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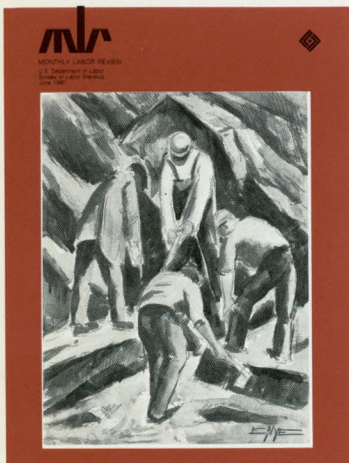
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Labor Month In Review

INDEXATION. The Consumer Price Index is widely used today for indexation; that is, to adjust payments to price changes. When indexation formulas devised by users bring unexpected results, the users sometimes blame the CPI. Commissioner of Labor Statistics Janet L. Norwood discussed this problem at a May 9 meeting of the Eastern Economic Association in Montreal, Canada. Excerpts:

CPI uses. The use of the CPI in escalation has become so popular in recent years, that a very large part of the population now has at least some of its income affected by the index. CPI escalation ranges from child support payments to welfare eligibility, from collective bargaining contracts to rental agreements, from pensions to social security payments, and from food stamps to school lunch programs. The CPI is also used to adjust presidential campaign funding and in several States for indexation of income tax brackets. Indeed, the tendency to add a CPI escalator to legislation has become so widespread that it is almost impossible for the Bureau of Labor Statistics to keep an up-to-date list of the uses of the CPI in indexation.

In general, the purpose of most escalator clauses has been to help those receiving payments maintain a base-period living standard by assuring that they recover the purchasing power which might be lost through price increases. The intent, therefore, is to permit people to purchase at today's prices the bundle of goods and services they purchased in the base period, thereby leaving them as well off as they were then.

BLS compiles and publishes two

CPI's. The CPI-W represents the experience of urban wage earner and clerical families and covers approximately 40 percent of the total population. The CPI-U, a broader index which covers about 80 percent of the population, includes, in addition to the wage earners and clerical workers, such groups as salaried workers, the unemployed, the retired and the self-employed. Each index is published each month with a total—or All Items—Index and a large number of individual components as well as a series of special groupings. Both the CPI-U and the CPI-W are used in indexation.

Unexpected results. Use of the CPI to index payments sometimes produces results that were not anticipated at the time the escalation arrangements were made. As a result, situations arise from the use of the CPI as an escalator that result frequently in criticisms of the index itself. Those who, because of indexation, are required to make additional payments are often unprepared to do so, and they complain that the index is too high. Those who receive income that is indexed look at their own price experience, find that it is different from the average represented in the index, and insist that the index is too low. Finally, members of the Congress, suddenly faced with the need for increased outlays of government funds because they have provided for CPI escalation in many laws, begin to worry about the additional appropriations required for escalation and frequently transfer that concern into a criticism of the statistical series itself.

Causes for concern. In many of these cases, criticism of the CPI

arises not because there are different views on the way inflation should be measured, but rather because those who have adopted an indexation policy based upon the use of the CPI do not like the results that it brings. Still others worry that, in a period of rising inflation, CPI escalation can, in fact, fuel the very inflation for which the indexing arrangements were designed to compensate, and that the CPI itself can become an engine of inflation. Difficulties faced by these groups are valid causes for concern; they also explain, I believe, some of the reasons for the recent public discussion and criticism of the CPI. While constructive criticism of price measurement techniques is both useful and sensible in a democratic society, we must be careful to separate complaints which quite properly deal with the techniques and concepts of price measurement from those which are based primarily upon the unexpected or unplanned results that arise from the use of the CPI in particular escalation formulas.

Information needed. Users of the index must become better informed about the benefits—and the dangers—of indexation so that they can make intelligent policy decisions before adopting it. They also need to have a better understanding of what the CPI is and how it measures price change. Measurement concepts and techniques appropriate for one purpose may not in fact be the best available for some other use. Interaction of producer, user, and policymaker is essential to the effective and timely development of statistical series that are relevant to the demands that are placed upon them. □

Employment gains of women by industry, 1968–78

In a decade, employment of women increased most rapidly in the service-producing sector where they already were concentrated; however, women are beginning to move into traditionally male-dominated jobs in the mining and construction industries

HOWARD DAVIS

Women filled more than half of the 18.5 million nonagricultural jobs created between 1968 and 1978. Although most of these jobs were in the rapidly expanding service sector, which traditionally employs a large share of women, female workers also made significant gains in several nontraditional industries—coal mining, construction, local and interurban transportation, and engineering and architectural services.

The proportion of women working or actively seeking work increased from 41.6 percent in 1968 to 50.1 percent in 1978. In contrast, the participation rate for men declined from 81.2 percent to 78.4 percent, in large part, because of reduced labor force participation among older men (age 45 and over). In fact, the civilian male labor force rose only 9 million during 1968–78, while total employment in nonagricultural industries increased by 18.5 million. Payroll data from the Bureau of Labor Statistics' establishment survey provide details of the flow of women into various industries. Establishment data do not yield information on earnings by sex and by industry;¹ however, the data do shed some light on the reason that earnings of women continue to lag behind those of men. As will be shown, those industries which have absorbed a large influx of women have been those with traditionally low hourly earnings.

Growth patterns, by sector

Although the proportion of women on nonagricultural payrolls increased from 35.9 percent in 1968 to 40.8 percent in 1978, almost all of the change occurred

in the service-producing sector. (See table 1.) The proportion of women in the goods-producing sector edged off slightly. The 4.9-percentage points difference can be decomposed into a 5.6-point increase in female employment in the service-producing sector and a 0.7-point drop in the goods-producing sector.

One approach to use when tracing employment patterns of women is to separate the total change into that attributable to general employment growth or decline in the industry (constant-share) and that attributable to a change in the share of employment. The constant-share is calculated by multiplying the 1968 share of employment in each industry (or industry division) by the 1978 employment in that industry. In this manner, the number of women that would have been employed in an industry in 1978 can be determined, assuming their share of industry employment has not changed. The difference between the constant-share and the actual 1978 employment indicates how much female employment in 1978 has increased or decreased its share in an industry since 1968.

Allowing for the change in the distribution of employment between the goods- and service-producing sectors, but holding the proportion of female employment constant at 1968 levels, 32.3 million women, rather than 35.5 million, would have been employed in nonagricultural jobs in 1978. The increase then would have been 7.9 million women, rather than 10.9 million. (See table 2.)

About 73 percent of the 10.9-million increase in female workers can be ascribed to a constant-share increase and 27 percent to an increase in their employment share. Increased employment share accounted for 77.3 percent of the total female employment growth

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in the goods-producing sector and 21.9 percent in the service-producing sector. An industry can have a significant increase in its proportion of female employment yet, if the constant-share growth is comparatively high, the increased proportion may not represent a large part of the total employment change. For example, the employment increase of women in the goods-producing sector attributable to an increase in share was 77.3 percent (compared with 21.9 percent in the service sector), but accounted for only 26.8 percent of the increase in all nonagricultural industries. Conversely, if the con-

stant-share growth is negligible or negative, the increased proportion of employment may comprise a large part of the total difference in female employment.²

Constant-share growth differed markedly in the goods-producing and the service-producing sectors. Employment in the goods-producing sector expanded at a modest 0.8-percent annual rate; the service-producing sector had a 3.2-percent annual growth rate. The constant-share employment of women increased by 41 percent in the service-producing sector, compared to less than 4 percent in the goods-producing sector. Thus,

Table 1. Total and female employees on nonagricultural payrolls, 1968-78

[Numbers in thousands]

Component	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	67,897	70,384	70,880	71,214	73,675	76,790	78,265	76,945	97,382	82,423	86,446
Women	24,395	25,595	26,132	26,466	27,541	28,988	30,124	30,178	31,570	33,239	35,253
Percent	35.9	36.3	36.9	37.3	39.6	37.8	38.5	39.2	39.8	40.3	40.8
Total goods-producing	23,737	24,361	23,578	22,935	23,668	24,893	24,794	22,600	23,352	24,347	25,598
Women	5,690	5,878	5,671	5,465	5,729	6,149	6,160	5,568	5,948	6,249	6,642
Percent	23.9	24.1	24.1	23.8	24.2	24.7	24.8	25.5	25.7	25.7	25.9
Total service-producing	44,160	46,023	47,302	48,278	50,007	51,897	53,471	54,345	56,030	58,080	60,382
Women	18,705	19,719	20,504	21,103	21,955	22,876	23,964	24,610	25,622	26,991	28,417
Percent	42.3	42.8	43.3	43.7	43.9	44.1	44.8	45.3	45.7	46.5	47.1
Private	32,321	33,828	34,748	35,396	36,673	38,165	39,301	39,659	41,159	43,001	44,904
Women	13,726	14,564	15,096	15,499	16,054	16,829	17,694	18,156	19,236	20,097	21,264
Percent	42.5	43.1	43.4	43.8	44.1	44.1	45.0	45.8	46.7	47.1	47.4
Government	11,868	12,195	12,554	12,880	13,334	13,732	14,170	14,686	14,872	15,079	15,476
Women	4,979	5,155	5,408	5,604	5,901	6,047	6,270	6,454	6,386	6,894	7,153
Percent	42.0	42.3	43.1	43.5	44.3	44.0	44.2	43.9	42.9	45.7	46.2
Mining	606	619	623	609	628	642	697	752	779	813	851
Women	36	37	37	37	40	43	49	55	60	65	76
Percent	5.9	6.0	5.9	6.1	6.4	6.7	7.0	7.3	7.7	7.9	8.9
Construction	3,350	3,575	3,588	3,704	3,889	4,097	4,020	3,525	3,576	3,851	4,271
Women	164	174	186	199	219	241	262	252	281	304	335
Percent	4.9	4.9	5.2	5.4	5.6	5.9	6.5	7.3	7.9	7.9	7.8
Durable goods	11,626	11,895	11,208	10,636	11,049	11,891	11,925	10,688	11,077	11,597	12,246
Women	2,338	2,446	2,284	2,128	2,285	2,573	2,624	2,449	2,622	2,651	2,894
Percent	20.1	20.6	20.4	20.0	20.7	21.6	22.0	21.3	22.1	22.9	23.6
Nondurable goods	8,155	8,272	8,158	7,987	8,102	8,262	8,152	7,635	7,920	8,086	8,230
Women	3,152	3,221	3,165	3,101	3,185	3,292	3,225	2,981	3,158	3,229	3,337
Percent	38.7	38.9	38.8	38.8	39.3	39.8	39.5	39.0	39.9	39.9	40.5
Transportation and public utilities	4,318	4,442	4,515	4,476	4,541	4,656	4,725	4,542	4,582	4,713	4,927
Women	860	911	957	955	953	987	1,018	996	1,010	1,051	1,132
Percent	19.9	20.5	21.2	21.3	21.3	21.0	21.2	21.5	21.9	22.3	23.0
Wholesale trade	3,779	3,907	3,993	4,001	4,113	4,277	4,433	4,415	4,546	4,708	4,957
Women	852	898	918	911	933	989	1,043	1,046	1,092	1,145	1,232
Percent	22.5	23.0	23.0	22.8	22.7	23.0	23.5	23.7	24.0	24.3	24.9
Retail trade	10,320	10,798	11,047	11,351	11,836	12,329	12,554	12,645	13,209	13,808	14,542
Women	4,674	4,942	5,089	5,217	5,417	5,692	5,935	6,005	6,308	6,619	7,027
Percent	45.3	45.8	46.1	46.0	45.8	46.2	47.3	47.5	47.8	47.9	48.3
Finance, insurance, and real estate	3,337	3,512	3,645	3,772	3,908	4,046	4,148	4,165	4,271	4,467	4,727
Women	1,709	1,819	1,907	1,979	2,032	2,138	2,245	2,287	2,371	2,511	2,711
Percent	51.2	51.8	52.3	52.5	52.0	52.8	54.1	54.9	55.5	56.2	57.4
Services	10,567	11,169	11,548	11,797	12,276	12,857	13,441	13,892	14,551	15,303	16,220
Women	5,632	5,994	6,224	6,438	6,718	7,023	7,454	7,822	8,256	8,771	9,356
Percent	53.3	53.7	53.9	54.6	54.7	54.6	55.5	56.3	56.7	57.3	57.7
Federal government	2,737	2,758	2,731	2,696	2,684	2,663	2,724	2,748	2,733	2,727	2,753
Women	710	723	723	715	747	780	798	805	808	856	869
Percent	25.9	26.2	26.5	26.5	27.8	29.3	29.3	29.3	29.6	31.4	31.6
State government	2,442	2,553	2,664	2,747	2,859	2,923	3,039	3,179	3,273	3,363	3,414
Women	1,013	1,087	1,126	1,118	1,162	1,216	1,287	1,373	1,448	1,510	1,516
Percent	41.5	42.6	43.9	44.4	45.6	42.9	42.3	43.2	44.3	44.9	44.4
Local government	6,660	6,904	7,158	7,437	7,790	8,146	8,407	8,758	8,865	8,989	9,309
Women	3,256	3,343	3,517	3,669	3,849	4,014	4,185	4,276	4,330	4,528	4,767
Percent	48.9	48.4	49.1	49.3	49.4	49.3	49.8	48.8	48.8	50.4	51.2

women experienced significant employment gains in the service-producing sector from both constant-share growth and proportional increases. Over the decade, the relative gains in female employment (the total change in female employment divided by the number of women employed in 1968 in a given industry) were positively associated with the rate of growth in all industries, except in mining and construction where female employment is still trivial.

About two-thirds of the increased employment share in the service-producing sector was concentrated in three divisions—in services, in finance, insurance, and real estate, and in retail trade. In 1968, these three divisions employed 67 percent of all women in the service-producing sector and each had female employment ratios ranging from 48 to nearly 58 percent. Also, these divisions recorded the three strongest annual rates of growth. Consequently, relative gains in female employment were substantial in each division; the three divisions combined accounted for 71 percent of the increased female employment in the service-producing sector. Thus, women made the largest numerical gains, as well as proportionate gains in industry divisions in which they already constituted a significant share of employment.

The increase in the proportions of female employment in the service-producing sector has had an important consequence on the overall earnings of women. Average weekly earnings in the service-producing sector are about two-thirds of those in the goods-producing sector primarily because of the comparatively low-paying divisions in the service sector—trade, finance, insurance and real estate, and services. Therefore, the faster

growth of female employment in these divisions tends to depress the average weekly earnings of all women in nonagricultural jobs.

The data indicate that increases in the share of employment are closely associated with the levels of weekly earnings. For example, construction, with the second highest level of weekly earnings, experienced the highest increase in employment shares, while retail trade, with the lowest weekly earnings, scored the next to the lowest gain.

... And by industry division

Women have made significant gains in their share of employment in mining and construction industries, although female employment in each division is under 10 percent.³ Increased employment shares accounted for 65 percent of the total female employment gains in mining and 74 percent in construction. Women made small numerical gains, but significant proportionate gains, in professional and technical occupations in mining.⁴ Also, increased employment shares represented a large portion of total female employment gains in both durable and nondurable goods manufacturing, (where strong employment gains were made in professional, technical, and sales occupations). Women had strong gains in the Federal Government and in transportation and public utilities, where the gains were concentrated among professional, technical, managerial, sales, and operational occupations. They also made considerable strides into finance, insurance, and real estate, where more of them now are in management and sales positions. Retail trade, services, and State and local government recorded the lowest gains in employment shares (20 percent or

Table 2. Analysis of change in female workers on nonagricultural payrolls, by industry sector and division, 1968-78

[Numbers in thousands]

Component	Total		Percent of total employment		Percent of total employment in each component		Change in employment			Proportion of difference attributable to increase in employment shares ¹	Annual rate of growth
	1968	1978	1968	1978	1968	1978	Actual	Holding 1968 female share of employment constant	Difference		
Female workers	24,395	35,253	100.0	100.0	35.9	40.8	10,856	7,949	2,907	.2678	2.4
Total goods-producing	5,690	6,642	35.0	29.6	24.0	25.9	952	216	736	.7731	.8
Total service-producing	18,705	28,417	65.0	70.4	42.4	47.1	9,904	7,733	2,171	.2192	3.2
Private service-producing	13,727	21,264	47.6	52.4	42.5	47.4	7,731	6,029	1,702	.2201	3.3
Government	4,979	7,153	17.4	18.4	42.1	46.2	2,173	1,704	69	.2164	2.7
Mining	36	76	.9	1.0	5.9	8.9	40	14	26	.6500	3.6
Construction	164	335	4.9	4.9	4.9	7.8	171	45	126	.7368	2.5
Durable goods	2,338	2,894	17.1	14.2	20.1	23.6	55	124	432	.7770	.5
Nondurable goods	3,152	3,337	12.0	9.4	38.7	40.5	185	33	152	.8216	0
Transportation and public utilities	860	1,132	6.4	5.7	19.9	23.0	272	121	151	.5551	1.3
Wholesale trade	852	1,232	5.6	5.7	22.6	24.9	380	269	111	.2921	2.8
Retail trade	4,674	7,027	15.2	16.8	45.3	48.3	2,353	1,914	439	.1866	3.5
Finance, insurance, and real estate	1,709	2,711	4.9	5.5	51.2	57.4	1,002	712	290	.2894	3.5
Services	5,632	9,356	15.6	18.8	53.3	57.7	3,724	3,013	711	.1909	4.3
Federal government	710	869	4.0	3.2	25.9	31.6	159	4	155	.9748	.1
State government	1,013	1,516	3.6	3.9	41.5	44.4	503	404	99	.1968	3.4
Local government	3,256	4,767	9.8	10.9	48.9	51.2	1,511	1,296	215	.1423	3.4

¹ Difference divided by actual change in employment of women.

NOTE: Due to rounding, data may differ from those shown elsewhere in this article.

less). Nearly all (97 percent) of the change in female employment in the Federal government was from increased employment shares, compared with 20 and 14 percent in State and local governments. However, employment growth of women was below average in the Federal government, but was slightly above average in the State and local government divisions.

From 1968 to 1978, women made significant strides in both durable and nondurable manufacturing, with increased employment shares representing 78 percent and 82 percent, respectively, of the total increase in female employment. Employment in durable goods grew at an annual rate of slightly under 0.5 percent, while female employment expanded 2.2 percent a year. Total employment in nondurable goods was essentially unchanged over the decade; thus, virtually all the growth was in female employment.

Women attained significant employment share gains in the manufacturing of furniture and fixtures and of instruments and related products, with the latter posting a particularly strong gain in total employment. The major durable goods employer of women, electric and electronic equipment, turned in an exceedingly sluggish performance over the 1968-78 period and, while women did increase their share, the increase was among the lowest of the durable manufactures. Non-electrical machinery had an above-average employment growth as well as an above-average female proportionate gains.

Five nondurables industries have posted employment declines since 1968. Three of them (textiles, apparel, and food products) were major employers of women, accounting for 61 percent of all the women employed in nondurables. However, women increased their share of employment in each of these industries, and in food products, the number of women actually increased. Printing and publishing displayed above-average employment performance; women increased their share at a rate nearly 4 times above that for all nondurable manufacturing. Women also achieved important gains in both the chemicals and the rubber and plastic products industries.

Women have more than doubled their employment over the decade in two transportation industries—local and interurban passenger transit and transportation services. Furthermore, they constituted a significant proportion of total employment in transportation services (45 percent in 1978). Increasingly, they have been accepted as bus drivers, especially in local transportation systems.

Employment in transportation service increased by 70 percent over the decade, with the share of women growing from 34 percent in 1968 to nearly 45 percent in 1978, as this industry responded to expanding travel needs. Women may be especially attracted to transportation service jobs because of the availability of employ-

ee discount fares and part-time employment opportunities.

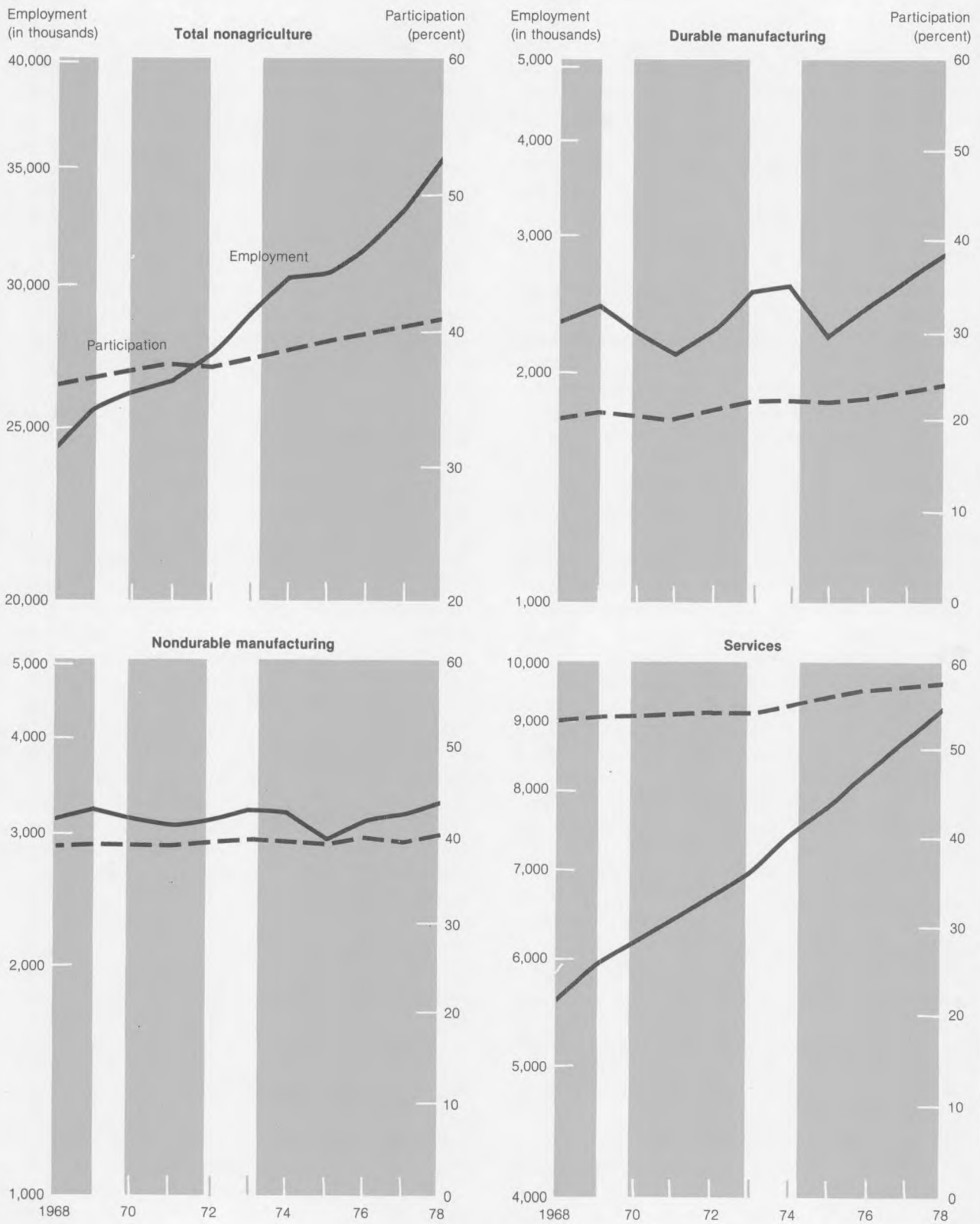
Employment of both men and women have expanded in the communication industry, yet the proportion of women dropped from 50 percent in 1968 to slightly under 46 percent in 1978. This decline reflects increased use of automatic telephone exchange equipment, which reduced the need for operators. Three retail sales industries, eating and drinking places, food stores, and furniture and home furnishings stores, experienced substantially above-average expansion in total employment. In food stores, female employment outpaced total employment, and the increase in their proportions was double that for all retail sales industries. Although total employment for automotive dealers and services posted a smaller than average gain, women made above-average proportionate gains in that component—their numbers grew at a rate nearly 3 times that of all retail sales employment.

About 34 percent of all women in retail trade are employed in eating and drinking places. This component grew at an annual rate of 6.3 percent, compared to the 3.5-percent rate for all retail trade. Women shared equally in this growth; thus, their employment share was little changed. The rapid growth of eating and drinking places undoubtedly reflects the proliferation of fast-food eating places related to increased family income and shifting life styles.

In the finance, insurance, and real estate division, women attained a greater than industrywide employment share into banking, credit agencies, insurance agencies, brokerages, and service industry. In each of these components, women represented more than 60 percent of total employment. Employment in real estate grew about the same as that in the industry as a whole; but women's share of total employment, at 36 percent, remained virtually unchanged over the 1968-78 period. Although total employment declined in the security, commodity brokerages, and services industry over the decade, female employment increased slightly.

Within the service division, women increased their share of employment above the industry's average in hotel, motel, and tourist places; business services; miscellaneous repair services; and in engineering and architectural services. Total employment gains were above average in business services and in engineering and architectural services. Nearly 42 percent of all women in the service sector are employed in the health services component. This component posted slightly better than a 6-percent annual rate of increase over the decade and, in 1978, 81 percent of its employees were women. The number of female employees rose dramatically, although the employment share was virtually unchanged. The proportion of women in legal services (71 percent) hardly changed between 1968 and 1978 although employ-

Chart 1. Number and proportion of women employed in nonagricultural industries, 1968-78 annual averages



ment in this component grew at an annual rate of 7.5 percent.

Employment in State education displayed a slightly stronger gain than that in total State government. Women made some gains into State education, but, merely held their share at 62 percent in local education. In the meantime, total employment in local education has barely kept pace (with an easing of growth occurring since 1975) with increased employment in local government. Much of the increase in the proportion of women in local government occurred in the "other" component of the industry, which rose more than overall employment at the local government level.

Reaction to economic downturns

Because of the large influx of women into employment in the past decade, women have relatively less seniority than men and, thus, less protection from layoffs. This vulnerability may show up as disproportionate reductions in the share of female employment to total employment. However, such declines may result from a lag in the growth of female employment, as well as from layoffs.

Data on women employees on nonagricultural payrolls during the 1969–70 and 1973–75 recessions reveal that the representation of women was not adversely affected in the nonmanufacturing divisions by the economic slowdown. Only durable and nondurable goods experienced reductions in total employment of women as well as in their representation. (See chart 1.)

Trade employment growth was retarded from 1970 through 1971 as a consequence of the 1969–70 recession. In wholesale trade, total employment did not fall; however, the share of female workers declined very slightly and when total employment growth resumed in 1972, female representation did not increase at quite the same pace as that for men. Thus, the proportion of women dipped slightly, from 23 percent in 1970 to 22.7 percent in 1972.

A similar situation prevailed in retail trade. The rate of growth slowed during the 1969–70 recession. As the recession ran its course and overall employment quickened, female employment gains trailed. As a result, the proportion of women in retail trade nudged down from 46.1 percent to 45.8 percent. But, by 1973, the proportion of women in both retail and wholesale trade was above the former peaks and increased each year, even during the 1973–75 recession. Female employment in the wholesale trades inched up in 1975, even though the industry's total employment declined.

The proportion of female employment does not appear cyclically vulnerable in the construction, the finance, insurance, and real estate, and the service industries. In mining, female employment has increased continuously and began to increase significantly in

1974 (although the number of women in mining is still negligible).

As previously mentioned, only in manufacturing was the share of women employees adversely affected during both recessions. Their share dipped simultaneously as employment declined in both durable and nondurable manufacturing. Generally, during periods of declining activity, women in manufacturing industries are affected by cutbacks more severely than are men.

Was the proportion of women in manufacturing industries more or less cyclically sensitive between the business contractions? The proportion of women in durable manufacturing dropped 0.56 percentage points between its peak and trough during the first contraction and dropped even further during the second, 0.72 percentage points. During the second contraction, employment declines were more severe, although they rebounded more quickly—the high was recovered in 2 years, compared with 3 years in the 1969–70 contraction.

In nondurables, a drop of 0.80 percentage point was sustained during the second contraction, in contrast to a 0.10-percentage point decline during the first recession. The prerecession high was not regained until 3 years after the second contraction, but was nearly regained within 2 years after the 1969–70 recession. Thus, in manufacturing, the evidence is mixed.

The evidence suggests that the cyclical sensitivity of the proportion of women in durable goods has not increased. The tendency for women to increase their share of employment in manufacturing will moderate subsequent overall employment drops in the industry and reduce the period necessary to regain the prior peak.

In nondurable manufacturing, female employment remained fairly stable from 1969 through 1977, as did their share of employment, which hovered around 40 percent. Except for tobacco, each nondurable industry showed an upward movement in the share of women. However, the impact of a compositional change resulting especially from a long-term employment drop in textiles, apparel, and leather (each of which has a high proportion of women) restrained an overall increase in the share of female employment.

Five of 10 nondurable industries manifested cyclical sensitivity during the two business contractions. Opposing employment trends again masked the general tendency for the proportion of women to increase. However, the sensitivity of their share in nondurable manufacturing appears to have been perceptibly greater in the 1973–75 recession than in the prior one.

Overall, women working in manufacturing incurred a disproportionate drop of employment during both the 1969 and 1973 contractions. These drops were manifested in reduced employment shares. The declines of the high to the low levels of the 1969–70 and 1973–75

recessions were 0.05 percentage point and 0.4 percentage point. The decline in manufacturing was more severe in the latter recession, as was the share of female workers.

During the 1973–75 recession, employment in durable goods responded in a significantly different manner from that in nondurable goods. Neither total employment nor the proportion of female workers peaked until 1974 (despite declining output). In contrast, in nondurable manufacturing, the employment and share of female workers peaks coincided with the cyclical peak of 1973.

The apparent tendency for disproportionate declines of female employment to be related to seriousness of employment cutbacks may be specious. This relationship prevailed during both contractions in the electric and electronic equipment industry, which employs the largest number of women of all durable goods industries. In contrast, fabricated metal products had large employment cutbacks during both recession periods, yet the proportion of female workers was not so acutely affected in the second contraction as in the first.

Nevertheless, caution should be used in ascribing too much significance to changes in female employment emanating from cyclical changes. Changes at the aggregate level may reflect alteration in the proportion of women and the composition of the component industries. For example, a significant part of the large drop in the share of female workers in electric and electronic equipment during 1974–75 was due to an appreciable decline of employment (resulting from the introduction of integrated circuit technology) in electronic components and accessories, which accounts for about 21 percent of total employment in the industry. The nearly 4-percentage point drop in the share of women workers in the production of electronic components and accessories was not the result of a disproportionate decline of female employees, but rather of production workers, a group comprised almost entirely of women.

The extent of the impact of unequal reductions in the proportion of female employment can be shown, taking into account “disproportionate layoffs.” In 1971, the year in which the share of female employment troughed in durable and nondurable manufacturing, 68,000 fewer women were out of work than if their share had equalled the overall share. (See table 3.) Their unemployment rate, adjusted for this, would have been about 6.7 percent, rather than the recorded 6.9 percent. In 1975, 98,000 fewer women would have been unemployed and the adjusted unemployment rate would have been 9.0 percent, rather than the 9.3-percent posted for that year. The obverse of a lessening in female unemployment would have been a corresponding increase in male unemployment with a consequent slight increase in the male unemployment rate.

Table 3. Employment of women in manufacturing industries during the 1969–71 and 1973–75 recessions

[Numbers in thousands]

Characteristic	Durable	Nondurable	All industries
1969–71			
Female share of employment:			
1969	20.5	38.9	...
1971	20.0	38.8	...
Female employment in 1971:			
Actual	2,128	3,101	...
Holding 1969 share constant	2,187	3,110	...
Female unemployment in 1971:			
Actual number .....	...	...	2,217
Adjusted number ¹ .....	...	...	2,149
Actual rate .....	...	...	6.9
Adjusted rate .....	...	...	6.7
1973–75			
Female share of employment:			
1973	21.6	39.8	...
1975	21.2	39.0	...
Female employment:			
Actual number	2,276	2,981	...
Holding 1973 share constant	3,313	3,042	...
Female unemployment in 1975:			
Actual number .....	...	...	3,445
Adjusted number ¹ .....	...	...	3,347
Actual rate .....	...	...	9.3
Adjusted rate .....	...	...	9.0

¹ Actual number of unemployed minus the amount attributable to “disproportionate layoffs” (the difference between actual and constant-share employment).

If one considers the effect of the proportions of female employment among the many components of a major industry group and the rates of employment growth among these various components, the total number of women affected may not even be as large as the above estimate. Thus, based on evidence from payroll employment data derived from a survey of establishments, the share of female employees is not significantly disproportionately affected when business activity declines. □

— FOOTNOTES —

¹ Detailed information on earnings of women by industry and occupation can be obtained from the Current Population Survey—a monthly survey of households conducted by the Bureau of the Census for the Bureau of Labor Statistics.

² Depending on base employment levels, equal changes in the proportion of female workers may produce differing indications regarding the changing importance of women in various industries.

³ Data on occupations are from the Current Population Survey, a monthly survey of households conducted by the Bureau of the Census for the Bureau of Labor Statistics.

⁴ The Associated General Contractors of America informed the Department of Labor that it would be unable to meet the 1979 Federal affirmative action goal for hiring women on construction jobs. The construction industry was required to fill 3.1 percent of its jobs with women by May 1979 and 6.5 percent by May 1981. An estimated 1.2-percent of the 4 million workers in the construction trade are women. See *The Washington Star*, Feb. 27, 1979, p. A-4, and *Monthly Labor Review*, May 1979, pp. 57–58.

Evaluating the 1975 projections of occupational employment

BLS' industry-occupation matrix projections proved better than those of alternative methods, even though staffing patterns were error prone; new Federal-State employment data should improve projection accuracy

MAX L. CAREY

Accurate occupational projections are highly prized by educational policymakers and by those planning careers: a clear vision of the future is the best tool for making such important decisions. But the pitfalls of attempting to chart unknown events are legendary. An early 20th century forecaster of occupational growth, for example, concluded that nearly all U.S. women would eventually be employed by the telephone company, based on its growth rate and the occupational structure of its work force. Few occupational projections have been as inaccurate. Even fewer have been completely correct. The vast majority lie somewhere in between, and their value must depend on some measure of the degree of error.

This article examines differences between BLS' projected 1975 occupational employment and actual employment.¹ It does not address the standard to be used in judging whether a projection is "good." The degree of error that produces a decision different from that made with a perfectly accurate projection might separate "good" from "poor" projections. But because of the uncertainty of other variables in the decisionmaking process, estimates of such a turning point would be conjecture. Nevertheless, decisionmakers can benefit by an assessment of the accuracy of the projected numbers, including an analysis of the projection method to identify sources of error.

In 1967, the Division of Occupational Outlook com-

pleted a matrix that described the relationship of employment in 162 occupations and 124 industries during 1960 and projected these relationships to 1975.² The primary data sources for occupational employment were the 1950 and 1960 censuses and, for industry employment, annual estimates from the BLS establishment surveys beginning from 1947. A revision of the 1975 matrix was completed in 1969, based mostly on additional industry data. Although the revision was not published, it was used as a resource for the occupational outlook program, and provides an opportunity for evaluating projections with more historical data. Due to a major change in the occupational employment classification system beginning with the 1970 census, only 76 of the 162 detailed occupations were sufficiently comparable for evaluation.

Evaluation of projection methodology disclosed weakness in the estimation of industry-occupation employment ratios. The adequacy of decennial census data as a basis for projecting changes in industry-occupation patterns has always been regarded with some suspicion by BLS analysts, and concern about these data was a major factor in the decision to launch a cooperative Federal-State program in 1970 for surveying occupational employment. The current analysis has found that the census-based ratio estimates were a far greater source of error in the occupational projections than the estimates of industry employment levels. In fact, a simulated matrix based on actual 1975 industry employment levels and the estimated ratios produced

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occupational totals that were no more accurate, on average, than the projections, suggesting that the ratios were so poor that they would have even negated the effect of perfect industry projections.

The unforeseen economic downturn of the mid-1970's reduced the accuracy of the occupational projections, although the damage was not as great as initially supposed. The projections presumed an unemployment rate of 3 percent in 1975. But the target year turned out to be the trough of the recession, and the actual unemployment rate was 8.5 percent. Consequently, employment in occupations that are sensitive to economic cycles, such as craft and operative occupations, generally was overprojected. Employment in these two groups had been growing, and almost reached projected levels by 1974, but turned down as economic conditions worsened in 1975. Underprojections did occur in 3 of the 9 major occupational groups despite the recession, and these errors might have been somewhat higher if economic conditions in 1975 had been as favorable as assumed.

The difference between projected and actual employment for the major occupational groups ranged from a 6.7-percent underestimate of clerical workers to a 9.1-percent overestimate of operatives. The average of the absolute percentage differences was 6.1 percent. The projections for detailed occupations had a much larger error, averaging 20.8 percent off 1975 employment levels. Differences between projected and actual employment tended to increase as the size of the occupation diminished. The availability of more reliable historical data for larger occupations could be expected to improve projection accuracy. The greater accuracy of projections for the occupational groups, however, also reflects the compensating effect of aggregation, because most group totals were obtained by summing projections for detailed occupations. In addition to being weak for small occupations, the projections were relatively inaccurate for occupations that declined in employment or grew very rapidly.

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

Projection methods and assumptions

The basic approach used to estimate future occupational employment requirements was to project total employment by industry, project occupational staffing patterns (ratios) by industry, and then multiply the industry totals by the ratios to obtain occupational estimates. The results were then summed across industries to obtain occupational totals.³

Projections of the occupational structure of each industry were based on examination of historical statistics and the analysis of the factors that influence occupational structure changes, such as new technology and changes in the product mix of industry. Employment requirements for many occupations, however, were projected independent of their relationships to industry employment. The projection of school teachers, for example, was based on an analysis of trends in pupil-teacher ratios and the projected school-age population. This technique was preferred in cases where such reliable predictive relationships could be established.

The 1975 projections were premised on certain assumptions about the size of the labor force, Armed Forces strength, the rate of unemployment, and other selected assumptions. Full employment was assumed in the target year, and defined as a civilian labor force with a 3-percent unemployment rate. This figure was selected based on the almost steady decline in the unemployment rate through the 1960's and the emphasis placed on federally assisted programs to further reduce unemployment. A total labor force of 92.6 million was projected for 1975, and it was assumed that 2.7 million persons would be in the Armed Forces, yielding a civilian labor force of 89.9 million.⁴ With the assumed unemployment rate, the result was projections of 87.2 million employed and 2.7 million unemployed workers in 1975. The 87.2 million employment number was used as a control total for the occupational projections.

The economic recession of the mid-1970's negated the assumption of a full-employment economy in the target year. The unemployment rate in 1975 was almost triple the assumed 3-percent rate. Reflecting the impact of the recession, the projection of total civilian employment was 2.9 percent higher than the actual level of 84.8 million in 1975, as shown in the following tabulation:

<i>Labor force groups</i>	<i>Employment (thousands)</i>		
	<i>Projected</i>	<i>Actual</i>	<i>Percent difference</i>
Total	92,600	94,793	-2.3
Armed Forces	2,700	2,180	23.9
Civilian labor force	89,900	92,613	-2.9
Employment	87,200	84,783	2.9
Unemployment	2,700	7,830	-65.6

The overstatement of 1975 employment would have been even greater if the civilian labor force had been more accurately projected. Primarily because the number of women entering the labor force was greater than anticipated, the total labor force exceeded the projected level by about 2 million.⁵ In addition Armed Forces strength was about 1 million lower than assumed. The net result was a civilian labor force of 92.6 million instead of the projected 89.9 million. If the total labor

force had been projected correctly, the unemployment assumption would have resulted in a 5.9-percent overstatement of target year civilian employment, rather than the 2.9-percent error that actually occurred.

The economic downturn of the mid-1970's caused distortions in occupational employment that were of greater magnitude than the relatively small difference between projected and actual total employment. Because individual unemployment rates for each occupation were not specified in the assumptions, the effect of the recession on the accuracy of a projection for any given occupation is difficult to measure. Unemployment data for major occupational groups, however, indicate that the economic downturn generally had a greater effect on blue-collar occupations than other categories.

Base and target years

Ambiguity regarding the base and target years or the projection span complicated the evaluation. Although 1960 was the published starting point, some data for more recent years were available before the projections were completed. And, although targeted for 1975, the projections were intended to be indicators of long-term trends rather than precise estimates for 1975.

The matrix was developed with a 1960 base and a 1975 target year; it did not have estimates for any intervening year. The only comprehensive source of data on industry-occupation employment patterns available at the time the matrix was being developed was the 1960 census, and this continued to be the most comprehensive source until results from the 1970 census became available. Published estimates of total wage and salary employment by industry from the establishment survey and total employment by occupational group from the Current Population Survey (CPS), however, were available annually through 1965 at the time the matrix was being prepared. In addition, unpublished CPS estimates of employment in detailed occupations were available.⁶ Clearly, the post-1960 industry employment trends were used in projecting industry employment levels. The trends for occupational groups also were considered at least as guidelines, even though the projections for most groups were the sums of detailed occupational projections rather than being independently developed. The use of unpublished CPS data on detailed occupations was not well documented in the description of projection methodology, but the CPS trends for many detailed occupations reportedly were disregarded because of their uncertain reliability.

The fact that some post-1960 data were used tends to bias measures of projection accuracy that relate to the entire 1960-75 span because greater accuracy might be expected as the projection period was shortened. To avoid this problem, an evaluation must focus on differences between projected and actual employment *levels*, rather than differences between actual and projected

employment *changes*. The difference in levels is the same regardless of the base year.

The lack of a satisfactory basis for fairly judging the projected changes in occupational employment is unfortunate. Comparisons of levels alone generally have a conservative bias: projections for occupations which have relatively little employment change tend to get better marks than those which have the most change, as demonstrated in the following example. If employment in occupation A was projected to rise from 100,000 to 200,000 over a decade, but actually rose to 150,000, then 50 percent of the change was projected, and the error in level is -25 percent. If employment in occupation B was projected to rise from 100,000 to 120,000 in the same period, but actually reached only 105,000, then 25 percent of the change was projected, but the error in the level is only -12.5 percent. In terms of the proportion of actual change that was projected, A is better, but in terms of the difference between levels, B is better. Both kinds of accuracy are important. The accuracy of level is particularly important in estimating future occupational requirements, however, because projected levels are used in calculating replacement needs due to retirements and deaths.

Another problem concerns the target year. The projections were intended to be indicators of secular or long-range trends rather than estimates of employment at a future point, because it is understood that such estimates easily can be upset by unforeseen cyclical activity. Thus, it might have been wiser to describe the projections as levels that might occur in the mid-1970's or in the 1974-76 period. The projections would have been more accurate statements, with little inconvenience to users.

As previously indicated, the recession of the mid-1970's was at its worst in 1975, and the effect on occupational employment levels was not uniform. Ideally, an evaluation would judge the projections by occupational employment levels that would have existed had the recession not occurred, but this was not a practical approach. As an alternative, the 1975 projections for the major occupational groups also were compared with actual employment in both 1974 and 1976, when economic conditions were somewhat better.

Occupational groups

The direction of employment change between 1960 and 1975 was correctly anticipated for all of the nine major occupational groups, although employment in five was overprojected. Projection errors ranged from an approximate 1.2-million overstatement of employment in the operative group to a 600,000 understatement of clerical employment. The average absolute error for all groups was 535,000. Relative differences ranged from a 10.2-percent overprojection of farmworkers in 1975 to a 7.4-percent underestimate of nonfarm labor-

ers. The average of the absolute percentage errors for all groups was 6.1 percent.

The difference between projected and actual 1960–75 employment change in each occupational group varied considerably. The anticipated increase in the number of professional workers was only 5 percent greater than the actual growth. In contrast, the projected gain in laborer employment was 85 percent lower than the actual increase. On average, about two-thirds of the employment change that occurred in each occupational group between 1960 and 1975 was projected.⁷

Estimates for white-collar groups generally were closer to the mark than those for blue-collar groups—reflecting the distortions in occupational patterns resulting from the 1973–75 recession. Because such distortions probably were greater in 1975, when the recession was at its worst, projections also were compared with actual employment in adjoining years. (See table 1.) Estimates of the error for the nine occupational groups averaged an absolute 4.8 percent off 1974 levels and 6.0 percent off 1976 levels, compared to the 6.1-percent average absolute error for the target year.

Professional, technical, and kindred workers. As projected, this major occupational group led in comparative rates of growth. Employment reached 12.7 million in 1975, an increase of 77 percent from the 1960 level, compared with an anticipated 73-percent increase. Thus, the projected number of professional and technical workers was only 2.2 percent lower than the actual number in 1975, the smallest error among the occupational groups. The actual number, however, probably would have been slightly higher if economic conditions in 1975 had been favorable, as assumed.

Managerial workers. Employment grew more slowly than anticipated in this group, increasing 21 percent between 1960 and 1975, compared with projected 28-percent growth. The number of managerial workers was expected to be 5.3 percent higher than the reported 8.9 million in 1975. The projected 9.4 million, however, was almost attained in 1976 when employment reached 9.3 million.

Salesworkers. Employment in this group was overestimated by 2.6 percent, a smaller than average error. The number of salesworkers increased from 4.2 million in 1960 to nearly 5.5 million in 1975, almost reaching the projected 5.6 million.

Clerical workers. The projected number of clerical workers, the largest of the occupational groups, was 4 percent lower than the actual number in 1975. Employment reached 15.1 million in 1975, a gain of 58 percent over the 1960 level, compared with a projected 52-percent increase. The difference between projected

and actual employment for this group probably would have been greater had the recession not occurred.

Craftworkers. The number of skilled blue-collar workers was overestimated by 6.4 percent. Employment was almost 11 million in 1975, about 25 percent higher than the 1960 level, instead of the anticipated 33-percent gain. The error was significantly affected by the recession. A large proportion of craft workers are employed in construction and manufacturing industries, which are more sensitive to economic fluctuations than most other industries. Craft employment, however, had risen to about 11.5 million in 1974, almost reaching the 11.7-million projected level before decreasing as the economy worsened in 1975.

Operatives. Employment in the largest blue-collar group was overestimated by 9.1 percent, the second highest error among the occupational groups. Instead of rising from 11.4 million in 1960 to 14 million in 1975 as projected, employment peaked at 13.9 million in 1974, then dropped to 12.9 million in 1975—again reflecting the impact of the recession. Operative employment was concentrated in manufacturing industries, where unemployment rates averaged more than 11 percent in 1975.

Laborers. The 3.8-million employment projection for this group was 7.4 percent too low; and because laborers are employed primarily in manufacturing and construction, the underestimate would have been even larger if economic conditions had been more favorable. The number of laborers increased more rapidly than anticipated, peaking at 4.4 million in 1974, before dropping to about 4.1 million in 1975.

Service workers. The projection for this fast growing occupational group was too high. Employment was expected to increase from 8.3 million to 12.5 million between 1960 and 1975, a gain of 50 percent. The actual gain was 40 percent. Service industry employment, which finally reached the 1975 projected level in 1978, would have been projected more accurately but for the recession.

Farmworkers. The employment of farmworkers was overstated by 10.2 percent, the highest error among the occupational groups. Although a decline in farmworkers was projected, the extent of decline was underestimated. A 38-percent decrease in the 5.2-million 1960 employment level was projected, but a 44-percent decrease occurred. The recession probably was not a significant factor in the projection error for farmworkers.

Specific occupations

The evaluation of employment projections for detailed occupations was limited by data constraints. The

Table 1. Comparison of 1975 occupational group employment projections and actual employment in 1974, 1975, and 1976

[Thousands of workers]

Occupational group	Employment					Percent difference between projected and actual			Percent change 1960-75	
	Actual 1960	Projected 1975	Actual 1974	Actual 1975	Actual 1976	1974	1975	1976	Projected	Actual
Total	65,777	87,200	85,935	84,783	87,485	1.5	2.9	-0.3	32.6	28.9
Professional and technical workers	7,208	12,462	12,338	12,748	13,329	1.0	-2.2	-6.5	72.9	76.9
Managers and administrators	7,337	9,361	8,941	8,891	9,315	4.7	5.3	.5	27.6	21.2
Salesworkers	4,209	5,600	5,417	5,460	5,497	3.4	2.6	1.9	33.0	29.7
Clerical workers	9,557	14,520	15,043	15,128	15,558	-3.5	-4.0	-6.7	51.9	58.3
Craft and kindred workers	8,751	11,674	11,477	10,972	11,278	1.7	6.4	3.5	33.4	25.4
Operatives	11,381	14,025	13,919	12,856	13,356	.8	9.1	5.0	23.2	13.0
Nonfarm laborers	3,778	3,830	4,380	4,134	4,325	-12.6	-7.4	-11.4	1.4	9.4
Service workers	8,346	12,493	11,373	11,657	12,005	9.8	7.2	4.1	49.7	39.7
Farmworkers	5,211	3,235	3,048	2,936	2,822	6.1	10.2	14.6	-37.9	-43.7

NOTE: Details may not add to totals because of rounding. Percent differences are based on unrounded numbers.

primary source of occupational employment data for the occupational matrix was the 1960 census, but the Census Bureau revised its system for classifying employment data by occupation for the 1970 census. Beginning in late 1971, the revised system was adopted for the Current Population Survey (CPS), the primary source of occupational employment data between decennial censuses. Primarily as a result of this classification change, projections for only 76 of the 162 occupations in the matrix were comparable with 1975 employment data estimated from the CPS. Comparability also was affected by survey differences. The CPS data have a larger sampling error than the 1960 census data that were used in developing the base year matrix. Sampling errors for small occupations represented sizeable proportions of the estimated actual employment. For example, the standard error for the smallest occupation with a CPS data source, asbestos and insulation workers, was about one-fifth of the 1975 estimated employment level of 29,500. The projection of 29,300 workers in this occupation could have been anywhere between about 23,400 and 35,200 without exceeding the sampling error (1 standard error of the estimate) for the estimate of actual employment. Although this example is extreme, it demonstrates the need for caution in comparing estimates of actual employment with projections. (For a more detailed explanation of this technical factor, see the appendix.)

Differences between projected and actual employment in the 76 detailed occupations ranged from -43 percent for personnel and labor relations workers to +136 percent for plasterers. (See table 2.) The absolute percentage errors for all 76 occupations averaged 20.8 percent. Two-thirds of the occupations, however, had errors lower than the average.

One way to judge projections is to compare them with the results obtained from simple alternative methods. The occupational projections were better descriptions of the future than extrapolations of trends in total employment for each occupation. Extensions of 1960-

67 annual employment data by simple linear regression over time, which would have been an inexpensive and easy method of projecting, averaged an absolute 26.2 percent off 1975 actual levels compared with the 20.8-percent average absolute error for the projections. For about one-half of the occupations, however, the simple extrapolations of employment trends were more accurate than the projections.⁸ Attempts to fit curves to the employment trends produced less accurate results than the linear extrapolations. Estimates also were developed with the projected civilian labor force used as the independent variable, but the results were relatively poor, being more accurate than the projections for less than two-fifths of the occupations.

Projection accuracy was related to the size of employment in an occupation. When weighted by employment in each occupation, the average absolute error drops from 20.8 percent to 14 percent, indicating that the largest occupations generally had the more accurate projections. Relatively accurate projections for the following four categories, each with more than 1 million workers in 1975, contributed substantially to the improved results: elementary school teachers; attendants, hospital and other institutions; waiters and waitresses; and stenographers, typists, and secretaries. The following tabulation shows how projection accuracy improved for occupations with more workers:

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

Sampling errors for census estimates diminish relatively as employment size increases, so the historical data for large occupations would be expected to provide

Table 2. Comparison of projected and actual 1975 employment in selected detailed occupations

[Thousands of workers]

Occupation	Employment			Difference between projected and actual		Percent change	
	Actual 1960	Projected 1975	Actual 1975	Level	Percent	Projected	Actual
Compositors and typesetters	182.5	155.0	154.0	1.0	0.6	-15.1	-15.6
Asbestos and insulation workers	19.6	29.3	29.5	-2	-7	49.5	50.5
Crane, derrick, and hoist operators	124.0	172.0	169.0	3.0	1.8	38.7	36.3
Nurses, professional	495.6	860.0	835.0	25.0	3.0	73.5	68.5
Waiters and waitresses	808.9	1,225.0	1,183.0	42.0	3.6	51.4	46.2
Pharmacists	113.8	126.0	120.1	5.9	4.9	10.7	5.5
Bartenders	163.7	233.0	247.0	-14.0	-5.7	42.3	50.9
Clergy	200.0	240.0	255.3	-15.3	-6.0	20.0	27.7
Dietitians and nutritionists	27.1	36.6	39.2	-2.6	-6.6	35.1	44.6
Optometrists	17.0	20.0	18.7	1.3	7.0	17.6	10.0
Elementary school teachers	977.9	1,233.0	1,332.0	-99.0	-7.4	26.1	36.2
Meat cutters and butchers, except meat packing	189.9	222.7	207.0	15.7	7.6	17.3	9.0
Attendants, hospital and other institutions	450.0	1,083.0	1,001.0	82.0	8.2	140.7	122.4
Airplane pilots and navigators	28.5	55.0	60.0	-5.0	-8.3	93.0	110.5
Veterinarians	18.6	26.0	24.0	2.0	8.3	39.8	29.0
Cabinetmakers	66.0	75.0	81.9	-6.9	-8.4	13.6	24.1
Cement and concrete finishers	46.0	75.0	82.0	-7.0	-8.5	63.0	78.3
Carpenters	832.0	900.0	988.0	-88.0	-8.9	8.2	18.8
Furnace tenders, smelters, and pourers	52.1	56.4	62.0	-5.6	-9.0	8.3	19.0
Machinists and related occupations	495.3	504.0	461.0	43.0	9.3	1.8	-6.9
Police and detectives	287.0	518.0	473.0	45.0	9.5	80.5	64.8
Molders, metal	54.2	56.0	51.0	5.0	9.8	3.3	-5.9
Plumbers and pipefitters	303.0	425.0	386.0	39.0	10.1	40.3	27.4
Electrical engineers	174.7	319.8	290.0	29.8	10.3	83.1	66.0
Stenographers, typists, and secretaries	2,383.0	3,900.0	4,370.0	-470.0	-10.8	63.7	83.4
Millwrights	69.0	87.8	79.0	8.8	11.1	27.2	14.5
Postmasters and assistants	39.2	34.2	30.5	3.7	12.1	-12.8	-22.2
Welders and flame cutters	355.0	575.0	654.0	-79.0	-12.1	62.0	84.2
Mail carriers, post office	205.5	290.0	258.5	31.5	12.2	41.1	25.8
Jewelers and watchmakers	37.0	39.0	44.7	-5.7	-12.8	5.4	20.8
Railroad conductors	43.3	44.4	39.3	5.1	13.0	2.5	-9.2
Firefighters	148.9	250.0	221.0	29.0	13.1	67.9	48.4
Radio and television repairers	103.3	140.4	124.0	16.4	13.2	35.9	20.0
Delivery and route drivers, taxicab drivers, and chauffeurs	597.5	845.0	744.0	101.0	13.6	41.4	24.5
Food counter and fountain workers	150.4	320.0	372.0	52.0	-14.0	112.8	147.3
Cooks, except private household	530.0	860.0	1,001.0	-141.0	-14.1	62.3	88.9
Roofers and slaters	50.0	68.5	80.0	-11.5	-14.4	37.0	60.0
Shipping and receiving clerks	325.0	365.0	428.0	-63.0	-14.7	12.3	31.7
Airplane mechanics	111.6	138.7	120.0	18.7	15.6	24.3	7.5
Electricians	359.0	450.0	534.0	-84.0	-15.7	25.3	48.7
Guards	330.0	415.0	492.0	77.0	15.7	25.8	49.1
Sailors and deckhands	32.3	27.1	32.5	5.4	16.6	-16.1	.6
Railroad brake and switch operators	103.2	110.7	94.8	15.9	16.8	7.3	-8.1
Dentists	86.7	124.7	106.7	18.0	16.9	43.8	23.1
Accountants and auditors	429.3	660.0	797.8	-137.8	-17.3	53.7	85.8
Cashiers	478.3	973.0	1,180.0	-207.0	-17.5	103.4	146.7
Blue-collar workers, supervisors	1,137.0	1,650.0	1,393.0	257.0	18.4	45.1	22.5
Lawyers and judges	225.0	320.0	392.0	-72.0	-18.4	42.2	74.2
Chemical engineers	39.6	61.7	52.0	9.7	18.7	55.8	31.3
Physicians, medical and osteopathic	234.0	390.1	328.1	62.0	18.9	66.7	40.2
Drafters	233.0	375.0	311.9	63.1	20.2	60.9	33.9
Editors and reporters	100.0	128.0	160.8	-32.8	-20.4	28.0	60.8
Postal clerks	242.7	340.0	281.5	58.5	20.8	40.0	16.0
Bank tellers	127.0	263.0	350.0	-87.0	-24.9	107.1	175.6
Boilermakers	24.1	27.4	36.9	-9.5	-25.7	13.7	53.1
Heat treaters, and annealers	20.4	21.5	17.0	4.5	26.5	5.4	-16.7
Mechanical engineers	153.5	254.6	200.0	54.6	27.3	65.9	30.3
Locomotive engineers	46.5	50.0	38.9	11.1	28.5	7.5	-16.3
Surveyors	44.0	82.0	63.0	19.0	30.2	86.4	43.2
Weavers, textile	61.0	40.5	31.0	9.5	30.6	-33.6	-49.2
Telephone operators	355.2	452.0	344.0	108.0	31.4	27.3	-3.2
Photographers	51.0	57.0	83.3	-26.3	-31.6	11.8	63.3
Printing press operators	75.4	99.7	146.0	-46.3	-31.7	32.2	93.6
Social and welfare workers	105.0	218.0	320.6	-102.6	-32.0	107.6	205.3
Aeronautical engineers	45.8	68.0	51.6	17.0	32.9	49.8	12.7
Inspectors, log and lumber	19.5	24.7	18.5	6.2	33.5	26.7	-5.1
Psychologists	17.0	40.0	61.0	-21.0	-34.4	135.3	258.8
Power station operators	20.9	24.2	17.7	6.5	36.7	15.8	-15.3
Locomotive engineers' helpers	41.6	6.6	10.5	-3.9	-37.1	-84.1	-74.8
Personnel and labor relations workers	100.0	191.0	333.1	-142.1	-42.7	91.0	233.1
Photoengravers and lithographers	24.2	55.0	37.5	17.5	46.7	127.3	55.0
Civil engineers	146.0	248.2	160.0	88.2	55.1	70.0	9.6
Credit managers	50.1	89.1	57.0	32.1	56.3	77.8	13.8
Patternmakers, metal and wood	40.4	49.0	30.0	19.0	63.3	21.3	-25.7
Knitters, loopers, and toppers	44.0	43.5	25.0	18.5	74.0	-1.1	-43.2
Plasterers	50.0	61.0	25.8	35.2	136.4	22.0	-48.4

NOTE: Employment levels are expressed in rounded numbers, but percentage differences are based on unrounded numbers.

more reliable trends. The greater accuracy of projections for occupational groups, however, also reflects the compensating effect of aggregation, as most group totals were obtained by summing projections for detailed occupations. Within a group, overestimates for some detailed occupations tended to be offset by underestimates for others.

