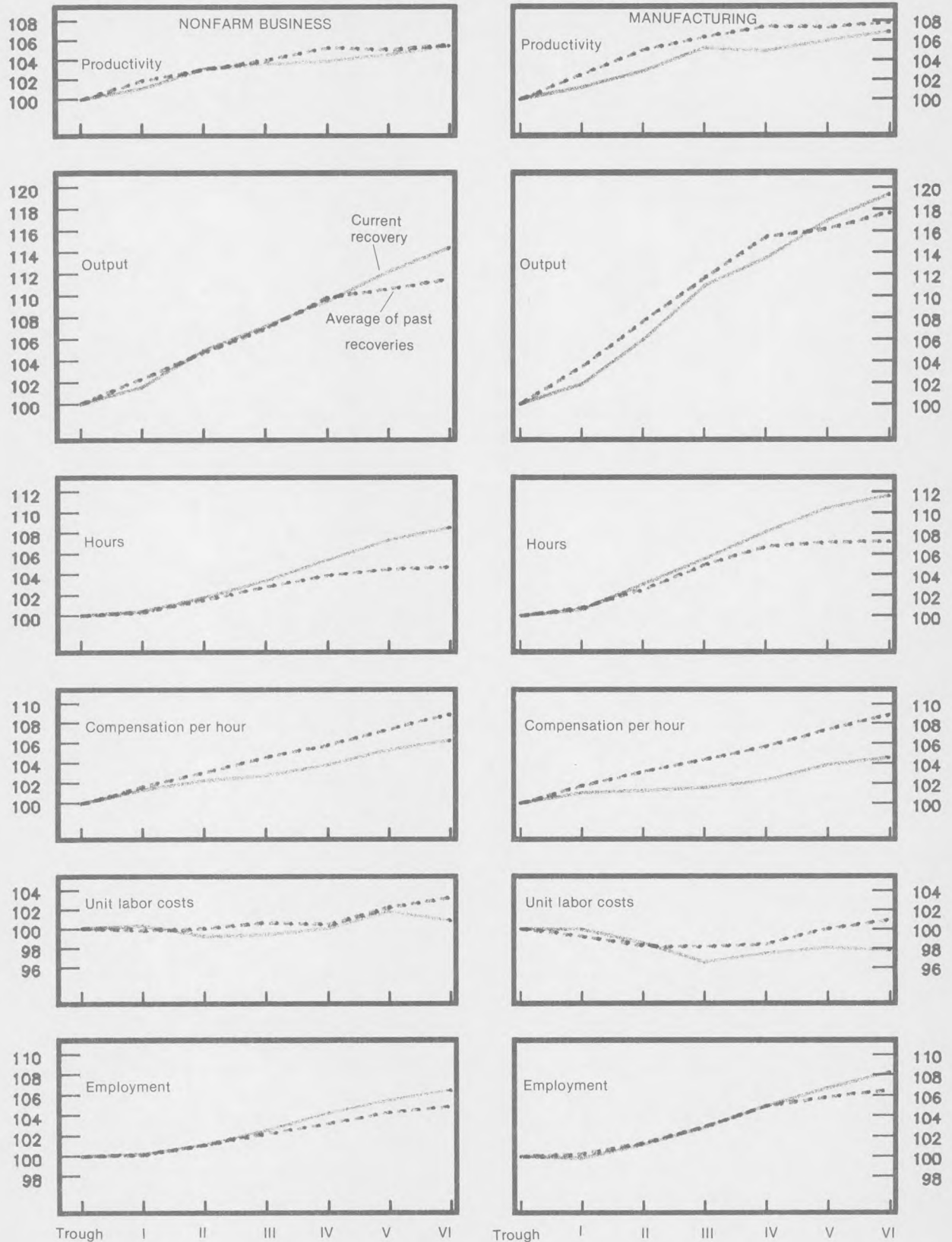
[Percent change at compound annual rate]

Trough quarter	Productivity	Hourly compensation	Unit labor costs	Output	Hours	Employment
<b>Nonfarm business</b>						
1949 IV	4.1	9.1	4.7	11.1	6.8	5.8
1954 II	3.2	3.8	0.5	7.7	4.3	3.4
1958 II	2.5	3.9	1.4	6.8	4.2	3.6
1961 I	4.1	3.7	0.0	6.3	2.1	1.8
1970 IV	4.0	6.6	2.5	6.5	2.4	2.3
1975 I	4.1	7.9	3.7	6.7	2.5	2.5
1980 III <sup>1</sup>	2.0	9.5	7.4	3.8	1.8	2.0
Average, 7 cycles	3.4	6.4	2.9	7.0	3.4	3.1
1982 IV	4.0	4.2	0.2	9.8	5.6	4.3
<b>Manufacturing</b>						
1949 IV	6.1	9.8	3.5	20.3	13.4	10.8
1954 II	3.6	4.2	0.5	9.3	5.5	3.5
1958 II	3.6	3.8	0.2	9.5	5.7	4.1
1961 I	5.3	3.4	-1.9	10.1	4.6	3.2
1970 IV	5.3	5.7	0.4	8.4	3.0	1.4
1975 I	7.1	7.9	0.8	10.7	3.4	2.1
1980 III <sup>1</sup>	5.5	8.4	2.8	7.9	2.3	2.0
Average, 7 cycles	5.2	6.2	0.9	10.9	5.4	3.9
1982 IV	4.5	3.0	-1.5	12.5	7.6	5.4

<sup>1</sup>Percent change over four posttrough quarters.

Chart 1. Productivity and related measures in the first six quarters after cyclical trough

(Index, trough quarter = 100)



**Table 2. Nonfarm business productivity and related measures following the trough of the business cycle**

[Index, trough quarter = 100]

Quarter after trough	Cycle trough								
	1949 IV	1954 II	1958 II	1961 I	1970 IV	1975 I	1980 III	Average, 7 cycles	1982 IV
	<b>Productivity</b>								
I.....	103.8	101.6	101.1	102.0	102.0	102.5	100.3	101.9	101.1
II.....	105.7	102.3	103.0	102.9	102.4	104.2	101.5	103.1	103.1
III.....	106.9	104.0	103.8	104.5	103.8	103.7	101.4	104.0	103.6
IV.....	107.5	105.0	105.0	105.4	103.8	105.1	102.0	104.8	103.9
V.....	106.4	105.5	103.3	104.8	104.9	106.0	( <sup>1</sup> )	105.2	104.6
VI.....	106.2	104.9	103.8	106.2	106.1	106.2	( <sup>1</sup> )	105.6	106.0
	<b>Hourly compensation</b>								
I.....	102.6	100.8	101.1	101.1	101.8	101.8	102.4	101.7	101.4
II.....	104.2	101.4	102.1	101.8	103.6	103.5	105.1	103.1	102.3
III.....	106.1	102.4	103.2	102.7	105.3	105.4	107.0	104.6	102.8
IV.....	108.9	103.4	104.2	104.3	105.9	107.6	109.5	106.3	103.9
V.....	111.6	104.8	105.0	104.9	108.6	109.9	( <sup>1</sup> )	107.5	105.4
VI.....	113.9	105.8	105.9	105.6	110.1	112.1	( <sup>1</sup> )	108.9	106.4
	<b>Unit labor costs</b>								
I.....	98.8	99.2	100.0	99.1	99.8	99.3	102.1	99.8	100.3
II.....	98.6	99.2	99.1	98.9	101.2	99.3	103.5	100.0	99.2
III.....	99.3	98.4	99.4	98.2	101.5	101.6	105.6	100.6	99.3
IV.....	101.3	98.5	99.3	98.9	102.0	102.4	107.4	101.4	100.0
V.....	104.9	99.3	101.6	100.1	103.5	103.6	( <sup>1</sup> )	102.2	100.8
VI.....	107.2	100.8	102.1	99.4	103.8	105.6	( <sup>1</sup> )	103.2	100.3
	<b>Output</b>								
I.....	104.5	101.2	102.5	102.1	102.5	101.5	101.6	102.3	101.5
II.....	109.2	103.4	106.1	103.6	103.1	104.2	103.4	104.7	104.9
III.....	113.9	106.7	108.7	106.4	104.2	105.4	103.3	106.9	107.1
IV.....	115.7	109.1	111.9	107.7	105.5	108.6	103.8	108.9	109.5
V.....	116.4	110.7	110.0	108.5	107.9	109.5	( <sup>1</sup> )	110.5	112.2
VI.....	117.1	111.7	110.4	109.6	109.9	110.2	( <sup>1</sup> )	111.5	115.1
	<b>Hours</b>								
I.....	100.6	99.6	101.4	100.1	100.4	99.0	101.2	100.3	100.4
II.....	103.3	101.1	103.0	100.7	100.7	100.1	101.9	101.5	101.8
III.....	106.6	102.6	104.8	101.7	100.4	101.7	101.9	102.8	103.4
IV.....	107.6	103.9	106.6	102.2	101.6	103.3	101.8	103.9	104.4
V.....	109.4	104.9	106.5	103.5	102.8	103.3	( <sup>1</sup> )	105.1	107.3
VI.....	110.3	106.5	106.4	103.2	103.6	103.7	( <sup>1</sup> )	105.6	108.5
	<b>Employment</b>								
I.....	100.2	99.7	100.9	100.0	100.4	99.2	100.8	100.1	100.2
II.....	102.4	100.7	102.0	100.5	100.7	100.0	101.3	101.1	101.1
III.....	105.3	101.8	103.5	101.3	100.8	101.1	101.6	102.2	102.5
IV.....	106.2	103.0	105.1	101.9	101.5	102.3	102.0	103.1	104.2
V.....	107.9	103.9	105.1	102.7	102.7	103.1	( <sup>1</sup> )	104.2	105.5
VI.....	108.8	105.2	105.4	102.7	103.5	103.8	( <sup>1</sup> )	104.9	106.5

<sup>1</sup>Excluded; past cyclical peak.

compensation advances have approached 10 percent in the six quarters following the trough. (See tables 2 and 3.) Thus, the slower gain in hourly compensation, coupled with the productivity increase, resulted in a small rise in unit labor costs (compensation per unit of output) for the nonfarm sector. Nonfarm unit labor costs rose at a 0.2-percent annual rate in the six quarters after the trough; in the preceding recovery (after the 1980 trough) these costs rose 7.4 percent in just four quarters.

In manufacturing, hourly compensation increased at a 3.0-percent rate over the six quarters of the recovery, compared with an average rate of gain of 6.2 percent during previous recoveries. This slower increase, combined with the advances in labor productivity, resulted in a 1.5-percent

rate of decline in unit labor costs. In past recoveries, these costs rose somewhat over the like period.

Because labor compensation is such an important part of total costs, the more favorable performance of unit labor costs during the current recovery means less upward pressure on prices. This also allows for noninflationary growth of profits and nonlabor cost items, which can be a source of business saving and investment.<sup>4</sup>

Quarterly measures of profits and profits per unit of output are only available since 1958 and only for the nonfinancial corporate sector.<sup>5</sup> The following tabulation shows the average annual rate of change (in percent) in profits in the six posttrough quarters for the sector. (Third-quarter 1980 shows the change in just four posttrough quarters.)



Trough quarter	Unit labor		Profits
	costs	Profits	per unit of output
1958 II .....	-0.1	25.8	14.5
1961 I .....	-1.4	23.9	13.9
1970 IV .....	1.8	26.3	16.4
1975 I .....	3.3	41.8	31.0
1980 III .....	7.0	33.0	27.5
1982 IV .....	-0.2	74.9	58.7

The very large increase in total corporate profits and in profits per unit of output partly reflects the downturn in unit labor costs during the current recovery. Unit labor costs declined 0.2 percent in the six quarters after the 1982 trough, compared with an increase of 7.0 percent in just four quar-

ters after the July 1980 trough. This contributed to the very different performance of profits in these two cycles.

### Periods of contraction

In response to major cyclical contractions in the demand for goods and services, output, employment, productivity, and prices all diverge from long-term trends. Little can be inferred about the divergence in productivity from the length of the recession alone. Two of the earlier contractions (1948-49 and 1969-70) lasted 11 months; in one case, productivity growth slowed to 0.6 percent in the nonfarm sector, and in the other it grew 1.1 percent. (See table 4.) Two contractions (1952-53 and 1960-61) lasted 10 months; in the former, productivity was unchanged, while in the latter it rose 0.7

**Table 3. Manufacturing productivity and related measures following the trough of the business cycle**

[Index, trough quarter = 100]

Quarter after trough	Cycle trough								
	1949 IV	1954 II	1958 II	1961 I	1970 IV	1975 I	1980 III	Average, 7 cycles	1982 IV
<b>Productivity</b>									
I .....	101.4	101.4	102.7	102.7	102.2	104.1	103.1	102.5	101.2
II .....	105.1	102.5	105.2	105.0	103.7	109.2	104.2	105.0	102.8
III .....	108.0	104.7	106.6	106.6	104.9	109.0	104.6	106.3	105.2
IV .....	107.4	106.0	108.6	107.2	106.0	109.0	105.5	107.1	104.9
V .....	108.9	105.9	105.1	106.7	106.9	110.2	( <sup>1</sup> )	107.3	105.9
VI .....	109.3	105.5	105.4	108.1	108.0	110.8	( <sup>1</sup> )	107.9	106.9
<b>Hourly compensation</b>									
I .....	102.1	100.6	101.6	100.6	102.1	102.2	102.4	101.7	101.0
II .....	104.0	102.2	102.8	101.2	103.3	104.0	104.4	103.1	101.2
III .....	105.4	102.7	103.3	102.1	104.5	105.6	106.3	104.3	101.5
IV .....	109.4	103.2	104.3	103.7	105.3	107.7	108.4	106.0	102.2
V .....	111.9	104.9	104.9	104.4	107.4	110.2	( <sup>1</sup> )	107.3	103.8
VI .....	115.1	106.3	105.7	105.1	108.6	112.1	( <sup>1</sup> )	108.8	104.5
<b>Unit labor costs</b>									
I .....	100.7	99.3	98.9	97.9	99.9	98.2	99.3	99.2	99.9
II .....	98.9	99.7	97.7	96.4	99.6	95.2	100.2	98.2	98.5
III .....	97.6	98.1	96.8	95.8	99.6	96.9	101.7	98.1	96.5
IV .....	101.9	97.4	96.0	96.8	99.4	98.9	102.8	99.0	97.4
V .....	102.7	99.0	99.8	97.8	100.5	100.0	( <sup>1</sup> )	100.0	98.0
VI .....	105.3	100.8	100.3	97.2	100.6	101.2	( <sup>1</sup> )	100.9	97.7
<b>Output</b>									
I .....	104.5	100.0	104.6	104.4	102.9	102.2	105.0	103.4	101.8
II .....	113.4	102.7	109.3	107.9	104.3	108.9	106.5	107.6	105.9
III .....	123.3	107.8	114.8	111.7	104.8	111.1	107.4	111.6	110.9
IV .....	126.0	112.1	120.3	113.1	106.9	113.8	107.9	114.3	113.4
V .....	130.6	112.5	114.7	114.3	109.8	115.2	( <sup>1</sup> )	116.2	116.9
VI .....	131.9	114.2	114.6	115.6	112.8	116.4	( <sup>1</sup> )	117.6	119.4
<b>Hours</b>									
I .....	103.1	98.6	101.8	101.6	100.8	98.2	101.8	100.8	100.6
II .....	107.8	100.2	103.9	102.8	100.7	99.7	102.2	102.5	103.0
III .....	114.1	102.9	107.7	104.7	99.9	101.9	102.7	104.9	105.5
IV .....	117.3	105.8	110.7	105.5	100.9	104.5	102.3	106.7	108.1
V .....	119.9	106.2	109.1	107.1	102.8	104.5	( <sup>1</sup> )	108.3	110.4
VI .....	120.7	108.3	108.7	107.0	104.5	105.1	( <sup>1</sup> )	109.1	111.6
<b>Employment</b>									
I .....	102.1	98.4	100.7	100.8	100.1	98.0	101.1	100.2	99.8
II .....	105.7	99.4	102.2	101.7	99.9	98.6	101.4	101.3	101.1
III .....	110.5	100.9	104.8	102.7	99.5	100.1	101.9	102.9	102.8
IV .....	113.5	103.2	107.2	103.7	99.8	101.9	102.0	104.5	104.9
V .....	116.0	103.9	106.3	104.7	100.8	102.8	( <sup>1</sup> )	105.8	106.7
VI .....	116.7	105.3	106.2	104.8	102.1	103.2	( <sup>1</sup> )	106.4	108.2

<sup>1</sup>Excluded; past cyclical peak.

percent. Two contractions (1957–58 and 1980) lasted less than 10 months; in the former, productivity rose 1.7 percent during the downturn, and in the latter, it declined 0.2 percent. There was only one other contraction (1973–75) that lasted as long as the 1981–82 downturn and while in the most recent case productivity declined 0.3 percent, in the earlier instance, it fell 2.6 percent during the 16-month period. Growth of output per hour of all persons in nonfarm business either slowed or ceased in the first five postwar business cycles, but following the peaks in 1973 and 1980, productivity actually declined during the contraction.

As noted, there have been eight business cycle contractions since World War II. The most recent contraction began in July 1981 and ended in November 1982, 16 months later. We have seen that only the 1973–75 contraction lasted as long; on average, the upturn has come 10 months after the peak of the business cycle. Nonfarm business output declined more during 1981–82 than the average of previous contractions, and the cutbacks in hours and employment were also more severe. Hours were reduced in four of the five quarters following the onset of the 1981–82 contraction.

Nonfarm employment had not been cut as sharply since the late 1950's, and manufacturing employment fell a record amount—10.2 percent. This situation may be partly explained by the fact that there was a relatively short interval between this contraction and the previous one—only 12 months—and employers did not maintain employment because demand was falling again. In addition, the period of rapid growth of hourly compensation carried over into the downturn, which made labor “hoarding” increasingly expensive. Both nonfarm hourly compensation and unit labor costs rose almost twice as much during the 1981–82 downturn as during the average contraction. Hourly compensation also advanced rapidly in manufacturing during the contraction.

Unit labor costs (compensation per unit of output) are affected by changes in productivity (output per hour) and compensation per hour. If productivity and hourly compensation change equally, unit labor costs are unaffected. Chart 2 shows the relationship between these series since 1973. Declines in productivity during postwar contractions are thus related to periods of rapid increases in unit labor costs.

**Table 4. Changes in selected economic indicators and in productivity and related measures during business cycle contractions from designated peak to trough**

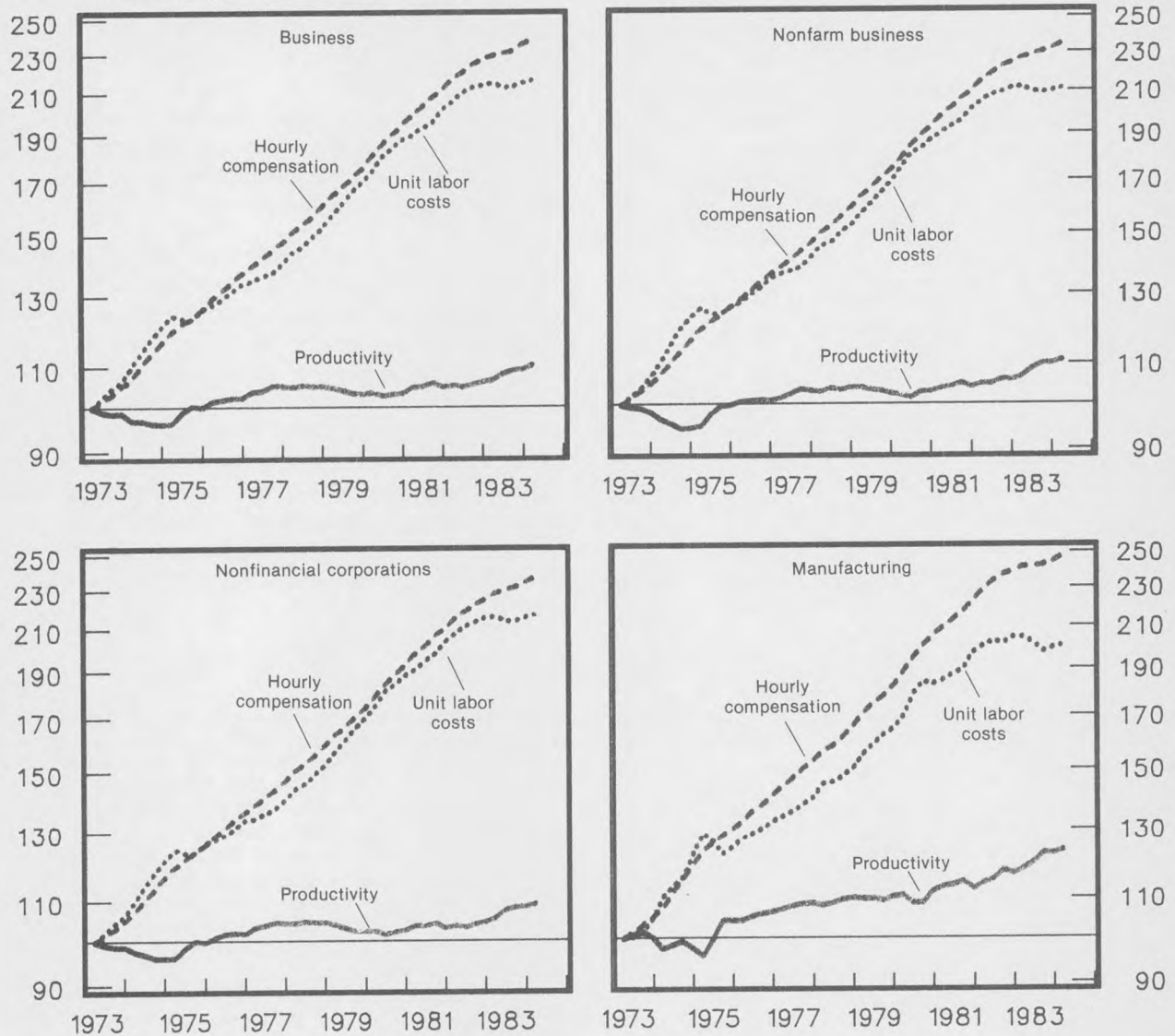
[In percent]

Cyclical peak and trough	Duration (in months)	Change in:			Peak jobless rate	Lowest operating rate <sup>1</sup>	
		Gross national product	Industrial production	Consumer Price Index			
Nov. 48—Oct. 49	11	-1.4	-8.5	-2.1	7.9	71.7	
July 53—May 54	10	-2.6	-8.9	0.2	5.9	79.8	
Aug. 57—Apr. 58	8	-2.7	-12.6	2.4	7.4	71.3	
Apr. 60—Feb. 61	10	-0.1	-6.1	0.9	6.9	73.5	
Dec. 69—Nov. 70	11	-0.1	-5.8	5.7	5.9	75.9	
Nov. 73—Mar. 75	16	-4.9	-15.1	14.5	8.6	69.0	
Jan. 80—July 80	6	-2.2	-8.3	5.2	7.8	75.5	
Average, 7 cycles	10	-2.0	-9.3	3.8	7.2	73.7	
July 81—Nov. 82	16	-3.0	-12.3	6.2	10.7	68.8	
		<b>Output per hour</b>	<b>Output</b>	<b>Hours</b>	<b>Employment</b>	<b>Unit labor costs</b>	<b>Compensation per hour</b>
<b>Nonfarm business</b>							
Nov. 48—Oct. 49	0.6	-4.3	-4.9	-4.0	0.3	0.9	
July 53—May 54	0.0	-3.6	-3.6	-3.2	2.2	2.1	
Aug. 57—Apr. 58	1.7	-4.3	-5.9	-4.8	1.1	2.7	
Apr. 60—Feb. 61	0.7	-1.6	-2.3	-1.6	1.4	2.2	
Dec. 69—Nov. 70	1.1	-1.7	-2.8	-1.4	5.6	6.8	
Nov. 73—Mar. 75	-2.6	-7.4	-4.9	-2.7	16.8	13.7	
Jan. 80—July 80	-0.2	-2.5	-2.2	-1.4	5.5	5.2	
Average, 7 cycles	0.2	-3.6	-3.8	-2.7	4.7	4.8	
July 81—Nov. 82	-0.3	-4.6	-4.3	-3.2	9.5	9.1	
<b>Manufacturing</b>							
Nov. 48—Oct. 49	1.6	-8.2	-9.7	-9.1	-0.7	0.9	
July 53—May 54	0.3	-8.8	-9.0	-7.6	3.3	3.5	
Aug. 57—Apr. 58	-3.0	12.8	-10.2	-8.4	6.2	3.1	
Apr. 60—Feb. 61	-0.6	-6.5	-5.9	-4.9	2.5	2.1	
Dec. 69—Nov. 70	1.7	-7.6	-9.1	-7.3	4.7	6.5	
Nov. 73—Mar. 75	-4.4	16.1	-12.2	-9.1	22.5	17.1	
Jan. 80—July 80	-1.9	-7.4	-5.6	-4.6	8.7	6.6	
Average, 7 cycles	-0.9	-9.6	-8.8	-7.3	6.7	5.7	
July 81—Nov. 82	1.6	-10.2	-11.7	-10.2	7.9	9.7	

<sup>1</sup> Index of capacity utilization, Board of Governors of the Federal Reserve.

**Chart 2. Productivity and related measures in four major sectors of the economy, 1st-quarter 1973-1st-quarter 1984**

Ratio scale (1st quarter 1973=100)



**Recent data**

In the second quarter of 1984, productivity advanced in all of the major sectors for which the Bureau of Labor Statistics prepares quarterly measures. Growth in output and hours remained strong while increases in hourly compensation were moderate. The second-quarter compensation outlays partly reflect changes in employer contributions to social security, which were effective January 1. These mandated increases accounted for about 30 percent of the first-quarter rise in hourly compensation.

In the nonfarm business sector, productivity advanced 5.5 percent; gains in output and hours were strong in the second quarter, although not as large as during the first quarter. Productivity has advanced for the last eight quarters, the longest period of such uninterrupted gains since 1971-73. Hourly compensation growth was very modest and, combined with the increase in productivity, resulted in a decline in unit labor costs. Movements in the business sector were much the same as in nonfarm business in the second quarter.

Contrasting trends were evident in manufacturing. While productivity grew modestly in durables as large increases occurred in both output and hours, a more rapid productivity gain was experienced in nondurable goods manufacturing, where increases in output and hours were not as robust. As a result, unit labor costs declined more in nondurables. There is also a significant difference between the second-quarter productivity advance in nonfarm business (5.5 percent) and that for nonfinancial corporations (2.8 percent), which account for more than 75 percent of nonfarm business output. Most of this difference can be explained by the larger rate of increase of hours in the nonfinancial corporate sector than in nonfarm business, which includes the self-employed and financial activities.

The following tabulation shows the percent changes at annual rates in productivity, output, and hours for the second quarter of 1984:<sup>6</sup>

Sector	Productivity	Output	Hours
Business .....	4.9	11.2	6.0
Nonfarm business .....	5.5	10.6	4.8
Manufacturing .....	4.0	8.9	4.6
Durables .....	3.1	9.5	6.2
Nondurables .....	5.5	8.0	2.4
Nonfinancial corporations .....	2.8	9.8	6.8

*Compensation and labor costs.* Compensation per hour of all persons engaged in the nonfarm business sector rose at a 3.7-percent annual rate in second-quarter 1984, but remained unchanged after allowing for the increase in the Consumer Price Index for All Urban Consumers (CPI-U). Unit labor costs declined 1.7 percent in the second quarter, compared with a 3.1-percent annual rate of increase in the first quarter.

In manufacturing, hourly compensation increased at a 2.9-percent annual rate in the second quarter (or fell 0.8 percent after allowing for the increase in the CPI-U), and unit labor costs declined 1.1 percent.

*Employment and hours.* Labor input used in BLS productivity measures is hours of paid labor time. Adjustments to labor input in response to changes in demand can be accomplished through changes in the workweek as well as changes in employment. In the nonfarm business sector, employment maintained the high growth rate of the first quarter, while average weekly hours decelerated in the second quarter. This marked the sixth consecutive quarter of increasing average weekly hours, the longest period of such growth in the series. Employment growth slowed, and the workweek was shortened somewhat in manufacturing in the second quarter. □

—FOOTNOTES—

ACKNOWLEDGMENT: John Glaser, an economist in the Office of Productivity and Technology, Bureau of Labor Statistics, provided statistical assistance.

<sup>1</sup>A recent attempt to directly measure labor hoarding indicates that as much as 8 percent of manufacturing blue-collar payrolls during trough quarters may be hoarded labor, that is, labor paid for but not required for current output levels. See James L. Medoff and Jon A. Fay, "Labor and Output Over the Business Cycle: Some Direct Evidence" (National Bureau of Economic Research, 1983).

<sup>2</sup>These are the troughs identified by the National Bureau of Economic Research.

<sup>3</sup>There was a slowdown in the rate of growth of capital per hour (capital intensity) in nonfarm business that accounted for about one-fifth of the

slowdown of labor productivity in that sector, but not in manufacturing. Other possible reasons for the slowdown have been studied; however, no consensus has emerged on the specific role of these other factors. See Jerome A. Mark and William H. Waldorf, "Multifactor productivity: A new BLS measure," *Monthly Labor Review*, December 1983.

<sup>4</sup>See John F. Early and others, "Inflation and the business cycle during the postwar period," *Monthly Labor Review*, November 1984, pp. 3-7.

<sup>5</sup>The nonfinancial corporate sector includes all corporations doing business in the United States with the exception of banks, financial institutions, stock and commodity brokers, and insurance agents. This sector accounts for about 75 percent of nonfarm business output, and about 60 percent of the gross national product.

<sup>6</sup>Data for additional measures and for previous quarters appear in tables 29-32 of the Current Labor Statistics section of the *Monthly Labor Review*.

# Productivity in making air conditioners, refrigeration equipment, and furnaces

*Output per hour rose rapidly during 1967-73, reflecting brisk demand; output tended to stagnate after 1973, but was shored up by orders for energy-efficient equipment and by export sales*

HORST BRAND AND CLYDE HUFFSTUTLER

Output per employee hour in the manufacture of air conditioning, refrigeration, and warm-air heating equipment<sup>1</sup> rose at an average annual rate of 1.3 percent between 1967 and 1982, compared with 2.4 percent a year for all of manufacturing. Output climbed 3.4 percent a year during the period, and employee hours, 2.1 percent. (See table 1.) Strong expansion in the demand for the industry's residential, commercial, and industrial products, and rapid diffusion of basic improvements in metalworking technologies (such as numerical control and computer numerical control) were among factors underlying the rising productivity trend.

The improvement in the industry's productivity occurred mostly in the earlier part of the period reviewed. After 1973, output per employee hour did not change, as shown by the following tabulation of average annual rates of change:

	<i>Industry</i>	<i>All manufacturing</i>
1967-82 .....	1.3	2.4
1967-73 .....	5.1	3.4
1973-82 .....	0.0	1.7

The industry's productivity rate for the 1967-73 period was 50 percent again as high as for manufacturing, but thereafter the trends in the two rates diverged.

Year-to-year swings in the industry's productivity were comparatively moderate. These swings ranged between a

9-percent increase in 1972 and a 16-percent decrease in 1975. Year-to-year increases in productivity outnumbered decreases by 12 to 2 (no change was recorded for 1973). In the years when productivity dropped, output dipped less than employee hours. Thus, in 1975 and 1980, productivity declined 16 percent and 7 percent while output dipped 34 percent and 16 percent, and employee hours, 22 percent and 10 percent. In 1974, productivity rose as a 6-percent decline in output was outdistanced by a 9-percent decline in employee hours.

## Output and demand

The manufacture of air conditioning and refrigeration equipment and of warm-air furnaces involves the production of heat transfer apparatus for residential, commercial, and industrial applications, as well as for hospitals, marine vessels, freight and passenger vehicles, and many specialized applications. Heat transfer equipment here includes unitary air conditioners (units that operate on electric circuits of their own); room air conditioners; commercial refrigeration equipment (including frozen food display cases); as well as heat pumps and dehumidifiers. The industry, in addition, manufactures compressors and condensers, not only for its own final output, but also for home refrigerators (classified by the Bureau of the Census as a separate industry.)<sup>2</sup>

The industry's output rose at an average annual rate of 3.4 percent between 1967 and 1982. The rate for the earlier part of the period ran four times higher than that for all

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manufacturing, but dropped below the all-manufacturing rate during 1973–82:

	Industry	All manufacturing
1967–82 .....	3.4	2.4
1967–73 .....	12.3	3.2
1973–82 .....	0.1	1.7

Among reasons underlying the industry's output growth, and underpinning it after 1973, have been exports. As a proportion of value of shipments, exports by the industry nearly doubled between the earlier and the later period studied here—from 8 percent to 14 percent (reaching 19 percent in 1982). For manufacturing as a whole, the export share in the value of shipments increased less markedly—from 6 percent in 1972 to 10 percent in 1980.

The much slowed expansion in the industry's output from 1973 forward corresponds to trends in the output of its major product groups, which in turn parallel the trends in underlying demand from the industry's most important markets.

Thus, the production of heat transfer equipment other than unitary or room air conditioners or warm-air furnaces increased at a rate nearly 10 times higher over the 1967–73 period than during the 1973–82 span. The increase in the rate had resulted largely from strong demand for motor vehicle air conditioners (which account for more than one-half of the products in the group). Such demand was associated with an increase in motor vehicle output of close to 6 percent a year in 1967–73. The subsequent tapering of output growth mirrored a falling-off in the annual rate of motor vehicle output by -1.0 percent for 1973–82.

Likewise, output rates of growth of unitary air conditioners and commercial refrigeration equipment slowed after 1973; for warm air furnaces, the rate declined. This pattern was linked largely to developments in construction (which accounts for well over one-third of the demand for the industry's products).<sup>3</sup> The average annual rate of change in the constant-dollar value of new residential housing construction, for example, declined from around 9 percent for 1967–73 to 2 percent thereafter; that for commercial structures, from 15 percent to 9 percent; and that for hospitals (public and private) turned from a 5-percent annual gain to a 4-percent annual decrease. Only industrial construction evidenced a contrary trend, with a 10-percent annual decline in the earlier period giving way to a 3.5-percent annual rise after 1973.

Leaving aside the medium-term swings, the industry's output has been sustained over the longer run by rapidly growing use of central and room air conditioning in homes, as well as more gradual increases in offices and other commercial space, hospitals, and probably in factories. Increases in the size of homes and other structures generated the shift in demand from room air conditioners to central systems and spurred the demand for warm-air furnaces, which function through the same air circulation system as central air conditioners. In the middle and late 1960's, 28

percent of all new homes were equipped with central air conditioners; that proportion rose to 43 percent between 1970 and 1975, and to 66 percent by 1982. Square footage per new home, to which the size of heat transfer equipment is linked, increased 9 percent between the mid-1960's and the early 1980's. The proportion of homes wired for room air conditioners more than doubled between the mid-1960's and the mid-1970's, to 53 percent, but it did not rise much thereafter. Warm-air ducted heating systems in occupied housing units rose by about one-third between 1970 and 1975, but by only 7 percent between 1975 and 1980.<sup>4</sup> For offices, shopping centers, and hospitals, pertinent data on air conditioning and forced warm-air systems are available only for some recent years. According to a survey conducted in the early 1970's, 91 percent of all commercial office buildings had central air conditioning, and 67 percent had forced-air heating systems. For shopping centers, the comparable figures were close to 100 percent in 1977; and for hospitals and nursing homes, they read 97 percent and 56 percent in 1975.<sup>5</sup> These data suggest that industry output is sustained not only by the net increase in such structures, but from replacement and retrofitting with more energy-efficient equipment as well. In 1981, for example, more than half of total residential expenditures on air conditioning and heating systems were for replacement.<sup>6</sup>

Furthermore, the introduction of more energy-efficient heat transfer equipment since about 1975 has also bolstered output. For the same wattage per hour of electric energy input, higher equipment output capacities, as measured in British Thermal Units (BTU's), have been achieved. Thus, in 1976, the Air Conditioning and Refrigeration Institute listed 56 percent of new unitary air conditioners as having

**Table 1. Productivity and related indexes for the refrigeration and heating equipment industry, 1967–82**

[1977 = 100]

Year	Output per employee hour	Output	All employee hours	Employees
1967 .....	77.5	53.6	69.2	68.4
1968 .....	82.3	60.8	73.9	73.1
1969 .....	87.6	73.0	83.3	81.7
1970 .....	88.4	73.7	83.4	83.8
1971 .....	94.8	75.9	80.1	80.5
1972 .....	103.0	99.0	96.1	93.5
1973 .....	103.0	112.5	109.2	107.0
1974 .....	106.9	105.9	99.1	99.2
1975 .....	89.9	69.7	77.5	78.9
1976 .....	94.1	87.5	93.0	91.6
1977 .....	100.0	100.0	100.0	100.0
1978 .....	100.6	110.8	110.1	107.6
1979 .....	102.2	112.4	110.0	109.4
1980 .....	95.0	94.0	98.9	99.4
1981 .....	101.1	102.2	101.1	101.3
1982 .....	101.3	90.3	89.1	90.3
<b>Average annual rates of change (in percent)</b>				
1967–82 .....	1.3	3.4	2.1	2.2
1977–82 .....	( <sup>1</sup> )	-2.6	-2.6	-2.2

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

energy efficiency ratios of between 6.5 and 7.4, and 18 percent with ratios of 7.5 to 8.4 (that is, their BTU output averaged that many times above their power input). By 1981, the proportion of the lower efficiency units had shrunk to 37 percent, while that of the higher efficiency equipment had expanded to 35 percent. New air conditioners with efficiencies below 6.4, which in 1976 had accounted for 20 percent of the industry's total shipments, had declined to 5 percent by 1981.<sup>7</sup>

### Employment and hours

Employment in the air conditioning, refrigeration, and warm-air heating equipment industry numbered 129,000 persons in mid-1984. It rose 32 percent between 1967 and 1982, or at an average annual rate of 2.2 percent. (Employee hours rose at about the same rate.) Employment reached a peak of 130,000 persons in 1979, and subsequently retreated. This decline was attributable to a 21-percent contraction in production worker jobs between 1979 and 1982, as compared with a 9-percent loss in nonproduction worker jobs. (Employment levels have improved, but have evidently remained below the 1979 high.)

Over the longer term, trends in employee hours displayed patterns of acceleration and retardation similar to those noted for production and output trends. Employee hours in the industry rose during the first 6 years of the review period at an average annual rate much greater than for all manufacturing. Subsequently the rate plummeted:

	Industry	All manufacturing
1967-82 .....	2.1	0.0
1967-73 .....	6.8	0.2
1973-82 .....	0.1	0.0

Production workers accounted for 70 percent of total employment, which was the same proportion in both 1967 and 1982—nonproduction workers made up the balance. The number of women workers more than doubled over the period, raising their proportion of total employment from 14 percent to 21 percent. Underlying this increase may have been a shift in the skill composition of the industry's workers to more assembly-type jobs. The rise in the industry's average hourly earnings also slowed relative to the manufacturing average. In 1967, the former was 104 percent of the latter, compared with 96 percent in 1981.

Overtime ran somewhat below the manufacturing average during the review period, suggesting that firms in the industry were inclined to hire new production workers, rather than assign overtime when the workload exceeded certain limits.<sup>8</sup> Turnover rates nonetheless lagged; over the 1967-81 span, they averaged 89 percent of the manufacturing average for accessions, and 91 percent of that for separations. Thus, it appears that employment stability was somewhat greater in the industry than in manufacturing generally.

The skill composition of the industry's work force differs from that for manufacturing as a whole. (The air condi-

tioning, refrigeration, and warm-air heating equipment industry represents 68 percent of the employment of the industry group to which it belongs, and to which the data cited here pertain.)<sup>9</sup> In 1980, craftworkers accounted for 17 percent of total industry employment, compared with 19 percent for all manufacturing. Operatives, however, accounted for a significantly larger proportion—48 percent, compared with 43 percent. The larger component of operatives stemmed from the proportionately greater number of assembly workers in the industry (23 percent) than in all manufacturing (8 percent). The proportion of metalworking operatives in the industry (16 percent) was more than twice as high as for manufacturing generally. By contrast, the occupational distribution of white-collar workers was similar to that for manufacturing. Professional and technical workers made up 8 percent of the industry's workforce (9 percent for manufacturing); clerical workers, 12 percent (11 percent); and managers and administrators, 5 percent (6 percent).

### Investment in plant and equipment

Like manufacturing establishments generally, the air conditioning, refrigeration, and warm-air heating equipment industry installed new production equipment at a fairly high rate over the 1967-81 period. (Also like other manufacturing establishments, the industry spent a declining proportion of its total fixed investment outlays on new plant.) However, unlike other manufacturing establishments, firms in the industry spent at a much higher rate during the earlier than the latter part of the review period.<sup>10</sup> For all manufacturing, the reverse held true:

	Industry		All Manufacturing	
	Total fixed investment	Equipment	Total fixed investment	Equipment
	(Average annual rates, in percent)			
1967-81.....	2.2	5.4	3.4	6.2
1967-73 .....	7.4	13.3	-1.3	1.0
1973-81 .....	2.6	4.0	4.2	7.5

The industry's high rate of capital spending in the early part of the period resulted from pressures on capacity, related to high output growth rates. With the abatement of output growth after 1973, fixed investment slowed. The proportion of total fixed investment spent on equipment is as follows:

	Industry	Manufacturing
1967-73 .....	69	73
1973-81 .....	87	90

The comparatively high proportion of expenditures for equipment is reflected in the data on the modernization of the industry's metalworking machinery, as reported by the *American Machinist*.<sup>11</sup> (See the section on technological change.) The rates shown, however, obscure large year-to-year fluctuations in the industry's capital spending. This instability was far more marked for the industry than for

manufacturing generally. For example, in 1975, the industry's plant and equipment expenditures plummeted 41 percent (in constant dollars), and in 1977, they soared 56 percent. Manufacturing recorded a 9-percent drop, and a 21-percent rise for the same 2 years.

Fixed assets per employee in the industry were 79 percent of the manufacturing average in 1980, compared with 76 percent during 1972 and 1974-76. The rise in the ratio partially reflected the cumulative effects of earlier equipment installations and new plant construction on the value of the industry's fixed assets.

### More efficient technology

Air conditioning and refrigeration equipment essentially consists of a compressor driven by an electric motor, and two coils—the condenser, in which the refrigerant is compressed to a liquid, and the evaporator, in which the refrigerant expands into the gaseous state, enabling it to absorb heat from the space being cooled. The heat is transferred from the environment with the aid of fins, mounted upon the evaporator coil. Warm-air furnaces built by the industry are mostly gas-fueled forced-air devices. They include a combustion chamber and a motor-driven blower. The sheet metal housing that shields the equipment is manufactured by the industry, but controls and motors normally are not.

Advances in the manufacture of air conditioners, refrigeration equipment, and warm-air furnaces have been linked chiefly to technological progress in metalworking machinery, welding, methods of storage and transfer of parts, and assembly. They are also related to improvements in product design.

The production of air conditioners, refrigeration equipment, and warm-air furnaces basically involves the cutting and forming of metal, as well as welding, brazing, and soldering of components. Efforts to improve efficiency usually focus upon these operations, and on plant layout. Auxiliary operations, such as materials handling, painting, testing, and packaging have received increased attention in recent years.

The most recent *American Machinist* inventory of metalworking equipment indicates that, in 1983, 30 percent of all metalcutting and metalforming machine tools used in the industry were at most 10 years old. In 1968, the proportion was the same for metalcutting tools, but only 25 percent for metalforming tools. The industry has steadily improved its metalworking equipment, by and large maintaining the same proportion of newer equipment during 1973-83 as during 1958-68. The higher end of the age distribution, however, shows an increase in the proportion of older metalworking equipment in the industry. The share of metalcutting machine tools 20 years and older rose from 25 percent in 1968 to 32 percent in 1983, and the share of metalforming tools, from 25 percent to 37 percent. However, the relative increase in older machine tools cannot be readily interpreted as a loss in efficiency, inasmuch as the *American Machinist*

inventory does not take into account the retrofitting of older machines with up-to-date components and control devices.<sup>12</sup>

The efficiency of the industry's metalworking equipment has been significantly enhanced by an 11-fold rise in the number of numerically controlled (NC) machine tools. In 1983, NC machine tools accounted for 13 percent and 17 percent of metalcutting and metalforming tools 9 years old or less. In 1968, when NC machine tools were not yet widely diffused, the proportions were less than 1 percent. The percentage increase in the number of NC tools understates the increase in the output capabilities which the installation of such tools spells. According to the *American Machinist*, the number of machine tools in all metalworking industries declined from 16 per 1,000 population in 1968 to fewer than 10 in 1983. "This represents in part the greater productivity of machine tools, in part the simplification of design of many products, so that less machining is required."<sup>13</sup> This statement also applies to the industry reviewed here: the number of machine tools in the industry's shops dropped by one-third between 1968 and 1983, while output (over the 1968-81 period) more than doubled. Thus, the output capability of metalworking equipment in the industry rose nearly threefold over the study period, with that rise likely to be largely attributable to NC-equipped machine tools.<sup>14</sup>

Examples of how improved metalworking technology has helped to raise output per hour may be drawn from the sheet metal operations in the industry's larger shops, and from the fabrication of some of the major components of its products. In punching sheet metal, templates were conventionally affixed to the press so as to obtain required shapes. Templates have been increasingly replaced, however, by taped instructions fed to the press, which greatly speeds output and ensures greater precision of the finished shape. Setup time of the press has been reduced to as little as one-twentieth of the conventional operation. In a related operation, the press, after the sheet metal blank has been placed automatically, is programmed to select 1 of up to 30 built-in punching tools from its turret, and to activate the tool selected.<sup>15</sup> Bending of metal parts has likewise been increasingly automated, the bending apparatus being preset to several sequential settings (so as to graduate the bending process.) Setup time here has declined to an estimated 10 percent of what it had been prior to automation. Despite their being automated, these metalworking processes continue to require close monitoring by trained operators. The operator may monitor two or more machines at the same time, or may be engaged in such auxiliary tasks as placing and removing work pieces.<sup>16</sup>

Some of the more advanced shops in the industry feature such machine tools as high-capacity drills, which may drill all the holes in an air conditioning compressor vessel in one or two operations. (The holes are for accommodating bolts.) Older drilling machines, still widely in use, have much lower capacity and speed. Automatic tool wear adjustment is normally also a feature of NC machine tools, but at times



this feature is not desired or used. Replacement of a tool bit is then left to the discretion of the operator assigned to monitor the entire machining process. In small-lot production, loading and unloading the work piece may be done manually.<sup>17</sup>

Improved productivity in the fabrication of air conditioning equipment components during the review period is exemplified by the coil manufacturing process. The coil (made of copper or aluminum) is the heart of the heat exchanger. The refrigerant is pumped through it (by the compressor) to absorb heat from the surrounding space. The coil originates as tubing on a large roll. In the more advance shops, the rolled tubing is automatically straightened, cut to length as specified in, and controlled by, a taped program, and automatically bent to the shape of a U (or hairpin). This operation has come to be performed by one person, where 10 years or so ago, four persons were required to shear the tube manually and insert it into a bending device.

The U-shaped coil is inserted into a nest of aluminum fins. The fins aid in absorbing heat from the refrigerant. The fabrication of fins is usually highly mechanized, precut aluminum blanks being punched to form them, and to accommodate the coils. Numerically controlled punch presses featuring up to 27 spindles are used in the larger shops. However, the number of blanks that may be punched at a time is limited because punching tends to break rather than cut the metal, and breaking forms rims that cannot be tolerated. Where fins are produced in quantity, punch presses may not be numerically controlled, because longer setup times are usually justified by the longer runs.

Loading and unloading of the punch presses has usually been mechanized in the larger plants, so that the fins emerge stacked as nests. The coils are then inserted manually. Manual insertion is still preferred because it prevents "binding." The operator can readily control the pressure he exerts in inserting the individual coils, which is not (as yet) the case for mechanical insertion where undue pressure may damage ("bind") the coil. The coils are then brazed together or soldered to form a continuous loop. Brazing or soldering is still performed by means of hand-operated devices to ensure leakproof joints and the continuity of the loop, so as not to "blind-alley" them.<sup>18</sup>

The fabrication of reciprocating compressors provides other examples of the reduction in unit labor requirements which the industry seeks. Compressors, driven by electric motors (manufactured outside the industry), function to increase the density of the refrigerant to the liquid state. Basically, the reciprocating compressor consists of a piston sitting on a rod connected to the motor; and a cylinder, against the head of which the piston moves, compressing the refrigerant. Where compressor components are produced in quantity, multistation machinery arranged in circular (or "dial") form has come to be used. Yet, loading and unloading of the workpiece, and transferring it between groups of dial machinery, is still widely done manually. Some establish-

ments began to install automatic transfer lines toward the end of the review period, affording automatic positioning of the workpiece, as well as automation of most other metalworking operations (such as milling, drilling, reaming, and so forth). Transfer lines require usually one-half or less of the labor per unit of the more conventional equipment; so-called "uptime," that is the time during which the machinery is fully operational, is estimated to be 20 percent higher.<sup>19</sup> However, for the installation of such machinery to be economical, volume of compressors with 4½ to 6 tons of ice equivalent must run well in excess of 250,000 units annually, and of compressors with 2 to 4½ tons of ice equivalent must exceed 500,000 annually.<sup>20</sup>

Changes in product design have, in some instances been combined with technological advances. Thus, a cylindrically shaped air conditioning machine has been developed that permits several hundred feet of continual coil (or tubing) to be wrapped around a mandrel in one mechanical process. This increases the heat transfer area, hence the efficiency of the machine. It also minimizes the jointing of coil ends (as described earlier), and thus, the leakage of refrigerant. Fins consist of many hundreds of tiny aluminum pieces glued to the tubing's surface. Unit labor requirements in mounting such tubing are estimated at 20 to 30 percent of those for the manual insertion of U-shaped coils into nests of fins and the fabrication of such fins.<sup>21</sup>

Product design and technological advance have also been combined in the case of a thermostatic valve body for automotive air conditioning. After the valve body was redesigned, it could be fabricated by means of a 43-spindle metalworking machine which combines automatic indexing, milling, drilling, counterboring, tapping, and other operations. Material costs were reduced, assembly facilitated, and quality improved. The machine replaced as many as 11 standard machines run by 30 workers.<sup>22</sup>

A fundamental design change in air conditioning equipment and warm-air furnaces during the review period made them more energy-efficient (see the section on output). The relevant design changes usually involved finer tolerances, hence greater precision machining, especially of compressor components. Precision machining in turn has been facilitated by—and has spurred the adoption of—NC metalworking machinery. Functional testing, furthermore, has been upgraded by such electronic devices as automatic calibration stations, which can be programmed for many settings at a time, and which require little attendance.<sup>23</sup> Assembly appears also to have been improved by the better "fit-up" of the more precisely machined components.

## Industry structure

Industry concentration increased over the period reviewed; in 1977, the 8 largest companies accounted for 51 percent of the industry's value of shipments, compared with an estimated 45 percent in 1967.<sup>24</sup> The 20 largest companies accounted for 67 percent of the value of shipments in 1977,

as against 62 percent in 1967. Moreover, the concentration ratio for 1967 was higher than for 1963. These increases suggest underlying growth over time in economies of scale, a factor that usually engenders productivity improvement.

Employment, too, was concentrated in the larger establishments. In 1977, 50 percent of the industry's employees worked in 31 (or 4 percent) of the 860 establishments classified in the industry. At the lower end of the employment size stratification, just over 10 percent of all employees in the industry worked in 75 percent of all establishments. It is noteworthy that the size distribution of capital expenditures closely followed the size distribution of employment—such that, for example, nearly one-half of all such expenditures were made by only 4 percent of all establishments in the industry (that is, those with 1,000 or more employees.) In line with the increase in concentration ratios, the larger establishments raised their share of the industry's total employment over time.

## Outlook

*Equipment.* Continued productivity improvement is indicated for the industry. As the *American Machinist* inventory of metalworking equipment in the industry suggests, diffusion of NC machine tools is far from complete. If past trends in diffusion persist, productivity gains are likely to be generated. Moreover, the larger, more advanced shops plan to install flexible manufacturing (FM) systems, which will make small-lot production of larger air conditioning, refrigeration, and heating equipment more efficient.<sup>25</sup> One establishment, which is installing a FM system to produce reciprocal compressors, expects direct labor requirements to be reduced by more than 80 percent, as compared with conventional production methods. Another establishment, which produces large evaporators in lots of less than 100, also plans to fabricate them by FM methods. Such evaporators require up to 5,000 different metal shapes. In combination with NC machine tools, plant management expects FM to save up to 50 percent in unit labor requirements, cut lead time by nearly one-half, and cope with declining lot size and more exacting tolerances more efficiently. Management also foresees significant savings in materials and inventory costs.<sup>26</sup>

The cutting of steel, a large-scale operation in the bigger shops, should also become progressively more automated. The cutting and punching of steel is often still done by an operator using templates and judging by sight how to minimize waste in laying them out. Templates and operator judgment have begun to be replaced by computer-instructed cutting machines, where the computer calculates the most economical distribution of cuts. The computer memory also records odd pieces of steel that might be used in future work. With template labor and layout estimation by an operator eliminated, five times as much steel may be processed in the same period as previously. Also, material savings of up to 60 percent are expected.<sup>27</sup>

In welding operations, robots are increasingly being used, but for complex surfaces, skilled welders who may be subject to certification are still necessary. The use of a certified welder is frequently required by a code authority, such as the American Society of Mechanical Engineers, or by a customer, such as the U.S. Navy. Plant managers generally expect more versatile robots, which sense the complexities of the surfaces to be joined, to become available. But the laborsaving potential of such robots hinges upon the extent to which code requirements are modified.<sup>28</sup>

The efficiency of auxiliary operations in the industry is also likely to improve. Thus, while many plants feature partially automated storage of parts and components, work stations are still usually supplied by means of manually operated carts or small trucks. (Heavier and bulkier parts may be moved by overhead crane, activated by radio control.) Some plants in the industry which produce in quantity expect to install fully automated storage and delivery systems that convey parts to work stations upon command. Management in one such plant expects labor savings of 50 to 75 percent, compared with the partially automated system, as well as the near elimination of damage from multiple handling.<sup>29</sup>

*Employment.* The occupational composition of the industry's employment is not expected to change very much during the 1980's, except for growth in the proportions of engineers, engineering and science technicians, and computer specialists. Employment in these occupational categories has been projected by the Bureau of Labor Statistics to rise 27 percent between 1980 and 1990, compared with a 15-percent increase for employment in the industry as a whole.<sup>30</sup> The proportion of craftworkers and operatives has been projected to remain unchanged.

The projections signify increased reliance upon engineers and technicians in designing and monitoring more efficient production processes. The projections do not, however, indicate an accelerating trend toward either "deskilling" craftworkers or displacing operatives. In 1990, craftworkers will constitute an estimated 16 percent of total industry employment, and operatives, 48 percent—the same as in 1980. The proportion of professional, technical, and related workers in the industry is estimated to rise from 8 percent to just under 9 percent. □

## FOOTNOTES

<sup>1</sup> The industry for which labor productivity is discussed here has been designated as number 3585 in the *Standard Industrial Classification Manual (1972)*, published by the Office of Management and Budget, and titled "Air Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment." The industry includes establishments primarily manufacturing such equipment, as well as soda fountains, humidifiers, and dehumidifiers.

Average annual rates discussed in the text are based on the linear least squares of the logarithms of the index numbers. The measures of productivity and related variables will be extended annually, and will appear in the annual BLS Bulletin, *Productivity Measures for Selected Industries*.

<sup>2</sup> Establishments which primarily manufacture household refrigerators and freezers are classified as industry 3632 in the *Standard Industrial Classification Manual*.

<sup>3</sup> Based on input-output calculations for 1972.

<sup>4</sup> *Statistical Abstract of the United States, 1982-83* (Bureau of the Census, 1982), p. 752.

<sup>5</sup> Barbara Bingham, "Labor and material requirements for shopping center and retail store construction," *Monthly Labor Review*, forthcoming.

<sup>6</sup> *Residential Alterations and Repairs, Construction Reports, Annual 1981* (U.S. Department of Commerce, 1981).

<sup>7</sup> *Comparative Study of Energy Efficiency Ratios*, (Arlington, Va., Air-conditioning and Refrigeration Institute, April 1983). See also *Statistical Panorama*, published each April by *The Air Conditioning, Heating, and Refrigeration News*.

<sup>8</sup> Overtime in SIC 3585 (manufacturing = 100):

1967 . . . . .	91	1975 . . . . .	65
1968 . . . . .	75	1976 . . . . .	97
1969 . . . . .	94	1977 . . . . .	91
1970 . . . . .	87	1978 . . . . .	100
1971 . . . . .	79	1979 . . . . .	82
1972 . . . . .	97	1980 . . . . .	79
1973 . . . . .	84	1981 . . . . .	79
1974 . . . . .	73		

<sup>9</sup> Figures cited in this section are based on data developed by the Bureau of Labor Statistics.

<sup>10</sup> The census data for plant and equipment were converted to a constant-dollar basis from the current-dollar figures by applying the implicit price deflator for structures and producers' durable equipment, as published in *The Economic Report of the President* (U.S. Government Printing Office, February 1983), p. 166.

<sup>11</sup> "The 13th *American Machinist* Inventory of Metalworking Equipment 1983," *American Machinist*, November 1983, pp. 113 ff.; and unpublished inventory data, by courtesy of *American Machinist*.

<sup>12</sup> *Ibid.* The decision to classify a metalworking machine in a lower age group when retrofitting it with new components is left to the firm that completes the inventory forms. These decisions tend to be conservative.

<sup>13</sup> *Ibid.*, p. 123.

<sup>14</sup> Horst Brand and Clyde Huffstutler, "Productivity in the pump and compressor industry," *Monthly Labor Review*, December 1982, pp. 38-

45. It should be noted that the productive capability of machine tools in the industry, as in industries in general, has been increased also by the large proportion of metalworking equipment in the lower group that is not numerically controlled. For example, three-quarters of all establishments in the industry surveyed by *American Machinist* reported drilling machines that were not numerically controlled (compared with 7 percent with NC drilling machines). One-quarter of all drilling machines that were not numerically controlled were less than 9 years old, and about two-thirds were under 20 years old.

<sup>15</sup> Industry information. See also *American Machinist*, December 1981, p. 57, describing a computer-NC notching press, and noting reductions in labor requirements.

<sup>16</sup> Industry sources.

<sup>17</sup> Industry sources.

<sup>18</sup> Industry sources.

<sup>19</sup> Industry sources.

<sup>20</sup> Industry sources.

<sup>21</sup> Industry sources.

<sup>22</sup> See *American Machinist*, Mar. 15, 1975, pp. 65-67.

<sup>23</sup> *Ibid.*, and industry information.

<sup>24</sup> While the data for 1967 include only air conditioning and refrigeration equipment manufacturers, the rise in the concentration ratio in 1972 is unlikely to have stemmed merely from the inclusion that year of warm-air furnace manufacturing establishments.

<sup>25</sup> Industry information.

<sup>26</sup> Industry source. Flexible manufacturing systems depend on automatically adjustable metalworking equipment, often linked with robots or other automatic transfer devices. See *American Machinist*, December 1981, pp. 55-56.

<sup>27</sup> Industry source.

<sup>28</sup> "Major technology changes in fabricated structural metal," *The Impact of Technology on Labor in Five Industries*, BLS Bulletin 2137 (Bureau of Labor Statistics, December 1982), pp. 37-39. See also *American Machinist*, January 1980, p. 63, and June 1980, p. 69.

<sup>29</sup> Industry source.

<sup>30</sup> "The 'low' trend version of three alternative projections by BLS is used here. See Valerie A. Personick, "The job outlook through 1995: industry output and employment projections," *Monthly Labor Review*, November 1983, pp. 24-35.

## 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 physical quantity data, the output index for the industry which manufactures air conditioning, refrigeration, and warm-air heating equipment was constructed using a deflated value technique. The value of shipments of the various product classes was 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. These procedures result in a final output index that is conceptually closer to the preferred output measure.

Employment and employee hour indexes were derived from data from the Bureau of Labor Statistics. Employees and employee hours are 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 relate total output to one input—labor time. The indexes do not measure the specific contribution of labor, capital, or any other single factor. Rather, they reflect the joint effects of such factors 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.

# Work experience in 1983 reflects the effects of the recovery

*As the economy rebounded from the 1981–82 recession so did the number of jobholders, particularly of a full-time year-round nature; the figure for women who held such jobs reached an all-time high*

ELLEN SEHGAL

Reflecting the strong rebound of the economy, 1.4 million more persons held jobs in 1983 than in 1982. And the number working year round full time expanded even more—by nearly 3 million. In addition, there was a drop of 2.7 million in the number of persons experiencing some unemployment during the year.

These data come from responses to “work experience” questions asked in March 1984 in a supplement to the Current Population Survey (CPS).<sup>1</sup> The questions, which are asked annually, refer to the work status of the civilian population over the previous calendar year.

Because many persons change their labor force status during a year, the total number with some employment or unemployment as measured in this survey usually is much higher than the annual averages based on the monthly CPS.

For 1983, the number of persons who worked all or part of the year—117.7 million—was 17 percent higher than the annual average civilian employment level of 100.8 million. And the number of persons who encountered some unemployment (although lower than the previous year) was still more than twice the annual average of the monthly unemployment figures (23.8 million versus 10.7 million). Altogether, 19.6 percent of all persons with some labor force activity during the year, in terms of having either worked

or looked for work, experienced some unemployment in 1983. By comparison, the annual average unemployment rate for 1983 was 9.6 percent.

While reflecting the effects of the recovery, the data for 1983 generally are also in line with some of the salient historical trends in employment and unemployment, as shown by the following highlights:

- Women showed a large gain in full-time year-round employment. This continued the trend of the last several decades during which women have become not only a larger but also a more permanent component of the labor force.
- The proportion of men with some employment—77.6 percent—continued to decline. (In 1980, the comparable proportion was 80 percent and in 1950 it was 87 percent.) This drop has been particularly sharp for older men.
- A smaller percentage of blacks (59 percent) than whites (68 percent) were employed during the year. However, following a longstanding pattern, the proportion of black women employed full time year round exceeded that of white women.
- As in the past, more blacks experienced unemployment than whites. Among those with some labor force activity during the year, nearly one-third of black men and more than one-fourth of black women encountered at least one spell of joblessness.
- The proportion of Hispanics<sup>2</sup> encountering some unem-

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ployment was higher than for whites but lower than for blacks. This follows a pattern evident since these data were first tabulated separately for Hispanics (in 1976).

- Men continued to be unemployed longer than women; blacks and Hispanics were unemployed longer than whites; and older workers tended to be unemployed longer than younger ones.

### The recovery's impact on jobs

As the economy rebounded from the severe 1981–82 recession, so did the number of persons with jobs—particularly jobs of a full-time year-round nature. Especially noteworthy was the fact that the number of women with full-time year-round employment reached 25.3 million in 1983, 48 percent of all women with some work during the year. Both of these figures are all-time highs. (See table 1.)

The proportion of employed blacks and Hispanics working full time year round—55 percent for both—was up nearly 3 percentage points from 1982. (See table 2.) For Hispanics—as well as for whites and blacks—the 1983 level was the highest since 1976. The tabulation below shows the

changes since 1976 in the proportion of workers in each of these groups who worked full time the year round:

	White	Black	Hispanic
1976 .....	54.7	51.4	50.3
1980 .....	56.5	52.7	53.1
1983 .....	56.9	55.2	55.2

For the entire population of working age, 1983 marked the first time in 4 years when the proportion working at some time during the year—67.0 percent—did not decrease. In 1980 and 1981, job growth had not kept pace with population growth, and in 1982, reflecting the severity of the recession, the number of persons with some employment showed an actual decline. As a result, the proportion of the population with some employment during the year was still lower in 1983 than it had been in 1980 (68.3 percent). This reflects the continuing decline in the proportion of men with some employment during the year, which has been only partly offset by the rebound in the proportion of working women. The latter reached 57.3 percent in 1983, only slightly below the peak levels of the 1979–81 period.