The direction of employment change between 1960 and 1975 was correctly anticipated for 64 of the 76 detailed occupations. Again, results were best in the larger fields of employment. The occupations for which the direction of change was identified had average employment of about 245,000 in 1960; those with projections in the wrong direction had an average of less than 107,000 employees. Moreover, only 4 of the 51 occupations with more than 50,000 workers in 1960 had projections that were in the wrong direction, while 8 of the 25 smaller fields had that mistake. Some of the differences, however, between projected increases and actual declines, or vice versa, were relatively small.

The poor performance in estimating future employment requirements for small occupations raises questions about whether BLS should be attempting to develop projections for occupations that lack reliable employment data because of sampling error or other problems. In an effort to provide users with estimates for a larger number of fields, possibly more harm than good is being done.

Employment grew in 60 of the detailed occupations between 1960 and 1975, and declined in the remaining 16. Increases were estimated more accurately than decreases. Projections for growing occupations averaged an absolute 17 percent off actual employment, while those for occupations with losses averaged 35 percent off. Projections of growth were closely divided between underestimates and overestimates of reported employment gains. Almost all employment declines were underestimated.

The direction of employment change was correctly anticipated for all but one of the growing occupations. The number of sailors and deckhands increased by about 1 percent instead of declining by 16 percent as projected. The standard error for the estimate of 1975 employment in this occupation was much greater than 1 percent, however, so a decrease actually may have occurred. In fact, a decrease seems likely because total employment in the water transportation industry decreased in the 1960's and early 1970's.

Occupations at either end of the employment growth spectrum generally had less accurate projections than those in the middle. As the following tabulation shows, occupations with the most rapid growth had the largest projection errors, and the slowest growth occupations had somewhat larger errors than those with moderate growth.

<i>Percent growth in employment, 1960-75</i>	<i>Number of occupations</i>	<i>Average absolute percent error in projection</i>
Average of all growth rates, 58.1 percent	60	17.0
Less than 20	12	20.5
20 to 39	16	13.1
40 to 59	11	16.6
60 to 89	12	14.2
90 or more	9	23.7

Target year employment usually was underestimated in the fastest growing occupations and overestimated in those with the slowest growth. Projections were lower than actual levels in 14 of the 15 fastest growing occupations, and higher than actual in 12 of the 15 with the slowest increases.

Decreases were not anticipated in 11 of the 16 occupations that declined in employment. Projections for four of these occupations were within the range of sampling error (1.6 standard errors of the estimate) for estimates of actual 1975 employment, but this limit was exceeded for plasterers, patternmakers, telephone operators, power station operators, machinists, and railroad engineers and brake and switch operators. The projections correctly identified postmaster, weaver, knitter, and locomotive engineer's helper as occupations which would decline in employment, although the rate of decrease was underestimated for three of these four.

Revised projections

A revision of the 1960-75 matrix improved the accuracy of the occupational projections somewhat. The revision was based on 2 years of additional information which had become available after the initial matrix was completed. The basic economic assumptions, such as the size of the labor force and the unemployment rate, remained the same, but projections of industry employment levels were revised in line with more recent data.⁹ The industry-occupation ratios, however, continued to be based primarily on the 1950 and 1960 censuses. For about two-thirds of the industries, the revised employment projections were either as accurate or more accurate than the initial projections.¹⁰ The effect of the revision on the accuracy of ratios could not be determined because industry-occupation employment patterns for 1975 have never been developed.

The average absolute 6.1-percent error for the nine occupational groups in the initial projection was reduced to 3.7 percent with the revision. The most significant improvement was a reduction in the overstatement of farmworkers from 10.2 percent to less than 1 percent. Errors in estimates for professional, managerial, and laborer groups also were reduced. The revised projections, however, were less accurate for the sales,

craft, and operative groups.

The revision improved the accuracy of projections for half of the 76 detailed occupations included in the evaluation, and reduced the accuracy for the remaining half. The degree of error was lowered. The 76 occupational projections in the original matrix averaged an absolute 20.8 percent off actual 1975 employment levels; the revision reduced this to 19.4 percent, and several of the worst estimates were improved. The largest error, a 136-percent overestimate of the number of plasterers employed in 1975, was reduced to 53 percent. Large projection errors for civil engineers and for photoengravers and lithographers also were reduced substantially. Occupations with significantly less accurate projections as a result of the revision included weavers, machinists, airplane pilots and navigators, and airplane mechanics. Most of the changes reflected adjustments both in industry employment levels and staffing patterns. Changes in the airplane pilot and mechanic projections, however, were primarily a result of a revision in the air transportation industry projection, while the change in the plasterer estimate was almost entirely a result of an adjustment to the construction industry's occupational profile.

Considerable differences appeared when the original and revised projections were ranked according to accuracy. Only two occupations were among the 10 with the most accurate projection in each version. Even among each top 20, there were only 10 occupations in common. However, 14 occupations were common to the bottom 20 for each version. Because errors for the best projections fell within a much more narrow range than those for the worst projections, the order at the top of the scale was more sensitive to the revision.

Although several major changes were made and rankings were upset, the new estimates for most occupations were fairly close to the original projections. The revised figures averaged an absolute 11.4-percent change from the initial estimates, and the differences for almost three-fourths of the detailed occupations were smaller than the average. In addition, similar patterns were observed in both sets of projections. The largest occupations usually had the most accurate projections, and employment increases were estimated much more accurately than declines. In both the original and revised estimates, errors for occupations that declined in employment averaged about twice as high as those for occupations with employment growth. Both declines and rapid increases in employment generally were underestimated.

The relatively small difference between the initial and revised projections suggest that it may not be worthwhile to revise matrices unless additional years of data on both industry employment and industry-occupation ratios are available.

Matrix errors

A major objective of this evaluation was to isolate the effects of errors in the matrix elements that determine occupational employment in the target year—projected employment by industry, and projected occupational staffing patterns for each industry (industry-occupation ratios). Ideally, the error caused by each of these factors would be determined by developing simulated matrices that combine actual data for one factor with projected data for another. Unfortunately, because actual ratios for 1975 were not available, the effect of projected industry employment totals could not be isolated, and therefore an analysis of both factors and their interaction was not possible. However, a simulated matrix based on actual industry employment totals and projected ratios was developed, and the resultant set of occupational projections was compared to actual occupational totals to determine the effect of the projected ratios alone.

The revised matrix was used for the simulation because the computer system that processed the initial version was incompatible with later systems. Resources did not permit development of 1975 industry totals for this exercise. As an alternative, data for the simulation were obtained from a set of 1974 industry employment totals which had previously been developed as a base for the 1985 matrix projections. However, the use of actual data from 1974, rather than from 1975, should give a more valid measure of ratio errors because recession-induced distortions in industry occupational relationships were probably less pronounced in 1974.

Contrary to what might be expected, the simulated projections turned out to be less accurate than the projections. Revised 1975 projections for the detailed occupations averaged an absolute 16.2 percent off actual 1974 employment levels. When actual industry employment levels were substituted for projected levels in the matrix, and the ratios remained as projected, the average absolute error for the occupational projections increased slightly to 16.3 percent. This comparison indicates that the ratios, rather than industry levels, were the primary source of error in the projected occupational totals. That is, because perfect industry employment projections would not have improved the accuracy of the occupational projections, the fault must have been mostly with the ratios.

The problem with projected ratios was more pervasive than the small difference in the two average errors might suggest. The simulations were worse than the projections for 49 of the 76 occupations in the study, but resulted in substantial improvements for many of the remaining 27, thus bringing the average error for the simulations more in line with that of the projections. (See table 3.) Among the estimates benefiting

Table 3. Comparison of projections and simulations of 1975 employment and 1974 actual employment in selected detailed occupations

[Thousands of workers]

Occupation	Employment			Difference between projected and actual		Difference between simulated and actual	
	Projected 1975 ¹	Simulated 1975	Actual 1974	Level	Percent	Level	Percent
Food counter and fountain workers	349.1	363.2	351.0	-1.9	-0.5	12.2	3.5
Police and detectives	508.7	452.1	514.0	-5.3	-1.0	-61.9	-12.0
Asbestos and insulation workers	30.4	29.5	30.0	.4	1.3	-.5	-1.7
Elementary school teachers	1,317.4	1,211.3	1,299.8	17.6	1.4	-88.5	-6.8
Electrical engineers	281.8	262.9	287.0	-5.2	-1.8	-24.1	-8.4
Molders, metal	60.0	60.2	58.9	1.1	1.9	1.3	2.2
Railroad conductors	40.9	41.7	40.0	.9	2.3	1.7	4.3
Dietitians and nutritionists	33.8	34.7	33.0	.8	2.4	1.7	5.2
Compositors and typesetters ¹	170.7	160.7	166.0	4.7	2.8	-5.3	-3.2
Optometrists	18.9	21.5	18.3	.6	3.3	3.2	17.5
Firefighters	226.8	199.3	219.0	7.8	3.6	-19.7	-9.0
Meat cutters and butchers, except meat packing	194.6	205.8	202.0	-7.4	-3.7	3.8	1.9
Waiters and waitresses	1,137.4	1,269.5	1,181.9	-44.5	-3.8	87.6	7.4
Nurses, professional	825.7	872.5	790.0	35.7	4.5	82.5	10.4
Welders and flame cutters	612.9	598.9	646.0	-33.1	-5.1	-47.1	-7.3
Locomotive engineers	44.3	45.3	42.0	2.3	5.5	3.3	7.9
Plumbers and pipefitters ¹	424.5	415.2	402.3	22.2	5.5	12.9	3.2
Electricians	524.0	510.9	558.3	-34.3	-6.1	-47.4	-8.5
Heat treaters, annealers ¹	23.7	22.8	22.3	1.4	6.3	.5	2.2
Radio and television repairers	143.3	155.6	134.0	9.3	6.9	21.6	16.1
Millwrights	88.2	85.5	95.0	-6.8	-7.2	-9.5	-10.0
Stenographers, typists, and secretaries	4,015.8	3,940.1	4,330.0	-314.2	-7.3	-389.9	-9.0
Sailors and deckhands	30.5	28.7	33.0	-2.5	-7.6	-4.3	-13.0
Physicians, medical and osteopathic	340.3	378.3	315.0	25.3	8.0	63.3	20.1
Railroad brake and switch operators ¹	89.2	91.1	97.0	-7.8	-8.0	-5.9	-6.1
Carpenters	991.8	969.6	1,084.2	-92.4	-8.5	-114.6	-10.6
Mail carriers, post office ¹	290.6	250.8	267.0	23.6	8.8	-16.2	-6.1
Delivery and route drivers, taxicab drivers, and chauffeurs	696.4	659.8	766.9	-70.5	-9.2	-107.1	-14.0
Cement and concrete finishers	80.9	79.1	90.0	-9.1	-10.1	-10.9	-12.1
Clergy	218.2	190.9	245.0	-26.8	-10.9	-54.1	-22.1
Blue-collar workers, supervisors ¹	1,615.8	1,576.6	1,457.1	158.7	10.9	119.5	8.2
Photographers	71.3	63.9	80.0	-8.7	-10.9	-16.1	-20.1
Cabinetmakers ¹	73.4	75.1	82.5	-9.1	-11.0	-7.4	-9.0
Chemical engineers ¹	55.6	53.4	50.0	5.6	11.2	3.4	6.8
Dentists	111.2	125.7	100.0	11.2	11.2	25.7	25.7
Crane, derrick, and hoist operators	163.8	161.4	184.7	-20.9	-11.3	-23.3	-12.6
Lawyers and judges ¹	316.3	320.2	359.9	-43.6	-12.1	-39.7	-11.0
Cooks, except private household	834.8	892.5	954.9	-120.1	-12.6	-62.4	-6.5
Shipping and receiving clerks	406.3	400.4	465.0	-58.7	-12.6	-64.6	-13.9
Cashiers ¹	970.0	1,023.5	1,110.9	-140.9	-12.7	-87.4	-7.9
Airplane pilots and navigators ¹	78.0	71.9	69.0	9.0	13.0	2.9	4.2
Surveyors	63.3	59.7	73.0	-9.7	-13.3	-13.3	-18.2
Pharmacists ¹	137.5	134.7	120.0	17.5	14.6	14.7	12.3
Guards	402.2	375.9	473.0	-70.8	-15.0	-97.1	-20.5
Inspectors, log and lumber	21.6	22.4	18.7	2.9	15.5	3.7	19.8
Photoengravers and lithographers ¹	41.7	38.9	36.0	5.7	15.8	2.9	8.1
Postmasters and assistants	35.9	31.0	31.0	4.9	15.8	.0	.0
Telephone operators ¹	454.1	449.0	390.0	64.1	16.4	59.0	15.1
Psychologists	44.0	42.4	53.0	-9.0	-17.0	-10.6	-20.0
Postal clerks ¹	346.7	299.3	293.0	53.7	18.3	6.3	2.2
Bank tellers	270.4	335.9	335.9	-65.5	-19.5	-42.4	-12.6
Furnace tenders, smelters, and pourers	62.6	61.6	78.8	-16.2	-20.6	-17.2	-21.8
Roofers and slaters	71.3	70.2	90.0	-18.7	-20.8	-19.8	-22.0
Veterinarians	29.0	30.4	24.0	5.0	20.8	6.4	26.7
Accountants and auditors ¹	630.8	674.8	810.0	-179.2	-22.1	-135.2	-16.7
Attendants, hospital and other institutions	1,125.7	1,184.1	915.6	210.1	22.9	268.5	29.3
Bartenders ¹	179.2	203.7	233.0	-53.8	-23.1	-29.3	-12.6
Editors and reporters	118.9	112.4	156.0	-37.1	-23.8	-43.6	-27.9
Credit managers	82.0	86.1	66.0	16.0	24.2	20.1	30.5
Patternmakers, metal and wood ¹	50.6	47.1	40.7	9.9	24.3	6.4	15.7
Jewelers and watchmakers ¹	34.1	36.5	45.3	-11.2	-24.7	-8.8	-19.4
Drafters ¹	386.2	362.5	298.0	88.2	29.6	64.5	21.6
Civil engineers ¹	217.5	206.6	167.0	50.5	30.2	39.6	23.7
Airplane mechanics ¹	169.4	146.4	130.0	39.4	30.3	16.4	12.6
Social and welfare workers	210.5	194.2	305.3	-94.8	-31.1	-111.1	-36.4
Weavers, textile	55.4	58.3	41.6	13.8	33.2	16.7	40.1
Mechanical engineers ¹	247.2	231.1	183.0	64.2	35.1	48.1	26.3
Personnel and labor relation workers	211.7	205.4	325.0	-113.3	-34.9	-119.6	-36.8
Power station operators	24.1	24.5	17.8	6.3	35.4	6.7	37.6
Boilermakers	25.6	24.8	40.0	-14.4	-36.0	-15.2	-38.0
Printing press operators	89.9	84.2	142.0	-52.1	-36.7	-57.8	-40.7
Knitters, loopers, and toppers	47.2	49.8	33.5	13.7	40.9	16.3	48.7
Machinists and related occupations ¹	636.2	607.1	450.4	185.8	41.3	156.7	34.8
Locomotive engineers' helpers	15.9	16.2	11.0	4.9	44.5	5.2	47.3
Aeronautical engineers ¹	74.2	57.1	51.2	23.0	44.9	5.9	11.5
Plasterers	39.5	38.7	26.6	12.9	48.5	12.1	45.5

¹ The accuracy of the occupational projection was reduced as a result of reinforcing errors in the projections of industry-occupation ratios and industry employment levels.

Employment levels are expressed in rounded numbers, but percentage differences are based on unrounded numbers.

NOTE: Projections of 1975 employment used here are based on the 1969 revision. Em-

most from the actual industry employment data were those for airplane pilots and navigators, aerospace engineers, and postal clerks, reflecting the fact that the industries where these fields are concentrated—air transportation, aircraft manufacturing, and post office—had some of the least accurate projections of industry employment levels.

When weighted by employment, the average absolute error for the simulated projections dropped from 16.3 percent to 12.6 percent, an indication that the ratio estimates were better for the larger fields of employment. The error for occupations with fewer than 50,000 employees in 1974 was almost twice that of those with a half million or more workers. Weak ratio estimates for small fields of employment may be related to problems with historical data on industry-occupation patterns. Survey errors were relatively large for census estimates of total employment in small occupations, and the problem may be compounded when these totals are disaggregated among the industries. A large number of occupations are so widely dispersed that only a fraction of 1 percent is found in many industries.

The failure to anticipate the impact of technological change and other factors that affect occupational needs also contributed to ratio errors. In estimating ratios for knitters, for example, it was assumed that increases in the demand for knit goods would more than offset the employment effect of laborsaving technology. Although total employment in the knitting industry grew even more than projected, employment in this occupation declined as a result of larger capacity, higher speed machinery and other technological developments. Misassessments of the effect of technological developments also contributed to overprojected demand for plasterers, weavers, telephone operators, and several railroad occupations. In most cases, the laborsaving technology had been identified, but its future impact was difficult to project because data were either insufficient or nonexistent.

Compensating errors in the estimates of industry employment levels and ratios improved the accuracy of projections for 49 of the 76 occupations.¹¹ For example, total employment in the health services industry (excluding hospitals), where almost all optometrists were expected to be employed, was underprojected by about 12 percent, yet employment in this occupation was overprojected by about 4 percent. From this evidence, it can be concluded that an overstated ratio for optometrists almost offset the effect of an industry projection that was too low. The most accurate projections generally were products of this kind of counterbalancing. Compensating errors however, were not entirely the result of chance. In some cases, occupational projections that were developed independently conflicted with industry employment projections and, in adjusting these

projections for consistency, ratios sometimes were distorted.

Errors caused by the two factors were reinforced for about one-third of the occupations, many of which had the least accurate projections. Occupations with reinforcing errors are identified by footnote in table 3; those not noted have compensating errors, with the exception of postmasters, which had no error at all because the ratio projection for this occupation was perfect.

New projections

Although the occupational projections were off the mark for many reasons, including the economic downturn in 1975, the evaluation has established that the ratio estimates were the largest source of error. These estimates were based on scanty data for trends in the occupational structure of industries. Although the projections were made in the late 1960's, the only comprehensive sources of historical data on ratios were the 1950 and 1960 decennial censuses. A long recognized need for current, detailed data on industry staffing patterns prompted the initiation of the cooperative Federal-State program, Occupational Employment Statistics (OES), in 1970. Data on employment by industry is now collected in 3-year cycles for more than 2,000 occupations through the OES survey. Through March 1979, 46 States and the District of Columbia were cooperating in the program, and BLS plans to complete the development of an OES-based 1980-90 national matrix in 1981.¹²

The recession in 1975 adversely affected the projections for many of the blue-collar occupations concentrated in construction and manufacturing industries. Alternative projections could address the problem of cyclical fluctuations. Rather than preparing projections based on one set of assumptions about the economy in the target year, alternative projections could be developed with different assumptions about the unemployment rate, the GNP, and other variables. BLS took a step in that direction in 1976 by developing 1985 industry-occupation matrices based on different sets of assumptions or scenarios about the economic policies that the Federal government might follow to sustain a recovery from the 1973-75 recession.¹³ To assess the extent that occupational employment might be affected, industry employment projections based on each scenario were translated into occupational projections by applying them to fixed matrix ratios. Occupational projections based on two versions of what the economy might look like in 1990 are in preparation. As a refinement to the method used for 1985 estimates, matrix ratio patterns will be projected for each version of the 1990 economy rather than using the same pattern for both. One of the limitations of the scenario approach, howev-

er, is that the effect of each assumption cannot be isolated. Nevertheless, sensitivity analysis can isolate the effects of specific alternative assumptions.

Continuing analysis of the accuracy of projections is an important activity in improving their reliability.

Evaluation of previous employment projections will become a regular part of the occupational outlook program. Actual employment data soon will be available for comparison with the 1980 occupational projections. □

—FOOTNOTES—

¹ Evaluations of earlier occupational projections are described in Sol Swerdloff, "How good were manpower projections for the 1960's," *Monthly Labor Review*, November 1969, pp. 17-22.

² The Bureau's occupational projections for 1975 were first published in *Occupational Employment Patterns for 1960 and 1975*, Bulletin 1599, Bureau of Labor Statistics, December 1968. The projections also were presented in a corollary report, *Tomorrow's Manpower Needs*, Volume IV, Bulletin 1606, Bureau of Labor Statistics, February 1969. The projections evaluated in this article were obtained from the latter publication. There are minor differences in estimates presented in the two publications.

³ For a detailed discussion of the methodology used in developing industry employment projections, see *Tomorrow's Manpower Needs*, pp. 5-8. The industry employment projections represented the collaborative efforts of several research staffs in the Bureau, including those working on technological change and productivity, economic growth, and occupational outlook. The general structure of employment by industry, however, was developed through an economic growth model which used an input-output approach.

⁴ See Sophia (Cooper) Travis and Denis F. Johnston, "Labor force projections for 1970-80," *Monthly Labor Review*, February 1965, pp. 129-40.

⁵ Evaluations of labor force projections for 1975 are described in Paul M. Ryscavage, "BLS labor force projections: a review of methods and results," *Monthly Labor Review*, April 1979, pp. 15-22.

⁶ In more recent times, the CPS data and industry employment estimates were used to construct base matrices for years between decennial censuses. For example, the Bureau developed a 1974 base year matrix for its 1985 occupational projections, then a 1976 base for a revision of these projections. The detailed occupational totals in these matrices are a refinement of the CPS estimates.

⁷ If 1965 is regarded as the starting point for the projections, the performance is not as good. The percentage of employment projected for the occupational groups averages about 52 percent if the change is measured from 1965 to 1975, compared to about 68 percent if change is measured from 1960 to 1975. The better performance when the span is greater is in part due to the projections being credited for some of the employment changes that already had occurred. As pointed out in the explanation of the problem with identifying the base year, data on occupational group employment were already available through 1965 at the time the projections were being prepared, and measures of accuracy that center on the amount of change projected will reflect this bias. The recession also was a factor, however, in that some of the employment gains that took place after 1965 were erased by the economic downturn in the mid-1970's. Employment in the operative group in fact was lower in 1975 than in 1965, although it had

grown through the late 1960's and early 1970's. If this occupation is excluded from the average, the difference for the two time spans is reduced substantially. Excluding operatives, the projections accounted for an average of about 73 percent of the employment change in occupational groups during the 1960-75 period, and an average of about 71 percent of the change during the 1965-75 period.

⁸ Extrapolations were based on 1960 Census data and 1962-67 CPS data (1961 data were not available). Comparable CPS employment series were not available for 4 of the 76 occupations in the study. Thus, extrapolations were developed for only 72 occupations. Extrapolation for 2 occupations resulted in negative employment in 1975; these negative numbers were arbitrarily adjusted to positive employment levels of 100 workers. Although the matrix projections used data only through 1965, data were available through 1967 by the time the matrix was submitted for publication. Because of the amount of time required to prepare the matrix, it was difficult to incorporate changes that reflected the latest data. Simple extrapolations, on the other hand, can be prepared in a very short time, making it easier to take advantage of the latest data.

⁹ BLS later developed three alternative sets of industry employment projections for 1975 as a part of a contract with the U.S. Arms Control and Disarmament Agency to study the economic impact of a withdrawal from Vietnam. For a description of these projections, see *Projections of the Post-Vietnam Economy*, Bulletin 1733, Bureau of Labor Statistics, 1972. For an evaluation of the basic alternative set of industry employment projections, see Paul T. Christy and Karen J. Horowitz, "An Evaluation of BLS Projections of 1975 Production and Employment," *Monthly Labor Review*, August 1979, pp. 8-10.

¹⁰ The measure of improvement in the accuracy of industry employment projections was based on estimates of total employment obtained from a 1974 base year matrix because a 1975 base year matrix was not available.

¹¹ The presence of compensating errors for an occupation was difficult to determine with certainty because the lack of data on actual ratios for the target year prevented isolating the effect of errors in industry projections alone. As a rule, however, errors in the industry and ratio projections are compensating for an occupation if (1) the sign of the projection error (table 5, fourth column) is different than the sign of the result of subtracting the simulation error (table 5, seventh column) from the projection error, or (2) the signs of the projection and simulation errors in these two columns are the same, but the projection error has a lower absolute level.

¹² For a description of the OES program, see *Occupational Employment Statistics Handbook*, Bureau of Labor Statistics, April 1979.

¹³ See Max L. Carey, "Revised occupational projections to 1985," *Monthly Labor Review*, November 1976, pp. 10-21.

APPENDIX: Technical factors

Resource constraints precluded construction of a 1975 matrix for the purpose of evaluating the occupational employment projections. Consequently, 1975 employment levels had to be estimated from (1) base year matrices for 1974 and 1976, which had already been developed by the Bureau in preparing and revising 1985 projections, and (2) from Current Population Survey (CPS) data, the primary source of occupational data for matrices between decennial censuses. The evaluation also was handicapped by a loss in the continuity of

comparable employment data as a consequence of a revision in the occupational classification system used by the Census Bureau. In addition, relatively large sampling errors for CPS estimates of actual 1975 employment were a problem for some occupations.

Much of the occupational data from the 1960 Census, which was the principal data base for the projected 1975 matrix, is not comparable with CPS data collected after 1971. The 1960 Census system for classifying employment by occupation and industry was revised for

the 1970 Census, and beginning in late 1971, the revised system was adopted for the CPS. Interrelationships between the two systems were quantified in the Census publication, *Technical Paper 26, 1970 Occupation and Industry Classification Systems in Terms of Their 1960 Occupation and Industry Elements*. According to the information in this report, all nine occupational groups had 96 percent or better comparability between the two classification systems. Specifically, if the 1960 labor force data were retabulated, 95 percent or more of the labor force reported in a particular occupational group under the 1960 classification system would remain in the same group under the 1970 system, and these workers would represent 95 percent or more of the total for that group. At a more detailed occupational level, the comparability gap was wider. Of the 297 occupations in the 1960 classification system, 171 had 90 percent or better comparability in the 1970 system. About one-half of these occupations, however, were not included in the matrix. In addition, the accuracy of some of the projections that were based on historical data from sources other than the census could not be verified. After eliminating occupations which were less than 90 percent comparable and those which had verification problems, the evaluation of projections was limited to 76 of the 162 detailed occupations covered in the matrix.

Estimates from the CPS were subject to greater sampling variability than those from the decennial census. For an occupational estimate of 50,000, for example, the standard error would be about 900 if the data were from the 1960 Census, and about 6,700 if the data were from the CPS. Projections for several occupations were within the range of sampling error for CPS estimates of actual employment in 1975. Projections for the following occupations were within one standard error of the estimate:

- Compositors and typesetters
- Asbestos and insulation workers
- Crane, derrick, and hoist operators
- Pharmacists
- Dietitians and nutritionists
- Airplane pilots and navigators
- Cabinetmakers
- Cement and concrete finishers
- Furnace tenders, smelters, and pourers
- Metal molders
- Millwrights
- Jewelers and watchmakers
- Railroad conductors
- Sailors and deckhands

If the measure is set at 1.6 standard errors of the estimate, projections for the following additional occupations are within the range of CPS sampling error:

- Waiters and waitresses
- Bartenders
- Clergy
- Meat cutters and butchers, except meat packing
- Roofers and slaters
- Heat treaters and annealers
- Log and lumber inspectors
- Locomotive engineers' helpers

Comparability of occupational employment estimates also is affected by other differences between the census and the CPS. Among these are the more extensive training and experience of the CPS enumerators than the census enumerators, differences in format of schedules, and differences in methods used to process the original data. In addition, occupational estimates from the CPS were annual averages of 12 monthly estimates, whereas the Census data were collected only for April.

Dental and vision care benefits in health insurance plans

As medical care costs increase, dental and vision care insurance become more important; most of the plans studied were financed by employers, and there were restrictions and limitations on use of services, especially for dental care

DONALD R. BELL

Dental care and vision care have been among the fastest-growing areas of employee health insurance in recent years. Between 1974 and 1977, the latest date for which data are available, the proportion of employees covered by dental care insurance doubled or tripled, depending on the measure used; the proportion covered by vision care insurance increased by about one-half.¹

Both employees and employers are interested in extending insurance coverage to areas that are important in terms of consumer cost. According to the Bureau of Labor Statistics' Consumer Price Index, dental care costs increased at annual rates of 8.8 percent between 1974 and 1977, and 7.7 percent between 1977 and 1979. Vision care costs increased 7.1 and 5.3 percent per year during the same periods. These increases were less than the increase in the cost of medical care, which rose at a rate of 9.8 percent a year from 1974 to 1979. However, for most employees, the bulk of the cost of medical care (physicians, hospitals, and prescription drugs) was covered by insurance, but for many, dental and vision care was uninsured.

Dental and vision care plans vary considerably in terms of services covered, types of payment made, coinsurance provisions, deductibles, maximum benefits, and other characteristics. This article outlines the principal features of dental and vision care plans included in the

Bureau of Labor Statistics' *Digest of Selected Health and Insurance Plans, 1977-79*.² The 148 health insurance plans in the *Digest* are not necessarily model plans, nor are they a representative sample of all health insurance plans. However, they cover large numbers of workers in major industries, set or reflect trends, or are examples of different approaches to health insurance planning and, therefore, illustrate the characteristics and features of a variety of health insurance plans in private industry.

Typically, dental and vision care benefits are found in plans that also have protection against catastrophic illness, usually through major medical benefits. Health plans are considered as including dental and vision care if the benefits are separately provided as part of basic health benefits or if they are provided by major medical benefits, unless coverage was limited to dental surgery or accident care.

Nearly three-fifths (88) of the 148 health plans in the *Digest* provided out-of-hospital dental care; two-fifths (56) of the plans included benefits for out-of-hospital vision care. However, 3 dental and 10 vision care plans were part of multiple choice health insurance programs and are not discussed in this article.³ Hence, this analysis includes 85 out-of-hospital dental care plans in effect as of July 1979, and 46 such vision care plans.

Dental coverage

All of the 85 plans provided diagnostic, preventive, restorative, and prosthodontic services, and 56 of them

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also covered orthodontic services, which are frequently more costly than other dental services.

Diagnostic and preventive services include examinations of the mouth, X-rays, cleaning, fluoride treatments, space maintainers, and consultations. Restorative services and treatments cover routine fillings (such as amalgam, silicate, acrylic, or synthetic porcelain), as well as inlays, onlays, gold fillings, and crowns. In addition, out-of-hospital oral surgery such as root resections and removal of impacted teeth, root canal therapy, and treatment of gums are included in this type of benefit.

Prosthodontic services typically include initial installation, repair, and replacement of removable and permanent dentures and bridgework. Orthodontic services cover treatment to correct or prevent irregularities in the position of the teeth and include X-rays, surgery, and the application of braces or similar devices.

The proportion of health plans with dental coverage varied among employee groups, ranging from 51 percent of the plans for nonoffice employees to 64 percent for the office and for the nonoffice and office (all employees) plans.⁴ All dental plans provided coverage for preventive, restorative, and prosthodontic care, but a greater percentage of dental plans covering only office employees provided orthodontic services. (See table 1.)

Employers paid the full cost of dental insurance for employees and their dependents in 74 (or 84 percent) of the 85 plans. Eighty-seven percent of the plans that covered retirees age 65 or over were fully financed by the employer, as were 78 percent of those that provided coverage to retirees under age 65. The following tabula-

tion shows the number of plans that are financed by employers or by employers and employees:

	Employer	Employer and employee
Active employees . . .	74	11
Retired employees:		
Under age 65 . . .	35	10
Age 65 or over . . .	26	4

With few exceptions, dental care benefits for retirees were the same as those for active employees. Retirees under age 65 had their dental benefits continued under 45 of the 85 plans with dental coverage. Older retirees were less likely to have dental benefits continued—only 30 of the plans had benefits for retirees age 65 or older.

Reimbursement provisions of dental plans

Restrictions on dental care were nearly equal among plans regardless of employee groups covered, although maximums for orthodontia and deductibles for specified services were more frequently found in plans covering only office employees. Like most other types of health insurance, dental plans have reimbursement arrangements to prevent abuse by the insured and, thus, keep down the insurer's costs.

There are three basic reimbursement arrangements: a nonscheduled cash allowance, which pays a proportion of the reasonable and customary charge for a procedure; a scheduled cash allowance, which pays up to a specified amount for a procedure; and a full service payment, which pays the full reasonable and customary charge for a procedure.

The most common reimbursement arrangement in the dental plans studied was the nonscheduled cash allowance. This procedure applied to all services except orthodontic in 65 of the 85 plans; 17 plans used a scheduled cash allowance, and 3 provided full payment. Nonscheduled cash allowances were common for orthodontic services—they were used by 48 (or 86 percent) of the 56 plans providing orthodontia. Orthodontic services were covered in three-fourths of the plans which paid nonscheduled cash allowances for other services, compared with fewer than one-half of those which paid scheduled cash allowances.

Plans with nonscheduled cash allowances were analyzed according to the proportion they paid of the reasonable and customary charges for each of the major dental services. Diagnostic and preventive care was the only service for which the majority of the plans paid the full reasonable and customary charge. Slightly more than one-half of the plans paid 80 or 85 percent of the full charge for restorative services and treatments; about three-fifths paid approximately 50 percent of the charge for prosthodontic services; and nearly four-fifths paid only 50 percent of the reasonable and customary charge for orthodontia. (See table 1.)

Table 1. Dental services provided in health insurance plans by employee group and reimbursement arrangement, July 1979

Employee group or reimbursement arrangement	Diagnostic and preventive services	Restorative services and treatments	Prosthodontic services	Orthodontic services
All plans	85	85	85	56
Employee group:				
Nonoffice only	36	36	36	23
Office only	21	21	21	15
Nonoffice and office ¹	28	28	28	18
Reimbursement arrangement:				
Full service	23	23	2	0
Nonscheduled cash allowance:				
.	65	63	63	48
100 percent	³ 35	12	3	2
90-100 percent	4	7	4	0
80-90 percent	19	33	11	3
70-80 percent	7	7	3	2
60-70 percent	0	0	4	2
50-60 percent	0	4	38	39
Scheduled cash allowance	17	19	² 20	8

¹ Employees covered by dental plans having the same benefits for nonoffice and office employees.

² Includes one plan (Doll Manufacturers plan, New York, N.Y.) providing full service benefits at the union's dental center for diagnostic and restorative services, but paying for dentures by scheduled allowances.

³ Includes plan that pays 100 percent of charges for preventive services and 95 percent for diagnostic services.

The proportion of the charge paid for dental services appeared to be related to the cost of the procedure. For example, diagnostic and preventive care services, which include low-cost dental procedures, were fully paid by 34 of the 65 plans with nonscheduled cash allowances. The more expensive restorative services were typically paid at 80 to 85 percent of reasonable and customary charges, prosthodontic and orthodontic services, which are even more costly, were paid at 50 to 60 percent.

Two-thirds of the plans with scheduled cash allowances allowed \$100 to \$200 for the most expensive restorative service procedure and nearly three-fourths allowed from \$100 to \$300 for the most expensive prosthodontic procedure. Allowances were higher for a complete course of orthodontic treatment. For example, Dow Chemical Co. employees are allowed \$50 for preliminary X-rays and diagnostic costs, \$225 for the first month of active treatment, and \$30 for each succeeding month. The time required for such treatment is usually 1 or 2 years. Thus, the amount payable under the Dow plan for a 2-year course of orthodontic treatment could be as much as \$965, compared with the \$205 allowance for the most expensive prosthodontic procedure.

There were exceptions to the typical 80 to 85 percent payment for restorative services. About 1 of 3 plans providing this service paid 100 percent for certain procedures, such as root resections and oral surgery. About 1 of 2 provided only 50 to 60 percent reimbursement for crowns, inlays, and gold fillings.

The lower percentage payment provided for crowns may be explained by the usually higher dollar cost of such procedures. The higher percentage payment for oral surgery and related benefits may be related to the fact that these services either are or had been covered by basic surgical benefits. For example, in the Uniroyal and Goodyear plans negotiated with the United Rubber Workers, procedures such as oral surgery, root resections, and gingivectomy, which were formerly covered under surgical benefits at 100 percent, are covered under dental benefits at that rate either in or out of hospital. Plans negotiated by the Steelworkers, such as the one with the American Can Co., provide 100 percent coverage under both surgical and dental benefits. However, in-hospital services are paid under surgical benefits and out-of-hospital services are paid under dental benefits.

A few of the plans encouraged the employee or dependent to visit a dentist annually by gradually eliminating, for those who did so, the copayment requirement for diagnostic and restorative services, or for diagnostic, restorative, and prosthodontic services as a group, over a 3-year period. In the metalworking industry plan negotiated by the Machinists' union and in the Prudential Insurance Company's plan for insurance workers, benefits in the first year are provided at 70 percent and increase by 10 percentage points each year,

if the insured receives annual dental checkups, until it reach 100 percent in the fourth year. Such plans are apparently designed to encourage preventive care and thereby lower overall costs in the long run (although short-term costs may be higher), while providing higher levels of coverage.⁵

Another method of cost control is to limit the frequency with which a service is provided. Many plans, such as the Central States Trucking Industry-Teamsters plan, restrict routine oral examinations, cleaning, and bite-wing X-rays to once during a 6-month period; however, a few plans, such as the American Telephone and Telegraph Co.-Communications Workers plan, while covering such expenses twice during a 12-month period, do not specify when such expenses must be incurred. In 35 percent of the plans, more complete examinations, including full mouth X-rays were limited to once in 36 months. The replacement of dentures frequently requires proof that the existing bridgework cannot be made serviceable or that 3, 4, or 5 years have elapsed since the installation of the original dentures. The latter limitation is found in 49 percent of plans offering prosthodontic benefits.

Setting a maximum benefit amount to be paid during a specified period is another way to control costs. (See table 2.) Yearly maximum amounts for diagnostic, restorative, and prosthodontic services as a group, were specified in 58 of the 85 plans, and lifetime maximum amounts were specified in 7 other plans (including plans

Table 2. Maximum benefits and deductibles of dental care plans, July 1979

Reimbursement restriction	Total plans	Employee group		
		Nonoffice only	Office only	Nonoffice and office ¹
All plans	85	36	21	28
Plans that provided maximums for:				
All dental services, including orthodontia				
Yearly	5	0	2	3
Lifetime	3	1	1	1
Diagnostic, restorative, and postodontic services ²	58	24	14	20
Yearly	7	3	3	1
Lifetime				
Orthodontia	1	0	0	1
Yearly	49	21	14	14
Lifetime				
Plans that provided deductibles for: ³				
All services	4	3	1	0
Specified services	28	9	12	7

¹ Employees covered by dental plans having the same benefits for nonoffice and office employees.

² Some plans have separate maximum benefit amounts for certain services or courses of treatment.

³ Some plans have separate deductible amounts for certain services, and 6 plans have combined dental and major medical deductibles.

providing dental benefits as part of major medical benefits). Yearly maximums ranged from \$500 to \$2,000 for dental services other than orthodontia; however, nearly half of the maximums were \$750. Lifetime maximums (except in plans with dental benefits included under major medical) for services other than orthodontia ranged from \$5,000 to \$25,000, with most plans specifying \$5,000. In contrast, of the 56 plans with orthodontia, 49 had a lifetime maximum for such services. Maximums ranged from \$408 to \$3,000, but most plans allowed between \$500 and \$750 for lifetime benefits. A few plans had overall maximums which applied to all benefits, and some plans had both yearly and lifetime maximums applicable to benefits other than orthodontia. For example, the Dow Chemical-Steelworkers' plan had a yearly maximum of \$750 and a lifetime maximum of \$5,000 for such services.

Another control mechanism is the requirement that the insured pay the first part of any expense incurred—the “deductible.” Thirty-two of the 85 plans required the employee to pay an annual or lifetime deductible. A deductible for a group of dental services was specified in 28 of the plans; 11 required the deductible only for diagnostic and preventive, and prosthodontic services as a group; the remaining 17 required a deductible for all services, except diagnostic and preventive services. Den-

tal plans may not require a deductible for diagnostic and preventive services because of the relatively low cost of these services and because such care may help avoid future high-cost procedures.

A relatively new method of cost control is “pretreatment” review, where the insurer reviews the proposed treatment and cost before agreeing to cover the cost. The pretreatment review requirement is usually for services estimated to exceed a specified amount. For example, in the Ford Motor Co.-United Auto Workers plan, when a course of treatment other than for emergency or preventive care is estimated to cost \$125 or more, a “predetermination of benefits” form must be filed with the insurance carrier by the employee’s dentist. The dentist describes the procedures required and estimates the charge. The insurance carrier notifies the employee and the dentist of the amounts payable, based on alternate and possibly less costly courses of treatment that may be appropriate in view of the benefits specified in the plan.

Vision care plans

Vision care benefits typically cover a narrow range of services—eye examinations, corrective lenses, and frames—but most plans cover all of these services. Of the 46 plans included in this analysis, 45 provided at least partial coverage for eyeglasses. (See table 3.) Three-fifths of the plans paid benefits according to a schedule of allowances which includes specific amounts for one examination and either one pair of glasses or contact lenses. Allowances for glasses are usually comprised of separate amounts for the frame and lenses, and allowances for lenses differ by type of lens—single vision, bifocal, trifocal, or contact lenses. For example, the Armour and Co.-Meat Cutters’ plan for hourly employees allows \$15 for one eye examination, \$7 for the frame, \$16 for single vision lenses, \$20 for bifocal lenses, \$24 for trifocal lenses, or \$80 for contact lenses.

The remaining two-fifths of the vision care plans paid the full cost of at least an eye examination, either by paying the entire reasonable and customary charge for vision care services or by providing such services through a full-service plan.

Some plans provide higher allowances for eye examinations by ophthalmologists than by optometrists, and some cover contact lenses only if such lenses are required for 20/70 vision acuity. Other plans provide allowances for contact lenses not required for 20/70 vision acuity, in place of all other benefits, and some provide a lesser amount for contact lenses not necessary for 20/70 vision acuity. For example, the Associated General Contractors-Carpenters Union plan pays the full cost of contact lenses prescribed as necessary for 20/70 vision acuity, but pays only \$55 if the lenses are prescribed for cosmetic or other reasons.

Table 3. Reimbursement arrangement of vision care plans, July 1979

Reimbursement arrangement	Total plans	Employee group		
		Nonoffice only	Office only	Nonoffice and office ¹
All plans	46	27	6	13
Plans that provided:				
Full service				
Eye examination	4	3	0	1
Eye glasses or contact lenses	3	3	0	0
Nonscheduled cash allowances				
100 percent				
Eye examination	14	8	1	5
Eyeglasses or contact lenses	9	7	1	1
80 to 85 percent				
Eye examination	2	1	1	0
Eyeglasses or contact lenses	2	1	1	0
Scheduled cash allowances				
Eye examination	25	14	4	7
Eyeglasses ²				
Frames	26	15	4	7
Single lenses	26	15	4	7
Bifocal lenses	14	8	2	4
Trifocal lenses	9	6	1	2
Contact lenses ³	12	7	2	3

¹ Employees covered by dental plans having the same benefits for nonoffice and office employees.

² Includes some plans with combined allowance for eye examination and 1 pair of glasses (frame and single lenses). Plans that did not specify the specific type of lens were treated as covering all types.

³ Includes plans with allowance for contact lenses not required for 20/70 vision acuity, frequently offered in lieu of all other benefits.

Cost controls, other than those provided by scheduled cash allowances and coinsurance features of non-scheduled allowances, consisted of: (1) limits on the frequency with which a benefit could be provided, (2) maximum benefits, and (3) deductibles. Nearly 9 of 10 plans stipulated that only one eye examination or one pair of glasses or contact lenses could be provided during a 1- or 2-year period; 1 of 5 plans specified maximum benefits that would be paid during a 1- or 2-year period; and only 2 plans required payment of deductibles.

The proportion of health plans with vision care coverage varied by employee group. More than one-third of the plans covering only nonoffice workers offered vision care, whereas fewer than one-fifth of those covering only office workers and one-fourth of those covering all employees had such benefits.

Vision care benefits were most often provided according to scheduled cash allowances, regardless of employ-

ee group covered. However, plans that had a more liberal payment structure that either provided full service or paid reasonable and customary charges were more common for nonoffice than for office employees.

The following tabulation shows the number of plans that are financed by employers or by employers and employees:

	<i>Employer</i>	<i>Employer and employee</i>
Active employees . . .	45	1
Retired employees:		
Under age 65	13	0
Age 65 or over . . .	11	0

All but one of the 46 vision care plans were fully financed by the employer. Thirteen plans, all employer financed, continued vision care for retired employees under age 65, and 11 plans continued such benefits to retirees over 65. With few exceptions, the plans provided retired employees the same benefits as active employees. □

—FOOTNOTES—

¹ The Bureau's periodic survey of health plans from 1974 to 1977 shows a 100-percent increase in employees covered by group health plans with dental coverage and a 50-percent increase in vision care. The Bureau's data for workers in metropolitan area establishments indicate an increase of 154 percent for plantworkers and an increase of nearly 200 percent for officeworkers covered by health plans with dental coverage. See Dorothy R. Kittner, "Changes in health plans reflect broader benefit coverage," *Monthly Labor Review*, September 1978, p. 57 and *Area Wage Surveys, Metropolitan Areas, United States, and Regional Summaries* (Bureau of Labor Statistics, various issues from 1974 to 1977).

² See *Digest of Selected Health and Insurance Plans, 1977-79* (Bureau of Labor Statistics, 1978) as amended by Supplement I, January 1979 and Supplement II, July 1979. Of the 148 health plans summarized in the digest, 71 plans covered nonoffice employees, 33 plans office employees, and 44 plans all employees (office and nonoffice).

³ Employees in 3 health plans with dental benefits and in 10 health plans with vision care benefits had a choice of having benefits provided by a commercial insurance company, a nonprofit organization such as a dental or vision care service corporation, or health maintenance organization (HMO). In some cases the choice was between a plan with such benefits, usually an HMO, and one with no dental or vision benefits.

⁴ The "nonoffice and office (all employees)" group include employees covered by dental plans having the same benefits for nonoffice and office employees.

⁵ See Richard Ostuw, "Dental Plan Design," *Employee Benefits Journal*, Fall, Z977. Ostuw argues that liberal coverage of preventive care allows a greater portion of the covered group to qualify for benefits "thereby improving the degree of satisfaction with the plan by participants," and reducing the long-term cost of treatment.

Productivity growth below average in fabricated structural metals

The industry that shapes metal parts for buildings, bridges, and overpasses showed productivity setbacks in 1973-78, contributing to a 20-year average less than half that of the entire manufacturing sector

PHYLLIS FLOHR OTTO

Despite advances in technology, productivity growth in the fabricated structural metal industry has been only half that of all manufacturing industries, and in recent years output per employee hour has declined.

Fabricated structural metal plants convert mill shapes (primarily steel), by cutting, bending, welding, drilling, and other methods. Products include columns, joists, and trusses, which are used to build frameworks for buildings and bridges. Lesser quantities of products go to industries such as shipbuilding.

Output per employee hour in the industry rose at an average annual rate of 1.2 percent from 1958 to 1978.¹ (See chart 1 and table 1.) This is the result of an average annual increase of 2.2 percent in output and 1.0 percent in employee hours. Productivity growth for the entire manufacturing sector of the economy was 2.6 percent for the same period.

Productivity and output dropped during 1973-78. Productivity fell an average annual rate of 2.9 percent a year, and output by 3.9 percent. These losses were only partly offset by a 1.0-percent average annual drop in

employee hours. The industry was particularly hard hit by the 1974-75 recession, and demand for bridge-building products was hurt by imports. Productivity in these years recorded the two largest declines in the industry, 5.8 percent in 1974 and 9.4 percent in 1975. A slight increase of 1.0 percent occurred in 1976, when employee hours fell more than output. However, the industry continued to record productivity declines after the recession, .3 percent in 1977 and an additional .2 percent in 1978.

Causes of declines

Productivity growth has been retarded by increased requirements for quality control and the made-to-order nature of goods produced in the industry, and by the lag in adjusting employment to changing output levels in this industry. Because of the high skill level of the work force, some employers attempt to retain employees during business downturns. When demand drops they tend to make lower bids for work, or bid on smaller jobs than they normally handle. This enables them to continue operating and retain their employees, and to cover some overhead costs in paying for capital equipment. However, this results in productivity de-

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clines during cyclical downturns.

As in many other industries, short-term productivity changes in fabricated structural metal are closely associated with changes in output. Demand is directly affected by construction activity, which in turn is tied to cyclical fluctuations in the overall economy. The largest single market for the industry is industrial construction, which purchases about 24 percent of output. Commercial construction accounts for 20 percent; highway and street construction, 14 percent; public utilities construction, 13 percent; and educational building construction, 8 percent.² This means that at least 79 percent of the industry's goods are purchased by construction businesses. Because cyclical changes in the economy are heavily reflected in construction, output changes in the fabricated structural metal industry generally coincide with or lag slightly behind them.

The influence of cyclical fluctuations on productivity and output can be observed by comparing the 1958-73 period (a time of overall economic growth when productivity grew at an average annual rate of 2.3 percent a year) to the 1973-78 period (which included a major recession, when nonresidential construction was down significantly, and productivity declined at an average annual rate of 2.9 percent a year).

Advances during 1958-73

The 2.3-percent rate of growth in productivity during 1958-73 occurred while output in the industry was rising by 4.0 percent a year and employee hours by 1.6 percent. Increases in productivity during this period ranged from 1.2 percent in 1964 to 5.3 percent in 1971. Productivity declined only three times during the 15-year period. In 1959, it fell 2.1 percent in response to an 11.2-percent decline in output and a 9.3-percent decline in employee hours. New construction of industrial buildings dropped 10.6 percent, and public utilities, 5.8 percent.³ In contrast, the two other declines in productivity during the 1958-73 period, 2.2 percent in 1966 and 0.4 percent in 1969, occurred when employee hours rose more than output. A contributing factor was the shortage of skilled employees, particularly drafters and welders.⁴

The construction and fabricated structural metal industries prospered during the economic expansion which characterized most of the 1958-73 period. The few declines in output were between 1 and 2 percent except in 1959. Schools, colleges, and hospitals were being built at a rapid rate. Overall, construction of nonresidential buildings increased at a rate of 3.7 percent a year. Continuous data are not available for all of the subcategories, but construction of industrial buildings rose at an average annual rate of 6.2 percent from 1958 to 1964. Construction by public utilities expanded at a

rate of 6.1 percent a year during 1958-73. It was also during this time that most of the interstate highway system was constructed, increasing the demand for metal to erect bridges and overpasses.

Adding to the strong demand during the 1958-73 period was the industry's ability to compete with alternative construction materials by introducing new products. For example, the introduction of high strength steel in the early 1960's enabled the industry to combat the competition from concrete manufacturers in the high-rise buildings market. High strength steel is stronger and lighter than conventional steel, resulting in lower overall building costs in some cases. Another new product was weathering steel, which develops a protective patina when exposed to the atmosphere, resulting in lower maintenance costs.

Slow employment growth

The industry employed 98,500 persons in 1977, including 72,000 production workers. Employment rose at an average annual rate of 1.1 percent from 1958 to 1978, slightly faster than the 1.0 percent rate in work hours. There has been a small reduction in average annual hours worked per employee.

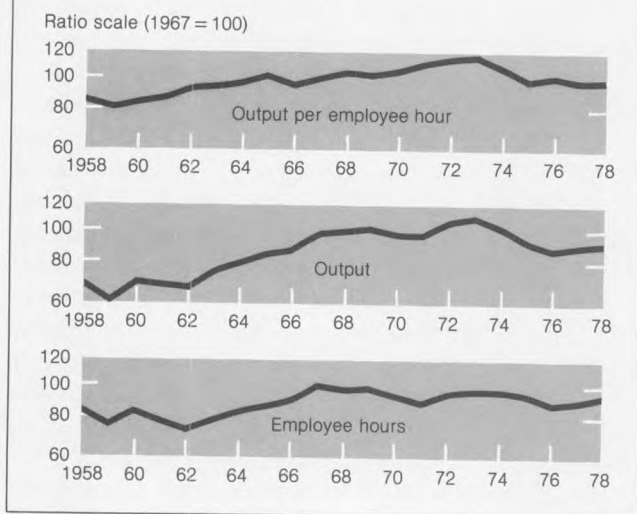
Employment in the industry peaked at 107,500 in 1967 and has been generally declining since, reflecting

Table 1. Productivity and related indexes for fabricated structural metals, 1958-78

[1967=100]

Year	Output per employee hour			Output	Employee hours		
	All employees	Production workers	Nonproduction workers		All employees	Production workers	Nonproduction workers
1958 ..	83.0	83.6	81.3	69.4	83.6	83.0	85.4
1959 ..	81.3	84.0	73.4	61.6	75.8	73.3	83.9
1960 ..	83.9	85.4	79.3	69.6	83.0	81.5	87.8
1961 ..	88.1	88.9	85.7	68.7	78.0	77.3	80.2
1962 ..	91.5	91.4	91.8	67.9	74.2	74.3	74.0
1963 ..	95.0	95.4	93.6	74.6	78.5	78.2	79.7
1964 ..	96.1	96.4	95.4	79.5	82.7	82.5	83.3
1965 ..	100.5	100.1	101.5	86.6	86.2	86.5	85.3
1966 ..	98.2	97.4	100.9	88.4	90.0	90.8	87.6
1967 ..	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968 ..	103.7	103.8	103.4	100.2	96.6	96.5	96.9
1969 ..	103.3	104.4	99.8	100.6	97.4	96.4	100.8
1970 ..	105.7	107.7	99.6	98.8	93.5	91.7	99.2
1971 ..	111.3	112.7	106.9	98.8	88.8	87.7	92.4
1972 ..	114.7	115.9	110.7	107.9	94.1	93.1	97.5
1973 ..	116.5	118.4	110.8	110.8	95.1	93.6	100.0
1974 ..	109.7	110.9	106.0	103.8	94.6	93.6	97.9
1975 ..	99.4	101.0	94.5	92.8	93.4	91.9	98.2
1976 ..	100.3	102.6	93.7	87.9	87.6	85.7	93.8
1977 ..	100.0	102.9	92.1	89.8	89.8	87.3	97.5
1978 ..	99.8	101.5	94.8	92.4	92.6	91.0	97.5
Average annual rates of change (percent)							
1958-78	1.2	1.3	1.0	2.2	1.0	0.9	1.1
1958-73	2.3	2.3	2.4	4.0	1.6	1.6	1.6
1973-78	-2.9	-2.8	-3.7	-3.9	-1.0	-1.2	-1.5

Chart 1. Productivity and related data, fabricated structural metals industry, 1958-78



the declining output of recent years. In the autumn of 1977, most plants were operating at no more than 60 percent of capacity. During that year, many firms went out of business.⁵

Production workers have consistently accounted for 74 to 75 percent of the employees in the industry. Therefore, the trend in output per production worker hour, 1.3 percent, is similar to that for all employee hours. A 1974 survey showed 75 percent of production workers in the industry scheduled to work 40 hours a week, with the remainder scheduled for additional time. None was scheduled to work fewer than 40 hours. However, crews often work either more or less than the scheduled number of hours.⁶

Most production workers are in skilled occupations, many doing highly judgmental work requiring specialized knowledge such as welding, layout, and inspection. Workers earn high wages reflecting these skills. During 1958-78, average hourly earnings were about 7 percent higher than for all manufacturing industries. Many of these employees, in occupations such as crane operator, welder, and layout worker, have skills which can be transferred to other heavy industries; if they are laid off their return may depend on the proximity of other heavy industry in the area.⁷

The industry also requires many structural drafters and engineers to design shop drawings; architectural drawings are not completely detailed. Many details must be filled in before construction begins. These employees make up about 10 percent of the work force.⁸

The fabricated structural metal industry consists mainly of many small establishments serving primarily local markets. In 1972, 50 percent of the shops in the industry had fewer than 20 employees, and 30 percent

employed between 20 and 49 persons. The industry includes plants owned by major steel companies or their subsidiaries, which fabricate metal for their own use.

Few projects are bid on the national market for fabricated structural metal. A few large fabricators sell within a region, but most establishments service smaller local markets within about 200 miles of their plants. Transporting the finished product is costly, so most fabricators are in densely populated areas, near major construction sites.

Technology and capital expenditures

From 1958 to 1977, growth in capital expenditures per employee in the fabricated structural metal industry averaged 7.8 percent a year as compared to 8.0 percent for all manufacturing industries. Most of the capital expenditure has been in the largest firms. Bidding on major projects and maintaining a sizable work force, they are the buyers of heavy or sophisticated equipment.

The most important new technological development in the industry is the automatic beam line which has been an important aid to productivity gains. Beam handling can be a time-consuming and costly process in the shop. Some studies show that using the old technology, a beam is lifted by a crane at least 16 times while being moved between work stations.⁹ Each lift requires the use of at least two employees. The introduction of automatic beam lines eliminated much of this burden. The automatic lines move beams to various work stations along roller conveyors, where automatic drilling, punching, and cutting operations occur. The conveyors can be used with an automatic gauge. This is a block which moves along underneath the conveyor and stops at a point designated by the operator. The block moves between the rollers to stop the beam. This provides an accurate gauge for the metal and automatically positions the beam at the point where it is to be worked on. Beams can be moved automatically from one line to another by a set of bars which move between the rollers and flip the metal onto the next conveyor.

This process has facilitated the use of automatic equipment for cutting, punching, drilling, and welding. Usually, the layout of the plant is altered to accommodate beam handling equipment, minimizing the number of times, and the distances the metal must be moved.

The welding process has become increasingly automated, allowing increased use of shop welding without a proportionate increase in the number of welders. In 1964, 24.8 percent of the production workers in the industry were hand welders, and 3.4 percent machine welders.¹⁰ By 1974, the proportion of hand welders had fallen to 19.6 percent and that of machine welders had grown to 7.0 percent.¹¹ New methods, allowing for faster deposition of the weld metal, have speeded the process.

Computers and automation

The increasing use of computers has resulted in additional automation. Computers are used to handle inventories, payroll, and clerical functions. One of the most important applications has been in work scheduling. Fabricated structural steel must be delivered to the construction site on a workflow basis. The fabricator must match the needs of the contractor by arranging a schedule which makes optimum use of available resources. The computer is also used in drafting and designing work.

There are numerous applications for numerically controlled machinery in the manufacture of fabricated structural metal. Some machines are able to do the jobs of skilled layout workers. The machinery can punch holes in proper relationship to the sides and end pieces of sections, automatically compensating for metal which is not perfectly squared. It has also been used for drilling, cutting, and welding tasks in the workplace.

Another technological advance in the industry is the cold cut saw for cutting structural shapes. This circular saw is continuously bathed in oil as it rotates, and increases productivity in two ways: cold cutting is faster than the friction sawing it replaces, and leaves fewer burrs to be removed. Cold cut saws are also quieter than friction saws.

Quality control has always been important work in the fabricated structural metal industry. However, more employee-hours are spent on quality control now than in the past; contractors and designers are demanding closer tolerances, and because labor costs have increased faster at the construction site than in the plant, it is cheaper to have this work done in the plant.

There have been some technological improvements in quality control. The job has become far more sophisticated, particularly in weld inspection. Electronic testing of welds has become much easier; portable weld testers are now available.

The growth in modular construction has led to further investment in new capital equipment. The allowable variance of dimensional tolerance for modular construction is tighter than in other types of buildings. Mechanization is one way of tightening tolerances for this kind of construction.

More stringent safety standards resulted in some capital expenditures being made for safety equipment and noise protection. This has provided employees with a safer work environment and may have reduced expenditures on other capital equipment.

Slow growth probable

Productivity growth in the fabricated structural metal industry probably will not resume until output picks up. Industrial construction, the major market for the industry, did not increase until mid-1978. Much of the ac-

tivity until now has involved rehabilitation of existing structures. This is relatively inexpensive but does not benefit the industry. Neither does the move by corporations toward rural and suburban areas. Because land in these areas is cheaper, many of the office buildings are low structures which use little or no structural metal.

Regardless of the anticipated recovery in nonresidential construction, there are good signs for the future of the fabricated structural metal industry. Oil companies are placing orders for metal to construct offshore drilling platforms. These orders call for delivery in the early 1980's. Estimates have been made that more than 100,000 bridges in this country are in need of replacement.¹² Although replacement is not being funded now, it could be a good long-range market for the industry.

Productivity growth will probably remain lower than the all-manufacturing average. The industry is tied to individualized, custom work. This prevents long runs of similar products, and the economies which accompany them. Work must continue on a flow basis, benefiting and accommodating the contractor rather than the manufacturer. Further, stringent quality control and testing will continue to be necessary. □

FOOTNOTES

¹ Average annual rates of change are based on the linear least squares trends of the logarithms of the index numbers. The fabricated structural metal industry is designated industry 3441 in the Standard Industrial Classification Manual, 1972 Edition, issued by the Office of Management and Budget. The industry comprises establishments primarily engaged in manufacturing fabricated iron and steel or other metal for structural purposes, such as bridges, buildings, and sections for ships, boats, and barges. A technical note describing the indexes is available upon request. The indexes for this industry will be updated and included in the annual Bureau of Labor Statistics Bulletin, *Productivity Indexes for Selected Industries*.

² *U.S. Industrial Outlook 1975—With Projections to 1980*, Domestic and International Business Administration; U.S. Department of Commerce (U.S. Government Printing Office, Washington, D.C.); 1975; p. 26.

³ All figures on construction put in place are based on data from *Construction Review* (Bureau of Domestic Commerce, U.S. Department of Commerce), various issues.

⁴ *U.S. Industrial Outlook 1970*, Business and Defense Services Administration, U.S. Department of Commerce, (U.S. Government Printing Office, Washington, D.C.) 1970, p. 464.

⁵ *U.S. Industrial Outlook 1978*, Bureau of Domestic Commerce, U.S. Department of Commerce (U.S. Government Printing Office, Washington, D.C.) 1978, p. 17.

⁶ *Industry Wage Survey: Fabricated Structural Steel November 1974*, Bureau of Labor Statistics, Bulletin 1935, 1977, p. 4 (U.S. Government Printing Office, Washington, D.C.)

⁷ Based on discussions with a number of industry sources.

⁸ Debron Corporation, notice of annual meeting and proxy statement, May 5, 1978.

⁹ "Handling Taken Out of Beam Fabrication," by John L. Obrzut, *Iron Age*, February 24, 1972, p. 60.

¹⁰ "Earnings in Fabricated Structural Steel, 1964," *Monthly Labor Review*, October 1965, p. 1220.

¹¹ *Industry Wage Survey: Fabricated Structural Steel November 1974*, p. 8.

¹² *U.S. Industrial Outlook 1978*, p. 17.

APPENDIX: Measurement techniques and limitations

The productivity indexes in this study measure the change over time in industry output per unit of labor input. They do not measure the specific contribution of labor, but reflect the influence of many factors such as technology, capital investment, and managerial skills, as well as the skill and effort of the work force.

The output index is based on value of shipments data adjusted for inventory change, published by the Bureau of the Census. Detailed data from the Census of Manufactures for 1958, 1963, 1967, and 1972 were used to derive benchmark indexes, to which the annual indexes for intervening years, based on the Annual Survey of Manufactures, were adjusted. The value of shipments of the various product classes were adjusted for price changes by appropriate Producer Price Indexes to derive a real output measure. These, in turn, were combined with employee hour weights to derive the overall output measure. Employment and employee hour indexes were derived from census data. 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 of persons constituting the aggregate.

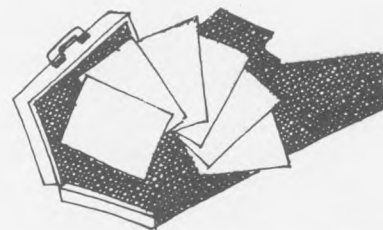
Data on the quantities of goods produced by the fabricated structural metal industry are not complete. Real

output, therefore, was estimated on the basis of a deflated value technique. That is, changes in the price levels of the current dollar value of production were removed by means of appropriate price indexes. Because an adjustment for changing price levels usually lowers the dollar value, such a series is referred to as a deflated value measure. In an industry such as the fabricated structural metal industry, where the raw material may differ from one product to the next, this technique may result in some bias in the measure. However, this bias is minimal.

To combine segments of the output measure, employee hour weights relating to the individual segments were used. This technique was used at various levels of subaggregation for the variety of products manufactured by this industry. These procedures result in a final output index that is conceptually close to the preferred output measure.

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, shop design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

Conference Papers



The following excerpts are adapted from papers presented at the Thirty-Second Annual Meeting of the Industrial Relations Research Association, December 28–30, 1979 in Atlanta, Ga.

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The full text of all papers will appear in the IRRA publication, *Proceedings of the Thirty-Second Annual Meeting*, available from IRRA, Social Science Building, Madison, Wis. 53706.

Labor force activity of married women as a response to changing jobless rates

OLIVIA S. MITCHELL

For married women, the bulk of cross-sectional literature appears to indicate that the net effect of local unemployment rates on participation is a negative one.¹ Early time-series studies also showed a small procyclical labor force response of married women,² but recent papers seem to reveal a counter-cyclical pattern.³

Resolution of this empirical paradox is of interest, because a prevalent "discouraged worker" effect suggests that economic prosperity will simply draw more females into the labor force without decreasing observed unemployment rates substantially. On the other hand, if women enter the labor force in response to high local unemployment, and then withdraw in more prosperous periods, policies to stimulate economic growth will re-

duce the overall unemployment rate more rapidly than expected. Jacob Mincer's discussion of the issue suggests that "the findings in the cross-section analysis constitute evidence largely in favor of a hypothesis that prolonged depressed employment conditions in an area tend to shrink the area's labor force rates."⁴ The implication is that cross-sectional behavior reflects primarily a long-run response to permanent unemployment faced in each labor market, while time-series data are more likely to reveal participation response to cyclical changes. However, no previous attempts to resolve this question have been able to distinguish effectively between the behavioral responses to short and long-run labor market conditions.

These long-term differences between labor markets are probably the result of various characteristics of labor markets which are difficult to measure with accuracy. However, if these factors are correlated with included explanatory variables in labor force participation models, coefficient estimates for other variables will be biased. For example, wages and employment rates are probably correlated with seasonal and industrial employment patterns specific to each labor market, educational systems vary with location, job and pay structures depend on the power of unions and discriminatory customs, and the manner in which social/welfare programs are administered determine the environment in which labor supply decisions are made. These factors cannot be satisfactorily quantified, but controls are required in order to obtain unbiased estimates of the explanatory variables of interest.

I have examined both cross-section and time-series results for a panel of data on major U.S. cities over the period 1968–75. The labor force participation equation is similar to those estimated by other researchers, but in accordance with the underlying hypothesis in this paper, results for separate cities and separate years are estimated. As Mincer predicted, time-series behavior differs from that in the cross section. The novelty of the approach is that an overall response in pooled data can also be examined. Here the results are found to depend on the way city-specific structural effects are modeled.

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Data and estimation

Data from the March Current Population Survey (CPS) are available for the years 1968 through 1975. By grouping observations on married women (spouse present) living in the 19 locations identified by the CPS in each year, I obtained a panel of cross-section time-series data for the largest urban labor markets in the nation. Aggregation of micro data in this way reduces errors in measurement and variations in tastes, and permits the appending of area-specific unemployment measures obtained from *Employment and Earnings* and the *Economic Report of the President*.⁵ All nominal variables are deflated by a consumer price index which takes into account price variations across Standard Metropolitan Statistical Areas over the 8-year period.⁶

One problem with the CPS, as with most data sets, is that wages are not observed for many sample respondents. Here, two approaches are taken. First, an educational attainment term is used as one proxy for wages. Second, a wage rate applicable to full-time female workers is imputed to all women based on location of residence.

When a full-time worker wage rate is used to control for offered wages in each labor market, cross-sectional patterns within most years show a negative relationship between unemployment and participation rates which suggest a net discouraged worker effect. However, regressions for each urban area over 8 years indicate that rising local unemployment rates induce female participation. This is consistent with a net added worker response; and, in many cases, the correlation is statistically significant. Analysis of pooled data without city terms indicates an insignificant participation response; however, when the pooled model is expanded to include city-specific intercepts, the female participation response to local joblessness is positive and highly significant. Thus, a predominant added worker effect is observed when structural between-city differences are incorporated.

As a final check on the differential impact of cyclical and long-term area unemployment, I examined female participation responses to the difference between average and current local unemployment over time. Results from pooled data indicate unambiguously that when local unemployment exceeds the 8-year city average, female participation rises; conversely, participation rates decline when local joblessness falls below the long-term average.⁷ This net added worker effect is statistically significant whether or not city-specific intercepts are included, which supports the notion that deviations from long-term conditions are better predictors of cyclical behavior than are the current unemployment rates. It should be noted that even in this case a majority of city terms differs significantly from zero, suggesting that

these factors pick up persistent patterns of behavior in addition to the long-term unemployment conditions.⁸

THE APPARENT PARADOX between cross-section and time-series female participation responses to unemployment reported in the literature is thus resolved when city-specific characteristics first alluded to by Mincer are explicitly controlled. Though further research is required to identify the information summarized in these city-specific intercepts, theoretical arguments indicate that they should be incorporated. When they are not, static year-by-year relationships between cities show that a low female participation rate is associated with depressed business conditions. However, the relationship over time within a city or within a group of cities is positive on net, if long-term structural differences are controlled. This added worker response may be more relevant for policymakers concerned with predicting labor force cyclical sensitivity, rather than estimating a mixture of long and short-run responses to unemployment in each labor market. □

FOOTNOTES

¹ See, for instance, William Bowen and T. Aldrich Finegan, "Labor Force Participation and Unemployment," *Employment Policy and the Labor Market*, A. M. Ross, ed. (Berkeley, University of California Press, 1965); Judith Fields, "A Comparison of Intercity Differences in the Labor Force Participation Rates of Married Women in 1970 with 1940, 1950 and 1960," *Journal of Human Resources*, Fall 1976, pp. 568-77.

² A discussion of early approaches is found in Edward Alban and Mark Jackson, "The Job Vacancy-Unemployment Rates and Labor Force Participation," *Industrial and Labor Relations Review*, April 1976, pp. 412-19.

³ A recent study finding this result is Michael Wachter, "A Labor Supply Model for Secondary Workers," *Review of Economics and Statistics*, May 1972, pp. 141-51. John L. Goodman, Jr., also discusses the issues in "Spectral Analysis of the Dependence of Labor Force Participation on Unemployment and Wages," *Review of Economics and Statistics*, August 1974, pp. 390-92.

⁴ Jacob Mincer, "Labor Force Participation and Unemployment: A Review of Recent Evidence," *Prosperity and Unemployment*, R. A. Gordon and M. S. Gordon, eds. (New York, John Wiley and Sons, 1966), p. 81.

⁵ Bureau of Labor Statistics, Bulletin 1370-12, 1974, and Office of Management and Budget, *Economic Report of the President*, 1975, Washington.

⁶ This was derived from intra-SMSA cost of living indexes published annually in the *Monthly Labor Review*.

⁷ The variable is defined as the difference between unemployment in each city averaged over the 8 years and the current unemployment rate in that city. Without city intercepts the coefficient on this term is $-.006$ (with a t statistic of 2.57); with city intercepts the coefficient is $-.007$ (with a t statistic of 4.23).

⁸ Further evidence supporting the dominance of an added worker effect appears in analysis of the underlying micro cross-section data from the CPS. A probit regression of wives' participation on economic and demographic variables similar to those used above also produces a positive unemployment coefficient when city-specific intercepts are used, but a negative coefficient when city-specific terms are excluded. See Olivia Mitchell, "The Labor Supply of Nonmarried Women," paper presented at the Econometric Society meetings in Atlanta, GA, Dec. 28-30, 1979.

Unionism's effect on faculty pay: handicapping the available data

MARTIN J. MORAND AND DONALD S. MCPHERSON

One of the unanticipated outcomes of collective bargaining in higher education has been the creation of a new industry—academic studies of academic unionism. The implications of faculty bargaining for such traditional concerns as academic freedom, collegiality, governance, and similar abstruse subjects have attracted speculation and study. Articles published in these areas represent no more than individual theorizing or rely on data which are no more than a collection of individual opinions. In contrast, those scholars who focus on the compensation question—how unionism relates to wages and fringes—would seem to have the advantage of a wealth of objective data.

All interested academicians are familiar with the American Association of University Professors (AAUP) "Annual Report on the Economic Status of the Profession." It is convenient, predates collective bargaining, covers unionized and unorganized institutions, and serves as the basic statistical resource for most research. AAUP edits, interprets, and publishes data that, since 1976, have been gathered exclusively by the National Center for Education Statistics (NCES) through the Higher Education General Information Surveys (HEGIS). Yet, these compensation studies have reached sharply contradictory conclusions which lead to lengthy and learned argument over the relative advantages of matched pairs versus multiple regression. The fault lies less in the statistical methodology than in the assumption that the statistics are complete, relevant, and accurate enough to reach meaningful conclusions on the relationship between unionism and wages, hours, and working conditions in academe.

We acknowledge our own bias. We are active members of the Association of Pennsylvania State College and University Faculties (APSCUF, affiliated with AAUP and American Federation of Teachers, AFL-CIO), the union of the Pennsylvania State College and University (PSCU) system where we work. As beneficiaries of faculty unionism, we approach studies which report a negative or null effect of collective bargaining on faculty compensation with skepticism. If the impact be so slight, why does management protest so much? Or, as Brown and Stone wonder, because faculty unions

have not been associated with general economic gains and union dues are substantial, what explains the rapid growth of faculty unionism?² Further, because it is easier to decertify than to organize (because administrators seldom fight to keep unions) why have faculties which come to unionism with such misgivings not repudiated their unions?

Our interest and suspicions grew out of the contradictions between our own experience and published reports on our system. For example, the 1975 AAUP report showed an increase of over \$3,000 per faculty member in our system. It caused consternation in Pennsylvania political circles, showing that the PSCU had shot ahead of faculty compensation at the prestigious University of Pittsburgh. But we knew that our across-the-board increase for that year was 4 percent, or about \$1,000. Investigation revealed that almost two-thirds of the reported *raise*, about \$2,000, was actually the result of a *reduction* in the employer's cost for pensions.

This is one of several conundrums which led us to suspect first the statistics and then the statisticians. The explanation of the contradiction between what AAUP reported and what we observed is simple and revealing. In order to improve benefit packages generally and pension mobility particularly, AAUP counts only those employer contributions that become vested (in the faculty member) within 5 years. The State contributions to the retirement system never before "counted" because in Pennsylvania pensions became vested only after 10 years.

But in 1975 the faculty union negotiated an optional retirement system with immediate vesting. Although *few* faculty chose the option, once immediate vesting became available, the institution was credited under AAUP rules as if *all* were covered. Our university saves thousands of dollars each year on faculty who opt out of the State system because it is now charging double to catch up on prior years of underfunding. In the very year the union's negotiated cost saving was implemented, the university appeared to be paying a large increase for faculty retirement benefits.

These apparent discrepancies led us first to suspect that the fault lay with AAUP. However, after extensive dialogue with AAUP's director of research, Maryse Eymonerie, we became convinced that the numbers themselves are not the villains. She shared with us, as she told us she had with previous researchers, her perceptions of the pitfalls inherent in unsophisticated application of published figures. Our own findings on data deficiencies are organized under four headings.

Missing data

Some data are missing; some just missed. HEGIS tapes contain information not summarized on AAUP charts. The tapes include all employer payments for

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pensions including those, primarily in the public sector, which do not vest within 5 years. HEGIS tapes also include all employer costs for housing subsidies and tuition benefits. AAUP does not include these benefits unless a cash option is available. Jerome Staller's study of community colleges uses these raw data. We do not know whether counting these benefits influenced his finding that "unionization has raised fringe benefits nearly 80 percent over those prevailing in nonunion colleges."³ But Staller was the first scholar in the field to insist that salaries *and* fringes *and* hours—or their analogue, workload—because they could either be improved in tandem or traded against each other, must be examined separately and severally in any study of total compensation. Despite his warning and despite the fact that the literature makes it clear that workload is a major issue at the bargaining table,⁴ only one other compensation study that we know of deals with it.⁵

The complexity of defining and measuring workload, the difficulty of measuring salaries outside the base year and the danger of relying on AAUP tables as the only information source are all illustrated in a single example. Pennsylvania State University (not to be confused, as it was by one researcher, with PSU) has transferred hundreds of faculty from 48-week to 36-week contracts since 1974. They maintained their full salary and were expected to maintain "the same workload (particularly teaching) and quality standards." Does this represent a 25 percent increase in salary? It is reported as such to AAUP. Is this a reduction in workload? If one views workload as time work, yes, as piecework, no. The faculty member who volunteers to accept this offer must agree to forgo across-the-board raises for 2 years. Why do they accept? In many cases because they can now earn extra income during the newly freed 12 weeks—income sometimes paid from the same grants they work under during the 36-week payroll period.

Other significant omissions from available salary data important to studies of collective bargaining include: retroactive salary payments, improved summer contracts, compensation for co-curricular duties, stipends for chairpersons, released time for consulting and grant income which supplements salaries. The contract at the City University of New York system provides over \$3.5 million annually for research and fellowship awards. Our own union negotiated a \$500,000 trust which funds educational expenses, research, and travel.

Eymerie listed benefits which are omitted from the various surveys, some of which have a significant collective bargaining related impact. Her examples include: "office space, secretarial assistance, library privileges, laboratory and computer facilities, travel and membership fees to professional organizations, parking, meals, and sabbatical leave."⁶ Our records add: professional liability insurance; paid leaves for illness, parenting and

education; reduced interest loans; and wholesale costs for purchases of insurance, autos, appliances. One contract even guarantees the right to collect a cord of wood on campus.

It is clear that data currently missing on changes in workload, on extra salaries, and on missing benefits must be collected and considered in any effort to evaluate accurately the impact of faculty unionism.

Misleading data

Academics' faith in the salutary effects of grading on a curve to encourage improved performance leads AAUP to continue to report legislated benefits such as social security. It hopes to encourage all States to make coverage mandatory. Because salaries subject to social security taxes have a ceiling, this item is reflected in the reports as a greater "fringe benefit as a percent of salary"⁷ at campuses with lower salaries. Thus, institutions which pay less get higher "marks" in the fringe column.

Unemployment compensation replicates the social security problem and adds a peculiar, collective bargaining related, distortion of its own. Institutions are often on a pay-as-you-go basis with unemployment compensation—the more layoffs, the more payout, the more chargebacks. Many unions have succeeded in blocking mass retrenchments and reducing individual dismissals. This faculty benefit, when reflected in lower unemployment compensation costs, appears as a lower fringe and thus less total compensation rating on the charts.

An accurate evaluation of legislated fringe benefits as an obviously important part of compensation must, in any case, deal openly with these problems of misleading data.

Misinterpreted data

Definitions and instructions used in surveys are ignored by respondents and researchers alike. "Instructional faculty" is the group purportedly being counted, and faculty researchers mistakenly assume we all know what that means. But collective bargaining and its concomitant, unit determination, have changed the perception, if not the definition, of the term. Studies which compare the pre-bargaining 1960's with the post-bargaining 1970's are often comparing oranges and lemons.

For example, our union represents two bargaining units—teaching faculty and administrative faculty. But the teaching unit includes, among others, librarians, coaches, counselors, student-teacher supervisors, athletic directors, equal-opportunity-in-sports coordinators and department chairpersons. All or part of their salaries ought to be excluded from the reports. Some campuses, particularly where the person responding has been filling out HEGIS questionnaires since the pre-bargaining days, do exclude them. Others, understand-

ably, find the numbers to fill in on the form by punching a button on the computer which is programmed by bargaining unit—including all these persons and their total instructional and administrative salaries. We came across this problem when we observed campuses reporting salaries higher than the maximum contained in the contractual salary schedule because they were including these administrative payments. Although textual exegesis is not our preferred procedure for understanding the dynamics of collective bargaining, a look at the contract while looking at the report might alert researchers to problems they now miss.

Mistakes in data

Most of the data error we identify is in the Pennsylvania reports, presumably because we are more familiar with the facts and alert to the problems. But we have no reason to believe the situation is different elsewhere. Indeed, Professor James Begin of Rutgers finds problems with HEGIS data in his studies of collective bargaining in New Jersey community colleges, particularly because of failure to capture retroactive pay increases.⁸ While these occur frequently in collective negotiations they are seldom granted to the unorganized.

Scanning the charts and checking the contracts in the PSCU reveals that for 1973–74 Cheyney State College reports a 21-percent increase for associate professors, and Edinboro State College shows 23 percent for instructors. With a 5-percent across-the-board increase in September '73 and an additional 5 percent in January '74, no arithmetic combination of additional increases such as merit, promotion or increment could have led to the average increases reported. They were far in excess of amounts published for other ranks at these colleges and for any ranks at other PSCU colleges. We believe reporting error is inherent in the data collection system and not unique to the PSCU.

BACK TO BASICS in measuring the impact of unionism on faculty compensation means more than cleaning up the economic data. The HEGIS data are better than those available for most industries. The best of data will only be understood if examined in the context of institutional research, which itself takes into account the insights of the behavioral sciences. Campus unionism presents a unique opportunity for collective bargaining researchers to examine theory in practice. □

FOOTNOTES

¹ For example, see James P. Begin, "Bargaining and Faculty Reward Systems: Current Research Findings," revised version of a paper presented at the University of Minnesota, Feb. 24, 1978; Robert Birnbaum, "Compensation and Academic Bargaining: New Findings and New Directions," paper presented at the Annual Meeting of the

National Center for the Study of Collective Bargaining in Higher Education, New York, April 1977, "Unionization and Faculty Compensation: Part I," *Educational Record*, Winter 1974, and "Unionization and Faculty Compensation: Part II," *Educational Record*, Spring 1976; William Brown and Courtenay Stone, "Academic Unions in Higher Education: Impacts on Faculty Salary, Compensation, and Promotions," *Economic Inquiry*, July 1977, "Collective Bargaining and Faculty Compensation Revisited," *Sociology of Education*, October 1977, and "Faculty Compensation Under Unionization: Current Research Methods and Findings," working paper No. 77501, School of Business Administration and Economics, California State University, Northridge, March 1977; Larry Leslie and Teh-Wei Hu, *Financial Implications of Collective Bargaining in Higher Education*, Center for the Study of Higher Education, Pennsylvania State University, Report No. 29, September 1977; Joan Marshall, "Effects of Collective Bargaining on Faculty Salaries in Higher Education," *Journal of Higher Education*, 1979; David Morgan and Richard Kearney, "Collective Bargaining and Faculty Compensation," *Sociology of Education*, January 1977, and "Collective Bargaining and Faculty Compensation Revisited: A Response and a Reaffirmation," *Sociology of Education*, October 1977.

² Brown and Stone, "Student-Faculty Ratios and Unions" *Educational Record*, Spring 1979, p. 169.

³ Jerome Staller, "Collective Bargaining: Its Effect on Faculty at Two-Year Public Colleges," paper presented at the Annual Meeting of the National Center for the Study of Collective Bargaining in Higher Education, New York, April 1975, p. 81.

⁴ John Creswell, Gerald Kramer, and Thomas Newton, *Faculty Workload Provisions in Contract Agreements Negotiated at Four Year Colleges*, Academic Collective Bargaining Information Service, Research Summary No. 6, December 1978; Kenneth Mortimer and Gregory Lozier, "Faculty Workload and Collective Bargaining," *New Directions for Institutional Research*, J. I. Doi, ed. (San Francisco, Jossey-Bass, 1974).

⁵ Brown and Stone, "Student-Faculty Ratios and Unions."

⁶ Based on correspondence between Maryse Eymonerie and the authors, Nov. 8, 1979.

⁷ American Association of University Professors, "Annual Report on the Economic Status of the Profession," each year, 1969–79.

⁸ Based on correspondence between James Begin and the authors, Aug. 7, 1979.

Hospital managers' perception of the impact of unionization

CHARLES MAXEY

During the past decade there has been substantial growth in the number of formal union-management relationships in the U.S. hospital industry.¹ As in other sectors where vital human services are an important employer "product," the growth of hospital employee unionism has been a controversial development. Industry spokespersons and other observers have expressed concern over the impact of collective bargaining on the financial vitality of the industry, and on the ability of

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the hospitals to maintain quality health care services. The general research issue which arises, then, concerns the impact of unionization and collective bargaining on the employer as an organization, and on organizational performance.

Trade unions may affect employers in numerous ways that have implications for how the organization performs. Strikes and other job actions provide obvious short-run examples. But the research literature suggests that longer term changes in organizational structure and process are also important. Examples of such organizational impact are: effects on the content and execution of human resource management policy, impact on the structure of decisionmaking within management, and impact on the attitudes and behavior of both managers and nonsupervisory employees.² This paper presents some general and preliminary findings from a study intended to assess such organizational changes in unionized hospitals.³ A number of areas of union impact will be reported on in brief, summary form, but particular attention will be given to effects on the ability of the employer to provide quality patient care, and on other organizational dimensions that might reasonably be expected to influence overall performance—the role of hospital management, and the attitudes and behavior of unionized, nonprofessional employees.

The findings reported here are based on hospital managers' assessment of the magnitude and direction (positive or negative) of union impact on their own organizations. Perceptual data of this kind are of considerable value because they reflect the understandings of those intimately involved in the labor-management relations, where differences of values and goals between the

parties can generally be assumed, and varying assessments of the nature of union impact on the employer can be expected.

A second purpose of this study was to present some preliminary results on the development of an explanatory or interpretive framework for the managerial perceptions reported. The model, presented in the full version of this paper, hypothesizes systematic relationships among managers' perceptions of a number of dimensions of union impact.

The data

Data for the study were collected through administration of written survey questionnaires to managers employed in 36 unionized hospitals located in 6 major U.S. cities. Cities were selected to represent a variety of bargaining structures and climates. Within cities, hospitals were chosen to provide variety in terms of organizational size, ownership, pattern of employee representations, and managerial philosophy. Individual managers were selected on the basis of position (senior administrator, personnel/industrial relations officer, supervisory physician, nursing administrator, support service department head), and knowledge of the union-management relationship. In all, 292 managers participated in the survey.

The survey instrument used Likert-type response scales to obtain managers' views of the nature of the union-management relationship, and the impact of unionization and collective bargaining on the hospital; 79 impact questions were included. Respondents made assessments of both the *magnitude* of union impact, and its *direction* (positive or negative as seen from the per-

Table 1. Hospital managers' perceptions of the strength and direction of union impact in selected areas

Impact areas	Mean response ¹	Percent negative		No impact	Percent positive	
		Strong	Weak		Weak	Strong
General						
Centralized policy making	4.04	7.7	3.5	11.6	32.0	45.2
Wage levels (union employees)	3.53	24.7	8.9	2.6	16.6	47.2
Ability to retain employees	3.52	8.2	11.3	25.7	30.0	24.9
Overall quality of care	2.86	10.9	22.3	42.0	19.7	5.0
Productivity of employees	2.80	19.9	23.5	26.3	17.5	12.7
Financial standing of hospital	2.65	39.8	16.6	6.2	13.3	24.1
Hospital management						
Overall quality of management	3.70	5.8	5.8	27.4	35.1	25.9
Ability to run hospital effectively	2.97	15.8	25.8	19.2	23.8	15.4
Authority of supervisors	2.93	22.8	33.6	9.3	26.6	17.8
Employee attitudes and behavior						
Interest in long-term employment	3.62	5.4	9.3	28.3	32.2	24.8
Turnover	3.30	7.7	15.1	34.7	25.1	17.4
Interest in promotion	3.28	8.2	14.0	31.1	34.6	12.1
Morale	3.12	11.5	23.0	20.3	33.0	12.3
Absenteeism	2.79	17.6	26.1	25.3	21.8	9.2
Commitment to goals of hospital	2.75	15.6	25.9	33.8	17.1	7.6
Willingness to perform extra work	2.40	30.3	27.3	21.1	12.7	7.6

¹ Items are scaled: 1 = Strong Negative Impact; 2 = Weak Negative Impact; 3 = No Impact; 4 = Weak Positive Impact; 5 = Strong Positive Impact. Total number of responses was 292.

spective of the hospital). Magnitude was measured on a 5 point scale, and direction on a 3 point scale (+, 0, -).⁴

Table 1 displays some of the survey results. On the basis of the aggregated results (some of which are not reported in the table for space reasons), the following generalizations are warranted:

Economic impact (wage and benefit levels) was seen as substantial. Managers reported positive effects in terms of increased stability of employment and an improved competitive position in local labor markets. On the other hand, the overall financial standing of the hospitals was seen to have been adversely affected.

Within management, decision and policy making had become more centralized, with senior administrators and personnel/industrial relations specialists assuming an expanded role. Employee relations policies were seen to have become more formal, more similar across organization subunits, and applied with greater consistency.

Departmental managers and supervisors were seen to be spending more time in direct supervision and in attending to matters of discipline. The quality of supervision and management were felt to have improved, but the difficulty of the supervisor's job had increased. Similarly, the overall ability of management to run the hospital effectively was seen to have been diminished.

Managers perceived the attitudinal and behavioral responses of nonsupervisory employees to have fallen along two interrelated dimensions. Managers believed that the desirability of the hospital as a place of employment had increased as reflected in both employee attitudes (morale, interest in long-term employment, interest in promotion) and behaviors (reduced turnover). However, performance-related changes were viewed negatively; respondents reported decreased commitment (to the mission of the hospital and to patient care as a goal) and poorer work performance (increased absenteeism, decreased willingness to perform, decreased productivity.) The overall pattern in the aggregated data suggests managerial perception of an increased "instrumentalism" on the part of unionized employees.⁵

Finally, the quality of patient care, a significant dimension of overall organizational performance, was seen to have been negatively affected, although the size of the effect is not great on average, and there is considerable disparity among respondents as to both the strength and direction of the effect. □

—FOOTNOTES—

Data collected by the American Hospital Association indicate that between 1967 and 1977 the number of U.S. hospitals with at least one formal union-management agreement increased from 6.7 percent to about 25 percent.

² For example, see S. H. Slichter, J. D. Healy, and E. R. Livernash, *The Impact of Collective Bargaining on Management* (Washington, D.C., The Brookings Institution, 1960).

³ The study was supported by grant number 5 R18HS 01557-02 from the National Center for Health Services Research.

⁴ For a discussion of a previous use of a similar measure, see Milton Derber and others, *Labor-Management Relations in ILINI CITY* (Champaign, Ill., Institute of Labor and Industrial Relations, University of Illinois, 1954), pp. 40-41.

⁵ Similar results were reported by Tove Helland Hammer, "Relationships between Local Union Characteristics and Worker Behavior and Attitudes," *Academy of Management Journal*, December 1978, pp. 560-77.

Two approaches to the mediator's role

DEBORAH M. KOLB

The differing roles mediators play, "deal maker" or "orchestrator," reflect respective common sense theories about how disputes between the parties get resolved.¹ Mediators from a State agency, who generally want to make a deal, believe that such a deal, if achieved, results from their knowledge of the components of a reasonable settlement (and, by implication, the parties' ignorance of such components), combined with their ability to persuade the parties to accept such a "reasonable" settlement. Federal mediators, however, prefer a settlement to be achieved by the parties themselves. By orchestrating a full exploration of their differences with some assistance and "injections of reality," Federal mediators believe that parties generally will be able to resolve their own differences.²

These theories held by mediators about how disputes get resolved emerge from the roles the mediators attribute to the other parties in the process. The State mediators believe that they need to put together a deal because the other actors in the process—the union and management committees—lack the expertise to do it themselves. The inexperience of the bargaining committees is readily apparent to the mediator. Committees, particularly those on the union side, come to mediation with long lists of demands—demands which are often unrealistic in the estimation of the mediator. Inexperienced committees get "wedded" to their positions and are therefore exceedingly reluctant to lower their sights

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or to delegate the authority to the negotiators they hire (who have the expertise to negotiate more effectively). Committees on the management side, often made up of politically elected representatives, are likewise described as inexperienced. They adopt exceedingly conservative positions and adhere to these positions tenaciously.³

Federal mediators, interestingly, describe the union negotiating committees they encounter in the private sector in much the same way as do the State mediators. These committees are inexperienced: they come unprepared to mediation with too many demands, many of which are unrealistic and, because of their inexperience, only make changes reluctantly. The management committees the Federal mediators work with are often as inexperienced as the union committees, but the inexperience is manifested differently. Management committees tend to overprepare, and to adopt bottom line positions early in the negotiations that leaves little room for exploring options. However, as opposed to the union committees which have a democratic structure and require a majority (if not a consensus) to make a move, the management committees have a hierarchical decisionmaking structure. The process of generating movement, therefore, differs between the two types of committees.

In most of the cases studied, negotiating committees on both sides had chief spokesmen, most of whom were professional negotiators. These professionals, because of their experience and frequent encounters with mediators, are called "pros." For the most part, pros are either labor relations attorneys or business agents from the union. Both State and Federal mediators had pros on their cases with approximately the same frequency, but the expectations about how these pros would act in their relationships with their committees, with the mediator, and with each other differed.

The State mediators looked to the pros to help them make a deal, a deal the committees, because of their inexperience, presumably would be unable to reach themselves. When working with two pros, the State mediators expected that most of the mediation would be conducted in off-the-record meetings. As a team, the pros and the mediator, both knowledgeable in the prerequisites of a reasonable settlement, could come gradually to an agreement. During the case, the mediator would then, in concert with the pros, "sell" the agreed upon package to the respective committees. With just one pro on the scene, the mediator had assistance on one side in the form of insights into the committee's behavior and the pro's assessment of "what it would take" to get a settlement—the bottom line. But the pros did not always function in this way. The problem from the State mediator's viewpoint is that the committees, because they are inexperienced, control their spokesmen in such a way that their ability to make an

off-the-record deal may be severely circumscribed. When this occurs, the pro isn't acting like a pro. According to one State mediator,

There are pros, but it's not just his experience. Only if they have the authority to bargain, are they true pros. And for a true pro, if he doesn't have the authority, he'll grab it, he'll demand it as a condition of his continued employment.

State mediators often found that their expectations about what the pros would do went unfulfilled. Many pros, according to the State mediators, acted unprolike during a case. And the mediators' explanation for this behavior rested with the inexperienced committees. They were so inexperienced that they controlled the pro too tightly, and thus the effect of having a pro at all was negated. This inexperience of the committees (manifested in their tight control and the presence of pros who often did not act like pros) reaffirmed the mediator's sense of his role. He needed to "educate" the parties about the realities of mediation, which he did by demonstrating the elements of a reasonable settlement (his deal).

To the Federal mediator, the pro is an experienced, knowledgeable, and effective negotiator who is as well acquainted with the elements of a reasonable package and often better informed about the local character of the issues in dispute than the mediator. Though the pros and the mediator would be capable of reaching a reasonable settlement, the acceptance of such a settlement rests with the committees. Thus it is the pros, each working with his respective committee, who, through the ever narrowing exchange of proposals, move a committee toward a settlement. With the hierarchical management committee, the pro's advice was more likely to be heeded. But with the inexperienced union committee, the process was likely to be long and arduous, often requiring more assistance from the mediator.

For the Federal mediator, the mark of the true pro is not that he grabs authority but that he acts like a "closer." A closer is a pro who, based on his experience and knowledge, uses that expertise to move his committee by suggesting alternative options for a settlement when negotiations have reached a stalemate. The Federal mediators see their role as lending credibility and assistance to the pros as they work with their respective committees to "close" the deal. The dose of reality the Federal mediators say they inject in a caucus is often no more than reiterating what the pro has been saying all along. The only difference is that when the mediator says it, it's from a "neutral mouth." By adopting the role of orchestrator, the mediator provides the forum for the committees, guided by their pros, to directly negotiate their agreement. □

—FOOTNOTES—

¹ On the properties of common-sense theorizing, see Harold Garfinkel, *Studies in Ethnomethodology* (New Jersey, Prentice Hall, 1967), and Aaron Cicourel, *Cognitive Sociology* (New York, The Free Press, 1974).

² As a participant observer, intermittently over a 3-year period, I attended 16 mediation cases with nine different mediators from both a State office of conciliation and arbitration and a field office of the Federal Mediation and Conciliation Service.

The process of selecting cases to attend was different for each service. State mediators allowed me virtually open access to any case. They would open their appointment books, tell me what was coming up, and I would pick a convenient date and case of interest. Federal mediators did roughly the same thing, but made it clear that certain cases would be off limits. These were the well publicized, "big" cases

and those where the relationship between the parties was such that an outsider might exacerbate what was already a volatile situation. The State cases I observed thus represent a fair sampling of a typical caseload. Observed Federal cases also represent a typical caseload, except for the 1 percent described as "problematic" or "headline getters."

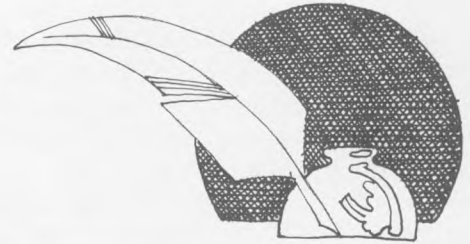
³ Inexperienced and diffuse committees, particularly those on the management side, have been identified as a distinguishing characteristic of public sector bargaining. See Thomas Kochan, "A Theory of Multilateral Bargaining in City Governments," *Industrial and Labor Relations Review*, July 1975, p. 526; and Kenneth McLennan and Michael Moskow, "Multilateral Bargaining in the Public Sector," *Proceedings of the 21st Annual Meeting*, Industrial Relations Research Association (Madison, Wisc., IRRA, 1968), pp. 34-41.

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 polem-

ical 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.

Communications



Labor-management panels: three case studies

JAMES W. DRISCOLL

Cooperative departures from traditional collective bargaining behavior have begun to interest scholars and practitioners.¹ Former Secretary of Labor John Dunlop has chaired the meetings of an informal Labor-Management Group at the national level to make recommendations on macroeconomic policy. Numerous local communities now support area-wide labor-management committees. And numerous cooperative programs have appeared in local plants, including quality-of-worklife programs at General Motors and in-plant committees in the steel industry, under the auspices of the Federal Mediation and Conciliation Service, and in the Scanlon Plan.

Despite the recent chill in U.S. union-management relations, cooperative programs have arisen because the two adversaries increasingly face common problems.² Challenges to both parties are presented by demographic and attitudinal shifts in the work force, new governmental regulation, technological change, and foreign competition.

All new programs in collective bargaining aiming to answer these challenges share a common behavioral denominator: they encourage joint problem-solving rather than traditional bargaining. Richard Walton and Robert B. McKersie popularized the distinction between these two techniques of conflict resolution.³ Bargaining conceals information in order to extract concessions from an opponent; problem-solving relies on sharing information in open discussions. Rather than the exchange of proposals, problem-solving includes careful identification of joint concerns, generation of a range of possible alternatives, and the selection of an alternative to maximize joint benefits.

Research on these recent problem-solving efforts has

largely consisted of broad overviews and testimonials by their proponents. Our own recent study takes a look at three cooperative innovations, running the gamut from success to failure. Our purpose was to learn whether cooperative problem-solving between adversaries in collective bargaining works, and what factors facilitate its success.

Study of cooperative efforts

Case I describes an attempt to improve the negotiation of contracts through an industry committee. Case II focuses on efforts to improve the administration of the grievance procedure in one plant of a large company. Case III deals with issues outside the scope of traditional collective bargaining in a quality-of-worklife project at a hospital.

In each case, we primarily gathered data by interviewing as many of the regular participants, past and present, as possible. We interviewed 83 participants (about half of those involved), including some third-party participants and about equal numbers of union and management representatives.⁴ Joint meetings were also observed in our study.

The retail food committee

Collective bargaining in the retail food industry is extremely decentralized, with contracts signed in individual cities. Unions have been able to play one local employer against another in highly unionized areas of this competitive product market. Along with a skilled work force, this has led to higher wage levels than those of workers in other retail trades.

The industry also has a high profile. Labor and management felt that unless they agreed to address common problems in collective bargaining, the industry would be subject to continued wage-price controls (in early 1974). To reduce this possibility, the three major unions in the industry—the Retail Clerks, the Meatcutters, and the Teamsters—met with the major supermarket chains and employer association representatives in April 1974 to form the Joint Labor-Management Committee of the Retail Food Industry.

Wayne Horvitz, former chairman of the industry's Tripartite Wage Stabilization Committee during the period of controls, was chosen as permanent chairman of the Joint Committee.

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Committee members included the presidents of the international unions and the chief executives of the major supermarket chains. A steering committee was also established, consisting of the labor-relations vice presidents of the companies and staff officials from the unions. The steering committee met monthly, while the original top-level executives convened quarterly to set policy.

An early start tackling issues. The committee examined collective bargaining and general industry problems. It published some general principles to guide contract negotiations in the industry.

However, the national recommendations have not become standard practice in local negotiations; although the committee has targeted key negotiations for national attention. It has convened local conferences to help identify problems before contract negotiations begin, thereby reducing the possibility of work stoppages.

In addition to institutionalizing pre-negotiation conferences, the (neutral) chairman and other committee members worked closely with the Federal Mediation and Conciliation Service in mediating a number of deadlocked negotiations, avoiding several unnecessary work stoppages and shortening others.

The steering committee has also initiated action on other problems. In 1976 it undertook a union-management study of personal protective equipment for meatcutters, because both parties were dissatisfied with a regulation proposed by the Occupational Safety and Health Administration (OSHA). As a result, the committee came up with a more workable clarification of the standard providing greater protection to workers and acceptable to OSHA.

More recently, the committee has sponsored studies of potential industry health hazards growing out of concerns about "meatcutters asthma" and the use of polyvinyl chloride wrapping paper, and of the cost of health benefits under collectively bargained benefit plans. The health proposals could help reduce benefit costs, while maintaining or increasing benefit levels for workers.

The committee's specific accomplishments stem in large part from the effort of its permanent third parties and especially the original chairman. He held it together in its early days and mediated some key contract disputes. Later, when the steering committee became bogged down (in part from antagonisms generated during contract negotiations) the chairman reactivated the executive committee to provide policy direction from a group that was not engaged in continuous negotiations.

Mixed reviews. In summary, the steering committee has taken action on a number of fundamental industry problems. For this reason, most of the labor members praised the committee. Company representatives were

dissatisfied, however, because they wanted the committee to help reduce the upward pressure on wages from collective bargaining. However, the companies also applauded the committee's work, when specific accomplishments were considered.

The disappointment of company members does highlight a major shortcoming. Although it is involved in settling local disputes, the committee has not enabled the parties to achieve a structural breakthrough in market-area bargaining. Negotiating contracts for larger geographical areas facing similar market conditions might allow greater stability and lower pressure on wages than current fragmented bargaining patterns. As a consequence, the frequency of local disputes might decline. Despite progress in some local areas and the merger of two participating unions—the Clerks and the Meatcutters, the structural problems of collective bargaining in the industry remain.

A small plant's alternative

Pressure from external events forced union and management representatives in a local plant of a large multinational manufacturer to consider an alternative to traditional collective bargaining. Shortly after the founding of this small plant in 1969, demand for its product slackened. As a local policy, workers were not laid off, but were used as janitors. Union-management antagonisms developed, which finally led the corporate industrial relations staff to recommend that no new work be assigned to the plant.

By 1972, the plant's employment had dropped to 35 in the bargaining unit. A consultant from the corporate organizational development staff, which is separate from the industrial relations staff, began to work with the plant management to improve its effectiveness. The consultant quickly became aware of the labor-management hostility and offered his help, which was accepted by the plant manager.

From early-1973 to mid-1974, the consultant initiated, designed, and implemented a series of multiple-day meetings at which union and management representatives discussed their differences in a carefully orchestrated format. All local union officers and members of the bargaining committee met first with the plant manager and his staff and later with the production supervisors in the plant.

In the initial meetings, each group openly vented its dissatisfaction with the other side. Most members participated in the discussion, and both sides acknowledged some of their own problems. They subsequently agreed on areas where joint action was needed by top leadership.

Relations improve. These meetings dramatically improved the collective bargaining climate, as both sides

unanimously reported. Relations among the participants of the meetings improved immediately, and most said that they could now trust opposing members to tell the truth more often.

More importantly, the plant personnel manager and the local union president agreed on two supplements to the contract: one to revise the assignment of overtime, the other to specify job ladders within the plant. Both issues had previously caused many grievance problems; now grievances decreased immediately.

The two men also began to meet regularly for open-ended discussions of plant problems. Indeed, when a department that housed new products developed serious labor problems, the two held a 3-day meeting with department representatives.

Finally, the monthly union-management meeting was expanded from a management briefing to include both safety issues and specific concerns raised by the union. In this improved atmosphere, the plant manager was able to support the introduction of new products.

It is always difficult to untangle the effects of such development programs from simultaneous external influences. In this case, new products were brought on line after the first meeting, so employment had returned to 200 following the last meeting. A new personnel manager also came to the plant just before the first meeting; he was the first to hold that position on a full-time basis. Finally, a new union president was elected after the second meeting. He had participated in and had been impressed by the meetings and continued to work closely with management, dominating the local union for several years. Each of these factors undoubtedly helped resolve some of the problems.

Health care union approached

The quality-of-worklife project at the hospital did not arise from external pressures, as in the cases previously discussed. Rather, in 1975, a small independent agency that had been founded to stimulate joint quality-of-worklife projects approached a major union in the health care field. The union suggested the 1,200-bed private, teaching hospital in a major northeastern city as a site for the project. Relevant parties involved with the hospital agreed to support a proposal by the quality-of-worklife agency for Federal funding. The purpose of the externally funded project was to improve patient care and the quality of worklife in the hospital.

During the initial discussion of the project, the union was represented by a vice president; the residents' committee (which then had a collective bargaining agreement with the hospital) sent its leader for the metropolitan area; and the State nurses association was represented by its statewide director of collective bargaining. The hospital was represented by its director, the director of nursing, and the vice president for labor

relations. It was the first and only time that top leaders from the various parties met during the project.

A steering committee consisting of representatives of these top leaders was formed to identify a demonstration unit within the hospital, and to establish a control group so the effect of the project could be determined. The steering committee then hired a consulting team, as called for by the proposal, to initiate the project.

Change in consulting team. Following a slow start, the first consulting team was dismissed and a second team was hired, 16 months after the first, top leadership meeting. The latter consultants initially worked with rank-and-file workers on the target ward to identify problem areas for improvement. Later, the consultants extended their efforts to include higher-level supervisors and a major department that provides diagnostic services for the entire hospital.

At the time of the interviews for this report (Fall 1977), the consultant had been working in the hospital for 15 months and had undertaken a number of programs. Workers on the target ward, aided by the consultants, prepared an orientation program for new residents to ensure continuity in day-to-day work practices, a major problem in teaching hospitals. The consultants conducted training sessions on interpersonal skills for workers on the ward, and they began a survey of attitudes and perceptions of performance for the diagnostic department.

It is difficult to assess the impact of these programs on patient care and worklife because the interviews for this report focused only on members of the steering committee. A major evaluation effort is underway to measure both the delivery of service and the attitude of workers. Nonetheless, labor and management representatives felt that the stated goals had not been achieved, and that there had been little impact on the larger collective bargaining system, where most had also hoped to see some improvement.

Two dynamics are worthy of note in understanding the quality-of-worklife project. First, the director of the hospital who endorsed the project was replaced shortly afterward by a successor whose mandate was to cut costs. Second, the consulting team worked primarily with employees in the target ward, members of the diagnostic department that was being surveyed, and with a few steering committee members. The consultants did not develop the steering committee to be a problem-solving group.

Guidelines offered

Cooperative projects emerged from these cases not as panaceas, nor as surefire successes. Rather, practitioners must exercise caution in the face of optimistic claims for joint programs and care in their execution. Based on

the three cases studied, it is possible to offer the following guidelines for cooperation:

- Do not expect certain success.
- Examine the initial situation to predict the success of the program; specifically, the felt need for change, the mutual legitimacy of the parties, and support from top-level management.
- Expect more interpersonal changes and indirect effects than specific accomplishments.
- Attempt problem-solving at any hierarchical level.
- Engage a third party with labor-relations experience and behavioral-science skills.
- Despite the increased risk of failure, identify common objectives early.

- Involve "line" officials of both union and management.
- Develop a cohesive group of labor and management representatives.
- Avoid challenges to union or management authority.
- Attempt change in an entire, largely self-contained social system.

The three cases not only identify a probable pattern of factors facilitating cooperative problem-solving, but also suggest a tentative strategy to implement such a change. These guidelines stress the need for participants in a joint effort to monitor the *process* of the change effort as well as specific substantive issues. □

—FOOTNOTES—

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¹ William Batt and Edgar Weinberg, "Labor-Management Cooperation Today," *Harvard Business Review*, January-February, 1978.

² J. W. Driscoll, "A Behavioral-Science View of the Future of Collective Bargaining in the United States," *Labor Law Journal*, July 1979, pp. 433-38.

³ Richard Walton and Robert B. McKersie, *A Behavioral Theory of Labor Negotiations*, New York, McGraw-Hill, 1965, pp. 4-5.

⁴ The interviews lasted from 20 minutes to 8 hours, with a median length of 1 hour.

Foreign Labor Developments



Employment training in France: firm and worker experience

DOROTHY G. SPARROW

Have French workers benefited from the 1971 law which required firms to provide education and training programs for workers? A series of interviews with a group of 50 workers and managers in 10 firms revealed that worker participation in training programs had increased by 69 percent since the law was enacted. Also, workers reported improved job satisfaction which they attributed to the availability of the programs and said that chances of promotion for lower level employees were improved.

To aid in meeting the dual challenge of rapidly changing occupational requirements and the growing demand for broader economic and social opportunities, the French National Assembly in July 1971 passed the law for Continuous Training (*Formation Professionnelle Continue*). The three key provisions are:¹

1. Employers with 10 employees or more are obligated to pay a payroll tax, currently 1 percent, into a National Training Fund. With establishment of training for their workers, employers are reimbursed.
2. Every worker has a right to a paid training leave.
3. Governmental agencies coordinate policies and participate at all levels to facilitate and ensure application.

This report examines the experience of firms and workers since the passing of the law, focusing on the following questions:

1. Has the training facilitated labor force adaptation to economic and technological change?
2. Do workers obtain significant benefits in terms of improved access to training, improved promotional opportunities and salaries? Do the least-skilled workers share in these benefits?
3. Has imposition of a payroll tax on all employers increased training opportunities?

The study is based on a series of interviews with a group of 50 workers and managers in 10 firms in banking, electronics, food distribution, metallurgy, pharma-

ceuticals, textiles, transportation, and a public utility.

Continuous Training was the capstone of a decade of developing employment training policies. Industrialization of a predominantly agricultural society and rapid growth following the close of World War II increased the demand for skilled workers and created new occupational requirements. A significant aspect of the origin of *Formation Continue* is that its enactment represented legislative ratification of prior agreements negotiated by industry and labor representatives. The accord set forth joint responsibilities for developing and participating in vocational training programs:²

- to permit each worker to increase his knowledge and skills in relation to his own aspirations and perspectives on employment;
- to give firms the incentive to develop training policies compatible with their needs and potentials; and
- to give labor organizations the possibility of contributing to the development and functioning of training institutions which fill individual and collective needs.

One of the primary purposes of *Formation Continue* was to make the highly structured, traditional educational system more flexible and more responsive to current demands. The consensus which supported *Formation Continue* was based on the perception that the traditional educational and training system was inadequate and that benefits of a better trained labor force for employers may also increase promotional opportunities.

In France, employment status in terms of skill level and compensation is directly related to the level of educational certification. A Certificate of Vocational Education, obtained after 1 year of study, permits access to unskilled jobs. Entry in skilled trades is secured through completion of a 3-year program which leads to the *Certificat d'Aptitude Professionnelle* (CAP) for each skilled occupation. A *Brevet Professionnel* (BP) is obtained with an additional 2 years of technical training.

Employers view much technical training as inadequate, irrelevant, and often producing graduates lacking even basic skills. The system of "conventions"—permitting employers to contract with public and private institutions—was to stimulate competition with the existing system. For many workers, the educational establishment was viewed as an entrenched elitist bureaucracy

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which had succeeded in limiting educational opportunities to the privileged few.

The role of employers

Employers, both in firms and in employer associations, play a leading role. Employers may fulfill their obligation in one or more of the following ways: they may organize training in the firm; finance training by contracting with an outside institution; contribute to a joint employer-union training fund; make payment to an approved training institution; or make payment to the Treasury.³

Within the firm, training policy is formulated by top-level management. Administrative responsibility in large firms rests with the training director, and in smaller firms with the personnel director. The training director is responsible for assuring training facilities and personnel either in the firms or in public or private institutions. He or she acts as mediator between top management and workers' representatives in development of training plans in plants with active Works Councils. Management draws up a training plan and budget which are submitted to Training Committees at the central office level and to Works Councils (*Comités d'Entreprise*) in plants and branch offices for comments from worker representatives. The training plan incorporates not only firm projection of manpower requirements over a 3- to 5-year period, but also individual requests for training.

Employer associations in leading industries have established new training centers. Efforts are made to obtain the participation of representatives of educational institutions, the employment service, vocational training centers, and unions. The role of the employer associations varies from region to region. In the North, they act as a clearinghouse of information on educational and training programs and promote the exchange of ideas and experiences. In an agricultural region undergoing rapid industrialization, the association established a training center offering more than 200 courses in many occupations at all levels.⁴ Courses are also offered to the unemployed, particularly the young and women entering the labor market.

Role of the unions

Although generally supportive of *Formation Continue*, leading labor organizations expressed concern with the application of the law. One union argued for recognition of courses by diploma, in view of the significance of certification for skilled employment status. Other unions were greatly concerned that firms might provide merely narrow, specialized training, of benefit only to the firm, and pressed for general educational opportunities. Labor also remained on guard against misuse of the law leading to reduction in the time and scope of

preemployment education, so recently enlarged.⁵

Among the firms in the study, the role of union representatives varied. In all firms, worker representatives obtained health and safety courses for the employee, urged extended opportunities for the least-skilled workers, women, immigrants, and those workers over age 45. In general, union representatives seek more promotional training as opposed to narrow, technical courses which tend to be firm-specific. However, in the accords on employment security and vocational training it was the Works Council and not the Union Section which was given a consultative role.⁶

Although all firms above a given size have been required to establish a Works Council since 1945, not all firms have complied. In some instances the role of the Works Council is limited, often confined to considering employee social benefits. The purpose of a July 1976 amendment to *Formation Continue* was to strengthen the consultative role of Works Councils. Protesting the lack of a right of appeal in case of disagreement with the Works Council, two unions would not sign the agreement preceding the 1976 amendment. One of the unions was a strong proponent for broadening individual rights to a training leave,⁷ increasing worker participation in policymaking, and seeking greater responsiveness of public education authorities to locally expressed needs.⁸ The active role of union representatives on Works Councils has supported increased opportunities for less advantaged workers.

Types of training offered

Formation Continue serves firms undergoing both expansion and contraction in employment. In firms with employment growth, increases in training facilitated adaptation of new employees and in firms with stable or declining employment, retraining for current employees. Retraining provided replacements for retiring supervisors, updated the skills of older employees, and developed new skills for new job positions.

Differing sharply in employment trends and in occupational composition, the transport and textile firms covered in this study demonstrate the significance of *Formation Continue* for labor force adjustments. In the transport firm, one-fifth are professional workers and more than one-half are skilled workers. In the textile firm, three-fourths of the work force are unskilled. Training of professionals in transport may require 700 hours per course, compared with 144-hour courses for skilled textile workers.

Data for the transport firm show shifts in training emphasis from long promotional courses to short technical training and increased employee participation from 1975 to 1976. (See table 1.) However, in 1976, hours per person for technicians, assistants, workers, and employees decreased, while hours for engineers, managers,

Table 1. Employee participation in training in a transport firm, by type of training, 1975-76

Type of training	Trainees		Hours of training		Distribution of hours		Hours per trainee	
	1975	1976	1975	1976	1975	1976	1975	1976
All training	251	529	16,088	18,875	100	100	64	36
General education . . .	112	93	2,638	1,923	17	10	23	21
Relations in the firm . .	22	100	593	6,670	4	35	26	67
Technical training	98	324	3,329	8,862	20	47	33	27
Promotional training . .	19	12	9,528	1,420	59	8	501	118

and supervisors increased. (See table 2.)