**Table 1. Extent of employment during the year by gender, 1982–83**

Extent of employment	Total		Men		Women	
	1982	1983	1982	1983	1982	1983
	Numbers (in thousands)					
Civilian noninstitutional population .....	173,656	175,824	82,260	83,338	91,395	92,485
Total who worked or looked for work .....	120,235	121,634	66,160	66,531	54,074	55,103
Percent of the population .....	69.2	69.2	80.4	79.8	59.2	59.6
Total who worked during the year <sup>1</sup> .....	116,277	117,718	64,365	64,695	51,912	53,023
Percent of the population .....	67.0	67.0	78.2	77.6	56.8	57.3
Full time <sup>2</sup> .....	89,575	90,744	54,917	55,262	34,658	35,482
50 to 52 weeks .....	63,973	66,828	40,129	41,540	23,844	25,288
48 to 49 weeks .....	2,317	2,285	1,381	1,368	936	917
40 to 47 weeks .....	5,772	5,146	3,377	3,007	2,395	2,139
27 to 39 weeks .....	6,017	5,640	3,575	3,294	2,441	2,346
14 to 26 weeks .....	6,263	5,921	3,654	3,311	2,609	2,611
1 to 13 weeks .....	5,233	4,924	2,800	2,743	2,433	2,181
Part time <sup>3</sup> .....	26,702	26,974	9,448	9,433	17,254	17,541
50 to 52 weeks .....	9,812	10,306	3,118	3,227	6,694	7,079
48 to 49 weeks .....	815	766	253	234	562	532
40 to 47 weeks .....	2,416	2,346	912	748	1,503	1,599
27 to 39 weeks .....	3,463	3,101	1,210	1,052	2,253	2,049
14 to 26 weeks .....	4,623	4,505	1,714	1,762	2,910	2,742
1 to 13 weeks .....	5,574	5,950	2,241	2,410	3,332	3,540
	Percent distribution					
Total who worked during the year <sup>1</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0
Full time <sup>2</sup> .....	77.0	77.1	85.3	85.4	66.8	66.9
50 to 52 weeks .....	55.0	56.8	62.3	64.2	45.9	47.7
48 to 49 weeks .....	2.0	1.9	2.1	2.1	1.8	1.7
40 to 47 weeks .....	5.0	4.4	5.2	4.6	4.6	4.0
27 to 39 weeks .....	5.2	4.8	5.6	5.1	4.7	4.4
14 to 26 weeks .....	5.4	5.0	5.7	5.1	5.0	4.9
1 to 13 weeks .....	4.5	4.2	4.4	4.2	4.7	4.1
Part time <sup>3</sup> .....	23.0	22.9	14.7	14.6	33.2	33.1
50 to 52 weeks .....	8.4	8.8	4.8	5.0	12.9	13.4
48 to 49 weeks .....	.7	.7	.4	.4	1.1	1.0
40 to 47 weeks .....	2.1	2.0	1.4	1.2	2.9	3.0
27 to 39 weeks .....	3.0	2.6	1.9	1.6	4.3	3.9
14 to 26 weeks .....	4.0	3.8	2.7	2.7	5.6	5.2
1 to 13 weeks .....	4.8	5.1	3.5	3.7	6.4	6.7

<sup>1</sup>Time worked includes paid vacation and sick leave.

<sup>3</sup>Usually worked 1 to 34 hours per week.

<sup>2</sup>Usually worked 35 hours or more per week.

**Table 2. Extent of employment during the year by race, Hispanic origin, and gender, 1982-83**

[Numbers in thousands]

Characteristic	Total		Men		Women	
	1982	1983	1982	1983	1982	1983
<b>White</b>						
Civilian noninstitutional population	150,427	152,244	71,808	72,701	78,618	79,543
Total who worked or looked for work	104,942	106,117	58,560	58,737	46,381	47,379
Percent of the population	69.8	69.7	81.6	80.8	59.0	59.6
Total who worked during the year <sup>1</sup>	102,192	103,496	57,273	57,495	44,918	46,002
Percent of the population	67.9	68.0	79.8	79.1	57.1	57.8
Total who worked during the year <sup>1</sup>	100.0	100.0	100.0	100.0	100.0	100.0
Full time <sup>2</sup>	76.8	77.0	85.6	85.8	65.6	66.0
50 to 52 weeks	55.3	56.9	63.2	64.8	45.2	46.9
27 to 49 weeks	12.0	11.2	12.8	12.0	11.0	10.2
1 to 26 weeks	9.5	8.9	9.6	8.9	9.4	9.0
Part time <sup>3</sup>	23.2	23.0	14.4	14.2	34.4	34.0
50 to 52 weeks	8.7	8.9	4.9	5.0	13.5	13.7
27 to 49 weeks	5.9	5.4	3.7	3.1	8.7	8.3
1 to 26 weeks	8.6	8.7	5.8	6.2	12.2	12.0
<b>Black</b>						
Civilian noninstitutional population	18,823	19,248	8,398	8,608	10,425	10,641
Total who worked or looked for work	12,276	12,593	5,994	6,269	6,282	6,323
Percent of the population	65.2	65.4	71.4	72.8	60.3	59.4
Total who worked during the year <sup>1</sup>	11,168	11,414	5,521	5,737	5,647	5,678
Percent of the population	59.3	59.3	65.7	66.6	54.2	53.4
Total who worked during the year <sup>1</sup>	100.0	100.0	100.0	100.0	100.0	100.0
Full time <sup>2</sup>	78.6	77.5	83.0	82.1	74.4	72.9
50 to 52 weeks	52.3	55.2	54.1	57.2	50.5	53.2
27 to 49 weeks	13.4	10.9	14.6	11.5	12.2	10.2
1 to 26 weeks	13.0	11.4	14.2	13.3	11.7	9.5
Part time <sup>3</sup>	21.4	22.5	17.0	17.9	25.6	27.1
50 to 52 weeks	6.4	7.9	4.3	5.0	8.3	10.9
27 to 49 weeks	4.9	4.6	3.4	3.8	6.2	5.4
1 to 26 weeks	10.1	10.0	9.2	9.2	11.0	10.8
<b>Hispanic origin</b>						
Civilian noninstitutional population	9,384	9,811	4,406	4,542	4,978	5,268
Total who worked or looked for work	6,331	6,565	3,646	3,723	2,685	2,843
Percent of the population	67.5	66.9	82.7	82.0	53.9	54.0
Total who worked during the year <sup>1</sup>	6,078	6,348	3,544	3,622	2,534	2,727
Percent of the population	64.8	64.7	80.4	79.7	50.9	51.8
Total who worked during the year <sup>1</sup>	100.0	100.0	100.0	100.0	100.0	100.0
Full time <sup>2</sup>	80.9	80.7	86.6	86.5	73.1	72.9
50 to 52 weeks	52.5	55.2	57.7	60.8	45.3	47.7
27 to 49 weeks	14.8	13.4	16.1	14.8	12.9	11.4
1 to 26 weeks	13.6	12.1	12.7	10.9	14.9	13.8
Part time <sup>3</sup>	19.1	19.3	13.4	13.5	26.9	27.1
50 to 52 weeks	7.0	7.1	4.7	4.9	10.2	10.1
27 to 49 weeks	4.1	4.2	2.8	2.8	5.7	6.2
1 to 26 weeks	8.0	8.0	5.9	5.9	10.9	10.8

<sup>1</sup>Time worked includes paid vacation and sick leave.<sup>2</sup>Usually worked 35 hours or more per week.<sup>3</sup>Usually worked 1 to 34 hours per week.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" group are not presented and Hispanics are included in both the white and black population groups.

## Group differences in employment

Until a decade ago, a greater proportion of black than white women worked at some time during the year. However, the proportion of white women with some employment has long been growing at a faster rate, and since 1976 it has exceeded the proportion for black women by a gradually larger margin. By 1983, the proportion with some employment was 58 percent for white women and 53 percent for black women. However, black women continue to be more likely than their white counterparts to work full time year round.

As expected, women without children are most likely to be in the labor force all year, while those with younger children are least likely. Still, more than half of the mothers

with children under age 3 who worked in 1983 did so year round.

Reflecting a long-term trend, the proportion of men with any employment during the year—77.6 percent in 1983—reached its lowest level since about 35 years ago when this series began. As shown in table 3, the drop in labor force activity has been particularly evident among older men, who have been choosing to retire at earlier ages under Social Security Act provisions and private pension plans.<sup>3</sup>

Even when they remain in the labor force, older men are now less likely to work year round full time than was the case 10 years ago. In contrast, among older working women there has been little change in the percentage who work full time year round, as is shown in the following tabulation.

	55 to 59 years	60 to 64 years	65 years and over
<b>Men:</b>			
1973 .....	81.9	72.9	36.1
1978 .....	80.7	71.6	32.8
1983 .....	77.0	65.6	33.4
<b>Women:</b>			
1973 .....	57.4	49.3	23.8
1978 .....	59.4	50.0	22.1
1983 .....	55.8	48.9	23.6

There was also a drop over the past decade in the proportion of young men with work experience during the year. This was evident both among those in their teens as well as among those 20 to 24 years old. The trend for young women was somewhat different, with a decline in the proportion of teenagers with some employment during the year but a rise for women aged 20 to 24. Even among the latter female group, however, the percentage employed in 1983 was lower than the peak reached in 1978.<sup>4</sup>

### Unemployment declines

The 23.8 million persons who were unemployed at some time in 1983 represented 19.6 percent of all persons who worked or looked for work during the year. (See table 4.) This proportion was well below the 22 percent for 1982, when unemployment reached a recessionary peak. For men, who were particularly hard hit by the 1981-82 recession, the proportion with some unemployment dropped to 21 percent for 1983. This was less than the proportion encountering unemployment in 1982, but still above 1981's level. For women, the proportion with some joblessness in 1983—17.8 percent—was lower than in both prior years.

### More data available

Additional data on the work experience of the population, compiled from the March 1984 Current Population Survey, are available as a tabulation package from the Bureau of Labor Statistics, Office of Employment and Unemployment Statistics, Division of Data Development and Users' Services, 441 G Street, N.W., Washington, D.C. 20212.

The percentage of blacks unemployed at some time during 1983 was also lower than in 1982 and 1981. However, 1 of 3 black men and 1 of 4 black women encountered some unemployment, proportionately more than either Hispanic or white workers.

Among industries, the greatest decrease in the proportion of workers encountering unemployment in 1983 was in manufacturing, particularly in durable goods, where the proportion dropped from 28 to 20 percent. As usual, the proportion of workers with the lowest incidence of unemployment over the year was in public administration and in finance, insurance, and real estate (10 percent for both industry groups in 1983). The highest incidence was in construction (38 percent) and agriculture (29 percent). (See table 5.)

The great majority of persons with some unemployment in 1983 held at least one job during the year (84 percent), while the remaining 16 percent looked for work at least part of the time but never held a job. Nearly 1 of 3 blacks with

**Table 3. Extent of employment by gender and age, selected years, 1973-83**

[Numbers in thousands]

Gender and age	1973		1978		1983	
	Total who worked during the year	Percent of the population	Total who worked during the year	Percent of the population	Total who worked during the year	Percent of the population
<b>Men</b> .....	58,370	83.7	61,917	81.4	64,695	77.6
Age (in years):						
16 to 17 .....	2,560	61.3	2,368	56.7	1,712	46.6
18 to 19 .....	3,178	85.3	3,336	83.7	2,797	73.9
20 to 24 .....	7,696	92.1	8,797	92.9	8,813	86.9
25 to 34 .....	13,385	97.0	15,767	96.2	18,002	92.4
35 to 44 .....	10,412	97.0	11,274	96.1	13,666	94.0
45 to 54 .....	10,611	93.6	10,215	92.7	9,703	90.6
55 to 59 .....	4,340	89.8	4,506	84.3	4,382	82.4
60 to 64 .....	3,356	79.6	3,120	70.9	3,226	65.3
65 and over .....	2,832	33.2	2,534	26.5	2,394	22.3
<b>Women</b> .....	41,835	53.6	48,373	57.1	53,023	57.3
Age (in years):						
16 to 17 .....	1,945	47.7	2,014	49.6	1,449	40.7
18 to 19 .....	2,962	74.1	3,086	73.8	2,570	66.5
20 to 24 .....	6,828	74.3	8,111	80.0	8,066	76.0
25 to 34 .....	9,087	61.6	12,220	70.5	14,951	73.7
35 to 44 .....	7,074	60.9	8,684	68.5	11,237	73.2
45 to 54 .....	7,344	60.0	7,420	62.9	7,633	66.4
55 to 59 .....	2,919	54.8	3,139	53.5	3,214	53.7
60 to 64 .....	2,165	44.7	2,074	41.3	2,304	39.9
65 and over .....	1,509	12.5	1,626	11.9	1,600	10.3

**Table 4. Extent of unemployment during the year by race, Hispanic origin, and gender, 1982-83**

[Numbers in thousands]

Characteristic	Total		Men		Women	
	1982	1983	1982	1983	1982	1983
<b>TOTAL</b>						
Total who worked or looked for work .....	120,235	121,634	66,160	66,531	54,074	55,103
Percent with unemployment .....	22.0	19.6	23.3	21.0	20.4	17.8
Total with unemployment .....	26,493	23,799	15,441	13,973	11,052	9,826
Did not work but looked for work .....	3,958	3,916	1,795	1,835	2,163	2,080
1 to 14 weeks .....	1,730	1,628	508	504	1,221	1,125
15 weeks or more .....	2,228	2,287	1,286	1,332	942	956
Worked during the year .....	22,535	19,883	13,646	12,138	8,889	7,745
Year-round workers <sup>1</sup> with 1 or 2 weeks of unemployment .....	1,155	920	747	615	408	305
Part-year workers <sup>2</sup> with unemployment .....	21,380	18,963	12,900	11,523	8,481	7,440
1 to 4 weeks .....	3,483	3,367	1,736	1,718	1,747	1,649
5 to 10 weeks .....	4,184	3,608	2,372	2,078	1,813	1,530
11 to 14 weeks .....	2,808	2,549	1,721	1,588	1,087	961
15 to 26 weeks .....	5,863	4,980	3,911	3,245	1,952	1,735
27 weeks or more .....	5,041	4,460	3,159	2,895	1,882	1,565
With 2 spells or more of unemployment .....	7,573	6,445	4,913	4,276	2,660	2,168
2 spells .....	3,854	3,308	2,421	2,082	1,433	1,226
3 spells or more .....	3,719	3,136	2,492	2,194	1,227	942
<b>White</b>						
Total who worked or looked for work .....	104,942	106,117	58,560	58,737	46,381	47,379
Percent with unemployment .....	20.7	18.4	22.0	19.8	19.1	16.7
Total with unemployment .....	21,730	19,576	12,883	11,654	8,847	7,922
Did not work but looked for work .....	2,750	2,620	1,287	1,243	1,463	1,377
Worked during the year .....	18,981	16,956	11,596	10,411	7,384	6,545
<b>Black</b>						
Total who worked or looked for work .....	12,276	12,593	5,994	6,269	6,282	6,323
Percent with unemployment .....	33.4	29.1	36.5	32.2	30.4	26.1
Total with unemployment .....	4,096	3,668	2,186	2,019	1,910	1,650
Did not work but looked for work .....	1,108	1,178	473	533	635	646
Worked during the year .....	2,988	2,490	1,713	1,486	1,275	1,004
<b>Hispanic origin</b>						
Total who worked or looked for work .....	6,331	6,565	3,646	3,723	2,685	2,843
Percent with unemployment .....	27.1	24.3	28.5	25.7	25.3	22.5
Total with unemployment .....	1,717	1,598	1,038	958	679	640
Did not work but looked for work .....	253	217	101	101	152	116
Worked during the year .....	1,464	1,381	937	857	527	524

<sup>1</sup>Worked 50 or 51 weeks.

<sup>2</sup>Worked less than 50 weeks.

NOTE: Detail for race and Hispanic-origin groups will not sum to totals because data for the "other races" group are not presented and Hispanics are included in both the white and black population groups.

unemployment did not report any employment for the year, in contrast to 14 percent for both whites and Hispanics.

For persons with some unemployment who worked at some time during the year, the improvement in the economy was reflected in slight decreases in the proportions with two spells or more of joblessness and in a reduction in the median weeks of unemployment. There also was a small decrease in the number (and proportion) of persons reporting that they were involuntarily working part year or part time.

### Part-year and part-time workers

Among the persons who were employed less than the entire year in 1983, a far greater proportion of men than women pointed to unemployment as the main reason. As seen in the following tabulation, of part-year workers aged 25 to 44, 7 of 10 men but only 3 of 10 women cited unemployment as the major reason they were not employed year round. Also, 5 percent of men aged 25 to 44, but a

smaller percentage of women (3 percent), reported that they only worked part of the year because there was "no work available." (Some 1.3 million part-year workers aged 16 and over in 1983, in contrast to about 2.2 million in 1982, seem to have been "discouraged" by lack of employment opportunities, citing that the main reason they were not working or looking for work for the remainder of the year was the unavailability of jobs.)<sup>5</sup>

Reason	Part-year workers	
	Number (in thousands)	Percent
Men, 25 to 44 years .....	7,566	100.0
Unemployment .....	5,229	69.1
Illness or disability .....	464	6.1
Home responsibilities .....	90	1.2
School attendance .....	499	6.6
No work available .....	375	5.0
Other .....	909	12.0



**Table 5. Extent of unemployment of wage and salary workers by industry of the job held the longest, 1982-83**

[Numbers in thousands]

Industry	1982			1983		
	Total wage and salary workers	With unemployment		Total wage and salary workers	With unemployment	
		Total	Percent of total wage and salary workers		Total	Percent of total wage and salary workers
Total	106,423	21,544	20.2	107,948	19,075	17.7
Agriculture	2,187	667	30.5	2,209	641	29.0
Mining	1,226	337	27.5	1,016	261	25.6
Construction	5,985	2,435	40.7	6,444	2,431	37.7
Manufacturing	22,777	5,889	25.9	22,147	4,390	19.8
Durable goods	13,405	3,698	27.6	12,822	2,585	20.2
Nondurable goods	9,372	2,190	23.4	9,325	1,805	19.4
Transportation and public utilities	7,220	1,040	14.4	7,499	956	12.8
Wholesale and retail trade	22,819	4,903	21.5	23,307	4,578	19.6
Finance, insurance, and real estate	6,223	683	11.0	6,559	659	10.1
Services	32,748	5,099	15.6	33,360	4,627	13.9
Public administration	5,238	492	9.4	5,407	532	9.8

Reason	Part-year workers	
	Number (in thousands)	Percent
Women, 25 to 44 years	9,082	100.0
Unemployment	2,726	30.0
Illness or disability	566	6.2
Home responsibilities	4,108	45.2
School attendance	417	4.6
No work available	253	2.8
Other	1,012	11.1

In addition, as indicated below, more than half of men aged 25 to 44 but less than one-third of women reported they were limited to working part time because they could not find a full-time job or because of slack work or material shortage. Such differences generally reflect the fact that women are more likely than men to choose to work part time or part year (although the choice often is imposed by child-care responsibilities), and that women are less prone to be in cyclically sensitive employment.

Reason	Part-time workers	
	Number (in thousands)	Percent
Men, 25 to 44 years	7,251	100.0
Could only find part-time job	993	13.7
Wanted or could only work part time	1,095	15.1
Slack work or material shortage	3,109	42.9
Other	2,054	28.3
Women, 25 to 44 years	10,202	100.0
Could only find part-time job	1,415	13.9
Wanted or could only work part time	5,475	53.7
Slack work or material shortage	1,646	16.1
Other	1,667	16.3

**Unemployment and family income**

The median number of weeks unemployed for persons with both employment and unemployment during 1983 was

13.3. (This figure represents total weeks unemployed including, for some persons, more than one spell of unemployment.) As indicated below, women on average were unemployed fewer weeks than men, whites fewer weeks than blacks and Hispanics, and younger workers fewer weeks than older workers:

Persons with employment and unemployment	Median weeks unemployed
Total, 16 years and over	13.3
16 to 19 years	10.4
20 to 24 years	12.5
25 to 44 years	14.1
45 to 64 years	17.0
65 years and over	17.4
Men	15.2
Women	12.3
Whites	13.1
Blacks	18.4
Hispanics	16.9

Clearly, the longer a person is unemployed the more severe the impact on earnings. But what is the effect of unemployment on family income? While the impact also is more burdensome the longer the period of unemployment, other factors need to be considered. These include earnings of other family members, wage levels of family earners, and alternative sources of income such as unemployment insurance benefits and transfer payments. For example, as seen in the following tabulation, median family income—while substantially lower than in similar families with no unemployment—was still about \$27,000 for married-couple families with two earners or more in which at least one experienced some unemployment. Seven percent of such families had incomes which fell below the Federally designated poverty thresholds.<sup>6</sup> In contrast, median family income was about \$7,000 in one-earner families maintained by women in which the earner had encountered some unemployment during the year. More than half of such families were in poverty.

Type of family	No member unemployed		At least one member with some unemployment	
	Median family income	Percent in poverty	Median family income	Percent in poverty
Married-couple families ..	\$31,495	4.3	\$23,592	13.2
One earner .....	24,801	7.8	14,959	27.2
Two earners or more ..	35,201	2.6	27,274	7.1
Families maintained by				
women .....	16,116	17.0	9,860	44.5
One earner .....	13,501	22.1	7,345	52.9
Two earners or more ..	23,925	5.9	18,341	17.1
Families maintained by				
men .....	25,950	6.4	17,309	19.2
One earner .....	21,644	8.9	11,349	27.6
Two earners or more ..	33,218	2.8	24,107	6.4
Persons not living in families, with earnings	15,538	10.2	7,238	38.0

Similar patterns are found among families with involuntary part-time workers who encountered unemployment in 1983, as well as among families with unemployed members who did not work at all during the year. In each case, the largest proportion of families in poverty are those maintained by women. However, even when no family members are unemployed, median family income is relatively low for families maintained by women (\$16,000 in 1983), and a significant proportion are in poverty (17 percent). This largely reflects the concentration of these women in low-paying jobs, employment constraints because of child-care respon-

sibilities, and the absence of other family wage earners. Unemployment, of course, compounds their problem. □

—FOOTNOTES—

<sup>1</sup>This is the latest in a series of reports on this subject. For an analysis of data from the March 1983 Current Population Survey, see Paul O. Flaim, "Unemployment in 1982: the cost to workers and their families," *Monthly Labor Review*, February 1984, pp. 30-37, reprinted as Special Labor Force Report Bulletin 2199.

<sup>2</sup>It should be noted that the "Hispanic" category is not a racial classification. Persons in this group may appear in the white or black or other racial categories.

<sup>3</sup>For a study of the work experiences of older men, see Herbert S. Parnes, ed., *Work and Retirement, A Longitudinal Study of Men* (The MIT Press, 1981). Parnes documents the trend toward men's earlier withdrawal from the labor force, finding that relatively few men are forced out of jobs by mandatory retirement, and that a majority of retirees are not interested in returning to work. For a study of the work experiences of women, see Lois Banfill Shaw, ed., *Unplanned Careers: The Working Lives of Middle-Aged Women* (Lexington Books, 1983).

<sup>4</sup>For studies on employment experiences of young men and women, see Michael E. Borus, ed., *Tomorrow's Worker* (Lexington Books 1983); and Frank L. Mott, ed., *The Employment Revolution, Young American Women of the 1970's* (The MIT Press, 1982).

<sup>5</sup>While "discouragement" has been measured on a current basis in the monthly Current Population Survey (CPS) for a long time, the March 1983 supplement to the CPS was the first which included a question aimed at measuring discouragement retroactively, and, as in the March 1984 supplement, it was asked only of part-year workers.

<sup>6</sup>The poverty thresholds, which are based primarily on U.S. Department of Agriculture determinations of consumption requirements of families by size, are revised each year by the Office of Management and Budget to reflect changes in the Consumer Price Index. The poverty threshold for a family of four in 1983 was \$10,178. However, when making such determinations, only cash income is considered.

# White-collar pay determination under range-of-rate systems

*Medium-size and large employers use ranges of rates to determine salaries for workers having similar job duties but different levels of performance or tenure; ranges are generally designed to control labor costs, attract qualified candidates, and reward valued employees*

MARTIN E. PERSONICK

Administrators of company pay policy face three fundamental issues: (1) setting their companies' overall pay levels in relation to those of other companies; (2) evaluating individual company jobs and determining pay relationships among them; and (3) determining pay relationships among individual workers within the same job. The last of these functions—and the subject of this article—is often accomplished by establishing minimum and maximum pay rates for a given job or grouping of comparable jobs, and providing for adjustments of individual workers' pay within this range of rates based on performance, seniority, or both.

Special tabulations developed from the Bureau of Labor Statistics 1983 and 1984 national surveys of professional, administrative, technical, and clerical pay (PATC), which cover white-collar employees in medium and large establishments,<sup>1</sup> show that:

- Most white-collar workers are under rate range systems providing for periodic merit (performance) reviews of their pay.
- Sizable rate ranges are often established for individual company jobs, especially at the higher professional and administrative levels.

- In practice, however, differences between the highest and the lowest rates actually paid are generally much smaller than differences between the maximum and the minimum rates specified for a range.

## The data base

Information for this article comes from (1) internal worksheets prepared by BLS field staff in the 1983 survey to record job titles, formal rate ranges, duties, and responsibilities of company positions matching surveyed occupations<sup>2</sup> and (2) answers to questions on pay plan characteristics from the 1984 survey. Approximately 3,100 establishments were studied in the 1983 PATC survey. For some 1,400 establishments providing rate range data, the internal worksheets contained the minimum and maximum pay rates for individual company jobs matching one of the 101 occupational work levels in the survey.

Each of these work levels, ranging from entry-level to managerial positions, is covered by a written job description. Where several work levels are surveyed within a single occupation, they are identified by Roman numerals—the higher the numeral, the greater the duties and responsibilities.<sup>3</sup> Each of the narrowly defined work levels represents fairly homogeneous work duties and responsibilities. Thus, classification of employees in accordance with these descriptions permits summary and analysis of rate range char-

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acteristics for employees performing similar work, regardless of company job title or grade.

Exhibit 1 provides a hypothetical example of this job matching process in a large headquarters establishment. In most cases, a one-to-one relationship exists between a company job and a PATC survey work level; for example, only the company's project engineer has duties comparable to those in the PATC survey engineer V definition. Less frequently, one company job spans two PATC survey levels; some engineering associates better match PATC survey engineer I, while others generally perform engineer II duties. Also, two company jobs at different grade levels may at times equate to one PATC survey level, as in the case of the engineer and the nuclear engineer positions in the example, which both match engineer III. For purposes of this study, matches similar to the engineer III illustration were excluded because they spanned more than one company rate range. These excluded situations accounted for fewer than 10 percent of the 22,000 matches in establishments reporting rate ranges.

The study focused on the width of company rate ranges—that is, the spread between minimum and maximum rates—and the relationship of actual salaries to points within the ranges. In exhibit 1, the maximum rate is 50 percent above the minimum rate in company grades 2 through 8, and slightly higher in grades 11 through 17. Such patterns, as found in surveyed establishments, will be discussed later in the article.

Respondents to the 1984 PATC survey answered the following questions separately for the professional-administrative and the technical-clerical worker groups: (1) What

types of pay plans cover employees in white-collar jobs? and (2) if workers are covered by rate ranges, what boundaries are specified for the ranges; how frequently are rate ranges adjusted; what formal provisions, if any, cover normal hiring rates within rate ranges; and what point within the rate range equates to a job's market value? Following is a description of the general characteristics of rate ranges as revealed by the answers to these questions.

### Rate range profiles

Formal salary payment plans incorporating a range of rates for each job classification applied to about four-fifths of the white-collar workers covered by the 1984 PATC survey.<sup>4</sup> (See table 1.) In contrast, single rates for a given job—an important formal system for setting blue-collar pay<sup>5</sup>—were virtually nonexistent for white-collar workers. Informal systems, which base salaries primarily on an individual's qualifications, accounted for almost all of the remaining white-collar workers. Informal plans covered about 5 percent of such workers in the largest establishments (those employing at least 2,500 employees), compared with about one-fourth of those in establishments with fewer workers.

With few exceptions, a minimum and maximum were specified for each rate range reported. Within the range, an individual's pay increases typically were based on periodic merit (performance) reviews. This approach covered more than four-fifths of the professional and administrative workers and two-thirds of the technical-clerical group who were under rate ranges. Pay progression for the remaining workers under rate ranges either was automatic, determined by

**Exhibit 1. Hypothetical example of the salary structure and rate ranges in a large headquarters establishment**

Company grade and job title	PATC survey work level	Company rate range			Company grade and job title	PATC survey work level	Company rate range		
		Minimum	Mid-point	Maximum			Minimum	Mid-point	Maximum
Grade 2 . . . . . Junior accountant Buyer B	Accountant I Buyer I	\$20,000	\$25,000	\$30,000	Grade 11 <sup>1</sup> . . . . . Cost accounting manager Project engineer Counsel	Accountant V Engineer V Attorney III	\$37,360	\$46,700	\$58,375
Grade 4 . . . . . Engineering associate Cost accountant Buyer A Financial analyst	Engineer I, II Accountant II Buyer II Not in PATC survey	23,040	28,800	34,560	Grade 13 . . . . . Engineering project manager Senior counsel Division director of human resources	Engineer VI Attorney IV Director of personnel III	42,960	53,700	67,125
Grade 6 . . . . . General accountant Engineer Senior buyer	Accountant III Engineer III Buyer III	26,480	33,100	39,720	Grade 15 . . . . . Engineering division director Division counsel Assistant comptroller	Engineer VII Attorney V Chief accountant IV	49,400	61,750	77,200
Grade 7 . . . . . Nuclear engineer	Engineer III	28,480	35,600	42,720	Grade 17 . . . . . Director of engineering Associate general counsel Corporate manager of human resources Comptroller	Engineer VIII Attorney VI Director of personnel V Not in PATC survey	56,800	71,000	88,750
Grade 8 . . . . . Staff accountant Senior engineer Associate counsel Purchasing manager	Accountant IV Engineer IV Attorney II Not in PATC survey	30,480	38,100	45,720					

<sup>1</sup>It is not uncommon to skip grades in moving from nonsupervisory to supervisory/managerial levels.

NOTE: Company jobs and PATC survey work levels are compared using actual duties and responsibilities rather than job titles. Occupational definitions of PATC work levels, based in part on Federal Government personnel standards, appear in *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1983*, BLS Bulletin 2181, 1983.

**Table 1. Percent of white-collar employees, by method of wage payment and rate range characteristics, March 1984 PATC survey**

Method of salary payment and rate range characteristics	Professional and administrative employees	Technical and clerical employees
<b>Method of salary payment</b>		
All employees	100	100
Formal plans	81	79
Range of rates	81	77
Merit review	68	53
Length of service	1	11
Combination	11	14
Single rate	( <sup>1</sup> )	2
Individual determination	18	20
Other type of plan	1	( <sup>1</sup> )
<b>Selected characteristics</b>		
Employees under rate ranges	100	100
Minimum and maximum rate specified	98	95
Minimum is specified, no set maximum	2	4
Maximum is specified, no set minimum	1	( <sup>1</sup> )
Rate range is typically adjusted:		
More than once a year	3	5
Once a year	81	78
Less than once a year	5	5
No formal provision	11	11
Information not available	1	( <sup>1</sup> )
Normal hiring rate within rate range at:		
Minimum of range	25	42
Lower fourth of range	25	21
Lower half of range	21	14
Other part of range	9	6
No formal provision	19	16
Information not available	1	1
Location of job's market value:		
Midpoint of range	62	59
Maximum of range	2	5
Minimum to midpoint of range	4	5
Midpoint to maximum of range	13	9
No established concept	17	20
Information not available	1	2

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

NOTE: Because of rounding, sums of individual items may not equal 100.

their length of service in the job, or depended on a combination of job tenure and merit ratings.

Rate ranges are typically adjusted once a year—a practice covering about four-fifths of each worker group studied. Less commonly, provisions call for range changes at some other interval or on an ad hoc basis. After an upward adjustment in the rate range, some workers' rates fall below the new minimum. Employers reported that such "subminimum" rates are usually raised at the employee's next performance review or anniversary date.

Most establishments pay new employees at a specified point or within a specified portion of the range. The 1984 PATC survey found wide use of three distinct approaches, whereby new hires were paid at the range minimum, at some point between the minimum and the lower fourth, or between the lower fourth and the middle of the range. Each approach covered 20 to 25 percent of the professional-administrative worker group. For the technical-clerical group, hiring at the minimum of the range pertained to 42 percent of the workers, and was at least twice as common as the other two hiring approaches. (See table 1.)

The pace of advancement within a rate range is influenced in part by an employer's perception of the market value of

a job when fully and competently performed. Three-fifths of the white-collar workers were employed by establishments that regarded the midpoint of the rate range as representative of a job's market value. These employers used the midpoint for controlling salary costs, that is, by filtering through that point only highly rated employees or the most experienced employees. About 15 percent of the workers were in establishments in which advancement would be expected to be faster because the midpoint was set below the market value of a job. (It should be noted that another 15 to 20 percent of the workers were in establishments that did not recognize this concept of a job's market value.)

### Range width

As mentioned earlier, rate ranges make it possible for individuals in the same job and establishment to be paid at different rates. The 1983 PATC survey looked at the potential for such differences in the approximately 1,400 establishments reporting rate range information. Although these establishments are not statistically representative of the full PATC survey scope, they do span all of its covered industries and varying work force size groups. Furthermore, the results are consistent with findings from earlier Federal studies of salary structure characteristics in the private sector.<sup>6</sup>

Employers generally agree on the basic rationale for rate ranges, but commonly vary the percent by which the maximum salary rate exceeds the minimum salary rate in a range (its width). Ideally, rate minimums should attract qualified job candidates while rate maximums should be set to reward and retain high achievers. In practice, however, employers see these as flexible boundaries that at times allow for rates below the specified minimum, for hiring above the minimum rate, and for progression beyond the maximum rate in the range. Thus, the prescribed width of the range may differ from the spread in rates actually paid.

Among the PATC respondents, the maximum of a rate range most commonly exceeded the minimum by 50 percent, as shown in table 2. Nevertheless, many establishments had wider or narrower ranges. For the 89 survey work levels compared, the average spread ranged from 37 percent for stenographers II to 57 percent for accountants V and attorneys V. In general, rate spreads for professional-administrative jobs exceeded those for technical-clerical occupations.

Few employers maintained a constant range width for all their white-collar jobs. Among the 1,338 establishments reporting two or more rate ranges, more than four-fifths varied their range widths by at least 5 percentage points, and differences of 20 percent or more were common. This largely reflects the tendency of companies to establish separate salary schedules for major groups of white-collar jobs, such as professional-administrative and technical-clerical occupations. As shown in table 3, the proportion of establishments with uniform range widths (a zero or 1-percent-age-point difference between the widest and narrowest widths)

Table 2. Width<sup>1</sup> of rate ranges for workers in PATC survey establishments reporting rate ranges, March 1983

Occupational work level <sup>2</sup>	Mean width of establishment rate range (in percent)	Percent of establishments with rate range of—								
		Less than 35 percent	35 and under 40 percent	40 and under 45 percent	45 and under 50 percent	50 percent	Over 50 but under 55 percent	55 and under 60 percent	60 and under 65 percent	65 percent and over
<b>Professional-administrative</b>										
Accountants I . . . . .	51	7	6	8	10	36	7	9	6	11
Accountants II . . . . .	52	6	2	11	7	39	8	9	6	12
Accountants III . . . . .	53	6	4	6	10	38	8	9	5	13
Accountants IV . . . . .	54	4	2	5	6	42	8	12	5	15
Accountants V . . . . .	57	3	( <sup>3</sup> )	6	6	39	8	13	7	18
Accountants VI . . . . .	56	2	—	5	6	35	18	10	6	18
Chief accountants II . . . . .	54	4	4	4	6	40	11	13	2	15
Chief accountants III . . . . .	54	3	2	6	5	41	11	10	5	17
Auditors I . . . . .	52	7	—	5	9	38	12	12	9	8
Auditors II . . . . .	53	4	4	6	6	46	10	8	5	13
Auditors III . . . . .	53	5	1	4	9	44	8	12	5	14
Auditors IV . . . . .	53	5	3	3	3	46	11	11	3	14
Attorneys I . . . . .	53	6	4	1	5	47	13	11	2	11
Attorneys II . . . . .	53	4	—	3	4	48	10	14	3	13
Attorneys III . . . . .	55	3	2	4	4	41	11	11	8	17
Attorneys IV . . . . .	56	2	1	3	6	34	11	10	10	22
Attorneys V . . . . .	57	3	—	—	6	33	14	15	6	24
Buyers I . . . . .	51	10	5	11	9	31	11	7	6	11
Buyers II . . . . .	52	7	5	8	7	36	10	10	4	13
Buyers III . . . . .	53	4	3	7	7	43	9	9	6	12
Buyers IV . . . . .	54	6	4	7	6	33	9	13	2	20
Programmer/analysts I . . . . .	50	7	8	14	7	31	11	7	4	11
Programmer/analysts II . . . . .	51	8	5	9	10	34	9	9	6	11
Programmer/analysts III . . . . .	52	6	3	9	7	39	9	9	7	11
Programmer/analysts IV . . . . .	53	5	4	5	8	38	9	15	4	12
Programmer/analysts V . . . . .	53	2	4	7	6	38	8	16	10	11
Job analysts II . . . . .	56	2	2	2	6	35	15	11	8	20
Job analysts III . . . . .	53	4	2	4	5	47	13	11	1	13
Job analysts IV . . . . .	53	10	3	—	7	30	10	20	5	15
Directors of personnel I . . . . .	51	6	—	9	11	45	8	11	2	8
Directors of personnel II . . . . .	52	10	3	4	7	39	6	11	9	11
Directors of personnel III . . . . .	56	5	2	3	3	38	8	16	5	20
Chemists I . . . . .	51	10	10	7	7	37	7	7	5	12
Chemists II . . . . .	53	6	5	6	6	42	8	10	6	13
Chemists III . . . . .	51	6	7	9	6	37	9	9	6	11
Chemists IV . . . . .	53	6	4	8	4	38	8	17	4	14
Chemists V . . . . .	54	4	5	9	5	34	10	9	11	13
Chemists VI . . . . .	54	7	—	12	2	37	5	12	12	14
Engineers I . . . . .	52	8	4	8	8	31	9	12	7	13
Engineers II . . . . .	52	8	4	7	7	39	9	8	7	10
Engineers III . . . . .	53	7	2	8	8	37	11	10	5	12
Engineers IV . . . . .	54	6	3	5	9	38	6	13	6	15
Engineers V . . . . .	55	4	1	7	6	40	9	10	6	17
Engineers VI . . . . .	56	6	—	6	6	31	10	11	7	23
Engineers VII . . . . .	55	5	—	9	3	36	8	10	9	20
Engineers VIII . . . . .	54	6	3	3	3	30	6	24	6	18
<b>Technical-clerical</b>										
Computer operators I . . . . .	46	15	14	21	8	21	7	5	2	8
Computer operators II . . . . .	47	18	13	15	8	21	5	5	5	10
Computer operators III . . . . .	47	17	13	14	10	21	6	7	4	9
Computer operators IV . . . . .	47	17	10	12	13	23	5	6	4	10
Computer operators V . . . . .	49	15	4	8	15	24	7	9	8	11
Drafters I . . . . .	41	38	16	3	7	17	3	2	3	10
Drafters II . . . . .	45	26	14	13	9	15	5	4	7	7
Drafters III . . . . .	43	25	15	14	11	16	4	6	4	7
Drafters IV . . . . .	44	21	12	13	12	19	7	4	3	8
Drafters V . . . . .	44	22	15	9	10	19	10	5	3	7
Engineering technicians I . . . . .	42	33	16	6	13	14	1	6	5	6
Engineering technicians II . . . . .	43	23	19	13	11	16	4	5	4	4
Engineering technicians III . . . . .	44	22	11	18	9	19	3	6	5	6
Engineering technicians IV . . . . .	45	19	12	12	13	19	9	2	6	7
Engineering technicians V . . . . .	47	16	13	7	14	19	8	6	4	12
Photographers II . . . . .	49	13	16	13	7	19	7	3	10	12
Photographers III . . . . .	48	20	4	11	13	21	7	6	1	16
Photographers IV . . . . .	52	10	5	5	15	30	7	10	2	15
Accounting clerks I . . . . .	43	27	17	15	7	16	5	4	4	6
Accounting clerks II . . . . .	44	22	16	16	8	15	5	5	3	9
Accounting clerks III . . . . .	45	23	14	14	9	14	6	5	3	11
Accounting clerks IV . . . . .	45	22	11	13	10	20	3	6	3	12

See footnotes at end of table.

**Table 2. Continued—Width<sup>1</sup> of rate ranges for workers in PATC survey establishments reporting rate ranges, March 1983**

Occupational work level <sup>2</sup>	Mean width of establishment rate range (in percent)	Percent of establishments with rate range of—								
		Less than 35 percent	35 and under 40 percent	40 and under 45 percent	45 and under 50 percent	50 percent	Over 50 but under 55 percent	55 and under 60 percent	60 and under 65 percent	65 percent and over
File clerks I	42	29	16	15	7	15	6	5	3	4
File clerks II	44	23	17	13	9	16	9	2	5	6
File clerks III	47	21	13	15	10	13	3	9	4	12
Key entry operators I	44	24	17	15	8	13	7	3	4	9
Key entry operators II	44	24	14	13	8	15	7	5	3	9
Messengers	44	30	15	11	8	16	7	2	4	9
Secretaries I	45	20	20	12	11	16	6	4	2	8
Secretaries II	46	18	16	17	9	15	6	4	5	10
Secretaries III	46	19	15	14	9	17	6	6	4	9
Secretaries IV	47	15	12	12	11	24	4	8	3	11
Secretaries V	49	14	10	11	9	24	6	8	7	12
Stenographers I	48	31	11	13	4	6	6	5	4	20
Stenographers II	37	48	10	5	5	9	5	5	3	9
Typists I	45	23	15	14	12	14	6	4	3	9
Typists II	47	28	14	9	6	12	7	3	5	15
Personnel clerks I	44	22	16	18	9	17	6	6	1	6
Personnel clerks II	46	23	12	16	6	17	7	6	2	13
Personnel clerks III	44	24	10	14	6	21	6	6	3	9
Personnel clerks IV	48	10	9	18	14	22	7	4	9	7
Purchasing assistants I	41	31	14	11	11	13	9	4	2	4
Purchasing assistants II	44	20	18	15	13	12	6	7	2	7

<sup>1</sup>Percent by which maximum rate exceeds minimum rate.

<sup>2</sup>Excludes work levels studied for which fewer than 30 establishments reported rate ranges.

<sup>3</sup>Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100.

was much larger for similar types of jobs. Nevertheless, even within a grouping of professional-administrative or technical-clerical occupations, a majority of establishments had varying range widths.<sup>7</sup>

### Actual salaries within rate ranges

How widely do actual salaries vary within rate ranges? Are there clusterings of salaries within ranges? To answer these questions, actual salaries were compared to several points in the corresponding rate ranges—the minimum, the midpoint, and the maximum—and to the spread between the minimum and maximum. These comparisons, it must be stressed, were limited to salaries of workers in company jobs matching PATC survey definitions; a company's rate range for a labor grade normally would cover a number of

jobs, some within, and some excluded from, survey coverage.

As might be expected, clustering at or near the minimum of the rate range was most pronounced at the lowest work levels—the “entry” levels—of an occupation, where job skills are developed in preparation for advancement to more responsible positions. The following tabulation illustrates this point by showing, for three occupations and two work levels, the percent of white-collar workers paid within 10 percent of their rate range minimums:

	Percent
Accountant I	46
Accountant III	26
Drafter I	44
Drafter III	27
Accounting clerk I	38
Accounting clerk III	21

Because workers do not remain in entry level positions for lengthy periods, they normally do not advance far into their rate ranges. Conversely, because fully experienced workers are less often promoted to higher work levels, they tend to be granted more within-grade wage adjustments.

Unlike the minimum rate, the midpoint of the rate range was typically an establishment's focal point for controlling overall salary levels of company jobs. One measure of cost control used by employers is the average salary of employees in a rate range expressed as a percent of the midpoint of the range. Values of about 100 or less indicate that, on average, salary costs do not exceed the employer's market value of the job.

**Table 3. Percent of establishments reporting two or more rate ranges, by percentage-point difference between widest and narrowest ranges, March 1983 PATC survey**

Percentage-point difference <sup>1</sup>	Percent of establishments		
	All white-collar jobs in study	Professional and administrative jobs	Technical and clerical jobs
0-1	12	40	27
2-4	6	8	13
5-9	11	13	17
10-19	29	19	21
20-29	15	8	11
30-39	10	5	4
40 or more	16	7	8

<sup>1</sup>For each rate range in an establishment, the percent by which the maximum rate exceeded the minimum rate was calculated; then, the smallest of these percentages was subtracted from the largest.

NOTE: Because of rounding, sums of individual items may not equal 100.

Using this measure, 80 of the work levels came in at 102 or less, while the remaining 9 topped out at 108. The latter comprised experienced drafters, engineering technicians, photographers, secretaries, and stenographers—groups that include many long-service workers, some of whom were paid above the maximum of their rate ranges. Not unexpectedly, some establishments allowed average salaries to rise well beyond the midpoint of the range.

Most establishments, however, paid only salaries falling within the associated rate ranges.<sup>8</sup> Moreover, it was com-

mon for substantial portions of these ranges to be unused at a given time, in part because of use of the midpoint as a salary control, or hiring at rates above the minimum, or both. To illustrate this point, the spread between the highest and the lowest salaries actually paid was computed as a percent of the rate range spread for the job. On average, these ratios, indicating the proportion of the rate range being used, fell between one-third and one-half for professional-administrative work levels studied, and between two-fifths and two-thirds for technical-clerical classifications. □

—FOOTNOTES—

<sup>1</sup>The surveys' industrial coverage and minimum-size establishment were as follows: manufacturing, 100 or 250 employees; transportation, communications, and electric, gas, and sanitary services, 100 or 250 employees; mining and construction, 250 employees; wholesale trade, 100 employees; retail trade, 250 employees; finance, insurance, and real estate, 100 employees; and selected services, 50 or 100 employees.

<sup>2</sup>The internal worksheets are primarily used to verify job matching and occupational salary data reported by respondents.

<sup>3</sup>See *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1983*, Bulletin 2181 (Bureau of Labor Statistics, 1983), pp. 36–75, for descriptions of occupations surveyed. The 101 work levels span 24 occupations, with the number of work levels ranging from 1 for messenger to 8 for engineer. For professional occupations, the first two levels are entry and developmental positions; the next two are for experienced workers; and higher levels generally are for supervisory or managerial positions. This analysis excludes work levels for which fewer than 30 establishments reported rate ranges. Thus, the study is limited to 89 of the 101 work levels covered in the 1983 PATC survey.

<sup>4</sup>This proportion of workers reflects, in part, the greater frequency of formal rate ranges in larger employing units; roughly two-thirds of the surveyed establishments had such pay plans.

<sup>5</sup>In the 1968–70 period—the latest for which data are available—about one-third of the plant workers in metropolitan areas were paid under single

rate systems, one-third were under rate ranges, and the remainder were under informal rate structures. At the same time, seven-tenths of the office workers were under formal pay systems (almost always rate range plans) and about three-tenths were covered by informal rate structures. See John Howell Cox, "Time and incentive pay practices in urban areas," *Monthly Labor Review*, December 1971, p. 54.

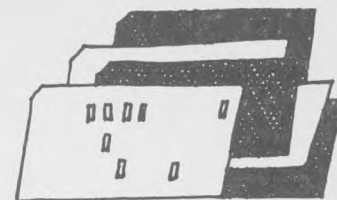
<sup>6</sup>See *Salary Structure Characteristics in Large Firms, 1963*, Bulletin 1417 (Bureau of Labor Statistics, 1964); and *Survey of Compensation Practices, 1974* (U.S. Civil Service Commission, 1975). Textbooks that contain discussions of rate ranges, plus useful bibliographies, include Allen N. Nash and Stephen J. Carroll, Jr., *The Management of Compensation* (Monterey, Calif., Brooks/Cole Publishing Co., 1975); and David W. Belcher, *Compensation Administration* (Englewood Cliffs, N.J., Prentice-Hall, Inc., 1974).

<sup>7</sup>*Salary Structure*, pp. 4–5, comments on the tendency for rate range widths to widen at higher levels of company work, noting that the widening "was usually justified on the basis that greater intragrade developmental possibilities existed at the higher grades than at the lower grades." Another avenue for increasing compensation at the upper levels is through bonuses—a factor usually not considered in establishing rate ranges, according to the same study.

<sup>8</sup>The percentage of establishments in which all salaries were within rate ranges varied by occupational work levels, ranging from 60 to 94 percent among the 89 levels studied.



# Research Summaries



## Working mothers reach record number in 1984

HOWARD HAYGHE

Working mothers have become a familiar feature of today's economy. A record 19.5 million, or 6 out of 10 with children under 18 years old, were in the labor force in March 1984. In contrast, 14 years earlier, 6 out of 10 stayed at home. Moreover, according to data from the Current Population Survey<sup>1</sup>, the majority of employed mothers work full time. (See table 1 on page 32.)

*Labor force.* Since 1970, the rise in mothers' labor force participation rates has been phenomenal—about 20 percentage points. The increase was about the same for mothers of preschoolers as it was for mothers of school age children. Most of the gain was among married mothers, whose participation rate rose from 40 percent in 1970 to 59 percent in 1984. The rates for other mothers also advanced, but at a much slower pace. Among divorced women, for example, 79 percent of the mothers were working or looking for work in March 1984, compared with 76 percent in 1970.

One important aspect of this increase is the degree to which mothers today do not leave the job market after childbirth. This is clearly demonstrated in the following comparison of married mothers' labor force participation rates:

Age of youngest child	March 1970	March 1984
1 year and under	24.0	46.8
2 years	30.5	53.5
3 years	34.5	57.6
4 years	39.4	59.2
5 years	36.9	57.0

Nearly half of the mothers with a child<sup>2</sup> age 1 or younger were in the labor force in 1984. By the time the youngest is 3 years old, married mothers' participation rates approach 60 percent, and nursery school attendance or day care in some form becomes increasingly necessary.

The relatively high current participation rates of married mothers, especially those with infants, attest, in part, to the turnaround in society's attitudes regarding the employment

of such mothers. The rates also reflect the fact that married women often delay having children until they have established themselves in the labor market.

Most employed mothers—71 percent in March 1984—work full time (35 hours a week or more). Even when the youngest child is under 3, about 65 percent of employed mothers are full-time workers. Divorced mothers are the most likely to work full time, partly because relatively few have preschoolers. Moreover, whether they work full or part time, the majority of working mothers have jobs

**Table 2. Number of children under age 18 in families, by age, type of family, and employment status of parents, March 1984**

[In thousands]

Characteristic	Total under age 18	Age 6 to 17			Under age 6
		Total	Age 14 to 17	Age 6 to 13	
Total	58,096	38,738	13,610	25,128	19,358
Mother in labor force	32,701	23,361	8,615	14,746	9,340
Mother not in labor force	24,169	14,518	4,604	9,914	9,650
In married-couple families	45,991	30,027	10,304	19,724	15,964
Mother in labor force	25,786	17,969	6,506	11,463	7,817
Mother not in labor force	20,205	12,058	3,798	8,260	8,147
Father in labor force	42,981	27,982	9,457	18,525	14,999
Mother in labor force	24,525	17,053	6,098	10,956	7,471
Mother not in labor force	18,456	10,929	3,359	7,569	7,527
Father employed	40,375	26,429	9,019	17,410	13,946
Mother in labor force	23,034	16,100	5,830	10,270	6,934
Mother not in labor force	17,341	10,329	3,189	7,140	7,013
Father unemployed	2,606	1,553	438	1,115	1,052
Mother in labor force	1,491	953	268	686	538
Mother not in labor force	1,115	600	170	430	515
Father not in labor force	2,062	1,562	747	815	500
Mother in labor force	802	626	336	290	176
Mother not in labor force	1,260	936	411	525	324
Father in Armed Forces	948	484	100	384	465
Mother in labor force	460	290	73	217	170
Mother not in labor force	489	194	27	167	295
In families maintained by women <sup>1</sup>	10,878	7,851	2,915	4,936	3,027
Mother in labor force	6,914	5,391	2,109	3,282	1,523
Employed	5,803	4,610	1,866	2,744	1,193
Unemployed	1,112	781	243	539	330
Mother not in labor force	3,964	2,460	806	1,654	1,504
In families maintained by men <sup>1</sup>	1,226	859	391	468	367
Father in labor force	1,036	741	346	395	295
Employed	942	694	325	369	248
Unemployed	94	47	21	26	47
Father not in labor force	160	103	43	60	57
Father in Armed Forces	30	14	2	13	15

<sup>1</sup>Includes only families where the householder is a divorced, separated, widowed, or never-married person.

NOTE: Children are defined as "own" children of the family. Included are never-married daughters, sons, stepchildren, and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

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throughout most of the year. For instance, 2 of 3 employed married mothers worked 40 weeks or more in 1983, mostly at year-round, full-time jobs.

**Children.** About 56 percent of the Nation's 58 million children under age 18 had mothers in the labor force in March 1984. In 1970, the proportion was 39 percent. The vast majority of these children were under 14 years—age groups for which all-day care, after-school care, or a combination of both is likely to be needed over the year. (See table 2 on page 31.)

Parents' employment status clearly has a major impact on children's welfare. In 1984, almost half the children in two-parent families had both an employed father and mother, and nearly all of the remainder were in homes with an employed father. Only about 2.8 million, or 6 percent, were in families where neither parent was employed. As might be expected, children in single-parent families—especially those in families maintained by women—were much less likely to have a working parent in the home. About 2 of 10 children in families maintained by men and nearly 5 of 10 in families maintained by women did not have an employed

parent. Overall, approximately 1 child in 7 lived in a home where there was no employed parent, and income was consequently low (a median of \$6,782 in 1983).

**Single-parent families.** A record 6.2 million families<sup>3</sup> with children were maintained by the mother alone (widowed, divorced, separated, or never married), and they accounted for one-fifth of all families with children. In 1970, there were fewer than half as many such families, and they constituted only one-tenth of the families with children.

Families maintained by the mother alone are less likely than two-parent families to contain a wage earner. Largely for this reason, almost half the families maintained by a mother in 1983 had incomes below the official poverty levels<sup>4</sup> compared with 10 percent of two-parent families.

Whatever the number of children, the proportion of two-parent families with earners substantially exceeded 90 percent, while the ratio for families maintained by women varied from a high of 78 percent where there was only one child to 43 percent where there were four children or more. Childcare responsibilities are undoubtedly a prime reason for the differences in the percent of families maintained by

**Table 1. Employment of women by marital status and presence and age of children, March 1984**

[Numbers in thousands]

Characteristic	Civilian noninstitutional population	Civilian labor force	Percent of population	Employed				Unemployed	
				Number	Percent	Full time <sup>1</sup>	Part time <sup>1</sup>	Number	Percent of labor force
Total	92,485	49,210	53.2	45,414	100.0	72.0	28.0	3,796	7.7
No children under age 18	60,200	29,666	49.3	27,694	100.0	72.8	27.2	2,022	6.8
With children under age 18	32,285	19,544	60.5	17,770	100.0	70.7	29.3	1,774	9.1
Children age 6 to 17, none younger	16,884	11,514	68.2	10,718	100.0	73.0	27.0	795	6.9
Children under age 6	15,401	8,030	52.1	7,052	100.0	67.2	32.8	979	12.2
Children under age 3	9,248	4,407	47.7	3,843	100.0	65.2	34.8	564	12.8
Never married	19,820	12,552	63.3	11,187	100.0	66.6	33.4	1,365	10.9
No children under age 18	17,729	11,489	64.8	10,427	100.0	66.2	33.8	1,062	9.2
With children under age 18	2,091	1,063	50.8	760	100.0	72.8	27.2	303	28.5
Children age 6 to 17, none younger	557	391	70.2	308	100.0	75.3	24.7	83	21.3
Children under age 6	1,534	672	43.8	452	100.0	70.8	29.2	220	32.7
Children under age 3	1,018	409	40.1	267	100.0	65.5	34.1	142	34.8
Married, husband present	50,856	26,861	52.8	25,323	100.0	71.1	28.9	1,537	5.7
No children under age 18	26,159	12,331	47.1	11,762	100.0	75.2	24.7	569	4.6
With children under age 18	24,697	14,530	58.8	13,562	100.0	67.4	32.6	968	6.7
Children age 6 to 17, none younger	12,690	8,304	65.4	7,890	100.0	69.3	30.7	415	5.0
Children under age 6	12,007	6,225	51.8	5,672	100.0	64.7	35.3	553	8.9
Children under age 3	7,425	3,586	48.3	3,250	100.0	63.8	36.2	336	9.4
Married, husband absent	3,313	2,023	61.1	1,743	100.0	80.7	19.3	280	13.8
No children under age 18	1,551	919	59.3	837	100.0	84.6	15.3	83	9.0
With children under age 18	1,762	1,103	62.6	906	100.0	76.9	23.1	197	17.9
Children age 6 to 17, none younger	933	655	70.2	569	100.0	79.6	20.6	86	13.1
Children under age 6	829	448	54.0	337	100.0	72.7	27.3	111	24.9
Children under age 3	441	214	48.5	158	100.0	73.4	26.6	56	26.3
Widowed	11,079	2,260	20.4	2,120	100.0	66.7	33.3	140	6.2
No children under age 18	10,518	1,929	18.3	1,821	100.0	66.6	33.5	108	5.6
With children under age 18	561	331	59.0	299	100.0	67.2	32.4	32	9.8
Children age 6 to 17, none younger	471	285	60.4	255	100.0	69.8	30.2	30	10.4
Children under age 6	90	46	51.4	44	100.0	( <sup>2</sup> )	( <sup>2</sup> )	3	( <sup>2</sup> )
Children under age 3	30	12	( <sup>2</sup> )	11	100.0	( <sup>2</sup> )	( <sup>2</sup> )	1	( <sup>2</sup> )
Divorced	7,418	5,514	74.3	5,041	100.0	87.6	12.4	473	8.6
No children under age 18	4,244	2,997	70.6	2,797	100.0	87.7	12.3	200	6.7
With children under age 18	3,174	2,517	79.3	2,244	100.0	87.5	12.5	274	10.9
Children age 6 to 17, none younger	2,233	1,878	84.1	1,696	100.0	87.7	12.3	182	9.7
Children under age 6	941	639	67.9	548	100.0	87.0	13.0	91	14.3
Children under age 3	334	185	55.5	157	100.0	85.4	14.6	28	15.0

<sup>1</sup> Full time is defined as 35 hours or more a week; part time is less than 35 hours a week.

<sup>2</sup> Data not shown where base is less than 75,000.

NOTE: Children are defined as "own" children of the family. Included are never-married daughters, sons, stepchildren, and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

**Table 3. Number of families by number and relationship of earners in 1983, family type and presence and number of children under age 18, March 1984**

[In thousands]

Characteristic	Total	With no children under age 18	With children under age 18				
			Total	1 child	2 children	3 children	4 or more
Total families	62,501	31,075	31,426	13,126	11,860	4,480	1,960
No earners	9,602	7,191	2,411	885	821	388	317
One earner	19,448	8,176	11,272	4,145	4,357	1,748	777
Two or more earners	33,450	15,707	17,743	7,853	6,681	2,344	865
Married-couple families	50,143	25,785	24,358	9,553	9,564	3,680	1,561
No earners	6,578	6,045	533	169	190	79	95
One earner	13,680	6,446	7,234	2,205	3,011	1,369	648
Husband	11,094	4,434	6,660	1,961	2,815	1,281	603
Wife	1,943	1,462	481	199	178	75	28
Other family member	643	550	93	44	18	14	17
Two or more earners	29,884	13,294	16,590	7,180	6,362	2,232	817
Husband and wife	26,128	11,184	14,944	6,334	5,892	2,031	688
Husband and other(s) not wife	2,982	1,554	1,428	721	410	182	114
Husband is a nonearner	774	555	219	124	59	19	16
Families maintained by women <sup>1</sup>	10,265	4,029	6,236	3,033	2,073	752	377
No earners	2,749	965	1,784	660	609	300	216
One earner	4,788	1,330	3,458	1,809	1,186	343	120
Two or more earners	2,728	1,734	994	565	278	109	42
Families maintained by men <sup>1</sup>	2,093	1,261	832	539	224	48	21
No earners	275	181	94	56	22	9	6
One earner	980	400	580	375	160	36	9
Two or more earners	838	679	159	108	41	3	6

<sup>1</sup>Includes only families where the householder is a divorced, separated, widowed, or never-married person.

NOTE: Children are defined as "own" children of the family. Included are never-married daughters, sons, stepchildren, and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

mothers that had an earner. Even in two-parent families, the proportion where the wife was an earner ranged from nearly 70 percent in which there was only one child, to below half where there were four children or more. (See table 3.)

**Minorities.** A higher percentage of black than white or Hispanic mothers were in the labor force in March 1984. (See table 4.) However, when labor force participation is examined by marital status, a different picture emerges. While black married mothers are much more likely to be in the labor force than their white counterparts, the opposite is true among divorced or separated mothers. Age, education, and the number of children are important factors underlying these differences. On average, black mothers without husbands are younger, have completed fewer years of education, and have more children than their white counterparts and, thus, are likely to have a harder time finding and holding jobs<sup>5</sup>.

The labor force participation rates of Hispanic mothers, regardless of their marital status, are lower than those of white or black women. Part of this difference undoubtedly lies in Hispanics' cultural heritage,<sup>6</sup> and part may stem from the fact that Hispanics, on average, have completed fewer years of school than whites or blacks.<sup>7</sup>

Black and Hispanic children are more likely than white children to be living in one-parent households and, consequently, are more likely to be living in poverty. More than 60 percent of the black and Hispanic one-parent families had incomes below the poverty threshold, as did 36 percent of similar white families. In contrast, the poverty rate was

**Table 4. Labor force participation rates of mothers and number of children in families, selected characteristics, by race and Hispanic origin, March 1984**

Characteristic	White	Black	Hispanic origin
<b>Participation rates of mothers</b>			
Total with children under age 18	60.2	63.3	48.7
Age 6 to 17, none younger	67.9	70.3	58.3
Under age 6	51.3	56.8	41.0
Under age 3	47.0	52.1	36.0
Married, spouse present	57.9	70.3	49.1
Divorced	80.5	75.2	63.4
Separated	63.8	61.3	42.9
Widowed	59.6	59.3	( <sup>1</sup> )
Never-married	53.5	49.4	35.7
<b>Children in families (in thousands)</b>			
Total under age 18	48,473	7,743	5,235
Mother in labor force	27,047	4,675	2,343
Mother not in labor force	20,463	2,840	2,802
In married-couple families	40,641	3,775	3,934
Mother in labor force	22,403	2,547	1,826
Mother not in labor force	18,238	1,228	2,108
In families maintained by women <sup>2</sup>	6,869	3,740	1,211
Mother in labor force	4,644	2,127	517
Mother not in labor force	2,225	1,613	694
In families maintained by men <sup>2</sup>	962	228	90
Father in labor force <sup>3</sup>	871	170	68
Father not in labor force	91	58	22

<sup>1</sup>Data not shown where base is less than 75,000.

<sup>2</sup>Families where parent is never-married, widowed, divorced, or separated.

<sup>3</sup>Includes children living with fathers on or off a military post.

NOTE: Children are defined as "own" children of the family. Included are never-married sons, daughters, stepchildren and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

20 percent for black and Hispanic two-parent families and 9 percent for whites. □

## —FOOTNOTES—

<sup>1</sup>The Current Population Survey (CPS), conducted for the Bureau of Labor Statistics by the Bureau of the Census, is a monthly sample survey of some 60,000 households in the United States. Information obtained from this survey relates to the employment status of persons 16 years and over in the noninstitutional population. In the survey conducted each March, supplemental information is obtained on the earnings, income, and work experience of persons in the prior year. These data, along with information on employment status are tabulated annually in conjunction with information on marital and family status.

Because it is a sample survey, estimates derived from the CPS may differ from the actual counts that could be obtained from a complete census. Therefore, small estimates or small differences between estimates should be interpreted with caution. For a more detailed explanation, see the Explanatory Note in *Families at Work: The Jobs and the Pay*, Bulletin 2209 (Bureau of Labor Statistics, 1984), pp. 30–34.

<sup>2</sup>Children are defined as "own" children of the family. Included are never-married daughters, sons, stepchildren, and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

<sup>3</sup>A family consists of two persons or more who are related by blood or marriage and living in the same household. Relationship of family members is determined by their relationship to the reference person or householder, that is, the person in whose name the housing unit is owned or rented.

<sup>4</sup>For more information on poverty thresholds for 1983, see *Money Income and Poverty Status of Families and Persons in the United States: 1983*, Series P-60, No. 145 (Bureau of the Census, 1984), p. 31.

<sup>5</sup>See Beverly L. Johnson and Elizabeth Waldman, "Most women who maintain families receive poor labor market returns," *Monthly Labor Review*, December 1983, pp. 30–34.

<sup>6</sup>See Morris J. Newman, "A profile of Hispanics in the U.S. workforce," *Monthly Labor Review*, December 1978, pp. 3 and 5.

<sup>7</sup>See *Educational Attainment of Workers, March 1982–83*, Bulletin 2191 (Bureau of Labor Statistics, 1984), pp. 1 and 2.

## Unemployment insurance: identifying payment errors

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A system for detecting payment errors in the unemployment insurance program was recently developed by the U.S. Department of Labor. This system has made it possible to identify the level of both fraud and nonfraud overpayments, as well as underpayments, in the program. Prior to the introduction of this detection system, it was not possible to determine the extent and nature of payment errors.

Currently, the detection system—known as the random audit system—is operating in 46 unemployment insurance jurisdictions.<sup>1</sup> The remaining jurisdictions will be included in this program or its successor (the UI quality control pro-

gram) during fiscal year 1985. At that time, the audit system will provide a basis for: (1) estimating the extent of payment errors in the nationwide unemployment insurance program; (2) identifying the primary sources of the payment errors; (3) implementing corrective action, where appropriate; and (4) evaluating the effects of such corrective actions (or other programmatic changes) on unemployment insurance payment accuracy. This summary discusses the design and methodology of the random audit system and presents findings from the pilot tests conducted in five States—Illinois, Kansas, Louisiana, New Jersey, and Washington—over a 1-year period ending in March 1982.<sup>2</sup>

Because of the large volume of weekly payments made in the unemployment insurance system, it would be prohibitively expensive (under current law and policy)<sup>3</sup> to verify each claimant's eligibility to receive benefits. Thus, the random audit system relies on a small sample of payments made in each unemployment insurance jurisdiction as the basis for estimating the extent and nature of payment errors. The payments selected for investigation are taken from a specially constructed computer file of weekly statewide unemployment insurance payments in each participating jurisdiction. Each week, a probability sample of cases is selected from the file, and the results of verifying benefit eligibility for those cases are used to estimate statewide payment errors;<sup>4</sup> quarterly estimates are developed for each unemployment insurance jurisdiction.<sup>5</sup>

After a sample has been selected for review, a detailed and consistent procedure is followed. When cases are selected for investigation, it is assumed that claimants have been properly paid, and this opinion is changed only if documented evidence to the contrary is presented.

Verification of benefit eligibility includes the following procedures:<sup>6</sup> (1) files related to the case are obtained and reviewed; (2) the base period wages upon which the claimant established his or her claim for benefits are verified (with employers if possible);<sup>7</sup> (3) a personal interview with the claimant is conducted to verify relevant facts regarding the individual's claim for benefits; (4) the claimant's reasons for separation from previous employers are verified to determine if any disqualifying circumstances were involved; (5) attempts are made to verify if the claimant was able and available for work during the sampled week; (6) if applicable, employers listed by the claimant as work search contacts during the sampled week are contacted for verification as to whether the claimant actually applied for work; (7) as appropriate, attempts are made to determine if the claimant refused any offers of "suitable" work that would disqualify the individual from receiving benefits; (8) attempts are made to determine if the claimant accurately reported any earnings or work performed during the sampled week; and (9) depending on the circumstances of the case, other individuals may be contacted to verify any other determinants that could affect the claimant's eligibility for benefits during the sampled week.

Paul L. Burgess and Jerry L. Kingston are professors of economics, and Robert D. St. Louis is an associate professor of decision and information systems, Arizona State University. This paper summarizes some of the major findings of a study conducted by the authors under a contract with the Unemployment Insurance Service, Employment and Training Administration, U.S. Department of Labor. However, the opinions expressed herein do not necessarily represent the official position or policy of the U.S. Department of Labor.

On the basis of information acquired during the verification process, the field investigator makes a judgment as to whether the claimant met eligibility requirements for the benefits received. If an overpayment is suspected, careful review procedures are followed. First, the investigator interviews the claimant a second time in order to provide the claimant an opportunity for rebuttal of evidence acquired during the investigation. Second, a review is requested from the manager of the local unemployment insurance office in which the claim for benefits was filed. Third, the case file is reviewed by the State random audit system supervisor and, in some cases, by a Federal review team (representing the national office of the unemployment insurance service). If the State determines that the payment was in error and the claimant files for an appeal, a representative of the State random audit unit is available to present relevant evidence affecting the case. In the event of a reversal of the overpayment determination, the results recorded for the case are modified to reflect this final status of the sampled payment.

Verifications of benefit eligibility are conducted by unemployment insurance personnel from each participating jurisdiction to ensure that each sampled case is reviewed in accordance with the respective State's law and policy. Each full-time unemployment insurance investigator assigned to the random audit program normally receives no more than three cases on a weekly basis. In contrast, a full-time State unemployment insurance claims examiner assigned to a local office typically would process at least 50 times as many cases in a week.

### Limitations of the random audit system

Several limitations of the random audit system and its data should be noted. For example, the random audit system tends to produce "low-side" estimates of the payment errors that characterize State unemployment insurance programs. This tendency appears to result from the following: First, unemployment insurance benefits are paid with at least a 1-week lag, so that "ex post facto" efforts are required to determine if benefits have been paid in accordance with the State's employment security law and policies; the longer these investigations are delayed, the more difficult it is for claimants and others to accurately recall relevant facts, making it more difficult to document payment errors. Second, the provisions of each State's employment security laws and policies limit the extent to which a claimant's activities may be investigated to determine if a payment error occurred. Third, because of the very long time lags usually involved in detecting instances of unreported earnings in unemployment insurance-covered employment through a "postaudit," this procedure is not utilized as part of the standard random audit investigation, resulting in some understatement of overpayments that actually occur.<sup>8</sup> Fourth, unreported earnings in the "cash economy" are extremely difficult to detect, even if "postaudit" procedures are utilized. Fifth, sampled payments are considered correct unless documented

evidence to the contrary is made available; given the complexities of the employment security laws and policies that specify the eligibility criteria—especially those related to the "availability for work" and "active-search-for-work" requirements—it is likely that overpayment errors are somewhat understated simply because unrefutable documentation could not be obtained. The nature of the payment errors that cannot be detected by the random audit system is such that many would be established as fraud overpayments if they were detected; hence, the estimates provided by the random audit system of fraud overpayments are very likely to be more understated than is the case for all overpayments.<sup>9</sup>

The principal findings of the random audit system pilot tests are summarized below. These results are indicative of the types of information currently being produced on a quarterly basis in the 46 unemployment insurance jurisdictions in which the random audit system is currently operating, but it should be noted that a variety of other data elements also are collected in this system.<sup>10</sup>

Table 1 shows the estimated percentages<sup>11</sup> of weeks paid statewide with either an overpayment or an underpayment of any amount. The total percentage of weeks paid with such errors ranged from 12.2 percent in Louisiana to 52.1 percent in New Jersey; the findings also indicate that overpayment errors tended to be much more common than underpayment errors in the five pilot test States.<sup>12</sup> Underpayments, as a proportion of all dollars paid, were estimated to be 1 percent or less in each State, indicating the insignificance of underpayments.

In sharp contrast, the rates of unemployment insurance overpayments in the five States ranged from 7.3 percent in Louisiana to 24.3 percent in New Jersey; overall, double-digit overpayment rates were estimated for 3 of the 5 States.<sup>13</sup> A comparison of the percentage of dollars overpaid with the percentage of weeks overpaid indicates that payment errors of small dollar amounts were relatively frequent in these States. In Washington, for example, 20 percent of the weeks paid but only 9.3 percent of the dollars paid were estimated to be overpaid. Similarly, in New Jersey, 38.2 percent of the weeks paid but only 24.3 percent of the dollars paid were estimated to be overpaid. The principal cause of these relatively frequent overpayments involving small dollar amounts was errors in the reporting or recording of base period earnings.<sup>14</sup>

**Table 1. Payment errors in five random-audit pilot test States, April 1981–March 1982**

Payment error category	Illinois	Kansas	Louisiana	New Jersey	Washington
Percentage of weeks with payment error	19.1	15.0	12.2	52.1	31.7
Underpayments	3.1	0.9	1.7	13.9	11.7
Overpayments	16.0	14.1	10.5	38.2	20.0
Percentage of dollars paid in error:					
Underpayments	0.8	0.1	0.1	1.0	1.0
Overpayments	11.9	12.9	7.3	24.3	9.3
Fraudulent payments	1.2	0.2	2.7	1.9	2.1

Because of the historical interest in and concern about fraud in the unemployment insurance program, a separate measure of fraudulent payments is provided by the random audit system; estimates for the five pilot test States indicate that "officially established" fraudulent payments constituted only a small portion of the total dollars paid in each State; fraud rates ranged from 0.2 percent in Kansas to 2.7 percent in Louisiana. As noted earlier, however, the absence of postaudits to detect unreported earnings in covered employment and the difficulty of detecting unreported earnings in the "cash economy" tend to understate the "true" magnitude of the fraud problem in the unemployment insurance program.<sup>15</sup>

The random audit system also produces information on both the "types" and "causes" of payment errors in the unemployment insurance program. Types of payment errors are classified on the basis of whether the error was the "responsibility" of the unemployment insurance claimant, covered employers, the State unemployment insurance agency, or a combination of the three. Causes of payment errors are classified on the basis of which aspects of employment security law or policy were violated, including: errors in the reporting or recording of earnings during the sampled week for which the payment was made; errors in the reporting or recording of base period earnings; violations of "continuing" eligibility criteria (refusals of suitable work, nonavailability for work, inactive job search); disqualifying reasons for separation from previous employers; and other factors. In the current system, statistical information is provided for specific causes of unemployment insurance payment errors only if such causes account for at least 1 percent of quarterly unemployment insurance payments.

THE NATIONAL RANDOM AUDIT is a major step forward in controlling payment errors in the unemployment insurance program. This is an essential program because it provides statistically reliable estimates of payment error rates for entire unemployment insurance jurisdictions. This permits not only identification of payment errors, but also the means through which the fundamental problems can be diagnosed and solved. Furthermore, the capability of the system to provide timely evidence on such payment errors facilitates evaluation of the effects of the various types of corrective actions that may be undertaken in individual unemployment insurance jurisdictions. The compilation of this systemwide data base should prove to be a valuable research tool. □

—FOOTNOTES—

<sup>1</sup> There are 53 unemployment insurance "jurisdictions" which include all 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. Although it is more accurate to speak of unemployment insurance jurisdictions rather than "State" unemployment insurance programs, the terms are used interchangeably throughout this article.

<sup>2</sup> For the full report from which this summary was taken, see Paul L. Burgess, Jerry L. Kingston, and Robert D. St. Louis, *The Development*

*of an Operational System for Detecting Unemployment Insurance Payment Errors Through Random Audits: The Results of Five Statewide Pilot Tests* (U.S. Department of Labor, Employment and Training Administration, Unemployment Insurance Service, 1982).

<sup>3</sup> Each State provides for its own complete, self-contained unemployment insurance program, administered by State employees. The States are responsible for all substantive matters: qualifying requirements; benefit levels; disqualification provisions; eligibility conditions; and tax structure. The Federal Government's responsibilities include maintaining nationwide standards for State program performance. Although the States are responsible for the administration of their programs, the responsibility for the design and nature of that administration is shared because financing of unemployment insurance administrative costs comes from Federal funds.

<sup>4</sup> Only payments that meet certain criteria are included in the populations sampled each week. The major criterion is that the payments must be for "regular" unemployment insurance program claims made to intrastate claimants. For additional detail on the criteria utilized to define the population of payments sampled each week, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 5-6.

<sup>5</sup> The decision to obtain accurate estimates on a quarterly basis was made so as to provide data on a relatively frequent basis and in a cost-effective manner. Obviously, information could have been provided on a more frequent basis (for example, weekly or monthly), but this would have greatly increased the cost of the random audit system.

<sup>6</sup> For additional information on the investigative methodology utilized in the random audit system, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 13-20.

<sup>7</sup> The base period is the time period (normally a 12-month period prior to the filing of an "initial claim") utilized to determine whether a claimant is "monetarily" eligible for benefits and, if so, the amount of the claimant's weekly benefit payment.

<sup>8</sup> Postaudits are conducted routinely in many "wage-reporting" States. In such States, computer files of wages reported by covered employers for a given quarter are matched against unemployment insurance files of benefits paid during the same quarter to identify those claimants who may have received both unemployment insurance benefits and wages in 1 or more weeks. Given the usual lag of at least 1 and up to 2 quarters before unemployment insurance agencies can conduct a postaudit, the use of this procedure would delay by at least 3 months the time when error rates could be estimated. Such a delay was considered unacceptable, at least during the formative stages of the random audit system.

<sup>9</sup> For additional limitations of the random audit system and its empirical results, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 27-39.

<sup>10</sup> For a complete listing of the data elements included in the random audit data base, see *The Development of an Operational System*, appendix B.

<sup>11</sup> These estimates are based on weekly samples of unemployment insurance payments made in each State for 1 year. Statistical tests were conducted to determine if the weekly samples selected were representative of their respective populations with regard to the following known population characteristics: sex, age, ethnic group, and amount of the weekly unemployment insurance payment. Because these tests indicated that the samples selected were representative of their respective populations with regard to the known characteristics analyzed, it is likely that the samples also are representative with respect to the frequency and size of unemployment insurance payment errors in the populations from which the samples were drawn. For additional details, see *The Development of an Operational System*, p. 41.

<sup>12</sup> Because the design of the study is based on *payments made* rather than *claims for* unemployment insurance benefits, this finding was not unexpected. Presumably, some underpayments occur because claimants are denied payment of any benefits; such cases would be excluded from the populations analyzed in this study. Overpayments are also more likely to be found than underpayments because issues related to the nature of the claimant's separation from previous employers, availability for work, and active job search are more likely to result in overpayments than underpayments, once a payment actually has been made.

<sup>13</sup> Although a number of different measures of these dollar rates are utilized in the random audit system, the results reported in table 1 reflect

only those overpayments for which "official" actions were taken by the State unemployment insurance agency in response to the random audit investigations; hence, those cases reported as overpaid in table 1 were "sanctioned" by the State unemployment insurance agency through official actions that were taken. Also included in the random audit system is a measure which includes cases with errors that the State unemployment insurance agencies were either unwilling or unable to "sanction" through official actions plus all of the cases in which such actions were taken. For additional details on the other measures of payment errors, see *The Development of an Operational System*, pp. 21-25.

<sup>14</sup> Additional analysis, not reported here, reveals that such reporting errors were quite common. For example, more than 25 percent of the cases analyzed in the pilot test period involved some error in the reporting or recording of base period wages in 3 of the 5 pilot test States, and more than 70 percent of the cases sampled in one of the States involved such errors. See *The Development of an Operational System*, p. 50.

<sup>15</sup> It also should be emphasized that direct comparisons among the States are difficult to interpret, especially for fraud overpayments, because important differences in law and policy exist among these five States as to what conditions constitute the basis for establishing a fraud overpayment. Identical claimant behavior could lead to the establishment of a fraud overpayment in one State, but the establishment of a nonfraud overpayment in another State.

## Small firms' employment growth twice that of large firms in 1983

Small businesses played a significant role in the 1983 recovery, according to the Small Business Administration's 1984 report of the President. In six major industries for which small- and large-dominated industries can be identified, small business employment growth of 2.6 percent was more than twice that of large business growth of 1.2 percent.

Small firms accounted for 6 percent of the growth in construction, 2 percent in retail trade, 6 percent in finance, insurance, and real estate, and 4 percent in services. Transportation, communication, and public utilities employment declined about .1 percent, and employment was unchanged in wholesale trade. In contrast, employment in large business-dominated industries declined in all but the finance, insurance, and real estate (up 1.5 percent) and services (up 4 percent) industries.

According to the report, "Small businesses furnish 2 of 3 workers with their first jobs. Many of these first-time positions are in the service sector, the traditional doorway to the job market for the young, minority, and unskilled jobseeker."

Over the 1980-82 period, firms with fewer than 100 employees accounted for 43 percent of the net increase in jobs. Creation of new small businesses alone added 2 million jobs. The service industry continued as the fastest growing. Employment increased 10 to 12 percent a year in small firms providing business, education, and legal services. Other rapidly growing industries included metal and anthracite mining, oil and gas extraction, real estate, social services, and security, commodity brokers, and services. Job generation slowed among small business industries in construction and wholesale and retail trade.

In addition to discussing the state of small business in 1983 and over the 1980-82 period, the 475-page report contains information on the changing industrial and size composition of U.S. business, historical patterns of small business financing, worker characteristics and size of business, export trade and small business, small business and procurement, women and minority owned businesses, development of small business data bases, export programs of the Federal Government, and Federal procurement from small businesses.

*The State of Small Business: A Report of the President Transmitted to the Congress March 1984* can be purchased (\$13) from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. □

## Earnings in electric and gas utilities

Occupational pay levels in the Nation's privately operated electric and gas utility systems typically rose 45 to 55 percent between February 1978 and October 1982, according to a recent industry wage survey conducted by the Bureau of Labor Statistics.<sup>1</sup> By comparison, wages and salaries of all private industry workers covered by the Bureau's Employment Cost Index rose 45 percent, and those of all transportation and public utility workers rose 50 percent, between the first quarter of 1978 and the fourth quarter of 1982.

Slightly more than 100 physical, office clerical, and professional and technical occupations were selected to represent the utility systems' wage structure in the October 1982 survey. Average hourly earnings among the physical occupations studied ranged from \$7.51 an hour for janitors to 16.27 for watch engineers, but typically fell between \$10 and \$13. (See table 1.) Journeymen line workers, numerically the most important physical occupation studied (23,938 workers), averaged \$12.72 an hour. This compared with \$9.17 an hour for meter readers and \$10.82 for gas appliance service technicians, two other major groups. The physical jobs studied accounted for nearly one-half of the 361,000 nonsupervisory physical workers within scope of the survey.

Averages for the office clerical jobs studied ranged from \$5.69 an hour for messengers to \$9.35 for secretaries, with rates of \$7 to \$9 being the norm. Secretaries, numbering nearly 10,000, were by far the largest clerical group studied.

Hourly pay levels for professional and technical occupations ranged from \$8.68 for computer data librarians to \$14.53 for computer systems analysts. Drafters, the most numerous group, averaged \$10.48 an hour.

Occupational averages varied by region and by type of utility system. In general, averages were highest in the Pacific region and in combination electric and gas systems,<sup>2</sup> and lowest in the Southeast and in gas distribution systems. Table 1 illustrates the regional variations, with the largest

**Table 1. Average straight-time hourly earnings<sup>1</sup> and number of workers in selected occupations,<sup>2</sup> electric and gas utility systems, United States and regions,<sup>3</sup> October 1982**

Occupation	United States		New England		Middle Atlantic		Border States		Southeast																																																																																																																																																																																																																																																																																															
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings																																																																																																																																																																																																																																																																																														
Physical occupations:																																																																																																																																																																																																																																																																																																								
Auxiliary-equipment operators (electric)	5,833	\$10.51	—	—	378	\$11.16	243	\$10.45	743	\$ 9.21																																																																																																																																																																																																																																																																																														
Control-room operators, conventional (electric)	4,615	13.24	227	\$12.67	476	13.89	294	12.27	674	12.09																																																																																																																																																																																																																																																																																														
Control-room operator assistants, conventional (electric)	2,626	11.89	42	12.02	228	12.98	242	10.54	484	10.76																																																																																																																																																																																																																																																																																														
Electricians, maintenance	7,020	12.70	530	11.30	867	12.74	440	11.81	1,098	11.77																																																																																																																																																																																																																																																																																														
Gas-main fitters	7,306	10.82	264	10.55	2,191	11.30	412	10.42	240	8.03																																																																																																																																																																																																																																																																																														
Janitors, porters, and cleaners	4,026	7.51	150	8.15	739	7.76	528	6.98	327	5.87																																																																																																																																																																																																																																																																																														
Line workers, journeymen	23,938	12.72	1,691	11.60	3,953	13.21	1,586	11.91	3,502	11.40																																																																																																																																																																																																																																																																																														
Mechanics, maintenance	7,531	12.56	333	11.50	719	12.76	594	11.66	1,163	11.65																																																																																																																																																																																																																																																																																														
Meter readers	18,649	9.17	1,049	8.92	3,901	9.56	1,523	8.95	2,135	8.27																																																																																																																																																																																																																																																																																														
Pipeline repairers (gas)	5,243	10.12	—	—	—	—	—	—	—	—																																																																																																																																																																																																																																																																																														
Service technicians, gas appliances	10,218	10.82	671	11.03	2,561	11.35	770	11.10	964	8.08																																																																																																																																																																																																																																																																																														
Watch engineers (electric)	2,681	16.27	137	16.49	420	17.37	201	16.14	188	13.38																																																																																																																																																																																																																																																																																														
Welders (gas)	1,676	11.98	22	11.69	253	12.72	124	11.71	70	11.05																																																																																																																																																																																																																																																																																														
Office clerical occupations:																																																																																																																																																																																																																																																																																																								
Accounting clerks	6,449	8.43	316	8.15	986	9.60	559	7.87	707	7.54																																																																																																																																																																																																																																																																																														
Messengers	481	5.69	29	5.87	80	6.01	60	5.74	45	5.81																																																																																																																																																																																																																																																																																														
Secretaries	9,979	9.35	616	9.19	1,289	11.06	932	9.33	1,355	8.38																																																																																																																																																																																																																																																																																														
Stenographers	3,359	7.96	71	7.65	782	8.63	136	7.13	402	6.77																																																																																																																																																																																																																																																																																														
Professional and technical occupations:																																																																																																																																																																																																																																																																																																								
Computer data librarians	119	8.68	—	—	34	10.38	9	9.27	10	7.60																																																																																																																																																																																																																																																																																														
Computer operators	1,513	9.70	106	9.88	221	11.51	112	9.60	153	8.26																																																																																																																																																																																																																																																																																														
Computer programmers	2,980	11.73	201	10.68	495	12.27	172	12.02	387	12.25																																																																																																																																																																																																																																																																																														
Computer systems analysts	2,989	14.53	191	14.48	412	15.46	220	13.18	337	12.04																																																																																																																																																																																																																																																																																														
Drafters	3,822	10.48	163	9.95	710	12.71	295	10.10	483	8.56																																																																																																																																																																																																																																																																																														
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2">Southwest</th> <th colspan="2">Great Lakes</th> <th colspan="2">Middle West</th> <th colspan="2">Mountain</th> <th colspan="2">Pacific</th> </tr> </thead> <tbody> <tr> <td colspan="11">Physical occupations:</td> </tr> <tr> <td>Auxiliary-equipment operators (electric)</td> <td>1,353</td> <td>\$10.01</td> <td>1,483</td> <td>\$10.91</td> <td>468</td> <td>\$11.24</td> <td>431</td> <td>\$10.74</td> <td>468</td> <td>\$12.00</td> </tr> <tr> <td>Control-room operators, conventional (electric)</td> <td>969</td> <td>12.41</td> <td>864</td> <td>13.76</td> <td>404</td> <td>13.76</td> <td>253</td> <td>13.58</td> <td>454</td> <td>15.33</td> </tr> <tr> <td>Control-room operator assistants, conventional (electric)</td> <td>382</td> <td>10.92</td> <td>737</td> <td>12.63</td> <td>260</td> <td>12.33</td> <td>—</td> <td>—</td> <td>191</td> <td>13.49</td> </tr> <tr> <td>Electricians, maintenance</td> <td>1,057</td> <td>12.44</td> <td>1,616</td> <td>13.42</td> <td>587</td> <td>12.78</td> <td>383</td> <td>13.44</td> <td>442</td> <td>14.70</td> </tr> <tr> <td>Gas-main fitters</td> <td>586</td> <td>6.64</td> <td>2,409</td> <td>11.41</td> <td>495</td> <td>10.95</td> <td>175</td> <td>12.31</td> <td>534</td> <td>11.94</td> </tr> <tr> <td>Janitors, porters, and cleaners</td> <td>462</td> <td>5.92</td> <td>1,125</td> <td>8.48</td> <td>290</td> <td>8.45</td> <td>209</td> <td>6.31</td> <td>196</td> <td>8.60</td> </tr> <tr> <td>Line workers, journeymen</td> <td>2,693</td> <td>12.05</td> <td>4,764</td> <td>13.18</td> <td>1,636</td> <td>12.51</td> <td>1,404</td> <td>13.25</td> <td>2,709</td> <td>14.58</td> </tr> <tr> <td>Mechanics, maintenance</td> <td>1,330</td> <td>12.41</td> <td>1,579</td> <td>12.87</td> <td>688</td> <td>12.46</td> <td>537</td> <td>12.82</td> <td>—</td> <td>—</td> </tr> <tr> <td>Meter readers</td> <td>2,113</td> <td>7.35</td> <td>3,740</td> <td>9.66</td> <td>992</td> <td>9.55</td> <td>705</td> <td>8.91</td> <td>2,491</td> <td>10.28</td> </tr> <tr> <td>Pipeline repairers (gas)</td> <td>2,455</td> <td>9.63</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Service technicians, gas appliances</td> <td>868</td> <td>8.21</td> <td>1,977</td> <td>11.67</td> <td>886</td> <td>10.57</td> <td>167</td> <td>11.69</td> <td>—</td> <td>—</td> </tr> <tr> <td>Watch engineers (electric)</td> <td>442</td> <td>15.28</td> <td>656</td> <td>16.52</td> <td>232</td> <td>15.20</td> <td>150</td> <td>16.88</td> <td>255</td> <td>18.26</td> </tr> <tr> <td>Welders (gas)</td> <td>475</td> <td>10.66</td> <td>368</td> <td>12.75</td> <td>149</td> <td>12.10</td> <td>62</td> <td>13.34</td> <td>153</td> <td>13.07</td> </tr> <tr> <td colspan="11">Office clerical occupations:</td> </tr> <tr> <td>Accounting clerks</td> <td>1,463</td> <td>7.59</td> <td>1,052</td> <td>8.82</td> <td>375</td> <td>6.96</td> <td>337</td> <td>7.78</td> <td>654</td> <td>10.62</td> </tr> <tr> <td>Messengers</td> <td>76</td> <td>4.88</td> <td>97</td> <td>5.91</td> <td>23</td> <td>5.29</td> <td>40</td> <td>4.71</td> <td>31</td> <td>7.35</td> </tr> <tr> <td>Secretaries</td> <td>2,225</td> <td>8.60</td> <td>1,375</td> <td>9.99</td> <td>580</td> <td>8.29</td> <td>673</td> <td>8.36</td> <td>934</td> <td>10.72</td> </tr> <tr> <td>Stenographers</td> <td>459</td> <td>7.33</td> <td>787</td> <td>8.24</td> <td>292</td> <td>7.21</td> <td>100</td> <td>7.31</td> <td>330</td> <td>9.29</td> </tr> <tr> <td colspan="11">Professional and technical occupations:</td> </tr> <tr> <td>Computer data librarians</td> <td>26</td> <td>7.66</td> <td>8</td> <td>8.09</td> <td>—</td> <td>—</td> <td>10</td> <td>8.41</td> <td>13</td> <td>7.28</td> </tr> <tr> <td>Computer operators</td> <td>250</td> <td>8.24</td> <td>267</td> <td>9.97</td> <td>106</td> <td>8.54</td> <td>124</td> <td>10.13</td> <td>174</td> <td>10.72</td> </tr> <tr> <td>Computer programmers</td> <td>581</td> <td>11.88</td> <td>489</td> <td>10.97</td> <td>191</td> <td>11.14</td> <td>206</td> <td>11.61</td> <td>258</td> <td>12.17</td> </tr> <tr> <td>Computer systems analysts</td> <td>362</td> <td>15.43</td> <td>597</td> <td>14.25</td> <td>122</td> <td>14.36</td> <td>320</td> <td>15.16</td> <td>428</td> <td>15.52</td> </tr> <tr> <td>Drafters</td> <td>690</td> <td>9.61</td> <td>619</td> <td>10.50</td> <td>295</td> <td>10.27</td> <td>277</td> <td>9.90</td> <td>290</td> <td>11.70</td> </tr> </tbody> </table>												Southwest		Great Lakes		Middle West		Mountain		Pacific		Physical occupations:											Auxiliary-equipment operators (electric)	1,353	\$10.01	1,483	\$10.91	468	\$11.24	431	\$10.74	468	\$12.00	Control-room operators, conventional (electric)	969	12.41	864	13.76	404	13.76	253	13.58	454	15.33	Control-room operator assistants, conventional (electric)	382	10.92	737	12.63	260	12.33	—	—	191	13.49	Electricians, maintenance	1,057	12.44	1,616	13.42	587	12.78	383	13.44	442	14.70	Gas-main fitters	586	6.64	2,409	11.41	495	10.95	175	12.31	534	11.94	Janitors, porters, and cleaners	462	5.92	1,125	8.48	290	8.45	209	6.31	196	8.60	Line workers, journeymen	2,693	12.05	4,764	13.18	1,636	12.51	1,404	13.25	2,709	14.58	Mechanics, maintenance	1,330	12.41	1,579	12.87	688	12.46	537	12.82	—	—	Meter readers	2,113	7.35	3,740	9.66	992	9.55	705	8.91	2,491	10.28	Pipeline repairers (gas)	2,455	9.63	—	—	—	—	—	—	—	—	Service technicians, gas appliances	868	8.21	1,977	11.67	886	10.57	167	11.69	—	—	Watch engineers (electric)	442	15.28	656	16.52	232	15.20	150	16.88	255	18.26	Welders (gas)	475	10.66	368	12.75	149	12.10	62	13.34	153	13.07	Office clerical occupations:											Accounting clerks	1,463	7.59	1,052	8.82	375	6.96	337	7.78	654	10.62	Messengers	76	4.88	97	5.91	23	5.29	40	4.71	31	7.35	Secretaries	2,225	8.60	1,375	9.99	580	8.29	673	8.36	934	10.72	Stenographers	459	7.33	787	8.24	292	7.21	100	7.31	330	9.29	Professional and technical occupations:											Computer data librarians	26	7.66	8	8.09	—	—	10	8.41	13	7.28	Computer operators	250	8.24	267	9.97	106	8.54	124	10.13	174	10.72	Computer programmers	581	11.88	489	10.97	191	11.14	206	11.61	258	12.17	Computer systems analysts	362	15.43	597	14.25	122	14.36	320	15.16	428	15.52	Drafters	690	9.61	619	10.50	295	10.27	277	9.90	290	11.70
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<sup>1</sup>Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup>The comprehensive report on the study includes data for additional occupations.

<sup>3</sup>The regions used in this study include: *New England*—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; *Middle Atlantic*—New Jersey, New York, and Pennsylvania; *Border States*—Delaware, District of Columbia, Kentucky, Maryland, Virginia, and West Virginia; *Southeast*—Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee; *Southwest*—Arkansas, Louisiana, Oklahoma,

and Texas; *Great Lakes*—Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin; *Middle West*—Iowa, Kansas, Missouri, Nebraska, North Dakota, and South Dakota; *Mountain*—Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming; and *Pacific*—California, Nevada, Oregon, and Washington. Alaska and Hawaii were not included in this study.

NOTE: Dashes indicate that no data were reported or that data do not meet publication criteria.

differences commonly associated with the lower paying occupations. For example, janitors in the Pacific States averaged 47 percent more than their counterparts in the Southeast (\$8.60 versus \$5.87), compared with a 36-percent differential for watch engineers (\$18.26 versus \$13.38), and one

of only 18 percent for welders (\$13.07 over \$11.05).

Virtually all workers were in utilities providing paid holidays, paid vacations, and various health, insurance, and retirement benefits to physical and office workers. The most common provisions were 12 holidays annually and 2 weeks



of vacation pay after 1 year of service, 3 weeks after 10 years, 4 weeks after 15 years, and 5 weeks after 25 years. Nearly all workers were eligible for life, hospitalization, surgical, and basic and major medical insurance, and retirement pension plans. Accidental death and dismemberment insurance, dental insurance, and sick leave plans also were widespread in the industry, each applying to at least two-thirds of the workers. Most of the health, insurance, and retirement plans were paid for entirely by the employer.

Electric and gas utility systems within scope of the survey employed about 521,000 nonsupervisory employees in October 1982, an increase of 9 percent from February 1978. Over the period, employment grew 19 percent in electric systems and 8 percent in gas distribution systems, remained stable in combination electric and gas systems, and fell slightly in gas transmission systems.

Slightly more than three-fourths of the physical workers and about one-third of the office workers were covered by labor-management agreements in October 1982. The major union for both types of workers was the International Brotherhood of Electrical Workers (AFL-CIO).

A comprehensive report on the 1982 survey, *Industry Wage Survey: Electric and Gas Utilities, October 1982*, Bulletin 2218 (Bureau of Labor Statistics, 1984), is for sale by the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. The report provides additional information on occupational earnings and employee benefits. □

—FOOTNOTES—

<sup>1</sup>Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts. For an account of the 1978 study, see *Industry Wage Survey: Electric and Gas Utilities, February 1978*, Bulletin 2040 (Bureau of Labor Statistics, 1979).

<sup>2</sup>Under the classification system used for this study, a utility was considered a combination system if neither service contributed 95 percent or more of revenues obtained from electric and gas services. If one service did account for at least 95 percent of such revenues, the utility was considered as exclusively engaged in that service. Only the electric and gas operations of combination systems were included.

## Pension plans as a spur to labor force withdrawal

To what extent may pension plans decrease labor force participation among older workers? In a study undertaken

for the National Bureau of Economic Research, economists at several universities probe the possible effect of defined-benefit pension plans on labor force behavior. Their objective, according to David A. Wise, author of the study, is "to demonstrate the order of magnitude of the potential incentive effects of these plans without attempting to present empirical estimates of the impacts, but suggesting the response of workers to pension plan characteristics could be substantial."

The economists consider the case of a 30-year-old worker in a "typical plan." The plan calculates normal retirement benefits as 1 percent of average earnings over the last 5 years of service multiplied by years of service. Benefits are reduced by 3 percent for each year that early retirement at age 55 precedes normal retirement at age 65. "Cliff vesting" occurs after 10 years, meaning the employee accrues no credits until meeting the service requirement. "The annual increment to pension wealth" is calculated as a percentage of the wage rate. "Underlying the calculations is a representative lifetime age-earnings profile that assumes substantial growth in real wage rates between ages 30 and 50 and very little growth from 50 to 65."

Under three accrual patterns based on wage inflation of 6 percent and nominal interest rates of 3, 6, and 9 percent, pension wealth increases by from 4 to 14 percent of wage earnings when vesting begins. The rate of accrual increases "slowly at first and then rather sharply until the age of early retirement." At the age of early retirement, the accrual rate drops sharply. This is because annual benefits are not reduced enough to offset the increase in the number of years the worker would receive benefits if he or she chooses early retirement.

For a plan without an early retirement option, or one "that uses an actuarially fair, early retirement reduction formula," benefits continue to increase to age 65.

The study emphasizes the importance of interest rates. It points out that "if interest rates are high relative to the rate of inflation, the accrual after age 55 can indeed be negative. In this case pension wealth could actually decline with additional years of work."

Wise's report is based on the introductory chapter of an NBER volume, "Pensions, Labor and Individual Choice," to be published by the University of Chicago Press. □

# Technical Note



## Use of employment data to estimate office space demand

NATHAN SCHLOSS

Changes in employment data are fundamental to regional economic analysis and urban planning. Typically, regional population and employment are assumed to reflect the state of a region's economy.<sup>1</sup> This is a basic assumption underlying this technical note, which seeks to show how employment data can be used to estimate the demand for office space in a subnational area, such as a Standard Metropolitan Statistical Area.<sup>2</sup>

This article reports on the author's recent study of the demand for office space and office employment. On the basis of this study, we conclude that our methodology provides realistic projections of commercial office space demand in a SMSA and represents an improvement over present methods, which for the most part relate demand for space to historical trends with perhaps some adjustment for expected local area growth. Improved methodologies for estimating office space demand are important because the average annual expenditure for commercial office buildings for 1979 through 1983 approximated \$17 billion, according to the U.S. Department of Commerce.

Our discussion will proceed in three stages: definition and clarification of commercial office space and the demand for it; data sources, assumptions, and method of calculation of demand; and application of the methodology to estimate demand in a specific area: the Chicago Standard Metropolitan Statistical Area.<sup>3</sup>

### Space defined

In this article, we define commercial office space as that part of building structures used *primarily* for business or professional purposes. Space used for industrial or residential purposes is excluded. Retail and service space (such as that used for restaurants, newsstands, card and gift shops, apparel shops and airline ticket counters) is often included

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in buildings primarily used for business and professional activities and is counted in the space totals. The purpose of including retail and service establishments in these buildings is to attract office space tenants.

Demand for office space is the sum of the demand for new and replacement space. (Replacement demand is, of course, that part of total demand that results from existing space becoming unusable because of physical deterioration, locational obsolescence, and similar reasons.) The concept of estimating total office space demand is analogous to estimating the average annual job openings by occupation; that is, total average openings equal the number of job openings arising because of economic growth and the number resulting from labor force separations.

The space occupied by office employees is typically calculated in terms of square feet of net rentable area per employee. Thus, if one can estimate employment in office buildings and the average square footage devoted to each employee, projections of office employment can be made and future demand for office space determined.

### Demand model established

The demand for commercial office space in a certain area at a particular time can be determined by using a simple market equilibrium model for which the following factors are determined: the number of office employees, the amount of commercial office space available and the amount occupied, and the assumed market equilibrium occupancy level.

The demand for office space in a given area is expressed in the following two equations:

$$(1) \quad W_i = \frac{Z_i}{0.95}(Y_i)$$

where:  $W_i$ , the equilibrium demand in square feet of net rentable space in year  $i$ , is equal to

$Z_i$ , occupied space per office employee in year  $i$ , divided by

0.95, a parameter that reflects the assumption that the market in equilibrium will typically have an occupancy level of 95 percent (or a vacancy rate of 5 percent), multiplied by

$Y_i$ , office employment in year  $i$ ; and

$$(2) \quad Z_i = \frac{X_i}{Y_i}$$

Where occupied space per office employee in year  $i$  ( $Z_i$ ) equals  $X_i$ , occupied office space in year  $i$ , divided by office employment in year  $i$  ( $Y_i$ ).

These equations capsule our concept of demand for office space and underlie our estimates of demand for office space in the Chicago area.

### Extracting office employment

For larger metropolitan areas, reasonably reliable data are available relating to inventory and occupancy levels of what the commercial building market calls competitive rental space; that is "high quality" structures with at least 50,000 to 70,000 square feet of rentable space. (Buildings are ranked from A through D with buildings in the A and B categories classified as "high quality.")

An experienced analyst in this field can determine the occupancy levels and area of other categories of space occupied by office employees. Aside from smaller and qualitatively lower ranking class C and D rental buildings, there is single user/owner occupied space, governmental space, and office space in distribution warehouses (typically 7 to 12 percent), manufacturing facilities, and so forth.

The last requirement in constructing estimates of office space are reliable data sources so that reasonable estimates can be made of office employment. Data used are imperfect. For example, there is no economic census specifically relating to employment in office buildings and, for that matter, detailed occupational data are not readily available by metropolitan area. However, the Bureau of Labor Statistics publishes national data relating to employment by detailed occupation and industry sector which can be used to estimate

office employment.<sup>4</sup> The basic data source was the *BLS Handbook of Labor Statistics*. Additional BLS sources included *Employment and Earnings* and *Employment, Hours and Earnings, States and Areas, 1939-82*.

Data obtained from the Bureau of Labor Statistics were used to estimate office employment for the 1975-82 period. Table 1 illustrates our estimates of office employment for one major occupational category—managers and administrators, except farm. First, total employment is shown for the major category. Succeeding data show proportions of workers excluded from the estimates. Total office employment minus excluded employment equals estimated net office employment. Net office employment for 11 major occupational categories<sup>5</sup> was derived in this manner.<sup>6</sup> (See table 2.) Only employees occupying rentable space have been included; therefore, craftworkers such as carpenters, electricians, and plumbers who move from place to place have been excluded.

The Bureau also publishes employment data by industry. The two industry divisions which best reflect office employment are the finance, insurance, and real estate division and the service division. Table 2 shows estimated office equipment and employment in the combined finance, insurance, and real estate and service divisions for the 1975-82 period. Although the office employment data are derived from the household survey and finance, insurance, and real estate and service employment figures are taken from the establishment survey,<sup>7</sup> the two sets of data have a high correlation for our purposes. Using simple regression the calculated  $r^2$  is 0.99.

An annual office prone employment *multiple* provides the basis for calculating the 1983 employment figure in the Chicago SMSA. The multiple is derived by dividing total office employment by total employment in the finance, insurance, and real estate and service divisions:<sup>8</sup>

**Table 1. Estimated office prone employment of managers and administrators, 1975-82**

[In thousands]

Occupational category	Proportion excluded	Employed							
		1975	1976	1977	1978	1979	1980	1981	1982
Managers and administrators, except farmworkers	—	9,006	9,452	9,821	10,286	10,719	11,138	11,540	11,493
Exclusions	—	2,979	3,099	3,221	3,332	3,502	3,651	3,748	3,741
Bank officials and financial managers	30.0	158	167	166	176	190	198	209	219
Buyers and purchasing agents	60.0	224	229	227	226	275	276	286	284
Credit and collection managers	30.0	17	16	17	15	17	21	20	19
Health administrators	80.0	123	131	142	149	150	170	175	182
Inspectors, except construction and public administration	100.0	113	115	104	98	106	111	110	107
Officials and administrators, public administration, n.e.c.	50.0	182	186	203	213	210	216	238	215
Restaurant, cafeteria, and bar managers	70.0	358	354	393	424	455	484	509	538
Sales managers and department heads, retail trade	95.0	304	311	333	332	330	344	329	335
Sales managers, except retail trade	20.0	62	62	65	67	71	72	75	74
School administrators, college	100.0	104	116	127	110	118	135	139	130
School administrators, elementary and secondary	100.0	264	283	266	277	301	300	291	293
All other managers and administrators	20.0	1,070	1,129	1,178	1,245	1,279	1,324	1,367	1,345
Net office employment, managers and administrators	—	6,027	6,353	6,600	6,954	7,217	7,487	7,792	7,752

n. e. c. = Not elsewhere classified.

NOTE: Dashes indicate "not applicable."

**Table 2. Estimated office employment, by selected occupations, in finance, insurance, and real estate and service industry divisions, 1975-82**

[In thousands]

Occupation	1975	1976	1977	1978	1979	1980	1981	1982
Total office employment	24,285	25,282	26,332	27,897	29,235	30,204	30,874	31,153
Professional and technical	5,159	5,474	5,703	6,171	6,554	6,868	7,117	7,462
Managers and administrators, except farmworkers	6,027	6,353	6,600	6,954	7,217	7,487	7,792	7,752
Salesworkers	2,175	2,208	2,319	2,467	2,579	2,584	2,654	2,730
Clerical workers	10,777	11,105	11,558	12,136	12,709	13,093	13,138	13,028
Craft and kindred workers	—	—	—	—	—	—	—	—
Operatives, except transport	—	—	—	—	—	—	—	—
Transport equipment operatives	—	—	—	—	—	—	—	—
Nonfarm laborers	—	—	—	—	—	—	—	—
Private households	—	—	—	—	—	—	—	—
Service workers, except private households	147	142	152	169	176	172	173	181
Farmworkers	—	—	—	—	—	—	—	—
Finance, insurance, real estate and service combined	18,057	18,822	19,770	20,976	22,087	23,050	23,917	24,404

NOTE: Dashes indicate no office employment.

1975	1.34
1976	1.34
1977	1.33
1978	1.33
1979	1.32
1980	1.31
1981	1.29
1982	1.28
Arithmetic mean	1.32
Standard deviation	0.02
r <sup>2</sup>	0.92
1983 estimate	1.28

The implicit assumption is that use of the multiple provides a reasonable estimate of 1983 office employment when multiplied by the 1983 combined finance, insurance, and real estate and service employment in a given SMSA or labor market area, where the two are not coextensive. Moreover, one would expect the multiple to be greater than one because workers using office space also come from industry sectors other than finance, insurance, and real estate and service (for example, manufacturing, government, and so forth). At the same time, the multiple would be expected to exhibit a secular decline because service sector employment is increasing more rapidly than manufacturing and government employment, for example (sectors which also use office space), but at a decreasing rate.

Table 3 presents the percentage change from the previous year for office employment and employment in the finance, insurance, and real estate and service divisions. The percentage-point difference provides a realistic basis for projecting office employment from 1983 to 1990. The year-to-year percentage change in employment is relatively volatile; for this reason, we use the percentage-point differential in the average rate of change as being representative of the average annual differential percentage-point change in total office employment and in combined finance, insurance, and real estate and service employment. As shown in the table,

the average difference is 0.8 percent less. This means that if we expect a 3.0-percent average annual rate of change in finance, insurance, and real estate, and service employment between 1983 and 1990, then the anticipated annual change in office employment would be 2.2 percent (or a -0.8-percentage-point difference).

The final step is to establish the parameter for expected occupancy when a market is in equilibrium and the anticipated occupied space per office employee. Most analysts assume that at the point of market equilibrium the occupancy rate for office space will approximate 95 percent. Typical space use per employee will range between 150 and 210 square feet of net rentable area for all categories of office space combined. Moreover, the midpoint of the range, or 180 square feet per employee represents a good estimate of median market area usage. That is so because between 45 percent and 55 percent of a major Standard Metropolitan Statistical Area space inventory typically consists of competitive rental space where space use per employee averages about 195 square feet.

**Table 3. Annual percentage change in office employment and employment in finance, insurance, and real estate and service industry divisions, 1976-82**

Year	Office employment	Finance, insurance, and real estate and service employment	Percentage-point difference
1976	4.1	4.2	-0.1
1977	4.2	5.0	-0.8
1978	5.9	6.1	-0.2
1979	4.8	5.3	-0.5
1980	3.3	4.4	-1.1
1981	2.2	3.8	-1.6
1982	0.9	2.0	-1.1
Arithmetic mean	3.6	4.4	-0.8
Standard deviation	1.7	1.3	—
r <sup>2</sup>	0.93	—	—

NOTE: Dashes indicate "not applicable."

## Estimating demand in the Chicago area

Over the past decade (December 1972 to 1982), net demand for competitive rental space in the Chicago Standard Metropolitan Statistical Area has averaged about 4,500,000 square feet of rentable area per year. As of midyear 1983, the area's inventory of competitive rental space was 125,150,000 square feet. Of this total, 110,020,000 square feet, or 87.9 percent were occupied.<sup>9</sup> Although the demand estimates in this example are limited to competitive rental space, the methodology can be adapted to estimate demand for all categories of office space.

Table 4 presents occupied space per employee, at a 95-percent occupancy level, for the Chicago Standard Metropolitan Statistical Area, 1979-83. The data show that occupied space per employee has been increasing each year by about 4 square feet (assuming a 95-percent occupancy level). Recall that we estimated the median space usage per office employee at approximately 180 square feet. At the 95-percent occupancy level, the area increases to 189.5 square feet. Similarly when all office employees are divided into the competitive rental total, the space occupied per employee (92.4 square feet) is about 49 percent of the median. We have the choice of either relating office employment to total market area office space or, alternatively, using the competitive rental space inventory and grossing up to total market area space.

In the Chicago area, competitive rental space has been increasing its market share of total market area office space construction and this trend will probably continue. We therefore regressed 1979 through 1983 space per employee against time<sup>10</sup> and assumed that each employee would occupy about 103 square feet of area for the rest of the decade.

The final step necessary to estimate average annual space demand in the Chicago area is to determine the estimated net average annual increase in office employment during 1983-90, our forecast time frame. The following tabulation

compares the annual rate of change in employment for the finance, insurance, and real estate division, the service division, and the two divisions combined in the Chicago Standard Metropolitan Statistical Area and the Nation for selected periods, 1969-82:<sup>11</sup>

	1969-79	1975-79	1975-82	1979-82
<i>Chicago SMSA</i>				
Finance, insurance, and real estate .....	2.2	3.1	3.2	3.4
Service .....	2.4	3.0	3.4	4.0
Total .....	2.3	3.0	3.4	3.9
<i>United States</i>				
Finance, insurance, and real estate .....	3.5	4.5	3.6	2.4
Service .....	4.4	5.4	4.6	3.7
Total .....	4.2	5.2	4.4	3.4
Chicago percent of U.S. total .....				
	55	58	77	115

It shows that Chicago's performance has been dramatically improving, relative to the performance in the United States. For example, during the 1969-79 decade, the average annual rate of change in Chicago was 2.3 percent, or less than that in the United States (4.2 percent). However, during 1979-82, a period of back-to-back recessions, Chicago's annual rate of change (3.9 percent) was 115 percent of that in the United States. Future employment growth in the finance, insurance, and real estate and service divisions in the Chicago area will probably equal the average annual rate of change between 1975 and 1982, or at least 3.4 percent a year. This estimated growth rate is optimistic, when compared with unpublished estimates made by the Illinois Department of Employment Security and the Illinois Bureau of the Budget. However, we believe Chicago is achieving greater relative dominance as a regional financial and service center and that this trend will persist.

We now have enough information to estimate the anticipated net increase in office employment between 1983 and 1990 and the resultant demand created for competitive rental space in the Chicago area. The calculations follow:

- The estimate of 1983 office employment in the Chicago area is 1,253,200 workers. (See table 4.)
- The average annual increase in finance, insurance and real estate and service divisions employment is estimated at approximately 3.4 percent a year for the 1983-90 period. Thus, expected average annual change in office employment is 2.6 percent (or 0.8 percent less than that in the finance, insurance, and real estate and service divisions).
- The net change in office employment during the 7-year projection period is:

$$Y = X[(1 + i)^n - 1]$$

**Table 4. Estimates of occupied rental space per office employee in Chicago SMSA, 1979-83**

[In thousands, except space per employee]

Year	Finance, insurance, and real estate and service employment	Office employment <sup>1</sup>	Occupied space <sup>2</sup>	Occupied space per office employee <sup>3</sup>
1979 .....	863.9	1,140.4	81,332.4	75.1
1980 .....	895.9	1,173.6	89,581.6	80.3
1981 .....	942.5	1,215.8	96,007.3	83.2
1982 .....	967.8	1,238.8	100,283.3	85.2
1983 .....	979.1	1,253.2	110,017.4	92.4

<sup>1</sup>Calculated by multiplying the finance, insurance, and real estate and service employment figure by the corresponding multiple (for 1983, 979.1 × 1.28).

<sup>2</sup>In square feet.

<sup>3</sup>Calculated at the 95-percent occupancy level in square feet.

where:

- Y = Net change in office employment.
- X = Office employment in first year of period.
- n = Number of years in the future in the time period.
- i = Average annual rate of change expressed as a decimal.

The Chicago area computation is:

$$Y = 1,253,200 [(1.026)^7 - 1]$$

$$= 1,253,200 (0.19683) = 246,664$$

- The net change in office employment is expected to be 246,664 or 35,238 workers per year over the 1983–90 period.
- Each office worker is expected to occupy approximately 103 square feet in competitive rental space, resulting in an average annual demand of 3,629,500 square feet of new space. (Note that we have made no separate calcu-

lation for the replacement of obsolescent space. The impact of obsolescent space is reflected in the annual estimate of occupied space per employee.)

ESTIMATION OF OFFICE EMPLOYMENT, its net increase over time, and the resultant effect on office demand is complex and requires an understanding of a multitude of factors relating to regional economic growth. In addition, limited historical data were available for model testing. For example, only since 1978 have reliable annual data been available on the quantity and occupancy levels of suburban office space. However, using estimates made from incomplete data, the model was tested in the Milwaukee, Detroit, and Tampa-St. Petersburg SMSA's, and it produced satisfactory results. Nonetheless, even with these caveats, employment data provide a useful methodology for estimating commercial office space demand. Information on future demand for office space would be valuable in a highly cyclical industry such as nonresidential building construction, where supply and demand are often not in equilibrium. □

—FOOTNOTES—

<sup>1</sup>For a more comprehensive understanding of the factors considered and methods employed in making economic growth and employment projections see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, December 1982), chs. 18–20; and *Employment Projections for 1995*, Bulletin 2197 (Bureau of Labor Statistics, March 1984).

<sup>2</sup>State and area unemployment and establishment data appear monthly in *BLS Employment and Earnings*. Annual averages and area definitions are contained in the May issue. In addition, each issue contains the addresses of cooperating State agencies in the Current Employment Statistics Program (CES) and State and Local Area Unemployment Statistics Program (LAUS). These agencies can advise readers of the availability of additional labor market information relating to their respective states.

<sup>3</sup>The Chicago SMSA consists of Cook, DuPage, Kane, Lake, McHenry, and Will Counties in Illinois.

<sup>4</sup>*Handbook of Labor Statistics*, Bulletin 2175 (Bureau of Labor Statistics, 1983). Additional sources were *Employment and Earnings and Employment Hours and Earnings, States and Areas, 1939–82*, Bulletin 1370–17 (Bureau of Labor Statistics, January 1984).

<sup>5</sup>The proportion of employees to be excluded from office employment in each of the major occupational categories was estimated by the author. While estimates were judgmental, they were based on data from *BLS Handbook of Labor Statistics* which also contains data on employment by industry which is classified by occupation; and employment surveys relating to the industrial and occupational mix of employees in downtowns, office buildings, office-industrial parks, and manufacturing facilities.

<sup>6</sup>Significant revisions were made in the Current Population Survey beginning in January 1983. See Gloria Peterson Green, Khoan tan Dinh, John A. Priebe, and Ronald R. Tucker, "Revisions in the Current Pop-

ulation Survey Beginning in January 1983," *Employment and Earnings* February 1983, pp. 7–15.

<sup>7</sup>The finance, insurance, and real estate and service totals are taken from table 67 of the *BLS Handbook of Labor Statistics*. For an analysis of quantifiable and conceptual differences between the two surveys, see John F. Stinson, Jr., "Comparison of Nonagricultural Employment Estimates from Two Surveys" *Employment and Earnings*, March 1984, pp. 6–9.

<sup>8</sup>In order to estimate the 1983 multiple, an estimating equation was determined by regressing the office employment multiple against time. The equation is:

$$Y_c = 1.357 - 0.009X$$

where:  $Y_c$  = the estimated office employment multiple.  
 $X$  = time. (1983 = year 9)

<sup>9</sup>Chicago SMSA industry employment is from *BLS Employment, Hours and Earnings, States and Areas, 1939–82*, and *Employment and Earnings* (May 1984). Occupied competitive rental space is based on public records, brokers' surveys, and utility data which were verified by inspection and phone validation.

<sup>10</sup>The regression equation is  $Y = 71.39 + 3.95X$ ; where  $Y$  = occupied space at the 95-percent occupancy level and  $X$  = time. For example, in 1986 (year 8), space use is estimated at 102.99 square feet per employee.

<sup>11</sup>Chicago SMSA industry employment data are from *Employment, Hours and Earnings, States and Areas, 1939–82*. U.S. industry employment figures are from table 67, "Employees on nonagricultural payrolls by industry division, selected years, 1919–82," *BLS Handbook of Labor Statistics*. Average annual rates of change were calculated by the author.

# Major Agreements Expiring Next Month



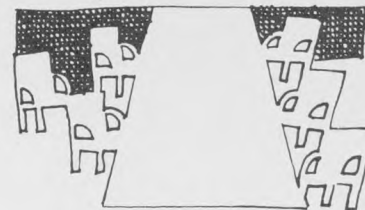
This list of selected collective bargaining agreements expiring in January is based on information from the Bureau's Office of Wages and Industrial Relations. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

Employer and location	Private industry	Labor organization <sup>1</sup>	Number of workers
Southern Dredge Owners Association (Interstate) . . . . .	Construction . . . . .	Operating Engineers . . . . .	1,000
National Electrical Contractors Association, Northwest Line Constructors Chapter (Oregon and Washington)	Construction . . . . .	Electrical Workers (IBEW) . . . . .	1,000
ITT Gwaltney Inc. (Smithfield, VA) . . . . .	Food products . . . . .	Teamsters (Ind.) . . . . .	1,400
Sugar Companies Negotiating Committee (Hawaii) . . . . .	Food products . . . . .	Longshoremen (ILWU-Ind.) . . . . .	7,500
Erwin Mills (Erwin, NC) . . . . .	Textiles . . . . .	Textile Workers . . . . .	1,500
Weyerhaeuser Co. (Oklahoma and Arkansas) . . . . .	Lumber . . . . .	Woodworkers . . . . .	1,900
American Insulated Wire Corp. (Pawtucket, RI) . . . . .	Primary metals . . . . .	Electrical Workers (IBEW) . . . . .	1,450
National Union Electric Corp., Eureka Division (Bloomington, IL) . . . . .	Electrical products . . . . .	Machinists . . . . .	1,250
Kelsey-Hayes Co. (Michigan) . . . . .	Transportation equipment . . . . .	Auto Workers . . . . .	1,500
Jeep Corp. (Toledo, OH) . . . . .	Transportation equipment . . . . .	Auto Workers . . . . .	5,750
Pan American, ground service (Interstate) <sup>2</sup> . . . . .	Air transportation . . . . .	Transport Workers . . . . .	6,000
Pan American, clerical and passenger service (Interstate) <sup>2</sup> . . . . .	Air transportation . . . . .	Teamsters (Ind.) . . . . .	7,200
Pan American, flight attendants (Interstate) <sup>2</sup> . . . . .	Air transportation . . . . .	Flight Attendants (Ind.) . . . . .	4,900
Northern Illinois Gas Co. (Illinois) . . . . .	Utilities . . . . .	Electrical Workers (IBEW) . . . . .	1,800
R.H. Macy and Co., Inc. (New York, NY) . . . . .	Retail trade . . . . .	Retail, Wholesale and Department Store	6,000
Kroger, Schnuck's, Thor and National Tea (St. Louis, MO) . . . . .	Retail trade . . . . .	Food and Commercial Workers . . . . .	2,300
Southern California Food Employers Council, Inc. (California) . . . . .	Retail trade . . . . .	Service Employees . . . . .	1,000
Guest Services, Inc. (Washington, DC) . . . . .	Restaurants . . . . .	Hotel Employees and Restaurant Employees	1,000
	<b>Government activity</b>	<b>Labor organization<sup>1</sup></b>	<b>Number of workers</b>
California: Southern California Rapid Transit District . . . . .	Transportation . . . . .	Transportation Union . . . . .	4,500
Wisconsin: Milwaukee municipal employees . . . . .	General services . . . . .	State, County and Municipal Employees	3,000

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

<sup>2</sup>Information from newspaper reports.

# Developments in Industrial Relations



## UAW, GM-Ford contracts focus on saving jobs

Increasing worker job security was the primary goal in the United Auto Workers' (UAW) bargaining with General Motors Corp. (GM) and Ford Motor Co. The first settlement, with GM, established a Job Opportunity Bank-Security Program described by the union as "without equal in the history of collective bargaining with a major U.S. corporation."

After the GM settlement, which was preceded by a strike at some locations, the UAW and Ford settled without a strike. Terms for the 115,000 Ford workers were essentially identical to those for the 350,000 GM workers, except that the Ford contract bans plant closings. Ford apparently was willing to accept this ban because it produces substantially fewer of its parts than GM, and therefore is not as likely to increase outside purchases, which could lead to plant shutdowns.

The new Job-Security Program guarantees that workers with at least 1 year of service will not be laid off as a result of the introduction of new technology, "outsourcing" (procuring parts from other manufacturers), negotiated productivity improvements, shifting of work from one GM plant to another, or the consolidation of component production. Layoffs for other reasons—such as declines in vehicle sales or sale of a facility—are not covered. The program will extend through the new and succeeding contract or until GM's commitment of \$1 billion is exhausted. (At Ford, with fewer employees, the commitment is \$300 million.)

Facing a layoff, workers will first exercise their right to "bump" less senior workers. After this procedure is completed, any employees with at least 1 year of service who would ordinarily be laid off will participate in an Employee Development Bank, where they will receive the pay rate of the last job they held or if assigned to another job, the rate for that job. Other possible assignments for bank members include job training; replacing another worker undergoing training; moving into a job opening at another GM plant if there is no qualified worker with recall or rehire rights; and moving into jobs within or outside the local bargaining unit, including "nontraditional" jobs. Temporary assignments outside the local bargaining unit will be voluntary. Per-

manent transfers to UAW bargaining units at other GM plants will be filled by volunteers, if possible. Any remaining openings will be filled in inverse seniority order.

Changes in the bank size will not correspond to changes in production volume, but will be reduced by one for each bank member who quits GM or otherwise breaks or loses seniority (excluding discharge) or enters apprenticeship or other training; transfers to an opening in the local plant or another GM plant created by a reason other than a production volume increase; or transfers to a salaried job.

Employees who do participate will continue to accrue pension credits and be covered by all other regular benefits, such as insurance, and paid holidays and vacations.

The Job-Security Program will be administered by joint UAW-GM committees at the local, area, and national levels. The national committee is permitted to set up special programs when there are more employees in the bank at a plant than anticipated openings at the local and area level. These programs would provide pensions calculated at unreduced rates and various supplements to departing bank members who are age 55 to 61 with 10 years of service. Departing bank members who do not meet the age and service requirements would receive lump-sum payments of \$10,000 to \$44,000, based on seniority.

The union did not win its demand for a ban on outsourcing or a continuation of the provision (adopted in 1982) prohibiting GM from closing plants due to outsourcing. However, GM must give the UAW 60 days' notice of outsourcing decisions affecting 25 or more existing jobs. Previously, the requirement applied to decisions affecting 10 percent of a plant's work force, or 100 workers, whichever was less. Job preservation also will be on the agenda of the new local Job-Security committees, which will discuss "sourcing" issues, review competitive conditions, and develop plans to improve local operations. Also, GM agreed to recommend implementation of the Saturn small car program to the GM board of directors, assuming that production concepts conceived by a GM-UAW study team prove workable. The joint attempt to revolutionize domestic car production to counter the increasing inroads of foreign manufacturers was initiated in 1982.

*Other layoff assistance.* There also were improvements in the Guaranteed Income Stream and Supplemental Unem-

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ployment Benefits programs, both of which provide employees with a financial cushion if they are laid off.

Funding of the Guaranteed Income Stream was raised to a maximum of \$185 million plus additional amounts from the profit-sharing plan during the contract term. (The funding level was \$100 million under the 1982 contract.) The plan covers workers with at least 10 years of service who are laid off due to a plant closing and those with at least 15 years of service who are laid off for any reason. After their Supplemental Unemployment Benefits entitlement is exhausted, these workers draw Guaranteed Income Stream benefits until they retire or return to work, or until GM's maximum financial obligation is reached. The weekly Guaranteed Income Stream benefit is 50 percent of the individual's weekly base earnings on the last day of work plus 1 percent for each year of seniority above 15 years. The maximum benefit is the lesser of either 75 percent of base earnings or 95 percent of after-tax earnings minus \$12.50 (\$17.50 on or after January 1, 1985).

GM's financing of Supplemental Unemployment Benefits was increased to a range of 19 to 31 cents per compensated hour in January 1985, 20 to 32 cents in January 1986, and 21 to 33 cents in January 1987. Previously, the obligation, which varies with the level of the fund, was 17 to 29 cents per hour. The Advance Credit Account, which provides benefits if the regular fund is exhausted, was strengthened by increasing its "base" to \$200 million, from \$100 million. Any GM payments into this fund are offset against future obligations. Funding also was strengthened for the Guaranteed Benefits Account, which pays benefits to laid-off workers with at least 10 years' service if the regular and Advance Credits Accounts are depleted. GM payments into this account are not offset against future obligations.