Prior to *Formation Continue*, training in the textile firm was limited to on-the-job training. Job rotation occasionally led to promotion to plant director. In the textile firm, *Formation Continue* improves and maintains worker skill competence, facilitates adaptation to technological and technical changes in production, and provides promotional opportunities to younger workers. In all firms, personnel directors made clear there is no direct connection between training and promotions. However, in the textile firm, the director noted that the distinction is arbitrary because technical training not infrequently is followed by promotion.⁹

Training in the supermarket firm includes short, specialized courses for employees and somewhat longer technical training for supervisors and store managers. Short courses train personnel in every department: cheese-cutting, fresh produce, meats, and seafood. Subjects include "notions of quality in fresh fruits and vegetables," "display," and "specialty preparation," reflecting recognition of traditional values in modern methods of food distribution. Although training tends to be limited to the specialized courses, participating employees have benefited from the firm's internal promotion policies. Promotions occur from entry level to managerial positions. In 1975, 16 percent of management personnel were internally promoted.¹⁰

Within the firms, the extent of promotional training varies, not only with the proportion of professional and skilled personnel, but also with the training policy of the firm. The long 2- and 3-year courses leading to the CAP and BP degrees are most frequently observed in banking and in the public utility. Operating in the nationalized sector with a tradition of employment security, these firms have elaborate employee career development policies. In both industries, promotional training has been important in areas of technological and technical advance.

Technology changes occupational requirements. A major purpose in training was to adapt the work force to the impacts of both technological and technical change on occupational requirements. Technological change occurred, not only in the application of advanced knowledge to production processes, but also in what Edwin

Mansfield has defined as:¹¹

. . . new methods of producing existing products, new designs which enable the production of products with important new characteristics and new techniques of organization and management.

In a country until only recently dominated by its agricultural sector and single proprietor shops, the growth of modern forms of mass distribution and financial services falls within the broader definition of technological change. Between 1963 and 1972, employment in agriculture declined from 19.5 to 12.9 percent of total employment, industrial employment remained stable at 40.3 percent, transport increased 5.8 to 6.1 percent, and the service sector increased dramatically from 30.3 to 40.7 percent.¹² The service sector created new occupations at all levels, from office and sales employees to professional administrators, managers, and technical experts. In industry, technical changes in equipment and materials, as well as technological change, affected skill requirements.

The role of mass distribution has increased significantly,¹³ accompanied by "a profound change in the economic structure of the commercial apparatus, the objectives, the forms of organization and techniques utilized by the firms."¹⁴ In a society accustomed to shopping daily for fresh produce, the introduction of frozen foods is a major technological change. Personnel must be trained in new methods of food preservation to guard against losses. Creation of numerous managerial positions in supermarkets required training for a full range of administrative responsibilities. General education, recommended for employees and supervisors as well, is viewed as a desirable and necessary complement to the specialized programs.

Technological and technical change affected occupational requirements in the metallurgical plant and the textile firm. Many phases of production are electronically controlled and monitored by computers, creating positions for computer programmers. Installation of automated equipment required retraining for electricians and related occupations in industrial design and electronics. Changes in materials brought technical

Table 2. Employee participation in training in a transport firm, by occupational level, 1975-76

Occupational level	Trainees		Hours of training		Distribution of hours		Hours per trainee	
	1975	1976	1975	1976	1975	1976	1975	1976
All occupations	251	529	16,088	18,875	100	100	64	36
Engineers and managers	29	29	800	935	5	5	27	32
Supervisors	31	67	805	3,458	5	18	25	52
Technicians and assistants	78	145	4,183	5,506	26	29	53	38
All other employees . .	113	288	10,300	8,976	64	48	91	31

change: stainless steel in metallurgy and synthetic materials in textiles.

Reorganization and increased firm size have increased administrative responsibility, requiring technical training for managers, particularly in personnel. In the metallurgical plant, automation and technical change have increased productivity substantially. In metallurgy, most training has served to update the skills of older workers. A few workers have been retrained to fill new positions, such as computer programmer. In the textile firm the purpose of technical training is to develop versatile workers with all-around skills.

Worker experience

Characteristics of worker group. The worker group interviewed in 1976 and again in 1977, was diverse with respect to age, sex, industrial sector, and occupational level. About one-half were production workers, the remaining were employees in service sector industries. Thirty-three were under 35 years of age, and the same number were male. Those interviewed tended to have attained educational levels higher than that of their parents. Whereas 11 had parents who had received no diploma, only 4 workers had not obtained any diploma. Ten workers had received the Baccalaureat, the French prerequisite for university admission, compared with only 4 of the parents. Production workers were interviewed in metallurgical, textile, and pharmaceutical plants; service sector workers were in banking and supermarket firms.

Worker responses. Workers responded to a questionnaire to give their reasons for taking courses and to evaluate the results. One-third responded that their goal was improved professional qualifications. Although some had a particular position in mind, most viewed the course taken as a step toward future improved occupational opportunities. Ten percent sought to improve current skills; another 10 percent wanted to improve their general background. Seven specified "a better job;" four expressed interest in new jobs in the firm. Less than half stated that they took the course at the suggestion of supervisors. However, only eight indicated they had requested the course on their own initiative. Individual requests were most common in banking where the CAP is required for all new employees, and additional requests are made to complete the program in the second year.

Other workers referred to "improved ability to understand the effects of technological changes in process or equipment on their work," and "improved sense of relationship, both in terms of human relations and firm operations as a whole."

A few workers were less than enthusiastic. Two older textile workers claimed technical training added little to

their background. A supervisor expressed preference for the greater thoroughness of apprenticeship training. Workers interested in training unrelated to their jobs or the firm resented informational courses. In general, however, workers expressed improved job satisfaction. A newly promoted bank employee said, "I feel more at ease in my new position." Greatest satisfaction occurred where promotion followed. Worker interest in general education had two objectives, personal and cultural environment and improved vocational background. Women were more likely than men to express these interests. However, scheduling of most general education after work, often in locations remote from worker residences, restricts participation.

Improvements in occupational status. Despite the fact that management emphasized that there is no automatic connection between training and promotion, most workers undertook *Formation Continue* in the hopes of improved job opportunities. Consequently, younger workers and skilled and professional workers tended to have greater rates of participation.

For 32 percent of the group (16 workers), *Formation Continue* was followed by promotion. Promotion involved jobs with more responsibility, increases in salary, and in the case of four production workers, improved professional rank. Of the 17 women, 4 were promoted, compared with 12 of the 33 men. Among production workers, promotions occurred in stable and declining industries to replace retiring personnel. Promotions may well be related to educational attainment: 7 of the 16 workers had primary diplomas, the remaining, the CAP or the Baccalaureat. The predominance of promotion, among more educated employees is not surprising. Employers are traditionally more interested in educating employees with prior training, because of higher payoff probabilities in increased productivity. Educated workers tend to have more of a "taste for education" and are more likely to seek it out. It is important to note, however, that promotions were not confined to the more educated workers. *Formation Continue* has created possibilities formerly limited to upper level employees in a few firms.

Between 1972 and 1977, national trends in worker participation in firms' training show a 69-percent increase, from 1,050,000 to 1,774,000 workers.¹⁵ Average length of program diminished from 74 to 57 hours per trainee.¹⁶ In 1977, the number of courses exceeded the number of trainees by 293,000, supporting the evidence noted in all firms that many participants have taken more than one course.

By occupational level, there has been a slight decrease in participation in training opportunities by professionals and managers, the supervisory group, and to a lesser extent, by unskilled workers during the 1972-77 period.

In 1977, participation by occupational level was as follows: unskilled, 15.8 percent; skilled, 45.7; supervisors, 23.6; and engineers and managers, 14.9 percent.¹⁷ Skilled workers and employees with a high school diploma or equivalent increased their participation almost 10 percent since 1972. The preponderance of skilled worker and employee participants is directly related to the high proportion of technical training programs.

Extent of training opportunities. Changes in the extent of training opportunities with the inception of *Formation Continue* may be measured in terms of firm participation, the role of employer associations, and worker participation. From 1972 to 1974-75, the numbers of participating firms and trainees increased. Since 1974, there has been a slight decline. (See table 3.)

Small and medium-size employers, many for the first time, are training employees in public or employer-established training centers. Since 1972, smaller firms have increased participation in terms of percent of payroll expended, but have not yet reached the 1 percent level, due in part to the greater difficulty of scheduling training leaves and to fewer promotional opportunities.

Examining changes in training categories assists in evaluating training opportunities. National data show slight shifts in emphasis. Technical training remains most significant, increasing from 72 to 75 percent of the total from 1972 to 1977. The role of long, promotional programs show little change, varying only from 12 to 11 percent. Retraining to prevent unemployment increased from 1 to 3 percent.¹⁸

Another measure of training opportunities is the extent of individual training leave requests. Although in some firms directors had noted a slight increase, as borne out by worker interviews, national data indicate requests diminished to 3 percent of the total number of trainees in 1977.¹⁹ The decline is attributed to the stringency of legal requirements, such as the maximum number of employees permitted simultaneous leave in an enterprise. Because worker motivation is, in part, due to perceptions of promotion opportunities, the decline in employment, particularly in some industries, may be a factor.

The effect of the payroll tax

An important aspect of *Formation Continue* is the universality of the payroll tax. All employers share some burden and incentive in the creation of training facilities. Underinvestment in training by firms occurs where the training decision rests solely with the individual firm. Employers are aware that the workers they train may well seek opportunities elsewhere. As one personnel director commented:²⁰

"Yes, it is true we do occasionally lose workers we have trained. However, we do not view that as a loss. First, the

Table 3. Number of participating firms and trainees, selected years, 1972-77

[Number in thousands]

Year	Number of firms	Number employed	Trainees	
			Number	As a percent of total employed
1972	113	9,760	1,050	10.7
1974	121	10,470	1,790	17.1
1975	123	10,440	1,840	17.6
1977	121	10,079	1,774	17.6

SOURCE: *Projet de Loi de Finances pour 1979, Formation Professionnelle et Promotion Sociale*, p. 40.

very next day it is quite probable that a similarly trained worker from another firm may walk in the door. And, secondly, we believe that the general increase in productivity resulting from *Formation Continue* benefits all firms, and therefore society as a whole."

Employer support of *Formation Continue* derives, not only from increased ability to shape training to suit firm requirements, but to profit from the general increase in skills of a larger trained labor force.

Robert Gordon has pointed out that wages tend to rise particularly rapidly, as well as prices, in sectors experiencing labor shortages, and tend to spill over into sectors, in which unemployment exceeds vacancies.²¹ By maintaining training facilities throughout cyclical changes, a payroll training tax system, together with other manpower policies, may assist in reducing inflationary pressures.

Formation Continue helps compensate for employee underinvestment in training.²² Workers taking courses during work receive their normal salary. The long promotional courses are taken, in part, during work time.

THE APPLICATION OF *Formation Continue* in connection with firm redesign of jobs, and with the application of technological changes in production, suggests a fruitful area for future research. There is a complex interaction between work reorganization, technological change, job content and training. The role of unions in assuring worker benefits with the application of training in work reorganization will be important to observe. Study of the operation of *Formation Continue* indicates that active worker representation in development of training plans is essential to guarantee benefits to the least advantaged workers under a system in which employers play the leading role. □

FOOTNOTES

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¹ Liaisons Sociales, *Formation Professionnelle Continue*, December 1972.

² *Ibid.*

³ *Ibid.*

⁴ Institut de Formation Continue d'Indre-et-Loire, *Reports of annual meetings of General Assembly 1975-78*.

⁵ Commission Confédérale, Confédération Générale du Travail, "Emploi, Formation et Perfectionnement Professionnels," *Un Tremplin Pour Nos Luttes* ("Employment, Vocational Education and Training," *A Platform for our Struggle*), August 1972, pp. 86-88. See also Confédération Démocratique du Travail (CFDT), "Les positions en matière de formation professionnelle et de l'éducation permanente" ("The positions of the CFDT concerning vocational training and continuing education"), Numéro spécial, Septembre-Octobre, 1972, p. 3.

⁶ Jean-Daniel Reynaud, "France: Elitist Society Inhibits Articulated Bargaining," in Solomon Barkin ed., *Worker Militancy and its Consequences, 1965-1975* (New York, Praeger Publishers, 1975), p. 307.

⁷ Joseph Jacob and Raymond Lebescond, "Pourquoi la CFDT n'a pas signé l'avenant du 9 juillet 1976 à l'accord interprofessionnel du 9 juillet 1970" ("Why the CFDT did not sign the amendment to the July 1970 joint agreement"), *Droit Social*, Février 1977, pp. 53-55.

⁸ *Projet de Loi de Finances Pour 1979*, pp. 8-9.

⁹ Interviews with personnel director of textile firm, 1976 and 1977.

¹⁰ Company report, 1976.

¹¹ Edwin Mansfield, *The Economics of Technological Change* (New York, Norton and Co. 1968), pp. 10-11.

¹² La documentation française, *Profil Economique de la France, structures et tendances*, Paris 1975, p. 38.

¹³ *Profil Economique*, p. 180.

¹⁴ L'Union Interprofessionnelle Patronale d'Indre-et-Loire, *Trouver un Emploi en Touraine*, 1975.

¹⁵ *Projet de Loi de Finances pour 1979*, p. 40.

¹⁶ *Ibid.*, pour 1976, p. 38. *Ibid.*, pour 1979, pp. 42-43.

¹⁷ *Ibid.*, pour 1976 p. 14 and pour 1979, p. 44.

¹⁸ *Ibid.*, pour 1979, p. 43.

¹⁹ *Ibid.*, p. 8.

²⁰ Interview with personnel director in metallurgical plant, 1976.

²¹ Robert A. Gordon, "Some Macroeconomic Aspects of Manpower Policy" in Lloyd Ulman ed., *Manpower Programs in the Policy Mix* (Baltimore, Md., Johns Hopkins University Press, 1973), p. 22.

²² Lester Thurow, *Investment in Human Capital*, (Belmont, Calif., Wadsworth Publishing Company, 1970), pp. 77-79.

Cost-of-living indexes for Americans living abroad

The U.S. Department of State has prepared new indexes of living costs abroad for Americans in Buenos Aires and London. The new index for Buenos Aires is 7 percent higher than the previous index and for London 6 percent higher. (See table 1.) The periods between survey dates are 3 months for Buenos Aires and 6 months for London.

For Americans in Buenos Aires, average prices of goods and services were up 20 percent more than in Washington, D.C., between survey dates, but the peso depreciated 11 percent against the dollar and offset most of the relative price rise. The new index for London reflects primarily the British rise in living costs, including the July 1979 value-added tax increase; the British pound appreciated slightly relative to the U.S. dollar over the 6 months.

Because exchange rates are subject to sudden shifts, it is advisable to check the prevailing rates whenever using the indexes of living costs abroad. The indexes for these and all other reporting cities are published in quarterly reports entitled *U.S. Department of State Indexes of Liv-*

Table 1. Indexes of living costs abroad, excluding housing and education, February 1980

[Washington, D.C. = 100]

Country and city	Survey date	Monetary unit	Rate of exchange per US \$1	Local index
Argentina: Buenos Aires	Oct. 1979	Peso	1483	142
Australia: Canberra	Apr. 1979	Dollar	0.8751	121
Belgium: Brussels	Mar. 1979	Franc	30.0	158
Brazil: Sao Paulo	Apr. 1979	Cruzeiro	23.0	115
Canada: Ottawa	Dec. 1978	Dollar	1.17	99
France: Paris	Mar. 1979	Franc	4.32	166
Germany: Frankfurt	Mar. 1979	Mark	1.87	164
Hong Kong: Hong Kong	May 1979	Dollar	5.08	112
India: New Delhi	July 1979	Rupee	8.11	93
Italy: Rome	Oct. 1978	Lira	840	114
Japan: Tokyo	Mar. 1979	Yen	212	183
Mexico: Mexico, D.F.	Feb. 1977	Peso	22.0	78
Netherlands: The Hague	Feb. 1979	Guilder	2.06	154
Philippines: Manila	Jan. 1979	Peso	7.38	89
South Africa: Johannesburg	Dec. 1977	Rand	0.8697	91
Spain: Madrid	Dec. 1978	Peseta	69.0	120
Sweden: Stockholm	June 1979	Krona	4.24	173
Switzerland: Geneva	May 1979	Franc	1.65	184
United Kingdom: London	July 1979	Pound	0.4757	130
Venezuela: Caracas	Aug. 1978	Bolivar	4.28	140

SOURCE: U.S. Department of State, Allowances Staff.

ing Costs Abroad and Quarters Allowances, available on request from the Office of Publications, Bureau of Labor Statistics.

Significant Decisions In Labor Cases



Substance of seniority

In its 1977 *Teamsters* decision,¹ the Supreme Court approved a two-track seniority system for overland and city truck drivers. A move from one classification to the other left the worker at the bottom of the unit's seniority ladder. The Court ruled that such a plan was immune from the antidiscrimination provisions of Title VII of the 1964 Civil Rights Act, even though it may lock in the effects of pre-act discrimination. Thus, *Teamsters* identified the congressional intent not to disturb existing "bona fide" seniority systems, while it instantly created a slew of questions about the legitimate content of such plans.

Acknowledging the need for some judicial guidance, the Supreme Court took the opportunity recently presented by *California Brewers Assn.*² to set broad guidelines defining the characteristics of seniority systems, based on their nature and purpose. As a result, the Court ruled that entry to a preferred-benefit track can be limited to those who have held their jobs for at least 45 weeks in a calendar year. Such a rule operates on the commonly accepted basis of seniority—employment longevity—the Court reasoned, even if it may not always operate consistently with an employee's cumulative length of service.

Building on *Webster's* definition of "seniority," Justice Potter Stewart's majority opinion concluded that the seniority systems Congress meant to exempt from the normal operation of Title VII also could include rules not based on the time spent in employment:

. . . In order for any seniority system to operate at all, it has to contain ancillary rules that accomplish certain necessary functions, but which may not themselves be directly related to length of employment. For instance, every seniority system must include rules that delineate how and when the seniority time clock begins ticking, as well as rules that specify how and when a particular person's seniority may be forfeited . . . rules that define which passages of time will "count" towards the accrual of seniority . . . [and] rules that particularize the types of employment conditions . . . governed by seniority . . .

The multi-employer collective bargaining agreement

¹"Significant Decisions in Labor Cases" is written by Gregory J. Mounts of the *Monthly Labor Review* staff.

covering workers in most California breweries establishes several classes of employees, each with specific rights as to hiring and layoffs. "Temporary" employees are those who have worked at least 60 days in the preceding calendar year. "Permanent" employees, those who have completed 45 weeks of employment in one classification during a calendar year, are laid off last (in reverse order of group seniority) and maintain priority status in rehiring for up to 2 years.

Black workers alleged that the 45-week rule for achieving permanent status was actually a classification device resulting in a discriminatory impact on black workers, in violation of Title VII. The fact that a black worker had never achieved permanent-employee status was submitted as evidence of the disparate impact. Because it found the 45-week rule to be an arbitrary classification device, the Ninth Circuit Court of Appeals ruled that such rules could not be part of a seniority system exempted from Title VII.

In overruling the appeals court, the Supreme Court not only outlined the scope of possible provisions in seniority systems, but it stressed the freedom of parties to collective bargaining agreements to shape such provisions. However, Stewart also issued a mild warning that only rules conforming to "commonly accepted notions concerning the acceptable contours of a seniority system" would be permitted. As some general guidelines, he indicated that an educational standard, an aptitude or physical test, "or a standard that gives effect to subjectivity" would be impermissible seniority system rules under Title VII.

It is interesting that Stewart referred to last year's *Weber* ruling³ (permitting voluntary union/employer affirmative action programs) to endorse the Court's emphasis on the freedoms available under collective bargaining. Although such a position has been a feature of court decisions under the National Labor Relations Act, *Weber's* extension of it to Title VII may continue to provide additional influences other than on affirmative action programs.

Even though the Court has sanctioned a broad array of negotiated seniority system rules, aggrieved workers will still remain free to show that such rules were not established in good faith (and, therefore, not entitled to the exemption for "bona fide" plans under Title VII) or that the *operation* of such rules has produced differences

in employment conditions resulting from an intention to discriminate. Thus, California's black brewery workers will have an opportunity to show any discriminatory aspects of the 45-week rule or other seniority system rules on remand in district court.

Deflating damage awards

The Supreme Court recently entered into the inflation-fighting business by seeking to limit high damage awards by juries under the Federal Employer's Liability Act. The Court sided with a vanguard of lower courts by ruling that employers could calculate and present to the jury the *after-tax* future earnings of a victim. Until now, standard practice was to assume that the prediction of a deceased or injured wage earner's tax burden was too speculative and complex for jury deliberations. Writing for the Court, however, Justice John Paul Stevens reasoned that all the other variables involved in calculating lost future income—continuity of employment and health and the estimation of future expenditures, interest rates, and inflation—are equally complex. He also noted that juries are "increasingly familiar with the complexities of modern life." In addition, the 7-to-2 majority found that it was wrong for a judge to refuse to instruct a jury that any award of damages under the law would not be subject to income tax. Despite the clarity of the law on this point, the Court reasoned that the jurors may inadvertently provide a larger sum by considering the imaginary tax consequences. (*Norfolk and Western Railway Co.*⁴)

In the present wrongful-death case, the jury awarded the survivors of a railroad fireman killed in a collision caused by the employer's negligence \$775,000. The survivors had only claimed a loss of future gross income of \$302,000, while the employer claimed that, on an after-tax basis, the deceased's future earning amounted to \$138,327 when discounted to the present. The counsel for the survivors attributed the higher jury award to the pecuniary value of the "guidance, instruction, and training that the decedent would have provided to his children." The employer claimed that the difference resulted from the jurors' mistaken impression that the award was taxable and their use of gross income as the measure of loss instead of after-tax income—the "actual" loss to the dependents of the deceased.

Justice Harry Blackmun, joined by Justice Thurgood Marshall, wrote a vigorous dissent to the majority's concern over the "inadvertent" escalation of such damage awards. He argued that the effect of an income tax is only relevant to the recipient of income. To permit the employer to reduce its payment burden to an after-tax basis creates an important benefit for the defendant in such cases, Blackmun charged. Instead of intending to permit such a windfall for the guilty party, Congress probably intended to provide an additional benefit to

the victim of a tort or simply sought to avoid the administrative burden associated with collecting taxes on such awards, he wrote.

Blackmun also dissented from the Court's finding that the jury must be instructed, at the defendant's request, that the damage award is not taxable. Terming it "an admonition to the jury not to misbehave," he reasoned that such instruction could easily lead to a barrage of unnecessary and confusing comments on what and what not to consider.

Paid enforcement

Even though the penalties assessed by the Department of Labor for violations of child labor laws can be used to help defray the cost of enforcing the law, such a practice does not violate constitutional due process requirements, the Supreme Court recently ruled. The Court has ruled in earlier cases that the Constitution prohibits the adjudication of either criminal or civil cases by a decisionmaker who stands to gain based on the outcome of the decision.⁵ However, in *Marshall v. Jerrico, Inc.*⁶ the Court found that persons charged with enforcing the child labor laws by assessing penalties for violations act more clearly in a prosecutorial manner rather than as final decisionmakers. As a result, the Court reasoned that the relationship between the assessment of fines and their eventual allocation as part of the operating budget is so "remote and insubstantial" that those who assess penalties stand no realistic chance of gaining from the arrangement.

Writing for a unanimous Court, Justice Thurgood Marshall illustrated that an employer assessed a penalty by the Secretary of Labor for a violation of the child labor laws may file for a *de novo* review of such a determination by an administrative law judge within 15 days of receiving notice. The administrative law judge may affirm, in whole or in part, the Secretary's determination or may find that no violation occurred.

In such a review process, those who have assessed a penalty must bear the burden of proof on contested issues; thus, they clearly become the prosecutors, with an impartial third party⁷ adjudicating the issue.

Marshall also recognized that, as public officials, prosecutors can be motivated by some of the same improper factors that threaten due process when they affect judicial and quasi-judicial decisionmakers. The Court made clear that it will not apply the same standard for judges as for prosecutors; but Marshall left to another day any determination as to what limits there may be on a financial or personal interest of one who performs a prosecutorial function. He refused to consider such issues in this case because the alleged source of bias is "exceptionally remote." Government workers involved have fixed salaries and could not gain financially; total penalties collected have been a tiny portion of the overall

budget; distribution is determined by the national office, not the prosecutors in the field; and such monies are proportioned based on expenses incurred in prosecuting, not on penalties assessed. All of these facts persuaded the Court that such a scheme does not violate the Due Process Clause of the Fifth Amendment to the Constitution.

Legitimacy through living together

Illegitimate children have generally gained access to Federal benefits available to other children if they can demonstrate some relationship with their parents. The Supreme Court has facilitated such benefit equality by striking down dependency restrictions only for illegitimates as unconstitutional—in violation of equal protection guarantees. In a recent case, the Court removed an arbitrary barrier to the distribution of benefits to the illegitimate survivors of Federal Civil Service employees. However, the Court's decision involved a careful interpretation of the underlying statute, without reaching the constitutional issue as had the lower court. A 7-to-2 majority ruled that the requirement that "recognized natural" children "lived with" their parents to be eligible for a survivor's annuity means only that they must have *once* lived in a normal parent-child relationship—not necessarily at the time of the worker's death. (*United States v. Clark*.⁸)

Because a solution involving statutory construction is viewed by the Court as preferable to one reaching con-

stitutional dimensions, the majority reviewed the legislative history of the Civil Service Retirement Act to test whether a more liberal interpretation of the "lived with" requirement might interfere with congressional intent.

Writing for the Court, Justice Thurgood Marshall found that earlier versions of the law contained a provision requiring proof of dependency in addition to specifying living arrangements. In 1966, Congress deleted the dependency requirement in order to ensure recovery for the children of female civil servants, who typically earned less than their husbands and accordingly contributed less than the amount (50 percent) required for proof of dependency. Based on the legislative record, Marshall concluded that Congress did not intend to let the "lived with" provision which remained in the law carry the function of the deleted dependency criterion. To view it as such, he wrote, would raise constitutional questions because legitimate and adopted children are not required to show any dependency. Thus, Marshall was able to conclude that the "lived with" provision is satisfied when the recognized natural child has lived with the deceased employee in a regular parent-child relationship, regardless of whether such an arrangement existed at the time of the employee's death. Although not an explicit dependency requirement (which would raise constitutional issues), the "lived with" provision establishes some basis for the economic support intended to flow to the dependent survivors of a Federal worker. □

FOOTNOTES

¹ *Teamsters v. United States*, 431 U.S. 324 (1977), see *Monthly Labor Review*, August 1977, pp. 48–49, and January 1978, pp. 12–17.

² *California Brewers Assn. v. Bryant*, 48 U.S.L.W. 4156 (U.S., Feb. 20, 1980).

³ *Steelworkers v. Weber*, 47 U.S.L.W. 4851 (U.S., June 27, 1979), see *Monthly Labor Review*, August 1979, pp. 56–57, and January 1980, pp. 14–21.

⁴ *Norfolk and Western Railway Co. v. Liepelt*, 48 U.S.L.W. 4132 (U.S., Feb. 19, 1980).

⁵ See *Tumey v. Ohio*, 273 U.S. 510 (1927), where the Court reversed convictions rendered by a mayor of a town when the mayor's

salary was paid in part by fees and costs levied by him acting in a judicial capacity; and *Ward v. Village of Monroeville*, 409 U.S. 57 (1972), invalidating a procedure by which sums produced from a mayor's court accounted for a substantial portion of municipal revenues, even though the mayor's salary was not augmented by such sums.

⁶ *Marshall v. Jerrico, Inc.*, 48 U.S.L.W. 4485 (U.S., Apr. 28, 1980).

⁷ The Office of Administrative Law Judges at the Department of Labor is not entitled to any reimbursement under the provisions challenged in this case, the Court noted, because any "supervision" of the procedures of the operating divisions (such as child labor law enforcement) is expressly forbidden by the Administrative Procedures Act.

⁸ *United States v. Clark*, 48 U.S.L.W. 4195 (U.S., Feb. 26, 1980).

Major Agreements Expiring Next Month



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

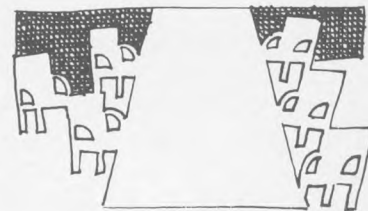
Employer and location	Industry	Union ¹	Number of workers
ACF Industries, Inc., Carter Carburetor Division (St. Louis, Mo.)	Machinery	Auto Workers (Ind.)	1,500
American Metal Climax, Inc., Climax Molybdenum Co. Division (Climax, Colo.)	Mining	Oil, Chemical and Atomic Workers	2,100
Arizona Steel Field Erectors Association (Phoenix, Ariz.)	Construction	Iron Workers	1,300
Armco Steel Corp., 2 Agreements (Pennsylvania & Ohio)	Primary metals	Butler Armco Independent Union; and Armco Employees Independent Federation, Inc. (Ind.)	8,500
Associated General Contractors of St. Louis & 2 others (Missouri)	Construction	Iron Workers	1,600
Associated Guard and Patrol Agencies (Chicago, Ill.)	Services	Service Employees	5,000
Association of Master Painters and Decorators of New York City, Inc. (New York, N.Y.)	Construction	Painters	5,000
Association of Motion Pictures and Television Producers, Inc. (Interstate):			
Technicians Basic Agreement	Amusements	Theatrical Stage Employees	21,000
Television Film Agreement	Amusements	Musicians	2,000
Theatrical Motion Picture Agreement	Amusements	Actors	8,500
Theatrical Motion Picture Agreement	Amusements	Musicians	1,500
Automotive Repair Industry (California) ²	Services	Machinists	1,000
Bowaters Southern Paper Corp. (Calhoun, Tenn.)	Paper	Paperworkers; and Electrical Workers (IBEW)	1,000
Briggs & Stratton Corp. (Milwaukee, Wis.)	Machinery	Allied Industrial Workers	8,000
Brooklyn Union Gas Co. (New York, N.Y.)	Utilities	Transport Workers	2,300
Columbus & Southern Ohio Electric Co. (Ohio)	Utilities	Electrical Workers (IBEW)	1,350
E. J. Brach & Sons, Inc. (Chicago, Ill.)	Food Products	Teamsters (Ind.)	3,000
Firestone Tire & Rubber Co., Firestone Steel Products Co. Division (Wyandotte, Mich.)	Transportation equipment	Auto Workers (Ind.)	1,050
Floor Covering Association of Southern California, Inc. and 3 others (California)	Construction	Painters	1,600
FMC Corp., Northern Ordnance Division (Fridley, Minn.)	Fabricated metal products	Auto Workers (Ind.)	2,500
Hercules Inc. (Coverington, Va.)	Chemicals	Paperworkers	1,050
Kimberly-Clark Corp. (Memphis, Tenn.)	Paper	Paperworkers	1,100
Leeds & Northrup Co. (North Wales, Pa.)	Instruments	Auto Workers (Ind.)	2,200
Mirro Aluminum Co. (Manitowoc and Two Rivers, Wis.)	Fabricated metal products	Steelworkers	1,800
Non-Registered Drug & General Merchandise Agreement (Portland, Oreg.) ²	Retail trade	Food and Commercial Workers	2,200
Pan American, Ground Service (Interstate) ³	Air transportation	Transport Workers	5,850
Restaurant and Tavern Employers (Tacoma, Wash.) ²	Restaurants	Hotel and Restaurant Employees	2,000
Safeway Stores, Inc. (Interstate)	Retail trade	Teamsters (Ind.)	2,300
Sealed Air Corp. (Muskegon, Mich.)	Machinery	Auto Workers	1,000
Southern Florida Hotel and Motel Association (Miami Beach, Fla.)	Hotels	Hotel and Restaurant Employees	3,000
Teddyne Wah Chang Albany (Oregon)	Primary metals	Steelworkers	1,200
Todd Pacific Shipyards Corp., Los Angeles Division (California)	Transportation equipment	Marine and Shipbuilding Workers	2,500
Weyerhaeuser Co. (Plymouth, N.C.)	Paper	Paperworkers; and Operating Engineers	1,600
White Pine Copper Co. (White Pine, Mich.)	Mining	Steelworkers	1,000
Winery Employers Association (California)	Food products	Distillery Workers	5,000

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

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

³ Information is from newspaper reports.

Developments in Industrial Relations



Steel contracts feature pension increases

Operating under the bargaining procedures and deadlines of the Experimental Negotiating Agreement, nine Coordinating Committee Steel Companies and the United Steelworkers union negotiated a new contract. An impasse continuing beyond the April 15 deadline for a settlement would have meant that the unresolved issues would have been submitted to binding arbitration, as required by the negotiating agreement. Discussions were continuing on whether to extend the Experimental Negotiation Agreement to govern the 1983 talks.

The union had stressed that its major concern was winning pension increases for present retirees to help them counter the erosion of their income that had resulted from inflation. In fact, the union waived the May wage escalator adjustment for employees to help the companies meet the cost of the benefit improvements for present retirees. The 33-cent increase would have been the last scheduled quarterly escalator adjustment under the 1977 contract.

The new pension formula for current retirees provides for a two-stage increase, ranging from 70 percent for employees who retired prior to July 31, 1966, to 10 percent for those who retired during July 31, 1977–July 30, 1980. The increases are subject to a \$25-a-month minimum and a \$250-a-month maximum and, according to the union, will average \$182 a month for retirees in the earliest category and \$52 for those in the later category. Spouses of deceased retirees also received benefit increases.

There also were several improvements in pensions for employees retiring after July 31, 1980. One was a new minimum formula which provides for a three-step increase in the monthly pension rates. (Employees are eligible for a pension under an alternate percentage formula if it amounts to more than that under the minimum benefit formula.) The August 1, 1982, final-step rates are \$17.50 for each of the first 15 years of service, plus \$19 for each of the next 15 years, and an additional \$20.50 for each year in excess of 30. Under the 1977

contract, the corresponding rates were \$13.50, \$15, and \$16.50.

The settlement provided for a May 1, 1980, wage increase of 25 cents an hour plus a 1-cent increase in the increment between the 33 job grades. The resulting overall range was 25 cents for employees in the lowest grade to 57 cents for those in the highest. The accord also provides for a 20-cent increase on August 1, 1981, 15 cents on August 1, 1982, plus 1-cent increment increases on both dates, bringing the ranges to 20 to 52 cents and 15 to 47 cents. The three increases will be larger for the 85 percent of the employees who are covered by incentive plans, because the increases will be added to their incentive calculation rates, rather than being paid as a flat add-on for each hour worked. In conjunction with this provision, the "earnings opportunity" for iron ore miners was increased to 123 percent of incentive calculation rates, from 115 percent. Shift differentials were increased to 30 cents an hour (formerly 20) for the second shift and to 45 cents (formerly 30) for the third.

In addition to a guaranteed 3-percent wage increase each year, the Experimental Negotiating Agreement guaranteed continuation of the cost-of-living wage escalator clause. As before, employees will receive quarterly adjustments (beginning August 1, 1980) of 1 cent an hour for each 0.3-point movement in the BLS Consumer Price Index (1967=100) for Urban Wage Earners and Clerical Workers. Under the prior contract, adjustments from August 1977 through February 1980 had totaled \$1.73. The Experimental Negotiating Agreement also guaranteed a \$150 bonus for all employees on the payroll on August 1, 1980, in return for the assurance that there would be no 1980 strike over economic issues.

Improvements in insurance benefits included a \$4,500 increase in life coverage, bringing the range to \$14,500 to \$17,000, and a \$500 increase for employees retiring after July 1, 1982, bringing their benefit to \$3,500. Sickness and accident benefits, which had ranged from \$153 to \$211 a week, were increased, in steps, to a \$211–\$276 range on August 1, 1982. There were a number of changes in health insurance, including a provision for up to 365 days of full coverage in a skilled nursing home (the previous coverage was usually only 80 percent of the cost); a new home health care benefit;

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

\$1,000 maximum annual coverage per person under the dental plan (formerly \$750); and increases in the schedule of vision care benefits.

In an effort to minimize the duration and cost of hospital confinements, the parties agreed to a utilization review procedure to be used in conjunction with those hospitals that have such programs.

Other economic provisions included:

- A new \$40 safety shoe allowance, payable twice during the contract term.
- A \$55-a-week increase in maximum Supplemental Unemployment Benefits for weeks when a laid-off worker is receiving State unemployment compensation and a \$65-increase for other weeks, bringing the maximums to \$180 and \$235.
- An additional week of extended vacation for those employees in the top half of the seniority roster who have 25 years of service and for all employees in the bottom half of the roster (extended vacations are taken every 5 years). Previously, all employees in the top half received 13 weeks (including their regular annual vacation for that year) and those in the lower half received 3 weeks plus their regular vacation for that year.

Recent shutdowns of some operations led to a contract provision requiring the companies to give at least 90 days' notice of planned closings. During the notice period, the parties will discuss the shutdown, after which the company will formally announce its decision to the union.

The employers' demand for the separation of steel fabricating, steel warehousing and other "List 3" operations from steel producing units for bargaining purposes will be analyzed in joint discussions to be concluded by August 1, 1981. The companies had generally contended that competitive reasons required that "List 3" employees be placed on lower pay scales than other employees.

The Council on Wage and Price Stability approved the pay package, saying that it will raise worker compensation by 24.7 percent over 3 years, or 7.65 percent a year, compounded. The council noted that this was "near the bottom end" of the 7.5-9.5 percent guideline for the second year of the anti-inflation program. A council official said the package cost calculations were made by excluding the cost of the pension improvements for the present retirees and assuming that the annual inflation rate will be 7.5 percent.

The nine companies that settled on economic provisions for their 290,000 workers represented by the Steelworkers are United States Steel Corp.; Bethlehem Steel Corp.; Republic Steel Corp.; National Steel Corp.; Jones & Laughlin Steel Corp.; Armco, Inc.; Inland Steel Co.; Wheeling-Pittsburgh Steel Corp.; and Allegheny

Ludlum Industries, Inc. Bargaining was continuing on local issues and there was the possibility of strikes at some locations. The Experimental Negotiating Agreement permits strikes over local issues, if they are authorized by the Steelworkers' president.

Bargaining on economic terms was continuing for 160,000 employees of smaller steel companies that generally follow the pattern of the accords negotiated by the nine companies. Based on past developments, the steel contracts are expected to influence coming settlements in the container, aluminum, and copper industries.

Initial contract for steelworkers at Newport News

The Steelworkers' 2-1/2 years organizing campaign at the Newport News Shipbuilding and Drydock Corp. culminated in an initial 43-month contract that provides for general wage increases and improved supplementary benefits.

According to the Steelworkers, the settlement closes one of the "stormiest organizing campaigns in the history of the South." The union said that its new local 8888 at the yard is its second largest in the country and largest in the South. Newport News Shipbuilding is the Nation's largest private shipbuilder.

The first major development in the campaign occurred in January 1978, when the Steelworkers apparently defeated the incumbent Peninsula Shipbuilders Association in a National Labor Relations Board representation election. However, the company filed charges of election "irregularities" with the NLRB and refused to bargain with the union. The Board ruled against Newport News Shipbuilding, but there was a series of appeals within the Federal district courts. In an attempt to force the shipyard to begin bargaining, the Steelworkers struck, beginning in January 1979, but suspended the strike in April of that year. After the Fourth U.S. Circuit Court of Appeals upheld the NLRB's certification of the election results, the company recognized the union as bargaining agent for the 15,500 production, maintenance, technical, and clerical workers and the parties started bargaining.

For production and maintenance workers, the accord provided for a wage increase ranging from 80 cents an hour for helpers and handymen to \$1 for specialists and mechanics. Prior to this increase, rates ranged from \$3.64 to \$8.20 an hour, with most workers earning \$4.55 to \$7.61. The 235 technical employees received the same initial increase, while the 750 clerical employees received a 10.5-percent increase. Future increases for all employees are 55 cents an hour on August 1, 1981, 50 cents on October 1, 1982, and 10 cents "cost-of-living" increases—not contingent on the movement of a Consumer Price Index—on March 1, 1982, and April

1, 1983. According to the union, more than 90 percent of the employees received or will receive additional pay increases as a result of job upgradings and the adoption of automatic wage progression schedules.

The monthly pension amount for each year of service from July 1, 1969, to December 31, 1977, was increased to \$12 for employees retiring on or after April 1, 1980, and to \$14 for those retiring on or after October 1, 1982. The previous monthly pension rates were 0.1 percent of average annual earnings for each year of service from July 1, 1969, to December 31, 1974, plus \$11 for each year from January 1, 1975, to December 31, 1977. There was no change in the \$14 rate for service after December 31, 1977. A new disability pension provision for 15-year employees provides for lifetime benefits, unlike the previous benefit which terminated when the retiree became eligible for social security benefits.

Changes in medical insurance included 180 days coverage of each hospital confinement (formerly 120 days); full coverage of miscellaneous medical services (previously, the hospitalized person was required to pay 20 percent of that portion of the charges in excess of \$750); and a \$100 a year deductible under major medical coverage (formerly \$100 for each family member).

Other benefits included \$15,000 of company-financed life insurance for employees (formerly \$10,000), and company-financed sickness and accident benefits of \$110 to \$145 a week, for up to 26 weeks. (Previously, employees contributed toward the cost of the benefits, which ranged from \$60 to \$95 a week, for up to 13 weeks.)

Despite the settlements, there was a continuing dispute, and the union filed a complaint with the NLRB charging the shipyard with refusing to bargain in good faith with a designers local organized more than 3 years earlier. The company had broken off talks for the unit in the fall of 1979, after a dissident group within Local 8417 petitioned the NLRB for a vote on decertifying the union as bargaining agent for designers.

New York transit employees end strike

An 11-day strike ended in 2-year agreements between 33,000 New York City subway and surface transit employees and the Metropolitan Transit Authority. John E. Lowe, head of the Transport Workers local union, ordered the 31,000 subway workers back to work pending the outcome of their vote on the contract. (Ordinarily, the local's 44-member executive board makes the final decision on a settlement but the board's vote ended in a tie). The matching agreement for the 2,000 surface transit workers represented by the Amalgamated Transit Union was approved by the executive board of the ATU local union.

The agreements provided for an immediate wage increase of 9 percent and an additional 8 percent on April 1, 1981. There also was provision for an October 1, 1981, automatic wage escalator adjustment of 1 cent an hour for each 0.4-percentage point rise in the Consumer Price Index for New York City-Northeastern New Jersey during the 12 months ending in August 1981. The adjustment will be limited to the amount resulting from a 6-percent rise in the index. In addition, 3,400 workers who had been hired since the 1978 settlement and had not received a cost-of-living adjustment provided to other workers, will get an immediate 95-cent "catch-up" adjustment. The Transit Authority also agreed to contribute about \$20 million to the unions' health and welfare funds to offset higher costs.

The unions agreed to several of the productivity demands, or "give-backs", that the Transit Authority had sought to minimize labor costs, including a 20-minute-a-day reduction in paid work breaks; the elimination of 2 hours paid time off on election day; combination of certain job classifications; and adoption of a system to eliminate abuse of sick leave. In another cost savings feature, automatic progression from starting to top pay rates was extended for employees on schedules shorter than 2½ years.

New York City Mayor Edward Koch, who did not become involved in the talks, called the settlement an "outrage," saying it would cost the deficit-ridden transit system \$271.4 million more over the 2-year period. The Transit Authority, which is under the jurisdiction of the State rather than the city, denied that the cost would be that high, but did not provide a specific figure. Koch insisted that the accord not be viewed as a pattern-setter for the city's upcoming negotiations with various unions to replace agreements scheduled to expire June 30 for 238,000 workers.

Despite the end of the walkout, there were some unresolved matters. The unions were appealing a \$1-million fine imposed for violating the State's Taylor Law, which prohibits strikes by public employees. Also, some members of the Transport Workers union were continuing their legal efforts to prevent the vote by the rank-and-file and have a revote by the executive board.

The city estimated that it lost \$2 million a day in tax revenues because of the strike and a State official said that 60,000 workers were laid off because of the stoppage.

In another development, the Transit Authority, settled with unions representing 4,000 employees of the Long Island Railroad, the Nation's busiest commuter line. The 3-year pact, retroactive to January 1, 1979, provided for a 24-percent increase in wages over the term for seven unions. A total of 17 unions had been involved in protracted bargaining; 10 unions had settled earlier for a smaller wage increase. However, their con-

tract had a "me too" clause guaranteeing them the same terms as those subsequently negotiated by the other unions. The railroad had been struck briefly by a Teamsters local, but the workers returned to heavy overtime scheduling during the New York City transit tieup.

Ford limits management pay increases

Ford Motor Co. has agreed to limit compensation increases of 5,000 nonunion management employees for 1 year to offset the amount by which the Council on Wage and Price Stability claimed the cost of the company's 1979 settlement with the Auto Workers exceeded the then prevailing 7-percent pay guideline. According to a council official, the average increase for the management employees will be held to "less than" the 7.5-percent low end of the current 7.5-9.5 percent guideline.

Ordinarily, a company is not permitted to make such an adjustment. However, Ford argued for an exception to the rule, saying that it could not offset the above-guidelines portion of the production workers agreement by holding down price increases because of "significant losses" on U.S. operations in 1979. General Motors Corp., which had settled with the UAW on the same terms as Ford, had earlier retained its right to bid on Government purchase contracts by agreeing to limit price boosts. (See *Monthly Labor Review*, February 1980, p. 13.)

Minneapolis food store employees settle

Settlements for 14,000 food store employees in the Minneapolis-St. Paul area provided for immediate wage increases of 15 to 17 percent and 11 percent in March 1981 and 1982. The three locals of the United Food and Commercial Workers first settled with Red Owl Stores to end a 3-day strike against that chain; National Tea Co. and various independent stores later accepted the same terms. About 325 stores were covered by the 3-year contracts.

The 15-percent initial pay increase for full-time meat cutters brought their maximum pay rate to \$10.47 an hour. Maximum rates for full-time grocery clerks went to \$9.71 as a result of a 17-percent increase. Full-time

employees attain the top rate for their classification after 5 years of service. Part-time workers, who reach their top rate after 5,200 hours of work, received increases of 15, 11, and 11 percent on the respective dates, except for some "senior" part-timers who received \$1 an hour increases in each year. The senior employees previously earned \$6.33 and the other part-timers, \$3.90 to \$6.00. A rate schedule also was adopted for delicatessen employees similar to the rates for part-time workers in other departments.

The accords drew opposition from some members, who complained because the union had not won a primary goal, a cost-of-living wage escalator clause. Eugene Utecht, secretary-treasurer of Locals 653 and 653A and the chief union negotiator said that pay rates in the area were nevertheless among the highest in the Nation.

The employers won several changes that were expected to partly offset labor costs resulting from the contracts. Employers are now permitted to use scanning equipment for recording the price of an item indicated by the Universal Product Code markings. Previously, individual employers were required to negotiate with the union on introduction of scanners and some of the St. Paul stores had won limited use of such equipment.

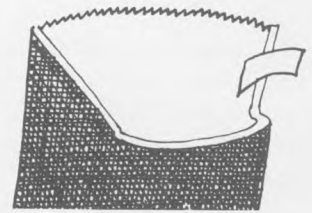
Another gain permits employers to purchase precut boxed beef. Previously, they were required to purchase whole carcasses, which were then cut up in the meat departments.

Another change permits the stores to increase the ratio of part-time to full-time employees from 2 to 3. However, this can only be done through attrition; all current jobs are protected from conversion.

The normal monthly pension rate for each year of credited service was increased by \$2 in each contract year. The resulting rates, which will reach \$14 in the final year, will apply to future retirees and to current retirees who ceased work on or after July 1, 1971, because the 1977 settlement had included a commitment to provide matching pension rates for these current retirees.

Other contract changes included \$12,000 life insurance for employees and \$3,000 for the spouse, instead of the previous \$9,000 and \$1,000 coverage; a 100-percent increase in the optical benefit; addition of prescription drug coverage; and a \$210-a-week sickness and accident benefit, instead of \$125. □

Book Reviews



The evolution of collective bargaining

Collective Bargaining: Contemporary American Experience. Edited by Gerald G. Somers. Madison, Wis., Industrial Relations Research Association, 1980. 588 pp.

As the introduction to this important work implies, it may appropriately be assessed by comparison with its counterpart of 40 years ago, the Twentieth Century Fund study, *How Collective Bargaining Works*. Methodologically, the two works are very similar. Each is comprised of a series of independent chapters by various authors describing and analyzing the evolution and prevailing nature of collective bargaining on an industry basis. This volume, published by the Industrial Relations Research Association, covers 10 industries; its predecessor covered 14. In both cases, the authors had extensive research or practical experience or both in their respective industries and provided highly informative and realistic analyses of their subjects. Both works give the reader brief but enlightening descriptions of the economics of each industry, the historical development of the principal employer and union institution, the structure and processes of collective bargaining, and current policies, practices, and problems. Both also contain a general essay of a summary and overview nature—the Industrial Relations Research Association's essay by Jack Barbash coming at the end and the Twentieth Century Fund's essay by Philip Taft at the beginning. Each author, it may be noted, is a distinguished institutional economist and Industrial Relations Research Association president.

Even the limitations are similar. Both volumes (with a few notable exceptions) treat collective bargaining almost entirely in terms of contract negotiations. Contract administration and grievance handling are given scanty treatment. The informal day-to-day life of the workplace is, for the most part, ignored. Customary practice, fractional bargaining, and joint cooperation committees are largely passed over. These omissions are particularly unfortunate in the contemporary volume because of the extensive treatment of these and related subjects in the post-World War II literature. The absence of an index in the present work is also regrettable because of the wealth of detailed information it contains.

In comparing these studies, one can learn a great deal about the evolution of collective bargaining in the Unit-

ed States. The choice of industries for study is, in itself, revealing. Only four industries—bituminous coal mining, construction, steel, and electrical products—are treated in both volumes. The omission of the automobile industry from the Industrial Relations Research Association's volume is particularly surprising, although it may be attributable to the extensive literature that is available on this industry. (A statement explaining the basis of industry selection would have been helpful). The other essays are largely reflective of major historical changes. Trucking and airlines replace the railroads in transportation. Agriculture, hospitals, the postal service, and public education represent the areas of significant growth in collective bargaining during the post-World War II period. Chapters on other expanding sectors, like State and local government and retail food trade, would have been equally desirable, but space considerations may have been a reason for their omission.

However, the Twentieth Century Fund's chapters on anthracite coal, daily newspapers, book and job printing, men's clothing, hosiery, automobiles, rubber products, glass, and the Chicago service trades have not been replicated. Anthracite has become a nonindustry; the crafts of printing and publishing have been transformed by new technology; and the "model" unionism and collective bargaining in clothing have been victimized by foreign competition and relocation from the northeastern and midwestern metropolitan centers to the South. A case could have been made for their replication as a guide to understanding the shifting currents of collective bargaining. But the inclusion of both the expanding and declining bargaining sectors would have required a second volume.

The substantive content of the two studies also makes an interesting contrast. In 1940, collective bargaining reflected the dramatic rise of industrial unionism in the mass production industries and the resurgence of the old unionism in coal, clothing, construction, printing, and railroads. The tone everywhere was upbeat. Collective bargaining stood for dynamic change. By the end of the 1970's, collective bargaining was seen as institutionalized, bureaucratized, technically sophisticated, and under pressure even in the areas of expansion. Unionization was lagging behind growth in the labor force. Antiunion forces were growing in strength—as the failure of the Labor Law Reform Bill campaign revealed. Even such traditional centers of union strength, like construction, were experiencing a loss in job territories

and industrial power centers like steel and autos were shrinking in size.

Jack Barbash concludes his summary essay with seven major issues which he describes as the "essences of the problems that have been raised throughout this work." In brief, these issues relate to (1) the ability of collective bargaining to adapt to adverse market conditions after a generation of expansion; (2) the limits of state intervention in collective bargaining; (3) the role of the state in minimizing the inflationary effects of collective bargaining; (4) the competing forces of centralization and decentralization; (5) public sector strikes; (6) occupational health and safety, and (7) racketeering and corruption in some unions. All are part of the problem of the exercise of power in a free society. These are perceptive and challenging issues. Others might be added such as the adjustment of individual or minority rights to collective interests and duties, and the capability of national institutions to cope with powerful international forces of competition and collaboration. All point to a future for collective bargaining that is, if anything, more challenging than the past 40 years.

A final note of tribute must be paid to Gerald G. Somers, who was the chief architect of the project, but who died before its completion. The quality of this work is a fitting testimony to his creative imagination and enterprise, known to all academic industrial relations specialists. We are indebted to Jack Barbash, Somers' colleague, and to Barbara Dennis, Industrial Relations Research Association editor, for the professional completion of the undertaking.

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Not all jobs are created equal

Good Jobs, Bad Jobs, No Jobs. By Eli Ginzberg. Cambridge, Mass., Harvard University Press, 1979. 219 pp. \$15.

This book is a collection of revised essays published between 1976 and 1979. The work is clearly intended for a general audience and is well written and free of technical jargon. The author, a professor of economics at Columbia University, is chairman of the National Commission for Employment Policy.

Eli Ginzberg's topic is a significant one. He has provided a broad overview of the American labor market. The central theme is that there is today a shortage of both jobs and good jobs. Ginzberg has estimated the number of potentially employable people to be 18 to 24

million, or 3 to 4 times the officially unemployed ones. Public and private employment cannot be expected to absorb more than a few million of this reserve force. While this may be so, a more detailed analysis of why it is so is in order. As for good jobs, less than one-third of such jobs were added since 1950 to the private sector. In contrast, two-thirds of government jobs are good ones.

From a theoretical perspective, the most important point by Ginzberg is that the economy is really a pluralistic one, with no less than one-third of all jobs in the not-for-profit sector, many of them in the service sector. This has facilitated a rapid growth of female employment, but also made it more difficult to secure gains in productivity.

For the 1980's, Ginzberg sees increasing competition among white males, women, and minorities for managerial and professional positions. Since the late 1960's, the labor market for highly educated persons has deteriorated and many have been forced to accept positions below their expectations. The resulting underemployment will lead to increasing disenchantment. This has been a recurrent theme in many of the writings on the labor market for educated people, but so far there is little evidence of it.

There are no prescriptions for a solution. This is somewhat of a disappointment, although the author does trace the development of labor policy. He also recognizes the increasing pressure on the Federal Government to provide jobs for more and more people.

All in all, this is a fine survey of the major labor market developments in the post-World War II period. Unlike Margaret S. Gordon, ed., *Higher Education and the Labor Market* (1974) and Richard B. Freeman, *The Overeducated American* (1976), Ginzberg has related the current labor market problems to broader economic developments. This is one of the greater strengths of his book. A bibliography of the relevant literature would have made the work even more useful.

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The workplace as battleground

Workers' Control in America: Studies in the History of Work, Technology, and Labor Struggles. By David Montgomery. New York, Cambridge University Press, 1979. 189 pp. \$14.95.

Robert Hoxie, in *Trade Unionism in the United States*, pointed out that "the essence of unionism is a

social philosophy." David Montgomery's essays trace the impact of various social philosophies as their proponents vie for control of the workplace and of the rules which will govern employment, work pace, and method of payment. Although Montgomery favors the Socialist view, his quotations and analyses reveal some of the impacts of Hoxie's five functional types of unionism. As the author states in the introduction:

No one knew better than the workers themselves that they needed a much better standard of living than they enjoyed, that only hard work and sound productive organization could produce such improvement, and that inefficiency and waste were built into the very fiber of the economic system. Their ideas of how to remedy the situation, however, were very different from those of their employers.

The first five chapters trace workers' efforts to retain or regain control over work rules from the late 1800's to the 1920's. Throughout the period, worker control of the workplace is eroded by industrialization, mass production techniques, immigration of workers with different control ideas, scientific management, paternalistic welfare schemes, as well as their own inability to select and support a social philosophy which will provide a significant counterforce to these massive social, economic, and managerial changes.

Chapter 6, coauthored by Ronald Schatz, and chapter 7 depart from the short period historical perspective and examine two topics over a longer timespan. The first deals with workers' attempts to restrict the use of layoff as a response to reduced demands for worker hours. The second is a dreary interpretation of the death of the labor movement and its replacement by "an immobile and isolated aggregation of legally certified bargaining agents." The attribution of this result to joint action by government and industry seeking a passive participant in the "moribund Capitalist system" is an indication of the polemic tone of these two chapters.

A closing bibliographical essay lists useful books and other sources for persons interested in delving further into worker control.

The book is a collection of essays with worker control as a unifying theme. Because the essays were meant to stand alone (only chapters 3 and 7 have not been previously published), this reviewer finds a disturbing amount of repetition of the setting, of management and worker views, and of the principal issues across the several essays.

Montgomery looks forward to the day when workers will "regain mastery over collective and socialized production". Although he does not show that they ever had such mastery, he does provide a revealing and sympathetic look at the struggle for control of their worklives in the face of dramatically changing conditions. He highlights the tension within unions as to whether their workplace power should be used for their

own ends (Hoxie's business unionism) or to support the progress of the entire working class (Hoxie's uplift unionism). The essays underline the fundamental problem of achieving a consistent coalition among people whose self-interests and common interests only occasionally coincide. While the author blames the Capitalist and credit systems for keeping workers from gaining control of the workplace, the essays seem to illustrate that the question of *which* workers have control is often as important as *whether* workers have control.

The organizational view presented here is a strong contrast to the personal view presented by Robert Schrank in *Ten Thousand Working Days*; yet both are valuable perspectives on some of the same issues of worker control.

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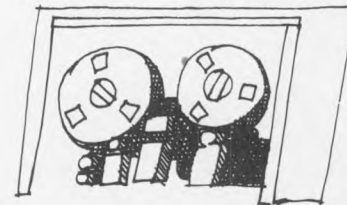
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NOTES ON CURRENT LABOR STATISTICS

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

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

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might otherwise mask short-term movements of the statistical series. Tables containing these data are identified as "seasonally adjusted." Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years. For a technical discussion of the method used to make seasonal adjustments, see "Appendix A. The BLS Seasonal Factor Method," *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976), pp. 272-78, and *X-11 Variant of the Census Method II Seasonal Adjustment Program*, Technical Paper No. 15 (Bureau of the Census, 1967). Seasonally adjusted labor force data in tables 2-7 were last revised in the February 1980 issue of the *Review* to reflect the preceding year's experience. Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are being seasonally adjusted with a new procedure called X-11/ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada Catalogue No. 12-564E, September 1979).

The second change is that seasonal factors are now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year for the July-December period. Revisions of historical data continue to be made only at the end of each calendar year. Annual revision of the seasonally adjusted payroll data in tables 11, 13, 16, and 18 was last introduced in the November 1979 issue of the *Review*. New seasonal factors for productivity data in

tables 33 and 34 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of \$3 and a current price index number of 150, where 1967 = 100, the hourly rate expressed in 1967 dollars is \$2 ($\$3/150 \times 100 = \2). The resulting values are described as "real," "constant," or "1967" dollars.

Availability of information. Data that supplement the tables in this section are published by the Bureau of Labor Statistics in a variety of sources. Press releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule given below. The *Handbook of Labor Statistics 1978*, Bulletin 2000, provides more detailed data and greater historical coverage for most of the statistical series presented in the *Monthly Labor Review*. More information from the household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau, and in two comprehensive data books issued annually—*Employment and Earnings, United States* and *Employment and Earnings, States and Areas*. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

Symbols

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

Schedule of release dates for major BLS statistical series

Title and frequency (monthly except where indicated)	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	June 6	May	July 3	June	1-11
Producer Price Indexes	June 6	May	July 8	June	26-30
Consumer Price Index	June 24	May	July 23	June	22-25
Real earnings	June 24	May	July 23	June	14-20
Work stoppages	June 30	May	July 29	June	37
Labor turnover in manufacturing	June 30	May	July 30	June	12-13
Major collective bargaining settlements (quarterly) .....	.....	.....	July 25	1st half	35-36
Productivity and costs (quarterly): Nonfarm business and manufacturing .....	.....	.....	July 28	2nd quarter	31-34

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 65,000 households beginning in January 1980, selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

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

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

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

those not classified as employed or unemployed; this group includes persons retired, those engaged in their own housework, those not working while attending school, those unable to work because of longterm illness, those discouraged from seeking work because of personal or job market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy.

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

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data presented in table 1. A description of these adjustments and their effect on the various data series appear in the Explanatory Notes of *Employment and Earnings*.

Data in tables 2-7 are seasonally adjusted, based on the seasonal experience through December 1979.

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

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

[Numbers in thousands]

Employment status	Annual average		1979										1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	
TOTAL																
Total noninstitutional population ¹	161,058	163,620	163,008	163,260	163,469	163,685	163,891	164,106	164,468	164,682	164,898	165,101	165,298	165,506	165,693	
Total labor force	102,537	104,996	104,280	104,476	104,552	105,475	105,218	105,586	105,688	105,744	106,088	106,310	106,346	106,184	106,511	
Civilian noninstitutional population ¹	158,941	161,532	160,926	161,182	161,393	161,604	161,801	162,013	162,375	162,589	162,809	163,020	163,211	163,416	163,601	
Civilian labor force	100,420	102,908	102,198	102,398	102,476	103,093	103,128	103,494	103,595	103,652	103,999	104,229	104,260	104,094	104,419	
Employed	94,373	96,945	96,254	96,495	96,652	97,184	97,004	97,504	97,474	97,608	97,912	97,804	97,953	97,656	97,154	
Agriculture	3,342	3,297	3,215	3,246	3,243	3,267	3,315	3,364	3,294	3,385	3,359	3,270	3,326	3,358	3,242	
Nonagricultural industries	91,031	93,648	93,039	93,249	93,409	93,917	93,689	94,140	94,180	94,223	94,553	94,534	94,626	94,298	93,912	
Unemployed	6,047	5,963	5,944	5,903	5,824	5,909	6,124	5,990	6,121	6,044	6,087	6,425	6,307	6,438	7,265	
Unemployment rate	6.0	5.8	5.8	5.8	5.7	5.7	5.9	5.8	5.9	5.8	5.9	6.2	6.0	6.2	7.0	
Not in labor force	58,521	58,623	58,728	58,784	58,917	58,511	58,673	58,519	58,780	58,937	58,810	58,791	58,951	59,322	59,182	
Men, 20 years and over																
Civilian noninstitutional population ¹	67,006	68,293	67,997	68,123	68,227	68,319	68,417	68,522	68,697	68,804	68,940	69,047	69,140	69,238	69,329	
Civilian labor force	53,464	54,486	54,239	54,288	54,370	54,579	54,597	54,735	54,760	54,709	54,781	54,855	55,038	54,996	55,114	
Employed	51,212	52,264	52,049	52,158	52,201	52,325	52,311	52,453	52,443	52,374	52,478	52,279	52,531	52,300	51,868	
Agriculture	2,361	2,350	2,295	2,301	2,305	2,327	2,375	2,377	2,371	2,438	2,427	2,387	2,435	2,394	2,320	
Nonagricultural industries	48,852	49,913	49,754	49,857	49,896	49,998	49,936	50,076	50,072	49,936	50,051	49,892	50,096	49,906	49,548	
Unemployed	2,252	2,223	2,190	2,130	2,169	2,254	2,286	2,282	2,317	2,335	2,303	2,577	2,507	2,696	3,246	
Unemployment rate	4.2	4.1	4.0	3.9	4.0	4.1	4.2	4.2	4.2	4.3	4.2	4.7	4.6	4.9	5.9	
Not in labor force	13,541	13,807	13,758	13,835	13,857	13,740	13,820	13,787	13,937	14,095	14,159	14,192	14,102	14,242	14,215	
Women, 20 years and over																
Civilian noninstitutional population ¹	75,489	76,860	76,532	76,670	76,784	76,897	77,006	77,124	77,308	77,426	77,542	77,656	77,766	77,876	77,981	
Civilian labor force	37,416	38,910	38,415	38,619	38,653	39,033	39,304	39,239	39,362	39,445	39,659	39,878	39,857	39,751	40,137	
Employed	35,180	36,698	36,216	36,411	36,457	36,873	37,000	37,075	37,112	37,248	37,402	37,574	37,604	37,496	37,602	
Agriculture	586	591	572	577	583	585	600	628	572	612	582	540	567	582	552	
Nonagricultural industries	34,593	36,107	35,644	35,834	35,874	36,288	36,400	36,447	36,540	36,636	36,820	37,034	37,037	36,914	37,051	
Unemployed	2,236	2,213	2,199	2,208	2,196	2,160	2,304	2,164	2,250	2,197	2,257	2,304	2,254	2,255	2,534	
Unemployment rate	6.0	5.7	5.7	5.7	5.7	5.5	5.9	5.5	5.7	5.6	5.7	5.8	5.7	5.7	6.3	
Not in labor force	38,073	37,949	38,117	38,051	38,131	37,864	37,702	37,885	37,946	37,981	37,883	37,778	37,909	38,125	37,844	
Both sexes, 16-19 years																
Civilian noninstitutional population ¹	16,447	16,379	16,397	16,389	16,381	16,387	16,377	16,367	16,370	16,360	16,326	16,317	16,305	16,302	16,291	
Civilian labor force	9,540	9,512	9,544	9,491	9,453	9,481	9,227	9,520	9,473	9,498	9,559	9,497	9,365	9,346	9,168	
Employed	7,981	7,984	7,989	7,926	7,994	7,986	7,693	7,976	7,919	7,986	8,032	7,952	7,818	7,859	7,683	
Agriculture	395	356	348	368	355	355	340	359	351	355	350	344	325	381	370	
Nonagricultural industries	7,586	7,628	7,641	7,558	7,639	7,631	7,353	7,617	7,568	7,651	7,682	7,608	7,493	7,478	7,313	
Unemployed	1,559	1,528	1,555	1,565	1,459	1,495	1,534	1,544	1,554	1,512	1,527	1,545	1,547	1,487	1,485	
Unemployment rate	16.3	16.1	16.3	16.5	15.4	15.8	16.6	16.2	16.4	15.9	16.0	16.3	16.5	15.9	16.2	
Not in labor force	6,907	6,867	6,853	6,898	6,928	6,906	7,150	6,847	6,897	6,862	6,767	6,820	6,940	6,956	7,123	
White																
Civilian noninstitutional population ¹	139,580	141,614	141,123	141,331	141,492	141,661	141,822	141,981	142,296	142,461	142,645	142,806	142,951	143,115	143,254	
Civilian labor force	88,456	90,602	89,996	90,120	90,215	90,659	90,759	91,082	91,147	91,242	91,579	91,852	91,977	91,821	92,083	
Employed	83,836	86,025	85,497	85,632	85,775	86,120	85,976	86,425	86,454	86,571	86,894	86,895	87,081	86,822	86,385	
Unemployed	4,620	4,577	4,499	4,488	4,440	4,539	4,783	4,657	4,693	4,671	4,685	4,957	4,896	4,999	5,698	
Unemployment rate	5.2	5.1	5.0	5.0	4.9	5.0	5.3	5.1	5.1	5.1	5.1	5.4	5.3	5.4	6.2	
Not in labor force	51,124	51,011	51,200	51,313	51,213	51,107	51,161	50,900	51,149	51,219	51,066	50,954	50,975	51,294	51,171	
Black and other																
Civilian noninstitutional population ¹	19,361	19,918	19,802	19,850	19,901	19,943	19,979	20,032	20,079	20,128	20,163	20,214	20,261	20,301	20,346	
Civilian labor force	11,964	12,306	12,191	12,219	12,260	12,386	12,343	12,404	12,512	12,391	12,432	12,453	12,362	12,266	12,319	
Employed	10,537	10,920	10,767	10,816	10,887	11,023	10,982	11,063	11,076	11,044	11,024	10,979	10,937	10,823	10,771	
Unemployed	1,427	1,386	1,424	1,403	1,373	1,363	1,361	1,341	1,436	1,347	1,408	1,474	1,424	1,443	1,549	
Unemployment rate	11.9	11.3	11.7	11.5	11.2	11.0	11.0	10.8	11.5	10.9	11.3	11.8	11.5	11.8	12.6	
Not in labor force	7,397	7,612	7,627	7,674	7,629	7,579	7,639	7,264	7,567	7,737	7,731	7,761	7,899	8,035	8,027	

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1979.

3. Selected employment indicators, seasonally adjusted

[In thousands]

Selected categories	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
CHARACTERISTIC															
Total employed, 16 years and over	94,373	96,945	96,254	96,495	96,652	97,184	97,004	97,504	97,474	97,608	97,912	97,804	97,953	97,656	97,154
Men	55,491	56,499	56,294	56,372	56,477	56,570	56,408	56,714	56,629	56,580	56,734	56,486	56,732	56,601	55,998
Women	38,882	40,446	39,960	40,123	40,175	40,614	40,596	40,790	40,845	41,028	41,178	41,318	41,221	41,051	41,156
Married men, spouse present	38,688	39,090	38,910	39,045	39,079	39,176	39,180	39,198	39,124	38,845	38,924	38,749	38,955	38,745	38,342
Married women, spouse present	21,881	22,724	22,376	22,547	22,664	22,908	22,869	22,937	22,919	22,940	23,027	23,111	23,178	23,202	23,080
OCCUPATION															
White-collar workers	47,205	49,342	49,061	49,136	49,192	49,536	49,663	49,816	49,738	49,912	49,911	50,313	50,448	50,302	50,405
Professional and technical	14,245	15,050	15,091	15,100	15,010	15,057	15,068	15,141	15,057	15,131	15,272	15,337	15,444	15,397	15,542
Managers and administrators, except farm	10,105	10,516	10,398	10,427	10,534	10,612	10,698	10,659	10,639	10,617	10,535	10,608	10,971	10,755	10,745
Salesworkers	5,951	6,163	6,084	6,101	6,103	6,163	6,145	6,181	6,261	6,362	6,346	6,452	6,185	6,113	5,988
Clerical workers	16,904	17,613	17,488	17,508	17,545	17,704	17,752	17,835	17,781	17,802	17,758	17,915	17,848	18,037	18,129
Blue-collar workers	31,531	32,066	31,705	31,904	31,992	32,051	31,849	32,209	32,205	32,110	32,302	31,882	31,754	31,670	31,127
Craft and kindred workers	12,386	12,880	12,703	12,820	12,944	12,876	12,761	12,993	13,001	12,925	13,041	12,814	12,728	12,767	12,773
Operatives, except transport	10,875	10,909	10,770	10,755	10,804	10,884	10,909	10,964	10,967	10,963	11,042	10,678	10,661	10,579	10,408
Transport equipment operatives	3,541	3,612	3,564	3,644	3,605	3,627	3,604	3,617	3,593	3,628	3,635	3,616	3,571	3,558	3,483
Nonfarm laborers	4,729	4,665	4,668	4,685	4,639	4,664	4,575	4,635	4,644	4,594	4,584	4,774	4,795	4,767	4,463
Service workers	12,839	12,834	12,907	12,772	12,805	12,766	12,621	12,859	12,937	12,899	12,970	12,979	13,080	12,981	13,034
Farmworkers	2,798	2,703	2,659	2,628	2,679	2,678	2,707	2,722	2,695	2,718	2,694	2,660	2,764	2,733	2,658
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,419	1,413	1,379	1,424	1,423	1,419	1,384	1,399	1,381	1,475	1,451	1,428	1,417	1,449	1,370
Self-employed workers	1,607	1,580	1,553	1,519	1,539	1,558	1,614	1,642	1,602	1,622	1,596	1,554	1,648	1,600	1,591
Unpaid family workers	316	304	291	283	291	291	310	325	313	310	310	293	283	300	281
Nonagricultural industries:															
Wage and salary workers	84,253	86,540	86,105	86,232	86,309	86,454	86,421	86,912	86,982	87,020	87,384	87,578	87,419	87,221	86,741
Government	15,289	15,369	15,359	15,616	15,318	15,393	15,279	15,407	15,423	15,358	15,397	15,414	15,540	15,622	15,668
Private industries	68,966	71,171	70,746	70,616	70,991	71,061	71,142	71,505	71,559	71,662	71,987	72,163	71,879	71,599	71,072
Private households	1,363	1,240	1,172	1,195	1,235	1,219	1,211	1,313	1,261	1,211	1,228	1,132	1,178	1,115	1,123
Other industries	67,603	69,931	69,574	69,421	69,756	69,842	69,931	70,192	70,298	70,451	70,759	71,031	70,702	70,484	69,949
Self-employed workers	6,305	6,652	6,463	6,608	6,629	6,752	6,689	6,731	6,812	6,781	6,737	6,752	6,899	6,825	6,813
Unpaid family workers	472	455	465	460	474	519	450	449	430	417	409	379	397	376	363
PERSONS AT WORK¹															
Nonagricultural industries	85,693	88,133	86,608	87,785	87,749	88,769	88,855	88,723	88,638	88,617	89,180	89,454	88,985	88,585	87,660
Full-time schedules	70,543	72,647	71,659	72,496	72,243	72,915	73,053	73,159	73,204	72,997	73,137	73,223	73,110	72,749	71,807
Part time for economic reasons	3,216	3,281	3,279	3,283	3,284	3,274	3,298	3,167	3,315	3,392	3,519	3,513	3,406	3,418	3,816
Usually work full time	1,249	1,325	1,287	1,273	1,322	1,334	1,401	1,273	1,354	1,413	1,491	1,549	1,380	1,463	1,709
Usually work part time	1,967	1,956	1,992	2,010	1,962	1,940	1,897	1,894	1,961	1,979	2,028	1,964	2,026	1,955	2,107
Part time for noneconomic reasons	11,934	12,205	11,670	12,006	12,222	12,580	12,504	12,397	12,119	12,228	12,524	12,718	12,469	12,418	12,037

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1979.

4. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
CHARACTERISTIC															
Total, 16 years and over	6.0	5.8	5.8	5.8	5.7	5.7	5.9	5.8	5.9	5.8	5.9	6.2	6.0	6.2	7.0
Men, 20 years and over	4.2	4.1	4.0	3.9	4.0	4.1	4.2	4.2	4.2	4.3	4.2	4.7	4.6	4.9	5.9
Women, 20 years and over	6.0	5.7	5.7	5.7	5.7	5.5	5.9	5.5	5.7	5.6	5.7	5.8	5.7	5.7	6.3
Both sexes, 16-19 years	16.3	16.1	16.3	16.5	15.4	15.8	16.6	16.2	16.4	15.9	16.0	16.3	16.5	15.9	16.2
White, total	5.2	5.1	5.0	5.0	4.9	5.0	5.3	5.1	5.1	5.1	5.1	5.4	5.3	5.4	6.2
Men, 20 years and over	3.7	3.6	3.5	3.4	3.5	3.6	3.7	3.7	3.7	3.7	3.7	4.1	4.0	4.4	5.3
Women, 20 years and over	5.2	5.0	5.0	5.0	4.9	4.8	5.2	4.8	5.0	4.9	5.0	5.1	5.2	4.9	5.5
Both sexes, 16-19 years	13.9	13.9	13.9	14.2	13.2	13.8	14.8	14.3	14.1	13.9	13.9	14.0	13.8	13.8	14.6
Black and other, total	11.9	11.3	11.7	11.5	11.2	11.0	11.0	10.8	11.5	10.9	11.3	11.8	11.5	11.8	12.6
Men, 20 years and over	8.6	8.4	8.6	8.4	8.1	8.4	8.1	8.0	8.6	8.4	8.6	9.6	9.2	9.3	10.9
Women, 20 years and over	10.6	10.1	10.5	10.0	10.4	10.0	10.3	9.8	10.2	9.5	10.0	10.0	9.0	10.5	11.4
Both sexes, 16-19 years	36.3	33.5	34.3	36.1	33.5	31.5	32.6	32.3	35.1	32.8	34.3	34.6	37.9	33.0	29.8
Married men, spouse present	2.8	2.7	2.7	2.5	2.7	2.8	2.9	2.9	2.9	2.9	2.8	3.4	3.1	3.4	4.1
Married women, spouse present	5.5	5.1	5.2	5.2	5.1	4.9	5.3	4.8	5.2	4.8	5.0	5.2	5.4	5.3	5.7
Women who head families	8.5	8.3	8.3	8.6	9.0	8.1	7.9	7.7	8.4	8.4	8.4	9.2	8.5	8.7	9.3
Full-time workers	5.5	5.3	5.3	5.2	5.2	5.3	5.4	5.3	5.4	5.4	5.4	5.7	5.6	5.8	6.6
Part-time workers	9.0	8.7	8.7	9.3	8.6	8.3	8.8	8.4	8.9	8.3	8.5	8.7	8.9	8.3	8.9
Unemployed 15 weeks and over	1.4	1.2	1.2	1.2	1.1	1.0	1.1	1.1	1.2	1.1	1.2	1.3	1.2	1.3	1.6
Labor force time lost ¹	6.5	6.3	6.4	6.3	6.3	6.4	6.4	6.2	6.4	6.4	6.4	6.7	6.6	6.8	7.5
OCCUPATION															
White-collar workers	3.5	3.3	3.3	3.2	3.4	3.3	3.5	3.3	3.4	3.2	3.3	3.4	3.4	3.3	3.7
Professional and technical	2.6	2.4	2.3	2.1	2.5	2.5	2.5	2.4	2.7	2.4	2.3	2.2	2.3	2.3	2.4
Managers and administrators, except farm	2.1	2.1	2.3	2.2	2.1	2.0	2.3	2.2	2.2	1.9	2.0	1.9	2.2	2.4	2.6
Salesworkers	4.1	3.9	4.0	4.0	4.4	3.5	4.0	3.8	3.8	3.7	3.8	4.4	4.5	4.0	4.7
Clerical workers	4.9	4.6	4.5	4.5	4.6	4.5	4.9	4.5	4.7	4.4	4.6	4.8	4.7	4.5	5.1
Blue-collar workers	6.9	6.9	6.9	6.8	6.6	6.8	7.3	7.1	7.2	7.5	7.2	8.0	7.7	8.0	9.7
Craft and kindred workers	4.6	4.5	4.4	4.2	4.3	4.4	4.7	4.3	4.6	4.9	4.4	4.9	4.8	5.4	6.7
Operatives, except transport	8.1	8.4	8.5	8.2	7.7	8.3	8.9	9.0	9.1	9.0	9.0	9.9	9.2	9.3	11.6
Transport equipment operatives	5.2	5.4	5.9	5.4	5.7	5.1	6.2	6.1	5.6	5.2	5.0	6.9	6.7	6.6	8.9
Nonfarm laborers	10.7	10.8	10.6	11.1	10.6	11.0	11.3	11.0	10.7	12.2	12.2	12.3	12.0	13.0	14.1
Service workers	7.4	7.1	7.3	7.2	7.2	7.1	7.1	6.7	6.8	6.6	6.6	6.9	6.9	7.1	8.0
Farmworkers	3.8	3.8	3.4	3.6	3.2	4.2	3.9	4.1	4.3	4.5	4.3	4.4	3.9	4.0	5.0
INDUSTRY															
Nonagricultural private wage and salary workers ²	5.9	5.7	5.7	5.7	5.6	5.7	6.0	5.8	5.9	5.8	5.8	6.2	6.0	6.2	7.1
Construction	10.6	10.2	10.5	10.0	10.0	10.0	10.1	9.6	9.9	10.2	10.3	10.8	10.5	13.0	15.1
Manufacturing	5.5	5.5	5.3	5.4	5.4	5.7	5.9	6.0	6.0	5.9	5.9	6.7	6.4	6.5	7.9
Durable goods	4.9	5.0	4.7	4.4	4.9	5.4	5.4	5.3	5.5	5.6	5.5	6.7	6.3	6.4	8.3
Nondurable goods	6.3	6.4	6.3	6.9	6.3	6.2	6.8	7.1	6.8	6.3	6.4	6.8	6.7	6.7	7.4
Transportation and public utilities	3.7	3.7	3.0	3.6	3.1	3.8	3.7	4.0	3.8	4.2	4.1	4.4	4.4	3.8	4.6
Wholesale and retail trade	6.9	6.5	6.6	6.4	6.7	6.3	6.5	6.4	6.4	6.5	6.4	6.6	6.4	6.3	7.0
Finance and service industries	5.1	4.9	4.8	4.9	4.7	4.9	5.2	4.7	4.9	4.6	4.7	4.6	4.6	4.9	5.1
Government workers	3.9	3.7	3.7	3.6	3.6	3.6	3.7	3.3	4.0	3.6	3.6	3.8	4.0	4.2	4.4
Agricultural wage and salary workers	8.8	9.1	8.7	9.3	7.8	9.7	9.9	10.0	9.9	10.1	9.4	10.3	9.2	10.2	11.9

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

² Includes mining, not shown separately.

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1979.

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

Sex and age	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Total, 16 years and over	6.0	5.8	5.8	5.8	5.7	5.7	5.9	5.8	5.9	5.8	5.9	6.2	6.0	6.2	7.0
16 to 19 years	16.3	16.1	16.3	16.5	15.4	15.8	16.6	16.2	16.4	15.9	16.0	16.3	16.5	15.9	16.2
16 to 17 years	19.3	18.1	18.7	18.9	17.5	17.3	18.5	16.9	18.4	17.3	18.0	19.0	18.7	17.4	18.7
18 to 19 years	14.2	14.6	14.3	15.0	14.4	14.5	15.4	15.6	15.0	14.7	14.5	14.0	15.1	14.7	14.4
20 to 24 years	9.5	9.0	8.6	8.9	8.9	9.1	9.3	9.2	9.6	8.8	9.8	10.1	9.5	9.7	11.4
25 years and over	4.0	3.9	4.0	3.9	3.9	3.9	4.0	3.9	4.0	4.0	3.8	4.2	4.1	4.4	5.0
25 to 54 years	4.2	4.1	4.2	4.0	4.1	4.0	4.2	4.1	4.2	4.3	4.1	4.4	4.5	4.7	5.4
55 years and over	3.2	3.0	3.1	3.1	2.9	3.2	3.1	2.9	3.0	2.7	2.7	3.5	2.8	2.8	3.4
Men, 16 years and over	5.2	5.1	5.1	5.0	4.9	5.1	5.2	5.2	5.2	5.2	5.2	5.7	5.5	5.7	6.7
16 to 19 years	15.7	15.8	16.0	16.1	14.5	15.4	16.3	16.1	15.7	15.8	15.6	16.2	15.6	14.8	16.1
16 to 17 years	19.2	17.9	17.9	18.9	16.8	16.1	18.0	16.7	17.1	17.8	17.9	19.0	18.0	15.9	18.3
18 to 19 years	13.2	14.2	14.1	14.0	14.0	14.8	15.1	15.3	14.4	14.0	13.6	13.9	14.1	14.0	14.2
20 to 24 years	9.1	8.6	8.0	8.2	8.3	8.8	8.8	8.8	9.5	8.4	9.4	10.4	9.9	10.4	12.3
25 years and over	3.3	3.3	3.3	3.1	3.2	3.3	3.4	3.3	3.4	3.5	3.2	3.7	3.6	3.9	4.7
25 to 54 years	3.4	3.4	3.3	3.2	3.2	3.4	3.5	3.6	3.5	3.8	3.4	3.8	3.8	4.2	5.0
55 years and over	3.1	2.9	3.0	2.8	3.1	3.3	3.1	2.8	2.8	2.6	2.6	3.5	2.6	2.7	3.4
Women, 16 years and over	7.2	6.8	6.9	6.9	6.8	6.6	7.0	6.6	6.9	6.6	6.8	6.8	6.8	6.8	7.3
16 to 19 years	17.0	16.4	16.6	16.9	16.5	16.2	17.0	16.4	17.2	16.1	16.4	16.3	17.6	17.3	16.3
16 to 17 years	19.5	18.3	19.6	18.8	18.3	18.6	19.0	17.2	19.8	16.7	18.0	19.1	19.5	19.2	19.1
18 to 19 years	15.3	15.0	14.5	16.0	14.9	14.2	15.7	15.9	15.6	15.5	15.5	14.2	16.2	15.6	14.6
20 to 24 years	10.1	9.6	9.4	9.7	9.7	9.4	9.8	9.6	9.7	9.3	10.2	9.8	9.1	9.0	10.2
25 years and over	5.1	4.8	4.9	4.9	4.8	4.7	4.9	4.6	4.9	4.7	4.7	4.9	4.9	5.0	5.5
25 to 54 years	5.4	5.2	5.3	5.2	5.2	5.0	5.3	5.0	5.2	5.0	5.1	5.2	5.4	5.5	6.0
55 years and over	3.3	3.2	3.2	3.6	2.8	3.1	3.2	2.9	3.4	2.9	2.9	3.4	3.0	2.9	3.4

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

[Numbers in thousands]

Reason for unemployment	1979									1980			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
NUMBER OF UNEMPLOYED													
Lost last job	2,520	2,356	2,449	2,526	2,680	2,632	2,731	2,729	2,728	2,988	2,907	3,047	3,611
On layoff	839	725	816	797	915	855	929	987	944	1,019	1,031	1,129	1,424
Other job losers	1,681	1,631	1,633	1,729	1,765	1,777	1,802	1,742	1,784	1,969	1,876	1,918	2,188
Left last job	847	940	857	846	875	825	835	845	800	779	813	788	926
Reentered labor force	1,778	1,767	1,753	1,762	1,788	1,760	1,762	1,698	1,771	1,797	1,784	1,803	1,967
Seeking first job	800	824	781	726	745	801	804	736	858	811	827	805	743
PERCENT DISTRIBUTION													
Total unemployed	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job losers	42.4	40.0	41.9	43.1	44.0	43.7	44.5	45.4	44.3	46.9	45.9	47.3	49.8
On layoff	14.1	12.3	14.0	13.6	15.0	14.2	15.2	16.4	15.3	16.0	16.3	17.5	19.6
Other job losers	28.3	27.7	28.0	29.5	29.0	29.5	29.4	29.0	29.0	30.9	29.6	29.8	30.2
Job leavers	14.2	16.0	14.7	14.4	14.4	13.7	13.6	14.1	13.0	12.2	12.8	12.2	12.8
Reentrants	29.9	30.0	30.0	30.1	29.4	29.2	28.7	28.3	28.8	28.2	28.2	28.0	27.1
New entrants	13.5	14.0	13.4	12.4	12.2	13.3	13.1	12.3	13.9	12.7	13.1	12.5	10.3
UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE													
Job losers	2.5	2.3	2.4	2.5	2.6	2.5	2.6	2.6	2.6	2.9	2.8	2.9	3.5
Job leavers .....	.8	.9	.8	.8	.8	.8	.8	.8	.8	.7	.8	.8	.9
Reentrants	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.9
New entrants .....	.8	.8	.8	.7	.7	.8	.8	.7	.8	.8	.8	.8	.7

7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Less than 5 weeks	2,793	2,869	2,876	2,823	2,880	2,820	3,168	2,778	2,955	2,919	2,916	3,184	2,995	2,995	3,309
5 to 14 weeks	1,875	1,892	1,884	1,919	1,808	1,934	1,738	2,035	1,963	1,869	1,966	1,907	2,081	2,169	2,391
15 weeks and over	1,379	1,202	1,223	1,212	1,152	1,067	1,185	1,152	1,195	1,191	1,230	1,334	1,286	1,363	1,629
15 to 26 weeks	746	684	687	705	656	615	658	644	678	660	711	795	790	776	953
27 weeks and over	633	518	536	507	496	452	527	508	517	531	519	539	496	587	676
Average (mean) duration, in weeks	11.9	10.8	11.0	10.9	10.5	10.1	10.7	10.7	10.5	10.6	10.5	10.5	10.7	11.0	11.3

NOTE: The monthly data in these tables have been revised to reflect seasonal experience through 1979.

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 162,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

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

Definitions

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

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

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to eliminate the effects of price change. The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries. **Spendable earnings** are earnings from which estimated social security and Federal income taxes have been deducted. The

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

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

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

Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of September 1979 data, published in the November 1979 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Complete comparable historical unadjusted and seasonally adjusted data are published in a Supplement to Employment and Earnings (unadjusted data from April 1977 through June 1979 and seasonally adjusted data from January 1974 through June 1979) and in *Employment and Earnings, United States, 1909-78*, BLS Bulletin 1312-11 (for prior periods).

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

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9-20. See also *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976).

The formulas used to construct the spendable average weekly earnings series reflect the latest provisions of the Federal income tax and social security tax laws. For the spendable average weekly earnings formulas for the years 1978-80, see *Employment and Earnings*, March 1980, pp. 10-11. Real earnings data are adjusted using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

8. Employment by industry, 1950-79

[Nonagricultural payroll data, in thousands]

Year	Total	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale and retail trade	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government		
											Total	Federal	State and local
1950	45,197	901	2,364	15,241	4,034	9,386	2,635	6,751	1,888	5,357	6,026	1,928	4,098
1951	47,819	929	2,637	16,393	4,226	9,742	2,727	7,015	1,956	5,547	6,389	2,302	4,087
1952	48,793	898	2,668	16,632	4,248	10,004	2,812	7,192	2,035	5,699	6,609	2,420	4,188
1953	50,202	866	2,659	17,549	4,290	10,247	2,854	7,393	2,111	5,835	6,645	2,305	4,340
1954	48,990	791	2,646	16,314	4,084	10,235	2,867	7,368	2,200	5,969	6,751	2,188	4,563
1955	50,641	792	2,839	16,882	4,141	10,535	2,926	7,610	2,298	6,240	6,914	2,187	4,727
1956	52,369	822	3,039	17,243	4,244	10,858	3,018	7,840	2,389	6,497	7,278	2,209	5,069
1957	52,853	828	2,962	17,174	4,241	10,886	3,028	7,858	2,438	6,708	7,616	2,217	5,399
1958	51,324	751	2,817	15,945	3,976	10,750	2,980	7,770	2,481	6,765	7,839	2,191	5,648
1959 ¹	53,268	732	3,004	16,675	4,011	11,127	3,082	8,045	2,549	7,087	8,083	2,233	5,850
1960	54,189	712	2,926	16,796	4,004	11,391	3,143	8,248	2,629	7,378	8,353	2,270	6,083
1961	53,999	672	2,859	16,326	3,903	11,337	3,133	8,204	2,688	7,620	8,594	2,279	6,315
1962	55,549	650	2,948	16,853	3,906	11,566	3,198	8,368	2,754	7,982	8,890	2,340	6,550
1963	56,653	635	3,010	16,995	3,903	11,778	3,248	8,530	2,830	8,277	9,225	2,358	6,868
1964	58,283	634	3,097	17,274	3,951	12,160	3,337	8,823	2,911	8,660	9,596	2,348	7,248
1965	60,765	632	3,232	18,062	4,036	12,716	3,466	9,250	2,977	9,036	10,074	2,378	7,696
1966	63,901	627	3,317	19,214	4,158	13,245	3,597	9,648	3,058	9,498	10,784	2,564	8,220
1967	65,803	613	3,248	19,447	4,268	13,606	3,689	9,917	3,185	10,045	11,391	2,719	8,672
1968	67,897	606	3,350	19,781	4,318	14,099	3,779	10,320	3,337	10,567	11,839	2,737	9,102
1969	70,384	619	3,575	20,167	4,442	14,705	3,907	10,798	3,512	11,169	12,195	2,758	9,437
1970	70,880	623	3,588	19,367	4,515	15,040	3,993	11,047	3,645	11,548	12,554	2,731	9,823
1971	71,214	609	3,704	18,623	4,476	15,352	4,001	11,351	3,772	11,797	12,881	2,696	10,185
1972	73,675	628	3,889	19,151	4,541	15,949	4,113	11,836	3,908	12,276	13,334	2,684	10,649
1973	76,790	642	4,097	20,154	4,656	16,607	4,277	12,329	4,046	12,857	13,732	2,663	11,068
1974	78,265	697	4,020	20,077	4,725	16,987	4,433	12,554	4,148	13,441	14,170	2,724	11,446
1975	76,945	752	3,525	18,323	4,542	17,060	4,415	12,645	4,165	13,892	14,686	2,748	11,937
1976	79,382	779	3,576	18,997	4,582	17,755	4,546	13,209	4,271	14,551	14,871	2,733	12,138
1977	82,423	813	3,851	19,682	4,713	18,516	4,708	13,808	4,467	15,303	15,079	2,727	12,352
1978	86,446	851	4,271	20,476	4,927	19,499	4,957	14,542	4,727	16,220	15,476	2,753	12,723
1979	89,482	957	4,644	20,972	5,154	20,137	5,170	14,966	4,963	17,043	15,612	2,773	12,839

¹Data include Alaska and Hawaii beginning in 1959.

9. Employment by State

[Nonagricultural payroll data, in thousands]

State	Mar. 1979	Feb. 1980	Mar. 1980 ^P	State	Mar. 1979	Feb. 1980	Mar. 1980 ^P
Total	88,981.4	89,979.4	81,897.0				
Alabama	1,348.4	1,364.1	1,362.4	Montana	271.1	276.8	279.3
Alaska	158.4	161.4	163.6	Nebraska	616.2	617.9	624.0
Arizona	970.0	1,002.5	1,005.9	Nevada	374.4	391.1	394.9
Arkansas	742.9	746.8	754.3	New Hampshire	368.1	376.6	
California	9,521.9	9,728.2	9,787.4	New Jersey	2,978.9	2,996.0	3,016.8
Colorado	1,192.8	1,237.7	1,246.4	New Mexico	452.0	466.7	470.5
Connecticut	1,378.0	1,397.7	1,404.7	New York	7,064.8	7,104.3	7,140.3
Delaware	250.2	254.6	255.7	North Carolina	2,349.7	2,395.4	2,412.1
District of Columbia	602.8	611.6	613.6	North Dakota	233.8	240.7	243.0
Florida	3,380.5	3,527.8	3,547.8	Ohio	4,442.8	4,405.2	4,448.3
Georgia	2,101.4	2,132.1	2,141.3	Oklahoma	1,068.3	1,106.9	1,119.9
Hawaii	395.4	407.4	411.7	Oregon	1,027.4	1,048.3	1,053.2
Idaho	329.8	328.5	328.3	Pennsylvania	4,749.6	4,754.2	4,768.2
Illinois	4,745.7	4,700.0	4,718.6	Rhode Island	394.5	390.5	392.5
Indiana	2,236.2	2,195.9	2,207.3	South Carolina	1,162.0	1,186.1	1,193.6
Iowa	1,115.3	1,118.8	1,124.6	South Dakota	233.7	233.8	234.6
Kansas	938.0	944.5	953.1	Tennessee	1,757.9	1,773.4	1,786.6
Kentucky	1,222.2	1,214.3	1,226.5	Texas	5,509.7	5,723.3	5,741.7
Louisiana	1,489.4	1,511.8	1,518.6	Utah	538.9	563.5	568.3
Maine	399.5	407.7	406.9	Vermont	194.1	201.0	200.9
Maryland	1,596.7	1,599.3	1,614.7	Virginia	2,060.9	2,087.5	2,094.9
Massachusetts	2,553.9	2,616.0	2,631.6	Washington	1,540.8	1,594.6	1,605.3
Michigan	3,642.8	3,495.5		West Virginia	633.6	629.3	629.0
Minnesota	1,715.7	1,765.0	1,776.1	Wisconsin	1,905.9	1,959.6	1,965.8
Mississippi	827.3	835.3	836.9	Wyoming	190.6	207.5	210.7
Missouri	1,982.6	1,960.0	1,983.2				

10. Employment by industry division and major manufacturing group

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. P	Apr. P
TOTAL	86,446	89,482	88,820	89,671	90,541	89,618	89,673	90,211	90,678	90,902	91,009	89,285	89,417	89,942	90,111
MINING	851	957	932	944	968	976	986	980	982	984	984	982	986	995	1,007
CONSTRUCTION	4,271	4,644	4,413	4,662	4,881	4,993	5,048	4,984	4,976	4,879	4,711	4,350	4,261	4,303	4,412
MANUFACTURING	20,476	20,972	20,907	20,988	21,234	20,965	20,996	21,192	21,094	20,966	20,902	20,699	20,648	20,711	20,462
Production workers	14,714	15,010	15,002	15,061	15,240	14,946	14,960	15,172	15,082	14,954	14,891	14,674	14,615	14,668	14,431
Durable goods	12,246	12,690	12,697	12,739	12,877	12,712	12,598	12,805	12,737	12,661	12,649	12,525	12,523	12,575	12,342
Production workers	8,786	9,053	9,105	9,129	9,223	9,031	8,907	9,116	9,058	8,983	8,971	8,825	8,813	8,860	8,632
Lumber and wood products	752.4	758.4	748.8	763.8	783.2	776.8	780.0	776.3	771.3	748.9	729.2	709.2	710.6	706.7	673.7
Furniture and fixtures	491.1	487.3	487.8	483.9	484.2	475.5	483.5	485.3	487.6	488.7	486.9	484.4	480.7	480.2	474.4
Stone, clay, and glass products	698.0	710.8	706.6	718.6	733.1	727.1	728.2	723.6	721.0	712.9	699.6	680.8	677.5	683.1	680.4
Primary metal industries	1,212.7	1,243.9	1,259.0	1,258.6	1,274.3	1,260.7	1,244.5	1,244.3	1,225.1	1,216.7	1,204.4	1,201.6	1,199.4	1,198.2	1,193.5
Fabricated metal products	1,673.4	1,727.2	1,723.7	1,727.8	1,749.0	1,715.7	1,716.1	1,735.3	1,738.3	1,738.2	1,730.4	1,703.8	1,706.5	1,710.4	1,681.2
Machinery, except electrical	2,319.2	2,462.5	2,468.0	2,463.6	2,491.2	2,485.1	2,467.1	2,496.4	2,447.2	2,440.9	2,455.8	2,522.5	2,520.8	2,526.5	2,515.7
Electric and electronic equipment	1,999.5	2,108.7	2,086.1	2,095.2	2,128.2	2,111.7	2,089.5	2,136.1	2,143.7	2,146.3	2,153.1	2,144.5	2,138.3	2,149.2	2,136.4
Transportation equipment	1,991.7	2,048.3	2,082.2	2,091.8	2,077.9	2,027.7	1,933.2	2,051.0	2,040.9	2,009.7	2,043.4	1,943.6	1,950.4	1,974.2	1,843.4
Instruments and related products	653.5	690.4	686.5	686.5	698.8	692.9	695.3	692.7	695.4	695.9	699.8	698.9	701.2	705.0	702.4
Miscellaneous manufacturing	454.0	452.4	448.0	448.9	457.4	438.6	460.6	463.8	466.9	462.8	446.4	435.9	437.2	441.4	440.5
Nondurable goods	8,230	8,283	8,210	8,249	8,357	8,253	8,398	8,387	8,357	8,305	8,253	8,174	8,125	8,136	8,120
Production workers	5,928	5,957	5,897	5,932	6,017	5,915	6,053	6,056	6,024	5,971	5,920	5,849	5,802	5,808	5,799
Food and kindred products	1,721.2	1,716.3	1,657.3	1,669.6	1,716.6	1,737.8	1,810.0	1,814.1	1,766.8	1,725.0	1,695.9	1,650.5	1,634.9	1,630.2	1,617.1
Tobacco manufactures	69.6	66.2	62.5	61.9	62.1	62.1	69.0	72.2	71.9	64.8	66.7	65.1	63.4	60.9	58.7
Textile mill products	900.2	891.9	890.4	892.5	900.4	875.5	890.4	888.9	889.8	893.9	893.5	887.4	887.9	890.8	891.8
Apparel and other textile products	1,332.5	1,313.1	1,323.7	1,327.5	1,333.1	1,278.7	1,308.9	1,309.1	1,317.0	1,306.2	1,292.0	1,284.4	1,305.9	1,315.0	1,307.0
Paper and allied products	700.9	714.1	710.8	712.7	724.6	719.6	723.3	718.5	717.7	715.9	714.0	711.8	710.0	711.0	708.3
Printing and publishing	1,193.1	1,242.9	1,231.0	1,234.7	1,243.4	1,245.8	1,245.4	1,246.1	1,254.5	1,265.6	1,272.0	1,269.5	1,274.0	1,276.0	1,274.7
Chemicals and allied products	1,096.3	1,112.7	1,106.7	1,110.9	1,126.6	1,123.0	1,121.2	1,114.9	1,115.0	1,115.2	1,115.6	1,113.9	1,113.0	1,118.0	1,120.5
Petroleum and coal products	208.7	213.8	210.8	212.9	216.8	218.0	218.3	218.1	218.1	217.2	214.9	213.1	159.1	156.6	179.2
Rubber and miscellaneous plastics products	751.9	767.5	772.0	777.0	779.4	767.4	765.8	762.0	762.6	757.6	747.5	742.2	738.3	738.7	723.0
Leather and leather products	255.6	243.8	245.1	249.2	253.7	224.7	245.8	243.1	243.1	243.2	240.7	236.1	238.3	239.1	239.2
TRANSPORTATION AND PUBLIC UTILITIES	4,927	5,154	4,989	5,125	5,231	5,200	5,210	5,242	5,244	5,255	5,254	5,149	5,142	5,155	5,150
WHOLESALE AND RETAIL TRADE	19,499	20,137	19,957	20,119	20,222	20,118	20,137	20,260	20,314	20,580	20,932	20,224	20,041	20,111	20,235
WHOLESALE TRADE	4,957	5,170	5,112	5,146	5,211	5,208	5,211	5,206	5,235	5,251	5,234	5,211	5,221	5,243	5,224
RETAIL TRADE	14,542	14,966	14,845	14,973	15,011	14,910	14,926	15,054	15,079	15,329	15,698	15,013	14,820	14,868	15,011
FINANCE, INSURANCE, AND REAL ESTATE	4,727	4,963	4,900	4,936	5,003	5,032	5,053	5,002	5,013	5,029	5,041	5,040	5,051	5,072	5,093
SERVICES	16,220	17,043	16,897	17,039	17,239	17,314	17,312	17,225	17,292	17,281	17,270	17,111	17,294	17,452	17,564
GOVERNMENT	15,476	15,612	15,825	15,858	15,763	15,020	14,931	15,326	15,763	15,928	15,915	15,730	15,994	16,143	16,188
Federal	2,753	2,773	2,750	2,773	2,824	2,838	2,844	2,751	2,756	2,760	2,770	2,763	2,803	2,867	2,944
State and local	12,723	12,839	13,075	13,085	12,939	12,182	12,087	12,575	13,007	13,168	13,145	12,967	13,191	13,276	13,244

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

[Nonagricultural payroll data, in thousands]

Industry division and group	1979									1980			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. ^P	Apr. ^P
TOTAL	89,036	89,398	89,626	89,713	89,762	89,803	89,982	90,100	90,241	90,652	90,845	90,799	90,320
MINING	940	944	949	956	968	973	979	983	991	1,000	1,009	1,010	1,016
CONSTRUCTION	4,559	4,648	4,662	4,688	4,674	4,671	4,694	4,714	4,783	4,893	4,831	4,698	4,558
MANUFACTURING	21,066	21,059	21,063	21,079	20,957	20,949	20,899	20,836	20,881	20,890	20,892	20,889	20,615
Production workers	15,134	15,112	15,096	15,090	14,956	14,957	14,894	14,829	14,865	14,848	14,826	14,822	14,556
Durable goods	12,752	12,739	12,760	12,786	12,714	12,737	12,650	12,587	12,615	12,601	12,655	12,658	12,395
Production workers	9,146	9,119	9,123	9,124	9,044	9,066	8,972	8,908	8,931	8,894	8,926	8,934	8,672
Lumber and wood products	761	762	757	753	752	758	760	751	740	737	740	729	685
Furniture and fixtures	490	487	485	488	484	480	482	483	483	484	481	481	477
Stone, clay, and glass products	714	715	715	711	710	708	709	704	706	708	709	704	687
Primary metal industries	1,260	1,254	1,257	1,256	1,245	1,236	1,226	1,223	1,208	1,208	1,210	1,205	1,195
Fabricated metal products	1,732	1,730	1,737	1,730	1,714	1,716	1,723	1,726	1,725	1,712	1,724	1,722	1,690
Machinery, except electrical	2,466	2,471	2,484	2,500	2,492	2,496	2,455	2,438	2,444	2,512	2,511	2,516	2,513
Electric and electronic equipment	2,101	2,106	2,124	2,131	2,092	2,117	2,125	2,125	2,140	2,149	2,147	2,160	2,151
Transportation equipment	2,084	2,077	2,057	2,073	2,079	2,086	2,025	1,994	2,019	1,938	1,980	1,984	1,845
Instruments and related products	689	688	693	694	695	692	696	694	698	700	703	707	705
Miscellaneous manufacturing	455	449	451	450	451	448	449	449	452	453	450	450	447
Nondurable goods	8,314	8,320	8,303	8,293	8,243	8,212	8,249	8,249	8,266	8,289	8,237	8,231	8,220
Production workers	5,988	5,993	5,973	5,966	5,912	5,891	5,922	5,921	5,934	5,954	5,900	5,888	5,884
Food and kindred products	1,728	1,725	1,720	1,707	1,696	1,691	1,707	1,710	1,715	1,707	1,705	1,698	1,686
Tobacco manufactures	69	70	69	68	64	65	65	60	62	64	65	65	65
Textile mill products	892	893	892	892	886	884	887	889	893	891	891	893	894
Apparel and other textile products	1,325	1,324	1,312	1,324	1,302	1,294	1,299	1,292	1,297	1,309	1,312	1,312	1,308
Paper and allied products	717	714	715	718	717	714	715	714	713	718	717	718	714
Printing and publishing	1,234	1,236	1,242	1,250	1,247	1,245	1,252	1,262	1,263	1,273	1,278	1,279	1,277
Chemicals and allied products	1,111	1,114	1,119	1,116	1,111	1,110	1,113	1,114	1,119	1,123	1,121	1,122	1,125
Petroleum and coal products	213	213	212	212	213	215	217	217	217	219	163	160	181
Rubber and miscellaneous plastics products	781	784	775	777	764	751	751	749	745	745	744	744	732
Leather and leather products	244	247	247	229	243	243	243	242	242	240	241	240	238
TRANSPORTATION AND PUBLIC UTILITIES	5,024	5,130	5,190	5,169	5,194	5,180	5,218	5,229	5,223	5,212	5,210	5,212	5,186
WHOLESALE AND RETAIL TRADE	20,088	20,129	20,116	20,122	20,126	20,169	20,243	20,308	20,254	20,428	20,521	20,498	20,367
WHOLESALE TRADE	5,138	5,156	5,180	5,182	5,185	5,190	5,209	5,235	5,218	5,248	5,274	5,280	5,250
RETAIL TRADE	14,950	14,973	14,936	14,940	14,941	14,979	15,034	15,073	15,036	15,180	15,247	15,218	15,117
FINANCE, INSURANCE, AND REAL ESTATE	4,915	4,936	4,958	4,972	5,003	4,997	5,018	5,039	5,056	5,081	5,092	5,103	5,108
SERVICES	16,880	16,954	17,051	17,092	17,141	17,191	17,257	17,298	17,357	17,442	17,522	17,540	17,546
GOVERNMENT	15,564	15,598	15,637	15,635	15,699	15,673	15,674	15,693	15,696	15,706	15,768	15,849	15,924
Federal	2,758	2,770	2,788	2,785	2,813	2,762	2,770	2,771	2,771	2,791	2,823	2,884	2,952
State and local	12,806	12,828	12,849	12,850	12,886	12,911	12,904	12,922	12,925	12,915	12,945	12,965	12,972

12. Labor turnover rates in manufacturing, 1977 to date

[Per 100 employees]

Year	Annual average	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total accessions													
1977	4.0	3.7	3.7	4.0	3.8	4.6	4.9	4.3	5.3	4.6	3.9	3.1	2.4
1978	4.1	3.8	3.2	3.8	4.0	4.7	4.9	4.4	5.4	4.9	4.3	3.3	2.4
1979	3.9	4.0	3.4	3.8	3.9	4.7	4.8	4.3	4.9	4.4	4.1	2.9	2.2
1980	...	3.8	3.3	P 3.4	...	...	...	...	...	...	...	...	...
New hires													
1977	2.8	2.2	2.1	2.6	2.7	3.5	3.7	3.0	4.0	3.5	3.0	2.2	1.6
1978	3.1	2.5	2.2	2.7	2.9	3.6	3.9	3.3	4.2	3.9	3.5	2.6	1.7
1979	2.9	2.8	2.5	2.8	2.9	3.6	3.8	3.1	3.7	3.4	3.1	2.2	1.5
1980	...	2.4	2.2	P 2.3	...	...	...	...	...	...	...	...	...
Recalls													
1977	.9	1.2	1.3	1.1	.9	.8	.8	.9	1.0	.8	.6	.6	.6
1978	.7	1.0	.7	.8	.8	.8	.7	.8	.9	.7	.6	.5	.5
1979	.7	.9	.7	.7	.7	.8	.7	.9	.9	.8	.7	.5	.5
1980	...	1.1	.9	P .9	...	...	...	...	...	...	...	...	...
Total separations													
1977	3.8	3.9	3.4	3.4	3.4	3.5	3.5	4.3	5.1	4.9	3.8	3.4	3.4
1978	3.9	3.6	3.1	3.5	3.6	3.7	3.8	4.1	5.3	4.8	4.1	3.5	3.4
1979	4.0	3.8	3.2	3.6	3.6	3.8	3.9	4.3	5.7	4.7	4.2	3.8	3.5
1980	...	4.1	3.5	3.7	...	...	...	...	...	...	...	...	...
Quits													
1977	1.8	1.4	1.3	1.6	1.7	1.9	1.9	1.9	3.1	2.8	1.9	1.5	1.2
1978	2.1	1.5	1.4	1.8	2.0	2.1	2.2	2.1	3.5	3.1	2.3	1.7	1.3
1979	2.0	1.8	1.6	1.9	2.0	2.1	2.1	2.0	3.3	2.7	2.1	1.6	1.1
1980	...	1.6	1.5	P 1.5	...	...	...	...	...	...	...	...	...
Layoffs													
1977	1.1	1.7	1.4	1.0	.9	.8	.8	1.5	1.0	1.1	1.1	1.1	1.5
1978	.9	1.2	.9	.9	.8	.7	.7	1.0	.8	.8	.9	1.0	1.4
1979	1.1	1.1	.8	.8	.9	.7	.8	1.4	1.3	1.1	1.2	1.5	1.7
1980	...	1.6	.12	P 1.3	...	...	...	...	...	...	...	...	...

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

[Per 100 employees]

Major industry group	Accession rates									Separation rates								
	Total			New hires			Recalls			Total			Quits			Layoffs		
	Mar. 1979	Feb. 1980	Mar. 1980 P	Mar. 1979	Feb. 1980	Mar. 1980 P	Mar. 1979	Feb. 1980	Mar. 1980 P	Mar. 1979	Feb. 1980	Mar. 1980 P	Mar. 1979	Feb. 1980	Mar. 1980 P	Mar. 1979	Feb. 1980	Mar. 1980 P
MANUFACTURING	3.8	3.3	3.4	2.8	2.2	2.3	0.7	0.9	0.9	3.6	3.5	3.7	1.9	1.5	1.5	0.8	1.2	1.3
Seasonally adjusted	4.0	4.0	3.5	3.1	2.9	2.5	...	...	...	3.9	4.2	4.1	2.1	2.1	1.7	.9	1.3	1.5
Durable goods	3.6	3.0	3.2	2.7	1.9	2.0	.6	.8	.9	3.3	3.2	3.6	1.7	1.2	1.3	.7	1.2	1.5
Lumber and wood products	5.8	4.6	4.3	4.4	2.9	2.8	1.3	1.6	1.3	6.1	5.5	6.5	3.4	2.2	2.2	1.6	2.5	3.3
Furniture and fixtures	4.9	3.8	3.9	4.3	3.0	3.1	.5	.7	.6	5.5	4.0	4.4	3.4	2.2	2.4	.9	.8	.9
Stone, clay, and glass products	4.9	3.4	3.8	2.9	1.8	2.0	1.8	1.4	1.6	3.7	3.9	3.7	1.8	1.3	1.3	1.0	1.8	1.7
Primary metal industries	2.6	2.3	2.7	1.8	1.0	1.1	5	1.1	1.2	2.2	2.6	2.7	.9	.6	.6	.4	1.1	1.3
Fabricated metal products	3.7	3.4	3.5	3.0	2.3	2.2	.6	.9	1.1	3.8	3.7	4.0	2.0	1.5	1.5	.9	1.4	1.7
Machinery, except electrical	2.8	2.3	2.5	2.4	1.8	1.8	2	.3	.4	2.6	2.4	2.7	1.4	1.0	1.1	.3	.6	.9
Electric and electronic equipment	3.5	2.8	2.9	2.5	1.9	2.1	5	.4	.4	3.1	2.8	2.9	1.7	1.2	1.3	.5	.7	.7
Transportation equipment	3.4	3.0	...	2.3	1.4	...	7	1.0	...	2.7	3.5	...	1.1	.8	...	.8	1.8	...
Instruments and related products	2.7	2.8	3.0	2.3	2.3	2.6	2	.3	.2	2.5	2.4	2.7	1.5	1.3	1.4	.4	.3	.5
Miscellaneous manufacturing	5.2	4.5	4.7	3.8	2.7	2.8	1.2	1.6	1.6	5.1	4.5	4.9	2.5	1.8	1.9	1.5	1.8	2.0
Nondurable goods	4.1	3.7	3.9	2.9	2.5	2.7	.9	1.0	.9	4.2	3.8	3.8	2.3	1.8	1.9	1.1	1.2	1.1
Food and kindred products	5.3	4.4	5.0	3.5	2.7	3.0	1.6	1.5	1.7	5.5	5.1	4.9	2.7	2.1	2.1	1.9	2.2	2.0
Tobacco manufacturers	2.2	2.0	...	1.0	.8	...	.8	.8	...	4.8	5.1	...	.8	1.0	...	3.1	3.2	...
Textile mill products	4.5	3.9	4.3	3.5	3.0	3.4	.6	.6	.6	4.8	4.0	4.1	3.1	2.3	2.5	.6	.7	.5
Apparel and other products	5.2	5.7	5.3	3.6	3.7	3.8	1.4	1.7	1.3	5.7	5.0	5.0	3.2	2.7	2.9	1.7	1.5	1.3
Paper and allied products	2.7	2.1	2.5	1.8	1.4	1.5	.7	.5	.8	2.6	2.5	2.8	1.3	.9	1.0	.7	.9	1.1
Printing and publishing	3.3	3.1	3.1	2.7	2.5	2.6	.5	.4	.4	3.1	3.0	2.9	2.0	1.8	1.7	.5	.6	.6
Chemicals and allied products	1.8	1.6	1.7	1.4	1.2	1.3	.3	.2	.3	1.5	1.5	1.5	.7	.6	.7	.3	.3	.3
Petroleum and coal products	2.3	1.8	2.0	1.7	1.2	1.4	.5	.4	.5	1.8	1.8	1.8	.7	.7	.6	.5	.3	.6
Rubber and miscellaneous plastics products	4.5	4.0	3.9	3.7	2.7	2.7	.5	1.1	.9	4.8	4.6	4.6	2.8	1.9	2.0	.8	1.6	1.6
Leather and leather products	6.3	6.0	6.6	4.2	4.1	4.6	1.7	1.6	1.6	6.7	6.0	6.3	4.1	3.1	3.3	1.6	2.0	2.0

14. Hours and earnings, by industry division, 1949-79

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

Year	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings
	Total private			Mining			Construction			Manufacturing		
1949	\$50.24	39.4	\$1.275	\$62.33	36.3	\$1.717	\$67.56	37.7	\$1.792	\$53.88	39.1	\$1.378
1950	53.13	39.8	1.335	67.16	37.9	1.772	69.68	37.4	1.863	58.32	40.5	1.440
1951	57.86	39.9	1.45	74.11	38.4	1.93	76.96	38.1	2.02	63.34	40.6	1.56
1952	60.65	39.9	1.52	77.59	38.6	2.01	82.86	38.9	2.13	66.75	40.7	1.64
1953	63.76	39.6	1.61	83.03	38.8	2.14	86.41	37.9	2.28	70.47	40.5	1.74
1954	64.52	39.1	1.65	82.60	38.6	2.14	88.91	37.2	2.39	70.49	39.6	1.78
1955	67.72	39.6	1.71	89.54	40.7	2.20	90.90	37.1	2.45	75.30	40.7	1.85
1956	70.74	39.3	1.80	95.06	40.8	2.33	96.38	37.5	2.57	78.78	40.4	1.95
1957	73.33	38.8	1.89	98.25	40.1	2.45	100.27	37.0	2.71	81.19	39.8	2.04
1958	75.08	38.5	1.95	96.08	38.9	2.47	103.78	36.8	2.82	82.32	39.2	2.10
1959 ¹	78.78	39.0	2.02	103.68	40.5	2.56	108.41	37.0	2.93	88.26	40.3	2.19
1960	80.67	38.6	2.09	105.04	40.4	2.60	112.67	36.7	3.07	89.72	39.7	2.26
1961	82.60	38.6	2.14	106.92	40.5	2.64	118.08	36.9	3.20	92.34	39.8	2.32
1962	85.91	38.7	2.22	110.70	41.0	2.70	122.47	37.0	3.31	96.56	40.4	2.39
1963	88.46	38.8	2.28	114.40	41.6	2.75	127.19	37.3	3.41	99.23	40.5	2.45
1964	91.33	38.7	2.36	117.74	41.9	2.81	132.06	37.2	3.55	102.97	40.7	2.53
1965	95.45	38.8	2.46	123.52	42.3	2.92	138.38	37.4	3.70	107.53	41.2	2.61
1966	98.82	38.6	2.56	130.24	42.7	3.05	146.26	37.6	3.89	112.19	41.4	2.71
1967	101.84	38.0	2.68	135.89	42.6	3.19	154.95	37.7	4.11	114.49	40.6	2.82
1968	107.73	37.8	2.85	142.71	42.6	3.35	164.49	37.3	4.41	122.51	40.7	3.01
1969	114.61	37.7	3.04	154.80	43.0	3.60	181.54	37.9	4.79	129.51	40.6	3.19
1970	119.83	37.1	3.23	164.40	42.7	3.85	195.45	37.3	5.24	133.33	39.8	3.35
1971	127.31	36.9	3.45	172.14	42.4	4.06	211.67	37.2	5.69	142.44	39.9	3.57
1972	136.90	37.0	3.70	189.14	42.6	4.44	221.19	36.5	6.06	154.71	40.5	3.82
1973	145.39	36.9	3.94	201.40	42.4	4.75	235.89	36.8	6.41	166.46	40.7	4.09
1974	154.76	36.5	4.24	219.14	41.9	5.23	249.25	36.6	6.81	176.80	40.0	4.42
1975	163.53	36.1	4.53	249.31	41.9	5.95	266.08	36.4	7.31	190.79	39.5	4.83
1976	175.45	36.1	4.86	273.90	42.4	6.46	283.73	36.8	7.71	209.32	40.1	5.22
1977	189.00	36.0	5.25	301.20	43.4	6.94	295.65	36.5	8.10	228.90	40.3	5.68
1978	203.70	35.8	5.69	332.11	43.3	7.67	318.32	36.8	8.65	249.27	40.4	6.17
1979	219.91	35.7	6.16	364.64	43.0	8.48	341.69	36.9	9.26	268.94	40.2	6.69
	Transportation and public utilities			Wholesale and retail trade			Finance, insurance, and real estate			Services		
1949				\$42.93	40.5	\$1.060	\$47.63	37.8	\$1.260			
1950				44.55	40.5	1.100	50.52	37.7	1.340			
1951				47.79	40.5	1.18	54.67	37.7	1.45			
1952				49.20	40.0	1.23	57.08	37.8	1.51			
1953				51.35	39.5	1.30	59.57	37.7	1.58			
1954				53.33	39.5	1.35	62.04	37.6	1.65			
1955				55.16	39.4	1.40	63.92	37.6	1.70			
1956				57.48	39.1	1.47	65.68	36.9	1.78			
1957				59.60	38.7	1.54	67.53	36.7	1.84			
1958				61.76	38.6	1.60	70.12	37.1	1.89			
1959 ¹				64.41	38.8	1.66	72.74	37.3	1.95			
1960				66.01	38.6	1.71	75.14	37.2	2.02			
1961				67.41	38.3	1.76	77.12	36.9	2.09			
1962				69.91	38.2	1.83	80.94	37.3	2.17			
1963				72.01	38.1	1.89	84.38	37.5	2.25			
1964	\$118.78	41.1	\$2.89	74.66	37.9	1.97	85.79	37.3	2.30	\$70.03	36.1	\$1.94
1965	125.14	41.3	3.03	76.91	37.7	2.04	88.91	37.2	2.39	73.60	35.9	2.05
1966	128.13	41.2	3.11	79.39	37.1	2.14	92.13	37.3	2.47	77.04	35.5	2.17
1967	130.82	40.5	3.23	82.35	36.6	2.25	95.72	37.1	2.58	80.38	35.1	2.29
1968	138.85	40.6	3.42	87.00	36.1	2.41	101.75	37.0	2.75	83.97	34.7	2.42
1969	147.74	40.7	3.63	91.39	35.7	2.56	108.70	37.1	2.93	90.57	34.7	2.61
1970	155.93	40.5	3.85	96.02	35.3	2.72	112.67	36.7	3.07	96.66	34.4	2.81
1971	168.82	40.1	4.21	101.09	35.1	2.88	117.85	36.6	3.22	103.06	33.9	3.04
1972	187.86	40.4	4.65	106.45	34.9	3.05	122.98	36.6	3.36	110.85	33.9	3.27
1973	203.31	40.5	5.02	111.76	34.6	3.23	129.20	36.6	3.53	117.29	33.8	3.47
1974	217.48	40.2	5.41	119.02	34.2	3.48	137.61	36.5	3.77	126.00	33.6	3.75
1975	233.44	39.7	5.88	126.45	33.9	3.73	148.19	36.5	4.06	134.67	33.5	4.02
1976	256.71	39.8	6.45	133.79	33.7	3.97	155.43	36.4	4.27	143.52	33.3	4.31
1977	278.90	39.9	6.99	142.52	33.3	4.28	165.26	36.4	4.54	153.45	33.0	4.65
1978	302.80	40.0	7.57	153.64	32.9	4.67	178.36	36.4	4.90	163.67	32.8	4.99
1979	326.38	39.9	8.18	164.96	32.6	5.06	191.66	36.3	5.28	175.27	32.7	5.36

¹ Data include Alaska and Hawaii beginning in 1959.