In another move the union described as a "first," GM and the UAW will jointly develop and launch new businesses aimed at providing jobs for UAW members. The program, to be financed by GM up to a maximum of \$100 million, will be administered by a joint Growth and Opportunity Committee. Proposals for ventures, including those made by local Job-Security Program committees, will be studied by a New Business Venture Development Group, which will have a full-time staff. Ventures will be aimed at aiding communities hit by job losses at GM facilities, with hiring preference given to the affected workers.

*Overtime restricted.* The union, which in recent years has been pressing for curbs on overtime to spread the available work among as many workers as possible, won a requirement that GM pay 50 cents per hour for all overtime hours in excess of 5 percent of straight-time hours into the Joint Skill Development and Training Fund. In a related provision, GM agreed to a goal of reducing average weekly overtime by 2 hours. "Spreading the work" also was furthered by the addition of three paid holidays, bringing the total to

44 over the 3-year contract, which ends on September 14, 1987.

The overtime work penalty payments into the Joint Skill Development and Training Fund, and a 10-cent-an-hour contribution by GM for all hours worked, will help finance training for active and laid-off employees. Laid-off workers are eligible to receive tuition assistance ranging from \$1,500 for those with 1 year of service to \$5,000 for those with 4 years or more of service. Active employees are eligible for payments of \$1,500 a year for courses at colleges and universities and \$1,000 a year for other job-related courses and certain other training in accredited schools.

The settlement does not provide for specified wage increases in every contract year. This reflects company efforts to end the practice of providing guaranteed annual wage increases regardless of corporate financial results. The workers will receive one specified wage increase and a \$180 "Special Payment," effective immediately; lump-sum "Performance Bonus" payments in October of 1985 and 1986; continued automatic pay adjustments under the cost-of-living formula; and continued profit-sharing distributions. The union forecast that the combined yield would be \$11,730 over the term (including \$3,000 in profit sharing), assuming a 5-percent annual rate of increase in the Consumer Price Index and continuation of the projected 1984 profit level. This would contrast with the 1982 accord, which only provided for cost-of-living adjustments and profit-sharing distributions.

The immediate specified wage increase ranged from 9 cents an hour for the lowest paid workers to 50 cents for the highest paid. According to the union, the 9- to 50-cent increase plus the projected future cost-of-living adjustments will raise the range to \$13.93 for workers in the lowest bracket to \$16.20-\$16.47 for those in the top bracket. Prior pay rates, including a cost-of-living allowance, ranged from \$12.29 an hour for workers in the lowest pay bracket to \$17.19-\$17.46 for those in the top bracket.

The performance bonuses, to be paid in October of 1985 and 1986, will amount to 2.25 percent of pay for all compensated hours, including overtime hours (but not overtime premium pay), vacation and holiday pay, and shift premiums. The union estimated that the payments would be \$725 and \$750, respectively, using the assumed 5-percent inflation rate and compensated hours equivalent to the 1983 total.

The cost-of-living adjustment formula provides for 1-cent-an-hour quarterly adjustments for each 0.26-point movement in the BLS Consumer Price Index for Urban Wage Earners and Clerical Workers (1967 = 100), with 1 cent permanently diverted from each of the first nine adjustments, and 2 cents from each of the two other adjustments. The diverted money will help offset GM's cost increases for benefits. Previously, adjustments were computed at 1 cent for each 0.26-point movement in a composite 1967 = 100 index derived from the U.S. and Canadian consumer price

indexes. (The change was made because the formula for GM's Canadian employees is now linked to the Canadian government's index only.) Under the 1982 contract, each of the first three quarterly adjustments were deferred for 18 months and a total of 6 cents was permanently diverted from these adjustments.

*Other contract provisions.* The new contracts also provide:

- A \$3.85 increase in the pension rates over the term for workers retiring from October 1, 1984, through September 30, 1985, bringing their April 1, 1987, range of rates (which vary by preretirement earnings) to \$21.85–\$22.60 a month for each year of credited service; a \$3.95 total increase for those retiring from October 1, 1985, through September 1, 1986, bringing their range to \$21.95–\$22.70; and a \$4.05 increase for those retiring on October 1, 1986, or later, bringing their range of rates to \$22.05–\$22.80. The provision for “30 [years]-and-out” retirement was revised to provide total monthly benefits of \$1,185 for employees who retire from October 1, 1984, through September 30, 1985, \$1,195 for those who retire from October 1, 1985, through September 30, 1986, and \$1,205 for those who retire later. The benefit consists of a pension amount and a supplemental payment; the supplement ceases at age 62. There also were improvements in benefits for current retirees, including a \$1 increase in the calculation rate for normal benefits. Employees who retired prior to October 1, 1984, with at least 30 years of credited service will receive special \$200 payments in December of 1985 and 1986.
- Addition of a third type of optional health insurance coverage, some improvements in the existing “traditional” and Health Maintenance Organization plans, and adoption of “preauthorization” and review procedures to preclude unnecessary surgery and shorten hospital stays. According to the union, the new Preferred Provider Organization coverage provides a broader range of benefits than the existing plans “while maintaining quality safeguards and assuring effective, affordable, and cost-efficient delivery of care.”
- An increase in GM's payment toward Medicare Part B premiums from the \$13.50 a month to \$14.60 on October 1, 1984, and \$15.60, \$17.60, and \$19.60 on January 1 of 1985, 1986, and 1987.
- The range of services provided by the legal services plan was increased and the eligibility requirement was reduced to 12 months of service, from 18. These changes, and others, were financed by a \$17 million surplus that had accrued during the 1982 agreement, which established the plan. GM will continue to finance the plan at the rate of 3 cents per straight-time hour and, in a change, it will provide any additional money needed to maintain the plan. (At Ford, a legal services plan was established under the 1984 settlement.)
- Adoption of a bonus plan to improve attendance. Beginning in 1985, employees will receive \$50 for each quarter year in which they work all scheduled straight-time hours in the regular workweek. Those who receive three quarterly bonuses in a year will receive an additional \$150 for a combined total of \$300 and those who receive four quarterly bonuses in a year will receive an additional \$300 for a combined total of \$500. This bonus provision was one of the changes to the 1982 attendance plan, which continues to penalize workers who have excessive unwarranted absences by reducing their holiday, vacation, and other benefit entitlements. The resulting \$9 million benefit cost saving that had accrued during the 1982 contract was transferred to an existing national training fund.
- An increase to 25 cents (previously 20 cents) in the hourly premium paid to employees for all hours worked in continuous 7-day-a-week operations.
- Increases in the relocation allowance to employees who transfer to any other GM plant when there is a shift of major operations from their home plant to another GM plant. The allowance now ranges from \$580 for single employees moving 50–99 miles to \$2,310 for married employees moving 1,000 miles or more, compared with the previous \$500 to \$2,025.
- Revision of the employee stock ownership plan to provide for GM financing equal to 0.5 percent of employees' pay. Previously, financing varied with GM's spending on plant and equipment. In another change, dividends will be distributed annually instead of accruing until retirement or other termination of employment.
- Establishment of an experimental child-care program at one location. The program will assist employees in obtaining child-care services “appropriate for each employee's particular needs.”

The bargaining leading to the September 21 settlement at GM began in July. Initially, the union was concurrently negotiating with Ford, but reverted to the usual “divide and conquer” strategy by suspending talks with Ford and focusing on GM. Intense bargaining continued to the September 14 expiration date of the contract, but the parties were unable to reach agreement and the union struck GM's Warren, MI, technical center and 12 assembly plants in nine States, purportedly over local issues. Apparently, the union struck these key facilities, rather than calling a company-wide strike over national issues, because a companywide stoppage could not be ended until a settlement is reached and approved by a majority of all UAW members at GM. A companywide strike also would have been a greater drain on the union's \$563 million strike fund. The stoppage was later extended to four additional plants, bringing the total number of strikers to 91,000. At that time, an additional

19,000 GM employees were on layoff because of shortages resulting from the strike. Immediately after the settlement, employees began returning to work. The national terms were approved by the UAW's 300-member council; then members of the 149 local unions approved the contract, 138,410 to 102,528.

Following the GM settlement, Ford and the UAW resumed negotiations. A settlement was reached in mid-October, ending a marathon 24-hour bargaining session. Ford workers approved the agreement by a vote of 33,312 to 18,386.

Despite the settlements on companywide issues at GM and Ford, bargaining was continuing on local issues. In these talks, conducted by local union and plant officials, the companies were attempting to offset part of the labor cost increase resulting from the national accords by pressing for changes in staffing levels, job assignments, output requirements, and other areas.

UAW President Owen Bieber said he would ask Chrysler Corp. to reopen negotiations for 65,000 workers despite the fact that the current 2-year contract is not scheduled to expire until October 1985. A company official said Chrysler would listen to a reopening proposal because "there may be some things that we would like them to do for us."

### Coal settlement peaceful

Despite a change in union leadership, splintering of the management bargaining group, high unemployment, and a history of long, bitter strikes, the United Mine Workers (UMW) and the Bituminous Coal Operators' Association (BCOA) settled peacefully on a 40-month contract. Both sides exulted in the new spirit of cooperation and indicated that it will continue as they attempt to deal with problems, which stem from increased foreign competition; easing of the petroleum crisis, which has slowed the shift to coal as a fuel for power plants and other facilities, and also slowed the development of a national "synfuels" energy policy; growing production by nonunion domestic producers; and possible legislation to counter "acid rain" that could reduce coal burning.

Bobby R. Brown, chief executive officer of Consolidation Coal Co. and head of the BCOA, described the agreement as "fair and modest," and noted that it gives the industry an 80-month period (from the 1981 settlement to the January 31, 1988, termination date of the new contract) without a national strike. This, he said, will give a "clear message to our customers and competitors" that the industry is a dependable energy source.

Rich Trumka, the coal miner-attorney who won the presidency of the union in 1982 on a promise to stabilize and revitalize the union after years of chaos, said the new contract, has "no concessions, absolutely none. Not a single one. We made economic . . . [and] other gains." Delegates to the union's prebargaining convention had given Trumka a simple mandate for the bargaining: "No backward steps.

No takeaway contracts."

During the negotiations, which began in April, the union had indicated that it would settle on modest economic gains if the mine operators accepted other terms designed to cut unemployment. (About one-third of the industry's 160,000 UMW members are unemployed.)

The contract provides for a total of \$1.40 an hour in wage increases (compared with \$3.60 over the 40-month term of the prior contract) consisting of a 25-cent increase on October 1 of 1984, 1985, and 1987, and a 30-cent increase on October 1 of 1986. In addition, workers will receive 5 cents "quarterly" wage increases on January 1, April 1, and July 1 of 1986 and 1987, and on January 1, 1988. These increases will result in hourly rates ranging from \$13.924 to \$15.565 for underground workers at deep mines (who are paid for 8 hours per shift), \$14.946 to \$16.328 at strip and auger mines (7.25 hours' pay), and \$14.907 to \$15.514 at preparation plants and other surface facilities at deep or surface mines (also 7.25 hours' pay). These increases ranged from 11.2 percent (for the lowest paid workers) to 9.9 percent (highest paid) for underground workers, 10.3 to 9.4 percent for strip and auger workers, and 10.4 to 9.9 percent for preparation plant and related workers.

The UMW did not win the curbs on overtime it had sought to increase the number of jobs available for its members, but it did gain changes in other provision intended to increase job security:

- New language ensures that miners will not lose their bidding rights to a job at their mine because the mine has been subleased to another company. The union had charged that in many cases new operators had used loopholes in the contract language to evade hiring incumbent employees.
- Mine owners are now required to give local union officials copies of warranties covering any onsite work being performed by outside contractors. The union said this was necessary because some mines were contracting out work that should have been performed by UMW members.
- UMW members shall perform all work "of the type" customarily done at the mine. The union said this provision was necessary because some mine owners had previously been able to contract out some work because it was not the *exact* work performed by UMW members.
- A company is required to notify the union of the sale of a mine where a UMW contract is in effect and to furnish proof that the buyer will abide by the terms. Previously, notification was not required and, the union claimed, some new owners were able to "break" the labor contract.
- The BCOA and UMW will establish a "Joint Interests Committee" to promote the development and use of UMW-mined coal. The committee, which replaces the "Joint Industry Development Committee," will undertake ac-

tivities such as contesting acid rain legislation, developing coal export capabilities, and developing a coal-based national energy policy.

Benefit improvements included a \$10 a month increase in pensions for all current retirees effective immediately and on October 1, 1987. Survivors of retired workers will receive \$5 a month increases on the same dates. For current employees, pension rates were increased by \$1 for those retiring during the first 3 years of the contract and \$1.50 for those retiring after September 30, 1987. For the latter retirees, pensions will be computed at the resulting rates of \$17 a month for each of the first 10 years of service, plus \$17.50 a month for each of the next 10 years, plus \$18 for each of the next 10 years, plus \$18.50 for each year in excess of 30.

Other terms included a 23-cent-a-ton increase in the royalty paid into the miners' health and retirement funds by mine owners on coal they produce; an increase in life insurance to \$30,000 (from \$25,000); a \$190-a-week sickness and accident benefit (formerly \$185) increasing to \$195 in the second year and to \$200 in the third year; and \$160 clothing allowances on October 1 of 1984, 1985, 1986, and 1987 (under the prior contract, the workers received three \$150 allowances).

At the time of settlement, the BCOA comprised only 32 companies, compared with about 130 at the time of the 1981 settlement. The withdrawals occurred because some companies believed they could individually negotiate more lenient terms. However, UMW President Trumka announced that he would not bargain with companies that dropped out until after the BCOA settled. The possibility of being struck while the BCOA companies and others operated led many of the dropout companies to sign letters of intent with the union in which they agreed to be bound by the subsequent BCOA accord. Some did not sign the letters, but accepted the BCOA terms immediately after they were announced. The few companies that did not sign were briefly struck by 2,000 employees.

Meanwhile, bargaining was continuing between the UMW and the Association of Bituminous Contractors, comprising companies that open mines and build related facilities. This bargaining covers about 10,000 workers, most of whom were on layoff.

### **City workers in Philadelphia settle**

The City of Philadelphia and unions representing 13,600 workers agreed on a 2-year contract that called for a single 8-percent wage increase at the beginning of the second year. An arbitrator later awarded 2,700 firefighters terms similar to the negotiated contract and awarded a similar, but earlier, payment to 7,500 police officers. Unions involved in the settlement and awards included the American Federation of State, County and Municipal Employees (AFSCME), the Fra-

ternal Order of Police, and the International Association of Fire Fighters.

### **Grocery workers settle, avert walkout**

A threatened strike by 65,000 workers was averted when nine locals of the United Food and Commercial Workers agreed to a 3-year contract with the Food Employers Council, comprising 12 grocery chains with stores in Southern California.

Under the settlement, top-rated clerks will receive increases totaling 85 cents in their \$11.70 an hour pay rate. General merchandise clerks will receive increases totaling 59.5 cents if they were hired prior to August 7, 1981, and 55.25 cents if hired later. "Courtesy" clerks will receive a total of 30 cents. Another pay issue was resolved when the employers agreed to guarantee each employee at least 16 hours of work a week. The union, which contended that 70 percent of the employees worked less than 28 hours a week, had originally sought a 25-hour guarantee.

Management won a "favored nations" clause, contending that the union had unfairly agreed to lower wage and benefit levels with some chains that are not members of the council. The clause provides that if one of the local unions and an independent store with at least 25 employees agree to reductions in labor costs, the same reductions will be extended to the stores of the council members within the jurisdiction of the local.

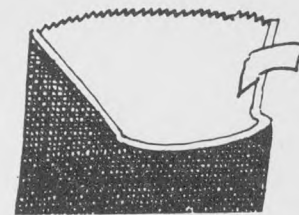
The 1,334 stores covered by the settlement are in an area extending from San Luis Obispo to the Mexican border. The stores are owned by Albertson's, Alpha Beta, Boys, Hughes, Lucky, Mayfair, Pioneer, Ralph's, Safeway, Smith's Food King, Stater Bros., and Vons.

### **Employees rate coworkers' performance**

In an unusual move, Levi Strauss & Co. announced that it will consider the opinions of fellow employees in determining who to include in an impending layoff. A company official said, "Most of the people who are laid off will clearly have not performed well enough to be retained." The new procedure will be useful in determining which of the marginally satisfactory workers should be retained. The layoff will total 400 employees. Under the new "Objective Judgment Quotient," each of the 2,000 executive, sales, and other nonunion white-collar employees will be rated by a group of up to nine employees. Members of each group will be selected by the worker being rated.

More than 300 factory workers have already been laid off because of a decline in demand for blue jeans. The company announced that an additional 2,500 will be laid off by mid-1985 as a result of the closing of several plants and cutbacks at others. In this case, the employees will not have a voice in retention decisions. These workers also are not represented by a union. □

# Book Reviews



## A bleak pattern that never changes

*A Needle, A Bobbin, A Strike: Women Needleworkers in America.* Edited by Joan M. Jensen and Sue Davidson. Philadelphia, PA, Temple University Press, 1984. 304 pp. \$29.95.

To read this collection of studies of women workers in the garment industry is to risk discouragement. Yet, surprisingly, on reflection, a bit of optimism emerges. Joan Jensen, professor of history at New Mexico State University, and Sue Davidson, information director of the National Female Advocacy Project, have jointly edited these historical accounts of women needleworkers in 20th century struggles for better wages and working conditions. Jensen has also provided summary introductions to each of three sections covering the evolution of needlework technology and department store marketing; the "great uprisings" in a number of major cities in the early 20th century; and the role of women within the garment industry unions. Although there is necessary repetition of similar circumstances in the record of labor disputes in the second section, there is value for labor historians, for women's studies specialists, and, among general readers, for women, in the cumulative effect of successive accounts. There is less detail of day-to-day lives of women workers (communicated so poignantly in Richardson's "The Long Day," or Foner's *Factory Girls*), but instead a clearer picture of the economic determinants of their depressed status.

A recurring characteristic of women needleworkers, from the 1900's to the present, has been their immigrant status, often accompanied by difficulty with the English language, and sometimes by problems of "illegal" status. Thus, there is a short answer to the question as to why women continue to endure the deplorable working conditions, the pressure for impossible output quotas, and the minimal pay (or sub-minimal, where "off the books" employment is accepted). For such women, employment opportunities are limited, and the family need for income is often desperate.

Considering the demand for labor in the garment industry, it is clear that the typical small employer, contractor, or jobber, also has limited options. In automobile, steel, and other major industries, a few of the larger employers operate in an environment of high capital requirements for entry into the industry, with relatively long runs of standardized

products. The resulting financial strength and political power arising from the less-competitive industry structure, has (in the past) shielded producers' profit margins by inhibiting domestic as well as international competition, and thus has permitted substantial improvements in wages and working conditions through industry collective bargaining. In contrast, the low capital requirements of jobbers serving major clothing manufacturers, and the fashion-dominated short production runs, assure a perpetual influx of small contractors into the garment industry; the resultant low profit margins in this highly competitive industry exert downward pressure on wages and discourage concern for working conditions. The rising tide of clothing imports in recent years has exacerbated the competitive pressure. In such a situation, it is not surprising that union negotiators might make concessions to preserve jobs in a particular geographical area, prompting charges of "sellout" by the predominantly female labor force, who continue to be greatly underrepresented in the union hierarchy. Thus, a purely market approach would predict that poorly educated immigrant women with language difficulties, burdened with family responsibilities, who are forced for lack of feasible alternatives to seek employment in a highly competitive industry (where firms face competition from low-wage "runaway employers" moving West or South, as well as from lower-wage foreign producers) would find only low wages and poor working conditions. So much for pessimism.

Where then are there grounds for optimism? It is not enough to point out that, although newly arrived workers of both sexes have historically always been subject to low wages and poor working conditions, within a generation or two, the low-ranking groups will move up. (As the studies in this collection indicate, the ethnic composition of the U.S. garment industry has changed from the Italian, Jewish, and Irish of the early 19th century to the Hispanic, Asian, and Chicano workers of the 1980's.) In the long run, we are all dead, as John Maynard Keynes noted, and, for the ill-paid, overworked women in the garment industry today, improvements are overdue. Yet, as pointed out above, given the competitive pressures, employers individually may be powerless to alter the labor contract; union power reached its zenith in the "Protocol of Peace" after the New York City strike in 1910, when employers welcomed its stabilizing influence. But because so much of the garment industry

has moved South or West in recent years, New York City no longer sets the terms of labor-management relations in the industry. Under these conditions, how can one expect improvements in workers' lives?

The accounts in this volume of the dedication and perseverance of the women leaders among the garment workers—Bessie Abramovitz, Dorothy Jacobs Bellanca, Rose Pesotta—suggest that improvements may not be impossible. Whether or not these women received their just due from the male leadership of the Amalgamated Clothing and Textile Workers Union (ACTWU) or the International Ladies' Garment Workers' Union (ILGWU), they developed their own powers, won the confidence of their coworkers, and provided role models for succeeding generations of women. Current leaders, whether male or female, must deal with the competitive structure of the clothing industry, and the increasing importance of imports from low-wage developing countries. To this reviewer, it seems entirely possible that strong women leaders in the garment industry can today use the growing political power of women to protect workers of both sexes from the dehumanizing aspects of excessive competition.

Political action could achieve a strengthening of the regulatory powers of State and Federal agencies, enforcement of existing factory laws, and stricter inspections for conformity to standards set by the Occupational Safety and Health Administration (OSHA) for workplace safety. Such policies, coupled with negotiated import limitations, could bring a degree of order to the wage structure and working conditions of the industry. Noting the resurgence of sweatshops in New York and Los Angeles, where "workers from Latin America and Asia sew under conditions little better than those that so outraged early 20th century reformers," the authors of the concluding essay suggest that women are "left to rely upon women's traditional sources of support—family, religion, and a sisterhood of coworkers." Instead, a sisterhood of voters just might prove effective.

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## Book notes

*Employment and Training R&D: Lessons Learned and Future Directions.* Conference Proceedings of the National Council on Employment Policy, Jan. 26–27, 1984.) Edited by R. Thayne Robson. Kalamazoo, MI, The W. E. Upjohn Institute for Employment Research, 1984. 133 pp. \$16.95, cloth; \$11.95, paper.

This book presents a review of the programs conducted by the Office of Policy, Evaluation and Research in the U.S. Department of Labor's Employment and Training Administration. The National Council on Employment Policy com-

missioned four papers for its January 1984 meetings to assist in examining present policy and developing recommendations for the future. These papers are included in the book, along with the Council's policy statement, "Appraising Employment and Training Research."

The authors of the four papers have all played important roles in the development and management of research, policy, and evaluation programs. The papers and the authors are: "Expanding the Knowledge Base for Informed Public Policy," by Eli Ginzberg; "A Research Agenda for Employment and Training Policy in the Eighties," by Daniel H. Saks; "An Administrator's Reflections," by Howard Rosen; and "Policy Lessons From Three Labor Market Experiments," by Gary Burtless and Robert H. Haveman.

*Employment Security in a Changing Workplace.* By Edgar Weinberg. Scarsdale, NY, Work in America Institute, Inc., 1984. 69 pp. (Work in America Institute Studies in Productivity, 34.) \$35, paper. Available from Pergamon Press, Inc., Fairview Park, Elmsford, NY. 10523.

This comprehensive survey of the literature on job and income security briefly reviews major studies made over the past 50 years and deals with writings on the impact of change and various programs designed to mitigate adverse effects on employee security. Writings appear under five headings: planning for change; marketing and production strategies; sharing of available opportunities; income maintenance programs; and reemployment assistance.

Books, studies, reports, and articles covered in 60 abstracts were selected to aid managers, union leaders, and public officials in planning adjustments to technological and other changes that alter production methods. Recent works in industrial relations, economics, sociology, and management are also included.

*Labor and the Environment: An Analysis of and Annotated Bibliography on Workplace Environmental Quality in the United States.* Compiled by Frederick H. Buttell, Charles C. Geisler, Irving W. Wiswall. Westport, CT, Greenwood Press, 1984. 148 pp. \$29.95.

There is "a new energy pulsating in the country on behalf of environmental protection." The literature annotated in *Labor and the Environment* documents the emerging alliance between labor and environmentalists. In the first section of the bibliography, citations to various works point to the cooperation between labor and environmental interests and demonstrate the extent to which labor is bringing new vitality to the environmental movement. Annotations in the second section provide commentary and critiques on benefit-cost analysis by labor-environmental alliances and underscore the unity of their respective concerns.

This book should be of interest to those concerned with the environment, economic management, labor organization, and contemporary sociology.

*Medical Screening of Workers.* By Mark A. Rothstein. Washington, The Bureau of National Affairs, Inc., 1984. 276 pp. \$30, BNA Books, Distribution Center, Rockville, MD 20850-3397.

Will medical screening protect susceptible workers and prevent the economic consequences of job-related illnesses and injuries? Will genetic screening protect the health of workers or will it serve as a destructive tool for the purpose of discrimination?

In this book, Mark A. Rothstein, Professor of Law at West Virginia University, describes types of medical screening, genetic screening, and reproductive hazards and how medical information influences employer decisionmaking. He also discusses legal issues involving the Occupational Safety and Health Act, workers' compensation, Title VII of the Civil Rights Act of 1964, and other relevant Federal and State laws. The book concludes with a discussion of the economic, ethical, and societal consequences of medical screening and suggests possible reform measures.

## Publications received

### Economic and social statistics

Baker, Reginald P. and David S. North, *The 1975 Refugees: Their First Five Years in America.* Washington, New Trans-Century Foundation, 1984, 186 pp. \$11, paper.

Chall, Daniel E., "Neighborhood Changes in New York City: Are the Gentry Returning?" *American Demographics*, October 1984, beginning on p. 18.

Diewert, W. E. and T. J. Wales, *Flexible Functional Forms and Global Curvature Conditions.* Cambridge, MA, National Bureau of Economic Research, Inc., 1984. (NBER Technical Paper Series, 40.) \$1.50, paper.

McArthur, Edith, "What Language Do You Speak?" *American Demographics*, October 1984, pp. 32-33.

Poterba, James M. and Lawrence H. Summers, *Adjusting the Gross Changes Data: Implications for Labor Market Dynamics.* Cambridge, MA, National Bureau of Economic Research, Inc., 1984, 37 pp. (NBER Working Paper Series, 1436.) \$1.50, paper.

Riche, Martha Farnsworth, "The State of the States' State Data Centers," *American Demographics*, October 1984, beginning on p. 28.

### Economic growth and development

Alperovitz, Gar and Jeff Faux, *Rebuilding America: A Blueprint for the New Economy.* New York, Pantheon Books, 1984, 319 pp. \$10.95, paper.

Economic Council of Canada, *Western Transition.* Ottawa, Economic Council of Canada, 1984, 260 pp. \$9.95, Canada; \$11.95, other countries. Available from the Canadian Government Publishing Center, Supply and Services Canada, Ottawa.

Montgomery, Tommie Sue, ed., *Mexico Today.* Philadelphia, PA, Institute for the Study of Human Issues, 1982, 140 pp.

## Health and safety

Reich, Michael R. and Rose H. Goldman, "Italian Occupational Health: Concepts, Conflicts, Implications," *American Journal of Public Health*, September 1984, pp. 1031-41.

"The Corporate Rx for Medical Costs: A Push for Revolutionary Changes in the Health Care Industry," *Business Week*, Oct. 15, 1984, beginning on p. 138.

U.S. Bureau of Labor Statistics, *Injuries Resulting from Falls on Stairs.* Prepared by Larry Jones and Helen McDonald. Washington, 1984, 19 pp. (Bulletin 2214.) Stock No. 029-001-02825-3. \$1.75, Superintendent of Documents, Washington 20402.

## Industrial relations

Coulson, Robert, "The Arbitrator's Role in Discharge Cases: Another Viewpoint," *Employee Relations Law Journal*, Summer 1984, pp. 61-63.

Epstein, Edythe, "Negotiating Over Technological Change in Banking and Insurance," *International Labour Review*, July-August 1984, pp. 405-22.

Freeman, Richard B., *Unionism Comes to the Public Sector.* Cambridge, MA, National Bureau of Economic Research, Inc., 1984, 91 pp. (NBER Working Paper Series, 1452.) \$1.50, paper.

Keefe, Pat Wechsler, "Workers Take It on the Chin," *Dun's Business Month*, October 1984, beginning on p. 125.

Kierzkowski, Henryk, "Trade Unions, Wage Relativities and Employment," *Australian Economic Papers*, June 1984, pp. 91-104.

Kochan, Thomas A., Harry C. Katz, Nancy R. Mower, *Worker Participation and American Unions: Threat or Opportunity?* Kalamazoo, MI, The W. E. Upjohn Institute for Employment Research, 1984, 202 pp. \$17.95, cloth; \$12.95, paper.

Landsman, Robert J., "Dual Motive Terminations: The Shifting Burdens," *Employee Relations Law Journal*, Summer 1984, pp. 64-77.

Mintz, Benjamin W., *OSHA: History, Law and Policy.* Washington, The Bureau of National Affairs, Inc., 1984, 770 pp. \$65, cloth; \$35, students.

Phillips, John R., "Their Own Brand of Industrial Justice: Arbitrators' Excesses in Discharge Cases," *Employee Relations Law Journal*, Summer 1984, pp. 48-60.

## International economics

Bergson, Abram, "Income Inequality Under Soviet Socialism," *The Journal of Economic Literature*, September 1984, pp. 1052-99.

Caves, Richard E. and Lawrence B. Krause, eds., *The Australian Economy: A View from the North.* Washington, The Brookings Institution, 1984, 415 pp. \$32.95, cloth; \$12.95, paper.

Chu, Ke-Young and Thomas K. Morrison, "The 1981-82 Recession and Non-Oil Primary Commodity Prices," *International Monetary Fund Staff Papers*, March 1984, pp. 93-140.

Drouet, Pierre, "The Restructuring of the Petroleum Refining Sector and Its Social Consequences," *International Labour Review*, July-August 1984, pp. 423-40.

Fairlamb, David, "Europe's Grim Job Outlook," *Dun's Business Month*, October 1984, beginning on p. 133.

Fried, Edward R. and Philip H. Trezise, eds., *U.S.-Canadian*

*Economic Relations: Next Steps?* Washington, The Brookings Institution, 1984, 141 pp. \$9.95, paper.

Gately, Dermot, "A Ten-Year Retrospective: OPEC and the World Oil Market," *The Journal of Economic Literature*, September 1984, pp. 1100-14.

Horne, Jocelyn and Ian M. McDonald, "Rational Expectations, Gradual Price Adjustment and Monetary Policy in Australia," *Australian Economic Papers*, June 1984, pp. 79-90.

"International Seminar on Macroeconomics," *European Economic Review*, June 1984, pp. 1-148.

"New Figures on Aid to Developing Countries," *The OECD Observer*, July 1984, pp. 26-29.

Penati, Alessandro and Michael Dooley, "Current Account Imbalances and Capital Formation in Industrial Countries, 1949-81," *International Monetary Fund Staff Papers*, March 1984, pp. 1-24.

Shoven, John B. and John Whalley, "Applied General-Equilibrium Models of Taxation and International Trade: An Introduction and Survey," *The Journal of Economic Literature*, September 1984, pp. 1007-51.

Spyropoulos, Georges, "Working Conditions in the Industrial Nations: What Lies Ahead," *International Labour Review*, July-August 1984, pp. 391-404.

### Monetary and fiscal policy

Manchester, Joyce, "Mortgage Finance: Why Not PLAM's [Price-level-adjusted mortgages]?" *Economic Review*, Federal Reserve Bank of Kansas City, September-October 1984, pp. 31-44.

Miller, Glenn H., Jr., "Alternatives to the Current Individual Income Tax," *Economic Review*, Federal Reserve Bank of Kansas City, September-October 1984, pp. 3-16.

Mitchell, Karlyn, "Capital Adequacy at Commercial Banks," *Economic Review*, Federal Reserve Bank of Kansas City, September-October 1984, pp. 17-30.

Wilson, Marilyn, "The Budget: Nothing Is 'Uncontrollable,'" *Dun's Business Month*, October 1984, pp. 62-64.

### Prices and living conditions

Lazear, Edward P., *Retail Pricing, the Time Distribution of Transactions, and Clearance Sales*. Cambridge, MA, National Bureau of Economic Research, Inc., 1984, 45 pp. (NBER Working Paper Series, 1446.) \$1.50, paper.

Lee, F. S., "Full Cost Pricing: A New Wine in a New Bottle," *Australian Economic Papers*, June 1984, pp. 151-66.

### Productivity and technological change

Hirschhorn, Larry, *Beyond Mechanization: Work and Technol-*

*ogy in a Post-Industrial Age*. Cambridge, MA, The MIT Press, 1984, 187 pp. \$17.50.

Jaffe, Adam B., *The Effects of Market Demand, Technological Opportunity and Research Spillovers on R&D Intensity and Productivity Growth*. Cambridge, MA, National Bureau of Economic Research, Inc., 1984, 39 pp. (NBER Working Paper Series, 1432.) \$1.50, paper.

### Wages and compensation

Conlon, Thomas R. and Associates, *Executive Compensation Study, 1984*, Deer Park, LI., NY, Thomas R. Conlon & Associates, 1984, 46 pp. \$95.

Lundberg, Shelly, *Tied Wage-Hours Offers and the Endogeneity of Wages*, Cambridge, MA, National Bureau of Economic Research, Inc., 1984, 18 pp. (NBER Working Paper Series, 1431.) \$1.50, paper.

U.S. Bureau of Labor Statistics, *Area Wage Surveys: Green Bay, Wisconsin, Metropolitan Area, August 1984* (Bulletin 3025-29, 39 pp., \$2.25); *South Bend, Indiana, Metropolitan Area, August 1984* (Bulletin 3025-32, 28 pp., \$1.75); *Greensboro-Winston-Salem-High Point, North Carolina, Metropolitan Area, August 1984* (Bulletin 3025-34, 30 pp., \$1.75); *Billings, Montana, Metropolitan Area, July 1984* (Bulletin 3025-33, 26 pp., \$1.75). Available from the Superintendent of Documents, Washington 20402, GPO Bookstores, or BLS regional offices.

— *National Survey of Professional, Administrative, Technical and Clerical Pay, March 1984*. Prepared by Mark S. Sieling. Washington, 1984, 91 pp. (Bulletin 2208.) Stock No. 029-001-02826-1. \$4, Superintendent of Documents, Washington 20402.

### Welfare programs and social insurance

Hamermesh, Daniel S., *Consumption During Retirement: The Missing Link in the Life Cycle*. Reprinted from the *Review of Economics and Statistics*, February 1984, pp. 1-7. Cambridge, MA, National Bureau of Economic Research, Inc., 1984. (NBER Reprint No. 517.) \$1.50, paper.

Harrington, Michael, *The New American Poverty*. New York, Holt, Rinehart and Winston, 1984, 271 pp. \$17.95.

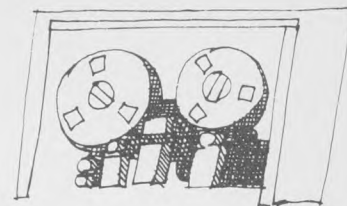
### Worker training and development

Leavitt, Roy L. and Susan MacDonald, eds., *Employing Our Youth: Meeting the Need for Employment and Training*. (Proceedings of a Research Utilization Workshop, Dec. 7, 1983.) New York, Community Council of Greater New York, 1984, 59 pp. \$8, paper.

Marrs, Texe and Karen Read, *Everywoman's Guide to Military Service*. Cockeysville, MD, Liberty Publishing Co., Inc., 1984, 168 pp. \$7.95, paper.



# Current Labor Statistics



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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 3-8 were revised in the February 1984 issue of the *Review*, to reflect experience through 1983.

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 shown in tables 11, 13, and 15 were made in July 1984 using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 29 and 30 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. More information from household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau. Comparable household information is published in a two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. Comparable establishment information appears in two data books—*Employment and Earnings, United States*, and *Employment and Earnings, States and Areas*, and their annual supplements. 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 BLS statistical series**

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation . . . . .	December 7	November	January 9	December	February 1	January	1-11
Producer Price Index . . . . .	December 14	November	January 11	December	February 15	January	23-27
Consumer Price Index . . . . .	December 20	November	January 23	December	February 26	January	19-22
Real earnings . . . . .	December 20	November	January 23	December	February 26	January	12-16
Productivity and costs:							
Nonfarm business and manufacturing . . . . .			January (1)	4th quarter			29-32
Nonfinancial Corporations . . . . .					February (1)	4th quarter	29-32
Employment Cost Index . . . . .			January 29	4th quarter			33-35
Major collective bargaining settlements . . . . .			January 24	1984			36-37
U.S. Import and Export Price Indexes . . . . .			January 31	4th quarter			

<sup>1</sup>Date not available.

## 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 selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

### Definitions

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

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

**rate** for all civilian workers represents the number unemployed as a percent of the civilian labor force.

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

### Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data 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 2-8 are seasonally adjusted, based on the seasonal experience through December 1983.

**1. Employment status of the noninstitutional population, 16 years and over, selected years, 1950-83**

[Numbers in thousands]

Year	Noninstitutional population	Labor force										Not in labor force
		Number	Percent of population	Employed						Unemployed		
				Total	Percent of population	Resident Armed Forces	Civilian			Number	Percent of labor force	
						Total	Agriculture	Nonagricultural industries				
1950	106,164	63,377	59.7	60,087	56.6	1,169	58,918	7,160	51,758	3,288	5.2	42,787
1955	111,747	67,087	60.0	64,234	57.5	2,064	62,170	6,450	55,722	2,852	4.3	44,660
1960	119,106	71,489	60.0	67,639	56.8	1,861	65,778	5,458	60,318	3,852	5.4	46,617
1965	128,459	76,401	59.5	73,034	56.9	1,946	71,088	4,361	66,726	3,366	4.4	52,058
1966	130,180	77,892	59.8	75,017	57.6	2,122	72,895	3,979	68,915	2,875	3.7	52,288
1967	132,092	79,565	60.2	76,590	58.0	2,218	74,372	3,844	70,527	2,975	3.7	52,527
1968	134,281	80,990	60.3	78,173	58.2	2,253	75,920	3,817	72,103	2,817	3.5	53,291
1969	136,573	82,972	60.8	80,140	58.7	2,238	77,902	3,606	74,296	2,832	3.4	53,602
1970	139,203	84,889	61.0	80,796	58.0	2,118	78,678	3,463	75,215	4,093	4.8	54,315
1971	142,189	86,355	60.7	81,340	57.2	1,973	79,367	3,394	75,972	5,016	5.8	55,834
1972	145,939	88,847	60.9	83,966	57.5	1,813	82,153	3,484	78,669	4,882	5.5	57,091
1973	148,870	91,203	61.3	86,838	58.3	1,774	85,064	3,470	81,594	4,355	4.8	57,667
1974	151,841	93,670	61.7	88,515	58.3	1,721	86,794	3,515	83,279	5,156	5.5	58,171
1975	154,831	95,453	61.6	87,524	56.5	1,678	85,845	3,408	82,438	7,929	8.3	59,377
1976	157,818	97,826	62.0	90,420	57.3	1,668	88,752	3,331	85,421	7,406	7.6	59,991
1977	160,689	100,665	62.6	93,673	58.3	1,656	92,017	3,283	88,734	6,991	6.9	60,025
1978	163,541	103,882	63.5	97,679	59.7	1,631	96,048	3,387	92,661	6,202	6.0	59,659
1979	166,460	106,559	64.0	100,421	60.3	1,597	98,824	3,347	95,477	6,137	5.8	59,900
1980	169,349	108,544	64.1	100,907	59.6	1,604	99,303	3,364	95,938	7,637	7.0	60,806
1981	171,775	110,315	65.2	102,042	59.4	1,645	100,397	3,368	97,030	8,273	7.5	61,460
1982	173,939	111,872	64.3	101,194	58.2	1,668	99,526	3,401	96,125	10,578	9.5	62,067
1983	175,891	113,226	64.4	102,510	58.3	1,676	100,834	3,383	97,450	10,717	9.5	62,665

**2. Employment status of the population, including Armed Forces in the United States, by sex, seasonally adjusted**

[Numbers in thousands]

Employment status and sex	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
<b>TOTAL</b>															
Noninstitutional population <sup>1,2</sup>	173,939	175,465	176,474	176,636	176,809	177,219	177,363	177,510	177,662	177,813	177,974	178,138	178,295	178,483	178,661
Labor force <sup>2</sup>	111,872	112,646	113,561	113,720	113,824	113,901	114,377	114,598	114,938	115,493	115,567	115,636	115,206	115,419	115,722
Participation rate <sup>3</sup>	64.3	64.2	64.3	64.4	64.4	64.3	64.5	64.6	64.7	65.0	64.9	64.9	64.6	64.7	64.8
Total employed <sup>2</sup>	101,194	101,277	103,665	104,291	104,629	104,876	105,576	105,826	106,095	106,978	107,438	107,093	106,681	106,959	107,291
Employment-population rate <sup>4</sup>	58.2	57.7	58.7	59.0	59.2	59.2	59.5	59.6	59.7	60.2	60.4	60.1	59.8	59.9	60.1
Resident Armed Forces <sup>1</sup>	1,668	1,671	1,695	1,685	1,688	1,686	1,684	1,686	1,693	1,690	1,690	1,698	1,712	1,720	1,705
Civilian employed	99,526	99,606	101,970	102,606	102,941	103,190	103,892	104,140	104,402	105,288	105,748	105,395	104,969	105,239	105,586
Agriculture	3,401	3,392	3,240	3,257	3,356	3,271	3,395	3,281	3,393	3,389	3,403	3,345	3,224	3,315	3,114
Nonagricultural industries	96,125	96,214	98,730	99,349	99,585	99,918	100,496	100,859	101,009	101,899	102,344	102,050	101,744	101,923	102,472
Unemployed	10,678	11,369	9,896	9,429	9,195	9,026	8,801	8,772	8,843	8,514	8,130	8,543	8,526	8,460	8,431
Unemployment rate <sup>5</sup>	9.5	10.1	8.7	8.3	8.1	7.9	7.7	7.7	7.7	7.4	7.0	7.4	7.4	7.3	7.3
Not in labor force	62,067	62,819	62,913	62,916	62,985	63,318	62,986	62,912	62,724	62,320	62,407	62,503	63,089	63,064	62,939
<b>Men, 16 years and over</b>															
Noninstitutional population <sup>1,2</sup>	83,052	84,064	84,344	84,423	84,506	84,745	84,811	84,880	84,953	85,024	85,101	85,179	85,257	85,352	85,439
Labor force <sup>2</sup>	63,979	64,580	64,709	64,846	64,838	64,930	65,093	65,156	65,212	65,307	65,452	65,362	65,244	65,614	65,603
Participation rate <sup>3</sup>	77.0	76.8	76.7	76.8	76.7	76.6	76.8	76.8	76.8	76.8	76.9	76.7	76.5	76.9	76.8
Total employed <sup>2</sup>	57,800	58,320	58,950	59,389	59,580	59,781	60,147	60,290	60,293	60,629	60,923	60,607	60,661	60,912	61,023
Employment-population rate <sup>4</sup>	69.6	69.4	69.9	70.3	70.5	70.5	70.9	71.0	71.0	71.3	71.6	71.2	71.2	71.4	71.4
Resident Armed Forces <sup>1</sup>	1,527	1,533	1,543	1,534	1,537	1,542	1,540	1,542	1,548	1,545	1,545	1,551	1,563	1,571	1,557
Civilian employed	56,271	56,787	57,407	57,855	58,043	58,239	58,607	58,748	58,745	59,084	59,378	59,056	59,098	57,341	59,466
Unemployed	6,179	6,260	5,759	5,457	5,258	5,149	4,946	4,867	4,919	4,678	4,529	4,756	4,583	4,702	4,580
Unemployment rate <sup>5</sup>	9.7	9.7	8.9	8.4	8.1	7.9	7.6	7.5	7.5	7.2	6.9	7.3	7.0	7.2	7.0
<b>Women, 16 years and over</b>															
Noninstitutional population <sup>1,2</sup>	90,887	91,827	92,129	92,214	92,302	92,474	92,552	92,630	92,709	92,789	92,873	92,958	93,039	93,132	93,222
Labor force <sup>2</sup>	47,894	48,646	48,852	48,874	48,986	48,971	49,283	49,442	49,725	50,186	50,115	50,273	49,963	49,804	50,119
Participation rate <sup>3</sup>	52.7	53.0	53.0	53.0	53.1	53.0	53.2	53.4	53.6	54.1	54.0	54.1	53.7	53.5	53.8
Total employed <sup>2</sup>	43,395	44,190	44,715	44,902	45,049	45,094	45,429	45,536	45,802	46,350	46,515	46,486	46,020	46,047	46,268
Employment-population rate <sup>4</sup>	47.7	48.1	48.5	48.7	48.8	48.8	49.1	49.2	49.4	50.0	50.1	50.0	49.5	49.4	49.6
Resident Armed Forces <sup>1</sup>	139	143	152	151	151	144	144	144	145	145	145	147	149	149	148
Civilian employed	43,256	44,047	44,563	44,751	44,898	44,950	45,285	45,392	45,657	46,205	46,370	46,339	45,871	45,898	46,120
Unemployed	4,499	4,457	4,137	3,972	3,937	3,876	3,855	3,905	3,924	3,836	3,600	3,787	3,943	3,758	3,852
Unemployment rate <sup>5</sup>	9.4	9.2	8.5	8.1	8.0	7.9	7.8	7.9	7.9	7.6	7.2	7.5	7.9	7.5	7.7

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

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

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

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

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

### 3. Employment status of the civilian population by sex, age, race, and Hispanic origin, seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1983			1984										
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	
<b>TOTAL</b>																
Civilian noninstitutional population <sup>1</sup>	172,271	174,215	174,779	174,951	175,121	175,533	175,679	175,824	175,969	176,123	176,284	176,440	176,583	176,763	176,956	
Civilian labor force	110,204	111,550	111,866	112,035	112,136	112,215	112,693	112,912	113,245	113,803	113,877	113,938	113,494	113,699	114,017	
Participation rate	64.0	64.0	64.0	64.0	64.0	63.9	64.1	64.2	64.4	64.6	64.6	64.6	64.3	64.3	64.4	
Employed	99,526	100,834	101,970	102,606	102,941	103,190	103,892	104,140	104,402	105,288	105,748	105,395	104,969	105,239	105,586	
Employment-population ratio <sup>2</sup>	57.8	57.9	58.3	58.6	58.8	58.8	59.1	59.2	59.3	59.8	60.0	59.7	59.4	59.5	59.7	
Unemployed	10,678	10,717	9,896	9,429	9,195	9,026	8,801	8,772	8,843	8,514	8,130	8,543	8,526	8,460	8,431	
Unemployment rate	9.7	9.6	8.8	8.4	8.2	8.0	7.8	7.8	7.8	7.5	7.1	7.5	7.5	7.4	7.4	
Not in labor force	62,067	62,665	62,913	62,916	62,985	63,318	62,986	62,912	62,724	62,320	62,407	62,502	63,089	63,064	62,939	
<b>Men, 20 years and over</b>																
Civilian noninstitutional population <sup>1</sup>	73,644	74,872	75,216	75,327	75,433	75,692	75,786	75,880	75,973	76,073	76,176	76,269	76,350	76,451	76,565	
Civilian labor force	57,980	58,744	58,949	59,053	59,050	59,299	59,394	59,388	59,480	59,546	59,726	59,694	59,752	59,898	59,971	
Participation rate	78.7	78.5	78.4	78.4	78.3	78.3	78.4	78.3	78.3	78.3	78.4	78.3	78.3	78.3	78.3	
Employed	52,891	53,489.7	54,140	54,457	54,658	54,999	55,266	55,368	55,385	55,685	55,970	55,789	55,899	56,022	56,213	
Employment-population ratio <sup>2</sup>	71.8	71.4	72.0	72.3	72.5	72.7	72.9	73.0	73.2	73.2	73.5	73.1	73.2	73.3	73.4	
Agriculture	2,422	2,429	2,376	2,336	2,374	2,356	2,409	2,364	2,453	2,451	2,469	2,455	2,392	2,403	2,316	
Nonagricultural industries	50,469	51,058	51,764	52,121	52,284	52,643	52,857	53,004	52,932	53,234	53,501	53,334	53,507	53,620	53,898	
Unemployed	5,089	5,257	4,809	4,596	4,392	4,300	4,128	4,020	4,095	3,861	3,755	3,906	3,853	3,875	3,758	
Unemployment rate	8.8	8.9	8.2	7.8	7.4	7.3	7.0	6.8	6.9	6.5	6.3	6.5	6.4	6.5	6.3	
<b>Women, 20 years and over</b>																
Civilian noninstitutional population <sup>1</sup>	82,864	84,069	84,443	84,553	84,666	84,860	84,962	85,064	85,168	85,272	85,380	85,488	85,581	85,688	85,793	
Civilian labor force	43,699	44,636	44,936	44,953	45,024	44,981	45,258	45,459	45,703	46,222	46,101	46,261	46,082	45,859	46,220	
Participation rate	52.7	53.1	53.2	53.2	53.2	53.0	53.3	53.4	53.7	54.2	54.0	54.1	53.8	53.5	53.9	
Employed	40,086	41,004	41,570	41,738	41,843	41,798	42,138	42,315	42,517	43,098	43,146	43,088	42,819	42,807	43,016	
Employment-population ratio <sup>2</sup>	48.4	48.8	49.2	49.4	49.4	49.3	49.6	49.7	49.9	50.5	50.5	50.4	50.0	50.5	50.1	
Agriculture	601	620	597	638	653	625	640	574	619	610	623	573	563	595	554	
Nonagricultural industries	39,485	40,384	40,973	41,100	41,190	41,174	41,498	41,741	41,898	42,487	42,523	42,515	42,255	42,212	42,462	
Unemployed	3,613	3,632	3,366	3,215	3,181	3,182	3,120	3,144	3,186	3,124	2,955	3,173	3,264	3,053	3,204	
Unemployment rate	8.3	8.1	7.5	7.2	7.1	7.1	6.9	6.9	7.0	6.8	6.4	6.9	7.1	6.7	6.9	
<b>Both sexes, 16 to 19 years</b>																
Civilian noninstitutional population <sup>1</sup>	15,763	15,274	15,120	15,072	15,022	14,981	14,931	14,880	14,828	14,778	14,728	14,683	14,653	14,624	14,598	
Civilian labor force	8,526	8,171	7,981	8,029	8,062	7,935	8,041	8,065	8,062	8,034	8,050	7,982	7,660	7,942	7,826	
Participation rate	54.1	53.5	52.8	53.3	53.7	53.0	53.9	54.2	54.4	54.4	54.7	54.4	52.3	54.3	53.6	
Employed	6,549	6,342	6,260	6,411	6,440	6,392	6,488	6,457	6,500	6,505	6,631	6,518	6,251	6,410	6,356	
Employment-population ratio <sup>2</sup>	41.5	41.5	41.4	42.5	42.9	42.7	43.5	43.4	43.8	44.0	45.0	44.4	42.7	43.8	43.5	
Agriculture	378	334	267	283	329	290	346	343	321	327	311	317	269	318	244	
Nonagricultural industries	6,171	6,008	5,993	6,128	6,111	6,102	6,142	6,114	6,179	6,178	6,320	6,201	5,982	6,092	6,112	
Unemployed	1,977	1,829	1,721	1,618	1,622	1,543	1,553	1,608	1,562	1,529	1,419	1,464	1,409	1,532	1,470	
Unemployment rate	23.2	22.4	21.6	20.2	20.1	19.4	19.3	19.9	19.4	19.0	17.6	18.3	18.4	19.3	18.8	
<b>White</b>																
Civilian noninstitutional population <sup>1</sup>	149,441	150,805	151,175	151,324	151,484	151,939	152,079	152,285	152,178	152,229	152,295	152,286	152,402	152,471	152,605	
Civilian labor force	96,143	97,021	97,339	97,559	97,724	97,813	98,167	98,424	98,495	98,853	98,770	98,710	98,156	98,388	98,520	
Participation rate	64.3	64.3	64.4	64.5	64.5	64.4	64.6	64.6	64.7	64.9	64.9	64.4	64.4	64.5	64.6	
Employed	87,903	88,893	89,851	90,430	90,779	91,044	91,544	91,845	91,933	92,505	92,697	92,430	91,850	92,074	92,249	
Employment-population ratio <sup>2</sup>	58.8	58.9	59.4	59.8	59.9	59.9	60.2	60.3	60.4	60.8	60.9	60.7	60.3	60.4	60.4	
Unemployed	8,241	8,128	7,488	7,129	6,945	6,768	6,623	6,580	6,562	6,348	6,072	6,280	6,306	6,314	6,271	
Unemployment rate	8.6	8.4	7.7	7.3	7.1	6.9	6.7	6.7	6.7	6.4	6.1	6.4	6.4	6.4	6.4	
<b>Black</b>																
Civilian noninstitutional population <sup>1</sup>	18,584	18,925	19,026	19,057	19,086	19,196	19,222	19,248	19,274	19,302	19,330	19,360	19,386	19,416	19,449	
Civilian labor force	11,331	11,647	11,565	11,623	11,650	11,660	11,881	11,867	11,934	12,008	11,962	12,076	12,176	12,079	12,185	
Participation rate	61.0	61.5	60.8	61.0	61.0	60.7	61.8	61.7	61.9	62.5	61.9	62.4	62.8	62.2	62.7	
Employed	9,189	9,375	9,449	9,563	9,582	9,707	9,958	9,896	9,923	10,105	10,168	10,041	10,226	10,259	10,314	
Employment-population ratio <sup>2</sup>	49.4	49.5	49.7	50.2	50.2	50.6	51.8	51.4	51.5	52.4	52.6	51.9	52.8	52.8	53.0	
Unemployed	2,142	2,272	2,116	2,060	2,068	1,953	1,923	1,972	2,011	1,903	1,795	2,035	1,950	1,820	1,872	
Unemployment rate	18.9	19.5	18.3	17.7	17.8	16.7	16.2	16.6	16.8	15.8	15.0	16.9	16.0	15.1	15.4	
<b>Hispanic origin</b>																
Civilian noninstitutional population <sup>1</sup>	9,400	12,771	9,745	9,677	9,735	9,778	9,906	10,080	10,072	10,026	9,824	9,738	9,785	9,713	9,794	
Civilian labor force	5,983	8,119	6,165	6,232	6,267	6,336	6,292	6,484	6,378	6,332	6,298	6,293	6,271	6,328	6,339	
Participation rate	63.6	63.6	63.3	64.4	64.4	64.8	63.5	64.3	63.3	63.2	64.1	64.6	64.1	65.2	64.7	
Employed	5,158	6,995	5,398	5,463	5,540	5,627	5,652	5,751	5,643	5,666	5,669	5,626	5,600	5,650	5,649	
Employment-population ratio <sup>2</sup>	54.9	54.8	55.4	56.5	56.9	57.6	57.1	57.1	56.0	56.5	57.7	57.8	57.2	58.2	57.7	
Unemployed	825	1,124	767	769	727	708	639	733	735	666	629	667	672	678	689	
Unemployment rate	13.8	13.8	12.4	12.3	11.6	11.2	10.2	11.3	11.5	10.5	10.0	10.6	10.7	10.7	10.9	

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

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

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

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

[In thousands]

Selected categories	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
<b>CHARACTERISTIC</b>															
Civilian employed, 16 years and over . . . . .	99,526	100,834	101,970	102,606	102,941	103,190	103,892	104,140	104,402	105,288	105,748	105,395	104,969	105,239	105,586
Men . . . . .	56,271	56,787	57,407	57,855	58,043	58,239	58,607	58,748	58,745	59,084	59,378	59,056	59,098	59,341	59,466
Women . . . . .	43,256	44,047	44,563	44,751	44,898	44,950	45,285	45,392	45,657	46,205	46,370	46,339	45,871	45,898	46,120
Married men, spouse present . . . . .	38,074	37,967	38,240	38,388	38,494	38,682	38,911	38,927	39,062	39,159	39,072	39,121	39,029	39,034	39,023
Married women, spouse present . . . . .	24,053	24,603	24,953	25,057	25,140	24,947	25,212	25,239	25,457	25,722	25,786	25,716	25,764	25,641	25,891
Women who maintain families . . . . .	5,099	5,091	5,172	5,236	5,254	5,293	5,346	5,444	5,491	5,668	5,688	5,662	5,507	5,412	5,344
<b>MAJOR INDUSTRY AND CLASS OF WORKER</b>															
<b>Agriculture:</b>															
Wage and salary workers . . . . .	1,505	1,579	1,505	1,481	1,512	1,443	1,560	1,515	1,661	1,610	1,604	1,513	1,425	1,569	1,481
Self-employed workers . . . . .	1,636	1,565	1,527	1,556	1,572	1,613	1,609	1,580	1,534	1,537	1,570	1,559	1,568	1,569	1,479
Unpaid family workers . . . . .	261	240	227	224	265	233	232	198	207	246	212	230	208	187	173
<b>Nonagricultural industries:</b>															
Wage and salary workers . . . . .	88,462	89,500	90,617	91,094	91,422	91,641	92,379	92,819	92,931	93,928	94,040	93,841	93,554	94,122	94,369
Government . . . . .	15,562	15,537	15,578	15,585	15,481	15,535	15,822	15,813	15,784	15,761	15,685	15,604	15,782	15,959	16,046
Private industries . . . . .	72,945	73,963	75,039	75,509	75,941	76,106	76,557	77,006	77,147	78,167	78,355	78,236	77,772	78,163	78,323
Private households . . . . .	1,207	1,247	1,278	1,216	1,241	1,197	1,219	1,155	1,296	1,347	1,329	1,239	1,181	1,185	1,209
Other . . . . .	71,738	72,716	73,761	74,293	74,700	74,909	75,339	75,851	75,851	76,820	77,026	76,997	76,591	76,979	77,114
Self-employed workers . . . . .	7,262	7,575	7,695	7,800	7,734	7,936	7,849	7,755	7,834	7,707	7,828	7,717	7,829	7,721	7,775
Unpaid family workers . . . . .	401	376	405	474	450	364	330	326	338	311	348	306	324	314	312
<b>PERSONS AT WORK<sup>1</sup></b>															
Nonagricultural industries . . . . .	90,552	92,038	93,273	93,834	94,173	94,707	95,067	94,982	96,918	96,523	96,500	96,848	96,921	96,448	96,577
Full-time schedules . . . . .	72,245	73,624	75,047	75,398	75,802	76,237	76,715	77,004	78,276	78,280	78,496	78,659	78,799	78,291	78,459
Part time for economic reasons . . . . .	5,852	5,997	5,724	5,848	5,712	5,943	5,808	5,463	5,593	5,353	5,491	5,300	5,324	5,496	5,479
Usually work full time . . . . .	2,169	1,826	1,617	1,719	1,672	1,771	1,611	1,472	1,530	1,549	1,654	1,589	1,749	1,675	1,606
Usually work part time . . . . .	3,683	4,171	4,107	4,129	4,040	4,172	4,197	3,991	4,063	3,804	3,837	3,711	3,576	3,821	3,873
Part time for noneconomic reasons . . . . .	12,455	12,417	12,502	12,588	12,659	12,527	12,545	12,515	13,049	12,889	12,514	12,889	12,797	12,662	12,638

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

## 5. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
<b>CHARACTERISTIC</b>															
Total, all civilian workers	9.7	9.6	8.8	8.4	8.2	8.0	7.8	7.8	7.8	7.5	7.1	7.5	7.5	7.4	7.4
Both sexes, 16 to 19 years	23.2	22.4	21.6	20.2	20.1	19.4	19.3	19.9	19.4	19.0	17.6	18.3	18.4	19.3	18.8
Men, 20 years and over	8.8	8.9	8.2	7.8	7.4	7.3	7.0	6.8	6.9	6.5	6.3	6.5	6.4	6.5	6.3
Women, 20 years and over	8.3	8.1	7.5	7.2	7.1	7.1	6.9	6.9	7.0	6.8	6.4	6.9	7.1	6.7	6.9
White, total	8.6	8.4	7.7	7.3	7.1	6.9	6.7	6.7	6.7	6.4	6.1	6.4	6.4	6.4	6.4
Both sexes, 16 to 19 years	20.4	19.3	18.5	17.2	17.0	16.2	16.5	17.1	16.2	16.2	15.5	15.3	15.9	16.6	16.1
Men, 16 to 19 years	21.7	20.2	19.8	17.6	17.5	17.8	16.4	17.3	16.6	16.8	16.5	17.8	16.2	17.3	17.0
Women, 16 to 19 years	19.0	18.3	16.9	16.6	16.5	14.5	16.7	16.8	15.7	15.5	14.5	12.6	15.5	15.8	15.2
Men, 20 years and over	7.8	7.9	7.3	6.9	6.7	6.3	6.1	5.8	5.9	5.6	5.3	5.5	5.5	5.6	5.4
Women, 20 years and over	7.3	6.9	6.3	6.0	5.9	6.0	5.8	5.9	6.0	5.8	5.6	5.9	6.0	5.8	5.9
Black, total	18.9	19.5	18.3	17.7	17.8	16.7	16.2	16.6	16.8	15.8	15.0	16.9	16.0	15.1	15.4
Both sexes, 16 to 19 years	48.0	48.5	48.7	47.3	49.0	47.9	43.5	46.7	44.8	44.1	34.3	42.4	41.7	41.7	40.2
Men, 16 to 19 years	48.9	48.8	45.6	44.9	46.4	47.1	46.7	44.4	42.8	40.9	35.3	42.6	40.6	39.9	45.1
Women, 16 to 19 years	47.1	48.2	52.2	50.0	51.9	48.8	39.9	49.6	47.1	48.2	33.1	42.1	42.9	43.7	34.6
Men, 20 years and over	17.8	18.1	16.3	15.6	15.1	14.8	14.1	15.4	16.0	14.1	14.8	15.7	14.2	13.5	13.4
Women, 20 years and over	15.4	16.5	15.9	15.6	15.9	14.3	14.4	13.5	13.4	13.6	12.4	14.0	14.1	12.6	13.5
Hispanic origin, total	13.8	13.8	12.4	12.3	11.6	11.2	10.2	11.3	11.5	10.5	10.0	10.6	10.7	10.7	10.9
Married men, spouse present	6.5	6.5	5.7	5.5	5.2	5.0	4.9	4.7	4.7	4.5	4.5	4.6	4.4	4.6	4.6
Married women, spouse present	7.4	7.0	6.3	6.0	6.1	6.0	5.9	5.8	5.8	5.8	5.6	5.9	6.0	5.8	5.8
Women who maintain families	11.7	12.2	11.4	10.5	10.9	10.7	11.0	11.0	10.5	9.8	9.6	9.6	10.5	10.0	10.5
Full-time workers	9.6	9.5	8.7	8.2	8.0	7.8	7.5	7.5	7.6	7.2	6.7	7.2	7.2	7.1	7.1
Part-time workers	10.5	10.4	10.0	9.8	9.8	9.2	9.3	9.2	9.1	9.3	10.3	9.6	9.6	9.4	9.1
Unemployed 15 weeks and over	3.2	3.8	3.3	3.1	3.0	2.9	2.6	2.5	2.5	2.5	2.3	2.4	2.3	2.3	2.2
Labor force time lost <sup>1</sup>	11.0	10.9	10.0	9.7	9.4	9.2	8.9	8.8	8.9	8.5	8.3	8.7	8.5	8.5	8.6
<b>INDUSTRY</b>															
Nonagricultural private wage and salary workers	10.1	9.9	9.0	8.6	8.3	7.9	7.8	7.6	7.7	7.2	7.0	7.4	7.5	7.4	7.3
Mining	13.4	17.0	12.1	12.8	12.4	10.9	12.2	11.2	10.3	8.9	7.1	7.5	10.3	8.6	10.9
Construction	20.0	18.4	15.8	15.6	16.3	15.0	15.1	13.3	14.3	14.8	14.8	14.7	14.0	13.8	13.5
Manufacturing	12.3	11.2	9.6	8.9	8.3	8.4	7.5	7.5	7.7	7.1	7.2	7.5	7.5	7.6	7.4
Durable goods	13.3	12.1	10.2	9.0	8.3	8.0	7.3	7.8	7.5	7.0	7.2	6.7	6.9	7.0	7.0
Nondurable goods	10.8	10.0	8.7	8.7	8.2	8.9	7.8	7.2	8.0	7.1	7.3	8.6	8.3	8.4	7.9
Transportation and public utilities	6.8	7.4	7.2	6.7	6.5	5.1	5.9	5.0	5.4	5.5	5.2	6.1	6.2	6.1	5.3
Wholesale and retail trade	10.0	10.0	9.8	9.1	8.8	8.4	8.3	8.3	8.7	7.9	7.2	7.8	7.8	8.2	7.9
Finance and service industries	6.9	7.2	6.9	6.7	6.6	6.3	6.3	6.4	6.1	5.5	5.4	5.9	6.1	5.6	5.7
Government workers	4.9	5.3	5.1	4.9	5.0	5.0	4.5	4.4	4.4	4.7	4.1	4.5	4.3	4.5	4.5
Agricultural wage and salary workers	14.7	16.0	16.2	15.7	15.6	15.5	14.0	14.6	12.2	13.9	11.8	14.6	12.8	15.0	13.8

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

**6. Unemployment rates by sex and age, seasonally adjusted**

[Civilian workers]

Sex and age	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Total, 16 years and over	9.7	9.6	8.8	8.4	8.2	8.0	7.8	7.8	7.8	7.5	7.1	7.5	7.5	7.4	7.4
16 to 24 years	17.8	17.2	16.3	15.4	14.9	14.8	14.2	14.4	14.6	14.0	13.0	13.6	14.0	14.1	13.6
16 to 19 years	23.2	22.4	21.6	20.2	20.1	19.4	19.3	19.9	19.4	19.0	17.6	18.3	18.4	19.3	18.8
16 to 17 years	24.9	24.5	24.0	21.9	22.9	21.9	22.1	23.1	22.3	20.2	19.7	20.5	21.4	21.3	20.1
18 to 19 years	22.1	21.1	20.3	19.3	18.8	17.6	17.5	18.1	17.5	18.2	16.3	16.7	16.7	17.9	18.0
20 to 24 years	14.9	14.5	13.8	13.6	13.0	12.2	12.5	11.6	11.6	12.2	11.5	10.7	11.8	11.5	11.1
25 years and over	7.4	7.5	6.8	6.5	6.4	6.2	6.1	5.9	6.0	5.7	5.6	5.9	5.8	5.7	5.7
25 to 54 years	7.9	8.0	7.2	6.9	6.8	6.5	6.4	6.3	6.3	6.0	5.7	6.2	6.1	5.9	5.9
55 years and over	5.0	5.3	5.0	4.9	4.9	4.7	4.3	4.3	4.2	4.4	4.6	4.4	4.6	4.5	4.8
Men, 16 years and over	9.9	9.9	9.1	8.6	8.3	8.1	7.8	7.7	7.7	7.3	7.1	7.5	7.2	7.3	7.2
16 to 24 years	19.1	18.4	17.3	15.9	15.6	15.6	14.6	14.6	15.0	14.0	13.7	14.6	14.3	14.8	13.9
16 to 19 years	24.4	23.3	22.5	20.2	20.4	20.8	19.7	20.0	19.7	19.4	18.5	20.6	18.6	19.9	20.2
16 to 17 years	26.4	25.2	24.3	22.0	23.3	21.6	21.6	23.0	23.7	21.3	22.7	23.0	22.1	21.1	21.5
18 to 19 years	23.1	22.2	21.6	19.6	18.9	19.6	18.1	18.2	17.3	18.3	16.1	18.8	16.5	19.1	19.3
20 to 24 years	16.4	15.9	14.7	13.8	13.3	13.1	12.1	11.9	12.7	11.5	11.4	11.7	12.3	12.3	10.9
25 years and over	7.5	7.8	7.0	6.8	6.5	6.2	6.1	5.9	5.9	5.7	5.4	5.7	5.5	5.5	5.5
25 to 54 years	8.0	8.2	7.4	7.1	6.7	6.6	6.4	6.1	6.2	5.9	5.6	5.9	5.7	5.6	5.6
55 years and over	5.1	5.6	5.4	5.4	5.4	4.8	4.5	4.6	4.4	4.5	4.3	4.6	4.6	5.0	4.8
Women, 16 years and over	9.4	9.2	8.5	8.2	8.1	7.9	7.8	7.9	7.9	7.7	7.2	7.6	7.9	7.6	7.7
16 to 24 years	16.2	15.8	15.1	14.7	14.0	13.9	13.7	14.2	14.1	14.0	12.2	12.5	13.7	13.2	13.2
16 to 19 years	21.9	21.3	20.5	20.1	19.8	18.0	18.9	19.8	19.0	18.6	16.7	15.9	18.2	18.6	17.3
16 to 17 years	23.2	23.7	23.6	21.8	22.5	22.2	22.6	23.1	20.8	19.0	16.4	17.9	20.6	21.4	18.5
18 to 19 years	21.0	19.9	18.8	19.0	18.7	15.4	16.9	18.1	17.8	18.1	16.5	14.4	16.9	16.8	16.6
20 to 24 years	13.2	12.9	12.3	12.0	11.0	11.7	11.0	11.3	11.6	11.6	9.9	10.8	11.4	10.4	11.2
25 years and over	7.3	7.2	6.5	6.2	6.3	6.2	6.1	6.0	6.0	5.8	5.8	6.1	6.3	5.9	6.1
25 to 54 years	7.7	7.7	7.0	6.6	6.8	6.5	6.5	6.5	6.4	6.1	5.8	6.5	6.6	6.3	6.3
55 years and over	4.8	4.7	4.4	4.1	4.3	4.5	4.0	3.9	3.9	4.3	5.0	4.2	4.4	3.9	4.8

**7. Unemployed persons by reason for unemployment, seasonally adjusted**

[Numbers in thousands]

Reason for unemployment	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Job losers	6,258	6,258	5,601	5,226	5,017	4,825	4,737	4,614	4,527	4,327	4,220	4,511	4,218	4,211	4,370
On layoff	2,127	1,780	1,392	1,321	1,283	1,238	1,272	1,254	1,108	1,192	1,166	1,164	1,152	1,109	1,176
Other job losers	4,141	4,478	4,209	3,905	3,734	3,588	3,465	3,360	3,419	3,134	3,055	3,346	3,066	3,102	3,193
Job leavers	840	866	866	868	855	809	772	756	781	804	800	865	835	845	818
Reentrants	2,384	2,412	2,322	2,250	2,246	2,192	2,153	2,208	2,308	2,178	1,968	2,091	2,322	2,298	2,136
New entrants	1,185	1,216	1,127	1,154	1,150	1,175	1,092	1,213	1,216	1,186	1,136	1,092	1,093	1,052	1,073
<b>PERCENT DISTRIBUTION</b>															
Total unemployed	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job losers	58.7	58.4	56.5	55.0	54.1	53.6	54.1	52.5	51.3	50.9	51.9	52.7	49.8	50.1	52.0
On layoff	19.9	16.6	14.0	13.9	13.8	13.7	14.5	14.3	12.5	14.0	14.4	13.6	13.6	13.2	14.0
Other job losers	38.8	41.8	42.4	41.1	40.3	39.9	39.6	38.2	38.7	36.9	37.6	39.1	36.2	36.9	38.0
Job leavers	7.9	7.7	8.7	9.1	9.2	9.0	8.8	8.6	8.8	9.5	9.8	10.1	9.9	10.1	9.7
Reentrants	22.3	22.5	23.4	23.7	24.2	24.4	24.6	25.1	26.1	25.6	24.2	24.4	27.4	27.3	25.4
New entrants	11.1	11.3	11.4	12.1	12.4	13.1	12.5	13.8	13.8	14.0	14.0	12.8	12.9	12.5	12.8
<b>PERCENT OF CIVILIAN LABOR FORCE</b>															
Job losers	5.7	5.6	5.0	4.7	4.5	4.3	4.2	4.1	4.0	3.8	3.7	4.0	3.7	3.7	3.8
Job leavers	.8	.7	.8	.8	.8	.7	.7	.7	.7	.7	.7	.8	.7	.7	.7
Reentrants	2.2	2.2	2.1	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.7	1.8	2.0	2.0	1.9
New entrants	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0	.9	.9

**8. Duration of unemployment, seasonally adjusted**

[Numbers in thousands]

Weeks of unemployment	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Less than 5 weeks	3,883	3,570	3,504	3,328	3,382	3,233	3,359	3,386	3,438	3,238	3,174	3,462	3,555	3,286	3,431
5 to 14 weeks	3,311	2,937	2,725	2,616	2,504	2,556	2,484	2,539	2,493	2,433	2,294	2,490	2,333	2,539	2,399
15 weeks and over	3,485	4,210	3,655	3,527	3,369	3,201	2,984	2,873	2,855	2,851	2,619	2,689	2,606	2,600	2,530
15 to 26 weeks	1,708	1,652	1,372	1,337	1,284	1,166	1,173	1,114	1,111	1,186	1,008	1,100	1,113	1,085	1,099
27 weeks and over	1,776	2,559	2,283	2,190	2,085	2,035	1,810	1,759	1,744	1,664	1,611	1,589	1,493	1,515	1,431
Mean duration in weeks	15.6	20.0	20.1	20.2	19.6	20.5	18.8	18.8	18.5	18.4	18.6	18.1	17.3	17.1	16.5
Median duration in weeks	8.7	10.1	9.5	9.4	9.0	9.2	8.3	8.3	8.1	8.7	7.2	7.6	7.5	7.6	7.2



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

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by over 200,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

### Definitions

**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 12-16 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 reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums

in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries.

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

**The Diffusion Index**, introduced in table 17 of the May 1983 issue, represents the percent of 185 nonagricultural industries in which employment was rising over the indicated period. One-half of the industries with unchanged employment are counted as rising. In line with Bureau practice, data for the 3-, 6-, and 9-month spans are seasonally adjusted, while that for the 12-month span is unadjusted. The diffusion index is useful for measuring the dispersion of economic gains or losses and is also an economic indicator.

### Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of May 1984 data, published in the July 1984 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Unadjusted data have been revised back to April 1982; seasonally adjusted data have been revised back to January 1979. Unadjusted data from April 1983 forward, and seasonally adjusted data from January 1980 forward are subject to revision in future benchmarks. Earlier comparable unadjusted and seasonally adjusted data are published in a *Supplement to Employment and Earnings* (unadjusted data from April 1977 through February 1984 and seasonally adjusted data from January 1974 through February 1984) and in *Employment and Earnings, United States, 1909-78*, BLS Bulletin 1312-11 (for prior periods).

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*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982).

**9. Employment, by industry, selected years, 1950-83**

[Nonagricultural payroll data, in thousands]

Year	Total	Private sector	Goods-producing				Service-producing									
			Total	Mining	Construction	Manufacturing	Total	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government			
													Total	Federal	State	Local
1950	45,197	39,170	18,506	901	2,364	15,241	26,691	4,034	2,635	6,751	1,888	5,357	6,026	1,928	(1)	(1)
1955	50,641	43,727	20,513	792	2,839	16,882	30,128	4,141	2,926	7,610	2,298	6,240	6,914	2,187	1,168	3,558
1960 <sup>2</sup>	54,189	45,836	20,434	712	2,926	16,796	33,755	4,004	3,143	8,248	2,629	7,378	8,353	2,270	1,536	4,547
1964	58,283	48,686	21,005	634	3,097	17,274	37,278	3,951	3,337	8,823	2,911	8,660	9,596	2,348	1,856	5,392
1965	60,765	50,689	21,926	632	3,232	18,062	38,839	4,036	3,466	9,250	2,977	9,036	10,074	2,378	1,996	5,700
1966	63,901	53,116	23,158	627	3,317	19,214	40,743	4,158	3,597	9,648	3,058	9,498	10,784	2,564	2,141	6,080
1967	65,803	54,413	23,308	613	3,248	19,447	42,495	4,268	3,689	9,917	3,185	10,045	11,391	2,719	2,302	6,371
1968	67,897	56,058	23,737	606	3,350	19,781	44,160	4,318	3,779	10,320	3,337	10,567	11,839	2,737	2,442	6,660
1969	70,384	58,189	24,361	619	3,575	20,167	46,023	4,442	3,907	10,798	3,512	11,169	12,195	2,758	2,533	6,904
1970	70,880	58,325	23,578	623	3,588	19,367	47,302	4,515	3,993	11,047	3,645	11,548	12,554	2,731	2,664	7,158
1971	71,214	58,331	22,935	609	3,704	18,623	48,278	4,476	4,001	11,351	3,772	11,797	12,881	2,696	2,747	7,437
1972	73,675	60,341	23,668	628	3,889	19,151	50,007	4,541	4,113	11,836	3,908	12,276	13,334	2,684	2,859	7,790
1973	76,790	63,058	24,893	642	4,097	20,154	51,897	4,656	4,277	12,329	4,046	12,857	13,732	2,663	2,923	8,146
1974	78,265	64,095	24,794	697	4,020	20,077	53,471	4,725	4,433	12,554	4,148	13,441	14,170	2,724	3,039	8,407
1975	76,945	62,259	22,600	752	3,525	18,323	54,345	4,542	4,415	12,645	4,165	13,892	14,686	2,748	3,179	8,758
1976	79,382	64,511	23,352	779	3,576	18,997	56,300	4,582	4,546	13,209	4,271	14,551	14,871	2,733	3,273	8,865
1977	82,471	67,344	24,346	813	3,851	19,682	58,125	4,713	4,708	13,808	4,467	15,303	15,127	2,727	3,377	9,023
1978	86,697	71,026	25,585	851	4,229	20,505	61,113	4,923	4,969	14,573	4,724	16,252	15,672	2,753	3,474	9,446
1979	89,823	73,876	26,461	958	4,463	21,040	63,363	5,136	5,204	14,989	4,975	17,112	15,947	2,773	3,541	9,633
1980	90,406	74,166	25,658	1,027	4,346	20,285	64,748	5,146	5,275	15,035	5,160	17,890	16,241	2,866	3,610	9,765
1981	91,156	75,126	25,497	1,139	4,188	20,170	65,659	5,165	5,358	15,189	5,298	18,619	16,031	2,772	3,640	9,619
1982	89,566	73,729	23,813	1,128	3,905	18,781	65,753	5,082	5,278	15,179	5,341	19,036	15,837	2,739	3,640	9,458
1983	90,138	74,288	23,394	957	3,940	18,497	66,744	4,958	5,259	15,545	5,467	19,665	15,851	2,752	3,660	9,439

<sup>1</sup> Not available.

<sup>2</sup> Data include Alaska and Hawaii beginning in 1959.

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

**10. Employment, by State**

[Nonagricultural payroll data, in thousands]

State	September 1983	August 1984	September 1984 <sup>p</sup>	State	September 1983	August 1984	September 1984 <sup>p</sup>
Alabama	1,326.5	1,352.8	1,347.0	Montana	273.1	274.0	277.5
Alaska	227.1	236.1	234.1	Nebraska	617.3	627.0	633.9
Arizona	1,079.0	1,115.8	1,151.2	Nevada	417.0	420.7	423.9
Arkansas	760.3	773.7	787.4	New Hampshire	420.7	439.8	436.1
California	10,036.3	10,351.2	10,456.0	New Jersey	3,190.7	3,314.9	3,302.5
Colorado	1,337.9	1,363.7	1,366.0	New Mexico	486.6	498.5	502.0
Connecticut	1,459.6	1,478.2	1,478.2	New York	7,319.4	7,467.2	7,486.1
Delaware	269.8	276.7	275.6	North Carolina	2,447.2	2,462.9	2,515.1
District of Columbia	596.2	612.0	599.3	North Dakota	254.0	251.4	255.2
Florida	3,919.9	4,094.6	4,144.0	Ohio	4,157.0	4,176.3	4,229.3
Georgia	2,309.2	2,428.8	2,450.8	Oklahoma	1,175.5	1,179.1	1,188.3
Hawaii	393.4	405.8	396.0	Oregon	984.2	997.3	1,011.3
Idaho	329.9	324.7	331.8	Pennsylvania	4,563.9	4,625.7	4,636.3
Illinois	4,536.5	4,588.4	4,586.0	Rhode Island	399.7	404.4	408.6
Indiana	2,044.7	2,072.3	2,098.6	South Carolina	1,201.7	1,234.5	1,252.7
Iowa	1,036.7	1,025.9	1,040.8	South Dakota	239.1	240.5	241.3
Kansas	924.6	930.0	942.7	Tennessee	1,750.4	1,817.7	1,832.0
Kentucky	1,163.6	1,185.6	1,196.9	Texas	6,209.5	6,342.8	6,367.0
Louisiana	1,569.7	1,571.7	1,582.1	Utah	580.7	599.7	606.3
Maine	434.4	452.2	442.8	Vermont	209.5	210.6	213.4
Maryland	1,708.9	1,746.5	1,742.2	Virginia	2,229.5	2,291.6	2,321.9
Massachusetts	2,707.1	2,737.9	2,757.8	Washington	1,607.8	1,647.1	1,667.0
Michigan	3,240.9	3,272.0	3,341.0	West Virginia	587.2	595.6	592.1
Minnesota	1,749.6	1,840.1	1,862.4	Wisconsin	1,876.4	1,929.6	1,949.6
Mississippi	799.2	792.8	812.2	Wyoming	211.4	212.6	213.0
Missouri	1,944.8	1,955.6	1,977.3	Virgin Islands	34.4	35.1	33.5

<sup>p</sup> = preliminary.

## 11. Employment, by industry, seasonally adjusted

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. <sup>p</sup>	Oct. <sup>p</sup>
<b>TOTAL</b>	89,566	90,138	91,345	91,688	92,026	92,391	92,846	93,058	93,449	93,768	94,135	94,350	94,523	94,754	95,195
<b>PRIVATE SECTOR</b>	73,729	74,288	75,481	75,814	76,157	76,533	76,971	77,185	77,546	77,864	78,241	78,422	78,566	78,694	79,108
<b>GOODS-PRODUCING</b>	23,813	23,394	23,895	24,058	24,198	24,383	24,577	24,595	24,760	24,851	24,974	25,059	25,098	25,005	25,071
<b>Mining</b>	1,128	957	965	967	969	975	978	978	984	995	1,002	1,007	1,017	1,020	1,016
Oil and gas extraction	708	600	600	603	607	608	607	607	612	619	623	629	636	642	645
<b>Construction</b>	3,905	3,940	4,044	4,073	4,086	4,154	4,226	4,151	4,246	4,286	4,343	4,356	4,356	4,374	4,388
General building contractors	991	1,015	1,053	1,064	1,077	1,100	1,111	1,099	1,110	1,126	1,135	1,133	1,132	1,140	1,140
<b>Manufacturing</b>	18,781	18,497	18,886	19,018	19,143	19,254	19,373	19,466	19,530	19,570	19,629	19,696	19,725	19,611	19,667
Production workers	12,742	12,581	12,928	13,048	13,145	13,234	13,326	13,388	13,443	13,465	13,492	13,541	13,558	13,450	13,505
<b>Durable goods</b>	11,039	10,774	11,071	11,170	11,266	11,343	11,440	11,513	11,551	11,598	11,652	11,702	11,758	11,690	11,748
Production workers	7,311	7,151	7,421	7,511	7,585	7,643	7,718	7,769	7,799	7,826	7,860	7,899	7,945	7,876	7,925
Lumber and wood products	598	658	690	695	698	702	706	712	714	711	712	708	706	703	711
Furniture and fixtures	432	447	462	467	470	475	480	483	482	482	485	485	484	481	486
Stone, clay, and glass products	577	573	587	589	592	595	604	606	604	605	605	606	603	603	607
Primary metal industries	922	838	863	869	877	871	877	877	879	887	884	880	879	862	869
Blast furnaces and basic steel products	396	343	351	351	352	347	348	347	345	347	345	342	334	324	325
Fabricated metal products	1,427	1,374	1,408	1,420	1,431	1,440	1,447	1,456	1,459	1,469	1,479	1,490	1,491	1,485	1,494
Machinery, except electrical	2,244	2,038	2,077	2,106	2,122	2,137	2,151	2,166	2,189	2,203	2,226	2,242	2,252	2,241	2,256
Electrical and electronic equipment	2,008	2,024	2,086	2,109	2,132	2,152	2,175	2,202	2,212	2,228	2,237	2,252	2,267	2,263	2,264
Transportation equipment	1,735	1,756	1,820	1,832	1,855	1,876	1,898	1,905	1,905	1,906	1,917	1,926	1,961	1,940	1,943
Motor vehicles and equipment	699	758	810	823	843	858	865	863	857	848	855	858	894	864	865
Instruments and related products	716	695	702	705	707	711	715	718	719	722	727	727	726	725	729
Miscellaneous manufacturing	382	371	376	378	382	384	387	388	388	385	384	386	389	387	389
<b>Nondurable goods</b>	7,741	7,724	7,815	7,848	7,877	7,911	7,933	7,953	7,979	7,972	7,977	7,994	7,967	7,921	7,919
Production workers	5,431	5,430	5,507	5,537	5,560	5,591	5,608	5,619	5,644	5,639	5,632	5,642	5,613	5,574	5,580
Food and kindred products	1,636	1,622	1,624	1,629	1,631	1,638	1,637	1,638	1,648	1,643	1,644	1,655	1,642	1,631	1,631
Tobacco manufactures	69	69	68	66	67	66	65	66	67	67	67	66	65	68	68
Textile mill products	749	744	758	760	762	758	767	769	766	762	759	755	751	744	735
Apparel and other textile products	1,161	1,164	1,186	1,195	1,202	1,207	1,213	1,218	1,226	1,217	1,209	1,206	1,200	1,180	1,176
Paper and allied products	662	662	669	671	675	676	680	680	680	681	685	687	686	681	685
Printing and publishing	1,272	1,296	1,311	1,317	1,321	1,328	1,333	1,339	1,348	1,356	1,362	1,368	1,371	1,375	1,378
Chemicals and allied products	1,075	1,047	1,049	1,050	1,052	1,053	1,054	1,054	1,057	1,057	1,062	1,064	1,067	1,063	1,063
Petroleum and coal products	201	195	192	192	191	191	190	190	189	188	188	187	187	186	185
Rubber and miscellaneous plastics products	697	718	748	758	766	774	784	790	790	795	797	801	800	798	805
Leather and leather products	219	208	210	210	210	210	210	209	208	206	204	205	198	195	193
<b>SERVICE-PRODUCING</b>	65,753	66,744	67,450	67,630	67,828	68,008	68,269	68,463	68,689	68,917	69,161	69,291	69,425	69,749	70,124
<b>Transportation and public utilities</b>	5,082	4,958	5,053	5,043	5,055	5,095	5,105	5,112	5,129	5,144	5,163	5,175	5,202	5,211	5,238
Transportation	2,789	2,739	2,776	2,763	2,776	2,816	2,828	2,839	2,862	2,871	2,883	2,896	2,924	2,936	2,967
Communication and public utilities	2,293	2,219	2,277	2,280	2,279	2,279	2,276	2,273	2,267	2,273	2,280	2,279	2,278	2,275	2,271
<b>Wholesale trade</b>	5,278	5,259	5,322	5,344	5,371	5,406	5,438	5,457	5,473	5,492	5,502	5,528	5,544	5,585	5,612
Durable goods	11,039	10,774	11,071	11,170	11,266	11,343	11,440	11,513	11,551	11,598	11,652	11,702	11,758	11,690	11,748
Nondurable goods	7,741	7,724	7,815	7,848	7,877	7,911	7,933	7,953	7,979	7,972	7,977	7,994	7,967	7,921	7,919
<b>Retail trade</b>	15,179	15,545	15,737	15,805	15,857	15,914	15,980	16,030	16,095	16,166	16,245	16,283	16,295	16,339	16,477
General merchandise stores	2,184	2,161	2,179	2,195	2,189	2,210	2,211	2,230	2,251	2,273	2,295	2,301	2,303	2,315	2,353
Food stores	2,478	2,560	2,587	2,594	2,600	2,618	2,626	2,626	2,635	2,630	2,641	2,648	2,640	2,650	2,676
Automotive dealers and service stations	1,632	1,667	1,695	1,703	1,710	1,725	1,740	1,748	1,743	1,751	1,751	1,762	1,758	1,754	1,763
Eating and drinking places	4,831	5,007	5,071	5,082	5,095	5,111	5,121	5,136	5,154	5,183	5,199	5,211	5,238	5,253	5,276
<b>Finance, insurance, and real estate</b>	5,341	5,467	5,512	5,530	5,546	5,573	5,593	5,613	5,640	5,662	5,676	5,676	5,679	5,684	5,712
Finance	2,646	2,740	2,769	2,777	2,789	2,797	2,812	2,831	2,851	2,863	2,854	2,854	2,850	2,857	2,869
Insurance	1,714	1,721	1,725	1,728	1,730	1,737	1,741	1,742	1,742	1,746	1,752	1,759	1,763	1,765	1,772
Real estate	981	1,005	1,018	1,025	1,027	1,039	1,040	1,041	1,047	1,053	1,066	1,063	1,066	1,062	1,071
<b>Services</b>	19,036	19,665	19,962	20,034	20,130	20,162	20,278	20,378	20,449	20,549	20,681	20,701	20,748	20,870	20,998
Business services	3,286	3,539	3,672	3,703	3,758	3,798	3,845	3,875	3,912	3,979	4,014	4,035	4,069	4,084	4,112
Health services	5,812	5,973	6,007	6,016	6,026	6,030	6,040	6,052	6,062	6,073	6,064	6,079	6,034	6,086	6,102
<b>Government</b>	15,837	15,851	15,864	15,874	15,869	15,858	15,875	15,873	15,903	15,904	15,894	15,928	15,957	16,060	16,087
Federal	2,739	2,752	2,760	2,759	2,762	2,760	2,763	2,770	2,771	2,767	2,777	2,779	2,785	2,785	2,772
State	3,640	3,660	3,667	3,669	3,668	3,670	3,682	3,686	3,693	3,699	3,699	3,697	3,714	3,729	3,738
Local	9,458	9,439	9,437	9,446	9,439	9,428	9,430	9,417	9,439	9,438	9,418	9,452	9,458	9,546	9,577

p = preliminary.

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

**12. Average hours and earnings, by industry 1968-83**

[Production or nonsupervisory workers on nonagricultural payrolls]

Year	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
	Private sector			Mining			Construction		
1968	37.8	\$2.85	\$107.73	42.6	\$3.35	\$142.71	37.3	\$4.41	\$164.49
1969	37.7	3.04	114.61	43.0	3.60	154.80	37.9	4.79	181.54
1970	37.1	3.23	119.83	42.7	3.85	164.40	37.3	5.24	195.45
1971	36.9	3.45	127.31	42.4	4.06	172.14	37.2	5.69	211.67
1972	37.0	3.70	136.90	42.6	4.44	189.14	36.5	6.06	221.19
1973	36.9	3.94	145.39	42.4	4.75	201.40	36.8	6.41	235.89
1974	36.5	4.24	154.76	41.9	5.23	219.14	36.6	6.81	249.25
1975	36.1	4.53	163.53	41.9	5.95	249.31	36.4	7.31	266.08
1976	36.1	4.86	175.45	42.4	6.46	273.90	36.8	7.71	283.73
1977	36.0	5.25	189.00	43.4	6.94	301.20	36.5	8.10	295.65
1978	35.8	5.69	203.70	43.4	7.67	332.88	36.8	8.66	318.69
1979	35.7	6.16	219.91	43.0	8.49	365.07	37.0	9.27	342.99
1980	35.3	6.66	235.10	43.3	9.17	397.06	37.0	9.94	367.78
1981	35.2	7.25	255.20	43.7	10.04	438.75	36.9	10.82	399.26
1982	34.8	7.68	267.26	42.7	10.77	459.88	36.7	11.63	426.82
1983	35.0	8.02	280.70	42.5	11.27	478.98	37.2	11.92	443.42
	Manufacturing			Transportation and public utilities			Wholesale trade		
1968	40.7	\$3.01	\$122.51	40.6	\$3.42	\$138.85	40.1	\$3.05	\$122.31
1969	40.6	3.19	129.51	40.7	3.63	147.74	40.2	3.23	129.85
1970	39.8	3.35	133.33	40.5	3.85	155.93	39.9	3.44	137.26
1971	39.9	3.57	142.44	40.1	4.21	168.82	39.5	3.65	129.85
1972	40.5	3.82	154.71	40.4	4.65	187.86	39.4	3.85	144.18
1973	40.7	4.09	166.46	40.5	5.02	203.31	39.3	4.08	151.69
1974	40.0	4.42	176.80	40.2	5.41	217.48	38.8	4.39	160.34
1975	39.5	4.83	190.79	39.7	5.88	233.44	38.7	4.73	183.05
1976	40.1	5.22	209.32	39.8	6.45	256.71	38.7	5.03	194.66
1977	40.3	5.68	228.90	39.9	6.99	278.90	38.8	5.39	209.13
1978	40.4	6.17	249.27	40.0	7.57	302.80	38.8	5.88	228.14
1979	40.2	6.70	269.34	39.9	8.16	325.58	38.8	6.39	247.93
1980	39.7	7.27	288.62	39.6	8.87	351.25	38.5	6.96	267.96
1981	39.8	7.99	318.00	39.4	9.70	382.18	38.5	7.56	291.06
1982	38.9	8.49	330.26	39.0	10.32	402.48	38.3	8.09	309.85
1983	40.1	8.83	354.08	39.0	10.80	421.20	38.5	8.54	328.79
	Retail trade			Finance, insurance, and real estate			Services		
1968	34.7	\$2.16	\$74.95	37.0	\$2.75	\$101.75	34.7	\$2.42	\$83.97
1969	34.2	2.30	78.66	37.1	2.93	108.70	34.7	2.61	90.57
1970	33.8	2.44	82.47	36.7	3.07	112.67	34.4	2.81	96.66
1971	33.7	2.60	87.62	36.6	3.22	117.85	33.9	3.04	103.06
1972	33.4	2.75	91.85	36.6	3.36	122.98	33.9	3.27	110.85
1973	33.1	2.91	96.32	36.6	3.53	129.20	33.8	3.47	117.29
1974	32.7	3.14	102.68	36.5	3.77	137.61	33.6	3.75	126.00
1975	32.4	3.36	108.86	36.5	4.06	148.19	33.5	4.02	134.67
1976	32.1	3.57	114.60	36.4	4.27	155.43	33.3	4.31	143.52
1977	31.6	3.85	121.66	36.4	4.54	165.26	33.0	4.65	153.45
1978	31.0	4.20	130.20	36.4	4.89	178.00	32.8	4.99	163.67
1979	30.6	4.53	138.62	36.2	5.27	190.77	32.7	5.36	175.27
1980	30.2	4.88	147.38	36.2	5.79	209.60	32.6	5.85	190.71
1981	30.1	5.25	158.03	36.3	6.31	229.05	32.6	6.41	208.97
1982	29.9	5.48	163.85	36.2	6.78	245.44	32.6	6.92	225.59
1983	29.8	5.74	171.05	36.2	7.29	263.90	32.7	7.30	238.71

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

### 13. Average weekly hours, by industry, seasonally adjusted

[Production or nonsupervisory workers on private nonagricultural payrolls]

Industry	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. <sup>P</sup>	Oct. <sup>P</sup>
<b>PRIVATE SECTOR</b> .....	34.8	35.0	35.2	35.2	35.2	35.4	35.3	35.3	35.4	35.3	35.3	35.2	35.2	35.3	35.1
<b>MANUFACTURING</b> .....	38.9	40.1	40.6	40.6	40.6	40.9	40.9	40.7	41.1	40.6	40.6	40.5	40.5	40.6	40.5
Overtime hours .....	2.3	3.0	3.3	3.3	3.4	3.5	3.5	3.5	3.7	3.3	3.3	3.3	3.3	3.3	3.3
<b>Durable goods</b> .....	39.3	40.7	41.2	41.3	41.3	41.6	41.7	41.4	41.8	41.3	41.2	41.2	41.2	41.5	41.3
Overtime hours .....	2.2	3.0	3.4	3.5	3.5	3.7	3.8	3.7	4.0	3.5	3.5	3.5	3.4	3.5	3.5
Lumber and wood products .....	38.0	40.1	40.5	40.0	40.0	40.6	40.4	40.1	40.4	39.6	39.4	39.3	39.4	40.2	39.6
Furniture and fixtures .....	37.2	39.4	39.8	39.8	40.1	40.0	39.9	39.6	39.7	39.7	39.1	39.8	39.1	40.0	39.5
Stone, clay, and glass products .....	40.1	41.5	41.8	41.8	41.9	42.1	42.5	41.9	42.3	42.1	41.8	41.9	41.7	41.9	41.7
Primary metal industries .....	38.6	40.5	41.6	41.7	41.8	41.9	42.0	41.8	42.2	42.1	41.7	41.5	41.0	41.3	41.5
Blast furnaces and basic steel products .....	37.9	39.5	40.8	40.8	41.2	41.0	41.3	41.2	41.0	41.6	41.1	39.9	39.6	39.8	40.0
Fabricated metal products .....	39.2	40.6	41.2	41.4	41.4	41.6	41.8	41.3	41.8	41.4	41.3	41.3	41.1	41.5	41.4
Machinery, except electrical .....	39.7	40.5	41.2	41.3	41.5	41.8	41.9	41.9	42.3	41.9	42.0	41.8	42.0	42.0	41.9
Electrical and electronic equipment .....	39.3	40.5	41.1	41.1	41.0	41.2	41.2	41.0	41.3	41.0	40.8	40.8	40.9	41.1	40.9
Transportation equipment .....	40.5	42.1	42.5	42.6	42.4	43.2	43.1	42.9	43.5	42.4	42.3	42.2	42.4	42.7	42.3
Motor vehicles and equipment .....	40.5	43.3	44.1	44.1	43.9	44.8	44.3	44.4	44.8	42.9	43.1	42.4	43.3	43.8	43.4
Instruments and related products .....	39.8	40.4	40.7	40.7	40.8	41.3	41.2	41.1	41.4	40.7	41.3	41.3	41.1	41.5	41.3
<b>Nondurable goods</b> .....	38.4	39.4	39.7	39.8	39.7	39.9	39.9	39.8	40.2	39.6	39.6	39.4	39.5	39.4	39.4
Overtime hours .....	2.5	3.0	3.1	3.1	3.2	3.3	3.3	3.3	3.4	3.1	3.2	3.1	3.1	3.0	3.0
Food and kindred products .....	39.4	39.5	39.6	39.6	39.5	39.7	39.7	39.8	40.1	39.7	39.8	39.5	39.7	39.7	39.6
Textile mill products .....	37.5	40.5	40.8	40.6	40.7	40.6	40.8	40.6	41.2	40.0	40.0	39.8	39.4	39.2	38.9
Apparel and other textile products .....	34.7	36.2	36.6	36.7	36.6	36.6	36.9	36.7	37.4	36.5	36.4	35.8	36.0	36.0	36.1
Paper and allied products .....	41.8	42.6	43.2	43.1	43.1	43.2	43.2	43.0	43.2	43.1	42.9	43.3	43.1	43.1	42.9
Printing and publishing .....	37.1	37.6	37.9	37.9	37.7	37.9	37.9	37.9	38.2	38.0	37.7	37.7	37.8	37.9	37.9
Chemicals and allied products .....	40.9	41.6	41.7	41.9	41.9	42.1	42.1	42.0	42.0	41.8	41.9	41.9	42.0	41.7	41.8
Petroleum and coal products .....	43.9	43.9	43.6	43.7	44.6	44.8	44.5	44.7	43.7	43.5	43.1	43.2	43.9	43.1	43.4
Leather and leather products .....	35.6	36.8	37.3	37.2	37.1	37.3	37.2	36.7	37.5	36.5	36.7	37.0	36.0	36.6	36.1
<b>TRANSPORTATION AND PUBLIC UTILITIES</b> .....	39.0	39.0	39.4	39.2	39.4	39.5	39.3	39.2	39.5	39.4	39.6	39.8	39.4	39.8	39.1
<b>WHOLESALE TRADE</b> .....	38.3	38.5	38.6	38.6	38.6	38.6	38.5	38.5	38.7	38.6	38.6	38.6	38.7	38.8	38.6
<b>RETAIL TRADE</b> .....	29.9	29.8	30.0	30.0	30.3	30.1	30.0	30.1	30.0	30.1	30.2	29.9	29.9	29.9	29.8
<b>SERVICES</b> .....	32.6	32.7	32.8	32.7	32.6	32.8	32.7	32.8	32.8	32.7	32.7	32.7	32.6	32.8	32.6

p = preliminary.

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

**14. Average hourly earnings, by industry**

[Production or nonsupervisory workers on private nonagricultural payrolls]

Industry	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. <sup>P</sup>	Oct. <sup>P</sup>
<b>PRIVATE SECTOR</b>	\$7.68	\$8.02	\$8.16	\$8.16	\$8.16	\$8.26	\$8.24	\$8.24	\$8.29	\$8.28	\$8.29	\$8.32	\$8.30	\$8.43	\$8.42
Seasonally adjusted	( <sup>1</sup> )	( <sup>1</sup> )	8.13	8.14	8.17	8.21	8.23	8.25	8.31	8.29	8.33	8.35	8.34	8.41	8.40
<b>MINING</b>	10.77	11.27	11.33	11.40	11.41	11.54	11.49	11.60	11.62	11.56	11.57	11.57	11.57	11.65	11.58
<b>CONSTRUCTION</b>	11.63	11.92	12.06	11.91	12.02	12.08	11.99	11.97	11.95	11.99	11.94	11.97	12.01	12.16	12.15
<b>MANUFACTURING</b>	8.49	8.83	8.90	8.97	9.04	9.08	9.06	9.09	9.11	9.11	9.14	9.18	9.14	9.22	9.23
<b>Durable goods</b>	9.04	9.38	9.47	9.53	9.60	9.64	9.63	9.66	9.67	9.66	9.69	9.70	9.68	9.77	9.77
Lumber and wood products	7.43	7.79	7.86	7.79	7.80	7.88	7.88	7.87	7.89	7.92	8.04	8.01	8.05	8.14	8.08
Furniture and fixtures	6.31	6.62	6.71	6.73	6.78	6.76	6.75	6.76	6.76	6.80	6.84	6.88	6.90	6.95	6.92
Stone, clay, and glass products	8.87	9.27	9.38	9.41	9.41	9.42	9.38	9.40	9.51	9.54	9.58	9.64	9.62	9.63	9.63
Primary metal industries	11.33	11.34	11.28	11.32	11.35	11.38	11.49	11.44	11.51	11.49	11.46	11.45	11.34	11.36	11.32
Blast furnaces and basic steel products	13.35	12.89	12.68	12.71	12.71	12.76	13.10	12.97	13.12	13.09	13.02	13.02	12.90	13.01	12.91
Fabricated metal products	8.77	9.11	9.18	9.24	9.35	9.31	9.31	9.31	9.34	9.33	9.33	9.30	9.30	9.40	9.35
Machinery, except electrical	9.26	9.55	9.66	9.74	9.85	9.85	9.87	9.90	9.91	9.90	9.93	9.96	9.92	10.02	10.02
Electrical and electronic equipment	8.21	8.65	8.71	8.77	8.84	8.88	8.86	8.88	8.89	8.89	8.91	8.95	9.00	9.08	9.09
Transportation equipment	11.11	11.66	11.87	12.01	12.04	12.06	12.00	12.12	12.06	12.04	12.14	12.13	12.13	12.26	12.35
Motor vehicles and equipment	11.62	12.12	12.38	12.49	12.47	12.53	12.41	12.62	12.56	12.51	12.67	12.61	12.59	12.70	12.90
Instruments and related products	8.06	8.46	8.54	8.56	8.65	8.68	8.66	8.71	8.73	8.71	8.78	8.83	8.85	8.89	8.84
Miscellaneous manufacturing	6.42	6.80	6.84	6.84	6.95	7.00	6.97	6.97	6.99	6.99	6.98	7.02	6.97	7.02	7.09
<b>Nondurable goods</b>	7.74	8.08	8.12	8.18	8.24	8.27	8.24	8.27	8.29	8.30	8.33	8.41	8.37	8.43	8.44
Food and kindred products	7.92	8.20	8.16	8.26	8.36	8.41	8.37	8.39	8.43	8.43	8.44	8.41	8.36	8.36	8.35
Tobacco manufactures	9.79	10.35	9.65	10.77	10.19	10.77	11.13	11.29	11.43	11.55	11.92	11.67	10.75	10.36	10.29
Textile mill products	5.83	6.18	6.24	6.26	6.31	6.39	6.40	6.41	6.43	6.42	6.43	6.43	6.46	6.49	6.49
Apparel and other textile products	5.20	5.37	5.40	5.43	5.44	5.50	5.46	5.48	5.49	5.48	5.50	5.51	5.53	5.61	5.59
Paper and allied products	9.32	9.94	10.11	10.20	10.24	10.23	10.22	10.25	10.29	10.34	10.42	10.56	10.50	10.54	10.56
Printing and publishing	8.74	9.11	9.23	9.26	9.29	9.26	9.30	9.29	9.29	9.31	9.30	9.36	9.42	9.51	9.50
Chemicals and allied products	9.96	10.59	10.79	10.86	10.90	10.91	10.90	10.95	10.97	11.02	11.03	11.12	11.13	11.24	11.27
Petroleum and coal products	12.46	13.29	13.38	13.45	13.54	13.47	13.43	13.44	13.44	13.32	13.33	13.27	13.32	13.53	13.43
Rubber and miscellaneous plastics products	7.64	7.99	8.08	8.07	8.16	8.17	8.16	8.20	8.25	8.20	8.23	8.30	8.28	8.29	8.31
Leather and leather products	5.33	5.54	5.56	5.57	5.61	5.68	5.67	5.68	5.68	5.68	5.67	5.70	5.67	5.73	5.76
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	10.32	10.80	10.94	11.01	11.00	11.08	11.01	11.02	11.07	11.03	11.07	11.18	11.17	11.25	11.23
<b>WHOLESALE TRADE</b>	8.09	8.54	8.69	8.68	8.74	8.82	8.79	8.79	8.89	8.86	8.90	8.97	8.95	9.03	8.98
<b>RETAIL TRADE</b>	5.48	5.74	5.79	5.82	5.78	5.89	5.89	5.89	5.90	5.88	5.88	5.87	5.84	5.90	5.90
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	6.78	7.29	7.45	7.39	7.43	7.55	7.54	7.54	7.62	7.55	7.58	7.60	7.57	7.77	7.73
<b>SERVICES</b>	6.92	7.30	7.43	7.44	7.47	7.57	7.55	7.54	7.60	7.55	7.53	7.56	7.53	7.71	7.72

<sup>1</sup>Not available.

p = preliminary.

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

**15. The Hourly Earnings Index, by industry**

[Production or nonsupervisory workers on private nonagricultural payrolls; 1977 = 100]

Industry	Not seasonally adjusted					Seasonally adjusted						
	Oct. 1983	Aug. 1984	Sept. 1984 <sup>P</sup>	Oct. 1984 <sup>P</sup>	Percent change from: Oct. 1983 to Oct. 1984	Oct. 1983	June 1984	July 1984	Aug. 1984	Sept. 1984 <sup>P</sup>	Oct. 1984 <sup>P</sup>	Percent change from: Sept. 1984 to Oct. 1984
<b>PRIVATE SECTOR (In current dollars)</b>	157.2	160.1	161.9	161.8	2.9	157.1	160.3	160.8	160.6	161.7	161.6	( <sup>1</sup> )
Mining	168.4	174.0	175.6	175.8	4.4	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Construction	147.3	146.9	148.6	148.4	.8	145.5	147.1	146.6	146.6	146.9	146.5	-.3
Manufacturing	158.5	162.5	163.5	163.7	3.2	158.7	162.3	162.9	163.3	163.4	163.8	.3
Transportation and public utilities	158.9	161.7	163.4	163.4	2.8	158.4	162.1	162.6	161.9	162.9	162.9	( <sup>1</sup> )
Wholesale trade	161.1	165.4	167.2	166.4	3.3	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Retail trade	151.6	153.1	154.4	154.1	1.6	151.9	153.8	154.0	153.6	154.3	154.4	.1
Finance, insurance, and real estate	162.0	164.6	168.4	167.5	3.4	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Services	158.7	161.6	165.1	164.7	3.8	158.7	162.5	163.4	162.8	165.1	164.7	-.2
<b>PRIVATE SECTOR (In constant dollars)</b>	94.7	93.6	94.2	( <sup>3</sup> )	( <sup>3</sup> )	94.7	95.2	95.2	94.1	94.3	( <sup>3</sup> )	( <sup>3</sup> )

<sup>1</sup>Percent change is less than .05 percent.

<sup>2</sup>This series is not seasonally adjusted because the seasonal component is small relative to the trend-cycle, irregular components, or both, and consequently cannot be separated with sufficient precision.

p = preliminary.

<sup>3</sup>Not available.

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

### 16. Average weekly earnings, by industry

[Production or nonsupervisory workers on private nonagricultural payrolls]

Industry	Annual average		1983			1984									
	1982	1983	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. <sup>P</sup>	Oct. <sup>P</sup>
<b>PRIVATE SECTOR</b>															
Current dollars	\$267.26	\$280.70	\$288.05	\$286.42	\$289.68	\$289.10	\$288.40	\$288.40	\$292.64	\$291.46	\$294.30	\$296.19	\$294.65	\$299.27	\$295.54
Seasonally adjusted	( <sup>1</sup> )	( <sup>1</sup> )	286.18	286.53	287.58	290.63	290.52	291.23	294.17	292.64	294.05	293.92	293.57	296.87	294.84
Constant (1977) dollars	168.09	171.37	173.42	172.44	174.40	173.32	172.59	172.59	174.71	173.18	174.45	174.85	172.31	173.99	( <sup>1</sup> )
<b>MINING</b>	459.88	478.98	489.46	489.06	495.19	499.68	492.92	496.48	499.66	499.39	505.61	497.51	503.30	511.44	504.89
<b>CONSTRUCTION</b>	426.82	443.42	449.84	432.33	442.34	438.50	443.63	439.30	448.13	458.02	460.88	462.04	462.39	468.16	460.49
<b>MANUFACTURING</b>															
Current dollars	330.26	354.08	362.23	365.98	372.45	368.65	368.74	369.96	372.60	369.87	372.91	369.95	369.26	375.25	373.82
Constant (1977) dollars	207.71	216.17	218.08	220.34	224.23	221.01	220.67	221.40	222.45	219.77	221.05	218.39	215.94	218.17	( <sup>1</sup> )
<b>Durable goods</b>	355.27	381.77	391.11	395.50	403.20	398.13	398.68	399.92	402.27	399.92	402.14	396.73	396.88	404.48	402.52
Lumber and wood products	282.34	312.38	319.12	309.26	311.22	311.26	313.62	314.01	317.18	317.59	324.01	316.40	322.00	328.86	320.78
Furniture and fixtures	234.73	260.83	271.08	269.87	277.98	263.64	263.93	267.02	267.02	268.60	270.86	269.70	273.24	279.39	277.49
Stone, clay, and glass products	355.69	384.71	394.90	395.22	394.28	386.22	389.27	389.16	401.32	404.50	407.15	406.81	405.96	407.35	404.46
Primary metal industries	437.34	459.27	464.74	470.91	478.97	476.82	482.58	480.48	488.02	481.43	480.17	472.89	462.67	471.44	465.25
Blast furnaces and basic steel products	505.97	509.16	508.47	513.48	526.19	521.88	539.72	534.36	549.73	540.62	536.42	524.71	506.97	521.70	507.36
Fabricated metal products	343.78	369.87	379.13	384.38	395.51	385.43	386.37	384.50	387.61	386.26	388.13	380.66	381.30	389.16	387.09
Machinery except electrical	367.62	386.78	396.06	405.18	418.63	411.73	413.55	415.80	417.21	413.82	417.06	411.35	411.68	420.84	417.83
Electrical and electronic equipment	322.65	350.33	357.98	363.08	369.51	364.97	364.15	364.08	364.49	363.60	365.31	361.58	366.30	373.19	371.78
Transportation equipment	449.96	490.89	505.66	515.23	521.33	517.37	514.80	521.16	523.40	514.11	519.59	508.25	504.61	517.37	522.41
Motor vehicles and equipment	470.61	524.80	545.96	550.81	556.16	555.08	544.80	560.33	563.94	546.69	557.48	537.19	532.56	547.37	559.86
Instruments and related products	320.79	341.78	346.72	350.96	357.25	356.75	356.79	358.85	358.80	354.50	362.61	361.15	362.85	369.82	364.21
Miscellaneous manufacturing	246.53	265.88	272.23	272.23	278.00	272.30	276.01	276.01	275.32	274.71	273.62	273.08	272.53	277.99	280.06
<b>Nondurable goods</b>	297.22	318.35	323.99	327.20	330.42	326.67	326.30	327.49	329.94	328.68	331.53	331.35	331.45	334.67	333.38
Food and kindred products	312.05	323.90	324.77	329.57	333.56	331.35	327.27	329.73	332.99	333.83	337.60	333.04	335.24	336.91	332.33
Tobacco manufactures	370.06	387.09	370.56	431.88	385.18	410.34	405.13	416.60	451.49	457.38	482.76	437.63	421.40	411.29	411.60
Textile mill products	218.63	250.29	256.46	256.66	258.71	257.52	259.84	258.96	260.42	257.44	259.77	252.70	256.46	255.71	254.41
Apparel and other textile products	180.44	194.39	198.72	199.82	199.65	198.55	200.38	201.12	202.03	200.02	202.40	198.36	200.74	202.52	202.92
Paper and allied products	389.58	423.44	437.76	440.64	448.51	440.91	438.44	437.68	442.47	443.59	449.10	456.19	451.50	457.44	454.08
Printing and publishing	324.25	342.54	350.74	352.81	356.74	347.25	349.68	353.02	353.02	351.92	349.68	351.94	357.02	362.33	360.05
Chemicals and allied products	407.36	440.54	449.94	457.21	462.16	458.22	457.80	458.81	460.74	460.64	463.26	463.70	464.12	470.96	471.09
Petroleum and coal products	546.99	583.43	586.04	590.46	603.88	594.03	584.21	585.98	590.02	580.75	579.86	579.90	584.75	598.03	585.55
Rubber and miscellaneous plastics products	302.54	329.19	338.55	338.94	345.98	343.14	342.72	341.94	347.33	341.94	344.84	341.96	342.79	344.86	344.03
Leather and leather products	189.75	203.87	206.83	207.76	209.25	208.46	208.66	205.05	210.16	209.59	213.76	212.61	206.39	209.15	207.36
<b>TRANSPORTATION AND PUBLIC UTILITIES</b>	402.48	421.20	432.13	432.69	436.70	434.34	429.39	429.78	435.05	432.38	440.59	447.20	443.45	448.88	440.22
<b>WHOLESALE TRADE</b>	309.85	328.79	336.30	335.92	339.99	338.69	335.78	336.66	342.27	342.00	344.43	348.04	347.26	350.36	347.53
<b>RETAIL TRADE</b>	163.85	171.05	173.12	173.44	178.02	173.17	173.17	174.34	175.82	176.40	178.75	180.21	178.70	177.00	175.23
<b>FINANCE, INSURANCE, AND REAL ESTATE</b>	245.44	263.90	271.18	266.78	268.97	275.58	274.46	273.70	278.13	274.07	275.15	278.92	275.55	284.38	280.60
<b>SERVICES</b>	225.59	238.71	242.96	242.54	243.52	246.78	246.13	245.80	248.52	246.13	247.74	250.24	248.49	252.89	250.90

<sup>1</sup> Not available.

p = preliminary.

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

### 17. Indexes of diffusion: industries in which employment increased, seasonally adjusted

[In percent]

Time span	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Over	1982	27.6	47.6	35.7	31.1	41.1	33.5	34.6	32.4	37.3	28.9	32.4	45.7
1-month span	1983	54.3	46.5	60.8	68.9	69.5	64.6	74.3	68.6	69.5	75.4	69.7	73.8
	1984	71.1	73.2	67.0	63.8	64.1	63.0	62.4	57.6	P40.3	P65.4	—	—
Over	1982	25.1	27.8	27.8	27.3	27.6	28.6	23.5	24.1	26.5	25.9	27.8	41.6
3-month span	1983	46.8	57.3	64.1	75.1	75.7	77.8	74.1	81.6	80.8	78.9	79.5	77.6
	1984	82.2	80.5	76.5	71.1	68.4	68.9	63.5	P55.7	P54.9	—	—	—
Over	1982	19.2	22.2	21.9	24.6	20.3	21.4	21.4	18.6	23.2	27.3	29.5	35.4
6-month span	1983	50.8	63.0	69.2	75.1	80.0	82.4	84.1	82.4	84.6	85.9	86.8	83.8
	1984	81.9	82.7	79.7	75.4	69.2	P62.7	P61.4	—	—	—	—	—
Over	1982	21.6	21.4	17.6	18.1	16.2	18.1	21.1	21.1	25.1	31.6	34.1	40.3
12-month span	1983	49.5	54.3	61.9	71.1	77.3	79.5	83.8	88.1	86.8	87.3	85.4	87.3
	1984	86.5	81.9	P78.9	P75.4	—	—	—	—	—	—	—	—

p = preliminary.

NOTE: Figures are the percent of industries with employment rising. (Half of the unchanged components

are counted as rising.) Data are centered within the spans. See the "Definitions" in this section.

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

## 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 reports 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 unemployed. 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.

Average weekly seasonally adjusted insured unemployment data are computed by BLS' Weekly Seasonal Adjustment program. This procedure incorporated the X-11 Variant of the Census Method II Seasonal Adjustment program.

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.

### 18. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1983				1984								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept. P
All programs:													
Insured unemployment	2,580	2,478	2,620	2,915	3,374	3,174	2,958	2,613	2,290	2,166	2,327	2,184	.....
State unemployment insurance program: <sup>1</sup>													
Initial claims <sup>2</sup>	1,380	1,522	1,757	2,104	2,355	1,528	1,424	1,429	1,368	1,387	1,727	1,467	.....
Insured unemployment (average weekly volume)	2,449	2,358	2,508	2,805	3,249	3,056	2,843	2,515	2,215	2,111	2,270	2,183	.....
Rate of insured unemployment	2.8	2.7	2.9	3.3	3.8	3.6	3.3	2.9	2.6	2.5	2.6	2.5	.....
Weeks of unemployment compensated	9,383	8,417	9,301	10,168	12,232	11,622	11,339	9,695	9,304	8,053	8,367	8,792	.....
Average weekly benefit amount for total unemployment	\$121.32	\$123.00	\$122.19	\$122.61	\$123.60	\$124.30	\$124.67	\$125.26	\$123.69	\$121.96	\$119.85	\$120.84	.....
Total benefits paid	\$1,104,404	\$1,002,141	\$1,099,862	\$1,203,605	\$1,457,983	\$1,400,458	\$1,369,536	\$1,173,601	\$1,109,268	\$948,381	\$972,687	\$1,031,949	.....
State unemployment insurance program: <sup>1</sup> (Seasonally adjusted data) <sup>3</sup>													
Initial claims <sup>2</sup>	1,729	1,667	1,677	1,604	1,617	1,572	1,570	1,569	1,614	1,559	1,623	1,626	.....
Insured unemployment (average weekly volume)	3,102	2,801	2,711	2,687	2,510	2,428	2,470	2,507	2,300	2,356	2,457	2,415	.....
Rate of insured unemployment	3.6	3.3	3.2	3.1	2.9	2.8	2.9	2.9	2.7	2.7	2.8	2.8	.....
Unemployment compensation for ex-servicemen: <sup>4</sup>													
Initial claims <sup>1</sup>	17	16	15	14	15	13	13	12	12	12	13	14	.....
Insured unemployment (average weekly volume)	27	28	28	27	27	24	22	20	18	18	18	19	.....
Weeks of unemployment compensated	106	107	116	113	112	96	89	78	79	71	71	80	.....
Total benefits paid	\$13,531	\$14,074	\$15,121	\$14,815	\$14,532	\$12,540	\$11,813	\$10,349	\$10,577	\$9,467	\$9,578	\$10,839	.....
Unemployment compensation for Federal civilian employees: <sup>5</sup>													
Initial claims	11	15	13	13	16	10	9	13	9	11	12	10	.....
Insured unemployment (average weekly volume)	22	25	27	29	32	31	28	23	20	19	20	19	.....
Weeks of unemployment compensated	83	88	110	119	133	129	122	98	88	76	80	83	.....
Total benefits paid	\$9,535	\$10,144	\$12,415	\$13,888	\$15,588	\$15,003	\$14,778	\$11,844	\$10,529	\$8,994	\$9,490	\$9,826	.....
Railroad unemployment insurance:													
Applications	9	7	8	8	10	4	3	2	2	11	25	7	6
Insured unemployment (average weekly volume)	41	48	40	43	51	49	41	27	19	16	16	17	18
Number of payments	103	92	92	95	121	104	99	70	54	38	35	37	34
Average amount of benefit payment	\$214.77	\$211.41	\$212.36	\$213.71	\$210.73	\$209.56	\$208.96	\$196.32	\$188.45	\$187.37	\$189.06	\$197.85	\$196.15
Total benefits paid	\$20,239	\$19,531	\$19,536	\$19,870	\$23,866	\$23,228	\$20,112	\$13,356	\$10,233	\$7,039	\$6,691	\$6,695	\$6,349
Employment service: <sup>6</sup>													
New applications and renewals	15,595	.....	.....	4,297	.....	.....	8,231	.....	.....	9,517	.....	.....	.....
Nonfarm placements	3,012	.....	.....	782	.....	.....	1,469	.....	.....	1,810	.....	.....	.....

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

<sup>2</sup> Excludes transition claims under State programs.

<sup>3</sup> Insured unemployment data were revised for the development and application of updated seasonal factors. The factors were developed from data through June 1984.

<sup>4</sup> Excludes data on claims and payments made jointly with other programs.

<sup>5</sup> Excludes data or claims and payments made jointly with State programs.

<sup>6</sup> Cumulative total for fiscal year (October 1–September 30). Data computed quarterly.

NOTE: Data for Puerto Rico and the Virgin Islands included. Dashes indicate data not available.  
p = preliminary.  
r = revised.



## 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. It introduced a CPI for All Urban Consumers, covering 80 percent of the total noninstitutional population, and revised the CPI for Urban Wage Earners and Clerical Workers, covering about half the new index population. The All Urban Consumers index covers 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, doctors' and dentists' 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. Data are collected from more than 24,000 retail establishments and 24,000 tenants 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

Regional CPI's cross classified by population size were introduced in the May 1978 *Review*. These indexes 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 are published bimonthly. (See table 20.)

For details concerning the 1978 revision of the CPI, see *The Consumer Price Index: Concepts and Content Over the Years*, Report 517, revised edition (Bureau of Labor Statistics, May 1978).

As of January 1976, the Producer Price Index incorporated a revised weighting structure reflecting 1972 values of shipments.

Additional data and analyses of price changes are provided in the *CPI Detailed Report* and *Producer Prices and Price Indexes*, both monthly publications of the Bureau.

For a discussion of the general method of computing producer, and industry price indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 7. For consumer prices, see *BLS Handbook of Methods for Surveys and Studies* (1976), chapter 13. See also John F. Early, "Improving the measurement of producer price change," *Monthly Labor Review*, April 1978. For industry prices, see also Bennett R. Moss, "Industry and Sector Price Indexes," *Monthly Labor Review*, August 1965.