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

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

Industry division and group	Annual Average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. ^P	Apr. ^P
TOTAL PRIVATE	35.8	35.7	35.1	35.5	35.9	36.0	36.0	35.8	35.7	35.6	35.9	35.1	35.2	35.2	35.1
MINING	43.3	43.0	42.6	42.8	43.3	41.7	43.1	43.5	43.7	43.7	43.9	43.4	43.2	43.4	43.0
CONSTRUCTION	36.8	36.9	35.5	37.2	37.9	37.7	38.0	37.9	37.6	36.5	37.1	35.1	35.5	36.1	36.6
MANUFACTURING	40.4	40.2	38.9	40.1	40.4	39.9	40.0	40.3	40.3	40.4	40.9	39.8	39.8	39.8	39.4
Overtime hours	3.6	3.3	2.5	3.3	3.4	3.2	3.3	3.6	3.4	3.4	3.4	3.0	2.9	3.0	2.7
Durable goods	41.1	40.8	39.3	40.8	41.0	40.4	40.4	40.8	40.8	40.8	41.6	40.3	40.3	40.4	39.9
Overtime hours	3.8	3.5	2.6	3.6	3.6	3.4	3.4	3.6	3.5	3.5	3.5	3.1	3.0	3.1	2.7
Lumber and wood products	39.8	39.5	39.1	39.6	40.2	39.4	39.9	40.1	39.8	38.8	39.2	38.1	38.5	38.3	37.3
Furniture and fixtures	39.3	38.6	37.5	38.2	38.8	38.0	38.6	39.0	39.3	39.2	39.9	38.4	38.9	38.4	38.1
Stone, clay, and glass products	41.6	41.5	41.1	41.9	42.1	41.5	41.7	41.7	41.7	41.7	41.8	40.1	40.1	40.6	40.3
Primary metal industries	41.8	41.4	41.7	41.4	41.6	41.3	40.8	41.3	40.9	40.7	40.9	40.7	40.7	40.6	40.2
Fabricated metal products	41.0	40.8	38.8	40.7	41.0	40.3	40.5	40.8	41.0	41.0	41.9	40.6	40.4	40.6	40.1
Machinery except electrical	42.0	41.8	40.3	41.7	42.0	41.2	41.3	41.9	41.6	41.9	42.8	41.5	41.5	41.6	41.1
Electric and electronic equipment	40.3	40.3	38.8	40.2	40.5	39.6	39.7	40.5	40.3	40.9	41.3	40.2	40.2	40.0	39.5
Transportation equipment	42.2	41.2	37.9	41.6	41.3	40.9	40.5	40.7	41.3	40.8	42.6	40.1	40.4	40.5	40.3
Instruments and related products	40.9	40.8	40.0	40.8	40.7	40.3	40.3	40.7	40.8	41.4	41.6	41.0	40.7	40.6	40.4
Miscellaneous manufacturing	38.8	38.9	37.6	38.5	39.0	38.7	38.9	39.3	39.3	39.6	39.7	39.1	38.8	38.8	38.3
Nondurable goods	39.4	39.3	38.2	39.1	39.4	39.2	39.4	39.6	39.4	39.6	39.9	39.0	38.9	39.0	38.7
Overtime hours	3.2	3.1	2.5	2.9	3.0	3.0	3.2	3.5	3.2	3.3	3.2	2.9	2.8	2.9	2.7
Food and kindred products	39.7	39.9	39.0	39.6	39.8	40.1	40.3	40.6	40.0	40.2	40.3	39.5	39.0	39.1	38.9
Tobacco manufactures	38.1	38.0	37.6	38.9	39.0	36.1	37.6	39.1	38.8	39.0	39.5	37.4	36.9	37.7	37.4
Textile mill products	40.4	40.3	38.6	40.1	40.6	39.9	40.3	40.8	40.8	41.3	41.5	40.9	40.8	40.9	39.5
Apparel and other textile products	35.6	35.2	33.9	35.1	35.6	35.4	35.6	35.4	35.5	35.6	35.9	35.2	35.5	35.4	35.3
Paper and allied products	42.9	42.6	41.6	42.4	42.8	42.5	42.6	42.7	42.6	42.9	43.5	42.6	42.4	42.3	42.4
Printing and publishing	37.6	37.5	36.8	37.3	37.4	37.4	37.9	37.9	37.5	37.9	38.1	37.2	37.0	37.2	36.7
Chemicals and allied products	41.9	41.8	41.9	41.8	41.8	41.7	41.8	41.8	41.7	42.1	42.2	41.7	41.6	41.8	41.6
Petroleum and coal products	43.6	43.8	43.9	43.7	43.4	44.1	43.6	44.7	44.1	44.8	43.4	36.1	39.6	40.1	41.8
Rubber and miscellaneous plastics products	40.9	40.5	39.4	40.5	40.7	40.2	40.0	40.5	40.5	40.3	40.7	40.3	39.9	39.9	39.5
Leather and leather products	37.1	36.5	35.3	36.4	37.1	36.9	36.6	36.8	36.5	36.8	37.3	36.7	36.8	36.4	36.1
TRANSPORTATION AND PUBLIC UTILITIES	40.0	39.9	39.0	39.6	40.0	40.0	40.3	39.9	39.9	40.2	40.0	39.5	39.7	39.7	39.6
WHOLESALE AND RETAIL TRADE	32.9	32.6	32.5	32.4	32.9	33.3	33.2	32.7	32.5	32.4	32.9	31.9	31.9	32.0	31.9
WHOLESALE TRADE	38.8	38.8	38.6	38.9	39.0	39.0	38.9	38.8	38.9	38.9	39.1	38.5	38.4	38.4	38.4
RETAIL TRADE	31.0	30.7	30.6	30.4	31.0	31.5	31.4	30.7	30.4	30.4	31.0	29.8	29.8	29.9	29.8
FINANCE, INSURANCE, AND REAL ESTATE	36.4	36.3	36.4	36.1	36.2	36.4	36.2	36.3	36.3	36.4	36.4	36.3	36.4	36.5	36.3
SERVICES	32.8	32.7	32.5	32.5	32.9	33.3	33.2	32.7	32.6	32.6	32.8	32.5	32.5	32.5	32.5

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

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

Industry division and group	1979									1980			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. ^P	Apr. ^P
TOTAL PRIVATE	35.3	35.7	35.6	35.6	35.6	35.7	35.6	35.7	35.7	35.7	35.5	35.4	35.3
MINING	42.9	42.8	43.0	41.6	43.2	43.1	43.1	43.2	43.9	44.4	43.7	43.5	43.3
CONSTRUCTION	35.5	37.1	37.2	36.8	37.2	37.5	36.6	36.8	37.1	37.6	36.7	36.2	36.6
MANUFACTURING	39.1	40.2	40.1	40.2	40.1	40.2	40.2	40.1	40.2	40.3	40.1	39.8	39.6
Overtime hours	2.7	3.5	3.4	3.3	3.2	3.2	3.2	3.3	3.2	3.2	3.1	3.1	2.8
Durable goods	39.5	40.9	40.7	40.7	40.7	40.7	40.8	40.6	40.7	40.8	40.6	40.4	40.1
Overtime hours	2.7	3.8	3.6	3.5	3.3	3.3	3.3	3.4	3.2	3.3	3.1	3.2	2.8
Lumber and wood products	39.1	39.4	39.4	39.3	39.5	39.7	39.4	38.9	39.0	39.5	39.1	38.6	37.3
Furniture and fixtures	38.1	38.5	38.5	38.4	38.3	38.6	38.8	38.9	39.0	39.0	39.0	38.5	38.7
Stone, clay, and glass products	41.2	41.7	41.6	41.4	41.3	41.5	41.3	41.5	41.6	41.3	41.0	40.8	40.4
Primary metal industries	41.8	41.4	41.2	41.3	41.0	41.0	41.1	40.7	40.6	40.8	40.8	40.7	40.3
Fabricated metal products	39.1	40.7	40.7	40.8	40.6	40.7	40.9	40.7	41.0	40.9	40.8	40.6	40.4
Machinery, except electrical	40.5	42.0	42.0	41.9	41.6	41.9	41.6	41.6	41.6	41.7	41.5	41.4	41.3
Electric and electronic equipment	39.0	40.4	40.3	40.2	39.8	40.3	40.3	40.6	40.5	40.4	40.4	40.0	39.7
Transportation equipment	37.9	41.5	40.8	40.9	41.7	40.6	41.3	40.6	41.0	41.0	40.9	40.5	40.3
Instruments and related products	40.3	40.8	40.6	40.7	40.5	40.6	40.7	41.0	40.8	41.5	40.9	40.5	40.7
Miscellaneous manufacturing	37.6	38.6	38.9	39.3	39.1	39.1	39.1	39.1	39.2	39.5	39.2	38.6	38.3
Nondurable goods	38.6	39.2	39.2	39.2	39.2	39.3	39.3	39.4	39.4	39.5	39.4	39.1	38.9
Overtime hours	2.7	3.0	3.0	3.0	3.0	3.1	3.0	3.2	3.1	3.1	3.0	3.1	2.9
Food and kindred products	39.6	39.8	39.8	39.8	39.7	40.0	39.9	40.0	39.9	40.0	39.6	39.5	39.5
Tobacco manufactures	37.6	38.9	37.6	38.5	38.0	38.6	38.3	37.8	38.8	38.5	37.7	37.6	37.4
Textile mill products	38.8	40.0	40.1	40.1	40.1	40.6	40.8	41.1	41.0	41.7	41.1	40.8	39.7
Apparel and other textile products	34.2	35.2	35.2	35.5	35.3	35.3	35.3	35.3	35.6	35.9	36.0	35.4	35.6
Paper and allied products	41.8	42.6	42.5	42.5	42.6	42.4	42.6	42.7	42.9	42.8	42.9	42.5	42.6
Printing and publishing	37.1	37.4	37.4	37.5	37.7	37.5	37.4	37.6	37.4	37.8	37.4	37.2	37.0
Chemicals and allied products	41.7	41.9	41.7	41.9	42.0	41.7	41.7	41.9	41.7	42.0	41.9	41.8	41.4
Petroleum and coal products	43.9	43.7	43.3	43.6	43.7	44.1	43.7	44.4	43.5	36.6	40.4	40.3	41.8
Rubber and miscellaneous plastics products	39.7	40.9	40.7	40.6	40.2	40.3	40.3	40.0	39.9	40.6	39.9	39.8	39.8
Leather and leather products	35.6	36.1	36.4	36.6	36.5	37.0	36.5	36.7	36.9	37.2	37.3	36.8	36.4
TRANSPORTATION AND PUBLIC UTILITIES	39.2	39.8	39.8	39.7	39.9	39.9	39.9	40.2	39.8	39.9	39.8	39.9	39.8
WHOLESALE AND RETAIL TRADE	32.8	32.6	32.6	32.6	32.5	32.6	32.6	32.7	32.6	32.5	32.3	32.3	32.1
WHOLESALE TRADE	38.7	39.0	38.8	38.8	38.7	38.7	38.8	38.9	38.9	38.8	38.7	38.5	38.5
RETAIL TRADE	30.9	30.6	30.6	30.6	30.5	30.7	30.6	30.7	30.6	30.5	30.3	30.3	30.1
FINANCE, INSURANCE, AND REAL ESTATE	36.5	36.1	36.2	36.3	36.1	36.4	36.2	36.5	36.4	36.2	36.4	36.6	36.4
SERVICES	32.7	32.7	32.7	32.8	32.7	32.7	32.6	32.7	32.9	32.7	32.7	32.7	32.7

c=corrected.

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

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

Industry division and group	Annual average		1979									1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. P	Apr. P
TOTAL PRIVATE	\$5.69	\$6.16	\$6.03	\$6.09	\$6.12	\$6.16	\$6.19	\$6.31	\$6.32	\$6.35	\$6.39	\$6.42	\$6.46	\$6.51	\$6.51
MINING	7.67	8.48	8.54	8.45	8.49	8.52	8.48	8.57	8.57	8.70	8.73	8.85	8.88	8.94	9.00
CONSTRUCTION	8.65	9.26	9.02	9.14	9.13	9.24	9.32	9.51	9.49	9.50	9.57	9.47	9.60	9.64	9.60
MANUFACTURING	6.17	6.69	6.54	6.63	6.66	6.71	6.69	6.80	6.82	6.86	6.97	6.96	6.99	7.06	7.07
Durable goods	6.58	7.12	6.95	7.07	7.11	7.15	7.12	7.24	7.25	7.29	7.41	7.39	7.45	7.53	7.54
Lumber and wood products	5.60	6.08	5.90	5.97	6.16	6.23	6.23	6.32	6.24	6.23	6.25	6.22	6.34	6.35	6.28
Furniture and fixtures	4.68	5.06	4.94	4.97	5.05	5.04	5.10	5.18	5.20	5.23	5.27	5.27	5.34	5.39	5.40
Stone, clay, and glass products	6.32	6.84	6.73	6.78	6.85	6.89	6.90	6.98	7.00	7.07	7.10	7.05	7.13	7.25	7.32
Primary metal industries	8.20	8.97	8.92	8.83	8.91	9.04	9.10	9.16	9.10	9.26	9.28	9.30	9.44	9.44	9.54
Fabricated metal products	6.34	6.82	6.62	6.77	6.81	6.80	6.83	6.93	6.96	6.99	7.12	7.06	7.12	7.21	7.21
Machinery, except electrical	6.77	7.33	7.10	7.25	7.34	7.35	7.35	7.48	7.45	7.51	7.65	7.67	7.71	7.77	7.80
Electric and electronic equipment	5.82	6.31	6.11	6.21	6.25	6.27	6.36	6.46	6.48	6.51	6.64	6.67	6.71	6.78	6.81
Transportation equipment	7.91	8.53	8.26	8.56	8.53	8.55	8.44	8.59	8.67	8.68	8.90	8.78	8.84	9.02	8.98
Instruments and related products	5.71	6.17	6.03	6.11	6.11	6.16	6.14	6.21	6.32	6.39	6.49	6.57	6.58	6.61	6.65
Miscellaneous manufacturing	4.69	5.04	4.96	5.00	4.99	5.03	5.04	5.07	5.12	5.15	5.22	5.31	5.33	5.38	5.41
Nondurable goods	5.53	6.00	5.90	5.91	5.94	6.03	6.04	6.11	6.14	6.21	6.26	6.28	6.27	6.30	6.36
Food and kindred products	5.80	6.27	6.19	6.22	6.22	6.28	6.28	6.33	6.36	6.51	6.56	6.62	6.64	6.68	6.73
Tobacco manufactures	6.13	6.69	6.80	6.83	6.82	6.83	6.59	6.54	6.43	7.01	7.04	7.13	7.41	7.62	7.77
Textile mill products	4.30	4.66	4.48	4.52	4.54	4.65	4.77	4.82	4.83	4.86	4.87	4.90	4.90	4.92	4.94
Apparel and other textile products	3.94	4.24	4.19	4.20	4.21	4.23	4.21	4.28	4.32	4.32	4.39	4.45	4.46	4.49	4.47
Paper and allied products	6.52	7.12	6.92	6.96	7.05	7.17	7.22	7.32	7.34	7.42	7.48	7.48	7.51	7.53	7.60
Printing and publishing	6.50	6.91	6.72	6.83	6.88	6.90	6.94	7.04	7.06	7.09	7.17	7.20	7.25	7.29	7.31
Chemicals and allied products	7.01	7.59	7.50	7.47	7.53	7.60	7.65	7.73	7.82	7.87	7.91	7.96	7.99	8.00	8.09
Petroleum and coal products	8.63	9.37	9.44	9.39	9.32	9.39	9.35	9.51	9.49	9.57	9.49	9.48	9.40	9.25	9.81
Rubber and miscellaneous plastics products	5.52	5.96	5.82	5.90	5.91	5.95	5.94	6.03	6.12	6.14	6.21	6.25	6.25	6.28	6.28
Leather and leather products	3.89	4.23	4.18	4.18	4.19	4.19	4.22	4.29	4.31	4.34	4.36	4.46	4.48	4.51	4.55
TRANSPORTATION AND PUBLIC UTILITIES	7.57	8.18	7.88	7.94	8.03	8.23	8.32	8.45	8.45	8.52	8.55	8.56	8.59	8.63	8.69
WHOLESALE AND RETAIL TRADE	4.67	5.06	5.00	5.00	5.02	5.05	5.06	5.13	5.15	5.18	5.18	5.34	5.36	5.39	5.37
WHOLESALE TRADE	5.88	6.39	6.30	6.29	6.34	6.39	6.41	6.51	6.51	6.57	6.68	6.72	6.76	6.82	6.83
RETAIL TRADE	4.20	4.53	4.49	4.49	4.50	4.51	4.52	4.58	4.59	4.62	4.61	4.78	4.78	4.79	4.77
FINANCE, INSURANCE, AND REAL ESTATE	4.90	5.28	5.23	5.22	5.22	5.29	5.29	5.38	5.37	5.42	5.49	5.55	5.62	5.69	5.68
SERVICES	4.99	5.36	5.29	5.27	5.27	5.29	5.30	5.45	5.48	5.54	5.60	5.65	5.70	5.73	5.73

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

[Seasonally adjusted data: 1967 = 100]

Industry	1979									1980				Mar. 1980 to Apr. 1980	Apr. 1979 to Apr. 1980
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. P	Apr. P		
TOTAL PRIVATE (in current dollars) ..	226.8	227.5	229.0	230.9	232.2	234.3	234.9	237.3	239.5	240.5	242.6	245.1	245.6	0.2	8.3
Mining	264.1	262.7	264.9	266.9	265.6	266.1	268.0	271.6	273.2	274.0	275.5	278.8	281.3	.9	6.5
Construction	218.1	220.4	220.4	222.1	223.1	224.4	224.0	225.8	227.6	225.1	229.8	231.2	231.2	.0	6.0
Manufacturing	231.0	232.3	233.9	235.4	236.9	238.7	240.0	242.1	244.3	245.3	248.1	250.3	252.2	.8	9.2
Transportation and public utilities ..	241.7	243.7	246.4	251.3	252.6	255.6	255.8	258.9	260.7	261.2	262.7	265.7	266.7	.4	10.3
Wholesale and retail trade	220.9	221.0	222.6	223.8	225.4	227.0	227.4	229.5	231.3	234.7	235.5	237.6	237.0	-.2	7.3
Finance, insurance, and real estate ..	207.5	207.0	208.0	210.8	211.5	214.4	213.1	216.2	218.5	218.6	221.2	226.1	225.0	-.5	8.5
Services	225.0	224.3	225.7	227.0	228.4	231.5	232.3	234.7	237.7	238.0	239.9	242.8	242.7	.0	7.9
TOTAL PRIVATE (in constant dollars) ..	107.0	106.3	105.8	105.6	105.1	104.9	104.1	104.1	103.8	102.8	102.3	101.9	(¹)	(¹)	(¹)

¹ Not available.

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

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

Industry division and group	Annual average		1979										1980			
	1978	1979	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. ^P	Apr. ^P	
	TOTAL PRIVATE	\$203.70	\$219.91	\$211.65	\$216.20	\$219.71	\$221.76	\$222.84	\$225.90	\$225.62	\$226.06	\$229.40	\$225.34	\$227.39	\$229.15	\$228.50
MINING	332.11	364.64	363.80	361.66	367.62	355.28	365.49	372.80	374.51	380.19	383.25	384.09	383.62	387.10	387.00	
CONSTRUCTION	318.32	341.69	320.21	340.01	346.03	348.35	354.16	360.43	356.82	346.75	355.05	332.40	340.80	348.00	351.36	
MANUFACTURING	249.27	268.94	254.41	265.86	269.06	267.73	267.60	274.04	274.85	277.14	285.07	277.01	278.20	280.99	278.56	
Durable goods	270.44	290.50	273.14	288.46	291.51	288.86	287.65	295.39	295.80	297.43	308.26	297.82	300.24	304.21	300.85	
Lumber and wood products	222.88	240.16	230.69	236.41	247.63	245.46	248.58	253.43	248.35	241.72	245.00	236.98	244.09	243.21	234.24	
Furniture and fixtures	183.92	195.32	185.25	189.85	195.94	191.52	196.86	202.02	204.36	205.02	210.27	202.37	204.52	206.98	205.74	
Stone, clay, and glass products	262.91	283.86	276.60	284.08	288.39	285.94	287.73	291.07	291.90	294.82	296.78	282.71	285.91	294.35	295.00	
Primary metal industries	342.76	371.36	371.96	365.56	370.66	373.35	371.28	378.31	372.19	376.88	379.55	378.51	384.21	383.26	383.51	
Fabricated metal products	259.94	278.26	256.86	275.54	279.21	274.04	276.62	282.74	285.36	286.59	298.33	286.64	287.65	292.73	289.12	
Machinery except electrical	284.34	306.39	286.13	302.33	308.28	302.82	303.56	313.41	309.92	314.67	327.42	318.31	319.97	323.23	320.58	
Electric and electronic equipment	234.55	254.29	237.07	249.64	253.13	248.29	252.49	261.63	261.14	266.26	274.23	268.13	269.74	271.20	269.00	
Transportation equipment	333.80	351.44	313.05	356.10	352.29	349.70	341.82	349.61	358.07	354.14	379.14	352.08	357.14	365.31	361.89	
Instruments and related products	233.54	251.74	241.20	249.29	248.68	248.25	247.44	252.75	257.86	264.55	269.98	269.37	267.81	268.37	268.66	
Miscellaneous manufacturing	181.97	196.06	186.50	192.50	194.61	194.66	196.06	199.25	201.22	203.94	207.23	207.62	206.80	208.74	207.20	
Nondurable goods	217.88	235.80	225.38	231.08	234.04	236.38	237.98	241.96	241.92	245.92	249.77	244.92	243.90	245.70	246.13	
Food and kindred products	230.26	250.17	241.41	246.31	247.56	251.83	253.08	257.00	254.40	261.70	264.37	261.49	258.96	261.19	261.80	
Tobacco manufactures	233.55	254.22	255.68	265.69	265.98	246.56	247.78	255.71	249.48	273.39	278.08	266.66	273.43	287.27	290.60	
Textile mill products	173.72	187.80	172.93	181.25	184.32	185.54	192.23	196.66	197.06	200.72	202.11	200.41	199.92	201.23	195.13	
Apparel and other textile products	140.26	149.25	142.04	147.42	149.88	149.74	149.88	151.51	153.36	153.79	157.60	156.64	153.33	158.95	157.79	
Paper and allied products	279.71	303.31	287.87	295.10	302.74	304.73	307.57	312.56	312.68	318.32	325.38	318.65	318.42	318.52	322.24	
Printing and publishing	244.40	259.13	247.30	254.76	257.31	258.06	263.03	266.82	264.75	268.71	273.18	267.84	268.25	271.19	268.28	
Chemicals and allied products	293.72	317.26	314.25	312.25	314.75	316.92	319.77	323.11	326.09	331.33	333.80	331.93	332.38	334.40	336.54	
Petroleum and coal products	376.27	410.41	414.42	410.34	404.49	414.10	407.66	425.10	418.51	428.74	411.87	342.23	372.24	370.93	410.06	
Rubber and miscellaneous plastics products	225.77	241.38	229.31	238.95	240.54	239.19	237.60	244.22	247.86	247.44	252.75	251.88	249.38	250.57	248.06	
Leather and leather products	144.32	154.40	147.55	152.15	155.45	154.61	154.45	157.87	157.32	159.71	162.63	163.68	164.86	164.16	164.26	
TRANSPORTATION AND PUBLIC UTILITIES	302.80	326.38	307.32	314.42	321.20	329.20	335.30	337.16	337.16	342.50	342.00	338.12	341.02	342.61	344.12	
WHOLESALE AND RETAIL TRADE	153.64	164.96	162.50	162.00	165.16	168.17	167.99	167.75	167.38	167.83	170.42	170.35	170.98	172.48	171.30	
WHOLESALE TRADE	228.14	247.93	243.18	244.68	247.26	249.21	249.35	252.59	253.24	255.57	261.19	258.72	259.58	261.89	262.27	
RETAIL TRADE	130.20	139.07	137.39	136.50	139.50	142.07	141.93	140.61	139.54	140.45	142.91	142.44	142.44	143.22	142.15	
FINANCE, INSURANCE, AND REAL ESTATE	178.36	191.66	190.37	188.44	188.96	192.56	191.50	195.29	194.93	197.29	199.84	201.47	204.57	207.69	206.18	
SERVICES	163.67	175.27	171.93	171.28	173.38	176.16	175.96	178.22	178.65	180.60	183.68	183.63	185.25	186.23	186.23	

20. Gross and spendable weekly earnings, in current and 1967 dollars, 1960 to date

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

Year and month	Private nonagricultural workers						Manufacturing workers					
	Gross average weekly earnings		Spendable average weekly earnings				Gross average weekly earnings		Spendable average weekly earnings			
			Worker with no dependents		Married worker with 3 dependents				Worker with no dependents		Married worker with 3 dependents	
	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars
1960	\$80.67	\$90.95	\$65.59	\$73.95	\$72.96	\$82.25	\$89.72	\$101.15	\$72.57	\$81.82	\$80.11	\$90.32
1961	82.60	92.19	67.08	74.87	74.48	83.13	92.34	103.06	74.60	83.26	82.18	91.72
1962	85.91	94.82	69.56	76.78	76.99	84.98	96.56	106.58	77.86	85.94	85.53	94.40
1963	88.46	96.47	71.05	77.48	78.56	85.67	99.23	108.21	79.51	86.71	87.25	95.15
1964	91.33	98.31	75.04	80.78	82.57	88.88	102.97	110.84	84.40	90.85	92.18	99.22
1965	95.45	101.01	79.32	83.94	86.63	91.67	107.53	113.79	89.08	94.26	96.78	102.41
1966	98.82	101.67	81.29	83.63	88.66	91.21	112.19	115.42	91.45	94.08	99.33	102.19
1967	101.84	101.84	83.38	83.38	90.86	90.86	114.49	114.49	92.97	92.97	100.93	100.93
1968	107.73	103.39	86.71	83.21	95.28	91.44	122.51	117.57	97.70	93.76	106.75	102.45
1969	114.61	104.38	90.96	82.84	99.99	91.07	129.51	117.95	101.90	92.81	111.44	101.49
1970	119.83	103.04	96.21	82.73	104.90	90.20	133.33	114.64	106.32	91.42	115.58	99.38
1971	127.31	104.95	103.80	85.57	112.43	92.69	142.44	117.43	114.97	94.78	124.24	102.42
1972	136.90	109.26	112.19	89.54	121.68	97.11	154.71	123.47	125.34	100.03	135.57	108.20
1973	145.39	109.23	117.51	88.29	127.38	95.70	166.46	125.06	132.57	99.60	143.50	107.81
1974	154.76	104.78	124.37	84.20	134.61	91.14	176.80	119.70	140.19	94.92	151.56	102.61
1975	163.53	101.45	132.49	82.19	145.65	90.35	190.79	118.36	151.61	94.05	166.29	103.16
1976	175.45	102.90	143.30	84.05	155.87	91.42	209.32	122.77	167.83	98.43	181.32	106.35
1977	189.00	104.13	155.19	85.50	169.93	93.63	228.90	126.12	183.80	101.27	200.06	110.23
1978	203.70	104.30	165.39	84.69	180.71	92.53	249.27	127.63	197.40	101.08	214.87	110.02
1979	219.91	101.02	178.00	81.76	194.82	89.49	268.94	123.54	212.43	97.58	232.07	106.60
1979: April	211.65	99.93	171.98	81.20	188.39	88.95	254.41	120.12	202.32	95.52	221.05	104.37
May	216.20	100.89	175.29	81.80	191.93	89.56	265.86	124.06	210.04	98.14	229.74	107.20
June	219.71	101.30	177.85	82.00	194.67	89.75	269.06	124.05	212.51	97.98	232.17	107.04
July	221.76	101.08	179.35	81.75	196.26	89.45	267.73	122.03	211.61	96.45	231.16	105.36
August	222.84	100.60	180.13	81.32	197.11	88.99	267.60	120.81	211.52	95.49	231.06	104.32
September	225.90	100.98	182.36	81.52	199.42	89.15	274.04	122.50	215.89	96.51	235.94	105.47
October	225.62	100.01	182.16	80.74	199.21	88.30	274.85	121.83	216.44	95.94	236.56	104.86
November	226.06	99.32	182.48	80.18	199.54	87.67	277.14	121.77	217.99	95.78	238.30	104.70
December	229.40	99.74	184.84	80.37	202.08	87.86	285.07	123.94	223.38	97.12	244.31	106.22
1980: January	225.34	96.59	181.96	77.99	199.00	85.30	277.01	118.74	217.91	93.40	238.20	102.10
February	227.39	96.15	183.44	77.56	200.55	84.80	278.20	117.63	218.71	92.48	239.10	101.10
March	229.15	95.52	184.67	76.98	201.89	84.16	280.99	117.13	220.61	91.96	241.22	100.55
April ¹	228.50	(¹)	184.21	(¹)	201.39	(¹)	278.56	(¹)	218.96	(¹)	239.37	(¹)

¹Not available.

NOTE: The earnings expressed in 1967 dollars have been adjusted for changes in price level as measured by the Bureau's Consumer Price Index for Urban Wage Earners and Clerical Workers.

These series are described in "The Spendable Earnings Series: A Technical Note on its Calculation," *Employment and Earnings and Monthly Report on the Labor Force*, February 1969, pp. 6-13. See also "Spendable Earnings Formulas, 1978-80," *Employment and Earnings*, March 1980, pp. 10-11.

UNEMPLOYMENT INSURANCE DATA

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

Definitions

Data for **all programs** represent an unduplicated count of insured unemployment under the State, Ex-Servicemen, and UCFE programs, 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 un-

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

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

21. Unemployment Insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1979										1980		
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
All programs:													
Insured unemployment	2,921	2,610	2,230	2,119	2,429	2,377	2,164	2,236	2,559	3,047	3,740	3,730	3,652
State unemployment insurance program: ¹													
Initial claims ²	1,396	1,589	1,309	1,400	1,978	1,545	1,219	1,641	1,827	2,263	2,837	1,818	.....
Insured unemployment (average weekly volume)	2,750	2,440	2,078	1,991	2,300	2,245	2,024	2,057	2,384	2,864	3,537	3,518	3,356
Rate of insured unemployment	3.6	3.1	2.6	2.5	2.8	2.7	2.4	2.4	2.8	3.4	4.1	4.1	3.9
Weeks of unemployment compensated	11,105	8,956	8,442	7,197	7,889	8,830	6,993	7,638	8,107	9,171	13,792	12,804	.....
Average weekly benefit amount for total unemployment	\$90.28	\$89.25	\$88.37	\$87.25	\$86.40	\$88.56	\$89.07	\$90.59	\$92.39	\$94.54	\$96.40	\$98.14	.....
Total benefits paid	\$975,641	\$777,699	\$725,229	\$610,269	\$665,687	\$767,025	\$606,095	\$673,965	\$728,370	\$843,869	\$1,283,946	\$1,229,084	.....
Unemployment compensation for ex-servicemen: ³													
Initial claims ¹	21	20	20	24	28	28	23	26	24	24	25	21	.....
Insured unemployment (average weekly volume)	52	48	45	45	51	52	52	52	54	56	60	58	63
Weeks of unemployment compensated	241	207	214	193	216	234	211	236	232	233	299	255	.....
Total benefits paid	\$22,794	\$19,617	\$20,440	\$18,623	\$20,965	\$23,861	\$19,634	\$23,325	\$23,093	\$23,093	\$29,635	\$25,414	.....
Unemployment compensation for Federal civilian employees: ⁴													
Initial claims	12	12	12	13	16	13	13	18	15	15	19	11	.....
Insured unemployment (average weekly volume)	33	27	24	23	2.5	25	25	28	29	31	34	32	30
Weeks of unemployment compensated	143	112	106	91	96	107	91	109	118	118	150	129	.....
Total benefits paid	\$13,168	\$10,345	\$9,330	\$8,341	\$8,802	\$9,829	\$8,453	\$10,093	\$11,063	\$11,047	\$14,118	\$12,387	.....
Railroad unemployment insurance:													
Applications	5	3	3	9	15	8	13	11	10	11	22	7	5
Insured unemployment (average weekly volume)	23	18	10	8	11	12	21	18	20	19	40	39	30
Number of payments	23	40	29	19	20	26	32	51	36	41	80	71	68
Average amount of benefit payment	\$204.72	\$195.55	\$177.39	\$183.13	\$190.10	\$195.61	\$189.08	\$189.61	\$183.38	\$197.22	\$199.01	\$208.73	\$210.79
Total benefits paid	\$10,538	\$7,276	\$5,681	\$3,314	\$3,699	\$3,767	\$5,747	\$8,003	\$6,462	\$8,085	\$14,967	\$14,573	\$13,884
Employment service: ⁵													
New applications and renewals	8,059	9,180	10,452	11,907	13,186	14,479	15,525	1,855	.....	4,378	.....	.....	8,553
Nonfarm placements	1,991	2,291	2,616	3,051	3,482	3,935	4,349	458	.....	1,044	.....	.....	1,816

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

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

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

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

⁵Cumulative total for fiscal year (October 1 - September 30).

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

PRICE DATA

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period (1967 = 100, unless otherwise noted).

Definitions

The **Consumer Price Index** is a monthly statistical measure of the average change in prices in a fixed market basket of goods and services. Effective with the January 1978 index, the Bureau of Labor Statistics began publishing CPI's for two groups of the population. One index, a new CPI for All Urban Consumers, covers 80 percent of the total noninstitutional population; and the other index, a revised CPI for Urban Wage Earners and Clerical Workers, covers about half the new index population. The All Urban Consumers index includes, in addition to wage earners and clerical workers, professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctor's and dentist's fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items is kept essentially unchanged between major revisions so that only price changes will be measured. Prices are collected from over 18,000 tenants, 24,000 retail establishments, and 18,000 housing units for property taxes in 85 urban areas across the country. All taxes directly associated with the purchase and use of items are included in the index. Because the CPI's are based on the expenditures of two population groups in 1972-73, they may not accurately reflect the experience of individual families and single persons with different buying habits.

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

Producer Price Indexes measure average changes in prices received in primary markets of the United States by producers of commodities in all stages of processing. The sample used for calculating these indexes contains about 2,800 commodities and about 10,000 quotations per month selected to represent the movement of prices of all commodities produced in the manufacturing, agriculture, forestry, fishing, mining, gas and electricity, and public utilities sectors. The universe includes all commodities produced or imported for sale in commercial transactions in primary markets in the United States.

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

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States, from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire.

Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

In calculating Producer Price Indexes, price changes for the various commodities are averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1972. The detailed data are aggregated to obtain indexes for stage of processing groupings, commodity groupings, durability of product groupings, and a number of special composite groupings.

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

Notes on the data

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

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

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

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

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

22. Consumer Price Index for Urban Wage Earners and Clerical Workers, annual averages and changes, 1967-79

[1967 = 100]

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

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1979				1980			1979				1980		
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
All items	209.1	225.4	227.5	229.9	233.2	236.4	239.8	209.3	225.6	227.6	230.0	233.3	236.5	239.9
Food and beverages	224.4	232.1	233.1	235.5	237.5	238.6	241.0	225.1	232.3	233.1	235.7	237.8	239.0	241.2
Housing	217.6	237.7	240.8	243.6	247.3	250.5	254.5	217.5	237.7	240.7	243.6	247.3	250.5	254.4
Apparel and upkeep	164.3	171.0	171.7	172.2	171.0	171.9	176.0	164.2	170.8	171.3	171.4	169.8	171.5	175.1
Transportation	198.1	222.7	224.9	227.7	233.5	239.6	243.7	198.7	223.4	225.7	228.3	234.1	240.2	244.3
Medical care	233.9	245.9	248.0	250.7	253.9	257.9	260.2	233.7	247.2	249.1	251.7	254.9	258.7	260.9
Entertainment	184.8	192.0	192.8	193.4	195.3	197.8	200.6	184.0	191.4	192.0	192.3	193.9	196.2	199.5
Other goods and services	192.8	202.3	202.9	204.0	206.3	208.1	208.9	192.6	201.4	202.0	203.0	206.0	207.7	208.3
Commodities	200.5	215.6	217.4	219.4	222.4	225.2	228.0	200.9	215.8	217.4	219.4	222.3	225.3	228.1
Commodities less food and beverages	187.0	204.9	206.9	208.8	212.0	215.5	218.4	187.0	205.0	206.9	208.7	212.0	215.7	218.7
Nondurables less food and beverages	187.8	214.9	216.6	219.0	224.6	231.8	237.5	188.4	216.6	218.1	220.5	226.3	234.1	239.8
Durables	184.9	196.0	198.4	199.8	201.3	202.1	203.0	184.5	194.8	196.9	198.2	199.6	200.3	201.2
Services	225.1	243.6	246.2	249.3	253.1	256.8	261.3	225.1	244.0	246.7	249.6	253.6	257.3	261.7
Rent, residential	171.3	181.4	182.1	182.9	184.1	185.6	186.6	171.2	181.2	181.9	182.7	183.9	185.5	186.4
Household services less rent	253.7	280.7	284.6	289.2	295.1	300.2	307.3	254.3	282.3	286.3	291.1	297.2	302.4	309.6
Transportation services	206.7	218.5	221.5	224.2	226.8	229.6	233.4	207.4	218.6	221.5	224.0	226.6	229.3	232.7
Medical care services	251.8	265.3	267.6	270.7	274.4	279.0	281.5	251.3	266.8	268.8	271.8	275.6	279.8	282.2
Other services	195.0	205.7	206.5	207.1	209.0	211.1	212.9	195.0	206.4	207.3	207.4	209.3	211.4	213.5
Special indexes:														
All items less food	203.8	221.8	224.1	226.4	229.9	233.5	237.1	203.7	222.0	224.2	226.4	230.0	233.7	237.3
All items less mortgage interest costs	204.1	218.3	219.8	221.7	224.3	227.1	229.8	204.5	218.7	220.1	222.0	224.7	227.6	230.2
Commodities less food	185.9	203.4	205.4	207.2	210.4	213.8	216.7	185.9	203.5	205.4	207.1	210.3	214.0	216.9
Nondurables less food	185.7	211.3	212.9	215.2	220.5	227.3	232.6	186.3	212.9	214.4	216.7	222.1	229.4	234.8
Nondurables less food and apparel	200.0	234.8	236.8	240.1	248.6	258.2	264.1	200.5	236.3	238.2	241.5	250.2	260.1	266.3
Nondurables	206.9	224.5	225.8	228.2	232.0	236.3	240.3	207.6	225.3	226.5	229.0	232.9	237.4	241.4
Services less rent	235.0	255.1	258.2	261.6	266.1	270.2	275.4	235.0	255.7	258.8	262.1	266.7	270.8	275.9
Services less medical care	220.8	239.6	242.3	245.3	249.2	252.7	257.4	220.8	239.9	242.6	245.5	249.5	253.1	257.7
Domestically produced farm foods	220.7	224.1	224.5	227.5	229.2	229.1	231.2	221.0	224.0	224.4	227.5	229.0	229.2	231.0
Selected beef cuts	253.4	257.3	256.5	263.2	265.7	267.2	270.2	255.6	259.1	259.2	265.2	268.1	270.3	272.3
Energy	241.2	307.5	307.8	313.7	327.9	344.6	355.0	241.7	310.2	310.7	317.0	331.5	348.7	359.6
All items less energy	206.9	219.2	221.4	223.6	225.9	228.0	230.8	207.1	218.8	221.0	223.0	225.3	227.3	230.0
All items less food and energy	200.4	213.6	216.1	218.1	220.6	222.8	225.7	200.2	213.0	215.4	217.3	219.6	221.8	224.6
Commodities less food and energy	180.3	189.6	191.4	192.6	193.7	194.9	196.5	180.0	188.7	190.4	191.4	192.4	193.5	195.1
Energy commodities	239.5	329.0	332.5	340.0	361.5	385.0	398.5	240.0	330.2	333.8	341.5	362.8	386.4	400.3
Services less energy	223.7	241.3	244.6	247.6	251.6	255.2	259.6	223.7	241.7	245.1	248.0	252.2	255.7	260.0
Purchasing power of the consumer dollar, 1967 = \$1	\$0.478	\$0.444	\$0.440	\$0.435	\$0.429	\$0.423	\$0.417	\$0.478	\$0.443	\$0.439	\$0.435	\$0.429	\$0.423	\$0.417

MONTHLY LABOR REVIEW June 1980 • Current Labor Statistics: Consumer Prices

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
FOOD AND BEVERAGES	224.4	232.1	233.1	235.5	237.5	238.6	241.0	225.1	232.3	233.1	235.7	237.8	239.0	241.2
Food	230.4	238.2	239.1	241.7	243.8	244.9	247.3	231.1	238.3	239.1	241.8	244.0	245.2	247.5
Food at home	229.9	235.4	236.0	238.7	240.6	241.3	243.6	230.0	234.8	235.4	238.3	240.1	241.1	243.1
Cereals and bakery products	213.5	227.0	228.7	231.6	234.2	236.8	238.6	214.1	227.9	229.7	232.3	234.7	237.4	239.3
Cereals and cereal products (12/77 = 100)	113.7	120.8	121.1	122.9	125.0	125.8	126.6	113.9	121.4	122.1	123.8	126.1	127.2	127.7
Flour and prepared flour mixes (12/77 = 100)	114.9	124.0	122.8	123.8	125.7	125.7	126.6	115.2	125.0	124.6	125.1	126.9	127.3	127.5
Cereal (12/77 = 100)	114.1	119.2	119.7	122.8	123.7	124.9	126.0	114.4	119.3	119.9	122.9	124.2	125.5	126.6
Rice, pasta, and cornmeal (12/77 = 100)	112.2	120.4	121.6	122.2	126.4	127.4	127.6	112.1	120.8	122.7	123.9	127.9	129.2	129.4
Bakery products (12/77 = 100)	112.7	119.9	121.0	122.4	123.5	125.1	126.1	113.1	120.3	121.3	122.7	123.6	125.1	126.2
White bread	187.0	202.5	204.5	207.4	208.6	210.7	212.0	187.6	202.3	203.9	206.6	207.4	209.7	212.1
Other breads (12/77 = 100)	112.6	120.5	121.3	123.3	123.8	124.6	125.6	114.2	123.8	124.2	126.0	126.9	127.5	129.3
Fresh biscuits, rolls, and muffins (12/77 = 100)	113.1	119.4	121.2	123.1	124.8	126.2	127.0	112.4	118.7	120.8	122.3	123.1	124.3	124.9
Fresh cakes and cupcakes (12/77 = 100)	110.5	117.6	119.4	120.3	121.7	122.8	124.4	110.6	118.1	119.1	120.1	120.8	122.2	123.2
Cookies (12/77 = 100)	113.5	116.6	117.1	117.8	119.7	122.8	124.4	114.6	118.3	118.4	119.6	121.5	124.0	125.6
Crackers and bread and cracker products (12/77 = 100)	112.1	115.0	114.5	116.2	117.5	119.9	120.2	112.5	115.0	116.1	116.3	118.4	121.0	121.8
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	110.7	118.9	119.9	121.5	122.2	123.8	125.0	112.4	120.7	121.9	123.4	124.1	125.4	126.2
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	113.8	122.5	123.7	124.8	125.7	127.2	127.9	112.3	118.8	120.8	121.4	122.5	123.8	124.0
Meats, poultry, fish, and eggs	237.0	230.3	230.2	235.5	238.0	236.2	237.8	236.9	229.7	230.0	235.1	237.5	236.4	237.1
Meats, poultry, and fish	241.7	235.9	235.2	239.8	243.0	242.6	243.8	241.5	235.3	235.0	239.2	242.5	242.8	243.0
Meats	244.2	238.6	237.4	242.3	244.1	244.1	245.7	243.9	238.1	237.3	241.8	243.7	244.3	245.0
Beef and veal	252.1	256.2	255.5	262.2	264.6	266.2	269.1	254.2	257.5	257.7	263.7	266.7	268.9	270.8
Ground beef other than canned	264.6	263.4	264.2	271.2	271.4	273.3	275.3	264.4	265.8	266.0	273.0	272.7	276.2	278.7
Chuck roast	270.8	263.3	263.1	268.1	274.7	277.7	286.2	279.3	268.3	273.1	274.2	283.6	288.7	293.4
Round roast	228.0	230.3	229.1	238.1	241.9	244.5	244.2	230.1	233.0	232.7	240.5	245.1	245.8	244.5
Round steak	236.5	242.2	241.9	247.5	249.8	252.3	254.2	234.4	239.4	239.7	246.2	249.4	250.5	251.1
Sirloin steak	233.4	250.4	247.0	250.8	250.9	251.1	254.3	233.0	249.6	247.4	253.5	253.5	253.0	256.0
Other beef and veal (12/77 = 100)	141.7	147.1	146.3	150.2	151.8	152.2	153.8	143.1	147.0	146.6	149.9	151.9	152.8	153.7
Pork	233.4	204.3	201.0	205.0	206.4	202.8	202.6	232.2	204.7	201.5	205.6	206.8	204.1	203.0
Bacon	227.9	190.5	186.3	193.6	194.5	190.1	187.6	229.2	194.4	188.7	195.8	195.3	193.8	189.4
Pork chops	223.6	195.1	188.8	187.8	192.1	189.7	190.7	224.1	194.9	188.1	189.1	194.8	191.0	190.5
Ham other than canned (12/77 = 100)	108.0	94.8	95.9	102.5	99.1	95.7	95.8	106.8	94.0	95.4	100.9	96.5	95.2	94.7
Sausage	285.4	257.6	254.5	256.5	256.6	255.1	257.6	280.5	258.1	255.8	258.3	260.3	257.0	259.8
Canned ham	236.7	218.2	214.8	218.9	220.8	219.5	219.3	235.8	215.8	214.6	219.1	219.3	218.9	217.4
Other pork (12/77 = 100)	132.2	115.2	112.9	112.6	116.2	114.3	113.6	130.8	115.1	112.7	112.7	116.2	114.6	113.7
Other meats	233.9	240.7	242.0	243.0	243.2	244.7	245.8	231.3	238.0	238.5	239.5	239.3	240.9	241.5
Frankfurters	234.5	236.8	238.9	239.3	239.0	242.7	244.6	232.7	237.7	237.2	238.7	239.5	242.1	242.8
Bologna, liverwurst, and salami (12/77 = 100)	129.0	134.2	133.4	134.4	134.1	135.6	135.5	127.8	130.7	130.4	130.8	130.5	132.3	132.2
Other luncheats (12/77 = 100)	120.7	120.3	121.6	121.5	121.2	120.7	121.8	118.0	118.8	119.5	119.4	118.7	118.6	118.8
Lamb and organ meats (12/77 = 100)	125.4	137.7	138.3	140.0	141.6	142.4	142.3	126.7	138.8	139.8	141.7	142.5	143.4	144.3
Poultry	189.9	170.3	171.6	176.2	187.8	182.6	180.7	188.1	168.3	170.1	173.9	184.3	118.1	177.4
Fresh whole chicken	191.5	159.7	166.7	175.2	191.1	183.6	179.5	187.7	157.7	163.3	169.8	183.8	178.9	172.5
Fresh and frozen chicken parts (12/77 = 100)	121.6	110.1	110.8	112.3	120.7	116.8	116.8	121.6	108.4	110.7	111.8	118.7	117.0	116.3
Other poultry (12/77 = 100)	123.0	120.3	115.9	116.9	119.3	118.8	118.2	122.2	119.8	116.0	117.4	120.1	119.4	117.7
Fish and seafood	294.0	311.5	312.2	312.6	316.7	320.4	322.6	292.6	306.5	307.5	309.1	315.4	317.9	320.2
Canned fish and seafood (12/77 = 100)	108.3	115.2	116.8	117.1	118.5	120.3	120.4	107.9	114.5	116.0	116.5	118.4	119.7	119.5
Fresh and frozen fish and seafood (12/77 = 100)	114.2	120.7	120.1	120.2	121.9	123.0	124.3	113.7	118.1	117.8	118.5	121.2	122.0	123.5
Eggs	181.3	161.3	170.1	185.9	178.2	157.2	164.5	182.0	160.3	169.6	186.6	177.0	156.7	164.3
Dairy products	201.5	213.3	216.0	216.9	218.4	219.5	220.3	202.3	214.0	216.3	217.4	218.9	219.8	221.1
Fresh milk and cream (12/77 = 100)	113.8	120.3	121.9	122.7	123.2	123.7	124.1	114.2	120.4	121.8	122.6	123.2	123.6	124.2
Fresh whole milk	186.5	197.6	200.4	201.2	202.3	203.2	204.0	187.4	197.4	199.7	200.9	201.8	202.7	203.8
Other fresh milk and cream (12/77 = 100)	113.6	119.2	120.6	122.0	122.1	122.7	122.7	113.3	119.8	121.1	122.2	122.8	123.0	123.1
Processed dairy products (12/77 = 100)	114.0	120.9	122.3	122.5	123.8	124.5	125.1	114.5	121.7	123.0	123.3	124.5	125.1	126.2
Butter	194.5	213.3	214.4	214.0	216.9	218.3	218.3	196.2	216.6	217.1	216.6	219.8	220.9	220.9
Cheese (12/77 = 100)	114.6	121.0	122.7	122.6	123.5	124.2	124.9	114.6	121.1	122.5	122.7	123.6	124.4	125.5
Ice cream and related products (12/77 = 100)	113.4	120.4	121.4	122.6	124.0	124.6	125.1	114.8	121.9	123.4	124.3	125.6	125.6	127.2
Other dairy products (12/77 = 100)	111.0	116.4	117.8	117.9	119.8	120.9	121.6	111.6	116.9	118.2	118.3	120.4	121.3	121.9
Fruits and vegetables	225.9	232.0	229.5	230.2	229.8	228.3	232.4	225.4	230.2	226.7	228.3	227.2	225.9	230.1
Fresh fruits and vegetables	230.5	235.5	230.1	230.1	227.2	223.1	229.9	230.9	233.6	226.7	228.5	224.9	220.6	227.4
Fresh fruits	226.2	260.4	242.7	234.9	233.6	235.8	245.4	223.2	260.6	238.3	233.3	232.7	234.7	245.4
Apples	219.1	212.7	207.2	221.8	230.4	239.6	250.2	213.7	212.9	207.7	220.2	230.1	237.6	249.0
Bananas	194.7	206.6	209.0	225.2	221.9	238.5	243.9	192.3	199.7	206.5	222.0	219.5	234.6	240.8
Oranges	261.4	306.7	293.9	256.7	236.2	231.1	238.1	252.0	290.3	283.3	249.5	231.3	228.4	240.9
Other fresh fruits (12/77 = 100)	115.5	143.9	127.5	121.1	122.5	121.4	127.4	115.8	149.7	125.7	121.6	122.7	121.3	126.9
Fresh vegetables	234.6	212.2	218.4	225.7	221.2	211.2	215.5	237.9	209.4	216.4	224.2	217.9	207.9	211.3
Potatoes	200.1	191.1	195.7	207.0	203.8	203.3	203.3	201.0	183.8	191.7	199.6	200.9	199.8	200.3
Lettuce	281.3	262.9	244.2	227.5	197.6	198.7	208.3	293.2	264.2	239.0	231.3	193.2	191.7	203.8
Tomatoes	182.7	194.4	225.3	227.9	216.7	184.9	201.4	187						