**19. Consumer Price Index for Urban Wage Earners and Clerical Workers, annual averages and changes, 1967–83**

[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	115.8	5.8
1971	121.3	4.3	118.3	3.1	123.4	4.4	119.8	3.3	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	8.0	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	287.2	11.3	203.7	8.5	213.6	8.8
1981	272.3	10.2	267.8	7.7	293.2	11.4	186.6	5.2	281.3	12.3	295.1	10.4	219.0	7.5	233.3	9.2
1982	288.6	6.0	278.5	4.0	314.7	7.3	190.9	2.3	293.1	4.2	326.9	10.8	232.4	6.1	257.0	10.2
1983	297.4	3.0	284.7	2.2	322.0	2.3	195.6	2.5	300.0	2.4	355.1	8.6	242.4	4.3	286.3	11.4

**20. 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						
	1983		1984					1983		1984				
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
All items	301.8	308.8	309.7	310.7	311.7	313.0	314.5	300.8	304.1	305.4	306.2	307.5	310.3	312.1
Food and beverages	285.3	294.5	293.6	294.3	295.3	296.9	296.4	285.6	294.7	293.7	294.3	295.3	296.9	296.3
Housing	326.4	333.2	334.6	336.2	338.1	339.5	341.4	325.3	322.7	325.2	326.2	328.7	334.2	336.8
Apparel and upkeep	200.4	199.2	198.9	197.4	196.6	200.1	204.2	199.3	198.2	197.7	196.1	195.3	199.0	203.3
Transportation	303.7	309.6	312.2	313.1	312.9	312.9	313.7	305.5	311.9	314.6	315.5	315.2	315.2	316.0
Medical care	361.2	375.7	376.8	378.0	380.3	381.9	383.1	359.2	373.9	375.0	376.3	378.5	380.1	381.2
Entertainment	247.5	253.8	253.5	254.5	255.3	256.4	257.3	244.1	249.8	249.6	250.7	251.4	252.5	253.4
Other goods and services	294.4	302.8	303.2	304.4	306.5	307.2	314.6	292.0	300.4	300.8	302.1	304.5	305.3	310.9
Commodities	274.5	280.1	280.4	280.6	280.6	281.4	282.3	275.9	279.2	279.5	279.7	280.1	281.4	282.5
Commodities less food and beverages	265.1	268.7	269.7	269.6	269.0	269.3	271.0	267.2	268.8	268.7	268.8	268.8	270.0	271.8
Nondurables less food and beverages	275.8	275.7	276.1	275.4	274.3	274.8	277.2	277.9	277.5	277.9	277.2	276.2	276.6	279.0
Durables	256.4	265.2	267.0	267.8	267.8	267.8	267.8	257.0	258.5	259.8	260.3	261.3	263.0	264.4
Services	349.0	358.1	359.9	361.9	364.5	366.5	368.9	346.9	350.1	353.4	355.2	358.2	363.9	366.8
Rent, residential	239.5	246.4	247.2	248.4	249.7	251.1	252.4	238.9	245.7	246.5	247.7	249.0	250.3	251.7
Household services less rent of shelter (12/82 = 100)	105.1	106.2	107.4	108.5	109.7	110.5	111.0	.....	.....	.....	.....	.....	.....	.....
Transportation services	305.4	315.8	317.7	319.6	321.4	323.8	324.6	301.4	312.1	313.9	315.7	317.4	319.6	320.7
Medical care services	391.0	406.3	407.1	408.4	410.9	412.7	413.9	388.3	403.9	404.7	406.1	408.6	410.4	411.5
Other services	282.5	291.3	292.3	293.6	294.2	295.5	302.5	279.6	288.3	289.4	290.9	291.5	292.8	299.0
<b>Special indexes:</b>														
All items less food	302.3	308.6	310.0	311.0	312.0	313.2	315.2	301.5	303.3	305.2	306.0	307.3	310.4	312.7
All items less homeowners' costs	103.2	105.5	105.9	106.2	106.5	106.9	107.4	.....	.....	.....	.....	.....	.....	.....
All items less mortgage interest costs	.....	.....	.....	.....	.....	.....	.....	287.5	292.4	293.2	294.0	294.9	296.4	297.9
Commodities less food	262.9	266.5	267.4	267.4	266.8	267.1	268.8	264.9	265.7	266.6	266.6	266.7	267.8	269.6
Nondurables less food	270.6	270.7	271.1	270.5	269.5	270.0	272.3	272.8	272.6	273.0	272.4	271.4	271.8	274.1
Nondurables less food and apparel	311.0	312.1	313.0	312.9	311.9	311.0	312.3	312.8	313.5	314.3	314.3	313.3	312.2	313.5
Nondurables	281.8	286.3	286.1	286.0	286.0	287.1	288.0	282.8	287.2	286.9	286.9	286.8	287.8	288.8
Services less rent of shelter (12/82 = 100)	104.2	106.8	107.5	108.3	109.0	109.7	110.5	.....	.....	.....	.....	.....	.....	.....
Services less medical care	342.2	350.6	352.5	354.5	357.1	359.2	361.7	340.2	342.2	345.8	347.6	350.5	356.6	359.6
Domestically produced farm foods	269.2	279.4	277.4	278.0	279.0	281.4	280.0	268.1	278.1	276.0	276.4	277.4	279.8	278.3
Selected beef cuts	267.5	280.6	278.1	273.7	271.9	274.2	271.5	268.9	282.3	279.3	274.9	272.8	275.5	273.2
Energy	429.3	421.3	426.1	428.5	428.3	427.3	429.0	430.2	421.5	426.0	428.2	427.8	426.5	428.3
Energy commodities	422.1	414.2	416.3	414.4	408.9	404.2	405.4	423.4	414.8	416.9	415.0	409.5	404.9	406.3
All items less energy	292.1	300.5	301.1	301.9	303.1	304.6	306.1	290.3	294.6	295.7	296.3	297.8	301.0	302.7
All items less food and energy	290.2	298.3	299.3	300.2	301.3	302.8	304.9	288.3	291.3	293.0	293.6	295.1	298.7	301.0
Commodities less food and energy	246.2	251.8	252.5	252.8	253.0	254.2	256.0	246.4	248.4	249.1	249.3	250.1	252.0	253.8
Services less energy	341.6	352.2	353.3	354.7	356.8	358.6	361.0	339.0	343.3	346.1	347.2	349.7	355.5	358.4
Purchasing power of the consumer dollar, 1967 = \$1	\$0.331	\$0.324	\$0.323	\$0.322	\$0.321	\$0.319	\$0.318	\$0.332	\$0.329	\$0.327	\$0.327	\$0.325	\$0.322	\$0.320

## 20. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers						
	1983	1984						1983	1984					
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
<b>FOOD AND BEVERAGES</b>	285.3	294.5	293.6	294.3	295.3	296.9	296.4	285.6	294.7	293.7	294.3	295.3	296.9	296.3
<b>Food</b>	292.6	302.3	301.4	302.0	303.2	304.8	304.2	292.6	302.3	301.2	301.8	302.8	304.5	303.8
Food at home	282.5	292.8	290.7	291.4	292.5	294.4	293.4	281.5	291.6	289.4	290.0	291.0	292.9	291.9
Cereals and bakery products	293.7	302.8	303.5	304.9	306.6	307.8	307.9	292.3	301.3	301.9	303.4	304.9	306.3	306.3
Cereals and cereal products (12/77 = 100)	158.5	162.5	163.4	164.2	164.5	165.0	164.5	159.3	163.1	164.1	164.8	165.2	165.7	165.1
Flour and prepared flour mixes (12/77 = 100)	142.9	143.8	144.6	146.2	147.2	148.3	146.3	143.4	144.1	144.8	146.5	147.5	148.6	146.6
Cereal (12/77 = 100)	177.5	183.9	185.1	185.7	185.7	185.9	186.1	179.7	186.1	187.3	188.0	188.0	188.2	188.3
Rice, pasta, and cornmeal (12/77 = 100)	146.0	149.2	150.0	150.1	150.3	150.5	150.4	147.1	150.4	151.1	151.2	151.4	151.7	151.5
Bakery products (12/77 = 100)	154.4	159.4	159.6	160.4	161.5	162.2	162.4	153.1	158.2	158.4	159.1	160.1	160.9	161.1
White bread	252.9	258.2	262.0	262.6	260.9	263.2	263.2	248.5	254.0	256.1	256.0	256.6	258.5	258.8
Other breads (12/77 = 100)	149.8	154.7	154.3	154.8	155.7	154.9	155.8	151.9	156.8	156.6	157.0	157.8	157.3	158.0
Fresh biscuits, rolls, and muffins (12/77 = 100)	152.6	159.2	158.5	158.7	158.7	159.3	159.7	148.7	155.1	154.3	154.5	154.6	155.1	155.6
Fresh cakes and cupcakes (12/77 = 100)	155.2	161.2	160.6	161.3	163.9	164.9	165.9	153.5	159.2	158.7	159.3	161.8	162.7	163.6
Cookies (12/77 = 100)	157.6	163.8	163.9	165.8	166.1	167.9	167.3	158.6	164.8	164.7	166.7	167.1	168.9	168.3
Crackers, bread, and cracker products (12/77 = 100)	148.3	156.6	155.4	157.9	160.7	162.0	161.7	149.5	158.1	156.6	159.2	162.0	163.4	163.0
Fresh sweetrolls, coffee cake, and donuts (12/77 = 100)	155.9	160.1	161.5	162.1	163.0	163.4	162.9	158.6	163.1	164.2	164.9	165.6	166.3	165.9
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	161.3	166.0	164.9	166.6	169.0	168.9	169.3	154.3	159.1	158.1	159.8	162.1	161.8	162.0
Meats, poultry, fish, and eggs	258.7	270.5	266.7	263.9	264.6	265.7	264.5	258.4	270.0	266.1	263.3	263.9	265.2	264.1
Meats, poultry, and fish	264.2	272.7	270.9	270.3	271.4	272.7	271.6	263.8	272.1	270.1	269.6	270.4	272.1	271.0
Meats	262.6	268.9	267.9	266.8	267.3	269.9	268.0	262.2	268.4	267.2	266.1	266.6	269.4	267.7
Beef and veal 1	268.0	280.8	278.3	274.2	272.1	274.3	271.9	268.7	281.7	278.8	274.6	272.4	274.9	272.8
Ground beef other than canned	254.3	262.7	259.7	255.1	253.0	254.8	252.9	255.9	264.0	260.6	256.3	253.7	256.0	254.4
Chuck roast	269.5	286.8	281.0	272.1	269.1	272.7	271.8	277.4	295.8	289.5	280.9	277.3	280.4	280.6
Round roast	230.3	250.9	246.5	238.3	231.4	235.7	234.3	232.8	254.7	250.2	242.6	235.1	239.9	237.8
Round steak	247.4	262.4	261.3	254.2	250.6	254.7	252.4	245.7	261.4	258.7	251.3	247.7	254.4	251.4
Sirloin steak	277.3	284.3	280.0	284.6	286.5	287.7	286.1	280.1	286.4	281.7	285.9	288.4	288.9	288.7
Other beef and veal (12/77 = 100)	164.8	172.1	172.0	170.9	170.5	171.2	169.0	163.7	171.0	170.7	169.3	169.1	169.8	167.8
Pork	250.2	247.7	248.0	250.5	255.5	259.9	257.5	249.7	247.2	247.4	249.9	254.8	259.2	257.0
Bacon	269.5	258.8	262.5	262.8	272.4	272.3	270.3	273.6	262.6	266.3	266.7	276.3	276.3	274.2
Chops	229.6	232.9	227.3	234.4	242.4	250.7	242.3	227.9	231.1	225.2	232.4	240.1	248.3	240.6
Ham other than canned (12/77 = 100)	111.0	109.2	110.2	110.7	111.4	113.5	116.8	108.1	106.3	107.4	107.6	108.3	110.4	113.6
Sausage	311.3	314.8	318.7	319.3	322.0	322.9	321.2	312.2	315.3	319.2	319.8	322.9	323.6	322.7
Canned ham	252.8	246.9	249.7	248.3	246.5	248.1	251.4	258.8	252.1	254.8	253.3	252.0	253.4	256.0
Other pork (12/77 = 100)	139.0	137.3	137.1	139.1	142.0	146.1	142.5	138.2	136.8	136.4	138.3	141.1	145.3	141.7
Other meats	262.6	264.6	265.7	265.8	268.0	268.4	268.7	262.4	263.9	265.1	267.1	267.5	268.0	268.2
Frankfurters	259.8	262.5	264.8	265.8	265.3	267.8	267.6	258.6	261.1	263.4	264.4	263.8	266.3	266.1
Bologna, liverwurst, and salami (12/77 = 100)	153.0	152.9	153.6	155.0	154.8	154.8	155.6	152.9	152.6	153.4	154.7	154.8	154.7	155.4
Other lunchmeats (12/77 = 100)	136.1	135.3	135.9	138.2	138.2	138.2	138.8	134.2	133.4	134.0	136.4	136.4	136.4	137.0
Lamb and organ meats (12/77 = 100)	133.9	138.9	138.5	137.1	139.0	138.6	137.3	136.9	142.1	141.7	140.3	142.0	141.7	140.1
Poultry	204.4	222.3	218.0	219.6	221.3	216.5	217.2	202.6	220.4	216.0	217.7	218.8	214.0	214.7
Fresh whole chicken	209.6	231.2	223.2	223.7	228.1	218.6	220.2	207.2	228.7	221.0	221.5	225.4	216.1	217.5
Fresh and frozen chicken parts (12/77 = 100)	135.9	150.1	145.9	147.6	146.6	144.1	144.7	134.2	148.3	143.9	145.7	144.4	141.8	142.4
Other poultry (12/77 = 100)	122.9	128.0	130.3	131.6	132.7	133.3	132.7	122.7	127.3	129.6	131.0	131.5	132.3	131.8
Fish and seafood	372.6	387.3	380.8	382.3	387.0	387.0	390.6	370.7	385.9	380.0	380.9	385.5	385.7	389.1
Canned fish and seafood	133.9	132.7	132.3	133.0	134.4	134.4	133.7	133.4	132.2	131.9	132.5	133.9	133.9	133.2
Fresh and frozen fish and seafood (12/77 = 100)	146.7	156.3	152.6	153.1	155.1	155.1	157.7	146.0	156.1	152.7	152.9	154.8	155.0	157.5
Eggs	193.3	249.6	218.9	185.8	182.7	179.3	178.6	194.3	251.0	220.0	186.7	183.7	180.4	179.7
Dairy products	250.2	251.5	251.0	251.7	252.2	252.7	254.9	249.4	250.5	250.1	250.6	251.1	251.7	253.8
Fresh milk and cream (12/77 = 100)	136.1	136.8	136.5	136.6	136.7	136.7	137.7	135.5	136.2	135.9	135.9	136.0	136.0	136.9
Fresh whole milk	222.6	223.7	223.0	223.2	223.3	223.2	224.7	221.7	222.6	222.0	222.1	222.2	222.0	223.5
Other fresh milk and cream (12/77 = 100)	136.4	137.3	137.3	137.3	137.5	137.7	138.7	135.8	136.6	136.6	136.6	136.8	137.0	138.0
Processed dairy products	149.0	149.6	149.4	150.2	150.8	151.5	153.1	149.3	149.8	149.7	150.5	151.0	151.8	153.4
Butter	253.9	252.4	254.2	254.1	261.2	264.4	266.0	256.4	254.9	256.8	256.7	263.8	266.7	268.6
Cheese (12/77 = 100)	146.8	146.6	146.2	147.4	147.9	148.2	149.1	147.1	146.9	146.5	147.8	148.2	148.6	149.4
Ice cream and related products (12/77 = 100)	154.4	156.4	156.6	156.6	155.8	157.4	160.9	153.5	155.3	155.5	155.5	155.4	156.5	159.9
Other dairy products (12/77 = 100)	146.0	148.2	146.8	148.5	148.3	148.1	149.9	146.5	148.7	147.3	148.8	148.6	148.6	150.4
Fruits and vegetables	297.6	315.3	310.2	318.1	320.0	327.7	319.7	293.3	311.2	305.6	313.1	315.1	322.4	313.6
Fresh fruits and vegetables	306.6	326.5	316.0	329.7	332.4	345.7	332.5	300.3	321.0	309.5	322.5	325.2	337.6	323.0
Fresh fruits	316.7	304.2	315.2	343.3	346.9	353.3	364.8	305.9	294.0	303.2	328.8	333.5	338.8	349.6
Apples	320.2	299.3	298.8	315.5	329.9	341.8	337.9	321.3	300.4	299.5	315.2	330.6	342.8	339.6
Bananas	278.6	275.2	251.1	277.9	271.8	257.0	249.9	276.5	273.1	248.8	275.5	269.5	254.7	248.4
Oranges	337.0	309.5	344.8	452.5	486.5	530.8	553.6	307.1	283.4	313.9	413.0	448.5	487.7	507.1
Other fresh fruits (12/77 = 100)	164.1	161.5	169.9	169.6	163.6	160.4	170.4	157.7	155.1	163.2	162.6	157.0	153.6	163.6
Fresh vegetables	297.2	347.4	316.8	317.1	318.8	338.7	302.3	295.4	345.4	315.4	316.8	317.8	336.7	299.2
Potatoes	336.1	367.3	372.1	391.4	455.6	478.1	354.1	330.9	360.1	366.0	387.6	451.1	470.0	344.5
Lettuce	337.0	244.4	234.1	262.6	246.0	316.6	337.8	338.2	247.1	236.4	264.6	246.2	319.1	338.0
Tomatoes	212.2	280.4	252.8	262.3	237.3	310.4	252.9	216.2	286.6	257.6	267.4	242.1	314.3	256.2
Other fresh vegetables (12/77 = 100)	158.0	218.9	187.4	174.6	167.1	157.1	152.1	156.3	217.2	186.3	174.1	166.1	155.3	150.2
Processed fruits and vegetables	290.2	305.7	306.5	308.0	309.2	310.7	308.4	288.0	302					

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers						
	1983		1984					1983		1984				
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
Fruits and vegetables—Continued														
Processed vegetables (12/77 = 100)	140.6	145.6	146.0	146.5	147.2	148.1	146.9	139.4	144.3	144.8	145.3	146.0	146.9	145.7
Frozen vegetables (12/77 = 100)	152.4	156.0	155.4	155.6	155.1	157.0	156.2	153.9	157.7	157.1	157.2	156.7	156.7	158.6
Cut corn and canned beans except lima (12/77 = 100)	141.8	148.5	149.3	150.7	152.3	153.1	150.9	139.3	145.8	146.6	148.0	149.7	150.5	148.3
Other canned and dried vegetables (12/77 = 100)	134.0	138.9	139.6	139.8	140.6	141.2	140.2	132.6	137.2	138.0	138.1	138.9	139.5	138.6
Other foods at home	340.7	351.0	350.8	352.1	353.1	354.0	355.1	341.5	351.6	351.3	352.5	353.5	354.3	355.4
Sugar and sweets	376.4	387.7	390.0	391.2	391.8	392.6	393.7	376.2	387.3	389.4	390.5	391.1	391.9	393.1
Candy and chewing gum (12/77 = 100)	151.9	158.6	159.4	160.5	161.3	161.6	162.1	151.8	158.4	159.2	160.3	161.0	161.3	161.8
Sugar and artificial sweeteners (12/77 = 100)	170.3	171.8	172.4	172.4	171.0	171.0	172.3	171.6	173.0	173.6	173.6	172.2	172.3	173.5
Other sweets (12/77 = 100)	152.7	156.9	158.5	158.3	159.4	160.1	159.7	150.5	154.7	156.2	155.8	157.0	157.6	157.2
Fats and oils (12/77 = 100)	264.8	282.4	282.9	285.4	291.4	295.4	295.1	264.7	281.9	282.4	284.9	291.0	295.0	294.6
Margarine	259.3	280.5	282.7	285.6	293.2	296.0	296.6	257.3	278.5	280.3	283.2	291.1	293.6	294.3
Nondairy substitutes and peanut butter (12/77 = 100)	148.9	154.3	153.3	152.3	153.2	154.9	156.3	147.2	152.2	151.5	150.5	151.3	153.1	154.2
Other fats, oils, and salad dressings (12/77 = 100)	136.9	146.7	146.9	149.1	152.7	155.2	154.2	137.5	147.1	147.3	149.4	153.2	155.7	154.7
Nonalcoholic beverages	431.2	443.6	441.7	442.3	442.7	441.5	444.0	433.1	445.2	443.1	443.7	444.0	442.8	445.2
Cola drinks, excluding diet cola	312.7	320.8	316.2	317.1	315.1	313.3	316.8	310.2	318.0	313.5	314.5	312.4	310.7	314.1
Carbonated drinks, including diet cola (12/77 = 100)	147.6	151.3	150.9	150.1	150.5	149.2	149.4	145.3	149.0	148.5	147.6	148.1	147.0	147.1
Roasted coffee	353.7	368.6	368.9	372.8	374.8	375.9	376.3	348.4	363.0	363.4	367.1	369.0	369.9	370.2
Freeze dried and instant coffee	348.3	362.2	362.8	363.5	366.9	369.6	369.2	347.5	361.6	362.1	362.9	366.3	368.9	368.2
Other noncarbonated drinks (12/77 = 100)	141.0	144.7	146.0	146.2	147.4	147.6	148.3	141.3	144.9	146.4	146.4	147.7	147.9	148.7
Other prepared foods	277.8	283.8	283.9	285.3	285.4	286.9	287.3	279.4	285.4	285.4	286.9	287.0	288.5	288.7
Canned and packaged soup (12/77 = 100)	141.4	144.6	144.6	144.6	145.6	146.4	146.4	143.3	146.5	146.5	146.4	147.6	148.4	148.2
Frozen prepared foods (12/77 = 100)	155.7	159.3	158.3	160.4	159.1	162.0	161.6	154.9	158.4	157.3	159.6	158.3	161.2	160.4
Snacks (12/77 = 100)	159.9	163.0	164.7	165.1	166.0	166.5	166.9	162.0	165.2	166.9	167.4	168.3	168.8	169.2
Seasonings, olives, pickles, and relish (12/77 = 100)	158.9	163.5	162.7	163.8	163.8	164.4	165.6	158.1	162.4	161.7	163.0	162.9	163.5	164.7
Other condiments (12/77 = 100)	156.3	157.5	157.8	158.4	160.0	159.9	159.5	158.2	159.4	159.6	160.2	161.9	161.7	161.4
Miscellaneous prepared foods (12/77 = 100)	152.2	155.8	156.0	156.0	154.9	155.5	155.9	152.5	156.0	156.0	156.2	154.9	155.6	155.9
Other canned and packaged prepared foods (12/77 = 100)	147.2	151.7	151.3	152.1	151.6	152.1	152.8	148.4	153.0	152.4	153.2	152.8	153.2	153.9
Food away from home	322.2	330.9	332.6	333.1	334.4	335.5	335.8	325.4	334.1	335.9	336.3	337.7	338.8	339.0
Lunch (12/77 = 100)	155.9	159.6	160.5	160.7	161.5	161.9	162.4	157.5	161.2	162.0	162.3	163.0	163.5	163.9
Dinner (12/77 = 100)	154.9	159.6	160.2	160.3	161.0	161.7	161.8	156.6	161.3	162.0	162.0	162.8	163.5	163.6
Other meals and snacks (12/77 = 100)	159.4	163.7	164.8	165.3	165.5	166.0	165.7	159.9	164.2	165.3	165.8	166.0	166.5	166.3
<b>Alcoholic beverages</b>	218.4	221.3	221.5	222.4	222.5	222.9	223.1	221.3	224.6	224.8	225.6	225.8	226.2	226.4
Alcoholic beverages at home (12/77 = 100)	141.2	142.3	142.3	142.8	142.8	142.9	142.8	143.2	144.5	144.6	145.0	145.0	145.1	145.1
Beer and ale	225.4	229.9	230.6	231.2	231.5	231.1	231.5	224.8	228.9	229.7	230.2	230.6	230.3	230.5
Whiskey	153.7	153.1	153.3	153.8	153.5	154.0	153.8	154.2	153.7	153.7	154.1	153.9	154.3	154.1
Wine	235.7	233.4	231.4	234.0	232.5	234.2	231.8	243.7	241.7	239.3	241.8	240.1	241.6	239.5
Other alcoholic beverages (12/77 = 100)	122.5	122.8	122.3	122.5	122.7	122.6	123.4	122.3	122.7	122.3	122.4	122.4	122.4	123.2
Alcoholic beverages away from home (12/77 = 100)	148.4	153.6	154.2	154.8	155.5	156.4	157.2	149.6	154.8	155.3	155.9	156.6	157.8	158.6
<b>HOUSING</b>	326.4	333.2	334.6	336.2	338.1	339.5	341.4	325.3	322.7	325.2	326.2	328.7	334.2	336.8
<b>Shelter (CPI-U)</b>	348.5	357.8	358.9	360.2	362.7	364.6	366.5	.....	.....	.....	.....	.....	.....	.....
Renters' costs	104.4	107.4	107.8	108.2	108.9	109.6	110.2	.....	.....	.....	.....	.....	.....	.....
Rent, residential	239.5	246.4	247.2	248.4	249.7	251.1	252.4	.....	.....	.....	.....	.....	.....	.....
Other renters' costs	361.3	371.2	371.3	371.5	375.7	380.7	384.3	.....	.....	.....	.....	.....	.....	.....
Homeowners' costs	103.5	106.2	106.5	106.8	107.6	108.1	108.7	.....	.....	.....	.....	.....	.....	.....
Owners' equivalent rent	103.5	106.2	106.3	106.8	107.7	108.1	108.7	.....	.....	.....	.....	.....	.....	.....
Household insurance	104.0	106.1	106.6	106.6	106.7	108.0	108.6	.....	.....	.....	.....	.....	.....	.....
Maintenance and repairs	346.6	356.3	357.3	358.9	360.3	360.1	362.7	.....	.....	.....	.....	.....	.....	.....
Maintenance and repair services	387.6	408.1	409.6	409.8	411.6	412.3	414.3	.....	.....	.....	.....	.....	.....	.....
Maintenance and repair commodities	259.9	259.2	259.7	262.2	263.1	262.2	264.8	.....	.....	.....	.....	.....	.....	.....
<b>Shelter (CPI-W)</b>	.....	.....	.....	.....	.....	.....	.....	347.5	341.3	344.2	344.6	347.9	356.1	359.3
Rent, residential	.....	.....	.....	.....	.....	.....	.....	238.9	245.7	246.5	247.7	249.0	250.3	251.7
Other renters' costs	.....	.....	.....	.....	.....	.....	.....	358.6	370.7	370.5	370.8	375.1	380.2	383.6
Lodging while out of town	.....	.....	.....	.....	.....	.....	.....	374.8	393.8	393.5	393.9	400.6	407.6	404.8
Tenants' insurance (12/77 = 100)	.....	.....	.....	.....	.....	.....	.....	156.2	159.8	159.8	160.1	160.4	162.6	163.4
Homeownership	.....	.....	.....	.....	.....	.....	.....	386.1	374.9	378.5	378.8	382.7	393.4	397.2
Home purchase	.....	.....	.....	.....	.....	.....	.....	303.4	291.7	291.9	291.7	294.9	299.8	302.5
Financing, taxes, and insurance	.....	.....	.....	.....	.....	.....	.....	500.0	480.8	490.1	490.6	496.5	519.0	524.9
Property insurance	.....	.....	.....	.....	.....	.....	.....	434.9	440.3	441.0	441.5	441.6	441.8	442.4
Property taxes	.....	.....	.....	.....	.....	.....	.....	238.5	244.8	245.6	245.9	246.4	248.9	251.4
Contracted mortgage interest costs	.....	.....	.....	.....	.....	.....	.....	634.2	601.6	615.5	616.0	624.9	658.4	666.4
Mortgage interest rates	.....	.....	.....	.....	.....	.....	.....	207.2	203.9	208.4	209.3	210.1	217.4	218.6
Maintenance and repairs	.....	.....	.....	.....	.....	.....	.....	343.7	354.2	355.0	356.0	357.3	357.4	359.4
Maintenance and repair services	.....	.....	.....	.....	.....	.....	.....	385.5	401.0	402.6	403.1	405.2	405.4	407.9
Maintenance and repair commodities	.....	.....	.....	.....	.....	.....	.....	255.2	255.9	255.6	257.2	257.1	256.9	258.1
Paint and wallpaper, supplies, tools, and equipment (12/77 = 100)	.....	.....	.....	.....	.....	.....	.....	145.8	147.3	146.2	148.0	147.2	147.4	147.8
Lumber, awnings, glass, and masonry (12/77 = 100)	.....	.....	.....	.....	.....	.....	.....	125.3	124.5	124.2	124.1	123.1	123.3	123.5
Plumbing, electrical, heating, and cooling supplies (12/77 = 100)	.....	.....	.....	.....	.....	.....	.....	140.7	140.2	141.9	142.5	142.1	142.8	142.7
Miscellaneous supplies and equipment (12/77 = 100)	.....	.....	.....	.....	.....	.....	.....	142.2	141.7	142.4	143.0	146.3	144.2	146.7

## 20. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers						
	1983	1984						1983	1984					
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
<b>Fuel and other utilities</b>	376.4	380.9	385.5	390.0	393.9	395.5	397.0	378.1	382.0	386.6	391.4	395.4	396.9	398.4
Fuels	478.3	476.0	483.5	490.7	496.5	498.6	500.1	478.3	475.4	482.6	490.4	496.1	498.2	499.8
Fuel oil, coal, and bottled gas	623.2	650.7	649.2	646.0	637.4	625.5	622.1	625.6	652.9	651.5	648.4	640.0	628.1	624.5
Fuel oil	631.2	660.9	659.9	656.2	646.2	632.4	628.4	633.7	663.1	662.1	658.6	648.8	635.1	630.8
Other fuels (6/78 = 100)	190.2	195.6	194.4	194.1	193.7	193.3	193.1	191.0	196.3	195.1	194.8	194.4	193.9	193.6
Gas (pipel) and electricity	440.5	432.3	441.4	450.6	459.1	463.9	466.4	440.0	431.1	439.9	449.7	458.2	463.0	465.5
Electricity	342.3	338.9	343.0	358.6	368.7	374.3	374.9	342.6	338.0	342.2	358.7	369.0	374.8	375.5
Utility (pipel) gas	590.5	573.2	591.7	585.9	589.7	592.2	598.4	586.4	569.8	587.2	581.6	585.1	587.1	593.2
Other utilities and public services	215.4	228.2	228.8	229.4	230.6	231.3	232.7	216.4	229.2	229.9	230.4	231.7	232.4	233.7
Telephone services	174.4	186.4	186.7	187.1	188.1	188.4	189.8	175.0	187.0	187.4	187.6	188.7	189.1	190.4
Local charges (12/77 = 100)	142.6	157.8	158.3	160.1	162.3	163.3	165.3	143.1	158.4	159.0	160.8	163.1	164.0	166.0
Interstate toll calls (12/77 = 100)	121.9	122.3	122.6	118.5	116.2	116.1	116.1	122.3	122.7	123.0	118.9	116.6	116.5	116.5
Intrastate toll calls (12/77 = 100)	118.6	123.7	123.1	124.8	125.9	124.9	124.8	118.7	123.6	122.9	124.6	125.7	124.8	124.6
Water and sewerage maintenance	356.8	371.4	373.9	374.6	376.6	378.9	380.2	361.0	375.7	378.2	378.9	381.0	383.2	384.5
<b>Household furnishings and operations</b>	238.9	242.3	242.4	242.3	241.9	242.2	244.1	235.8	238.9	239.1	238.9	238.3	238.6	240.6
Housefurnishings	197.6	199.9	199.8	199.1	197.9	198.1	200.6	195.6	197.7	197.7	196.9	195.6	195.9	198.3
Textile housefurnishings	231.2	235.2	236.6	234.7	232.9	238.6	245.6	234.6	238.6	239.9	238.4	236.4	242.0	249.9
Household linens (12/77 = 100)	138.1	139.0	140.8	138.2	136.6	143.1	146.8	139.0	139.9	141.6	139.4	137.7	144.1	148.1
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	150.5	154.7	154.6	154.9	154.2	154.7	159.8	154.8	159.2	158.9	159.5	158.6	158.8	164.8
Furniture and bedding	217.9	222.8	223.8	223.3	222.1	220.8	225.5	215.1	218.9	220.1	219.5	218.7	217.9	222.2
Bedroom furniture (12/77 = 100)	152.5	154.2	154.3	154.1	151.5	151.7	156.6	148.9	149.6	150.2	149.6	148.1	148.4	153.5
Sofas (12/77 = 100)	117.6	121.2	121.1	121.3	121.9	120.6	121.7	118.1	121.3	121.1	121.6	122.1	120.7	121.6
Living room chairs and tables (12/77 = 100)	124.2	125.5	126.2	126.8	126.3	127.1	126.8	125.2	126.3	129.0	127.6	127.2	128.1	127.8
Other furniture (12/77 = 100)	139.4	144.6	144.7	144.8	144.7	142.2	146.9	135.8	140.2	140.4	140.4	140.2	138.4	142.1
Appliances including TV and sound equipment	151.0	150.1	149.8	148.8	147.2	147.2	147.7	151.2	151.4	151.3	150.1	148.4	148.5	149.4
Television and sound equipment	105.1	103.4	102.9	102.0	101.3	101.0	100.8	104.2	102.4	101.9	101.0	100.2	100.0	99.8
Television	99.6	96.7	96.5	95.9	94.5	94.1	93.5	98.3	95.3	95.1	94.5	93.0	92.7	92.2
Sound equipment (12/77 = 100)	111.1	110.3	109.5	108.4	108.2	108.1	108.3	110.2	109.3	108.5	107.4	107.2	107.1	107.2
Household appliances	189.2	190.4	190.6	189.7	187.1	187.5	189.4	189.1	192.0	192.3	191.0	188.4	188.9	190.9
Refrigerators and home freezers	192.4	195.8	196.2	196.8	194.2	194.6	196.8	198.0	202.2	202.5	202.5	199.8	200.6	202.6
Laundry equipment	142.7	146.7	146.7	145.0	145.5	145.4	146.9	143.6	147.6	147.6	145.8	146.0	146.3	147.6
Other household appliances (12/77 = 100)	126.2	126.1	126.2	125.4	123.2	123.6	124.8	124.2	124.9	125.2	124.2	121.4	121.7	123.2
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	125.4	126.3	126.9	127.0	121.7	123.6	127.5	123.6	125.4	126.2	125.8	120.0	121.6	125.5
Office machines, small electric appliances, and air conditioners (12/77 = 100)	127.3	126.2	125.7	124.4	124.9	123.9	122.8	124.9	124.2	124.1	122.4	122.9	121.8	120.6
Other household equipment (12/77 = 100)	141.0	143.2	142.1	142.2	142.1	141.7	141.9	138.8	140.7	139.4	139.6	139.5	138.9	139.1
Floor and window coverings, infants', laundry, cleaning, and outdoor equipment (12/77 = 100)	144.2	147.6	147.5	147.8	147.0	147.7	146.7	136.0	139.0	138.8	138.8	137.8	137.3	136.2
Clocks, lamps, and decor items (12/77 = 100)	132.9	137.4	136.1	134.3	135.5	134.3	137.1	128.4	132.9	131.5	129.7	130.7	129.8	132.8
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	147.7	149.2	147.2	147.9	147.2	147.0	145.5	143.6	145.1	143.0	143.9	143.3	143.1	141.5
Lawn equipment, power tools, and other hardware (12/77 = 100)	134.7	134.9	134.1	134.6	135.2	134.4	135.5	140.2	140.5	139.5	140.0	140.7	139.8	141.4
Housekeeping supplies	295.7	301.8	301.5	303.0	303.8	304.2	304.9	293.1	298.5	298.5	300.1	301.0	301.1	302.0
Soaps and detergents	296.1	297.1	298.2	299.3	298.8	298.8	299.1	292.0	292.8	293.7	294.8	295.3	294.2	294.8
Other laundry and cleaning products (12/77 = 100)	152.0	153.8	153.4	155.1	154.9	154.9	155.8	150.9	152.5	152.0	153.8	153.6	153.4	154.3
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	148.0	151.6	151.7	152.9	153.7	153.6	155.2	148.2	151.6	151.7	152.9	153.7	153.4	155.2
Stationery, stationery supplies, and gift wrap (12/77 = 100)	139.5	142.0	142.5	143.5	143.7	144.2	144.2	142.6	145.1	145.7	146.7	147.1	147.7	147.9
Miscellaneous household products (12/77 = 100)	154.9	159.2	159.8	160.1	161.2	162.0	162.2	149.5	153.7	154.4	154.7	155.9	156.6	156.7
Lawn and garden supplies (12/77 = 100)	140.8	147.5	144.8	144.7	144.9	145.7	144.8	134.9	140.5	138.7	138.7	138.7	139.1	138.3
Housekeeping services	320.9	325.7	326.5	327.0	327.6	328.2	329.4	320.8	326.0	326.9	327.5	328.2	328.8	330.0
Postage	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5	337.5
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	165.9	171.8	172.9	173.7	174.5	174.6	175.9	166.0	172.1	173.2	174.1	174.9	175.1	176.4
Appliance and furniture repair (12/77 = 100)	145.4	149.4	150.1	150.2	150.9	152.2	153.4	143.6	147.5	148.1	148.2	148.9	150.0	151.0
<b>APPAREL AND UPKEEP</b>	200.4	199.2	198.9	197.4	196.6	200.1	204.2	199.3	198.2	197.7	196.1	195.3	199.0	203.3
<b>Apparel commodities</b>	188.5	186.3	185.8	184.0	183.0	186.6	191.2	188.0	185.9	185.1	183.3	182.4	186.1	190.9
Apparel commodities less footwear	185.3	182.6	181.7	179.8	178.9	183.1	187.8	184.6	181.9	180.7	178.7	177.9	182.2	187.3
Men's and boys'	190.8	190.6	190.7	190.3	189.8	192.6	195.6	191.1	191.2	191.1	190.3	189.9	193.0	196.2
Men's (12/77 = 100)	120.1	120.2	120.4	120.0	119.3	121.2	123.2	120.7	121.0	121.1	120.3	119.6	121.7	123.9
Suits, sport coats, and jackets (12/77 = 100)	112.3	112.0	111.9	113.0	113.2	113.5	115.6	105.5	105.4	105.2	105.8	106.2	106.8	108.9
Coats and jackets	104.4	99.0	98.2	96.2	96.1	100.9	105.7	107.5	102.4	101.2	99.4	99.6	104.0	109.0
Furnishings and special clothing (12/77 = 100)	145.4	146.0	147.6	148.0	145.6	147.6	150.9	141.6	142.1	143.5	143.8	141.8	143.3	146.6
Shirts (12/77 = 100)	125.6	127.3	127.6	126.9	125.6	127.3	128.2	128.6	130.1	130.1	129.2	127.7	130.0	131.0
Dungarees, jeans, and trousers (12/77 = 100)	112.4	113.6	113.5	111.4	111.3	113.7	114.5	118.2	119.9	119.9	117.5	117.2	120.0	120.9
Boys' (12/77 = 100)	124.1	123.2	122.5	123.0	124.1	125.5	126.9	122.4	121.8	121.1	121.6	122.7	124.3	125.7
Coats, jackets, sweaters, and shirts (12/77 = 100)	119.0	119.7	119.4	118.2	120.8	125.5	127.0	120.5	122.0	121.8	120.4	123.1	128.0	129.8
Furnishings (12/77 = 100)	135.1	137.2	136.6	137.1	136.5	134.7	135.8	130.7	132.7	132.2	132.7	132.2	130.5	131.8
Suits, trousers, sport coats, and jackets (12/77 = 100)	123.7	120.3	119.3	121.2	121.8	121.8	123.3	120.8	117.6	116.6	118.4	119.0	119.1	120.4

## 20. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers							
	1983		1984				1983		1984					
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
Women's and girls'	168.8	163.2	161.8	157.9	156.2	163.1	170.5	170.2	164.5	162.7	159.2	157.4	164.1	172.1
Women's (12/77 = 100)	112.8	108.6	107.7	105.2	103.7	108.6	114.4	114.3	109.9	108.6	106.2	104.8	109.5	115.8
Coats and jackets	176.6	164.9	159.7	154.6	156.8	167.7	181.1	181.6	170.1	164.7	159.1	162.4	176.1	185.2
Dresses	176.7	175.0	176.1	172.1	163.7	172.0	178.3	162.6	160.6	162.9	160.5	153.1	159.9	165.5
Separates and sportswear (12/77 = 100)	102.5	92.8	93.4	91.1	88.2	92.9	102.5	102.8	93.5	93.9	91.4	88.6	93.1	102.9
Underwear, nightwear, and hosiery (12/77 = 100)	135.1	136.9	137.5	137.0	136.7	138.0	139.4	134.8	136.6	137.1	136.6	137.2	137.5	138.9
Suits (12/77 = 100)	94.3	85.1	77.3	71.3	74.4	85.1	93.5	115.0	104.2	92.7	85.8	97.1	96.5	112.1
Girls' (12/77 = 100)	109.5	108.2	107.2	104.3	104.6	107.7	108.6	108.3	107.6	106.4	104.3	104.0	107.5	108.6
Coats, jackets, dresses, and suits (12/77 = 100)	101.6	100.6	98.3	95.0	99.7	101.0	98.6	98.5	98.1	96.0	93.7	98.4	100.4	98.3
Separates and sportswear (12/77 = 100)	106.3	104.3	102.7	99.0	96.9	103.1	106.7	106.8	105.2	103.7	100.7	96.7	103.5	107.5
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	128.4	128.1	129.7	129.3	127.1	127.4	128.3	127.0	126.9	128.2	127.8	125.7	126.0	127.0
Infants' and toddlers'	287.4	289.2	283.9	278.3	281.2	288.7	291.3	297.9	299.7	293.0	289.2	292.0	298.9	303.2
Other apparel commodities	217.4	217.6	216.8	217.7	218.0	216.3	216.5	205.9	205.5	205.0	205.7	206.0	204.9	205.0
Sewing materials and notions (12/77 = 100)	121.9	122.6	123.1	122.4	122.5	123.8	122.8	120.2	120.8	121.5	120.9	120.7	122.3	121.5
Jewelry and luggage (12/77 = 100)	148.5	148.3	147.4	148.5	148.8	146.7	147.3	139.0	138.4	137.6	138.5	138.9	137.1	137.6
Footwear	208.0	208.9	210.2	209.6	208.0	207.7	211.1	207.6	209.4	210.7	210.0	208.7	208.5	211.6
Men's (12/77 = 100)	134.8	135.8	137.1	136.7	137.5	137.4	138.0	136.7	137.9	139.2	138.7	139.6	139.4	139.8
Boys' and girls' (12/77 = 100)	130.4	131.4	132.4	132.1	131.0	131.9	133.5	132.9	133.9	134.7	134.5	133.7	134.8	136.3
Women's (12/77 = 100)	126.8	126.7	127.1	126.7	124.2	123.4	127.0	122.3	123.4	123.7	123.2	120.8	119.9	123.3
Apparel services	293.4	301.5	303.7	304.4	305.1	307.5	307.6	291.5	299.4	301.6	302.4	303.0	305.5	305.6
Laundry and drycleaning other than coin operated (12/77 = 100)	174.9	181.0	182.6	182.9	183.4	184.1	184.3	173.3	179.4	180.9	181.2	181.7	182.3	182.6
Other apparel services (12/77 = 100)	153.7	155.7	156.5	157.0	157.2	159.9	159.7	154.8	156.9	157.7	158.3	158.5	161.3	161.0
TRANSPORTATION	303.7	309.6	312.2	313.1	312.9	312.9	313.7	305.5	311.9	314.6	315.5	315.2	315.2	316.0
Private	299.2	304.8	307.4	308.1	307.5	307.5	308.4	302.2	308.3	311.0	311.7	311.2	311.1	312.1
New cars	202.7	207.4	207.6	207.7	208.1	208.1	208.2	202.3	206.9	207.1	207.1	207.6	207.6	207.6
Used cars	343.9	370.0	378.0	382.0	383.2	383.8	384.2	343.9	370.0	378.0	382.0	383.2	383.8	384.2
Gasoline	387.1	374.0	376.7	374.9	369.8	365.9	367.8	388.8	375.7	378.2	376.4	376.4	367.4	369.4
Automobile maintenance and repair	332.3	338.9	340.2	340.7	341.6	342.7	344.2	333.0	339.6	340.8	341.5	342.3	343.4	344.9
Body work (12/77 = 100)	167.7	171.4	172.3	172.6	172.6	173.5	174.7	166.5	170.1	170.9	171.3	171.6	172.1	173.1
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	160.7	165.1	165.8	166.2	166.5	167.2	168.1	164.5	169.2	169.8	170.2	170.6	171.3	172.2
Maintenance and servicing (12/77 = 100)	152.6	154.2	154.8	154.6	155.3	155.9	156.3	151.9	153.4	154.0	153.8	154.5	155.0	155.5
Power plant repair (12/77 = 100)	158.4	162.4	162.6	163.4	163.5	163.9	164.7	157.8	161.9	162.2	163.1	163.2	163.5	164.3
Other private transportation	260.8	269.0	270.4	271.5	272.4	274.9	275.9	261.8	269.9	271.3	272.4	273.4	275.8	277.0
Other private transportation commodities	208.3	202.4	201.7	202.0	200.6	200.8	201.2	210.9	204.8	204.2	204.5	202.9	203.2	203.4
Motor oil, coolant, and other products (12/77 = 100)	154.2	152.7	152.7	154.1	154.3	153.6	155.1	153.2	151.9	152.5	153.5	153.8	153.2	154.5
Automobile parts and equipment (12/77 = 100)	131.9	127.7	127.2	127.3	126.2	126.4	126.5	133.8	129.4	128.9	129.0	127.8	128.1	128.0
Tires	181.7	172.9	172.2	172.0	169.6	170.4	170.9	185.4	176.5	175.7	175.5	173.0	174.0	174.2
Other parts and equipment (12/77 = 100)	132.9	134.0	133.5	134.1	134.7	133.9	133.3	132.8	133.6	133.3	133.9	134.1	133.3	132.7
Other private transportation services	277.3	289.3	291.2	292.5	294.1	297.2	298.4	277.8	289.7	291.6	293.0	294.6	297.5	299.1
Automobile insurance	303.8	321.8	323.7	324.2	324.8	325.2	326.9	303.4	321.0	322.7	323.1	323.9	324.2	325.9
Automobile finance charges (12/77 = 100)	156.4	160.9	162.4	164.1	166.2	168.7	169.9	155.8	160.4	161.9	163.5	165.7	168.2	169.5
Automobile rental, registration, and other fees (12/77 = 100)	146.9	149.5	150.3	151.1	152.0	156.8	156.4	147.9	150.4	151.3	152.4	153.1	157.4	157.7
State registration	195.3	195.7	197.1	199.4	199.8	209.7	212.2	199.6	195.6	197.1	199.6	200.0	208.8	211.7
Drivers' licenses (12/77 = 100)	153.0	158.0	158.0	157.8	161.0	161.3	163.7	153.4	158.3	158.3	158.1	161.2	161.5	164.1
Vehicle inspection (12/77 = 100)	139.8	139.8	139.9	139.9	139.9	139.9	139.9	140.5	140.3	140.4	140.4	140.4	140.5	140.5
Other vehicle-related fees (12/77 = 100)	160.5	164.3	165.2	165.1	166.5	170.0	166.4	167.8	171.5	172.7	172.6	173.8	176.4	173.8
Public	366.6	377.1	379.8	385.2	389.3	390.8	389.5	357.2	370.0	372.2	377.4	380.7	381.6	380.4
Airline fare	423.3	427.7	433.8	442.0	450.1	454.1	450.1	419.5	423.5	430.0	438.2	446.6	450.5	445.4
Intercity bus fare	415.1	428.7	429.9	426.2	438.9	441.1	442.2	415.3	427.6	429.3	425.8	438.7	441.3	442.6
Intracity mass transit	324.6	342.3	342.3	346.5	346.6	345.7	346.5	322.5	342.1	347.1	346.5	346.6	345.8	346.5
Taxi fare	303.5	308.8	309.2	309.7	310.4	310.4	310.8	312.7	317.9	318.3	319.0	319.7	319.7	319.8
Intercity train fare	364.8	373.4	373.5	381.5	381.9	381.9	381.9	365.4	373.7	373.8	381.9	382.1	382.2	382.2
MEDICAL CARE	361.2	375.7	376.8	378.0	380.3	381.9	383.1	359.2	373.9	375.0	376.3	378.5	380.1	381.2
Medical care commodities	226.3	236.9	238.7	239.4	240.7	241.6	242.4	226.7	237.1	238.7	239.5	240.7	241.5	242.3
Prescription drugs	216.7	230.7	233.1	233.5	234.9	236.6	238.0	218.0	232.2	234.5	234.9	236.3	237.9	239.4
Anti-infective drugs (12/77 = 100)	158.1	164.8	165.8	164.9	166.1	167.7	168.4	160.3	167.3	168.3	167.3	168.3	170.0	171.0
Tranquilizers and sedatives (12/77 = 100)	179.9	198.4	202.8	204.0	205.1	207.6	208.7	179.7	198.3	202.7	204.0	205.1	207.5	208.6
Circulatory and diuretics (12/77 = 100)	155.8	166.1	167.4	169.0	170.4	171.3	171.7	155.7	165.5	167.3	168.3	169.5	170.4	170.9
Hormones, diabetic drugs, biologicals, and prescription medical supplies (12/77 = 100)	200.0	212.5	214.1	214.7	216.2	218.1	220.7	201.9	214.7	216.3	217.0	218.4	220.4	223.2
Pain and symptom control drugs (12/77 = 100)	177.5	187.7	188.7	188.3	189.7	191.0	192.0	179.4	190.0	191.0	190.3	191.7	192.8	193.8
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	163.8	173.2	174.6	174.5	175.9	175.5	176.1	164.1	173.9	175.3	176.1	176.5	176.2	176.9
Nonprescription drugs and medical supplies (12/77 = 100)	157.9	162.1	162.8	163.5	164.3	164.4	164.5	158.1	163.0	163.7	164.4	165.1	165.2	165.3
Eyeglasses (12/77 = 100)	137.7	138.9	139.3	140.0	140.6	140.5	141.4	136.7	137.8	138.2	138.8	139.5	139.3	140.4
Internal and respiratory over-the-counter drugs	255.6	264.9	266.6	268.2	269.5	269.4	269.5	256.8	266.1	267.7	269.3	270.6	270.4	270.5
Nonprescription medical equipment and supplies (12/77 = 100)	151.2	156.5	156.5	156.4	157.0	157.9	157.1	152.3	158.0	158.0	157.9	158.4	159.4	158.6

## 20. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers							
	1983	1984					1983	1984						
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
<b>Medical care services</b> .....	391.0	406.3	407.1	408.4	410.9	412.7	413.9	388.3	403.9	404.7	406.1	408.6	410.4	411.5
Professional services .....	327.6	342.5	343.8	345.8	347.0	348.2	349.8	328.0	343.0	344.2	346.2	347.4	348.6	350.1
Physicians' services .....	356.5	373.5	375.2	377.1	378.1	379.5	380.8	360.5	377.5	379.0	381.1	382.1	383.6	384.8
Dental services .....	308.3	322.5	323.6	326.2	327.9	329.1	331.9	306.1	320.5	321.6	324.0	325.7	326.8	329.5
Other professional services (12/77 = 100) .....	155.4	159.5	159.7	159.9	160.1	160.3	160.0	150.8	155.8	156.0	156.1	156.4	156.6	156.2
Other medical care services .....	467.8	483.4	483.6	484.1	488.3	490.7	491.5	463.9	480.0	480.3	480.9	485.2	487.7	488.4
Hospital and other medical services (12/77 = 100) .....	197.8	207.5	207.9	208.4	210.9	212.5	213.0	195.7	205.6	205.9	206.3	208.9	210.4	210.9
Hospital room .....	633.8	660.3	660.7	662.0	672.9	678.1	679.5	626.1	652.9	653.3	654.4	664.6	669.5	670.8
Other hospital and medical care services (12/77 = 100) .....	193.3	204.2	204.8	205.2	207.0	208.5	209.1	191.4	202.4	203.0	203.4	205.4	206.8	207.4
<b>ENTERTAINMENT</b> .....	247.5	253.8	253.5	254.5	255.3	256.4	257.3	244.1	249.8	249.6	250.7	251.4	252.5	253.4
<b>Entertainment commodities</b> .....	248.0	253.4	252.2	252.4	253.3	254.5	254.8	242.6	247.7	246.8	246.9	247.8	248.8	249.2
Reading materials (12/77 = 100) .....	161.2	164.5	163.1	163.7	164.5	166.0	166.3	160.5	164.0	162.6	163.3	164.0	165.4	165.6
Newspapers .....	304.0	312.6	313.0	313.3	315.0	315.2	315.4	303.9	312.9	313.1	313.4	315.1	315.3	315.6
Magazines, periodicals, and books (12/77 = 100) .....	168.6	170.7	167.5	168.7	169.4	172.5	173.0	168.8	170.8	167.3	168.7	169.3	172.4	172.8
Sporting goods and equipment (12/77 = 100) .....	134.6	139.1	138.0	137.5	137.8	138.3	138.7	128.9	132.6	131.7	131.2	131.4	131.9	132.3
Sport vehicles (12/77 = 100) .....	137.4	144.6	143.0	142.2	142.9	143.9	144.4	128.5	134.1	133.0	132.2	132.6	133.7	134.0
Indoor and warm weather sport equipment (12/77 = 100) .....	118.6	117.5	117.3	117.7	117.7	117.9	117.3	116.3	115.6	115.5	116.0	115.9	115.9	115.5
Bicycles .....	200.1	201.1	200.8	201.1	200.2	198.3	198.9	200.9	202.2	201.7	202.0	201.2	199.4	200.3
Other sporting goods and equipment (12/77 = 100) .....	134.6	135.6	134.6	134.2	134.3	134.8	135.5	134.5	135.3	134.3	134.0	134.2	134.0	135.0
Toys, hobbies, and other entertainment (12/77 = 100) .....	138.8	141.0	141.0	141.1	141.7	141.9	142.0	137.7	140.0	140.0	140.1	140.7	141.0	141.1
Toys, hobbies, and music equipment (12/77 = 100) .....	136.7	139.3	139.2	138.8	139.3	138.6	138.3	133.0	135.8	135.8	135.5	135.9	135.2	135.1
Photographic supplies and equipment (12/77 = 100) .....	131.0	132.9	133.2	133.7	134.2	135.0	135.2	132.1	134.2	134.4	135.0	135.6	136.3	136.4
Pet supplies and expenses (12/77 = 100) .....	148.5	149.9	149.8	150.5	151.4	153.1	153.7	149.6	151.0	150.9	151.6	152.7	154.2	154.8
<b>Entertainment services</b> .....	247.2	254.9	255.4	258.1	258.5	259.7	261.3	247.8	254.7	255.8	258.5	258.8	260.1	262.0
Fees for participant sports (12/77 = 100) .....	154.4	159.5	159.6	159.7	159.7	160.1	162.3	155.5	160.1	160.3	160.7	160.4	161.0	163.7
Admissions (12/77 = 100) .....	145.2	149.4	151.3	155.3	156.0	157.3	156.9	144.2	148.3	150.2	154.3	155.0	156.1	155.7
Other entertainment services (12/77 = 100) .....	131.0	134.8	134.9	135.1	135.3	136.1	136.2	132.3	135.7	132.5	135.7	136.0	136.8	137.1
<b>OTHER GOODS AND SERVICES</b> .....	294.4	302.8	303.2	304.4	306.5	307.2	314.6	292.0	300.4	300.8	302.1	304.5	305.3	310.9
<b>Tobacco products</b> .....	290.8	305.9	305.9	308.1	313.2	313.9	314.1	297.8	305.6	305.6	307.8	312.9	313.5	313.7
Cigarettes .....	306.4	314.1	314.0	316.3	322.0	322.6	322.8	305.5	313.1	313.1	315.3	320.9	321.5	321.7
Other tobacco products and smoking accessories (12/77 = 100) .....	151.2	157.6	157.9	158.9	159.3	159.7	159.9	151.2	157.6	157.9	159.0	159.4	159.8	159.9
<b>Personal care</b> .....	263.0	268.9	269.5	270.6	271.8	272.6	273.6	260.9	266.9	267.5	268.5	269.7	270.5	271.6
Toilet goods and personal care appliances .....	262.4	267.3	267.4	268.5	270.2	270.6	271.6	263.0	268.1	268.3	269.3	270.9	271.4	272.5
Products for the hair, hairpieces, and wigs (12/77 = 100) .....	153.0	154.9	154.1	154.8	156.1	156.2	156.1	152.0	154.1	153.4	154.1	155.1	155.3	155.3
Dental and shaving products (12/77 = 100) .....	160.8	165.1	166.8	166.5	167.2	167.6	167.9	159.1	163.3	164.9	164.7	165.2	165.6	165.8
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100) .....	148.3	151.8	151.5	153.0	154.0	153.2	154.5	148.9	152.7	152.7	154.0	155.1	154.5	155.9
Other toilet goods and small personal care appliances (12/77 = 100) .....	149.9	151.6	151.7	151.7	152.7	154.2	155.0	153.4	155.2	155.3	155.5	156.4	158.0	158.7
Personal care services .....	264.6	271.4	272.3	273.4	274.3	275.4	276.4	259.3	266.1	267.1	268.2	269.0	270.0	271.1
Beauty parlor services for women .....	268.1	274.4	275.0	276.4	277.3	278.4	279.2	261.1	267.5	268.0	269.3	270.2	271.2	272.0
Haircuts and other barber shop services for men (12/77 = 100) .....	146.0	150.4	151.4	151.7	152.1	152.8	153.6	144.8	149.2	150.2	150.5	150.9	151.6	152.4
<b>Personal and educational expenses</b> .....	344.6	356.9	357.4	357.9	358.6	359.3	381.9	345.6	359.7	360.3	360.7	361.3	362.1	384.1
Schoolbooks and supplies .....	306.6	317.6	317.8	318.5	318.8	319.2	331.5	310.8	322.2	322.4	323.1	323.4	323.8	336.4
Personal and educational services .....	353.5	366.1	366.7	367.1	367.9	368.7	393.1	354.3	369.0	369.7	370.1	370.8	371.6	395.6
Tuition and other school fees .....	178.6	184.4	184.4	184.5	184.8	185.0	200.2	178.4	185.3	185.3	185.4	185.6	185.8	201.4
College tuition (12/77 = 100) .....	180.7	184.7	184.7	184.8	185.2	185.3	200.1	180.5	185.5	185.5	185.7	186.0	186.1	201.1
Elementary and high school tuition (12/77 = 100) .....	170.9	183.9	183.9	183.9	183.9	184.3	201.1	172.2	184.9	185.6	185.0	185.0	185.4	202.6
Personal expenses (12/77 = 100) .....	192.6	202.0	188.0	204.2	205.0	206.4	207.3	190.3	202.8	204.3	204.8	205.6	207.0	207.9
<b>Special indexes:</b>														
Gasoline, motor oil, coolant, and other products .....	382.3	369.8	372.4	370.7	365.9	362.4	364.3	383.9	371.4	373.8	372.2	367.3	363.8	365.7
Insurance and finance .....	344.7	348.0	352.8	358.0	362.9	365.6	367.0	418.2	410.3	416.9	417.7	422.0	437.3	441.6
Utilities and public transportation .....	344.7	348.0	352.8	358.0	362.9	365.6	367.0	343.8	347.0	351.6	357.1	362.0	364.6	366.1
Housekeeping and home maintenance services .....	361.6	368.6	369.5	370.0	370.9	371.6	373.0	365.2	376.6	377.8	378.4	379.9	380.3	382.3

c = corrected.

**21. 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)		
	1984			1984			1984			1984		
	Apr.	June	Aug.	Apr.	June	Aug.	Apr.	June	Aug.	Apr.	June	Aug.
<b>Northeast</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	160.7	161.2	162.6	166.3	167.2	168.9	170.9	171.7	173.7	166.3	167.2	167.2
Food and beverages	152.7	153.0	154.2	151.5	151.0	152.0	155.2	156.0	157.5	152.4	152.6	152.7
Housing	165.3	165.9	167.4	175.7	177.3	180.6	183.0	184.0	187.7	172.9	173.4	172.3
Apparel and upkeep	123.8	122.2	125.7	128.5	125.5	125.6	131.8	131.1	131.1	133.6	136.4	138.5
Transportation	170.1	171.4	172.0	174.1	176.2	175.6	174.3	175.5	176.2	173.4	175.1	175.7
Medical care	173.2	174.0	176.8	177.6	179.2	181.0	176.9	177.7	178.9	182.5	183.0	184.9
Entertainment	148.1	146.6	149.7	143.8	143.8	148.2	152.8	152.3	153.9	152.3	153.6	153.6
Other goods and services	170.6	171.1	172.3	169.1	170.0	172.0	174.5	172.5	176.6	173.9	174.6	175.6
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	154.1	154.2	154.9	159.9	159.8	159.8	159.2	159.8	160.2	158.2	159.1	158.7
Commodities less food and beverages	154.7	154.6	154.6	163.5	163.7	163.1	160.8	161.5	161.0	160.4	160.8	161.0
Services	168.8	169.8	172.0	176.1	178.2	182.3	189.6	190.4	195.0	178.4	179.1	179.1
<b>North Central Region</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	169.9	171.3	172.3	166.8	167.7	168.1	163.4	164.7	166.6	164.5	164.8	166.6
Food and beverages	149.4	149.0	150.2	148.6	148.5	149.4	148.8	149.1	150.7	156.9	156.9	158.4
Housing	187.7	190.7	192.0	175.2	176.7	177.3	169.1	171.6	175.3	167.3	166.4	170.0
Apparel and upkeep	118.2	117.8	120.2	132.8	130.8	131.7	132.6	128.3	130.2	126.1	124.6	124.9
Transportation	170.5	172.3	171.9	172.9	174.1	173.4	173.8	176.2	175.1	172.2	174.7	174.9
Medical care	177.4	178.5	180.0	177.2	179.4	182.0	172.7	172.7	175.2	182.9	184.0	185.1
Entertainment	145.1	145.7	146.4	140.6	140.7	139.6	151.0	152.9	153.9	141.3	140.5	142.5
Other goods and services	165.9	166.8	168.7	178.6	180.5	180.6	163.6	164.3	167.1	176.1	177.4	178.4
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	158.1	158.0	158.6	157.3	157.5	157.2	155.1	155.4	155.8	154.8	155.6	156.3
Commodities less food and beverages	162.1	162.2	162.4	160.9	161.1	160.2	157.9	158.3	157.9	153.8	155.0	155.3
Services	187.2	190.7	192.3	182.1	184.1	185.3	176.8	179.6	183.6	179.8	179.2	182.8
<b>South</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	166.3	167.6	168.7	168.2	169.1	170.6	166.9	167.1	168.6	168.1	168.4	168.7
Food and beverages	156.3	152.6	157.3	155.6	155.3	157.2	153.0	152.5	154.0	156.6	156.1	157.8
Housing	172.3	174.5	175.4	173.7	174.7	176.5	173.2	172.6	174.1	176.4	176.4	177.0
Apparel and upkeep	131.3	132.2	131.5	128.1	128.3	127.8	127.5	126.4	127.4	114.7	113.6	110.8
Transportation	172.6	173.9	175.6	176.2	178.0	179.0	174.0	176.0	177.5	172.3	174.3	173.8
Medical care	177.1	179.1	180.6	178.5	180.4	183.5	187.5	188.0	188.6	193.7	193.4	193.4
Entertainment	145.2	144.7	147.7	159.6	160.0	161.9	153.2	152.8	153.4	150.5	150.7	151.7
Other goods and services	170.0	170.8	172.5	172.4	173.0	174.8	170.2	172.1	174.5	169.2	169.9	171.3
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	158.6	159.1	159.4	160.2	160.6	161.3	157.7	158.0	159.2	152.9	158.2	158.5
Commodities less food and beverages	159.4	160.2	160.0	161.8	162.7	162.7	159.7	160.5	161.6	158.1	159.0	158.4
Services	176.8	179.1	181.3	180.1	181.6	184.2	181.2	181.2	182.9	183.4	183.5	184.1
<b>West</b>												
<b>EXPENDITURE CATEGORY</b>												
All items	167.2	168.6	170.3	166.8	169.1	169.5	159.1	160.9	161.4	166.5	167.2	167.8
Food and beverages	155.3	154.6	156.5	158.6	158.8	159.8	155.0	154.5	155.4	160.3	161.6	163.0
Housing	173.7	176.3	179.3	170.4	174.3	174.7	155.8	158.7	159.9	168.0	167.3	167.8
Apparel and upkeep	124.3	121.4	126.5	126.9	127.2	130.5	123.9	122.7	122.5	142.9	142.9	145.1
Transportation	176.4	179.5	177.6	177.5	180.5	178.6	173.5	176.3	174.5	171.1	173.5	172.6
Medical care	182.6	183.3	185.7	179.8	181.5	182.7	185.9	187.5	189.5	184.6	186.6	188.2
Entertainment	144.1	194.9	144.8	148.9	148.9	148.8	154.4	154.8	157.9	160.6	162.0	163.2
Other goods and services	171.5	171.5	173.7	171.3	173.0	174.7	166.5	169.4	170.1	175.1	175.3	176.0
<b>COMMODITY AND SERVICE GROUP</b>												
Commodities	155.9	155.7	155.8	158.7	159.7	159.5	157.1	157.6	157.1	155.6	157.0	157.6
Commodities less food and beverages	156.1	156.3	155.3	158.4	159.9	159.0	157.4	158.8	157.2	153.2	154.6	154.7
Services	181.9	185.0	188.4	178.0	181.8	182.7	161.7	164.6	166.5	182.3	182.2	182.8



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

[1967 = 100 unless otherwise specified]

Area <sup>1</sup>	All Urban Consumers						Urban Wage Earners and Clerical Workers							
	1983	1984					1983	1984						
	Sept.	Apr.	May	June	July	Aug.	Sept.	Sept.	Apr.	May	June	July	Aug.	Sept.
U.S. city average <sup>2</sup>	301.8	308.8	309.7	310.7	311.7	313.0	314.5	300.8	304.1	305.4	306.2	307.5	310.3	312.1
Anchorage, Alaska (10/67 = 100)	267.9	...	275.3	...	275.5	...	277.9	260.8	...	265.7	...	266.8	...	270.9
Atlanta, Ga.	...	...	...	314.0	...	315.9	...	...	...	...	310.9	...	315.0	...
Baltimore, Md.	302.9	310.4	311.3	...	313.0	...	316.4	299.5	307.2	309.4	...	311.6	...	316.4
Boston, Mass.	291.3	302.0	303.1	...	304.9	...	307.4	289.3	298.2	300.6	...	300.8	...	305.3
Buffalo, N.Y.	...	293.0	...	292.5	...	294.5	...	...	286.6	...	287.3	...	288.6	...
Chicago, Ill.—Northwestern Ind.	303.0	306.7	306.9	310.0	310.8	313.4	315.1	299.1	296.3	296.3	298.3	299.0	301.2	304.3
Cincinnati, Ohio—Ky.—Ind.	314.6	...	321.9	...	323.3	...	325.2	311.2	...	312.3	...	314.4	...	320.9
Cleveland, Ohio	...	332.8	...	336.7	...	337.3	...	...	320.7	...	321.9	...	328.1	...
Dallas-Ft. Worth, Tex.	...	323.9	...	325.7	...	329.8	...	...	316.5	...	318.7	...	324.8	...
Denver-Boulder, Colo.	339.4	...	346.1	...	349.9	...	351.3	337.3	...	340.8	...	347.1	...	346.1
Detroit, Mich.	299.2	305.6	305.7	306.3	307.7	308.0	311.6	304.6	298.6	298.3	297.0	298.3	298.9	301.3
Honolulu, Hawaii	...	283.2	...	284.7	...	286.0	...	...	289.0	...	290.9	...	293.6	...
Houston, Tex.	...	325.7	...	330.5	...	332.0	...	...	324.9	...	329.5	...	333.6	...
Kansas City, Mo.—Kansas	...	309.1	...	310.8	...	311.2	...	...	299.7	...	299.9	...	304.5	...
Los Angeles-Long Beach, Anaheim, Calif.	296.4	302.8	305.4	305.6	305.9	308.6	310.2	296.7	298.9	303.1	303.4	300.3	305.1	304.2
Miami, Fla. (11/77 = 100)	162.9	...	166.4	...	167.0	...	167.9	164.3	...	167.2	...	168.0	...	169.7
Milwaukee, Wis.	313.9	...	320.5	...	321.3	...	324.0	329.1	...	338.2	...	341.6	...	347.9
Minneapolis-St. Paul, Minn.—Wis.	...	322.0	...	324.1	...	324.8	...	...	321.1	...	328.9	...	332.5	...
New York, N.Y.—Northeastern N.J.	292.1	300.9	300.8	301.6	302.9	305.0	306.9	288.1	291.2	291.6	293.0	294.7	297.1	299.9
Northeast, Pa. (Scranton)	287.2	...	294.7	...	297.3	...	298.2	290.0	...	295.5	...	295.9	...	297.7
Philadelphia, Pa.—N.J.	291.4	298.2	298.7	300.0	301.4	302.9	303.9	294.2	299.0	300.5	302.7	304.3	306.1	308.5
Pittsburgh, Pa.	...	318.6	...	319.7	...	319.1	...	...	301.5	...	301.4	...	303.3	...
Portland, Oreg.—Wash.	293.3	...	301.9	...	300.9	...	302.5	288.2	...	297.5	...	294.6	...	293.7
St. Louis, Mo.—Ill.	302.0	...	305.4	...	308.7	...	311.4	299.1	...	297.3	...	301.4	...	308.0
San Diego, Calif.	340.4	...	353.5	...	351.3	...	357.1	323.9	...	328.2	...	324.6	...	330.7
San Francisco-Oakland, Calif.	...	315.9	...	318.7	...	323.4	...	...	310.8	...	315.1	...	322.7	...
Seattle-Everett, Wash.	306.5	...	313.0	...	314.3	...	316.5	295.7	...	302.7	...	303.2	...	305.3
Washington, D.C.—Md.—Va.	297.3	...	305.7	...	308.3	...	313.0	301.2	...	308.9	...	310.8	...	317.9

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

is used for New York and Chicago.