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
FOOD AND BEVERAGES—Continued														
Food—Continued														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	111.6	113.6	113.4	114.4	114.5	115.2	116.0	111.0	111.9	111.8	113.0	112.7	113.4	115.4
Other canned and dried vegetables (12/77=100)	106.4	109.9	110.0	110.9	112.9	113.9	114.8	105.2	108.5	108.1	109.1	110.4	111.9	112.3
Other foods at home	262.4	278.0	279.6	281.1	283.5	288.0	292.0	262.2	276.5	278.3	279.9	282.6	287.3	290.9
Sugar and sweets	272.1	283.1	283.2	284.6	289.8	297.5	313.5	272.4	282.2	281.9	284.1	289.6	297.1	314.1
Candy and chewing gum (12/77=100)	115.0	119.9	120.1	120.1	121.3	122.4	123.8	115.3	119.6	119.8	119.9	121.2	122.2	123.9
Sugar and artificial sweeteners (12/77=100)	114.5	119.0	116.2	117.2	122.2	131.5	153.0	114.8	116.9	116.2	117.6	122.7	131.6	153.8
Other sweets (12/77=100)	109.5	115.9	116.4	117.5	118.7	119.5	120.4	108.7	114.8	114.6	116.6	117.5	118.5	119.3
Fats and oils (12/77=100)	219.5	231.9	232.3	233.0	233.9	235.9	236.8	219.8	231.9	232.8	233.7	234.9	236.5	236.8
Margarine	235.5	244.4	246.2	247.7	248.3	247.9	248.8	234.6	244.9	246.7	247.8	248.8	247.9	248.3
Nondairy substitutes and peanut butter (12/77=100)	110.0	115.1	115.1	115.7	115.3	116.4	117.9	110.3	114.6	115.0	115.8	116.1	117.2	118.5
Other fats, oils, and salad dressings (12/77=100)	113.0	121.1	121.0	121.1	121.9	123.6	123.7	113.4	121.0	121.3	121.5	122.3	123.8	123.4
Nonalcoholic beverages	347.1	372.1	374.3	375.4	378.5	384.5	387.1	346.9	368.2	370.7	372.3	375.6	383.0	384.4
Cola drinks, excluding diet cola	233.8	246.4	247.5	247.2	249.5	255.9	259.3	232.9	242.0	243.6	243.4	246.5	253.6	255.4
Carbonated drinks, including diet cola (12/77=100)	113.8	118.5	118.4	118.7	119.9	122.3	123.5	111.6	116.1	115.6	116.4	116.4	120.2	121.1
Roasted coffee	348.3	432.4	438.1	440.7	443.2	439.6	437.6	349.8	424.4	430.8	435.3	440.1	436.8	432.3
Freeze dried and instant coffee	332.7	366.5	370.2	374.3	378.2	382.2	381.7	332.1	365.3	369.3	372.9	376.8	380.4	380.3
Other noncarbonated drinks (12/77=100)	112.5	114.8	115.7	116.3	116.8	118.3	118.6	111.3	113.5	114.8	115.5	116.2	117.5	118.1
Other prepared foods	202.9	213.4	215.3	217.4	218.8	221.8	224.1	203.0	213.4	215.7	217.2	219.1	221.7	224.0
Canned and packaged soup (12/77=100)	109.2	113.4	114.3	115.9	116.5	118.1	118.0	109.1	113.3	114.8	116.3	116.8	117.9	117.6
Frozen prepared foods (12/77=100)	113.9	123.1	124.5	125.6	126.0	126.6	128.2	113.9	122.0	122.9	123.9	125.1	125.5	127.1
Snacks (12/77=100)	112.0	119.6	120.4	121.3	121.8	123.4	124.1	112.4	120.6	121.7	122.2	122.8	124.7	125.3
Seasonings, olives, pickles, and relish (12/77=100)	114.8	118.8	118.9	120.1	121.4	123.6	124.9	113.5	117.6	118.2	119.0	121.1	123.1	124.0
Other condiments (12/77=100)	110.7	115.8	116.8	119.5	120.8	123.7	126.0	111.1	117.0	118.5	120.2	121.4	124.6	126.6
Miscellaneous prepared foods (12/77=100)	112.2	117.2	119.0	118.9	119.6	120.7	122.2	112.4	116.7	118.6	118.7	119.7	120.5	122.2
Other canned and packaged prepared foods (12/77=100)	112.7	116.7	117.7	118.6	119.4	121.2	122.2	112.7	116.9	118.0	118.6	119.5	120.3	122.0
Food away from home	236.0	249.6	251.3	253.4	256.1	258.3	260.9	237.9	251.3	252.7	255.1	258.0	260.1	262.7
Lunch (12/77=100)	115.2	121.3	122.3	123.3	124.6	125.9	127.0	116.4	122.2	123.2	124.0	125.7	126.7	127.6
Dinner (12/77=100)	114.2	121.6	122.4	123.4	124.8	125.8	127.0	114.6	122.4	123.0	124.2	125.6	126.8	128.1
Other meals and snacks (12/77=100)	113.7	119.5	120.2	121.4	122.5	123.2	124.9	114.9	120.5	120.9	122.5	123.7	124.4	126.2
Alcoholic beverages	169.2	176.0	177.4	178.0	179.3	180.4	181.7	169.6	176.9	178.0	178.7	179.7	181.1	182.8
Alcoholic beverages at home (12/77=100)	109.9	114.6	115.6	116.0	116.8	117.4	118.2	110.8	115.7	116.5	117.0	117.6	118.3	119.3
Beer and ale	166.1	175.1	176.9	177.8	179.0	179.9	182.0	166.6	175.2	176.9	177.6	178.8	179.9	181.7
Whiskey	124.8	129.4	130.7	130.8	131.6	132.6	132.8	126.1	131.0	131.9	132.0	132.9	133.8	134.4
Wine	190.8	198.0	198.1	199.1	201.6	202.5	204.1	194.2	202.5	201.5	204.0	203.8	206.1	208.4
Other alcoholic beverages (12/77=100)	104.4	105.9	107.0	106.9	107.1	107.3	107.4	103.8	105.9	106.2	106.4	106.4	106.7	107.2
Alcoholic beverages away from home (12/77=100)	112.4	115.9	116.4	116.8	118.0	119.2	120.0	110.0	114.2	114.9	115.2	115.9	117.6	119.1
HOUSING	217.6	237.7	240.8	243.6	247.3	250.5	254.5	217.5	237.7	240.7	243.6	247.3	250.5	254.4
Shelter	228.0	251.5	255.9	259.4	264.0	267.2	271.6	228.5	252.4	256.9	260.4	265.1	268.3	272.7
Rent, residential	171.3	181.4	182.1	182.9	184.1	185.6	186.6	171.2	181.2	181.9	182.7	183.9	185.5	186.4
Other rental costs	226.3	241.6	243.1	244.9	251.1	255.7	258.6	226.3	241.3	242.6	244.4	251.1	255.6	258.6
Lodging while out of town	237.4	254.2	256.2	258.4	267.0	272.8	276.8	236.7	253.0	254.6	256.9	266.1	271.6	275.7
Tenants' insurance (12/77=100)	106.4	114.1	114.6	115.1	116.2	117.8	118.6	106.6	114.7	115.0	115.5	116.8	118.5	119.3
Homeownership	248.2	276.7	282.4	286.9	292.5	296.3	302.0	249.2	278.3	284.1	288.7	294.6	298.4	304.0
Home purchase	212.7	233.4	237.3	239.9	242.1	243.0	244.0	212.7	233.6	237.7	240.2	242.3	243.0	243.8
Financing, taxes, and insurance	287.7	330.5	340.1	348.3	359.8	367.7	379.9	289.5	333.5	343.5	351.6	363.4	371.6	384.1
Property insurance	299.8	319.9	320.8	323.1	327.7	333.7	335.7	300.0	321.9	322.6	324.5	328.8	335.2	337.4
Property taxes	181.1	185.1	185.1	186.0	186.7	188.2	188.2	182.5	186.5	186.6	187.4	188.2	189.9	189.9
Contracted mortgage interest cost	344.2	408.1	423.1	435.3	452.8	464.0	483.0	344.5	408.8	424.2	436.1	453.7	465.0	484.1
Mortgage interest rates	159.2	172.0	175.4	178.3	183.7	187.5	194.4	159.2	172.0	175.6	178.4	183.8	187.8	194.8
Maintenance and repairs	247.5	264.7	266.4	268.3	270.6	273.7	278.8	248.4	265.3	266.5	268.9	271.9	274.4	278.2
Maintenance and repair services	267.8	287.0	288.8	290.4	293.2	297.1	303.2	269.3	289.4	290.3	292.8	295.9	299.3	303.5
Maintenance and repair commodities	200.1	212.5	214.0	216.6	217.6	218.9	221.4	201.5	211.9	213.6	215.8	218.4	219.5	222.3
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	109.7	117.4	118.8	121.6	122.5	123.5	125.0	111.1	116.6	118.1	120.3	122.2	122.3	123.6
Lumber, awnings, glass, and masonry (12/77=100)	109.7	116.0	115.5	115.4	115.9	115.8	117.6	110.6	116.2	117.2	118.1	118.6	119.3	119.9
Plumbing, electrical, heating, and cooling supplies (12/77=100)	105.7	112.8	113.4	114.7	114.7	115.3	116.4	106.7	113.8	114.0	114.5	117.0	117.9	119.3
Miscellaneous supplies and equipment (12/77=100)	108.2	113.3	113.8	114.3	115.4	116.4	117.0	106.9	111.9	112.2	112.3	113.2	114.5	118.2
Fuel and other utilities	225.9	252.9	252.0	255.1	258.6	263.8	268.0	226.0	253.4	252.4	255.7	259.2	264.4	268.7
Fuels	264.0	310.3	307.0	311.8	318.0	327.1	333.9	263.7	310.1	306.9	311.8	318.1	327.0	333.9
Fuel oil, coal, and bottled gas	339.5	470.8	477.4	488.0	514.0	539.1	553.4	340.0	471.7	478.2	489.0	515.1	540.3	554.1
Fuel oil	346.4	491.2	497.2	507.3	534.4	561.9	577.9	346.9	491.9	497.7	508.1	534.9	562.5	577.9
Other fuels (6/78=100)	99.3	118.5	121.7	126.0	132.7	136.6	138.3	99.2	118.8	122.2	126.6	133.7	137.9	139.5
Gas (piped) and electricity	244.0	272.5	267.3	270.8	273.0	278.8	284.0	243.6	272.2	267.1	270.7	273.0	278.5	283.9
Electricity	208.7	228.7	221.5	224.7	226.6	233.8	237.9	208.9	228.8	221.5	224.9	226.8	233.9	238.1
Utility (piped) gas	286.2	329.1	328.9	332.6	335.1	336.8	343.9	284.3	327.4	327.8	331.1	333.8	335.4	342.6

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
HOUSING—Continued														
Fuel and other utilities—Continued														
Other utilities and public services	158.8	158.8	161.0	161.9	161.5	161.3	161.9	158.9	158.9	160.9	161.8	161.5	161.4	161.9
Telephone services	132.1	131.2	133.3	134.3	133.4	132.8	133.2	132.1	131.3	133.3	134.2	133.4	132.8	133.1
Local charges (12/77 = 100)	100.4	98.7	101.8	103.2	102.6	102.7	103.3	100.5	98.8	101.8	103.2	102.6	102.7	103.2
Interstate toll calls (12/77 = 100)	98.3	98.4	98.4	98.4	97.7	97.4	97.4	98.3	98.4	98.4	98.4	97.7	97.5	97.5
Intrastate toll calls (12/77 = 100)	100.7	101.7	101.5	101.5	100.8	98.8	98.7	100.6	101.5	101.3	101.3	100.6	98.7	98.6
Water and sewerage maintenance	240.7	245.6	247.1	247.2	250.0	252.3	253.9	241.2	245.8	247.2	247.3	250.5	253.0	254.7
Household furnishings and operations	187.4	193.3	195.1	195.8	196.9	199.0	201.3	186.3	191.7	193.2	193.9	194.9	196.8	199.2
Housefurnishings	161.2	165.2	166.6	166.9	167.6	169.3	171.5	160.8	164.4	165.5	165.9	166.5	167.9	170.4
Textile housefurnishings	172.3	177.8	178.9	178.6	176.7	182.9	187.2	174.3	177.2	178.4	177.3	175.3	181.2	185.3
Household linens (12/77 = 100)	105.8	107.7	108.8	108.3	105.4	110.1	113.9	105.5	107.4	108.3	107.2	106.0	109.8	113.2
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	109.1	114.2	114.4	114.6	115.1	118.2	119.7	112.4	114.1	114.5	114.4	113.2	116.6	118.2
Furniture and bedding	174.1	180.0	182.2	182.8	184.0	185.2	189.2	173.7	180.3	182.1	182.7	183.6	184.3	187.9
Bedroom furniture (12/77 = 100)	110.1	116.4	117.7	118.3	119.1	120.5	122.5	109.7	114.8	115.9	116.0	116.8	117.5	119.2
Sofas (12/77 = 100)	105.1	107.3	107.9	108.2	108.2	108.5	110.9	104.8	109.6	111.7	111.6	110.6	110.3	112.7
Living room chairs and tables (12/77 = 100)	103.3	106.2	107.7	108.1	108.9	110.0	110.8	104.7	107.5	108.6	109.2	109.4	111.2	111.9
Other furniture (12/77 = 100)	112.4	115.0	116.8	117.1	118.1	118.3	122.6	111.2	114.7	115.3	115.9	117.8	117.5	121.3
Appliances including TV and sound equipment	134.8	136.9	137.5	137.8	138.3	138.8	138.8	134.5	135.7	136.2	136.9	137.2	137.8	139.0
Television and sound equipment (12/77 = 100)	103.8	104.9	105.0	105.3	105.3	105.4	105.7	103.3	104.1	104.4	104.8	104.9	104.9	105.5
Television	103.0	103.4	103.6	103.6	103.7	103.7	104.0	102.0	102.0	102.4	102.2	102.2	102.3	102.9
Sound equipment (12/77 = 100)	105.6	107.4	107.4	107.8	107.8	108.1	108.3	105.5	106.9	107.1	108.0	108.2	108.2	108.7
Household appliances	154.0	156.9	158.2	157.9	158.5	159.4	160.2	153.8	155.6	156.2	157.1	157.7	158.8	160.7
Refrigerators and home freezer	151.7	155.3	156.0	156.7	156.7	156.5	157.9	155.2	157.9	158.1	159.0	159.4	159.7	161.4
Laundry equipment (12/77 = 100)	108.2	112.1	113.1	113.6	114.1	115.0	116.8	108.0	111.3	112.2	112.8	113.8	114.7	116.6
Other household appliances (12/77 = 100)	108.8	109.8	110.8	109.9	110.5	111.3	111.2	107.4	107.2	107.6	108.2	108.6	109.5	110.7
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	109.3	109.0	109.7	108.6	110.0	110.8	110.9	108.4	106.9	107.1	108.1	109.2	110.5	111.1
Office machines, small electric appliances, and air conditioners (12/77 = 100)	108.2	110.7	112.1	111.4	111.1	112.0	111.6	106.2	107.6	108.2	108.3	107.8	108.4	110.2
Other household equipment (12/77 = 100)	108.6	111.2	112.4	113.0	114.6	115.9	117.3	107.7	110.8	111.6	111.8	113.3	114.4	116.0
Floor and window coverings, infants' laundry cleaning and outdoor equipment (12/77 = 100)	108.6	109.8	111.1	111.7	113.1	114.5	116.4	103.5	105.5	107.7	107.4	108.9	109.4	110.8
Clocks, lamps, and decor items (12/77 = 100)	105.3	108.6	110.0	110.1	111.6	112.7	114.9	105.8	107.1	108.2	107.3	109.4	109.8	112.3
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	112.3	115.4	116.8	117.2	119.9	121.4	122.6	110.7	114.7	115.2	115.2	117.3	118.9	120.8
Lawn equipment, power tools, and other hardware (12/77 = 100)	105.9	108.5	109.0	110.3	110.6	111.7	112.2	107.6	111.0	111.1	112.5	113.0	114.2	115.0
Housekeeping supplies	218.4	224.8	228.3	229.2	231.1	235.0	238.0	218.1	223.9	226.7	227.2	228.8	232.8	235.5
Soaps and detergents	210.3	217.9	220.6	221.2	224.1	228.9	232.1	209.0	216.3	218.2	219.7	222.2	226.5	230.0
Other laundry and cleaning products (12/77 = 100)	109.0	113.7	114.1	114.7	116.1	117.2	117.0	109.1	113.5	113.7	114.5	115.6	117.1	116.9
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	115.1	117.2	119.2	120.5	120.6	121.2	123.9	115.2	117.9	119.6	120.9	121.8	123.4	125.8
Stationery, stationery supplies, and gift wrap (12/77 = 100)	106.8	109.5	111.3	111.9	111.6	112.7	113.8	106.1	108.6	109.2	109.3	109.0	112.3	113.6
Miscellaneous household products (12/77 = 100)	110.3	114.3	115.6	116.9	117.7	119.4	120.9	109.0	112.7	114.1	114.7	115.0	116.6	118.3
Lawn and garden supplies (12/77 = 100)	108.5	110.0	113.8	112.5	114.4	119.4	121.4	110.0	108.8	113.2	109.9	111.3	113.3	114.0
Housekeeping services	242.9	254.6	256.6	258.1	260.0	261.6	263.6	241.6	253.9	255.9	257.5	259.2	261.1	262.7
Postage	257.3	257.3	257.3	257.3	257.3	257.3	257.3	257.2	257.2	257.2	257.2	257.2	257.2	257.2
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	111.5	118.8	120.4	121.2	122.9	124.2	125.4	111.7	119.7	121.2	122.3	123.3	124.6	126.1
Appliance and furniture repair (12/77 = 100)	107.6	112.3	112.9	113.4	114.0	114.7	115.8	106.7	112.1	112.9	113.4	114.4	115.5	116.0
APPAREL AND UPKEEP	164.3	171.0	171.7	172.2	171.0	171.9	176.0	164.2	170.8	171.3	171.4	169.8	171.5	175.1
Apparel commodities	159.2	165.2	165.9	166.1	164.3	165.1	169.2	159.3	165.3	165.7	165.7	163.6	165.2	168.7
Apparel commodities less footwear	157.1	162.3	162.9	163.0	161.1	161.8	166.2	157.3	162.4	162.7	162.6	160.2	161.9	165.7
Men's and boys'	158.7	164.2	165.4	165.4	162.8	162.7	165.6	159.4	164.4	165.3	165.0	162.4	162.9	166.0
Men's (12/77 = 100)	100.3	103.5	104.3	104.3	102.6	102.3	104.3	101.2	103.8	104.5	104.2	102.3	102.4	104.4
Suits, sport coats, and jackets (12/77 = 100)	97.6	101.6	101.2	100.9	98.8	98.2	99.9	96.3	99.1	98.7	98.8	94.9	94.4	96.4
Coats and jackets (12/77 = 100)	94.4	97.8	98.1	98.0	95.5	93.6	96.9	99.0	99.5	99.7	99.1	95.6	92.2	96.9
Furnishings and special clothing (12/77 = 100)	105.2	109.9	112.4	112.3	112.2	112.7	115.0	104.2	109.1	110.0	109.9	109.3	111.1	113.2
Shirts (12/77 = 100)	104.0	108.5	109.7	110.5	108.6	109.3	111.9	104.4	108.3	109.4	111.5	108.3	109.4	112.0
Dungarees, jeans, and trousers (12/77 = 100)	99.5	99.5	100.5	100.4	98.2	97.7	98.7	101.7	102.8	104.0	103.4	102.2	102.2	102.7
Boys' (12/77 = 100)	101.4	106.3	106.6	106.6	105.6	106.3	107.5	100.4	105.3	105.6	105.8	104.7	105.9	107.5
Coats, jackets, sweaters, and shirts (12/77 = 100)	96.8	103.9	103.2	102.4	99.3	99.9	102.5	95.0	103.8	103.4	103.1	99.8	101.9	105.0
Furnishings (12/77 = 100)	105.7	110.8	111.5	111.9	111.5	110.9	112.0	105.5	110.1	109.7	110.2	109.7	109.5	110.7
Suits, trousers, sport coats, and jackets (12/77 = 100)	103.4	106.5	107.4	107.8	108.2	109.5	109.8	102.6	104.7	105.8	106.2	106.6	107.7	108.2
Women's and girls'	151.8	155.5	155.1	154.6	151.5	151.1	155.5	151.2	154.8	154.5	153.5	149.9	151.3	154.9
Women's (12/77 = 100)	101.5	103.4	103.0	102.8	100.8	100.8	103.8	101.8	103.3	103.0	102.3	100.1	101.4	103.7
Coats and jackets	169.3	173.9	173.3	170.0	166.4	163.1	167.6	175.5	174.1	172.4	167.9	165.0	162.4	167.0
Dresses	164.3	167.2	164.3	165.3	161.3	160.6	169.3	158.7	159.1	156.8	155.7	150.0	151.2	157.5
Separates and sportswear (12/77 = 100)	100.0	99.6	99.2	98.6	96.1	97.1	99.8	98.6	100.4	100.7	99.5	97.1	99.2	101.0
Underwear, nightwear, and hosiery (12/77 = 100)	104.2	106.6	108.1	108.2	108.6	110.2	111.0	104.8	107.9	108.9	109.3	109.1	110.6	111.1
Suits (12/77 = 100)	92.2	97.1	95.2	95.8	91.0	88.2	91.6	97.5	99.9	97.5	98.1	94.0	96.8	100.2
Girls (12/77 = 100)	98.3	103.6	103.9	102.8	100.5	98.9	101.8	95.3	101.5	101.7	101.4	97.9	97.3	100.1
Coats, jackets, dresses, and suits (12/77 = 100)	99.3	102.8	102.2	100.3	97.5	95.7	98.9	95.2	97.9	97.5	97.7	91.9	92.6	95.7
Separates and sportswear (12/77 = 100)	94.4	102.5	103.6	102.6	99.9	98.2	100.8	91.4	103.5	104.3	102.9	99.8	98.1	99.8
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	103.8	106.7	107.2	107.3	106.7	105.6	108.4	102.5	103.9	104.2	104.4	104.4	103.5	107.8

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

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
APPAREL AND UPKEEP—Continued														
Apparel commodities—Continued														
Apparel commodities less footwear—Continued														
Infants' and toddlers'	216.1	224.8	226.3	227.1	224.9	226.6	231.4	217.7	228.7	228.7	230.5	229.1	232.7	237.3
Other apparel commodities	166.6	175.5	177.8	180.9	184.4	191.4	199.9	168.9	178.7	179.8	182.9	185.5	191.8	197.8
Sewing materials and notions (12/77 = 100)	102.5	102.2	100.8	102.4	103.2	106.3	107.1	101.4	100.8	99.7	100.8	101.2	105.7	107.2
Jewelry and luggage (12/77 = 100)	109.9	118.3	121.0	123.1	126.1	131.2	138.6	112.8	122.3	123.8	126.2	128.4	132.3	137.3
Footwear	171.6	182.6	183.8	184.3	183.7	184.6	187.0	107.4	181.9	183.2	183.8	183.3	183.9	186.3
Men's (12/77 = 100)	109.2	116.7	117.7	117.3	117.8	118.3	119.0	109.2	118.0	119.1	119.4	119.3	119.4	120.9
Boys' and girls' (12/77 = 100)	107.3	113.0	114.0	115.8	117.3	117.9	119.5	106.4	113.0	114.5	114.7	116.9	118.0	119.5
Womens' (12/77 = 100)	106.4	113.5	113.9	113.8	111.6	112.1	114.2	105.0	111.1	111.2	111.8	109.4	109.5	110.9
Apparel services	200.0	212.5	214.2	216.6	220.7	222.9	225.9	199.0	210.8	212.0	213.4	216.9	219.8	223.5
Laundry and drycleaning other than coin operated (12/77 = 100)	116.4	125.2	126.3	127.1	129.3	130.6	132.5	115.8	124.7	125.7	126.6	129.0	130.6	132.3
Other apparel services (12/77 = 100)	109.8	114.0	114.7	117.0	119.6	120.7	122.1	109.6	112.9	113.3	113.7	115.1	116.9	119.6
TRANSPORTATION	198.1	222.7	224.9	227.7	233.5	239.6	243.7	198.7	223.4	225.7	228.3	234.1	240.2	244.3
Private	198.1	223.1	225.0	227.5	233.5	239.8	244.0	198.5	223.7	225.7	228.2	234.1	240.4	244.6
New cars	162.7	167.5	170.6	171.7	173.9	175.3	175.0	162.4	167.4	170.9	171.7	174.1	175.4	175.4
Used cars	195.4	199.9	198.4	198.2	197.2	195.3	195.2	194.5	199.9	198.4	198.3	197.2	195.3	195.2
Gasoline	220.6	303.8	306.9	313.9	334.6	357.6	370.9	221.2	305.2	308.3	315.6	335.9	359.0	372.7
Automobile maintenance and repair	236.3	249.1	250.8	252.6	255.1	258.2	260.9	236.8	249.4	251.1	253.4	256.2	259.2	261.7
Body work (12/77 = 100)	113.1	120.6	121.6	123.3	125.0	126.5	127.3	114.0	120.4	121.7	123.1	124.3	126.1	127.2
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	113.0	119.4	120.1	120.6	121.8	123.2	124.1	113.9	120.2	120.8	121.8	123.6	124.8	126.1
Maintenance and servicing (12/77 = 100)	112.3	117.5	118.4	119.2	120.2	121.3	123.1	111.8	117.3	118.2	119.3	120.4	121.3	122.8
Power plant repair (12/77 = 100)	111.5	117.8	118.5	119.2	120.4	122.5	123.5	111.8	118.0	118.6	119.6	120.9	123.1	124.0
Other private transportation	193.4	203.7	205.5	207.5	209.8	212.6	216.5	193.9	204.0	206.3	208.4	210.6	213.6	217.1
Other private transportation commodities	169.0	182.0	183.4	185.6	188.4	191.2	192.7	170.0	181.6	183.9	186.4	188.0	191.7	193.2
Motor oil, coolant, and other products (12/77 = 100)	107.8	115.9	117.4	118.1	120.9	123.9	126.4	107.4	115.9	118.1	119.3	122.4	124.0	126.1
Automobile parts and equipment (12/77 = 100)	109.4	117.9	118.7	120.3	121.9	123.5	124.3	110.3	117.6	119.0	120.6	121.4	123.9	124.7
Tires	150.7	160.7	161.5	163.8	165.8	168.5	170.1	151.3	161.1	163.0	165.7	166.3	170.6	172.5
Other parts and equipment (12/77 = 100)	110.2	121.8	123.0	124.4	126.6	127.3	127.2	112.2	120.0	121.5	122.4	124.0	125.0	124.4
Other private transportation services	201.8	211.4	213.4	215.3	217.6	220.4	225.0	202.2	211.9	214.3	216.3	218.7	221.5	225.7
Automobile insurance	223.4	233.8	233.9	235.3	237.1	240.2	244.0	223.5	233.7	233.9	235.2	236.8	239.7	243.8
Automobile finance charges (12/77 = 100)	112.6	120.4	124.6	127.2	129.9	132.1	137.4	112.0	119.4	124.1	126.5	129.4	131.3	135.2
Automobile rental, registration, and other fees (12/77 = 100)	105.3	107.9	108.3	108.5	109.1	109.8	110.8	105.6	108.6	108.9	109.2	109.8	110.9	111.6
State registration	143.9	144.0	144.1	144.1	144.2	145.2	145.3	143.7	143.9	144.0	144.0	144.1	145.3	145.5
Drivers' license (12/77 = 100)	104.5	104.5	104.5	104.5	104.7	104.8	104.7	104.3	104.2	104.2	104.2	104.5	104.5	104.4
Vehicle inspection (12/77 = 100)	112.0	114.6	115.6	117.5	117.5	119.0	119.7	112.8	115.5	116.5	118.3	118.3	119.7	120.2
Other vehicle related fees (12/77 = 100)	110.1	116.4	117.1	117.6	118.8	119.6	122.0	112.7	120.8	121.3	122.2	123.8	125.4	127.0
Public	191.5	209.1	216.5	223.0	226.8	229.5	232.1	192.1	207.3	214.0	219.1	221.9	223.9	226.1
Airline fare	191.8	220.6	232.1	245.5	251.1	255.4	259.9	191.4	220.7	232.4	245.8	251.0	255.2	259.3
Inter-city bus fare	248.0	276.0	279.8	282.2	284.7	288.5	290.7	247.3	275.5	279.9	283.2	284.8	288.2	290.2
Intracity mass transit	186.8	191.3	195.6	196.4	198.5	199.7	200.8	186.6	191.0	195.1	195.7	196.7	197.6	198.6
Taxi fare	211.1	233.6	237.0	238.5	243.1	244.0	245.6	215.6	238.7	242.4	243.9	248.9	249.3	251.2
Inter-city train fare	201.4	221.1	231.0	236.3	237.2	237.2	237.2	201.9	221.4	232.1	236.6	237.1	237.0	237.1
MEDICAL CARE	233.9	245.9	248.0	250.7	253.9	257.9	260.2	233.7	247.2	249.1	251.7	254.9	258.7	260.9
Medical care commodities	150.7	156.6	157.8	159.2	160.5	162.1	163.5	151.7	157.4	158.5	159.9	161.0	162.7	164.4
Prescription drugs	139.2	144.5	145.5	146.4	147.9	149.8	150.9	139.9	145.2	146.2	147.4	148.8	150.7	152.0
Anti-infective drugs (12/77 = 100)	109.7	113.5	113.9	114.6	115.8	117.2	117.9	110.5	114.8	115.5	116.8	118.2	119.8	120.1
Tranquilizers and sedatives (12/77 = 100)	112.6	115.8	117.1	118.4	119.9	121.3	122.2	112.8	115.6	116.9	118.3	119.7	121.0	122.2
Circulators and diuretics (12/77 = 100)	106.8	109.7	111.0	111.4	112.4	113.4	113.3	108.2	110.6	111.6	112.3	113.0	114.2	114.7
Hormones, diabetic drugs, biologicals, and prescription and supplies (12/77 = 100)	116.1	122.5	123.2	123.8	126.0	128.7	130.0	115.5	122.2	122.6	123.1	124.8	127.8	129.6
Pain and symptom control drugs (12/77 = 100)	110.6	115.6	116.8	117.8	118.8	119.7	120.5	111.1	116.3	117.5	118.2	119.0	120.1	121.3
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	107.9	111.3	111.9	112.1	112.6	113.7	115.5	109.1	112.6	112.8	113.7	114.2	115.2	116.5
Nonprescription drugs and medical supplies (12/77 = 100)	108.1	112.5	113.4	114.6	115.3	116.3	117.3	109.0	113.2	114.0	115.1	115.6	116.6	118.0
Eyeglasses (12/77 = 100)	105.5	110.2	110.9	110.9	111.5	112.9	114.1	106.1	110.0	110.4	110.5	111.4	112.6	114.5
Internal and respiratory over-the-counter drugs	166.8	173.7	175.4	177.9	179.1	180.4	182.2	168.5	175.2	176.6	178.5	179.0	180.8	183.0
Nonprescription medical equipment and supplies (12/77 = 100)	107.4	111.0	111.8	113.1	113.8	114.6	115.1	108.1	111.8	112.7	114.2	115.0	115.6	116.1
Medical care services	251.8	265.3	267.6	270.7	274.4	279.0	281.5	251.3	266.8	268.8	271.8	275.6	279.8	282.2
Professional services	221.7	231.6	233.0	235.9	238.9	242.9	245.3	222.7	234.9	235.9	238.3	241.7	245.5	247.8
Physicians' services	237.5	249.7	250.8	252.5	256.0	260.2	262.3	238.2	254.4	255.5	256.5	260.3	264.1	266.2
Dental services	210.3	218.5	220.7	224.5	227.4	231.5	234.1	212.2	221.2	222.7	226.1	229.5	233.4	235.7
Other professional services (12/77 = 100)	108.9	112.7	112.8	115.1	116.6	118.1	119.5	108.8	112.1	112.2	114.8	115.9	117.4	119.3
Other medical care services	288.2	306.2	309.5	312.8	317.4	322.7	325.3	286.1	305.9	309.3	313.0	317.3	322.1	324.4
Hospital and other medical services (12/77 = 100)	114.7	121.3	122.6	123.8	125.6	127.8	128.8	113.7	120.5	121.8	123.2	124.9	126.8	127.7
Hospital room	361.3	380.2	385.1	389.4	395.3	403.4	405.8	358.5	379.4	383.6	388.7	393.9	398.8	401.2
Other hospital and medical care services	113.9	120.8	122.0	122.9	124.7	126.5	127.8	112.7	119.5	120.8	122.1	123.8	125.9	126.9

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

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
ENTERTAINMENT	184.8	192.0	192.8	193.4	195.3	197.8	200.6	184.0	191.4	192.0	192.3	193.9	196.2	199.5
Entertainment commodities	185.7	193.1	194.0	195.2	197.6	200.4	203.4	184.4	190.7	191.3	192.4	194.2	196.9	200.3
Reading materials (12/77 = 100)	108.6	113.8	114.5	115.1	116.7	117.4	119.4	108.3	113.3	114.2	114.8	116.2	117.0	119.1
Newspapers	209.7	217.7	222.4	223.5	226.8	227.7	232.4	209.3	217.4	222.2	223.3	226.4	227.3	232.0
Magazines, periodicals, and books (12/77 = 100)	110.9	117.2	116.0	116.8	118.1	119.2	120.8	110.9	117.2	115.8	116.6	117.8	118.9	120.7
Sporting goods and equipment (12/77 = 100)	106.6	111.2	111.7	112.2	113.8	115.9	117.2	104.4	106.7	106.9	107.7	108.6	110.8	112.4
Sport vehicles (12/77 = 100)	107.0	111.5	111.5	112.9	113.8	117.4	118.7	104.2	104.6	105.8	105.8	109.1	110.8	111.8
Indoor and warm weather sport equipment (12/77 = 100)	105.1	107.5	107.8	107.5	107.6	108.3	109.5	103.1	106.0	106.1	106.3	106.4	107.8	109.3
Bicycles	157.3	167.1	167.1	167.1	170.5	174.5	177.2	156.5	166.9	167.4	167.0	170.5	174.9	177.8
Other sporting goods and equipment (12/77 = 100)	104.9	110.0	110.3	111.0	111.8	112.4	112.9	103.8	109.8	110.2	111.3	111.9	112.6	113.4
Toys, hobbies, and other entertainment (12/77 = 100)	107.1	110.8	111.2	112.1	113.2	115.1	116.9	107.3	111.0	111.2	111.8	112.6	114.3	116.4
Toys, hobbies, and music equipment (12/77 = 100)	108.1	110.7	110.5	111.2	112.1	114.1	115.7	107.7	110.1	109.8	109.9	110.9	112.3	114.9
Photographic supplies and equipment (12/77 = 100)	106.3	109.4	109.9	109.7	110.8	114.1	118.2	105.8	109.3	109.6	110.1	111.2	114.2	116.9
Pet supplies and expense (12/77 = 100)	106.0	112.1	113.5	115.5	116.8	117.6	118.2	107.3	113.9	114.6	116.1	116.7	117.9	119.0
Entertainment services	183.9	190.8	191.5	191.1	192.5	194.5	197.0	184.3	193.5	194.3	193.0	194.4	196.0	199.1
Fees for participant sports (12/77 = 100)	108.4	113.2	113.8	113.8	114.6	116.0	117.5	108.3	114.9	115.2	115.0	115.6	116.3	118.8
Admissions (12/77 = 100)	112.3	115.7	116.1	116.6	117.9	118.3	119.1	111.7	116.8	117.3	117.8	119.4	119.7	120.2
Other entertainment services (12/77 = 100)	106.8	110.0	110.0	108.6	109.1	111.4	113.2	107.3	111.4	112.0	109.0	109.3	111.8	113.9
OTHER GOODS AND SERVICES	192.8	202.3	202.9	204.0	206.3	208.1	208.9	192.6	201.4	202.0	203.0	206.0	207.7	208.3
Tobacco products	185.8	191.3	191.5	192.1	196.7	198.1	198.4	185.8	191.2	191.4	192.1	197.1	198.3	198.6
Cigarettes	188.4	193.8	194.0	194.7	199.7	200.9	201.2	188.6	193.9	194.1	194.8	200.3	201.3	201.6
Other tobacco products and smoking accessories (12/77 = 100)	108.9	113.0	112.8	113.2	113.9	115.6	116.3	108.1	112.3	112.4	112.7	113.4	114.8	115.7
Personal care	192.1	199.8	200.9	203.0	204.2	206.5	208.1	191.5	199.4	200.5	202.3	204.4	206.6	207.7
Toilet goods and personal care appliances	186.1	192.5	193.1	195.8	196.4	198.6	200.2	185.9	191.6	192.4	194.5	196.2	198.3	199.6
Products for the hair, hairpieces and wigs (12/77 = 100)	105.9	111.9	112.2	113.0	114.2	116.1	116.6	105.3	111.1	111.4	112.4	114.0	114.9	114.9
Dental and shaving products (12/77 = 100)	110.6	114.1	115.6	117.3	117.8	118.6	119.2	109.3	112.7	113.9	114.7	115.3	116.8	118.4
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	108.6	110.7	111.4	113.0	112.9	114.2	115.1	107.9	110.1	110.2	112.1	112.9	114.0	114.8
Other toilet goods and small personal care appliances (12/77 = 100)	107.7	110.9	109.9	112.1	112.1	112.9	114.7	110.1	111.7	112.3	113.1	114.0	115.6	116.6
Personal care services	197.9	207.0	208.5	210.0	211.6	214.2	215.7	197.3	207.3	208.6	210.2	212.7	215.0	215.8
Beauty parlor services for women	199.6	208.3	210.3	212.1	213.3	216.1	217.9	199.6	209.1	210.2	212.0	214.2	216.6	217.8
Haircuts and other barber shop services for men (12/77 = 100)	110.3	115.9	116.1	116.8	118.1	119.3	119.7	109.3	115.4	116.3	117.1	118.8	120.0	120.1
Personal and educational expenses	208.1	224.0	224.2	224.6	226.3	228.0	228.3	208.6	224.2	224.4	224.8	226.2	227.8	228.2
School books and supplies	191.6	202.3	202.3	202.5	206.0	206.5	206.9	194.1	205.8	205.9	206.0	209.8	210.4	210.7
Personal and educational services	212.5	229.4	229.6	229.9	231.4	233.3	233.6	212.5	229.0	229.3	229.7	230.6	232.5	232.9
Tuition and other school fees	108.6	118.1	118.1	118.1	118.3	118.5	118.6	108.5	118.2	118.2	118.2	118.4	118.6	118.7
College tuition (12/77 = 100)	108.8	117.3	117.3	117.3	117.6	117.8	117.9	108.8	117.3	117.3	117.3	117.6	117.8	117.9
Elementary and high school tuition (12/77 = 100)	107.5	120.9	120.9	120.9	120.9	120.9	120.9	107.4	120.7	120.7	120.7	120.7	120.7	120.7
Personal expenses (12/77 = 100)	110.6	115.8	116.3	117.3	120.1	124.4	125.0	110.6	114.9	115.5	116.3	117.7	121.4	122.1
Special indexes:														
Gasoline, motor oil, coolant, and other products	218.7	299.8	302.9	309.7	329.9	352.5	365.5	219.2	301.2	304.3	311.4	331.3	353.8	367.2
Insurance and finance	257.1	288.9	296.0	302.1	310.5	316.7	326.3	257.1	228.5	295.8	301.6	310.0	316.2	325.6
Utilities and public transportation	205.1	220.7	220.5	223.5	225.0	227.9	230.9	205.3	220.7	220.3	223.0	224.4	227.2	230.2
Housekeeping and home maintenance services	262.5	278.7	280.6	282.2	284.7	287.6	292.0	262.7	279.9	281.3	283.4	286.0	288.7	292.0

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

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000 - 1.250 million)			Size class C (75,000 - 385,000)			Size class D (75,000 or less)		
	1979		1980	1979		1980	1979		1980	1979		1980
	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.	Oct.	Dec.	Feb.
Northeast												
EXPENDITURE CATEGORY												
All items	117.3	119.0	122.1	120.2	122.2	125.6	123.0	125.7	129.1	119.2	121.8	124.2
Food and beverages	119.2	120.6	122.1	119.6	121.9	124.3	121.9	123.2	126.0	119.4	121.2	123.4
Housing	117.9	119.8	122.9	121.3	123.7	126.7	127.7	132.1	135.5	119.9	123.2	124.8
Apparel and upkeep	107.7	108.9	109.5	109.2	109.0	107.1	107.8	108.5	107.3	108.3	109.8	106.8
Transportation	121.1	123.7	129.9	125.0	127.6	135.0	124.9	127.0	133.1	124.5	127.3	133.5
Medical care	115.4	117.3	120.6	118.5	120.0	121.6	117.0	118.9	121.3	116.3	119.0	121.4
Entertainment	111.4	111.5	114.4	113.6	113.5	115.7	110.0	109.8	112.2	114.1	115.1	118.9
Other goods and services	111.7	112.7	114.4	114.1	114.3	116.5	115.6	116.3	119.2	112.5	113.1	114.8
COMMODITY AND SERVICE GROUP												
Commodities	118.6	120.5	124.1	121.8	123.7	127.5	122.8	125.1	128.5	120.0	122.5	125.6
Commodities less food and beverages	118.3	120.4	125.3	122.8	124.6	129.1	123.2	126.0	129.7	120.4	123.2	126.6
Services	115.6	117.2	119.5	117.8	119.9	122.5	123.3	126.6	129.9	117.9	120.7	122.2
North Central												
EXPENDITURE CATEGORY												
All items	123.2	126.3	129.6	122.3	124.6	127.2	121.9	123.7	126.4	122.0	123.0	125.8
Food and beverages	121.2	123.2	124.9	119.2	120.2	122.6	121.6	123.4	124.8	122.8	124.8	126.9
Housing	128.7	133.1	136.7	125.7	129.3	131.5	124.5	125.9	127.6	124.0	123.6	125.9
Apparel and upkeep	105.3	105.6	105.2	109.9	110.9	107.1	107.4	109.0	109.0	110.0	111.9	110.4
Transportation	125.0	127.9	133.5	125.2	127.5	133.4	126.0	129.1	135.8	124.3	127.3	132.6
Medical care	115.9	119.6	123.2	118.6	119.3	122.2	117.5	119.7	124.5	119.1	121.8	126.8
Entertainment	112.6	113.9	116.9	110.7	111.0	111.5	112.7	114.4	116.2	112.7	113.8	115.9
Other goods and services	112.5	113.6	115.4	117.8	117.7	119.4	112.3	114.0	115.5	115.7	116.1	119.1
COMMODITY AND SERVICE GROUP												
Commodities	122.5	125.4	128.1	120.8	122.5	124.5	121.7	123.5	125.9	121.1	122.5	124.3
Commodities less food and beverages	123.0	126.4	129.6	121.5	123.5	125.2	121.7	123.6	126.4	120.4	121.6	123.1
Services	124.3	127.7	131.8	124.7	128.0	131.6	122.2	124.1	127.1	123.3	123.8	128.2
South												
EXPENDITURE CATEGORY												
All items	120.7	123.1	127.1	122.4	124.6	128.0	122.1	124.3	127.9	120.6	122.5	125.9
Food and beverages	122.2	123.5	125.0	121.3	122.9	124.4	122.1	123.9	126.0	121.0	122.5	124.0
Housing	122.0	125.0	129.1	125.8	128.4	131.9	125.9	128.4	131.8	121.6	123.9	127.7
Apparel and upkeep	111.2	112.3	112.5	110.8	110.3	109.6	106.4	105.7	105.5	103.9	104.8	100.9
Transportation	124.2	127.6	135.7	124.5	127.8	134.7	123.2	126.4	133.7	124.4	126.3	133.1
Medical care	116.0	117.7	119.7	116.9	118.3	121.6	117.6	120.7	124.8	122.5	124.9	129.0
Entertainment	109.4	109.5	114.5	113.2	113.9	115.4	113.6	113.8	115.9	117.1	119.4	121.6
Other goods and services	114.4	115.8	118.5	114.0	115.1	117.7	114.2	115.5	117.5	117.3	118.3	121.5
COMMODITY AND SERVICE GROUP												
Commodities	120.5	122.6	126.7	121.2	123.1	125.9	120.7	122.7	126.4	120.2	121.9	124.7
Commodities less food and beverages	119.8	122.2	127.5	121.2	123.2	126.6	120.1	122.2	126.5	119.9	121.6	125.0
Services	121.0	123.8	127.7	124.3	126.8	131.1	124.2	126.7	130.2	121.1	123.5	127.7
West												
EXPENDITURE CATEGORY												
All items	120.8	124.8	129.6	123.6	126.6	130.6	122.2	124.5	128.1	122.8	124.3	127.1
Food and beverages	121.2	123.4	124.2	123.1	125.8	126.9	121.1	122.9	123.8	121.5	123.7	125.7
Housing	121.2	127.0	132.9	126.2	130.2	134.6	124.8	127.8	131.0	124.8	125.4	127.1
Apparel and upkeep	107.9	110.0	113.6	111.0	111.5	112.4	104.4	104.4	104.2	114.0	114.9	114.7
Transportation	127.2	129.9	137.4	126.7	128.8	135.8	126.3	129.0	137.1	124.6	128.2	134.8
Medical care	119.8	121.9	125.6	117.8	121.3	124.8	118.4	119.9	124.6	120.7	122.7	126.2
Entertainment	109.3	111.1	113.5	115.6	115.9	118.6	113.8	114.9	117.8	117.8	119.2	123.6
Other goods and services	115.2	115.5	119.2	115.3	116.5	120.3	113.0	113.6	116.3	116.0	116.4	119.7
COMMODITY AND SERVICE GROUP												
Commodities	120.5	123.1	127.0	123.1	125.3	128.8	121.7	123.6	126.7	120.7	123.0	126.7
Commodities less food and beverage	120.2	123.0	128.1	123.1	125.1	129.6	121.9	123.8	127.8	120.4	122.7	127.2
Services	121.3	126.9	133.2	124.4	128.4	133.0	122.8	125.9	130.0	125.9	126.3	127.6

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

[1967=100 unless otherwise specified]

Area ¹	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1979				1980		1979				1980			
	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
U.S. city average ²	209.1	225.4	227.5	229.9	233.2	236.4	239.8	209.3	225.6	227.6	230.0	233.3	236.5	239.9
Anchorage, Alaska (10/67=100)	201.0	...	213.7	...	218.2	...	223.5	200.5	...	211.8	...	215.9	...	220.2
Atlanta, Ga. ....	...	220.8	...	223.3	...	230.3	...	...	223.5	...	227.0	...	233.5	...
Baltimore, Md.	209.1	...	227.2	...	234.4	...	245.0	210.4	...	227.9	...	234.5	...	243.9
Boston, Mass.	205.1	...	222.7	...	227.3	...	234.2	204.3	...	222.5	...	226.9	...	234.2
Buffalo, N.Y. ....	...	218.7	...	221.2	...	227.9	...	...	218.6	...	220.7	...	227.9	...
Chicago, Ill.-Northwestern Ind.	206.6	221.8	225.9	228.4	230.3	232.7	235.5	206.2	221.7	225.6	227.8	229.9	232.5	235.2
Cincinnati, Ohio-Ky.-Ind.	215.7	...	233.4	...	239.5	...	247.8	216.7	...	235.6	...	241.0	...	249.7
Cleveland, Ohio ....	...	224.7	...	232.5	...	243.5	...	...	225.5	...	233.2	...	244.1	...
Dallas-Ft. Worth, Tex. ....	...	228.2	...	234.1	...	241.7	...	...	228.0	...	233.3	...	240.9	...
Denver-Boulder, Colo.	223.0	...	245.9	...	247.3	...	255.2	225.0	...	248.6	...	250.9	...	259.4
Detroit, Mich.	211.6	227.2	231.3	233.2	237.2	240.4	242.9	211.6	226.9	230.8	232.2	236.4	239.9	242.4
Honolulu, Hawaii ....	...	210.5	...	214.8	...	220.9	...	...	211.1	...	215.5	...	221.3	...
Houston, Tex. ....	...	244.2	...	248.7	...	255.9	...	...	241.8	...	246.0	...	251.9	...
Kansas City, Mo.-Kansas ....	...	229.9	...	233.7	...	238.7	...	...	227.9	...	232.4	...	236.6	...
Los Angeles-Long Beach, Anaheim, Calif.	203.8	221.8	224.2	228.0	232.6	237.6	241.3	204.4	224.0	225.8	229.9	235.0	240.0	243.9
Miami, Fla. (11/77=100)	111.2	...	119.4	...	123.3	...	127.7	112.4	...	120.5	...	124.9	...	128.8
Milwaukee, Wis.	207.6	...	229.8	...	236.4	...	242.7	209.5	...	232.5	...	240.8	...	247.8
Minneapolis-St. Paul, Minn.-Wis. ....	...	231.2	...	234.0	...	237.9	...	...	233.0	...	234.8	...	239.6	...
New York, N.Y.-Northeastern N.J.	206.4	219.9	221.3	222.9	226.1	228.0	231.2	206.3	219.3	220.7	222.4	225.5	227.7	230.8
Northeast, Pa. (Scranton)	203.5	...	220.0	...	224.4	...	229.0	206.6	...	221.1	...	225.8	...	231.3
Philadelphia, Pa.-N.J.	204.8	220.1	222.4	223.7	227.2	231.1	234.6	206.8	221.3	223.8	224.6	228.0	231.6	235.1
Pittsburgh, Pa. ....	...	226.0	...	229.2	...	235.5	...	...	226.1	...	229.7	...	235.9	...
Portland, Oreg.-Wash.	215.4	...	236.6	...	244.6	...	253.6	215.8	...	236.7	...	243.5	...	251.7
St. Louis, Mo.-Ill.	208.4	...	225.7	...	232.7	...	238.1	207.0	...	226.3	...	233.5	...	238.5
San Diego, Calif.	221.4	...	247.8	...	254.0	...	258.3	218.6	...	244.8	...	251.0	...	255.6
San Francisco-Oakland, Calif. ....	...	221.5	...	230.2	...	240.7	...	...	220.8	...	229.0	...	240.0	...
Seattle-Everett, Wash.	207.0	...	227.6	...	236.0	...	243.8	205.8	...	225.5	...	233.8	...	241.3
Washington, D.C.-Md.-Va.	212.6	...	225.4	...	231.9	...	238.8	213.4	...	226.7	...	233.0	...	239.2

¹The areas listed include not only the central city but the entire portion of the Standard Metropolitan Statistical Area, as defined for the 1970 Census of Population, except that the Standard Consolidated Area is used for New York and Chicago.

²Average of 85 cities.

26. Producer Price Indexes, by stage of processing

[1967=100]

Commodity grouping	Annual average 1978	1979										1980			
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ¹	Jan.	Feb.	Mar.	Apr.	
FINISHED GOODS															
Finished goods	194.6	211.4	212.7	213.7	216.2	217.3	220.7	224.2	226.3	228.1	232.1	235.4	238.2	240.0	
Finished consumer goods	192.6	210.2	211.6	212.7	215.6	217.5	221.7	224.7	227.1	229.1	233.2	237.3	240.6	241.6	
Finished consumer foods	206.7	227.8	226.6	223.6	224.9	223.5	228.1	226.7	230.5	232.1	231.4	231.6	233.0	228.7	
Crude	215.5	241.8	226.7	227.1	224.9	231.7	214.0	215.5	228.1	227.9	225.9	220.0	230.8	222.2	
Processed	204.1	224.6	224.4	221.3	222.8	220.7	227.0	225.5	228.6	230.3	229.7	230.4	231.0	227.1	
Other nondurable goods	195.4	213.1	217.1	221.7	227.1	233.4	239.0	243.3	245.5	247.9	254.4	263.0	270.8	276.5	
Durable goods	165.8	178.4	179.5	180.4	181.6	181.6	182.9	189.0	190.0	191.8	198.2	200.7	199.7	200.3	
Capital equipment	199.1	214.0	215.1	215.8	217.2	216.5	217.8	222.8	223.9	225.3	229.1	230.3	231.8	235.8	
INTERMEDIATE MATERIALS															
Intermediate materials, supplies, and components	215.5	235.8	238.2	240.3	244.6	247.5	251.0	255.0	256.3	258.7	265.6	271.1	273.2	274.5	
Materials and components for manufacturing	208.3	229.0	230.9	232.1	236.0	238.0	240.7	244.3	245.5	247.8	255.2	259.2	259.0	259.7	
Materials for food manufacturing	202.3	222.2	222.5	222.3	226.7	225.1	228.9	225.5	227.8	230.4	225.8	245.1	239.8	238.7	
Materials for nondurable manufacturing	195.8	213.7	216.7	218.1	222.5	225.3	227.6	231.4	233.4	235.3	240.6	243.3	246.6	251.8	
Materials for durable manufacturing	237.2	266.0	267.2	268.9	273.3	275.2	278.8	284.7	284.6	287.8	303.5	305.9	301.1	296.2	
Components for manufacturing	189.1	203.1	204.5	205.3	207.7	208.3	211.3	213.2	214.8	216.3	218.9	222.7	225.2	227.4	
Materials and components for construction	224.4	244.5	245.2	245.6	247.4	249.2	252.5	254.7	254.0	253.7	257.5	261.6	265.1	265.3	
Processed fuels and lubricants	296.4	323.9	336.8	349.5	364.8	384.6	399.4	410.6	416.5	424.6	443.9	464.3	481.1	486.7	
Manufacturing industries	270.4	280.7	287.4	293.8	304.0	311.2	317.2	322.5	325.2	332.2	340.6	352.2	357.4	358.4	
Nonmanufacturing industries	320.0	365.9	385.5	404.9	425.5	458.8	483.0	500.6	510.0	519.1	549.8	579.7	608.9	619.5	
Containers	212.5	231.8	234.5	234.9	235.4	237.6	237.9	242.6	243.8	247.1	250.9	250.8	253.3	262.5	
Supplies	196.9	212.8	213.7	216.1	219.6	219.6	221.2	224.9	226.4	229.2	232.2	238.3	239.9	240.7	
Manufacturing industries	183.6	199.4	201.5	202.7	204.2	208.6	209.4	212.2	213.7	216.3	220.9	222.0	223.3	226.8	
Nonmanufacturing industries	204.0	219.9	220.3	223.2	227.8	225.4	227.5	231.7	233.3	236.1	238.2	247.0	248.7	248.1	
Manufactured animal feeds	200.2	219.5	214.6	226.2	241.3	220.8	224.0	228.9	226.9	230.4	224.2	223.3	219.1	207.1	
Other supplies	201.9	216.8	218.3	219.2	221.5	223.1	224.9	228.9	231.2	233.9	237.8	248.6	251.6	253.5	
CRUDE MATERIALS															
Crude materials for further processing	240.1	279.9	282.3	283.0	287.1	281.7	288.3	289.5	290.8	296.2	296.9	308.3	303.3	296.9	
Foodstuffs and feedstuffs	215.3	251.5	251.9	248.2	254.1	243.7	248.7	247.5	246.4	249.7	243.0	252.6	245.9	235.5	
Nonfood materials	286.7	333.3	339.6	348.7	349.3	353.6	363.1	368.9	374.9	384.2	399.0	413.9	412.2	413.5	
Nonfood materials except fuel	235.4	276.5	276.6	286.6	285.2	286.1	293.3	298.1	304.6	311.6	329.9	341.5	339.4	336.9	
Manufacturing industries	240.8	284.8	284.7	295.9	294.0	294.9	302.8	307.8	314.9	322.5	342.0	354.7	352.1	349.0	
Construction	185.7	203.6	204.5	205.4	207.2	208.6	209.9	212.6	214.8	216.6	225.7	228.3	229.7	232.4	
Crude fuel	463.7	529.2	556.8	563.1	570.7	586.2	604.0	612.9	617.4	634.5	637.2	663.5	663.3	677.4	
Manufacturing industries	481.9	560.0	593.8	601.3	610.4	629.2	651.8	662.5	667.8	688.3	691.7	724.4	723.5	740.8	
Nonmanufacturing industries	459.6	515.8	538.8	544.3	550.7	563.6	577.8	585.5	589.3	603.9	606.2	627.7	627.9	639.8	
SPECIAL GROUPINGS															
Finished goods excluding foods	188.9	204.2	206.3	208.5	211.4	213.2	216.2	221.3	222.8	224.6	230.1	234.3	237.4	241.2	
Finished consumer goods excluding Foods	183.7	199.3	202.1	205.2	208.4	212.3	216.3	220.6	223.1	225.3	231.8	237.8	242.0	245.5	
Intermediate materials, supplies, and components, excluding intermediate materials for food manufacturing and manufactured animal feeds	216.4	236.7	238.8	241.3	245.4	249.0	252.5	256.8	258.1	260.1	268.1	273.2	275.7	277.4	
Intermediate foods and feeds	201.0	220.7	219.3	223.0	231.0	223.1	226.6	226.0	226.9	229.8	224.7	237.1	232.3	227.5	
Crude materials for further processing excluding crude foodstuffs and feedstuffs, plant and animal fibers, oilseeds, and leaf tobacco	316.6	372.4	379.2	389.5	391.7	396.9	408.6	417.0	424.1	435.0	453.0	468.8	468.4	469.4	

¹ Data for December 1979 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.