<sup>2</sup>Average of 85 cities.

**23. Producer Price Indexes, by stage of processing**

[1967 = 100]

Commodity grouping	Annual average 1983	1983			1984									
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.
<b>FINISHED GOODS</b>														
Finished goods .....	285.2	287.6	286.8	287.2	289.5	290.6	291.4	291.2	291.1	<sup>r</sup> 290.9	292.6	291.8	289.8	291.6
Finished consumer goods .....	284.6	287.0	285.9	286.3	288.9	290.1	291.1	290.3	290.3	<sup>r</sup> 290.1	292.0	290.8	288.9	290.3
Finished consumer foods .....	261.8	263.7	261.9	264.3	272.2	274.7	276.6	274.3	271.7	270.8	275.6	274.2	273.4	271.8
Crude .....	258.7	287.3	270.4	266.0	306.9	313.6	323.7	299.0	270.7	258.9	275.1	278.9	274.7	277.2
Processed .....	260.0	259.5	259.0	262.0	266.9	269.0	270.2	269.9	269.6	<sup>r</sup> 269.7	273.4	271.6	271.0	269.1
Nondurable goods less foods .....	335.3	338.1	336.8	335.2	335.0	336.1	336.7	336.4	338.9	<sup>r</sup> 339.2	339.8	337.6	336.9	337.7
Durable goods .....	233.1	235.3	235.4	235.9	235.9	236.1	236.6	236.7	236.6	<sup>r</sup> 236.4	236.6	237.1	232.5	237.9
Consumer nondurable goods less food and energy .....	231.5	233.6	234.1	234.0	236.0	236.5	237.1	237.9	238.7	<sup>r</sup> 238.7	240.2	240.2	240.9	240.4
Capital equipment .....	287.2	289.9	290.0	290.4	291.6	292.3	292.3	294.5	293.9	<sup>r</sup> 293.9	294.8	295.1	292.9	296.0
<b>INTERMEDIATE MATERIALS</b>														
Intermediate materials, supplies, and components .....	312.3	315.6	315.5	315.7	316.3	317.6	319.7	320.3	320.9	<sup>r</sup> 321.6	321.7	321.1	320.3	319.9
Materials and components for manufacturing .....	293.4	296.4	296.5	297.6	298.9	299.8	301.8	302.9	303.3	<sup>r</sup> 303.4	303.0	302.3	301.7	301.2
Materials for food manufacturing .....	258.4	263.5	260.0	262.9	268.6	268.3	269.6	271.4	276.0	<sup>r</sup> 275.2	276.6	272.7	269.9	267.2
Materials for nondurable manufacturing .....	280.0	283.3	284.6	285.7	286.6	287.0	290.3	291.8	292.8	<sup>r</sup> 292.8	293.0	291.7	291.1	290.3
Materials for durable manufacturing .....	319.4	322.3	321.6	322.8	323.4	325.6	328.2	329.1	327.2	<sup>r</sup> 326.9	325.3	324.7	323.2	321.9
Components for manufacturing .....	280.4	282.6	283.0	283.5	284.5	285.2	285.6	286.2	287.0	<sup>r</sup> 287.5	287.2	287.8	288.5	289.2
Materials and components for construction .....	301.8	303.6	303.9	304.9	305.5	307.8	309.6	310.5	309.8	<sup>r</sup> 310.3	310.7	311.8	311.3	311.6
Processed fuels and lubricants .....	564.8	574.2	568.1	561.7	556.4	561.3	567.8	562.9	567.2	<sup>r</sup> 575.2	578.9	572.5	567.6	564.2
Manufacturing industries .....	479.0	490.5	484.9	478.8	474.2	477.9	483.4	480.6	485.5	<sup>r</sup> 490.4	494.5	489.3	485.0	483.6
Nonmanufacturing industries .....	640.0	647.2	640.6	634.0	628.0	634.1	641.4	634.5	638.2	<sup>r</sup> 649.1	652.3	645.0	639.6	634.1
Containers .....	286.6	288.1	289.3	289.9	292.3	294.8	297.3	299.4	300.9	<sup>r</sup> 301.8	303.0	304.1	304.7	307.9
Supplies .....	277.1	280.6	281.6	281.6	282.6	282.2	283.0	284.2	284.3	<sup>r</sup> 283.9	283.0	283.3	283.3	283.1
Manufacturing industries .....	269.9	271.8	272.2	273.3	274.5	276.0	276.4	277.8	278.4	<sup>r</sup> 279.0	279.1	279.7	280.3	281.0
Nonmanufacturing industries .....	281.1	285.3	286.7	286.1	287.0	285.7	286.7	287.8	287.6	<sup>r</sup> 286.7	285.4	285.4	285.1	284.5
Feeds .....	225.9	246.7	251.0	243.9	243.7	227.7	232.2	233.5	229.2	<sup>r</sup> 221.6	211.3	208.3	202.9	195.4
Other supplies .....	292.8	294.0	294.8	295.5	296.6	298.0	298.4	299.5	300.0	<sup>r</sup> 300.5	300.8	301.4	302.1	302.8
<b>CRUDE MATERIALS</b>														
Crude materials for further processing .....	323.6	324.8	324.0	327.5	333.5	332.6	338.8	339.4	338.0	<sup>r</sup> 333.0	334.5	329.3	326.7	320.0
Foodstuffs and feedstuffs .....	252.2	253.7	251.8	256.0	264.0	260.5	269.9	269.7	266.4	<sup>r</sup> 260.3	264.0	256.9	253.1	245.5
Nonfood materials .....	477.4	478.2	479.4	481.6	483.4	488.1	487.5	490.1	492.3	<sup>r</sup> 489.6	486.6	485.5	485.1	480.2
Nonfood materials except fuel .....	372.2	377.1	377.7	379.1	380.1	385.5	387.8	388.8	389.9	<sup>r</sup> 386.1	381.1	377.2	379.8	374.8
Manufacturing industries .....	381.9	387.4	387.9	389.4	390.4	395.5	398.8	399.5	400.2	<sup>r</sup> 395.7	390.3	386.6	389.1	384.0
Construction .....	270.6	270.5	272.1	272.7	273.7	280.3	276.5	279.2	282.7	<sup>r</sup> 283.5	281.9	277.5	280.2	276.4
Crude fuel .....	931.5	910.9	915.3	921.1	926.1	926.6	910.6	920.8	928.4	<sup>r</sup> 932.6	940.6	954.4	938.8	935.0
Manufacturing industries .....	1,094.5	1,067.1	1,071.8	1,079.0	1,086.5	1,086.3	1,064.8	1,079.6	1,088.1	<sup>r</sup> 1,094.5	1,104.4	1,121.7	1,101.4	1,097.6
Nonmanufacturing industries .....	816.3	801.1	805.3	810.1	813.2	814.2	802.6	809.1	816.1	<sup>r</sup> 818.4	825.0	836.3	824.3	820.4
<b>SPECIAL GROUPINGS</b>														
Finished goods excluding foods .....	290.8	293.4	293.0	292.6	292.9	293.6	294.0	294.6	295.3	<sup>r</sup> 295.4	296.0	295.3	292.9	295.9
Finished consumer goods excluding foods .....	291.4	293.9	293.2	292.5	292.5	293.1	293.6	293.5	294.9	<sup>r</sup> 294.9	295.4	294.4	291.9	294.8
Finished consumer goods less energy .....	249.9	252.1	251.7	252.6	256.1	257.2	258.2	257.8	257.1	<sup>r</sup> 256.7	259.0	258.7	257.2	258.2
Intermediate materials less foods and feeds .....	317.1	320.0	319.9	320.2	320.6	322.3	324.4	325.0	325.4	<sup>r</sup> 326.4	326.7	326.3	325.7	325.6
Intermediate materials less energy .....	295.2	298.2	298.5	299.4	300.5	301.5	303.3	304.4	304.6	<sup>r</sup> 304.7	304.5	304.3	304.0	303.8
Intermediate foods and feeds .....	247.9	258.2	257.4	256.9	260.7	255.1	257.5	259.1	260.8	<sup>r</sup> 257.8	255.3	251.7	248.0	243.8
Crude materials less agricultural products .....	538.6	538.8	540.3	543.2	546.3	552.0	550.0	553.0	554.0	<sup>r</sup> 552.5	550.0	549.4	547.3	542.3
Crude materials less energy .....	246.5	249.6	248.3	252.0	258.3	257.3	265.1	265.4	263.3	<sup>r</sup> 257.6	258.7	252.2	250.1	243.0

<sup>1</sup>Data for June 1984 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.

## 24. Producer Price Indexes, by commodity groupings

[1967 = 100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1983	1983			1984									
			Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.
	<b>All commodities</b>	303.1	306.0	305.5	306.1	308.0	308.9	311.0	311.3	311.5	'311.3	312.0	310.9	309.5	309.4
	<b>All commodities (1957-59 = 100)</b>	321.5	324.7	324.1	324.8	326.8	327.7	330.0	330.3	330.5	'330.3	331.0	329.9	328.4	328.3
	<b>Farm products and processed foods and feeds</b>	253.9	257.5	256.0	257.9	264.4	263.4	267.9	267.3	265.8	'262.8	265.2	261.6	259.6	255.8
	<b>Industrial commodities</b>	315.7	318.5	318.3	318.4	319.1	320.6	321.9	322.6	323.2	'323.8	324.0	323.5	322.3	323.2
	<b>FARM PRODUCTS AND PROCESSED FOODS AND FEEDS</b>														
01	Farm products	248.2	255.2	251.0	254.0	263.4	261.6	267.4	265.4	260.8	257.1	258.6	253.2	249.7	240.1
01-1	Fresh and dried fruits and vegetables	262.1	308.1	275.2	276.1	291.2	312.2	308.0	263.8	251.9	'273.7	281.2	293.3	289.7	266.8
01-2	Grains	240.4	253.7	257.5	243.6	245.5	235.3	250.9	262.1	256.2	257.8	248.9	236.9	231.4	219.0
01-3	Livestock	243.1	229.4	220.5	238.2	250.7	251.9	260.8	260.8	254.8	250.0	260.1	253.7	244.9	233.9
01-4	Live poultry	206.5	208.5	238.5	241.2	252.6	251.3	258.4	240.8	240.6	227.7	259.2	218.6	239.7	219.2
01-5	Plant and animal fibers	227.0	234.5	243.6	244.1	229.3	232.7	250.3	252.3	259.1	252.7	235.8	211.3	210.3	202.8
01-6	Fluid milk	282.0	284.1	283.2	281.4	279.1	275.7	274.2	272.7	271.7	271.8	273.9	276.8	282.1	286.7
01-7	Eggs	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	282.4	280.7	( <sup>2</sup> )	264.4	201.0	177.9	184.9	181.2	177.6	179.9
01-8	Hay, hayseeds, and oilseeds	246.8	288.8	287.6	282.2	287.3	265.4	281.4	282.1	297.0	272.4	245.8	242.6	228.4	219.1
01-9	Other farm products	282.1	283.7	283.5	276.9	280.2	278.9	277.7	279.7	288.2	'279.1	277.4	284.1	296.1	293.8
02	Processed foods and feeds	255.9	257.8	257.6	259.0	263.8	263.4	267.1	267.2	267.5	264.8	267.7	265.2	264.0	263.3
02-1	Cereal and bakery products	261.0	264.6	265.2	265.1	266.6	267.1	267.4	268.3	268.7	'271.4	272.2	271.8	272.0	272.7
02-2	Meats, poultry, and fish	249.0	237.0	234.7	242.3	255.8	254.6	264.4	261.7	257.1	'247.4	260.6	253.8	251.0	247.2
02-3	Dairy products	250.6	251.3	251.4	248.9	248.4	248.8	248.9	248.9	248.9	'249.6	251.4	251.0	255.2	256.7
02-4	Processed fruits and vegetables	277.4	281.1	280.9	282.9	287.7	292.8	295.4	295.1	297.7	'298.2	296.5	296.4	292.0	295.5
02-5	Sugar and confectionery	292.8	298.0	297.7	297.5	299.9	300.5	301.1	301.9	303.8	'304.1	305.3	304.1	302.7	300.2
02-6	Beverages and beverage materials	263.6	265.2	266.3	266.5	268.7	270.2	269.9	271.4	273.5	'272.8	273.8	274.2	274.7	276.8
02-7	Fats and oils	238.8	281.7	274.5	271.7	278.3	273.3	286.2	293.4	328.5	'328.1	312.7	306.8	292.7	302.3
02-8	Miscellaneous processed foods	254.8	262.1	264.8	266.2	266.8	275.4	275.2	276.3	276.2	'279.9	280.4	279.6	280.8	282.2
02-9	Prepared animal feeds	228.8	248.6	252.1	245.6	245.2	231.1	235.3	236.3	232.3	225.5	216.3	214.0	209.0	202.4
	<b>INDUSTRIAL COMMODITIES</b>														
03	Textile products and apparel	205.1	207.0	207.7	207.8	208.2	209.6	209.9	209.9	210.5	'210.2	210.8	210.5	210.6	209.6
03-1	Synthetic fibers (12/75 = 100)	156.7	160.5	159.3	158.1	159.2	161.4	160.7	160.6	160.5	'160.6	160.5	160.1	159.2	158.2
03-2	Processed yarns and threads (12/75 = 100)	138.5	141.3	141.7	142.9	142.3	144.0	144.0	143.6	144.3	'143.8	143.7	142.1	142.2	141.3
03-3	Gray fabrics (12/75 = 100)	147.0	149.4	151.4	152.0	151.1	152.8	153.2	153.0	153.7	'154.3	154.1	154.4	154.5	154.7
03-4	Finished fabrics (12/75 = 100)	123.1	123.8	124.4	124.8	124.8	126.3	127.0	126.9	127.3	'127.1	127.7	127.3	127.0	126.2
03-81	Apparel	197.4	198.8	199.4	199.0	200.1	200.5	200.7	200.7	201.3	'200.8	201.9	201.8	202.3	200.5
03-82	Textile housefurnishings	235.1	234.5	234.4	235.3	236.0	236.6	237.6	238.1	238.8	'239.0	239.2	239.7	240.5	242.4
04	Hides, skins, leather, and related products	271.1	273.7	277.0	277.3	279.1	283.3	286.7	286.8	288.5	'290.1	290.2	290.2	290.3	288.9
04-2	Leather	330.7	336.6	340.5	344.1	346.2	362.0	378.0	386.7	390.7	'387.8	384.7	379.7	372.6	368.9
04-3	Footwear	250.1	251.3	257.3	250.3	250.9	252.5	253.5	251.6	251.5	'250.5	250.1	250.9	252.1	252.2
04-4	Other leather and related products	252.7	253.5	255.8	255.6	257.2	257.3	258.1	258.1	259.8	'267.9	271.2	271.5	271.7	272.4
05	Fuels and related products and power	664.7	669.5	663.7	658.0	652.1	656.0	658.7	654.7	660.6	'665.9	667.2	660.7	654.8	654.5
05-1	Coal	537.4	538.2	542.3	543.9	541.4	544.7	546.2	542.0	547.4	'544.3	546.8	550.7	549.6	543.7
05-2	Coke	444.6	453.1	453.8	415.4	418.3	437.9	438.9	442.8	441.6	'442.9	441.9	437.3	435.4	432.4
05-3	Gas fuels <sup>3</sup>	1,146.9	1,128.4	1,122.0	1,120.4	1,123.0	1,107.8	1,091.0	1,102.1	1,104.1	'1,109.1	1,123.5	1,128.9	1,119.1	1,113.1
05-4	Electric power	417.9	423.6	418.7	417.3	420.5	424.4	426.7	431.5	433.1	'446.7	453.9	457.1	456.8	445.8
05-61	Crude petroleum <sup>4</sup>	681.4	675.7	675.8	674.4	675.6	675.6	675.6	673.9	673.9	'673.3	673.1	672.3	672.0	670.8
05-7	Petroleum products, refined <sup>5</sup>	684.3	695.3	688.2	678.3	663.2	669.8	680.2	667.0	677.6	'679.7	674.6	657.3	647.5	655.7
06	Chemicals and allied products	293.0	295.5	296.4	297.7	298.1	296.5	300.1	302.0	302.7	'302.2	302.6	301.4	301.4	301.0
06-1	Industrial chemicals <sup>6</sup>	342.9	344.9	346.2	349.2	347.4	337.6	344.7	345.4	345.3	'345.4	345.7	341.7	338.1	336.4
06-21	Prepared paint	264.7	264.2	264.5	264.9	265.6	267.3	267.3	268.7	270.0	'270.9	274.1	276.4	277.4	278.1
06-22	Paint materials	305.8	316.9	316.5	315.5	316.6	314.2	317.9	328.7	337.6	'337.4	335.4	335.1	333.5	332.3
06-3	Drugs and pharmaceuticals	226.1	229.3	231.0	230.9	232.9	234.4	237.6	239.8	240.1	'237.3	240.0	241.7	242.8	245.2
06-4	Fats and oils, inedible	285.6	318.6	321.6	318.8	334.2	349.0	366.7	383.2	399.2	'414.3	378.4	350.5	359.4	365.4
06-5	Agricultural chemicals and chemical products	280.5	276.4	280.4	281.9	278.5	285.9	288.1	288.4	286.8	'286.5	285.5	282.9	285.1	284.7
06-6	Plastic resins and materials	291.5	299.1	297.9	301.5	305.2	305.0	306.2	307.8	310.6	'311.1	309.9	309.4	311.3	308.9
06-7	Other chemicals and allied products	273.6	274.4	273.8	273.6	274.9	273.3	275.2	277.0	277.2	'275.9	277.5	278.4	278.7	278.4
07	Rubber plastic products	243.2	244.4	243.6	243.8	244.8	246.2	246.4	247.3	247.5	'247.6	247.5	247.6	247.9	248.1
07-1	Rubber and rubber products	266.0	264.8	264.3	264.6	266.6	266.8	265.5	267.2	266.3	'266.5	266.9	267.7	268.1	267.6
07-11	Crude rubber	280.8	284.3	282.7	282.2	282.9	282.8	283.0	282.3	277.7	'277.2	275.9	273.2	273.5	271.5
07-12	Tires and tubes	245.3	242.6	242.4	242.3	244.1	243.7	241.7	243.5	243.2	'243.0	244.1	244.1	244.7	245.8
07-13	Miscellaneous rubber products	284.8	283.8	283.5	284.6	287.1	288.4	287.4	289.8	289.3	'290.5	290.3	293.4	293.5	291.3
07-2	Plastic products (6/78 = 100)	135.3	137.4	136.7	136.8	136.9	138.4	139.4	139.4	140.2	'140.2	139.9	139.5	139.7	140.2
08	Lumber and wood products	307.1	305.6	304.9	308.7	309.1	315.7	316.8	315.1	308.5	'307.1	304.3	304.5	303.4	300.2
08-1	Lumber	352.6	344.7	342.8	351.3	352.6	364.9	370.5	369.4	355.6	'350.5	343.3	342.3	338.4	334.4
08-2	Millwork	302.3	307.4	307.9	308.5	308.6	308.8	309.9	307.2	304.2	'305.3	305.7	306.1	307.0	306.6
08-3	Plywood	244.1	246.6	244.6	247.2	248.2	249.5	248.6	243.6	235.4	'236.3	237.1	246.9	243.4	240.1
08-4	Other wood products	230.6	229.6	229.8	230.6	230.0	230.8	231.8	233.3	234.7	'235.0	235.2	236.5	235.9	236.5

See footnotes at end of table.

## 24. Continued—Producer Price Indexes, by commodity groupings

[1967 = 100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1983	1983			1984										
			Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.	
<b>INDUSTRIAL COMMODITIES—Continued</b>																
09	Pulp, paper, and allied products . . . . .	298.1	302.2	303.6	304.0	309.1	312.0	314.0	316.3	317.7	<sup>r</sup> 318.4	319.2	320.0	321.2	322.6	
09-1	Pulp, paper, and products, excluding building paper and board . . . . .	271.4	275.2	277.4	277.4	280.8	285.0	288.3	291.5	292.7	293.3	295.6	296.3	297.2	298.3	
09-11	Woodpulp . . . . .	346.9	347.4	356.7	355.5	366.2	374.2	378.6	401.1	407.9	<sup>r</sup> 410.3	410.6	410.0	409.5	399.5	
09-12	Wastepaper . . . . .	( <sup>2</sup> )	216.2	215.0	211.5	211.5	229.3	242.9	258.8	259.3	257.3	254.7	254.5	249.6	235.6	
09-13	Paper . . . . .	282.0	287.2	288.5	289.3	294.2	296.6	299.8	300.4	301.3	<sup>r</sup> 301.6	307.9	306.9	306.7	308.0	
09-14	Paperboard . . . . .	250.9	257.3	259.4	260.9	262.2	271.8	275.6	277.1	277.8	<sup>r</sup> 279.1	279.1	285.4	288.2	291.8	
09-15	Converted paper and paperboard products . . . . .	265.3	266.5	267.9	268.0	270.6	273.7	276.5	279.1	280.1	<sup>r</sup> 280.6	281.9	282.4	283.8	285.8	
09-2	Building paper and board . . . . .	250.0	254.7	254.7	250.4	251.9	255.1	258.6	263.8	265.2	265.1	262.9	258.4	258.1	257.3	
10	Metals and metal products . . . . .	307.2	310.9	310.9	311.9	312.9	314.8	316.8	317.9	317.4	<sup>r</sup> 317.3	315.9	315.8	315.3	315.4	
10-1	Iron and steel . . . . .	343.4	348.5	349.5	350.9	353.8	356.2	356.5	356.5	357.3	<sup>r</sup> 357.0	357.2	357.1	357.6	358.9	
10-17	Steel mill products . . . . .	352.8	358.7	359.5	360.0	362.5	363.6	363.6	364.2	364.7	365.4	367.8	368.0	367.9	368.9	
10-2	Nonferrous metals . . . . .	276.1	279.3	276.6	278.2	276.8	280.2	286.1	289.1	284.1	<sup>r</sup> 282.8	276.8	274.6	271.3	266.1	
10-3	Metal containers . . . . .	335.4	338.3	338.2	340.3	344.1	344.8	345.4	345.3	348.0	<sup>r</sup> 348.0	348.4	352.4	352.6	358.0	
10-4	Hardware . . . . .	290.7	292.7	293.1	293.5	293.3	294.0	294.4	294.6	295.3	<sup>r</sup> 296.2	295.8	296.7	297.3	299.0	
10-5	Plumbing fixtures and brass fittings . . . . .	289.3	292.7	294.1	294.0	293.9	296.4	299.9	301.5	301.6	<sup>r</sup> 302.4	302.5	303.3	299.0	300.6	
10-6	Heating equipment . . . . .	243.6	245.3	245.5	245.7	247.3	248.1	248.5	250.3	252.4	<sup>r</sup> 252.7	254.7	255.5	257.5	258.2	
10-7	Fabricated structural metal products . . . . .	303.5	304.2	305.3	306.0	306.5	307.0	308.3	309.3	310.6	<sup>r</sup> 311.2	311.6	312.3	312.1	314.0	
10-8	Miscellaneous metal products . . . . .	283.6	289.0	289.5	289.6	290.3	291.1	292.1	293.1	293.4	<sup>r</sup> 294.3	294.1	295.0	295.6	297.7	
11	Machinery and equipment . . . . .	286.4	287.6	288.0	288.8	289.7	290.2	291.0	292.2	292.6	293.1	293.7	294.2	294.5	295.0	
11-1	Agricultural machinery and equipment . . . . .	326.3	328.0	328.6	330.1	331.0	331.4	332.9	335.5	338.2	<sup>r</sup> 337.8	337.2	337.6	337.9	338.0	
11-2	Construction machinery and equipment . . . . .	351.9	353.6	353.9	353.6	354.2	355.9	355.3	357.5	357.8	358.1	358.2	358.6	359.0	359.1	
11-3	Metalworking machinery and equipment . . . . .	326.5	327.0	327.3	328.7	329.2	330.2	330.6	332.6	333.5	<sup>r</sup> 333.4	334.1	334.6	335.5	336.2	
11-4	General purpose machinery and equipment . . . . .	308.2	307.8	308.6	309.8	310.7	310.9	311.7	313.1	313.2	<sup>r</sup> 314.0	314.9	315.4	315.8	316.1	
11-6	Special industry machinery and equipment . . . . .	337.1	340.6	341.0	342.0	342.0	343.2	344.6	346.8	348.2	<sup>r</sup> 348.6	351.0	352.3	350.3	350.5	
11-7	Electrical machinery and equipment . . . . .	240.1	242.6	242.8	243.8	244.7	245.7	246.7	247.7	248.1	<sup>r</sup> 249.1	248.5	248.7	249.3	250.4	
11-9	Miscellaneous machinery . . . . .	274.1	273.3	273.7	273.9	275.5	274.3	274.5	274.6	273.7	<sup>r</sup> 273.9	275.6	276.1	276.6	276.3	
12	Furniture and household durables . . . . .	214.0	215.3	215.7	215.7	216.8	217.2	217.4	218.2	219.1	<sup>r</sup> 219.1	218.7	218.9	218.9	219.0	
12-1	Household furniture . . . . .	234.7	236.9	237.4	237.2	237.9	239.1	240.0	240.8	241.5	242.3	241.8	242.2	243.0	243.9	
12-2	Commercial furniture . . . . .	286.3	287.4	289.9	289.5	293.4	294.7	296.1	297.4	297.0	297.0	298.4	298.4	298.5	298.0	
12-3	Floor coverings . . . . .	185.4	189.5	189.3	189.4	188.2	188.4	188.3	188.2	191.7	<sup>r</sup> 192.7	191.4	191.3	191.4	192.7	
12-4	Household appliances . . . . .	206.9	207.6	208.0	208.5	209.8	210.7	210.9	210.9	210.8	211.1	211.4	211.7	211.8	211.9	
12-5	Home electronic equipment . . . . .	86.1	85.8	85.1	84.5	84.4	84.1	84.0	84.9	84.5	<sup>r</sup> 83.9	82.4	84.2	83.5	81.8	
12-6	Other household durable goods . . . . .	313.1	314.0	315.1	315.2	318.0	316.8	316.7	319.1	321.6	319.9	320.4	316.3	315.9	317.0	
13	Nonmetallic mineral products . . . . .	325.2	328.0	328.9	328.9	330.1	332.2	333.4	335.8	337.6	<sup>r</sup> 338.3	339.3	340.0	340.4	339.6	
13-11	Flat glass . . . . .	229.7	229.6	230.1	229.9	229.5	229.9	229.1	230.2	226.1	<sup>r</sup> 226.3	227.4	217.8	217.9	218.0	
13-2	Concrete ingredients . . . . .	313.3	316.7	314.8	314.6	315.6	319.9	324.2	324.3	328.0	<sup>r</sup> 326.7	327.2	329.0	328.8	328.0	
13-3	Concrete products . . . . .	302.0	303.3	304.1	304.2	304.9	305.9	306.3	308.8	309.4	310.0	310.6	311.3	311.4	311.5	
13-4	Structural clay products, excluding refractories . . . . .	277.8	283.5	284.1	284.2	284.3	283.7	284.3	285.0	285.6	<sup>r</sup> 286.2	285.7	287.5	288.7	288.8	
13-5	Refractories . . . . .	341.3	344.7	353.3	353.3	353.9	356.0	361.1	361.8	361.8	<sup>r</sup> 361.8	362.9	362.7	362.7	362.7	
13-6	Asphalt roofing . . . . .	384.0	387.9	387.8	384.2	385.0	392.3	385.6	396.2	398.7	<sup>r</sup> 394.2	392.6	405.6	406.7	410.3	
13-7	Gypsum products . . . . .	286.0	312.8	315.1	322.6	328.6	339.4	339.6	353.0	360.9	360.3	360.6	352.9	356.1	339.4	
13-8	Glass containers . . . . .	352.4	350.2	350.4	350.4	350.6	350.6	351.6	358.0	361.9	<sup>r</sup> 365.0	367.1	366.0	364.6	364.8	
13-9	Other nonmetallic minerals . . . . .	480.2	483.2	487.4	486.8	486.4	488.1	490.8	491.3	494.9	<sup>r</sup> 499.2	507.1	512.0	510.1	507.4	
14	Transportation equipment (12/68 = 100) . . . . .	256.7	260.6	260.5	260.7	261.5	262.2	262.4	263.4	262.5	<sup>r</sup> 262.2	262.8	263.1	257.4	264.8	
14-1	Motor vehicles and equipment . . . . .	256.8	260.6	260.5	260.6	261.1	261.2	261.5	261.9	261.5	<sup>r</sup> 261.1	261.5	261.8	254.6	263.3	
14-4	Railroad equipment . . . . .	350.2	348.6	348.6	350.5	351.5	351.5	352.0	380.8	354.4	<sup>r</sup> 354.4	363.4	364.6	364.6	364.6	
15	Miscellaneous products . . . . .	289.6	291.7	291.7	292.8	294.5	294.9	294.9	294.6	294.3	<sup>r</sup> 295.7	297.1	297.9	296.4	297.0	
15-1	Toys, sporting goods, small arms, ammunition . . . . .	225.2	225.9	225.2	225.3	227.4	227.8	227.6	226.5	226.8	<sup>r</sup> 226.5	226.4	226.9	226.9	227.2	
15-2	Tobacco products . . . . .	365.4	376.8	377.0	377.1	389.4	390.3	390.4	390.4	390.6	400.2	407.9	407.6	406.7	406.8	
15-3	Notions . . . . .	280.1	279.7	279.6	280.1	281.4	282.2	282.2	283.0	283.9	283.9	283.9	283.9	283.9	283.5	
15-4	Photographic equipment and supplies . . . . .	215.7	216.8	216.8	216.8	( <sup>2</sup> )	217.9	212.7	213.6	213.6	<sup>r</sup> 213.6	213.7	214.1	215.5	215.5	
15-5	Mobile homes (12/74 = 100) . . . . .	163.4	164.8	165.0	165.1	162.2	162.4	162.5	163.8	163.7	<sup>r</sup> 162.7	164.1	163.1	163.3	163.2	
15-9	Other miscellaneous products . . . . .	351.8	349.2	349.3	353.2	350.8	350.5	354.2	351.9	350.4	<sup>r</sup> 350.0	349.8	352.8	346.6	348.2	

<sup>1</sup>Data for June 1984 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

<sup>2</sup>Not available.

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

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

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

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

r = revised.

## 25. Producer Price Indexes, for special commodity groupings

[1967 = 100 unless otherwise specified]

Commodity grouping	Annual average 1983	1983			1984									
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.
All commodities—less farm products	306.6	309.2	309.1	309.4	310.7	311.9	313.6	314.2	314.7	†314.8	315.4	314.7	313.4	314.1
All foods	257.5	260.5	258.0	260.2	268.3	270.2	272.9	270.6	268.9	†267.5	272.1	270.1	268.9	267.2
Processed foods	258.7	258.6	258.0	260.4	266.2	267.0	271.2	270.9	271.4	†269.0	273.4	270.5	269.5	269.1
Industrial commodities less fuels	279.3	281.8	282.2	282.9	284.3	285.5	286.7	287.8	287.8	†288.0	288.1	288.2	287.5	288.5
Selected textile mill products (Dec. 1975 = 100)	138.2	139.4	139.8	140.1	140.0	141.3	141.7	141.7	142.7	†142.7	142.9	142.7	142.7	142.6
Hosiery	144.7	145.6	145.6	145.6	145.8	147.3	147.4	147.4	147.4	†147.4	147.8	147.8	147.9	148.1
Underwear and nightwear	223.8	224.7	224.6	225.4	228.6	229.8	†230.9	229.8	230.9	†228.8	229.5	230.2	230.2	230.3
Chemicals and allied products, including synthetic rubber and fibers and yarns	283.5	285.6	286.3	287.4	287.6	286.2	289.1	290.6	291.1	†290.5	291.2	290.4	290.2	289.7
Pharmaceutical preparations	224.8	229.4	231.3	231.8	233.9	235.9	238.8	241.5	241.9	†240.6	244.0	244.2	245.7	249.0
Lumber and wood products, excluding millwork	321.2	316.7	314.7	321.4	322.6	331.4	334.9	332.5	320.4	†317.2	312.6	315.3	311.4	307.6
Steel mill products, including fabricated wire products	351.2	356.4	357.4	357.8	360.1	361.1	361.2	361.8	362.4	363.1	365.3	365.7	365.6	366.7
Finished steel mill products, excluding fabricated wire products	351.5	357.8	358.6	359.2	361.7	363.2	363.1	363.6	364.1	364.8	367.0	367.4	367.2	368.4
Finished steel mill products, including fabricated wire products	349.9	355.4	356.4	356.9	359.2	360.5	360.5	361.0	361.6	†362.4	364.4	364.9	364.8	366.0
Special metals and metal products	292.6	296.4	296.3	297.0	297.8	299.0	300.3	301.2	300.8	300.6	300.0	300.0	296.7	300.4
Fabricated metal products	294.3	297.2	297.9	298.4	299.3	300.0	301.1	301.9	302.9	†303.6	303.8	304.9	305.0	307.3
Copper and copper products	196.6	190.7	182.6	185.0	182.1	185.1	192.9	199.4	191.8	†189.5	183.5	181.8	182.1	176.6
Machinery and motive products	279.8	282.2	282.4	283.0	283.9	284.5	285.0	286.2	285.9	†286.1	286.7	287.1	284.7	288.3
Machinery and equipment, except electrical	313.6	314.1	314.6	315.3	316.3	316.5	317.1	318.5	318.8	†319.2	320.3	321.0	321.1	321.3
Agricultural machinery, including tractors	341.5	343.6	344.0	346.4	347.1	347.5	349.3	352.9	357.0	†356.5	355.4	355.9	356.0	355.5
Metalworking machinery	357.1	357.1	357.6	358.2	359.3	362.1	361.6	363.0	363.2	†363.3	364.7	365.2	366.5	368.6
Total tractors	†369.7	372.6	373.1	373.8	374.0	374.5	376.1	384.1	386.8	†386.7	384.9	386.5	386.4	386.2
Agricultural machinery and equipment less parts	330.0	331.8	332.2	334.2	335.2	335.7	337.4	340.4	343.6	†343.0	342.3	342.7	343.0	342.7
Farm and garden tractors less parts	347.2	350.7	350.9	352.0	352.2	352.9	355.1	362.1	365.8	†365.7	362.9	364.9	364.8	364.6
Agricultural machinery, excluding tractors less parts	337.1	338.2	338.7	342.2	343.3	343.4	344.9	345.7	350.1	†349.2	349.6	348.8	349.2	348.5
Construction materials	297.7	300.4	300.4	301.3	302.3	305.0	306.6	307.1	306.2	306.3	306.6	307.3	306.7	307.1

<sup>1</sup>Data for June 1984 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.

## 26. Producer Price Indexes, by durability of product

[1967 = 100]

Commodity grouping	Annual average 1983	1983			1984									
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.
Total durable goods	286.7	289.2	289.3	290.1	291.0	292.2	293.2	294.2	293.8	293.8	293.7	293.9	292.5	294.2
Total nondurable goods	315.7	319.1	318.1	318.4	321.2	321.9	324.8	324.7	325.3	†324.9	326.3	324.0	322.6	321.0
Total manufactures	295.7	298.5	298.4	298.8	300.0	301.2	302.8	303.2	303.8	†303.9	304.2	303.4	302.1	303.0
Durable	287.3	289.6	289.8	290.5	291.3	292.4	293.3	294.3	293.9	†294.0	294.1	294.5	293.0	294.8
Nondurable	304.4	307.7	307.4	307.5	309.1	310.4	312.7	312.5	314.1	†314.2	314.9	312.7	311.7	311.5
Total raw or slightly processed goods	339.8	343.6	340.6	341.8	348.4	347.6	352.4	352.4	350.1	†348.0	350.8	348.1	345.8	339.9
Durable	249.3	259.8	258.5	263.3	267.4	275.2	278.7	280.6	277.9	†273.3	264.8	259.6	260.6	255.9
Nondurable	345.4	348.6	345.6	346.5	353.3	351.8	356.7	356.5	354.3	†352.3	356.0	353.5	351.0	345.0

<sup>1</sup>Data for June 1984 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.

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

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1983	1983			1984									
			Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June <sup>1</sup>	July	Aug.	Sept.	Oct.
<b>MINING</b>															
1011	Iron ores (12/75 = 100)	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1
1092	Mercury ores (12/75 = 100)	269.7	283.3	287.5	277.0	275.8	245.4	250.0	267.9	273.7	271.6	264.6	249.1	257.1	271.6
1311	Crude petroleum and natural gas	921.4	907.2	909.4	909.4	914.3	913.0	902.7	909.2	914.1	<sup>r</sup> 918.4	922.2	929.4	919.4	917.1
<b>MANUFACTURING</b>															
2067	Chewing gum	326.8	327.3	327.5	327.5	328.0	328.1	328.7	328.8	328.9	<sup>r</sup> 328.9	329.1	329.2	329.2	329.2
2074	Cottonseed oil mills	204.1	253.5	233.1	223.3	229.2	201.7	212.7	222.6	245.3	<sup>r</sup> 243.1	223.2	210.3	205.0	172.9
2083	Malt	234.1	232.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6	241.6
2091	Canned and cured seafoods (12/73 = 100)	174.1	170.2	169.2	169.7	169.0	168.8	168.6	167.0	169.3	<sup>r</sup> 169.0	167.8	167.9	167.1	167.0
2098	Macaroni and spaghetti	256.8	258.6	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9
2298	Cordage and twine (12/77 = 100)	139.3	139.0	138.9	139.0	139.0	139.2	139.2	139.3	139.4	139.4	137.4	137.4	137.4	137.4
2361	Children's dresses and blouses (12/77 = 100)	116.6	117.0	117.0	117.0	118.2	117.8	117.8	118.6	118.6	<sup>r</sup> 118.6	118.6	118.6	117.8	116.7
2381	Fabric dress and work gloves	293.3	296.3	296.3	297.6	295.2	299.1	302.3	304.8	315.6	315.6	315.6	315.6	315.6	315.6
2394	Canvas and related products (12/77 = 100)	147.0	147.8	147.8	147.8	150.6	150.6	150.6	150.6	150.6	<sup>r</sup> 150.6	151.3	151.3	152.9	152.9
2448	Wood pallets and skids (12/75 = 100)	149.2	151.5	151.9	153.6	154.0	156.0	157.9	161.6	165.1	165.4	166.3	166.3	166.4	166.0
2521	Wood office furniture	281.3	283.6	283.6	283.6	285.1	289.1	289.1	289.2	289.2	<sup>r</sup> 289.2	290.3	290.3	292.2	292.3
2654	Sanitary food containers	266.1	269.0	269.0	269.0	269.1	273.4	278.4	280.6	280.6	<sup>r</sup> 280.7	282.3	282.3	282.9	283.0
2655	Fiber cans, drums, and similar products (12/75 = 100)	186.5	187.8	189.5	189.6	189.6	189.7	191.4	193.1	193.1	193.1	194.7	194.7	194.7	194.7
2911	Petroleum refining (6/76 = 100)	253.8	257.1	253.5	249.7	244.4	246.7	249.8	244.9	248.1	<sup>r</sup> 248.8	247.2	241.0	238.3	241.0
3251	Brick and structural clay tile	332.3	338.4	339.7	339.9	340.2	339.9	341.1	342.6	343.8	<sup>r</sup> 345.0	346.5	346.5	348.7	348.9
3253	Ceramic wall and floor tile (12/75 = 100)	146.0	149.6	149.6	149.6	149.6	149.6	149.6	149.6	149.6	<sup>r</sup> 149.6	146.8	150.5	150.5	150.5
3255	Clay refractories	355.6	364.3	366.6	366.5	367.2	367.7	369.3	371.5	371.5	<sup>r</sup> 371.7	373.7	373.4	373.4	373.4
3259	Structural clay products, n.e.c.	230.2	235.1	235.0	235.0	235.0	232.1	232.4	232.4	232.4	<sup>r</sup> 232.4	233.0	232.9	232.9	233.0
3261	Vitreous plumbing fixtures	278.1	283.7	284.5	285.4	285.6	287.0	290.1	290.4	290.8	292.5	293.1	293.9	295.5	297.6
3263	Fine earthenware food utensils	366.5	366.5	368.5	368.5	383.6	384.0	375.9	382.6	376.5	<sup>r</sup> 372.1	372.1	373.0	372.8	373.1
3269	Pottery products, n.e.c. (12/75 = 100)	187.1	186.6	189.9	189.9	191.9	192.2	191.9	192.2	192.2	<sup>r</sup> 186.3	192.1	192.1	189.0	195.1
3274	Lime (12/75 = 100)	185.7	185.9	182.4	182.5	182.8	184.4	183.9	184.1	184.2	<sup>r</sup> 183.3	180.4	179.8	187.3	180.7
3297	Nonclay refractories (12/74 = 100)	205.2	203.9	212.8	212.8	213.1	215.4	220.6	220.1	220.1	220.1	220.0	219.9	220.3	220.0
3482	Small arms ammunition (12/75 = 100)	180.5	181.6	181.6	181.6	190.3	190.3	190.3	190.3	190.3	<sup>r</sup> 190.3	196.6	196.6	196.6	196.6
3623	Welding apparatus, electric (12/72 = 100)	243.6	243.9	243.9	244.7	246.0	246.7	247.2	248.7	248.8	<sup>r</sup> 250.4	245.3	245.4	245.9	247.3
3648	Lighting equipment, n.e.c. (12/75 = 100)	172.8	173.7	173.9	172.6	173.5	173.5	184.9	185.0	185.6	185.7	186.4	188.2	188.3	194.3
3671	Electron tubes, receiving type	435.4	432.9	432.9	469.8	490.6	490.8	490.8	490.9	490.9	<sup>r</sup> 491.3	491.1	491.3	491.6	492.0
3942	Dolls (12/75 = 100)	137.5	137.7	137.7	137.7	137.6	137.8	137.7	131.6	133.4	<sup>r</sup> 133.6	133.3	133.3	133.3	133.3
3944	Games, toys, and children's vehicles	238.7	236.4	236.2	236.2	239.3	240.6	240.1	239.7	239.1	<sup>r</sup> 239.2	234.7	234.7	234.8	235.0
3955	Carbon paper and inked ribbons (12/75 = 100)	139.2	139.3	139.3	139.3	144.3	149.0	149.0	149.1	149.1	149.1	146.7	146.7	146.7	139.7
3995	Burial caskets (6/76 = 100)	153.5	156.0	156.0	156.0	156.0	157.2	157.3	158.8	158.8	158.8	158.8	158.8	158.8	158.5
3996	Hard surface floor coverings (12/75 = 100)	161.5	165.5	163.5	163.5	165.2	165.2	165.2	166.3	166.4	166.4	168.7	168.7	168.8	169.7

<sup>1</sup>Data for June 1984 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.

## PRODUCTIVITY DATA

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

### Definitions

**Output** is the constant dollar gross product produced by the particular sector. **Output per hour of all persons** (labor productivity) measures the value of goods and services in constant prices produced per hour of labor. **Output per unit of capital services** (capital productivity) measures the value of goods and services in constant dollars per unit of capital services input.

**Multifactor productivity** measures the output per unit of combined labor and capital input. The traditional measure of output per hour reflects changes in capital per hour and a combination of other factors—such as, changes in technology, shifts in the composition of the labor force, changes in capacity utilization, research and development, skill and efforts of the work force, management, and so forth. The multifactor productivity measure differs from the familiar BLS measure of output per hour of all persons in that it excludes the effects of the substitution of capital for 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 costs** measure the labor compensation costs required to produce a 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 current dollar gross product and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits. **Unit profits** include corporate profits and the value of inventory adjustments per unit of output.

The **implicit price deflator** is the price index for the gross product of the sector reported. It is derived by dividing the current dollar gross product by the constant dollar figures.

**Hours of all persons** measures the labor input of payroll workers, self-employed persons, and unpaid family workers. **Output per all employee**

**hour** describes labor productivity in nonfinancial corporations where there are no self-employed. The **capital services** input index used in the multifactor productivity computation is developed by BLS from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset. **Combined units of labor and capital input** are computed by combining changes in labor and capital inputs with weights which represent each component's share of total output. The indexes for capital services and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

### Notes on the data

In the business sector and the nonfarm business sector, the output measure employed in the computation of output per hour is constructed from Gross Domestic Product rather than Gross National Product. Multifactor productivity measures (table 28) for the *private* business and *private* nonfarm business sectors differ from the business and nonfarm business sector measures used in the traditional labor productivity indexes (tables 29–32) in that they exclude the activities of government enterprises. There is no difference in the sector definition for manufacturing.

Output measures for the business sectors are derived from data supplied by the Bureau of Economic Analysis, U.S. Department of Commerce, and the Federal Reserve Board. Quarterly manufacturing output indexes are adjusted by the Bureau of Labor Statistics to annual estimates of output (gross product originating) from the Bureau of Economic Analysis. Compensation and hours data are from the Bureau of Labor Statistics and the Bureau of Economic Analysis.

The productivity and associated cost measures in the tables describe the relationship between output in real terms and the labor time and capital services involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input. Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and efforts of the work force. For a more complete description of the methodology underlying the multifactor productivity measures, see Bulletin 2178, "Trends in Multifactor Productivity, 1948–81" (September 1983).

**28. Annual indexes of multifactor productivity and related measures, selected years, 1950-83**

[1977 = 100]

Item	1950	1960	1970	1973	1974	1975	1976	1978	1979	1980	1981	1982	1983
<b>PRIVATE BUSINESS SECTOR</b>													
Productivity:													
Output per hour of all persons	49.7	64.8	86.1	94.8	92.5	94.5	97.6	100.5	99.3	98.7	100.6	100.8	103.7
Output per unit of capital services	98.6	98.5	98.5	103.0	96.5	92.0	96.1	101.8	100.3	95.6	94.1	89.6	92.3
Multifactor productivity	63.6	75.4	90.2	97.5	93.8	93.6	97.1	101.0	99.7	97.6	98.3	96.8	99.6
Output	39.5	53.3	78.3	91.8	89.9	88.0	93.7	105.5	107.9	106.4	109.2	106.3	111.1
Inputs:													
Hours of all persons	79.4	82.2	90.8	96.8	97.2	93.1	95.9	105.0	108.6	107.8	108.5	105.4	107.2
Capital services	40.1	54.1	79.4	89.1	93.1	95.7	97.5	103.6	107.5	111.4	116.0	118.7	120.3
Combined units of labor and capital input	62.1	70.7	86.7	94.1	95.8	94.0	96.5	104.5	108.2	109.0	111.0	109.8	111.5
Capital per hour of all persons	50.4	65.8	87.4	92.0	95.9	102.8	101.6	98.7	98.9	103.3	106.9	112.6	112.3
<b>PRIVATE NONFARM BUSINESS SECTOR</b>													
Productivity:													
Output per hour of all persons	55.6	68.0	86.8	95.3	92.9	94.8	97.8	100.6	99.0	98.2	99.6	99.9	103.5
Output per unit of capital services	98.2	98.4	98.6	103.2	96.5	91.7	96.1	101.9	100.1	95.2	93.2	88.7	91.9
Multifactor productivity	68.1	77.6	90.7	97.9	94.1	93.6	97.2	101.0	99.4	97.2	97.4	95.9	99.3
Output	38.3	52.3	77.8	91.7	89.7	87.6	93.6	105.7	108.0	106.4	108.7	105.9	111.3
Inputs:													
Hours of all persons	69.0	77.0	89.7	96.2	96.5	92.4	95.7	105.1	109.1	108.4	109.1	106.0	107.6
Capital services	39.0	53.2	78.9	88.8	93.0	95.6	97.4	103.7	107.9	111.7	116.6	119.4	121.2
Combined units of labor and capital input	56.2	67.4	85.9	93.6	95.3	93.5	96.3	104.6	108.7	109.5	111.6	110.4	112.0
Capital per hour of all persons	56.6	69.1	88.0	92.4	96.3	103.4	101.8	98.7	98.9	103.1	106.8	112.6	112.6
<b>MANUFACTURING</b>													
Productivity:													
Output per hour of all persons	49.4	60.0	79.2	93.0	90.8	93.4	97.6	100.9	101.6	101.7	104.9	107.1	111.6
Output per unit of capital services	94.5	88.0	91.8	108.2	99.6	89.4	96.1	101.5	99.5	90.7	89.9	82.9	87.6
Multifactor productivity	59.9	67.0	82.3	96.8	93.1	92.2	97.1	101.1	101.0	98.8	100.8	100.3	104.9
Output	38.6	50.7	77.0	95.9	91.9	85.4	93.6	105.3	108.2	103.5	106.1	99.3	104.4
Inputs:													
Hours of all persons	78.2	84.4	97.3	103.1	101.2	91.4	95.9	104.4	106.5	101.7	101.1	92.7	93.5
Capital services	40.9	57.5	83.9	88.6	92.2	95.5	97.4	103.8	108.8	114.1	118.0	119.8	119.2
Combined units of labor and capital input	64.5	75.6	93.5	99.0	98.7	92.6	96.3	104.2	107.1	104.8	105.2	99.0	99.5
Capital per hour of all persons	52.3	68.2	86.2	85.9	91.1	104.5	101.6	99.4	102.1	112.2	116.7	129.2	127.5

**29. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years, 1950-83**

[1977 = 100]

Item	1950	1955	1960	1965	1970	1975	1976	1978	1979	1980	1981	1982	1983
<b>Business sector:</b>													
Output per hour of all persons	50.4	58.3	65.2	78.3	86.2	94.6	97.6	100.5	99.3	98.8	100.7	100.9	103.7
Compensation per hour	20.0	26.4	33.9	41.7	58.2	85.6	92.9	108.5	118.7	131.1	143.4	155.0	161.7
Real compensation per hour	50.5	59.7	69.5	80.1	90.8	96.4	98.9	100.8	99.1	96.4	95.5	97.3	98.4
Unit labor costs	39.8	45.2	52.1	53.3	67.5	90.5	95.1	108.0	119.5	132.6	142.4	153.6	156.0
Unit nonlabor payments	43.4	47.6	50.6	57.6	63.2	90.4	94.0	106.7	112.8	119.3	136.7	136.8	145.5
Implicit price deflator	41.0	46.0	51.6	54.7	66.0	90.4	94.7	107.5	117.2	128.1	140.4	147.9	152.4
<b>Nonfarm business sector:</b>													
Output per hour of all persons	56.3	62.8	68.3	80.5	86.8	94.8	97.8	100.6	99.0	98.3	99.8	100.0	103.4
Compensation per hour	21.9	28.3	35.7	42.8	58.7	86.1	93.0	108.6	118.4	130.6	143.1	154.5	162.0
Real compensation per hour	55.1	64.0	73.1	82.3	91.5	96.9	99.0	100.8	98.8	96.0	95.3	97.0	98.6
Unit labor costs	38.8	45.1	52.3	53.2	67.6	90.8	95.1	108.0	119.5	132.8	143.5	154.5	156.6
Unit nonlabor payments	42.7	47.8	50.4	58.0	63.8	88.5	93.5	105.3	110.4	118.6	135.0	136.9	147.0
Implicit price deflator	40.1	46.0	51.6	54.8	66.3	90.0	94.6	107.1	116.5	128.1	140.6	148.6	153.4
<b>Nonfinancial corporations:</b>													
Output per hour of all persons	(1)	(1)	68.0	82.0	87.4	95.5	98.2	100.8	100.6	99.7	101.6	102.6	106.1
Compensation per hour	(1)	(1)	37.0	43.9	59.4	86.1	92.9	108.4	118.6	130.8	143.1	154.6	161.0
Real compensation per hour	(1)	(1)	75.8	84.3	92.7	97.0	98.9	100.7	99.0	96.2	95.3	97.0	97.9
Unit labor costs	(1)	(1)	54.4	53.5	68.0	90.2	94.6	107.5	117.8	131.2	140.9	150.6	151.8
Unit nonlabor payments	(1)	(1)	54.6	60.8	63.1	90.8	95.0	104.2	106.9	117.4	135.1	138.1	149.1
Implicit price deflator	(1)	(1)	54.5	56.1	66.3	90.4	94.7	106.4	114.1	126.4	138.9	146.3	150.9
<b>Manufacturing:</b>													
Output per hour of all persons	49.4	56.4	60.0	74.6	79.2	93.4	97.6	100.9	101.6	101.7	104.9	107.1	111.6
Compensation per hour	21.5	28.8	36.7	42.8	57.6	85.5	92.3	108.3	118.8	132.7	145.2	158.0	163.4
Real compensation per hour	54.0	65.1	75.1	82.3	89.8	96.2	98.3	100.6	99.2	97.6	96.8	99.2	99.4
Unit labor costs	43.4	51.0	61.1	57.5	72.7	91.5	94.6	107.3	117.0	130.5	138.4	147.6	146.4
Unit nonlabor payments	54.3	58.6	61.1	69.4	65.1	87.3	93.9	102.7	99.9	97.9	111.6	110.5	128.8
Implicit price deflator	46.6	53.2	61.1	61.0	70.5	90.3	94.4	106.0	112.0	120.9	130.6	136.7	141.2

1 Not available.



**30. Annual changes in productivity, hourly compensation, unit costs, and prices, 1973-83**

Item	Year											Annual rate of change	
	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1950-83	1973-83
<b>Business sector:</b>													
Output per hour of all persons	2.6	-2.4	2.2	3.3	2.4	0.5	-1.2	-0.5	1.9	0.2	2.7	2.2	0.9
Compensation per hour	8.0	9.4	9.6	8.5	7.7	8.5	9.4	10.4	9.4	8.1	4.3	6.5	8.5
Real compensation per hour	1.6	-1.4	0.5	2.6	1.2	0.8	-1.7	-2.7	-0.9	1.9	1.1	2.0	0.1
Unit labor costs	5.3	12.1	7.3	5.1	5.1	8.0	10.7	11.0	7.3	7.9	1.6	4.2	7.6
Unit nonlabor payments	5.9	4.4	15.1	4.0	6.4	6.7	5.8	5.7	14.6	0.1	6.3	3.7	7.1
Implicit price deflator	5.5	9.5	9.8	4.7	5.6	7.5	9.0	9.3	9.6	5.3	3.0	4.1	7.1
<b>Nonfarm business sector:</b>													
Output per hour of all persons	2.4	-2.5	2.0	3.2	2.2	0.6	-1.5	-0.7	1.5	0.2	3.5	1.9	1.2
Compensation per hour	7.6	9.4	9.6	8.1	7.5	8.6	9.0	10.3	9.6	8.0	4.9	6.3	8.5
Real compensation per hour	1.3	-1.4	0.4	2.2	1.0	0.8	-2.0	-2.8	-0.7	1.7	1.6	1.8	0.1
Unit labor costs	5.0	12.2	7.5	4.7	5.2	8.0	10.7	11.1	8.0	7.7	1.4	4.3	7.6
Unit nonlabor payments	1.3	5.9	16.7	5.7	6.9	5.3	4.8	7.4	13.8	1.4	7.4	3.8	7.5
Implicit price deflator	3.8	10.2	10.3	5.1	5.7	7.1	8.8	10.0	9.8	5.7	3.2	4.1	7.6
<b>Nonfinancial corporations:</b>													
Output per hour of all employees	2.4	-3.7	2.9	2.9	1.8	0.8	-0.2	-0.9	1.9	1.0	3.3	( <sup>1</sup> )	1.1
Compensation per hour	7.5	9.4	9.6	7.9	7.6	8.4	9.4	10.3	9.4	8.0	4.2	( <sup>1</sup> )	8.5
Real compensation per hour	1.2	-1.5	0.4	2.0	1.1	0.7	-1.7	-2.8	-0.9	1.8	0.9	( <sup>1</sup> )	0.1
Unit labor costs	4.9	13.6	6.5	4.9	5.7	7.5	9.6	11.3	7.4	6.9	0.8	( <sup>1</sup> )	7.4
Unit nonlabor payments	1.5	7.1	20.1	4.6	5.3	4.2	2.6	9.8	15.1	2.3	7.9	( <sup>1</sup> )	7.1
Implicit price deflator	3.8	11.4	10.9	4.8	5.6	6.4	7.2	10.8	9.8	5.3	3.1	( <sup>1</sup> )	7.3
<b>Manufacturing:</b>													
Output per hour of all persons	5.4	-2.4	2.9	4.5	2.5	0.9	0.7	0.2	3.1	2.1	4.3	2.5	1.8
Compensation per hour	7.2	10.6	11.9	8.0	8.3	8.3	9.7	11.7	9.4	8.8	3.4	6.3	9.0
Real compensation per hour	0.9	-0.3	2.5	2.1	1.8	0.6	-1.4	-1.6	-0.9	2.5	0.2	1.9	0.5
Unit labor costs	1.7	13.3	8.8	3.4	5.7	7.3	9.0	11.5	6.1	6.6	-0.8	3.8	7.0
Unit nonlabor payments	-3.3	-1.8	25.9	7.5	6.5	2.7	-2.6	-2.1	14.1	-1.0	16.5	2.6	6.2
Implicit price deflator	0.3	9.0	13.1	4.6	6.0	6.0	5.7	7.9	8.0	4.7	3.3	3.4	6.8

<sup>1</sup> Not available.

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

[1977 = 100]

Item	Annual average		Quarterly indexes											
			1982				1983				1984			
	1982	1983	I	II	III	IV	I	II	III	IV	I	II	III <sup>p</sup>	
<b>Business sector:</b>														
Output per hour of all persons	100.9	103.7	100.9	100.3	100.9	101.6	102.2	103.6	104.3	104.7	105.7	<sup>r</sup> 107.0	107.5	
Compensation per hour	155.0	161.7	151.4	153.9	156.7	158.4	160.2	161.0	161.8	164.2	166.7	167.5	169.3	
Real compensation per hour	97.3	98.4	96.9	97.2	97.3	98.0	99.0	98.5	98.0	98.4	98.6	98.2	98.4	
Unit labor costs	153.6	156.0	150.0	153.4	155.3	155.9	156.8	155.4	155.1	156.8	157.7	<sup>r</sup> 156.5	157.6	
Unit nonlabor payments	136.8	145.5	138.0	137.0	135.8	136.5	139.8	144.6	147.9	149.1	151.6	<sup>r</sup> 157.2	158.7	
Implicit price deflator	147.9	152.4	145.9	147.9	148.7	149.3	151.0	151.7	152.7	154.2	155.6	156.7	157.9	
<b>Nonfarm business sector:</b>														
Output per hour of all persons	100.0	103.4	99.8	99.4	100.3	100.5	101.6	103.6	104.1	104.4	105.2	<sup>r</sup> 106.6	106.6	
Compensation per hour	154.5	162.0	151.0	153.2	156.0	157.9	160.1	161.5	162.4	164.0	166.5	168.0	169.5	
Real compensation per hour	97.0	98.6	96.7	96.8	96.9	97.7	99.0	98.8	98.3	98.2	98.5	98.5	98.5	
Unit labor costs	154.5	156.6	151.4	154.2	155.6	157.1	157.6	155.9	155.9	157.1	158.3	<sup>r</sup> 157.6	159.1	
Unit nonlabor payments	136.9	147.0	136.9	137.5	136.8	136.4	140.6	146.4	149.4	151.4	152.2	<sup>r</sup> 156.8	158.1	
Implicit price deflator	148.6	153.4	146.5	148.6	149.3	150.2	151.9	152.7	153.8	155.2	156.3	<sup>r</sup> 157.3	158.7	
<b>Nonfinancial corporations:</b>														
Output per hour of all employees	102.6	106.1	102.2	102.1	103.3	103.2	104.0	105.8	107.2	107.2	108.1	<sup>r</sup> 108.9	( <sup>1</sup> )	
Compensation per hour	154.6	161.0	151.1	153.5	156.2	157.7	159.2	160.6	161.8	162.6	164.8	165.8	( <sup>1</sup> )	
Real compensation per hour	97.0	97.9	96.7	97.0	97.0	97.5	98.4	98.2	98.0	97.4	97.5	97.2	( <sup>1</sup> )	
Total unit costs	154.3	155.2	151.5	154.0	154.7	157.0	156.7	155.2	154.4	154.7	155.0	<sup>r</sup> 155.0	( <sup>1</sup> )	
Unit labor costs	150.6	151.8	147.9	150.3	151.3	152.9	153.1	151.7	150.9	151.7	152.5	<sup>r</sup> 152.3	( <sup>1</sup> )	
Unit nonlabor costs	164.8	164.9	161.6	164.3	164.4	168.8	167.0	165.1	164.4	163.3	162.0	162.8	( <sup>1</sup> )	
Unit profits	84.6	117.2	89.4	86.8	86.6	75.6	92.5	111.8	126.6	135.9	143.2	<sup>r</sup> 151.1	( <sup>1</sup> )	
Implicit price deflator	146.3	150.9	144.3	146.3	146.9	147.7	149.4	150.2	151.2	152.6	153.6	<sup>r</sup> 154.6	( <sup>1</sup> )	
<b>Manufacturing:</b>														
Output per hour of all persons	107.1	111.6	105.5	106.3	108.8	107.8	109.1	110.8	113.4	113.1	114.2	<sup>r</sup> 115.3	117.6	
Compensation per hour	158.0	163.4	154.3	157.2	159.8	161.0	162.7	163.0	163.5	164.6	167.1	168.3	169.9	
Real compensation per hour	99.2	99.4	98.8	99.4	99.2	99.6	100.6	99.7	99.0	98.6	98.9	98.7	98.7	
Unit labor costs	147.6	146.4	146.2	148.0	146.9	149.3	149.1	147.0	144.1	145.5	146.4	<sup>r</sup> 146.0	144.5	

<sup>1</sup> Not available.

p = preliminary.

r = revised.

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

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	I 1983 to II 1983	II 1983 to III 1983	III 1982 to IV 1983	IV 1983 to I 1984	I 1984 to II 1984	II 1984 to II 1984	II 1982 to II 1983	III 1982 to III 1983	IV 1982 to IV 1983	I 1983 to I 1984	II 1983 to II 1984	III 1983 to III 1984
<b>Business sector:</b>												
Output per hour of all persons . . . . .	5.9	2.8	1.4	4.0	r4.9	P1.7	3.3	3.4	3.1	3.5	r3.3	P3.0
Compensation per hour . . . . .	2.2	2.0	6.1	6.2	1.9	P4.5	4.6	3.3	3.7	4.1	4.0	P4.7
Real compensation per hour . . . . .	-2.1	-2.1	1.6	1.2	r-1.8	P0.9	1.3	0.7	0.3	-0.4	-0.3	P0.5
Unit labor costs . . . . .	-3.5	-0.8	4.6	2.1	r-2.9	P2.7	1.3	-0.1	0.6	0.6	r0.7	P1.6
Unit nonlabor payments . . . . .	14.5	9.5	3.1	7.0	r15.4	P3.9	5.5	8.9	9.2	8.4	r8.7	P7.3
Implicit price deflator . . . . .	1.9	2.5	4.1	3.7	r2.9	P3.1	2.6	2.7	3.3	3.0	3.3	P3.5
<b>Nonfarm business sector:</b>												
Output per hour of all persons . . . . .	8.1	2.1	1.0	2.9	r5.5	P0.0	4.3	3.9	3.9	3.5	r2.9	P2.3
Compensation per hour . . . . .	3.5	2.2	4.1	6.1	3.7	P3.7	5.4	4.1	3.9	4.0	4.0	P4.4
Real compensation per hour . . . . .	-0.8	-1.9	-0.3	1.0	0.0	P0.1	2.0	1.5	0.6	-0.5	-0.3	P0.2
Unit labor costs . . . . .	-4.2	0.1	3.0	3.1	r-1.7	P3.7	1.1	0.2	0.0	0.4	r1.1	P2.0
Unit nonlabor payments . . . . .	17.8	8.4	5.3	2.3	r12.5	P3.3	6.5	9.2	10.9	8.3	r7.1	P5.8
Implicit price deflator . . . . .	2.2	2.7	3.7	2.8	r2.8	P3.6	2.8	3.0	3.3	2.9	r3.0	P3.2
<b>Nonfinancial corporations:</b>												
Output per hour of all employees . . . . .	7.5	5.3	-0.2	3.6	1.7	(1)	3.7	3.8	3.9	4.0	r2.9	(1)
Compensation per hour . . . . .	3.5	3.1	2.0	5.7	2.3	(1)	4.6	3.6	3.1	3.6	r3.3	(1)
Real compensation per hour . . . . .	-0.8	-1.0	-2.4	0.7	-1.3	(1)	1.3	1.0	-0.2	-0.9	-1.0	(1)
Total units costs . . . . .	-3.9	-2.0	0.8	0.6	1.0	(1)	0.8	-0.2	-1.5	-1.1	0.1	(1)
Unit labor costs . . . . .	-3.7	-2.1	2.1	2.0	0.6	(1)	0.9	-0.2	-0.8	-0.4	r0.4	(1)
Unit nonlabor costs . . . . .	-4.5	-1.7	-2.6	-3.2	2.1	(1)	0.5	0.0	-3.2	-3.0	-1.4	(1)
Unit profits . . . . .	112.8	64.8	32.6	23.4	13.6	(1)	28.7	46.3	79.8	54.8	r35.2	(1)
Implicit price deflator . . . . .	2.3	2.8	3.6	2.7	2.3	(1)	2.7	3.0	3.3	2.8	r2.9	(1)
<b>Manufacturing:</b>												
Output per hour of all persons . . . . .	6.4	9.7	-1.0	3.7	3.6	P8.0	4.3	4.3	4.9	4.7	r4.1	P3.7
Compensation per hour . . . . .	0.6	1.3	2.9	6.2	2.9	P3.7	3.6	2.3	2.2	2.7	3.3	P3.9
Real compensation per hour . . . . .	-3.5	-2.8	-1.5	1.1	-0.8	P0.1	0.3	-0.3	-1.0	-1.7	-1.0	P-0.3
Unit labor costs . . . . .	-5.5	-7.7	3.9	2.3	-0.7	P-4.0	-0.6	-1.9	-2.6	-1.9	r-0.7	P0.2

1Not available.

r = revised.

p = preliminary.

## WAGE AND COMPENSATION DATA

DATA FOR THE EMPLOYMENT COST INDEX are reported to the Bureau of Labor Statistics by a sample of 2,000 private nonfarm establishments and 750 State and local government units selected to represent total employment in those sectors. On average, each reporting unit provides wage and compensation information on five well-specified occupations.

**Data on negotiated wage and benefit changes** are obtained from contracts on file at the Bureau, direct contact with the parties, and secondary sources.

### Definitions

The **Employment Cost Index (ECI)** is a quarterly measure of the average change in the cost of employing labor. The rate of total compensation, which comprises wages, salaries, and employer costs for employee benefits, is collected for workers performing specified tasks. Employment in each occupation is held constant over time for all series produced in the ECI, except those by region, bargaining status, and area. As a consequence, only changes in compensation are measured. Industry and occupational employment data from the 1970 Census of Population are used in deriving constant weights for the ECI. While holding total industry and occupational employment fixed, in the estimation of indexes by region, bargaining status, and area, the employment in those measures is allowed to vary over time in accord with changes in the sample. The rate of change (in percent) is available for wages and salaries, as well as for total compensation. Data are collected for the pay period including the 12th day of the survey months of March, June, September, and December. The statistics are neither annualized nor adjusted for seasonal influence.

**Wages and salaries** consist of earnings before payroll deductions, excluding premium pay for overtime, work on weekends and holidays, and shift differentials. Production bonuses, incentive earnings, commissions, and cost-of-living adjustments are included; nonproduction bonuses are included with other supplemental pay items in the benefits category; and payments-in-kind, free room and board, and tips are excluded. *Benefits* include supplemental pay, insurance, retirement and savings plans, and hours-related and legally required benefits.

**Data on negotiated wage changes** apply to private nonfarm industry collective bargaining agreements covering 1,000 workers or more. Data on compensation changes apply only to those agreements covering 5,000 workers or more. *First-year* wage or compensation changes refer to average negotiated changes for workers covered by settlements reached in the period

and implemented within the first 12 months after the effective date of the agreement. *Changes over the life of the agreement* refer to all adjustments specified in the contract, expressed as an average annual rate. These measures exclude wage changes that may occur under cost-of-living adjustment clauses, that are triggered by movements in the Consumer Price Index. *Wage-rate changes* are expressed as a percent of straight-time hourly earnings; *compensation changes* are expressed as a percent of total wages and benefits.

**Effective wage adjustments** reflect all negotiated changes implemented in the reference period, regardless of the settlement date. They include changes from settlements reached during the period, changes deferred from contracts negotiated in an earlier period, and cost-of-living adjustments. The data also reflect contracts providing for no wage adjustment in the period. Effective adjustments and each of their components are prorated over all workers in bargaining units with at least 1,000 workers.

### Notes on the data

The Employment Cost Index data series began in the fourth quarter of 1975, with the quarterly percent change in wages and salaries in the private nonfarm sector. Data on employer costs for employee benefits were included in 1980, to produce a measure of the percent change in employers' cost for employees' total compensation. State and local government units were added to the ECI coverage in 1981, providing a measure of total compensation change in the civilian nonfarm economy.

Data for the broad white-collar, blue-collar, and service worker groups, and the manufacturing, nonmanufacturing, and service industry groups are presented in the ECI. Additional occupation and industry detail are provided for the wages and salaries component of total compensation in the private nonfarm sector. For State and local government units, additional industry detail is shown for both total compensation and its wages and salaries component.

Historical indexes (June 1981 = 100) of the quarterly rates of changes presented in the ECI are also available.

For a more detailed discussion of the ECI, see chapter 11, "The Employment Cost Index," of the BLS *Handbook of Methods* (Bulletin 2134-1), and the *Monthly Labor Review* articles: "Employment Cost Index: a measure of change in the 'price of labor,'" July 1975; "How benefits will be incorporated into the Employment Cost Index," January 1978; and "The Employment Cost Index: recent trends and expansion," May 1982.

Additional data for the ECI and other measures of wage and compensation changes appear in *Current Wage Developments*, a monthly publication of the Bureau.

**33. Employment Cost Index, by occupation and industry group**

[June 1981 = 100]

Series	1982		1983				1984			Percent change	
	Sept.	Dec.	March	June	Sept.	Dec.	March	June	Sept.	3 months ended	12 months ended
										September 1984	
<b>Civilian workers<sup>1</sup></b> .....	110.1	111.4	113.2	114.5	116.5	117.8	119.8	120.8	122.4	1.3	5.1
Workers, by occupational group											
White-collar workers .....	110.7	111.9	113.7	114.9	117.6	118.9	120.9	122.1	124.0	1.6	5.4
Blue-collar workers .....	109.2	110.5	112.3	113.6	114.8	115.8	117.7	118.6	119.6	.8	4.2
Service workers .....	110.8	112.4	114.3	115.1	116.7	119.1	122.0	122.1	124.6	2.0	6.8
Workers, by industry division											
Manufacturing .....	109.3	110.4	112.5	113.5	115.0	116.0	117.9	119.1	120.4	1.1	4.7
Nonmanufacturing .....	110.5	111.8	113.5	114.9	117.2	118.6	120.7	121.6	123.3	1.4	5.2
Services .....	113.5	115.0	116.6	117.1	121.1	122.6	125.0	125.5	128.8	2.6	6.4
Public administration <sup>2</sup> .....	112.8	113.6	116.2	117.0	119.8	121.4	122.9	123.7	126.9	2.6	5.9
<b>Private industry workers</b> .....	109.3	110.7	112.6	113.9	115.6	117.0	119.0	120.1	121.1	.8	4.8
Workers, by occupational group											
White-collar workers .....	109.5	110.8	112.8	114.2	116.5	117.9	119.9	121.4	122.4	.8	5.1
Blue-collar workers .....	109.0	110.3	112.1	113.5	114.6	115.7	117.5	118.4	119.3	.8	4.1
Service workers .....	109.6	111.8	113.8	114.6	115.1	117.9	121.5	121.2	123.2	1.7	7.0
Workers, by industry division											
Manufacturing .....	109.3	110.4	112.5	113.5	115.0	116.0	117.9	119.1	120.4	1.1	4.7
Nonmanufacturing .....	109.3	110.8	112.6	114.2	116.0	117.5	119.6	120.7	121.6	.7	4.8
<b>State and local government workers</b> .....	114.3	115.1	116.5	117.1	120.8	122.0	123.9	124.4	128.8	3.5	6.6
Workers, by occupational group											
White-collar workers .....	114.9	115.8	117.0	117.5	121.5	122.6	124.5	125.0	129.7	3.8	6.7
Blue-collar workers .....	112.7	113.0	114.9	115.8	118.0	119.2	121.9	122.3	125.0	2.2	5.9
Workers, by industry division											
Services .....	114.9	115.9	116.8	117.4	121.7	122.6	124.5	125.0	129.9	3.9	6.7
Schools .....	114.8	115.8	116.6	116.9	121.9	122.6	124.5	124.7	130.6	4.7	7.1
Elementary and secondary .....	115.6	116.6	117.2	117.4	123.3	123.9	125.4	125.7	132.1	5.1	7.1
Hospitals and other services <sup>3</sup> .....	115.3	116.0	117.5	118.8	121.1	122.6	124.4	125.7	127.9	1.8	5.6
Public administration <sup>2</sup> .....	112.8	113.6	116.2	117.0	119.8	121.4	122.9	123.7	126.9	2.6	5.9

<sup>1</sup>Excludes farm, household, and Federal workers.

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

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

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

[June 1981 = 100]

Series	1982		1983				1984			Percent change	
	Sept.	Dec.	March	June	Sept.	Dec.	March	June	Sept.	3 months ended	12 months ended
										September 1984	September 1984
<b>Civilian workers<sup>1</sup></b> .....	109.7	110.9	112.2	113.4	115.3	116.5	117.9	118.8	120.3	1.3	4.3
Workers, by occupational group .....											
White-collar workers .....	110.4	111.4	113.0	114.2	116.7	117.9	119.3	120.4	122.2	1.5	4.7
Blue-collar workers .....	108.6	109.8	110.8	112.0	113.1	114.0	115.3	116.1	117.0	0.8	3.4
Service workers .....	110.1	111.8	113.2	113.9	115.1	117.4	120.0	119.8	122.3	2.1	6.3
Workers, by industry division .....											
Manufacturing .....	108.8	109.8	111.0	112.0	113.3	114.5	115.7	116.8	118.0	1.0	4.1
Nonmanufacturing .....	110.1	111.3	112.7	114.0	116.1	117.4	118.9	119.7	121.3	1.3	4.5
Services .....	113.2	114.4	115.8	116.3	120.1	121.3	123.3	123.8	127.2	2.7	5.9
Public administration <sup>2</sup> .....	111.9	112.6	114.6	115.4	118.2	119.4	120.4	121.3	124.4	2.6	5.2
<b>Private industry workers</b> .....	109.0	110.3	111.6	112.9	114.5	115.8	117.2	118.2	119.2	.8	4.1
Workers, by occupational group .....											
White-collar workers .....	109.4	110.6	112.2	113.6	115.9	117.2	118.5	119.9	120.9	.8	4.3
Professional and technical workers .....	111.8	112.9	114.8	115.9	119.9	120.4	122.2	123.8	125.2	1.1	4.4
Managers and administrators .....	108.5	109.3	112.0	114.0	114.8	115.7	118.0	119.2	121.0	1.5	5.4
Salesworkers .....	104.5	106.2	105.7	107.1	108.4	111.2	110.2	111.9	110.5	-1.3	1.9
Clerical workers .....	110.3	111.6	113.4	114.6	116.7	118.3	119.8	120.7	122.0	1.1	4.5
Blue-collar workers .....	108.5	109.7	110.7	111.9	112.9	113.9	115.1	115.9	116.7	.7	3.4
Craft and kindred workers .....	109.6	111.2	112.2	113.4	114.3	115.4	116.5	117.3	118.0	.6	3.2
Operatives, except transport .....	108.3	109.3	110.0	111.1	112.3	113.6	114.9	115.8	116.6	.7	3.8
Transport equipment operatives .....	106.0	106.9	108.0	110.3	110.7	110.2	111.7	112.7	113.4	.6	2.4
Nonfarm laborers .....	106.5	107.8	109.0	109.8	110.8	112.1	112.9	114.1	114.7	.5	3.5
Service workers .....	109.3	111.4	112.9	113.5	113.7	116.5	119.8	119.3	121.2	1.6	6.6
Workers, by industry division .....											
Manufacturing .....	108.8	109.8	111.0	112.0	113.3	114.5	115.7	116.8	118.0	1.0	4.1
Durables .....	109.0	110.3	111.1	111.8	112.9	114.4	115.7	116.6	117.7	.9	4.3
Nondurables .....	108.5	109.1	110.9	112.3	113.9	114.6	115.8	117.1	118.6	1.3	4.1
Nonmanufacturing .....	109.1	110.5	112.0	113.4	115.2	116.5	118.0	119.0	119.9	.8	4.1
Construction .....	109.1	109.7	110.4	112.1	112.2	112.9	113.3	114.0	114.3	.3	1.9
Transportation and public utilities .....	109.5	111.1	112.9	114.7	115.7	116.8	118.5	119.3	119.9	.5	3.6
Wholesale and retail trade .....	106.5	107.2	108.5	110.8	111.5	112.3	114.3	116.0	116.5	.4	4.5
Wholesale trade .....	109.0	109.8	111.8	114.1	115.7	116.5	118.2	120.0	120.7	.6	4.3
Retail trade .....	105.5	106.1	107.2	109.4	109.9	110.6	112.8	114.4	114.9	.4	4.5
Finance, insurance, and real estate .....	106.1	109.0	110.6	111.1	113.5	116.9	116.1	116.9	115.3	-1.4	1.6
Services .....	112.5	114.3	116.0	116.6	120.4	121.9	124.2	124.7	127.1	1.9	5.6
<b>State and local government workers</b> .....	113.5	114.0	115.1	115.7	119.2	120.0	121.6	122.0	126.1	3.4	5.8
Workers, by occupational group .....											
White-collar workers .....	114.2	114.6	115.6	116.1	119.8	120.6	122.2	122.5	127.1	3.8	6.1
Blue-collar workers .....	111.5	112.0	113.3	114.3	116.4	116.9	119.1	119.6	121.9	1.9	4.7
Workers, by industry division .....											
Services .....	114.2	114.6	115.5	115.9	119.8	120.6	122.2	122.5	127.2	3.8	6.2
Schools .....	114.2	114.5	115.2	115.4	119.9	120.6	122.2	122.3	127.8	4.5	6.6
Elementary and secondary .....	114.9	115.1	115.6	115.8	121.1	121.7	122.9	123.0	129.3	5.1	6.8
Hospitals and other services <sup>3</sup> .....	114.3	114.9	116.5	117.7	119.7	120.6	121.9	123.1	125.1	1.6	4.5
Public administration <sup>2</sup> .....	111.9	112.6	114.6	115.4	118.2	119.4	120.4	121.3	124.4	2.6	5.2

<sup>1</sup>Excludes farm, household, and Federal workers.

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

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

**35. Employment Cost Index, private industry workers, by bargaining status, region, and area size**

(June 1981 = 100)

Series	1982		1983				1984			Percent change	
	Sept.	Dec.	March	June	Sept.	Dec.	March	June	Sept.	3 months	12 months
										ended	ended
										September 1984	
<b>COMPENSATION</b>											
Workers, by bargaining status <sup>1</sup>											
Union	110.6	112.3	114.5	116.0	117.8	118.8	120.6	121.7	122.6	0.7	4.1
Manufacturing	110.3	111.8	114.0	114.8	116.3	117.2	119.3	120.5	121.6	.9	4.6
Nonmanufacturing	111.0	112.8	114.9	117.1	119.2	120.4	121.9	122.8	123.6	.7	3.7
Nonunion	108.5	109.7	111.5	112.8	114.4	115.9	118.0	119.2	120.3	.9	5.2
Manufacturing	108.4	109.2	111.2	112.3	113.8	114.9	116.6	117.9	119.3	1.2	4.8
Nonmanufacturing	108.6	109.9	111.6	113.0	114.7	116.4	118.6	119.8	120.7	.8	5.2
Workers, by region <sup>1</sup>											
Northeast		111.7	112.6	114.3	116.0	117.5	118.9	120.7	122.4	1.4	5.5
South		110.6	112.5	113.5	115.6	117.1	119.7	120.7	120.7	.0	4.4
North Central		108.6	110.9	112.5	113.9	114.7	117.2	117.9	119.7	1.5	5.1
West		112.9	115.4	116.6	118.0	120.0	121.0	122.2	122.5	.2	3.8
Workers, by area size <sup>1</sup>											
Metropolitan areas	109.4	110.9	112.9	114.2	116.0	117.4	119.4	120.6	121.5	.7	4.7
Other areas	108.6	109.1	110.8	112.3	113.4	114.5	116.7	117.4	119.0	1.4	4.9
<b>WAGES AND SALARIES</b>											
Workers, by bargaining status <sup>1</sup>											
Union	110.3	111.8	112.9	114.2	116.0	116.9	118.1	119.0	119.8	.7	3.3
Manufacturing	109.5	110.8	111.4	112.3	113.7	114.8	116.1	117.1	118.1	.9	3.9
Nonmanufacturing	111.1	112.7	114.3	116.0	118.3	118.9	120.1	120.7	121.3	.5	2.5
Nonunion	108.3	109.5	110.9	112.2	113.7	115.2	116.7	117.8	118.8	.8	4.5
Manufacturing	108.2	109.1	110.7	111.8	113.0	114.2	115.4	116.5	117.9	1.2	4.3
Nonmanufacturing	108.3	109.6	111.0	112.4	114.0	115.6	117.2	118.3	119.2	.8	4.6
Workers, by region <sup>1</sup>											
Northeast	109.7	111.5	112.0	113.6	115.3	116.6	117.4	118.9	120.5	1.3	4.5
South	108.8	109.8	111.4	112.5	114.3	115.7	117.9	119.0	119.0	.0	4.1
North Central	107.6	108.6	110.1	111.5	112.8	113.6	115.5	116.0	117.8	1.6	4.4
West	110.7	112.0	114.1	114.9	116.5	118.5	118.8	119.6	120.0	.3	3.0
Workers by area size <sup>1</sup>											
Metropolitan areas	109.1	110.5	111.9	113.2	114.9	116.2	117.6	118.6	119.5	0.8	4.0
Other areas	108.3	108.8	110.1	111.4	112.3	113.4	115.1	116.0	117.5	1.3	4.6

<sup>1</sup>The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see BLS *Handbook of Methods*, Bulletin 1910.

### 36. Wage and compensation change, major collective bargaining settlements, 1979 to date

[In percent]

Measure	Annual average					Quarterly average								
						1982		1983				1984 <sup>p</sup>		
	1979	1980	1981	1982	1983	III	IV	I	II	III	IV	I	II	III
Total compensation changes, covering 5,000 workers or more, all industries:														
First year of contract . . . . .	9.0	10.4	10.2	3.2	3.4	6.2	3.3	-1.6	4.4	5.0	4.9	5.1	3.5	2.9
Annual rate over life of contract . . . . .	6.6	7.1	8.3	2.8	3.0	4.7	4.8	1.4	3.6	4.3	3.1	4.7	3.2	3.3
Wage rate changes covering at least 1,000 workers, all industries:														
First year of contract . . . . .	7.4	9.5	9.8	3.8	2.6	5.4	3.8	-1.2	2.7	3.7	4.2	2.9	2.6	2.3
Annual rate over life of contract . . . . .	6.0	7.1	7.9	3.6	2.8	4.5	4.8	2.2	2.8	3.6	2.8	3.2	2.7	2.7
Manufacturing:														
First year of contract . . . . .	6.9	7.4	7.2	2.8	0.4	5.1	4.1	-3.4	1.3	3.4	2.9	2.5	2.2	2.2
Annual rate over life of contract . . . . .	5.4	5.4	6.1	2.6	2.1	1.7	3.9	4.5	.9	3.5	3.1	2.5	2.2	2.4
Nonmanufacturing (excluding construction):														
First year of contract . . . . .	7.6	9.5	9.8	4.3	5.0	5.5	3.6	3.3	5.9	5.8	4.8	4.4	4.3	2.4
Annual rate over life of contract . . . . .	6.2	6.6	7.3	4.1	3.7	4.8	5.2	5.3	5.2	4.3	2.7	4.8	4.2	3.1
Construction:														
First year of contract . . . . .	8.8	13.6	13.5	6.5	1.5	6.3	3.4	.7	1.7	1.5	1.1	-3.5	1.0	2.0
Annual rate over life of contract . . . . .	8.3	11.5	11.3	6.3	2.4	5.9	2.9	2.4	2.1	2.9	2.6	-2.8	1.4	2.1

p = preliminary.

### 37. Effective wage adjustments in collective bargaining units covering 1,000 workers or more, 1979 to date

Measure	Year					Year and quarter								
						1982		1983				1984 <sup>p</sup>		
	1979	1980	1981	1982	1983	III	IV	I	II	III	IV	I	II	III
Average percent adjustment (including no change):														
All industries . . . . .	9.1	9.9	9.5	6.8	4.0	2.4	1.3	0.3	1.3	1.2	1.1	0.9	1.0	1.1
Manufacturing . . . . .	9.6	10.2	9.4	5.2	2.7	1.7	1.5	-.5	1.1	1.2	.9	1.2	1.0	.9
Nonmanufacturing . . . . .	8.8	9.7	9.5	7.9	4.8	2.9	1.2	.9	1.5	1.2	1.2	.7	.9	1.3
From settlements reached in period . . . . .	3.0	3.6	2.5	1.7	.8	.5	.6	-.2	.3	.2	.6	.1	.1	.2
Deferred from settlements reached in earlier period . . . . .	3.0	3.5	3.8	3.6	2.5	1.3	.4	.4	1.0	.8	.3	.4	.7	.7
From cost-of-living clauses . . . . .	3.1	2.8	3.2	1.4	.6	.6	.3	.1	.1	.2	.2	.4	.2	.3
Total number of workers receiving wage change (in thousands) <sup>1</sup> . . . . .	—	—	8,648	7,852	6,530	3,760	3,441	2,875	3,061	3,025	2,887	2,855	2,656	2,326
From settlements reached in period . . . . .	—	—	2,270	1,907	2,327	620	825	448	561	599	996	293	343	383
Deferred from settlements reached in earlier period . . . . .	—	—	6,267	4,846	3,260	2,400	860	812	1,405	1,317	669	990	1,175	1,578
From cost-of-living clauses . . . . .	—	—	4,593	3,830	2,327	2,251	1,970	1,938	1,299	1,218	1,290	1,616	1,301	1,172
Number of workers receiving no adjustments (in thousands) . . . . .	—	—	145	483	1,187	4,575	4,895	4,842	4,656	4,693	4,830	4,668	4,867	5,198

<sup>1</sup>The total number of workers who received adjustments does not equal the sum of workers that received each type of adjustment, because some workers received more than one type of adjustment during the period.

p = preliminary.

## WORK STOPPAGE DATA

WORK STOPPAGES include all known strikes or lockouts involving 1,000 workers or more and lasting a full shift or longer. Data are based largely on newspaper accounts and 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.

Estimates of days idle as a percent of estimated working time measure only the impact of larger strikes (1,000 workers or more). Formerly, these estimates measured the impact of strikes involving 6 workers or more; that is, the impact of virtually *all* strikes. Due to budget stringencies, collection of data on strikes involving fewer than 1,000 workers was discontinued with the December 1981 data.

**38. Work stoppages involving 1,000 workers or more, 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 (in thousands)	In effect during month (in thousands)	Number (in thousands)	Percent of estimated working time
1947	270		1,629		25,720	—
1948	245		1,435		26,127	.22
1949	262		2,537		43,420	.38
1950	424		1,698		30,390	.26
1951	415		1,462		15,070	.12
1952	470		2,746		48,820	.38
1953	437		1,623		18,130	.14
1954	265		1,075		16,630	.13
1955	363		2,055		21,180	.16
1956	287		1,370		26,840	.20
1957	279		887		10,340	.07
1958	332		1,587		17,900	.13
1959	245		1,381		60,850	.43
1960	222		896		13,260	.09
1961	195		1,031		10,140	.07
1962	211		793		11,760	.08
1963	181		512		10,020	.07
1964	246		1,183		16,220	.11
1965	268		999		15,140	.10
1966	321		1,300		16,000	.10
1967	381		2,192		31,320	.18
1968	392		1,855		35,567	.20
1969	412		1,576		29,397	.16
1970	381		2,468		52,761	.29
1971	298		2,516		35,538	.19
1972	250		975		16,764	.09
1973	317		1,400		16,260	.08
1974	424		1,796		31,809	.16
1975	235		965		17,563	.09
1976	231		1,519		23,962	.12
1977	298		1,212		21,258	.10
1978	219		1,006		23,774	.11
1979	235		1,021		20,409	.09
1980	187		795		20,844	.09
1981	145		729		16,908	.07
1982	96		656		9,061	.04
1983	81		909		17,461	.08
1983	January	1				
	February	3	1.6	38.0	794.8	.04
	March	5	14.0	50.4	844.4	.05
	April	10	10.5	54.9	1,131.5	.05
	May	9	2.8	52.4	789.5	.04
	June	17	24.9	34.2	488.5	.03
	July	25	63.3	81.2	689.1	.03
	August	23	64.5	99.8	1,270.1	.07
	September	19	615.8	669.7	8,673.2	.41
	October	19	20.8	49.5	567.1	.03
		12	68.4	84.7	1,143.3	.06
1984 <sup>P</sup>	January	6	28.9	43.0	507.3	.03
	February	12	8.7	37.2	365.5	.02
	March	9	3.0	14.6	284.2	.01
	April	13	28.5	38.1	651.0	.03
	May	15	8.1	39.2	581.2	.03
	June	14	23.7	45.7	754.8	.04
	July	20	68.4	104.1	1,221.7	.06
	August	18	21.5	100.9	1,623.3	.07
	September	17	103.6	117.9	1,716.4	.04
	October	15	15.8	33.7	498.7	.02

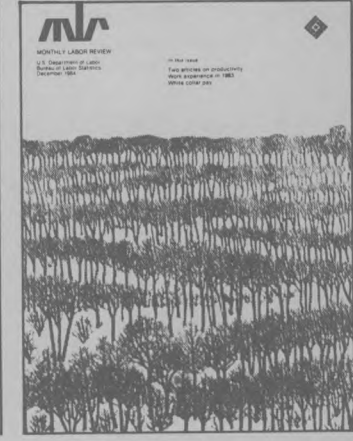
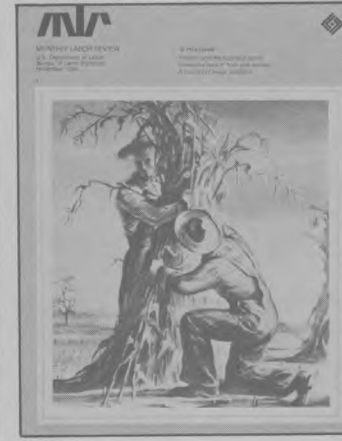
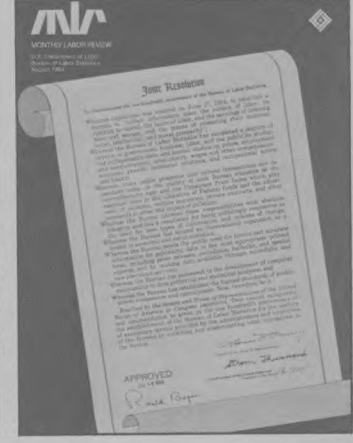
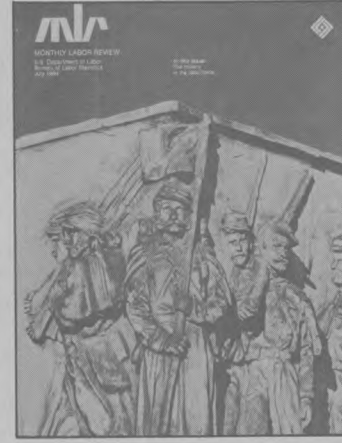
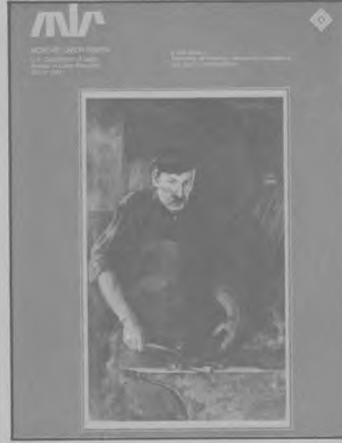
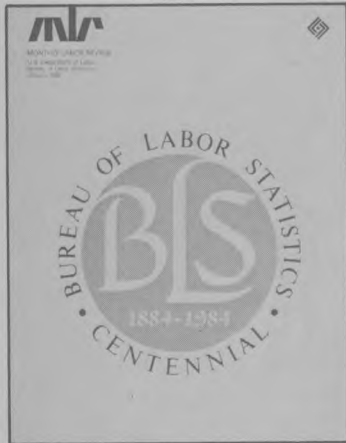
<sup>p</sup> = preliminary.



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Productivity trends in manufacturing in the U.S. and 11 other countries. 1984 Jan. 52-58.

**OCCUPATIONS**

Occupational reclassification and changes in distribution by gender. 1984 Mar. 11-17.  
 Staffing patterns prominent in female-male earnings gap. 1984 June. 29-33.

**PENSIONS** (See also Supplemental benefits.)

A comparison of pension benefit increases and inflation, 1973-79. 1984 May. 42-47.

How social security payments affect private pensions. 1984 May. 15-20.

Pension plans as a spur to labor force withdrawal. 1984 Dec. 39.

Postretirement increases under private pension plans. 1984 Sept. 3-8.

Surviving spouse's benefits in private pension plans. 1984 Apr. 23-31.

**PLANT SHUTDOWN**

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Plant closures: efforts to cushion the blow. 1984 June. 41-43.

**POPULATION**

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**POVERTY**

Poverty estimates lowered by inclusion of noncash benefits. 1984 May. 46-47.

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Average retail food prices: a brief history of methods. 1984 Nov. 52-53.

Effects of strong dollar, economic recovery apparent in first-half import and export prices. 1984 Oct. 3-17.

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Inflation remained low in 1983 in face of strong recovery. 1984 May. 3-9.

Producer Price trends continue to moderate in the third quarter. 1984 Jan. 76-79.

Robust growth and the strong dollar set pattern for 1983 import and export prices. 1984 Apr. 3-14.

Workers' purchasing power rises despite slowdown in wage and salary gains. 1984 May. 10-14.

**PRODUCTIVITY**

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Measuring productivity in State and local government. 1984 June. 47-48.

Meatpacking and prepared meats industry: above-average productivity gains. 1984 Apr. 37-42.

Productivity declined in 1982 in a majority of industries measured. 1984 Jan. 80-83.

Productivity growth in the switchgear industry slows after 1973. 1984 Mar. 33-36.

Productivity in making heating and cooling equipment. 1984 Dec. 11-17.

Productivity trends in manufacturing in the U.S. and 11 other countries. 1984 Jan. 52-58.

Strong post-recession productivity gain helps curb labor cost growth. 1984 Dec. 3-10.

Worker participation and productivity change. 1984 Sept. 28-33.

**PROJECTIONS**

An evaluation of BLS' projections of 1980 industry employment. 1984 Aug. 12-22.

**PUBLIC EMPLOYEES**

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**QUALITY OF WORKLIFE**

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**QUIT RATE**

New occupational separation data improve estimates of job replacement needs. 1984 Mar. 3-10.

**RETIREMENT** (See also Pensions.)

Modeling the retirement process for policy evaluation and research. 1984 July. 26-33.

**SAFETY AND HEALTH**

BLS' 1982 survey of work-related deaths. 1984 Mar. 43-45.

**SALARIES** (See Earnings and wages.)**SERVICE SECTOR**

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How social security payments affect private pensions. 1984 May. 15-20.

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Changes in unemployment insurance legislation during 1983. 1984 Feb. 46-61.

State and regional employment and unemployment in 1983. 1984 Sept. 9-15.

State labor legislation enacted in 1983. 1984 Jan. 59-75.

Workers' compensation: significant enactments in 1983. 1984 Feb. 55-61.

**STATISTICAL PROGRAMS AND METHODS**

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A statistical portrait of hired farmworkers. 1984 June. 49-53.

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Occupational reclassification and changes in distribution by gender. 1984 Mar. 11-17.

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"Underground economy" and BLS statistical data, The. 1984 Jan. 4-18.

Use of employment data to estimate office space demand. 1984 Dec. 40-44.

**SUPPLEMENTAL BENEFITS**

A comparison of pension benefit increases and inflation, 1973-79. 1984 May. 42-47.

Postretirement increases under private pension plans. 1984 Sept. 3-8.

**SURVEY METHODS**

BLS to improve urban sample in 1987 revision of the CPI. 1984 May. 51.

Current Population Survey: a historical perspective and BLS' role, The. 1984 June. 8-14.

Response variation in the CPS: caveats for the unemployment analyst. 1984 Mar. 37-43.

**SWEDEN**

Productivity trends in manufacturing in the U.S. and 11 other countries. 1984 Jan. 52-58.

Recent labor market developments in the U.S. and nine other countries. 1984 Jan. 44-51.

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**TENURE** (See Job tenure.)**TRADE ADJUSTMENT ASSISTANCE PROGRAM**

Job cuts are only one means firms use to counter imports. 1984 June. 39-41.

**TRADE UNIONS** (See Labor organizations.)**TRAINING** (See Education and training.)**UNDERGROUND ECONOMY**

"Underground economy" and BLS statistical data, The. 1984 Jan. 4-18.

**UNEMPLOYMENT** (See also Employment; Labor force.)

A comparison of youth unemployment in Australia and the United States. 1984 Oct. 30-36.

Auto industry experiments with the Guaranteed Income Stream. 1984 July. 37-39.

- Discouraged workers: how strong are their links to the job market? 1984 Aug. 8-11.  
 Easing the worker's transition from job loss to employment. 1984 May. 38-40.  
 Employment and unemployment improvements widespread in 1983. 1984 Feb. 3-14.  
 Employment in the first half: robust recovery continues. 1984 Aug. 3-7.  
 Female-male unemployment differential: effects of changes in industry employment, *The*. 1984 Nov. 8-15.  
 Fewer students in work force as school age population declines. 1984 July. 34-37.  
 Japan's low unemployment: an in-depth analysis. 1984 Mar. 18-27.  
 Job vacancies versus unemployment. 1984 May. 49-50.  
 Plant closures: efforts cushion the blow. 1984 June. 41-43.  
 Regional variations in employment and unemployment during 1970-82. 1984 Feb. 38-45.  
 Recent recessions swell ranks of the long-term unemployed. 1984 Feb. 25-29.  
 Recessionary impacts on the unemployment of men and women. 1984 May. 21-25.  
 Sources of secular increases in the unemployment rate, 1969-82. 1984 July. 19-25.  
 State and regional employment and unemployment in 1983. 1984 Sept. 9-15.  
 Unemployment in 1982: the cost to workers and their families. 1984 Feb. 30-37.  
 Unemployment in the West. 1984 June. 2.  
 Young discouraged workers: racial differences explored. 1984 June. 36-39.

**UNEMPLOYMENT INSURANCE**

- Auto industry experiments with the Guaranteed Income Stream. 1984 July. 37-39.  
 Changes in unemployment insurance legislation during 1983. 1984 Feb. 46-61.  
 Federal Supplemental Compensation and Unemployment Insurance Recipients. 1984 Apr. 43-45.  
 Incomplete experience rating in State unemployment insurance. 1984 Nov. 45-49.  
 Unemployment insurance: identifying payment errors. 1984 Dec. 34-37.

**UNION MEMBERSHIP**

- Labor organization mergers 1979-84: adapting to change. 1984 Sept. 21-27.

**WAGES** (See Earnings and wages.)

**WELFARE REFORM**

- Poverty estimates lowered by inclusion of noncash benefits. 1984 May. 46-47.

**WHITE-COLLAR WORKERS**

- Occupational salary levels for white-collar workers, 1984. 1984 Oct. 43-45.  
 White-collar pay determination under range-of-rate systems. 1984 Dec. 25-30.

**WOMEN**

- Earnings differences between men and women: an introductory note. 1984 June. 15-16.  
 Female-male unemployment differential: effects of changes in industry employment, *The*. 1984 Nov. 8-15.  
 Investigating the differences in weekly earnings of women and men. 1984 June. 17-28.  
 Staffing patterns prominent in female-male earnings gap. 1984 June. 29-33.  
 Working mothers reach record number in 1984. 1984 Dec. 31-34.  
 Working women. 1984 July. 2.

**WORK INJURIES AND ILLNESSES**

- BLS' 1982 survey of work-related deaths. 1984 Mar. 43-45.

**WORKLIFE**

- Helping labor and management set up a quality-of-worklife program. 1984 Mar. 28-32.

**WORK MOTIVATION**

- Incentives in manufacturing: the carrot and the stick. 1984 July. 40-43.  
 Worker participation and productivity change. 1984 Sept. 28-33.

**WORKERS' COMPENSATION**

- Workers' compensation: significant enactments in 1983. 1984 Feb. 55-61.

**YOUTH** (See Labor force.)

**DEPARTMENTS**

- Anatomy of Price Change. January issue.  
 Book Notes. June issue.  
 Book Reviews. Each issue except January.  
 Communications. June and November issues.  
 Conference Papers. May and June issues.  
 Current Labor Statistics. Each issue.  
 Developments in Industrial Relations. Each issue except January.  
 Foreign Labor Developments. August and November issues.  
 Labor Month in Review. Each issue.  
 Major Agreements Expiring Next Month. Each issue.  
 Productivity Reports. January and June issues.  
 Research Notes. May issue.  
 Research Summaries. Each issue except January and February.  
 Technical Notes. May, November, and December issues.

**BOOK REVIEWS AND BOOK NOTES** (Listed by author of book.)

- Aaron, Henry J. *Economic Effects of Social Security*. 1984 Feb. 68.  
 Barnard, John, ed. *Walter Reuther and the Rise of the Auto Workers*. 1984 Mar. 60-61.  
 Berg, Ivar, ed. *Sociological Perspectives on Labor Markets*. 1984 Mar. 61-62.  
 Cottle, Rex L., Hugh Macaulay, and Bruce Yandle. *Labor and Property Rights in California Agriculture: An Economic Analysis of the CALRA*. 1984 Aug. 44-45.  
 Davidson, Sue and Joan M. Jensen, eds. *A Needle, A Bobbin, A Strike: Women Needleworkers in America*. 1984 Dec. 52-56.  
 Derber, Charles, ed. *Professionals as Workers: Mental Labor in Advanced Capitalism*. 1984 Mar. 61-62.  
 Dyson, Kenneth and Stephen Wilks, eds. *Industrial Crisis*. 1984 Apr. 52.  
 Fabozzi, Frank J. and Harry I. Greenfield, eds. *The Handbook of Economic Measures*. 1984 Nov. 62.  
 Goldfarb, Ronald L. *Migrant Farm Workers: A Caste of Despair*. 1984 Aug. 44-45.  
 Greenfield, Harry I. and Frank J. Fabozzi, eds. *The Handbook of Economic Measures*. 1984 Nov. 62.  
 Horner, Monica and Sharon Zarozny. *The Federal Data Base Finder*. 1984 Nov. 62.  
 Jensen, Joan M. and Sue Davidson, eds. *A Needle, A Bobbin, A Strike: Women Needleworkers in America*. 1984 Dec. 52-56.  
 Jones, Ethel B. *Determinants of Female Reentrant Unemployment*. 1984 June. 61.  
 Katzan, Harry, Jr. *Management Support Systems: A Pragmatic Approach*. 1984 May. 57.  
 Kaufman, H.G. *Professionals in Search of Work: Coping with the Stress of Job Loss and Underemployment*. 1984 Mar. 61-62.  
 Leab, Daniel J., Dorothy Swanson, and Maurice F. Neufeld. *American Working Class History: A Representative Bibliography*. 1984 Feb. 69.  
 Lehrer, Robert N., ed. *White Collar Productivity*. 1984 Sept. 48-50.  
 Leventman, Paula G. *Professionals Out of Work*. 1984 Mar. 61-62.  
 McColloch, Mark. *White Collar Workers in Transition: The Boom Years, 1940-70*. 1984 June. 61.  
 Macaulay, Hugh, Bruce Yandle, and Rex L. Cottle. *Labor and Property Rights in California Agriculture: An Economic Analysis of the CALRA*. 1984 Aug. 44-45.

- Majka, Linda C. and Theo Majka. *Farmworkers, Agribusiness, and the State*. 1984 Nov. 61-62.
- Majka, Theo and Linda C. Majka. *Farmworkers, Agribusiness, and the State*. 1984 Nov. 61-62.
- National Institute of Statistics and Economic Studies, France. *Donnees Sociales. (Social Data.)* 1984 June. 60-61.
- Neikirk, William and Gail Garfield Schwartz. *The Work Revolution*. 1984 July. 48-49.
- Neufeld, Maurice F., Daniel J. Leab, and Dorothy Swanson. *American Working Class History: A Representative Bibliography*. 1984 Feb. 69.
- Organization for Economic Cooperation and Development, Paris. *Labor Force Statistics, 1970-81*. 1984 June. 61.
- Pascarella, Perry. *The New Achievers*. 1984 Oct. 50-51.
- Rock, Milton L., ed. *Handbook of Wage and Salary Administration*. 1984 June. 60.
- Rothberg, Diane, ed. *Part-time Employment in America*. 1984 June. 61.
- Schieber, Sylvester J., *Social Security: Perspectives on Preserving the System*. 1984 Apr. 53.
- Schwartz, Gail Garfield and William Neikirk. *The Work Revolution*. 1984 July. 48-49.
- Swanson, Dorothy, Maurice F. Neufeld, and Daniel J. Leab. *American Working Class History: A Representative Bibliography*. 1984 Feb. 69.
- Tax Foundation, Inc. *Facts and Figures on Government Finance*. 1984 June. 61-62.
- Triplett, Jack E. *The Measurement of Labor Cost*. 1984 Feb. 68-69.
- Wilks, Stephen and Kenneth Dyson, eds. *Industrial Crisis*. 1984 Apr. 52.
- Yandle, Bruce, Rex L. Cottle, and Hugh Macaulay. *Labor and Property Rights in California Agriculture: An Economic Analysis of the CALRA*. 1984 Aug. 44-45.
- Zarozny, Sharon and Monica Horner. *The Federal Data Base Finder*. 1984 Nov. 62.
- AUTHORS**
- Adams, Larry T. Labor organization mergers 1979-84: adapting to change. 1984 Sept. 21-27.
- Allen, Steven G., Robert L. Clark, and Daniel A. Sumner. A comparison of pension benefit increases and inflation, 1973-79. 1984 May. 42-47.
- Alvarez, Donato and Brian Cooper. Productivity trends in manufacturing in the U.S. and 11 other countries. 1984 Jan. 52-58.
- Becker, Eugene H. Self-employed workers: an update to 1983. 1984 July. 14-18.
- and Norman Bowers. Employment and unemployment improvements widespread in 1983. 1984 Feb. 3-14.
- Bell, Donald and Avy Graham. Surviving spouse's benefits in private pension plans. 1984 Apr. 23-31.
- Bednarzik, Robert W. Book review. 1984 July. 48-49.
- Bell, Donald and Diane Hill. How social security payments affect private pensions. 1984 May. 15-20.
- Bianchi, Suzanne M. and Nancy F. Rytina. Occupational reclassification and changes in distribution by gender. 1984 Mar. 11-17.
- Borowski, Allan. A comparison of youth unemployment in Australia and the United States. 1984 Oct. 30-36.
- Bowers, Norman and Eugene H. Becker. Employment and unemployment improvements widespread in 1983. 1984 Feb. 3-14.
- Brand, Horst. Book review. 1984 Sept. 48-50.
- . Productivity in making heating and cooling equipment. 1984 Dec. 11-17.
- Bregger, John E. The Current Population Survey: a historical perspective and BLS' role. 1984 June. 8-14.
- Burdetsky, Ben. Book review. 1984 Oct. 50-51.
- Burgess, Paul L., Jerry Kingston, and Robert D. St. Louis. Unemployment insurance: identifying payment errors. 1984 Dec. 34-37.
- Burns, Roger, Craig Howell, and Andrew Clem. Inflation remained low in 1983 in face of strong recovery. 1984 May. 3-9.
- , Craig Howell, and Andrew Clem. Producer Price trends continue to moderate in the third quarter. 1984 Jan. 76-79.
- Cappelli, Peter. Auto industry experiments with the Guaranteed Income System. 1984 July. 37-39.
- . What do unions get in return for concessions? 1984 May. 40-41.
- Carlson, Norma W. Pay gains tempered in basic steel mills. 1984 Aug. 28-30.
- . Pay in Mountain region coal mines outstrips national average. 1984 Mar. 49-52.
- Carnes, Richard B. Meatpacking and prepared meats industry: above-average productivity gains. 1984 Apr. 37-42.
- Charnovitz, Steve. Caribbean Basin Initiative: setting labor standards. 1984 Nov. 54-56.
- Clark, Robert L., Daniel A. Sumner, and Steven G. Allen. A comparison of pension increases and inflation, 1973-79. 1984 May. 42-47.
- Clem, Andrew, Roger Burns, and Craig Howell. Inflation remained low in 1983 in face of strong recovery. 1984 May. 3-9.
- , Roger Burns and Craig Howell. Producer price trends continue to moderate in the third quarter. 1984 Jan. 76-79.
- Conley, James R. and John J. Lacombe II. Collective bargaining calendar crowded again in 1984. 1984 Jan. 19-32.
- Cole, Cheryl and Hal Sider. The changing composition of the military and the effect on labor force data. 1984 July. 10-13.
- Cooper, Brian and Donato Alvarez. Productivity trends in manufacturing in the U.S. and 11 other countries. 1984 Jan. 52-58.
- DeBoer, Larry and Michael Seeborg. The female-male unemployment differential. 1984 Nov. 8-15.
- Devens, Richard M., Jr. Book review. 1984 Apr. 52.
- . Employment in the first half: robust recovery continues. 1984 Aug. 3-7.
- Douty, H.M. A century of wage statistics: the BLS contribution. 1984 Nov. 16-28.
- Drejmanis, John. Book review. 1984 Mar. 61-62.
- Early, John F., Mary Lynn Schmidt, and Thomas J. Mosimann. Inflation and the business cycle during the postwar period. 1984 Nov. 3-7.
- Eck, Alan. New occupational separation data improve estimates of job replacement needs. 1984 Mar. 3-10.
- Evans, Robert, Jr. 'Lifetime earnings' in Japan for the class of 1955. 1984 Apr. 32-36.
- . Pay differentials: the case of Japan. 1984 Oct. 24-29.
- Fedrau, Ruth H. Easing the worker's transition from job loss to employment. 1984 May. 38-40.
- Fisk, Donald M. Measuring productivity in State and local government. 1984 June. 47-48.
- Fitzpatrick, Blanche. Book review. 1984 Dec. 51-52.
- Flaim, Paul O. Discouraged workers: how strong are their links to the job market? 1984 Aug. 8-11.
- . Proposed spendable earnings series retains basic faults of earlier one. 1984 Nov. 43-44.
- . Unemployment in 1982: the cost to workers and their families. 1984 Feb. 30-37.
- Friedman, Brian. Apparel stores display above-average productivity. 1984 Oct. 37-42.
- Fulco, Lawrence J. Strong post-recession gain in productivity contributes to slow growth in labor costs. 1984 Dec. 3-10.
- Gannon, Martin J. Preferences of temporary workers: time, variety, and flexibility. 1984 Aug. 26-28.
- Graham, Avy and Donald Bell. Surviving spouse's benefits in private pension plans. 1984 Apr. 23-31.
- Graham, Harry and Brian Heshizer. Are unions facing a crisis? labor officials are divided. 1984 Aug. 23-25.
- Gustman, Alan L. and Thomas L. Steinmeier. Modeling the retirement process for policy evaluation and research. 1984 July. 26-33.
- Guzda, Henry P. Book review. 1984 Mar. 60-61.
- . Industrial democracy: made in the U.S.A. 1984 May. 26-33.
- Harrison, Bennett. Plant closures: efforts to cushion the blow. 1984 June. 41-43.

- Hayghe, Howard. Working mothers reach record number in 1984. 1984 Dec. 31-34.
- and Anne McDougall Young. More U.S. workers are college graduates. 1984 Mar. 46-49.
- Herman, Arthur S. Productivity declined in 1982 in a majority of industries measured. 1984 Jan. 80-83.
- and Phyllis F. Otto. Productivity growth in the switchgear industry slows after 1973. 1984 Mar. 33-36.
- Heshizer, Brian and Harry Graham. Are unions facing a crisis? labor officials are divided. 1984 Aug. 23-25.
- Hill, Diane and Donald Bell. How social security payments affect private pensions. 1984 May. 15-20.
- Holen, Arlene. Federal Supplemental Compensation and Unemployment Insurance Recipients. 1984 Apr. 43-45.
- Howell, Craig, Andrew Clem, and Roger Burns. Inflation remained low in 1983 in face of strong recovery. 1984 May. 3-9.
- , Andrew Clem, and Roger Burns. Producer Price trends continue to moderate in the third quarter. 1984 Jan. 76-79.
- Huffstutler, Clyde and Horst Brand. Productivity in making heating and cooling equipment. 1984 Dec. 11-17.
- Johnson, Mark J. Robust growth and the strong dollar set pattern for 1983 import and export prices. 1984 Apr. 3-14.
- and Patricia Szarek. Effects of strong dollar. economic recovery apparent in first-half import and export prices. 1984 Oct. 3-17.
- Kerr, Clark. Industrial relations research: its postwar contributions. 1984 June. 34-36.
- Kingston, Jerry L., Paul L. Burgess, and Robert D. St. Louis. Unemployment insurance: identifying payment errors. 1984 Dec. 34-37.
- Koshiro, Kazutoshi. Lifetime employment in Japan: three models of the concept. 1984 Aug. 34-35.
- . Robots are a big success at auto plant in Japan. 1984 Aug. 35-36.
- Kunze, Kent. A new BLS survey measures the ratio of hours worked to hours paid. 1984 June. 3-7.
- Lacombe, John J., II, and James R. Conley. Collective bargaining calendar crowded again in 1984. 1984 Jan. 19-32.
- Larson, David. Wages in the paper industries among highest in manufacturing. 1984 Mar. 52-54.
- Leon, Carol Boyd. Working for Uncle Sam—a look at members of the Armed Forces. 1984 July. 3-9.
- Levitan, Sar A. and Diane Werneke. Worker participation and productivity change. 1984 Sept. 28-33.
- Martin, Philip L. Book review. 1984 Nov. 61-62.
- McDonald, Richard J. The "underground economy" and BLS statistical data. 1984 Jan. 4-18.
- Maccoby, Michael. Helping labor and management set up a quality-of-worklife program. 1984 Mar. 28-32.
- Macon, Janet. BLS' 1982 survey of worker-related deaths. 1984 Mar. 43-45.
- Marks, Denton. Incomplete rating in State unemployment insurance. 1984 Nov. 45-49.
- Martin, Philip L. Book review. 1984 Aug. 44-45.
- Mellor, Earl F. Investigating the differences in weekly earnings of women and men. 1984 June. 17-28.
- Mosimann, Thomas J., John F. Early, and Mary Lynn Schmidt. Inflation and the business cycle during the postwar period. 1984 Nov. 3-7.
- Moy, Joyanna. Recent labor market developments in the U.S. and nine other countries. 1984 Jan. 44-51.
- Nash, Charles E. Book review. 1984 May. 57.
- Nilson, Richard R., State labor legislation enacted in 1983. 1984 Jan. 59-75.
- Nemirov, Martin. Work-sharing approaches: past and present. 1984 Sept. 34-39.
- Nilsen, Diane M. Employment in durable goods anything but durable in 1979-82. 1984 Feb. 15-24.
- Nilsen, Sigurd R. Recessionary impacts on the unemployment of men and women. 1984 May. 21-25.
- Norwood, Janet L. Centennial. 1984 Jan. 2-4.
- O'Neill, Dave M. Comparing rates and proportions: they can be misleading. 1984 June. 45-46.
- Orr, Ann C. and James A. Orr. Job cuts are only one means firms use to counter imports. 1984 June. 39-41.
- Orr, James A. and Ann C. Orr. Job cuts are only one means firms use to counter imports. 1984 June. 39-41.
- Otto, Phyllis F. and Arthur S. Herman. Productivity growth in the switchgear industry slows after 1973. 1984 Mar. 33-36.
- Personick, Martin E. White-collar pay determination under range-of-rate systems. 1984 Dec. 25-30.
- Podgursky, Michael. Sources of secular increases in the unemployment rate, 1969-82. 1984 July. 19-25.
- Poterba, James M. and Lawrence H. Summers. Response variation in the cps: caveats for the unemployment analyst. 1984 Mar. 37-43.
- Prieser, Carl. Occupational salary levels for white-collar workers, 1984. 1984 Oct. 43-45.
- Pryor, Frederic L. Incentives in manufacturing: the carrot and the stick. 1984 July. 40-43.
- Rabil, Floyd A. Average retail food prices: a brief history of methods. 1984 Nov. 52-53.
- Rohrlich, George F. Book review. 1984 Apr. 53.
- Rones, Philip L. Recent recessions swell ranks of the long-term unemployed. 1984 Feb. 25-29.
- Rosen, Richard J. Regional variations in employment and unemployment during 1970-82. 1984 Feb. 38-45.
- Ruben, George. Economy improves; bargaining problems persist in 1983. 1984 Jan. 33-43.
- Rudney, Gabriel and Murray Weitzman. Trends in employment and earnings in the philanthropic sector. 1984 Sept. 16-20.
- Runner, Diana. Changes in unemployment insurance legislation during 1983. 1984 Feb. 46-54.
- Rytina, Nancy F. and Suzanne M. Bianchi. Occupational reclassification changes in distribution by gender. 1984 Mar. 11-17.
- Schloss, Nathan. Use of employment data to estimate office space demand. 1984 Dec. 40-44.
- Schmidt, Mary Lynn, John F. Early, and Thomas J. Mosimann. Inflation and the business cycle during the postwar period. 1984 Nov. 3-7.
- Schmitt, Donald G. Postretirement increases under private pension plans. 1984 Sept. 3-8.
- Schumann, Richard. Workers' purchasing power rises despite slowdown in wage and salary gains. 1984 May. 10-14.
- Seeborg, Michael and Larry DeBoer. The female-male unemployment differential. 1984 Nov. 8-15.
- Sehgal, Ellen. Occupational mobility and job tenure in 1983. 1984 Oct. 18-23.
- . Work experience in 1983 reflects the effects of the recovery. 1984 Dec. 18-24.
- Shack-Marquez, Janice. Earnings differences between men and women: an introductory note. 1984 June. 15-16.
- Sheifer, Victor J. Book review. 1984 June. 60.
- Sider, Hal and Cheryl Cole. The changing composition of the military and the effect on labor force data. 1984 July. 10-13.
- Sieling, Mark S. Staffing patterns prominent in female-male earnings gap. 1984 June. 29-33.
- Sorrentino, Constance. Japan's low unemployment: an indepth analysis. 1984 Mar. 18-27.
- Stamas, George D. State and regional employment and unemployment in 1983. 1984 Sept. 9-15.
- Steiber, Jack. Most U.S. workers still may be fired under the employment-at-will doctrine. 1984 May. 34-38.
- Stein, Bruno. Book review. 1984 Feb. 68.



- Steinmeier, Thomas L. and Alan L. Gustman. Modeling the retirement process for policy evaluation and research. 1984 July. 26-33.
- St. Louis, Robert D., Paul L. Burgess, and Jerry L. Kingston. Unemployment insurance: identifying payment errors. 1984 Dec. 34-37.
- Summers, Lawrence H. and James M. Poterba. Response variation in the CPS: caveats for the unemployment analyst. 1984 Mar. 37-43.
- Sumner, Daniel A., Steven G. Allen, and Robert L. Clark. A comparison of pension increases and inflation. 1973-79. 1984 May. 42-47.
- Szarek, Patricia and Mark Johnson. Effects of strong dollar, economic recovery apparent in first-half import and export prices. 1984 Oct. 3-17.
- Tinsley, LaVerne C. Workers' compensation: significant enactments in 1983. 1984 Feb. 55-61.
- Tschetter, John H. An evaluation of BLS' projections of 1980 industry employment. 1984 Aug. 12-22.
- Urquhart, Michael. The employment shift to services: where did it come from? 1984 Apr. 15-22.
- Voos, Paula B. Does it pay to organize? estimating the cost to unions. 1984 June. 43-44.
- Weinberg, Edgar. BLS and the economy: a centennial timetable. 1984 Nov. 29-37.
- Weisskopf, Thomas E. Use of hourly earnings proposed to revive spendable earnings series. 1984 Nov. 38-43.
- Weitzman, Murray and Gabriel Rudney. Trends in employment and earnings in the philanthropic sector. 1984 Sept. 16-20.
- Werneke, Diane and Sar A. Levitan. Worker participation and productivity change. 1984 Sept. 28-33.
- Whitener, Leslie A. A statistical portrait of hired farmworkers. 1984 June. 49-53.
- Williams, Donald R. Young discouraged workers: racial differences explored. 1984 June. 36-39.
- Young, Anne McDougall. Fewer students in work force as school age population declines. 1984 July. 34-37.
- and Howard Hayghe. More U.S. workers are college graduates. 1984 Mar. 46-49.

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### A note on communications

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

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## Published by BLS in October

### SALES PUBLICATIONS

#### BLS Bulletins

Geographic Profile of Employment and Unemployment, 1983. Bulletin 2216, 155 pp., \$5.50. (GPO Stock No. 029-001-02827-0). Latest report in an annual series presenting geographic labor force data from the Current Population Survey. Provides 1983 annual averages for the employed and the unemployed by selected demographic and economic characteristics based on population counts projected from the 1980 Census. Includes estimates for the four regions and nine divisions of the Nation; data by industry and reason for part-time work for States; plus estimates for States, metropolitan areas, and cities.

Injuries Resulting From Falls on Stairs. Bulletin 2214, 19 pp., \$1.75 (GPO Stock No. 029-001-02825-3). Results of a survey of workers who were injured by slips or falls on stairs.

National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1984. Bulletin 2208, 91 pp., \$4.00 (GPO Stock No. 029-001-02826-1). Summarizes results of the Bureau's annual survey of selected white-collar occupations in private industry. Results are used for a number of purposes, including general economic analysis and wage and salary administration by private and public employers. One important use is to provide the basis for setting Federal white-collar salaries under the Federal Pay Comparability Act of 1970.

#### Area Wage Survey Bulletins

These bulletins cover office, professional, technical, maintenance, custodial, and material movement occupations in major metropolitan areas. The annual series of 70 is available by subscription for \$88 per year. Individual area bulletins are also available separately. The following were published in October:

Baltimore, Maryland, Metropolitan Area, August 1984. Bulletin 3025-39, 53 pp., \$2.25 (GPO Stock No. 029-001-90306-5).

Billings, Montana, Metropolitan Area, July 1984. Bulletin 3025-33, 26 pp., \$1.75 (GPO Stock No. 029-001-90300-6).

Green Bay, Wisconsin, Metropolitan Area, August 1984. Bulletin 3025-29, 39 pp., \$2.25 (GPO Stock No. 029-001-90296-4).

Greensboro—Winston-Salem—High Point, North Carolina, Metropolitan Area, August 1984. Bulletin 3025-34, 30 pp., \$1.75 (GPO Stock No. 029-001-90301-4).

Hartford, Connecticut, Metropolitan Area, July 1984. Bulletin 3025-35, 28 pp., \$1.75 (GPO Stock No. 029-001-90302-2).

Northeast Pennsylvania Metropolitan Area, August 1984. Bulletin 3025-36, 28 pp., \$1.75 (GPO Stock No. 029-001-90303-1).

Oklahoma City, Oklahoma, Metropolitan Area, August 1984. Bulletin 3025-37, 28 pp., \$1.75 (GPO Stock No. 029-001-90304-9).

Paterson—Clifton—Passaic, New Jersey, Metropolitan Area, June 1984. Bulletin 3025-38, 42 pp., \$2.25 (GPO Stock No. 029-001-90305-7).

South Bend, Indiana, Metropolitan Area, August 1984. Bulletin 3025-32, 28 pp., \$1.75 (GPO Stock No. 029-001-90299-9).

#### Industry Wage Surveys

These studies include results from the latest BLS survey of wages and supplemental benefits, with detailed occupational data for the Nation, regions, and selected areas (where available). Data are useful for wage and salary administration, union contract negotiation, arbitration, and Government policy considerations. The following was published in September:

Grain Mill Products, September 1982. Bulletin 2207. 64 pp., \$3 (GPO Stock No. 029-001-02823-7).

#### Periodicals

CPI Detailed Report. August issue provides a comprehensive report on price movements for the month, plus statistical tables, charts, and technical notes. 105 pp., \$4 (\$25 per year).

Current Wage Developments. September issue includes selected wage and benefit changes; work stoppages in August; major agreements expiring in August; the Employment Cost Index for June 1984; State and local government collective bargaining settlements for the first 6 months of 1984; and statistics on compensation changes. 53 pp., \$4.50 each (\$21 per year).

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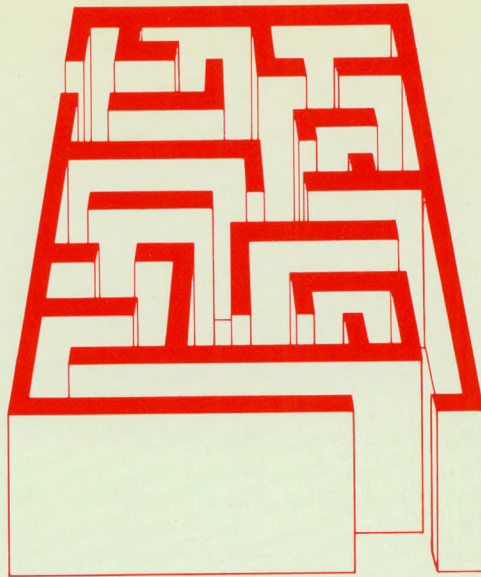
#### Mailgram

Consumer price index data summary by mailgram within 24 hours of the CPI release. Provides unadjusted and seasonally adjusted U.S. City Average data for All Urban Consumers (CPI-U) and for Urban Wage Earners and Clerical Workers (CPI-W). (NTISUB/158). \$125 contiguous United States.

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