27. Producer Price Indexes, by commodity groupings

[1967=100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1978	1979										1980			
			Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	
	All commodities	209.3	230.0	232.0	233.5	236.9	238.3	242.0	245.6	247.2	249.7	254.7	259.8	261.5	262.3	
	All commodities (1957-59 = 100)	222.1	243.7	245.7	247.7	251.4	252.8	256.7	260.6	262.3	267.3	270.2	275.6	277.5	278.3	
	Farm products and processed foods and feeds	206.6	244.0	230.8	229.0	232.2	227.5	231.8	230.6	232.3	234.6	231.9	236.9	234.9	229.2	
	Industrial commodities	209.4	229.0	231.6	234.0	237.5	240.6	244.2	249.0	250.6	253.1	260.3	265.4	268.2	270.7	
FARM PRODUCTS AND PROCESSED FOODS AND FEEDS																
01	Farm products	212.5	223.3	245.4	242.8	246.8	238.5	241.0	239.6	240.2	242.5	236.4	242.3	239.3	228.9	
01-1	Fresh and dried fruits and vegetables	216.5	234.7	228.2	226.4	226.7	241.7	208.3	218.0	216.5	210.7	218.9	220.5	218.3	223.0	
01-2	Grains	182.5	198.3	210.3	218.7	247.4	229.1	224.4	229.0	226.6	227.9	214.6	223.3	217.9	210.8	
01-3	Livestock	220.1	284.0	280.7	264.0	256.0	240.2	256.4	251.7	248.3	252.5	247.8	257.2	251.8	230.5	
01-4	Live poultry	199.8	209.4	216.3	182.9	183.8	171.9	173.5	162.0	195.5	194.7	195.2	184.6	180.1	171.9	
01-5	Plant and animal fibers	193.4	197.8	207.6	219.5	207.6	207.9	211.3	212.9	215.4	222.0	239.0	269.5	254.9	266.9	
01-6	Fluid milk	219.7	242.4	242.0	243.8	247.6	250.0	258.5	260.8	262.5	264.0	262.3	263.8	263.1	265.4	
01-7	Eggs	158.6	185.5	163.8	170.7	167.6	166.8	175.4	155.9	178.7	198.4	165.6	150.4	184.2	153.3	
01-8	Hay, hayseeds, and oilseeds	215.8	248.3	240.7	258.4	260.1	251.9	240.9	235.6	229.8	230.3	218.1	224.7	215.9	205.1	
01-9	Other farm products	274.9	255.1	264.1	281.0	311.9	310.8	315.9	313.6	318.3	319.4	301.1	304.7	311.5	304.8	
02	Processed foods and feeds	202.6	222.3	222.0	220.6	223.3	220.5	225.8	224.8	227.1	229.3	228.5	233.1	231.5	228.5	
02-1	Cereal and bakery products	190.3	203.0	204.9	206.3	212.4	216.0	218.7	219.8	222.5	223.6	225.4	229.7	231.3	231.5	
02-2	Meats, poultry, and fish	217.1	253.0	250.4	241.4	237.7	225.5	239.9	234.2	239.3	242.8	239.5	239.5	239.2	226.0	
02-3	Dairy products	188.4	207.1	207.9	208.4	209.0	215.2	218.3	218.1	219.3	219.9	221.4	221.2	223.3	227.8	
02-4	Processed fruits and vegetables	202.6	220.5	221.4	225.6	223.6	224.6	225.1	223.4	222.4	222.6	222.8	223.1	223.6	224.5	
02-5	Sugar and confectionery	197.8	208.7	207.6	211.1	215.7	218.3	217.2	218.9	222.9	234.4	234.8	287.1	263.6	274.8	
02-6	Beverages and beverage materials	200.0	201.5	205.3	208.5	214.1	216.5	217.9	218.9	221.2	221.6	224.1	224.7	226.0	227.9	
02-7	Fats and oils	225.3	246.2	241.8	243.6	253.2	251.7	253.3	246.0	241.9	235.6	229.9	225.9	222.4	214.7	
02-8	Miscellaneous processed foods	199.0	219.3	220.2	211.1	212.7	217.6	219.0	220.8	222.2	223.1	225.4	223.5	224.7	225.1	
02-9	Manufactured animal feeds	197.4	215.6	210.8	220.5	234.9	216.2	219.2	224.0	222.4	224.9	219.5	219.8	216.8	205.4	
INDUSTRIAL COMMODITIES																
03	Textile products and apparel	159.8	166.4	167.2	168.4	169.3	170.5	171.3	172.0	172.8	173.1	174.9	176.5	178.9	180.6	
03-1	Synthetic fibers (12/75 = 100)	109.6	115.1	117.4	118.5	119.5	120.6	123.6	124.7	124.2	124.7	126.9	127.1	129.4	130.7	
03-2	Processed yarns and threads (12/75 = 100)	102.4	106.8	107.8	106.8	109.5	110.6	111.7	112.1	112.5	112.7	114.4	117.3	118.9	122.1	
03-3	Gray fabrics (12/75 = 100)	118.6	124.5	124.7	125.4	128.3	128.7	128.7	129.7	130.7	132.3	132.2	131.7	133.7	136.1	
03-4	Finished fabrics (12/75 = 100)	103.8	105.9	107.0	107.6	108.2	109.0	109.1	108.9	109.7	109.9	109.8	110.8	113.1	114.5	
03-81	Apparel	152.4	158.8	159.8	160.2	160.3	161.4	161.6	162.2	163.1	162.6	165.3	167.3	168.3	169.1	
03-82	Textile housefurnishings	178.6	188.0	188.0	189.3	189.9	190.5	193.9	196.3	196.5	197.1	199.2	200.0	201.2	201.6	
04	Hides, skins, leather, and related products	200.0	258.9	269.6	268.0	261.9	257.9	251.1	253.9	248.9	249.2	255.3	251.0	246.8	243.6	
04-1	Hides and skins	360.5	642.2	666.9	611.0	566.5	511.9	465.3	478.8	447.6	443.9	468.8	404.8	348.7	328.6	
04-2	Leather	238.6	393.6	429.4	414.6	385.2	365.9	330.0	343.6	319.8	324.8	347.6	340.3	311.0	297.6	
04-3	Footwear	183.0	212.0	216.3	221.1	221.8	225.4	226.9	227.5	227.9	227.9	228.5	228.1	231.8	231.9	
04-4	Other leather and related products	177.0	200.4	209.1	212.3	212.1	210.9	210.1	209.7	208.4	208.0	213.2	214.9	217.9	216.3	
05	Fuels and related products and power	322.5	361.5	377.6	393.7	411.8	432.8	454.8	468.5	476.9	487.9	507.8	533.0	553.5	566.3	
05-1	Coal	430.0	447.1	450.8	452.0	452.5	454.2	455.1	454.6	455.1	458.6	458.7	458.7	460.7	463.3	
05-2	Coke	411.8	430.1	430.6	430.6	430.6	430.6	430.6	431.2	431.2	431.2	430.6	430.6	430.6	430.6	
05-3	Gas fuels ¹	428.7	477.4	507.2	522.3	548.4	572.4	603.4	619.9	637.0	662.4	679.6	719.8	720.3	730.2	
05-4	Electric power	250.6	260.6	265.9	269.9	274.8	278.8	280.5	283.5	281.9	287.0	290.7	299.5	305.7	310.4	
05-61	Crude petroleum ²	300.1	326.2	335.7	356.4	370.6	385.7	422.1	436.7	450.4	470.8	513.6	515.1	522.8	533.9	
05-7	Petroleum products, refined ³	321.0	378.6	400.0	423.6	449.8	482.8	513.7	533.7	545.4	555.2	582.4	620.3	657.9	677.3	
06	Chemicals and allied products	198.8	215.1	218.0	219.2	225.0	228.5	230.8	234.2	236.0	238.2	245.5	247.6	251.6	258.1	
06-1	Industrial chemicals ⁴	225.6	248.2	255.6	259.3	270.4	277.1	280.0	285.7	288.4	292.3	302.6	306.7	310.7	316.8	
06-21	Prepared paint	192.3	203.3	201.3	201.3	205.3	205.3	206.0	206.7	209.4	210.7	223.1	223.3	223.3	231.5	
06-22	Paint materials	212.7	231.6	236.1	239.5	246.7	247.9	252.0	253.6	256.6	256.8	258.9	262.7	266.2	271.1	
06-3	Drugs and pharmaceuticals	148.1	157.5	157.7	159.0	159.2	159.6	161.0	162.8	163.0	164.4	166.5	167.7	168.9	172.8	
06-4	Fats and oils, inedible	315.8	448.7	418.3	374.1	381.6	376.4	379.9	366.9	344.3	327.1	325.6	302.2	299.9	298.2	
06-5	Agricultural chemicals and chemical products	198.4	209.8	210.0	209.2	211.2	215.3	219.4	224.3	229.5	232.9	238.1	242.8	256.0	258.3	
06-6	Plastic resins and materials	199.8	220.6	228.5	230.1	244.5	250.1	252.0	260.0	261.4	262.5	270.0	271.1	273.9	285.6	
06-7	Other chemicals and allied products	181.8	186.9	188.9	190.5	191.8	194.4	195.8	197.0	198.8	201.4	209.6	211.0	214.5	223.3	
07	Rubber and plastic products	174.8	188.8	190.8	193.1	195.5	198.8	200.7	203.0	204.9	205.9	208.2	210.9	212.7	214.6	
07-1	Rubber and rubber products	185.3	201.2	202.6	204.8	209.5	214.6	217.1	220.3	223.7	224.3	227.1	232.2	232.3	234.6	
07-11	Crude rubber	187.2	211.6	214.2	222.0	226.1	233.0	232.2	236.5	237.2	240.2	251.9	263.1	254.9	263.8	
07-12	Tires and tubes	179.2	196.1	197.3	198.9	206.2	211.6	215.0	218.3	223.1	224.7	231.2	231.2	231.2	231.3	
07-13	Miscellaneous rubber products	189.6	201.3	202.6	203.5	205.4	209.4	211.9	214.7	217.1	217.7	219.1	220.4	223.4	225.9	
07-2	Plastic products (6/78 = 100)		108.0	109.5	111.0	112.2	112.2	113.0	114.0	113.1	115.2	116.2	116.5	118.6	119.5	
08	Lumber and wood products	276.0	304.9	302.8	299.8	300.1	304.7	309.7	308.8	298.9	290.1	290.0	294.8	295.7	275.2	
08-1	Lumber	322.4	355.4	354.8	354.8	355.0	365.3	373.9	370.3	355.6	339.5	336.3	341.5	340.6	310.1	
08-2	Millwork	235.4	266.0	261.6	258.9	252.5	249.6	250.9	255.6	252.3	250.3	254.1	258.0	264.7	256.6	
08-3	Plywood	235.6	252.4	249.3	238.6	249.7	254.3	257.9	254.0	242.2	237.9	238.2	243.7	240.0	219.2	
08-4	Other wood products	211.8	235.5	238.4	238.5	237.6	237.4	238.0	237.7	239.9	240.5	242.2	243.4	243.1	241.7	

See footnotes at end of table.

27. Continued— Producer Price Indexes, by commodity groupings

[1967=100 unless otherwise specified]

Code	Commodity groups and subgroups	Annual average 1978	1979										1980			
			Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ⁵	Jan.	Feb.	Mar.	Apr.	
INDUSTRIAL COMMODITIES—Continued																
09	Pulp, paper, and allied products	195.6	215.0	216.2	216.6	218.3	222.2	223.0	227.5	229.5	231.7	237.4	238.9	241.6	246.5	
09-1	Pulp, paper, and products, excluding building paper and board	195.6	216.0	217.2	217.8	219.6	223.6	224.3	229.0	231.1	233.4	239.1	240.5	243.1	248.0	
09-11	Woodpulp	266.5	303.8	306.9	308.3	320.3	320.6	320.6	337.5	338.0	338.0	358.8	358.5	359.0	386.8	
09-12	Wastepaper	191.2	206.5	206.2	207.2	207.9	206.6	206.7	206.7	220.0	221.2	222.7	223.2	224.9	242.5	
09-13	Paper	206.1	226.3	227.2	227.5	228.2	229.5	230.3	238.7	241.8	242.7	245.5	247.5	250.5	253.6	
09-14	Paperboard	179.6	197.9	199.2	199.8	201.7	206.4	209.6	211.3	212.8	215.4	221.8	223.4	225.9	230.2	
09-15	Converted paper and paperboard products	185.6	205.8	207.0	207.6	209.0	214.4	214.6	217.3	219.0	221.9	227.5	228.7	231.3	234.6	
09-2	Building paper and board	187.4	183.4	183.3	180.8	178.0	179.1	182.6	183.5	183.6	184.6	186.0	191.1	198.7	201.3	
10	Metals and metal products	227.1	256.0	256.2	258.2	260.8	261.8	263.7	269.6	271.1	273.6	284.5	288.6	286.3	284.6	
10-1	Iron and steel	253.6	280.2	279.5	283.2	286.8	286.1	285.5	289.2	292.0	292.8	297.3	300.2	301.6	307.0	
10-13	Steel mill products	254.5	275.0	276.7	277.3	284.6	284.7	284.8	288.3	288.8	289.3	293.7	294.2	295.6	304.1	
10-2	Nonferrous metals	207.8	259.6	258.2	259.7	262.3	263.1	269.3	283.1	284.1	291.9	326.1	336.5	320.9	298.9	
10-3	Metal containers	243.4	270.1	268.5	267.3	267.2	268.4	268.7	279.9	280.9	283.3	283.3	283.3	287.8	301.1	
10-4	Hardware	200.4	215.8	216.9	217.1	218.5	220.1	221.5	224.0	225.5	226.2	228.4	229.4	230.5	236.9	
10-5	Plumbing fixtures and brass fittings	199.1	212.0	213.8	217.0	219.6	222.4	223.0	223.5	225.4	226.5	229.7	236.6	242.4	243.7	
10-6	Heating equipment	174.4	183.8	185.7	185.2	186.0	188.1	191.3	192.2	193.1	195.6	197.3	199.9	202.0	204.2	
10-7	Fabricated structural metal products	226.4	243.8	247.0	248.2	250.5	252.2	253.7	256.3	256.7	257.7	258.8	259.5	262.9	268.2	
10-8	Miscellaneous metal products	212.0	227.0	228.5	230.1	231.8	235.6	236.7	238.5	238.6	239.1	241.5	242.5	245.1	247.1	
11	Machinery and equipment	196.1	209.8	211.4	212.4	214.8	216.0	217.7	220.0	221.3	223.4	227.1	229.7	231.9	235.8	
11-1	Agricultural machinery and equipment	213.1	226.4	228.3	229.4	231.2	233.3	237.4	240.0	243.4	244.2	247.6	249.1	250.4	252.8	
11-2	Construction machinery and equipment	232.9	251.7	253.7	254.0	257.0	258.5	258.9	263.9	265.4	268.8	275.4	277.5	278.4	282.9	
11-3	Metalworking machinery and equipment	217.0	235.3	237.6	239.1	241.4	243.5	246.4	249.6	252.2	254.6	258.7	261.3	264.1	269.9	
11-4	General purpose machinery and equipment	216.6	232.6	234.0	235.1	237.1	238.3	240.2	242.8	244.2	247.6	249.6	252.0	255.7	260.0	
11-6	Special industry machinery and equipment	223.0	243.4	245.1	246.1	249.8	251.0	251.2	253.8	254.9	256.1	260.7	262.9	265.6	271.9	
11-7	Electrical machinery and equipment	164.9	175.0	176.5	177.6	179.9	181.2	182.5	184.3	184.9	186.6	190.5	194.2	195.9	198.7	
11-9	Miscellaneous machinery	194.7	205.4	207.1	207.4	209.7	209.7	212.0	213.6	214.9	216.3	220.0	220.8	222.7	226.8	
12	Furniture and household durables	160.4	168.7	169.6	170.2	170.7	171.5	172.7	175.1	176.4	177.9	182.1	183.4	184.6	183.1	
12-1	Household furniture	173.5	182.7	184.8	185.3	185.8	186.2	188.5	190.1	193.0	194.8	195.4	196.5	196.9	198.9	
12-2	Commercial furniture	201.5	221.7	221.9	221.8	222.7	222.7	222.7	223.3	223.3	225.1	227.1	230.1	232.8	233.5	
12-3	Floor coverings	141.6	144.4	146.0	146.5	149.1	150.0	150.4	152.1	152.8	152.9	159.8	159.4	160.7	161.7	
12-4	Household appliances	153.0	158.7	159.3	160.0	161.1	162.2	162.7	163.2	164.5	165.3	166.6	168.7	169.7	170.2	
12-5	Home electronic equipment	90.2	92.3	92.4	92.8	90.2	90.2	90.3	90.3	90.3	90.5	88.5	88.7	88.8	88.9	
12-6	Other household durable goods	203.1	218.6	219.5	220.6	223.7	226.6	231.0	245.6	248.2	254.4	283.1	284.2	287.6	266.8	
13	Nonmetallic mineral products	222.8	243.4	245.6	246.9	249.5	249.9	254.6	256.2	257.4	259.6	268.0	272.6	276.1	282.8	
13-11	Flat glass	172.8	183.1	183.1	184.0	184.1	184.1	184.5	184.7	185.4	186.4	190.9	190.9	191.4	191.4	
13-2	Concrete ingredients	217.7	242.0	242.5	243.3	245.1	245.9	246.7	248.3	249.6	251.0	263.5	265.2	266.0	270.5	
13-3	Concrete products	214.0	240.5	241.6	243.7	245.2	246.3	248.7	250.1	250.6	253.2	264.9	266.2	268.6	273.0	
13-4	Structural clay products excluding refractories	197.2	214.8	215.7	216.5	220.3	222.3	223.7	221.1	221.8	226.7	229.6	231.1	231.5	234.4	
13-5	Refractories	216.5	228.4	228.5	232.6	240.8	241.7	242.4	244.6	247.4	248.0	249.3	251.9	254.8	262.6	
13-6	Asphalt roofing	292.0	316.4	317.9	323.0	328.4	325.9	333.0	337.5	347.4	346.5	356.5	372.3	387.6	404.7	
13-7	Gypsum products	229.1	252.2	248.8	251.3	251.8	252.3	254.9	255.3	256.2	255.0	255.4	262.2	267.6	264.0	
13-8	Glass containers	244.4	250.7	265.2	265.2	265.2	265.2	265.2	265.2	265.2	274.2	274.5	274.6	274.6	294.6	
13-9	Other nonmetallic minerals	275.6	300.0	303.0	302.0	310.5	309.9	336.0	341.2	342.2	342.2	351.6	374.3	386.9	399.5	
14	Transportation equipment (12/68 = 100)	173.5	186.8	187.2	187.5	188.4	185.9	186.6	194.2	194.8	195.6	198.3	198.1	198.8	202.6	
14-1	Motor vehicles and equipment	176.0	189.4	189.8	190.1	190.8	187.8	188.6	197.1	197.4	198.2	200.3	199.9	200.8	204.9	
14-4	Railroad equipment	252.8	271.7	271.6	274.7	280.6	280.9	281.6	286.3	288.2	289.0	295.0	299.3	301.3	303.9	
15	Miscellaneous products	184.3	201.4	203.3	205.2	207.0	208.9	213.1	218.9	221.4	227.4	242.2	261.8	256.2	252.2	
15-1	Toys, sporting goods, small arms, ammunition	163.2	173.2	174.3	174.7	176.9	177.6	179.8	181.1	181.2	183.0	190.4	193.2	194.2	195.3	
15-2	Tobacco products	198.5	214.4	214.4	214.4	214.8	221.3	221.9	222.1	222.2	226.6	236.3	236.9	237.1	237.6	
15-3	Notions	182.0	190.2	190.6	190.6	192.0	191.9	191.9	195.7	195.8	196.8	203.1	203.2	207.2	216.8	
15-4	Photographic equipment and supplies	145.7	150.1	150.6	151.6	152.0	152.2	154.3	157.4	161.2	164.3	166.0	218.7	219.4	212.6	
15-51	Mobile homes (12/74 = 100)	126.4	135.2	137.2	137.9	138.2	139.5	140.7	142.9	144.0	144.1	144.2	146.0	146.6	148.9	
15-9	Other miscellaneous products	210.6	246.1	250.6	255.8	261.4	261.4	272.5	288.3	293.3	308.8	349.7	375.3	352.3	339.2	

¹ Prices for natural gas are lagged 1 month.

² Includes only domestic production.

³ Most prices for refined petroleum products are lagged 1 month.

⁴ Some prices for industrial chemicals are lagged 1 month.

⁵ Data for December 1979 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.

28. Producer Price Indexes, for special commodity groupings

[1967 = 100 unless otherwise specified]

Commodity grouping	Annual average 1978	1979									1980			
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ¹	Jan.	Feb.	Mar.	Apr.
All commodities — less farm products	208.4	228.0	230.1	232.0	235.4	237.5	241.4	245.3	247.0	249.5	255.4	260.5	262.6	264.3
All foods	206.4	227.7	226.4	223.8	225.4	224.7	228.5	226.9	230.0	232.2	231.1	235.7	234.7	231.7
Processed foods	206.7	227.8	227.5	224.7	226.4	224.8	230.8	228.9	231.8	234.2	233.3	238.5	236.8	234.0
Industrial commodities less fuels	197.2	214.7	216.0	217.0	219.0	220.3	222.0	225.9	226.9	228.5	234.3	237.5	238.4	239.9
Selected textile mill products (Dec. 1975 = 100)	108.8	112.3	112.8	113.5	114.0	115.1	115.8	116.4	117.0	117.2	118.8	119.4	121.1	122.1
Hosiery	106.3	112.5	112.5	112.7	114.1	113.0	112.7	113.3	114.6	115.3	119.5	119.6	119.9	120.7
Underwear and nightwear	158.9	167.3	167.7	168.3	168.5	170.8	170.8	171.2	171.6	172.9	175.7	177.8	181.8	182.0
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	190.5	204.1	207.6	209.5	215.0	218.6	220.9	224.3	226.3	228.7	235.8	238.2	242.1	248.4
Pharmaceutical preparations	140.6	150.0	150.1	151.7	151.7	152.0	153.6	155.6	155.4	156.9	159.2	160.4	161.7	165.9
Lumber and wood products, excluding millwork and other wood products	298.3	326.4	325.1	321.7	325.3	333.9	341.0	337.3	323.3	310.8	308.6	314.0	312.2	284.5
Special metals and metal products	209.6	232.7	232.4	233.7	235.5	234.9	236.4	243.4	244.5	246.3	253.5	255.7	254.8	256.6
Fabricated metal products	216.2	232.9	234.6	235.7	237.4	239.8	241.1	244.0	244.6	245.3	247.3	248.3	251.3	256.0
Copper and copper products	155.6	212.1	199.0	193.0	191.9	197.1	200.5	212.2	213.8	217.1	227.2	258.2	240.9	224.7
Machinery and motive products	190.4	204.1	205.3	206.0	207.7	207.2	208.5	213.4	214.3	215.9	219.3	220.6	222.2	226.1
Machinery and equipment, except electrical	214.3	230.0	231.8	232.6	235.1	236.2	238.2	240.8	242.5	244.8	248.4	250.4	252.9	257.5
Agricultural machinery, including tractors	216.3	230.8	232.1	233.8	235.8	238.4	243.6	246.3	250.8	251.5	255.2	256.0	257.7	259.7
Metalworking machinery	228.8	251.2	254.3	256.8	260.1	261.7	265.6	269.5	272.7	276.0	282.1	284.8	288.1	294.3
Numerically controlled machine tools (Dec. 1971 = 100)	179.1	192.7	195.7	195.8	202.2	204.2	206.5	208.5	208.8	211.2	213.2	215.6	216.8	223.9
Total tractors	228.7	245.4	247.7	248.2	251.2	253.8	256.0	261.2	262.5	266.2	271.6	273.5	274.3	278.4
Agricultural machinery and equipment less parts	212.7	226.7	228.1	229.5	231.4	233.7	238.4	241.0	244.9	245.8	249.3	250.4	252.1	254.2
Farm and garden tractors less parts	216.1	228.5	230.5	231.8	233.9	237.6	244.1	247.6	250.5	251.1	255.3	256.7	258.8	261.0
Agricultural machinery excluding tractors less parts	216.7	233.0	233.6	235.7	237.6	239.2	243.5	245.4	251.3	252.0	255.4	255.6	257.0	259.0
Industrial valves	232.3	252.4	255.0	255.8	257.0	258.2	260.1	261.8	263.1	266.1	270.1	272.2	276.1	283.5
Industrial fittings	232.7	255.5	259.3	260.4	260.8	262.3	264.3	272.6	276.8	276.8	276.8	280.4	282.8	289.9
Abrasive grinding wheels	208.1	220.3	221.6	222.8	222.8	224.6	224.6	239.0	239.0	239.0	239.0	244.0	244.0	258.4
Construction materials	228.3	250.0	250.3	250.3	252.3	254.3	256.6	258.5	256.7	255.4	259.1	262.2	264.6	262.1

¹ Data for December 1979 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.

29. Producer Price Indexes, by durability of product

[1967 = 100]

Commodity grouping	Annual average 1978	1979									1980			
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ¹	Jan.	Feb.	Mar.	Apr.
Total durable goods	204.9	223.9	224.7	225.8	227.6	228.0	230.1	234.6	235.3	237.0	243.4	246.4	246.6	247.2
Total nondurable goods	211.9	234.1	236.9	238.8	243.7	245.8	251.1	253.7	256.2	259.3	263.0	270.0	273.1	274.0
Total manufactures	204.2	223.1	225.0	226.5	229.8	231.7	235.2	239.0	240.6	242.6	248.2	252.7	254.8	256.5
Durable	204.7	222.7	223.8	224.6	226.6	227.2	229.4	234.0	234.6	236.2	242.2	245.0	245.2	246.2
Nondurable	203.0	222.8	225.6	227.8	232.5	235.9	241.0	244.0	246.6	249.0	253.8	260.7	264.7	267.3
Total raw or slightly processed goods	234.6	266.1	268.2	269.7	274.3	272.1	276.9	278.7	281.0	285.9	287.5	295.9	295.6	290.4
Durable	209.6	272.5	262.9	272.8	265.4	259.8	255.7	259.2	265.8	267.8	282.7	305.2	302.5	286.0
Nondurable	235.6	264.7	267.6	268.5	274.0	272.0	277.5	279.2	281.2	286.3	286.9	294.2	294.0	289.7

¹ Data for December 1979 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.

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

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry Description	Annual average 1978	1979									1980			
			Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
MINING															
1011	Iron ores (12/75 = 100)	121.9	131.9	131.9	136.0	136.0	138.8	138.1	140.2	140.2	142.0	142.0	147.3	147.3	152.6
1092	Mercury ores (12/75 = 100)	126.6	202.1	237.5	277.0	270.8	245.8	252.1	275.0	252.1	300.0	308.3	335.4	330.0	337.5
1211	Bituminous coal and lignite	430.2	447.5	451.3	452.5	453.1	454.8	452.9	455.1	455.5	458.9	458.0	458.7	460.7	462.9
1311	Crude petroleum and natural gas	358.2	407.6	427.2	444.1	457.5	476.0	508.4	522.1	533.9	551.3	583.2	597.4	600.6	612.3
1442	Construction sand and gravel	194.6	214.1	216.0	217.0	219.3	220.1	221.0	224.0	224.7	225.6	238.0	242.1	243.6	248.4
1455	Kaolin and ball clay (6/76 = 100)	111.8	125.4	125.4	125.5	125.5	125.5	125.5	126.7	124.2	129.3	128.5	128.5	123.4	136.6
MANUFACTURING															
2011	Meat packing plants	216.7	265.0	259.2	249.1	243.8	229.3	247.2	238.9	241.5	243.9	240.7	240.1	238.9	225.6
2013	Sausages and other prepared meats	215.2	224.4	227.7	217.1	214.7	203.4	211.7	211.9	213.4	220.0	211.5	207.4	209.1	197.7
2016	Poultry dressing plants	192.5	199.7	203.5	177.8	178.4	169.6	171.2	163.1	188.3	188.5	186.1	178.2	173.5	164.5
2021	Creamery butter	205.2	224.7	225.3	225.3	227.5	237.9	240.6	240.1	241.7	243.1	241.9	242.8	243.4	252.8

See footnotes at end of table.

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

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1978	1979									1980			
			Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
MANUFACTURING — Continued															
2022	Cheese natural and processed (12/72 = 100)	169.6	186.8	185.2	185.6	186.3	195.4	200.8	196.8	193.6	193.9	197.1	194.6	197.4	203.6
2024	Ice cream and frozen desserts (12/72 = 100)	154.8	167.3	171.0	171.5	171.5	175.0	176.1	177.5	179.9	180.1	180.9	181.5	185.0	191.4
2033	Canned fruits and vegetables	193.2	206.2	207.2	207.5	209.9	210.5	212.0	212.9	212.2	212.2	213.5	213.5	214.8	216.3
2034	Dehydrated food products (12/73 = 100)	131.3	181.7	182.1	181.0	182.0	180.7	170.0	158.2	156.2	157.3	157.6	159.0	156.4	157.5
2041	Flour mills (12/71 = 100)	147.0	158.1	166.7	174.6	190.9	176.9	183.5	184.2	184.4	184.1	181.7	183.6	182.6	175.9
2044	Rice milling	207.6	206.8	206.8	206.8	206.8	218.7	223.5	227.3	231.8	218.1	217.5	233.0	258.0	260.4
2048	Prepared foods, n.e.c. (12/75 = 100)	107.3	117.5	115.2	118.9	128.1	119.4	120.9	123.6	124.3	125.0	122.3	122.9	121.8	116.8
2061	Raw cane sugar	190.7	197.5	195.6	207.0	209.0	216.8	224.3	223.3	248.4	260.5	260.5	374.9	276.0	320.2
2063	Beet sugar	188.5	199.3	199.7	199.7	202.0	199.4	200.0	204.7	210.6	223.2	223.5	290.6	303.1	295.4
2067	Chewing gum	218.0	242.6	242.2	242.2	242.9	242.9	242.9	242.9	262.3	262.3	262.3	262.3	281.9	281.9
2074	Cottonseed oil mills	183.1	198.5	192.5	210.4	224.5	214.1	217.9	214.9	204.7	205.6	182.2	184.3	170.4	154.8
2075	Soybean oil mills	225.6	244.7	237.7	251.1	262.8	250.0	248.6	244.7	242.4	241.9	230.2	226.2	219.3	212.6
2077	Animal and marine fats and oils	287.9	393.1	363.8	335.3	352.0	321.4	333.8	333.7	315.2	300.7	296.0	292.6	297.3	274.0
2083	Malt	181.5	190.8	190.8	201.4	201.4	201.4	214.9	214.9	228.2	228.2	244.1	244.1	244.1	244.1
2085	Distilled liquor, except brandy (12/75 = 100)	106.7	109.4	113.6	113.6	113.6	115.7	117.1	117.1	118.1	118.1	118.1	118.1	118.1	118.1
2091	Canned and cured seafoods (12/73 = 100)	136.4	139.2	140.9	142.1	148.5	148.2	154.0	154.3	155.6	159.8	160.9	164.0	165.7	170.2
2092	Fresh or frozen packaged fish	303.8	375.8	382.4	397.6	403.7	391.5	389.2	400.1	391.4	388.4	390.7	386.6	392.6	371.5
2095	Roasted coffee (12/72 = 100)	262.3	220.5	231.7	244.2	271.0	279.2	279.2	280.0	287.5	287.5	281.3	273.9	274.0	273.9
2098	Macaroni and spaghetti	176.9	184.7	186.6	188.6	203.5	210.4	210.4	210.4	221.5	227.7	227.7	227.7	227.7	230.5
2111	Cigarettes	204.6	221.4	221.4	221.4	221.5	228.9	229.1	229.2	229.2	234.3	245.8	245.9	245.9	246.1
2121	Cigars	141.4	145.4	145.4	145.3	149.8	150.1	150.1	149.8	150.4	150.4	147.9	151.6	151.8	152.7
2131	Chewing and smoking tobacco	222.0	245.9	245.9	245.9	246.4	246.4	255.8	260.4	260.8	260.8	260.9	265.1	267.3	274.3
2211	Weaving mills, cotton (12/72 = 100)	181.1	191.8	192.7	194.3	196.1	196.5	198.7	201.1	201.6	201.9	203.1	206.5	209.1	210.9
2221	Weaving mills, synthetic (12/77 = 100)	109.0	113.3	113.6	114.1	116.2	116.3	116.2	116.8	117.3	117.2	117.6	117.8	119.6	122.4
2251	Women's hosiery, except socks (12/75 = 100)	91.5	97.3	97.3	97.6	99.6	98.1	97.5	98.2	100.3	100.2	103.6	103.6	103.7	104.4
2254	Knit underwear mills	164.1	172.8	173.1	173.3	172.9	174.0	174.0	174.3	174.6	178.3	182.9	184.5	186.2	186.4
2257	Circular knit fabric mills (6/76 = 100)	98.5	93.2	94.1	95.8	96.1	96.4	96.2	96.9	98.4	98.6	98.8	100.0	103.1	103.6
2261	Finishing plants, cotton (6/76 = 100)	111.0	119.0	120.8	120.9	122.5	123.2	124.0	126.1	126.3	126.6	124.9	129.5	131.7	131.9
2262	Finishing plants, synthetics, silk (6/76 = 100)	101.4	105.9	106.3	107.0	107.5	108.2	108.3	109.3	109.7	109.8	109.8	109.3	110.3	111.3
2271	Woven carpets and rugs (12/75 = 100)	114.7	116.0	116.7	117.1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
2272	Tufted carpets and rugs	125.3	127.0	127.7	128.1	127.6	128.6	129.0	129.8	130.1	130.1	135.6	135.2	137.5	135.9
2281	Yarn mills, except wool (12/71 = 100)	167.4	173.1	174.5	175.7	177.5	177.4	179.4	181.2	183.0	183.7	188.3	197.4	199.3	203.8
2282	Throwing and winding mills (6/76 = 100)	99.2	104.4	106.3	107.5	108.5	109.7	111.2	110.4	109.6	109.2	109.3	108.8	111.3	114.8
2284	Thread mills (6/76 = 100)	114.6	120.4	120.4	120.4	120.5	128.1	128.1	128.4	128.4	128.6	128.7	129.2	129.3	133.9
2298	Cordage and twine (12/77 = 100)	99.3	101.7	102.8	105.4	105.4	113.5	115.1	114.9	114.9	115.0	117.2	118.5	123.6	123.6
2311	Men's and boys' suits and coats	194.3	203.9	204.2	204.5	205.8	206.5	206.6	206.6	206.8	207.5	207.5	209.7	209.7	205.7
2321	Men's and boys' shirts and nightwear	180.8	191.8	192.4	193.5	194.7	195.9	196.0	196.1	196.6	196.3	198.8	196.6	197.3	202.9
2322	Men's and boys' underwear	180.6	188.7	188.7	188.7	188.7	190.0	190.0	190.0	190.0	190.0	194.0	200.2	204.0	204.2
2323	Men's and boys' neckwear (12/75 = 100)	102.3	103.4	103.4	103.4	103.4	110.9	110.9	110.9	110.9	110.9	112.4	112.4	112.4	106.3
2327	Men's and boys' separate trousers	152.7	162.3	162.3	162.5	162.5	162.7	162.7	162.9	163.4	163.5	164.2	174.3	174.4	174.8
2328	Men's and boys' work clothing	195.2	206.5	209.0	208.9	210.7	210.9	213.4	219.1	219.6	225.3	234.1	235.4	240.9	240.9
2331	Women's and misses' blouses and waists (6/78 = 100)	99.1	100.3	100.5	102.6	102.7	102.8	103.0	105.9	106.8	107.0	107.2	107.2	107.2	107.6
2335	Women's and misses' dresses (12/77 = 100)	100.7	106.6	105.9	105.9	106.4	108.3	108.3	108.7	108.8	108.8	112.9	113.9	113.9	113.9
2341	Women's and children's underwear (12/72 = 100)	132.1	142.6	143.3	143.3	144.2	145.3	145.3	146.7	147.4	147.7	149.4	150.1	152.4	152.4
2342	Brassieres and allied garments (12/75 = 100)	111.7	116.1	116.2	117.5	117.5	117.8	117.8	117.8	117.8	117.8	119.7	123.0	124.9	125.4
2361	Children's dresses and blouses (12/77 = 100)	(1)	106.7	106.7	102.1	102.4	102.4	103.7	105.7	105.6	106.1	105.3	106.0	106.0	106.0
2381	Fabric dress and work gloves	214.4	241.5	243.9	243.9	245.4	245.4	245.4	245.4	246.9	246.9	257.7	261.7	264.8	267.5
2394	Canvas and related products (12/77 = 100)	99.6	105.9	105.9	106.9	108.4	111.0	111.4	112.3	112.1	120.1	122.1	122.8	123.4	123.4
2396	Automotive and apparel trimmings (12/77 = 100)	106.3	107.1	107.1	114.3	114.3	114.3	114.3	114.3	114.3	114.3	114.3	114.3	114.3	122.3
2421	Sawmills and planing mills (12/71 = 100)	228.9	252.5	251.6	250.9	251.3	259.1	265.6	262.2	250.2	237.9	234.8	239.6	239.1	215.7
2436	Softwood veneer and plywood (12/75 = 100)	150.1	157.3	151.1	140.7	148.1	153.4	156.0	153.1	142.9	138.9	138.5	143.9	139.8	121.4
2439	Structural wood members, n.e.c. (12/75 = 100)	136.2	150.1	150.1	150.0	150.0	149.9	150.8	158.2	158.2	158.2	158.2	158.2	158.3	158.2
2448	Wood pallets and skids (12/75 = 100)	149.4	166.8	166.7	167.0	166.9	166.8	167.9	171.0	170.5	169.8	167.0	166.3	164.6	164.6
2451	Mobile homes (12/74 = 100)	126.5	135.3	137.3	138.0	138.2	139.6	140.7	143.0	144.0	144.1	144.2	146.1	146.7	149.0
2492	Particleboard (12/75 = 100)	159.7	143.8	141.6	137.4	134.3	134.7	138.5	139.5	136.8	134.5	136.5	149.0	158.9	161.9
2511	Wood household furniture (12/71 = 100)	152.4	162.7	164.6	164.0	164.5	164.6	168.0	169.3	172.3	174.5	175.7	177.4	177.6	179.7
2512	Upholstered household furniture (12/71 = 100)	143.1	147.4	149.2	149.4	150.0	150.2	151.6	151.8	153.8	155.7	155.9	156.6	156.6	158.7
2515	Mattresses and bedsprings	156.3	163.1	163.2	164.1	164.5	165.8	165.8	168.9	172.3	172.3	169.7	169.7	171.5	171.5
2521	Wood office furniture	194.4	214.2	214.3	214.2	216.8	216.8	216.8	217.6	217.6	221.9	226.2	233.7	233.8	233.9
2611	Pulp mills (12/73 = 100)	178.5	192.5	195.2	196.6	205.4	205.7	205.8	213.5	213.9	213.9	227.2	227.0	227.4	244.9
2621	Paper mills, except building (12/74 = 100)	115.7	128.5	129.3	129.5	130.2	131.0	131.4	135.1	136.5	136.8	139.2	140.0	142.7	145.1
2631	Paperboard mills (12/74 = 100)	106.4	117.1	118.1	118.5	119.7	121.9	123.4	125.4	126.3	127.6	131.4	132.3	134.1	137.0
2647	Sanitary paper products	251.4	270.8	271.7	271.9	276.4	285.9	285.4	286.3	288.4	290.9	294.0	303.8	311.6	312.2
2654	Sanitary food containers	170.8	184.1	189.1	189.1	189.6	189.6	191.8	195.8	198.2	199.9	202.6	202.6	207.3	212.9
2655	Fiber cans, drums, and similar products (12/75 = 100)														

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1978	1979										1980			
			Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ²	Jan.	Feb.	Mar.	Apr.	
3021	Rubber and plastic footwear (12/71 = 100)	158.7	169.0	169.5	169.6	171.0	173.4	173.4	173.5	173.5	173.5	173.7	173.8	173.8	173.8	
3031	Reclaimed rubber (12/73 = 100)	154.3	164.5	167.6	169.1	169.2	169.2	177.7	178.8	179.2	179.5	177.6	177.9	182.7	183.7	
3079	Miscellaneous plastic products (6/78 = 100)		107.5	109.0	110.7	111.4	112.3	113.1	114.3	114.6	115.6	116.6	116.8	118.7	120.1	
3111	Leather tanning and finishing (12/77 = 100)	119.1	182.9	201.3	195.8	181.8	172.9	155.2	161.9	150.8	153.5	164.3	160.8	146.7	140.8	
3142	House slippers (12/75 = 100)	122.5	136.3	138.5	142.0	135.0	135.0	135.0	135.8	135.9	135.9	144.8	146.7	146.7	146.8	
3143	Men's footwear, except athletic (12/75 = 100)	127.1	147.6	152.8	155.4	155.4	158.2	160.1	160.4	160.3	160.3	159.3	157.9	158.4	158.4	
3144	Women's footwear, except athletic	164.1	190.3	192.2	195.4	198.7	201.5	201.6	202.3	204.0	204.0	205.7	206.4	213.5	213.8	
3171	Women's handbags and purses (12/75 = 100)	111.4	123.0	131.7	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.9	131.9	132.1	
3211	Flat glass (12/71 = 100)	142.7	150.8	150.8	151.8	151.9	151.9	152.3	152.6	153.3	153.9	157.4	157.4	157.9	157.9	
3221	Glass containers	244.3	250.7	265.2	265.2	265.2	265.2	265.2	265.2	265.2	274.2	274.5	274.5	274.5	294.5	
3241	Cement, hydraulic	251.2	283.1	283.2	283.7	285.4	285.4	285.4	285.4	285.5	286.2	302.8	303.2	303.2	309.8	
3251	Brick and structural clay tile	230.8	256.7	258.3	259.7	261.0	263.3	265.9	261.3	261.3	262.7	270.4	271.9	276.4	276.4	
3253	Ceramic wall and floor tile (12/75 = 100)	107.7	113.0	113.0	113.0	120.2	120.2	120.2	120.2	120.2	130.3	130.4	130.4	130.4	130.4	
3255	Clay refractories	221.4	234.4	234.6	236.9	246.5	246.7	247.1	251.0	252.9	254.0	256.5	260.9	265.3	275.4	
3259	Structural clay products, n.e.c.	176.3	186.8	186.8	187.8	188.2	192.1	192.1	192.8	192.3	196.5	196.7	198.6	196.7	200.6	
3261	Vitreous plumbing fixtures	189.7	201.6	204.6	206.4	210.1	212.4	213.1	214.5	215.7	217.3	219.2	224.6	226.7	227.6	
3262	Vitreous china food utensils	268.8	290.6	290.6	290.6	297.5	297.5	298.0	298.0	308.4	308.4	307.9	307.9	308.2	313.4	
3263	Fine earthenware food utensils	228.1	237.1	237.1	236.4	238.8	238.8	246.0	246.0	248.4	248.4	293.3	293.0	294.0	294.8	
3269	Pottery products, n.e.c. (12/75 = 100)	122.2	129.2	129.2	129.0	131.0	131.0	133.3	133.3	135.5	150.1	148.8	148.8	150.0	151.3	
3271	Concrete block and brick	202.0	230.8	232.6	232.7	232.7	235.7	237.8	240.0	240.0	240.2	249.5	250.6	252.3	259.3	
3273	Ready-mixed concrete	217.6	244.5	245.2	247.5	249.6	250.5	252.4	254.0	254.6	257.0	270.1	271.9	274.9	278.9	
3274	Lime (12/75 = 100)	129.5	139.9	139.8	140.1	141.8	142.9	144.2	144.6	144.3	144.6	149.6	153.7	155.5	156.7	
3275	Gypsum products	229.5	252.7	249.4	251.9	252.3	252.8	255.4	255.9	256.8	255.6	255.9	262.8	268.1	264.6	
3291	Abrasive products (12/71 = 100)	172.3	184.0	185.1	185.8	187.7	188.6	190.4	195.1	195.3	196.5	199.2	202.2	203.9	210.1	
3297	Nonclay refractories (12/74 = 100)	133.6	140.5	140.5	143.9	148.1	149.1	149.7	150.1	152.3	152.3	152.3	153.3	154.2	157.4	
3312	Blast furnaces and steel mills	262.3	283.5	285.3	285.8	292.8	293.0	293.2	296.4	297.1	297.7	302.3	302.9	304.1	311.9	
3313	Electrometallurgical products (12/75 = 100)	94.8	106.8	111.7	112.3	116.5	116.5	116.0	116.2	117.5	117.6	117.8	117.8	118.0	118.7	
3316	Cold finishing of steel shapes	241.0	259.1	259.8	261.3	270.6	270.8	270.9	271.7	273.4	273.9	274.2	277.2	277.2	285.9	
3317	Steel pipes and tubes	255.2	265.0	264.5	264.5	271.9	271.3	271.3	272.7	273.1	273.2	280.9	281.2	283.6	286.9	
3321	Gray iron foundries (12/68 = 100)	233.5	253.9	253.3	254.5	253.9	253.8	254.8	267.1	269.6	269.7	272.3	275.4	275.7	278.4	
3333	Primary zinc	223.2	274.2	274.5	275.2	281.4	265.5	264.2	265.2	257.8	265.7	266.1	272.4	279.6	274.2	
3334	Primary aluminum	217.4	235.8	237.4	238.5	244.9	247.4	248.2	256.0	263.2	266.6	267.0	267.0	267.8	276.0	
3351	Copper rolling and drawing	170.2	220.1	215.6	217.7	211.2	213.6	216.7	226.3	222.6	225.0	231.1	253.2	238.7	230.1	
3353	Aluminum sheet plate and foil (12/75 = 100)	137.6	148.0	148.7	148.8	149.6	149.8	150.0	150.7	151.3	151.7	153.4	153.5	155.5	158.0	
3354	Aluminum extruded products (12/75 = 100)	134.3	146.1	147.5	147.6	150.3	151.9	151.9	155.2	157.4	158.0	158.8	158.9	160.8	167.6	
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	119.7	129.6	131.5	131.6	132.7	133.1	133.5	136.9	139.9	140.5	140.8	140.8	141.2	143.8	
3411	Metal cans	238.5	264.4	263.8	262.2	262.2	262.9	263.5	273.8	274.6	274.7	276.6	276.6	279.5	295.1	
3425	Hand saws and saw blades (12/72 = 100)	147.9	159.6	161.9	162.5	162.8	166.3	166.4	167.1	169.5	169.8	173.0	173.6	175.4	177.8	
3431	Metal sanitary ware	209.1	220.8	222.2	224.1	226.4	228.9	229.2	230.1	231.7	232.9	237.3	242.1	243.1	245.5	
3465	Automotive stampings (12/75 = 100)	118.8	126.2	127.0	127.1	127.8	130.9	131.6	132.4	132.4	132.4	132.8	132.8	133.0	133.8	
3482	Small arms ammunition (12/75 = 100)	119.5	128.3	130.4	131.4	134.0	134.0	133.2	133.6	143.2	147.9	147.9	147.3	146.3		
3493	Steel springs, except wire	204.6	218.1	218.7	220.5	221.6	222.1	222.8	223.7	224.1	225.6	226.0	226.5	228.4	228.9	
3494	Valves and pipe fittings (12/71 = 100)	185.5	201.4	203.6	204.2	205.3	206.2	207.5	210.4	212.5	214.3	216.5	218.8	221.3	227.3	
3498	Fabricated pipe and fittings	265.5	284.9	288.2	290.7	294.8	294.8	294.9	297.3	297.4	297.4	301.7	301.8	303.5	306.8	
3519	Internal combustion engines, n.e.c.	220.1	237.1	239.0	239.2	242.3	245.7	251.8	254.2	254.9	254.9	259.2	260.5	264.2	269.2	
3531	Construction machinery (12/76 = 100)	114.0	123.0	123.9	124.0	125.6	126.3	126.5	128.9	129.4	130.9	134.2	135.3	135.8	138.0	
3532	Mining machinery (12/72 = 100)	209.5	228.0	228.4	226.4	231.2	231.5	232.3	233.1	235.4	236.4	243.1	244.2	244.8	254.1	
3533	Oilfield machinery and equipment	246.2	283.5	288.4	290.0	292.0	293.3	296.8	300.5	302.8	309.1	314.0	315.9	319.0	329.5	
3534	Elevators and moving stairways	204.2	213.8	213.6	214.2	215.4	214.6	219.1	219.4	220.6	220.9	223.9	225.4	228.8	232.6	
3542	Machine tools, metal forming types (12/71 = 100)	213.6	237.9	238.8	240.6	244.6	245.1	247.9	249.8	253.7	256.7	266.0	259.2	271.2	276.1	
3546	Power driven hand tools (12/76 = 100)	111.1	117.7	117.8	118.7	119.2	120.2	120.4	122.0	122.8	124.4	126.2	126.5	127.3	128.6	
3552	Textile machinery (12/69 = 100)	179.9	191.6	191.7	192.6	195.0	197.5	198.2	199.3	200.6	200.6	207.0	205.2	207.0	212.5	
3553	Woodworking machinery (12/72 = 100)	168.1	181.0	183.2	184.5	185.9	187.7	190.0	192.6	192.7	192.9	201.7	202.0	205.5	212.7	
3576	Scales and balances, excluding laboratory	179.7	191.3	192.8	193.7	194.8	195.4	195.4	195.7	199.5	201.0	200.9	201.9	204.1	205.1	
3592	Carburetors, pistons, rings, valves (6/76 = 100)	128.2	137.6	138.6	138.7	139.2	139.6	140.7	142.8	145.1	145.3	147.3	147.6	148.5	152.5	
3612	Transformers	158.3	168.5	168.0	168.5	167.9	167.6	168.4	171.2	170.4	171.6	173.0	176.1	177.4	180.0	
3623	Welding apparatus, electric (12/72 = 100)	178.1	187.3	191.5	191.9	193.5	194.1	195.1	196.9	198.6	200.3	200.6	202.6	205.3	207.3	
3631	Household cooking equipment (12/75 = 100)	114.8	120.3	120.7	120.9	122.0	123.4	124.3	124.4	125.9	126.3	128.6	129.1	129.3	129.6	
3632	Household refrigerators, freezers (6/76 = 100)	109.6	111.8	111.9	112.6	113.6	114.3	115.1	115.1	115.7	116.3	116.6	118.0	118.2	119.0	
3633	Household laundry equipment (12/73 = 100)	141.0	146.9	147.0	147.2	148.8	149.9	150.6	150.9	152.3	153.5	155.2	156.5	158.2	159.0	
3635	Household vacuum cleaners	135.5	140.4	141.2	141.5	141.6	141.7	141.9	144.5	144.7	145.8	146.2	149.6	149.9	150.2	
3636	Sewing machines (12/75 = 100)	111.2	121.1	121.1	121.1	121.8	122.2	122.2	122.6	122.6	122.6	122.0	128.6	128.6	128.6	
3641	Electric lamps	214.7	229.8	229.8	229.7	240.8	244.3	242.7	244.8	238.7	240.8	248.3	252.2	251.8	252.4	
3644	Noncurrent-carrying wiring devices (12/72 = 100)	185.8	200.4	202.6	203.0	203.3	207.7	209.1	210.5	211.9	215.0	215.2	217.5	217.5	219.7	
3646	Commercial lighting fixtures (12/75 = 100)	112.7	124.3	126.8	127.4	127.9	127.9	130.5	131.4	131.6	131.9	133.0	133.2	134.5	138.6	
3648	Lighting equipment, n.e.c. (12/75 = 100)	114.6	123.5	124.0	124.6	127.6	128.2	128.5	129.6	129.8	130.5	133.0	133.2	134.5	138.6	
3671	Electron tubes receiving type	200.9	211.2	211.3	226.4	226.5	226.6	227.2	227.2	227.4	227.7	229.1	229.4	229.5	253.9	
3674	Semiconductors and related devices	85.3	84.7	84.7	84.7	84.2	84.3	84.7	85.1	85.6	86.4	86.6	88.0	88.9	89.7	
3675	Electronic capacitors (12/75 = 100)	111.5	119.8	120.1	122.1	126.7	129.3	134.1	133.9	135.8	138.0	147.7	149.1	149.0	155.6	
3676	Electronic resistors (12/75 = 100)	118.3	123.2	123.2	123.2	124.0	124.6	125.2	126.6	126.7	127.3	127.4	128.8	131.8	131.9	
3678	Electronic connectors (12/75 = 100)	118.9	125.8	126.6	126.9	133.4	134.1	137.6	138.9	140.7	142.1	143.6	144.9</			

PRODUCTIVITY DATA

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

Definitions

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

Unit labor cost measures the labor compensation cost required to produce one unit of output and is derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from the current dollar gross domestic product and dividing by output. In these tables, **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits. **Unit profits** include corporate profits and inventory valuation adjustments per unit of output.

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

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

Notes on the data

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

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

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

31. Indexes of productivity and related data, selected years, 1950-79

[1967=100]

Item	1950	1955	1960	1965	1970	1972	1973	1974	1975	1976	1977	1978	1979
Private business sector:													
Output per hour of all persons	61.2	70.6	79.0	95.1	104.4	111.5	113.6	110.2	112.6	116.6	118.7	119.3	118.3
Compensation per hour	42.6	56.1	72.2	88.7	123.3	139.8	151.3	165.2	181.7	197.6	213.3	231.5	253.2
Real compensation per hour	59.2	69.9	81.4	93.9	106.0	111.6	113.6	111.8	112.7	115.9	117.5	118.5	116.4
Unit labor cost	69.6	79.4	91.4	93.3	118.2	125.4	133.2	149.8	161.3	169.5	179.7	194.0	214.0
Unit nonlabor payments	73.1	80.4	85.4	95.9	105.8	118.9	124.9	130.3	150.3	157.9	165.5	174.3	184.4
Implicit price deflator	70.8	79.8	89.3	94.2	113.9	123.2	130.3	143.1	157.5	165.5	174.8	187.2	203.8
Nonfarm business sector:													
Output per hour of all persons	67.2	74.6	81.2	96.0	103.2	110.1	112.0	108.6	110.7	114.6	116.4	117.0	115.7
Compensation per hour	45.6	59.0	74.5	89.4	121.9	138.4	149.2	163.0	179.3	194.2	209.6	227.6	248.0
Real compensation per hour	63.3	73.6	84.1	94.6	104.8	110.5	112.1	110.4	111.2	113.9	115.5	116.5	114.1
Unit labor cost	68.0	79.1	91.7	93.2	118.1	125.7	133.2	150.1	161.9	169.5	180.1	194.6	214.4
Unit nonlabor payments	71.4	80.1	84.4	95.8	106.0	117.4	117.8	124.7	145.9	156.0	163.8	169.9	178.6
Implicit price deflator	69.1	79.4	89.2	94.1	114.0	122.9	127.9	141.4	156.4	164.8	174.5	186.1	202.1
Nonfinancial corporations:													
Output per hour of all employees	(1)	(1)	80.6	96.9	103.7	110.6	112.9	108.7	112.2	115.8	117.0	118.1	117.7
Compensation per hour	(1)	(1)	76.0	90.1	121.8	136.7	147.6	161.7	177.9	192.7	208.0	225.2	245.2
Real compensation per hour	(1)	(1)	85.7	95.3	104.7	109.1	110.9	109.5	110.4	113.0	114.6	115.3	112.8
Unit labor cost	(1)	(1)	94.3	93.0	117.4	123.7	130.7	148.8	158.6	166.4	177.7	190.6	208.4
Unit nonlabor payments	(1)	(1)	90.8	100.1	103.5	114.8	116.8	124.8	148.1	156.8	164.4	170.6	179.5
Implicit price deflator	(1)	(1)	93.1	95.5	112.5	120.5	125.8	140.2	154.9	163.0	173.0	183.5	198.1
Manufacturing:													
Output per hour of all persons	65.8	75.0	79.8	98.4	105.0	115.7	118.9	113.0	118.8	124.0	127.7	128.3	130.3
Compensation per hour	45.6	61.2	78.0	91.1	122.3	136.6	146.5	161.7	181.1	196.1	212.7	223.0	251.3
Real compensation per hour	63.3	76.3	88.0	96.4	105.1	109.0	110.1	109.5	112.3	115.0	117.2	117.8	115.6
Unit labor cost	69.4	81.6	97.7	92.6	116.5	118.1	123.2	143.1	152.4	158.2	166.6	179.4	192.9
Unit nonlabor payments	82.3	88.6	92.3	103.3	96.2	107.4	106.4	105.6	128.4	139.6	147.4	152.4	(1)
Implicit price deflator	73.3	83.8	96.1	95.9	110.3	114.8	118.0	131.6	145.1	152.5	160.7	171.1	(1)

¹ Not available.

32. Annual percent change in productivity and related data, 1969-79

Item	Year											Annual rate of change	
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1950-79	1960-79
Private business sector:													
Output per hour of all persons	0.2	0.7	3.3	3.4	1.9	-3.0	2.1	3.5	1.8	0.5	-0.9	P2.5	P2.1
Compensation per hour	6.9	7.2	6.7	6.2	8.2	9.2	10.0	8.8	8.0	8.5	9.3	P5.9	P6.9
Real compensation per hour	1.4	1.2	2.3	2.8	1.9	-1.6	1.8	2.8	1.4	0.8	-1.7	P2.5	P2.0
Unit labor cost	6.6	6.4	3.3	2.8	6.2	12.5	7.7	5.0	6.0	8.0	10.3	P3.3	P4.7
Unit nonlabor payments	1.0	1.2	6.8	5.3	5.0	4.4	15.3	5.1	4.8	5.3	5.8	P3.0	P4.2
Implicit price deflator	4.7	4.7	4.4	3.6	5.8	9.8	10.1	5.0	5.6	7.1	8.9	P3.2	P4.5
Nonfarm business sector:													
Output per hour of all persons	-2	2	3.0	3.6	1.7	-3.1	2.0	3.5	1.5	.5	-1.1	P2.1	P1.9
Compensation per hour	6.4	6.8	6.7	6.4	7.8	9.2	10.0	8.3	7.9	8.6	9.0	P5.6	P6.7
Real compensation per hour	1.0	.8	2.3	3.0	1.5	-1.6	1.8	2.4	1.4	.9	-2.1	P2.2	P1.7
Unit labor cost	6.7	6.5	3.5	2.7	6.0	12.7	7.9	4.7	6.3	8.0	10.2	P3.4	P4.7
Unit nonlabor payments	4	1.6	6.7	3.8	.3	5.9	17.0	6.9	5.0	3.7	5.1	P2.9	P4.0
Implicit price deflator	4.5	4.9	4.5	3.1	4.1	10.5	10.6	5.4	5.9	6.6	8.6	P3.3	P4.5
Nonfinancial corporations:													
Output per hour of all employees	4	-0	3.3	3.3	2.1	-3.7	3.2	3.2	1.1	1.0	-4	(¹)	P1.9
Compensation per hour	6.8	6.8	6.2	5.7	7.9	9.6	10.0	8.3	7.9	8.3	8.9	(¹)	P6.5
Real compensation per hour	1.3	.8	1.8	2.4	1.6	-1.3	.8	2.4	1.4	.6	-2.1	(¹)	P1.6
Unit labor cost	6.3	6.8	2.7	2.5	5.7	13.8	6.6	4.9	6.8	7.3	9.3	(¹)	P4.5
Unit nonlabor payments	0	.5	7.3	3.5	1.8	6.8	18.7	5.8	4.9	3.8	5.2	(¹)	P3.6
Implicit price deflator	4.1	4.6	4.2	2.8	4.4	11.5	10.5	5.2	6.1	6.1	7.9	(¹)	P4.2
Manufacturing:													
Output per hour of all persons	1.3	-1	5.2	4.8	2.8	-5.0	5.1	4.4	3.0	.5	1.5	2.6	P2.5
Compensation per hour	6.6	7.1	6.2	5.2	7.2	10.4	12.0	8.3	8.5	8.2	9.2	P5.5	P6.5
Real compensation per hour	1.2	1.1	1.9	1.8	.9	-5	2.6	2.4	1.9	.5	-1.9	P2.1	1.6
Unit labor cost	5.2	7.2	.9	.4	4.3	16.1	6.6	3.8	5.3	7.7	7.6	P2.9	P3.8
Unit nonlabor payments	-4.4	-3.2	9.2	2.3	-1.0	-7	21.6	8.8	5.5	3.4	(¹)	P1.9	P2.4
Implicit price deflator	2.3	4.2	3.1	1.0	2.8	11.5	10.2	5.1	5.4	6.5	(¹)	P2.6	P3.4

¹ Not available.

33. Indexes of productivity, hourly compensation, unit costs, and prices, seasonally adjusted

5 [1967=100]

Item	Annual average		Quarterly indexes										
	1978	1979	1977		1978				1979				1980
			III	IV	I	II	III	IV	I	II	III	IV	I
Private business sector:													
Output per hour of all persons	119.3	118.3	119.6	119.0	118.5	119.1	119.8	119.9	119.0	118.4	118.0	117.9	118.0 ^P
Compensation per hour	231.5	253.2	215.6	218.8	224.5	228.8	233.9	238.7	245.1	250.6	256.0	260.6	267.3 ^P
Real compensation per hour	118.5	116.4	117.8	117.9	118.8	118.3	118.3	118.1	118.0	117.1	115.9	114.3	112.8 ^P
Unit labor cost	194.0	214.0	180.2	183.9	189.4	192.1	195.2	199.0	205.9	211.7	217.0	221.1	226.5 ^P
Unit nonlabor payments	174.3	184.4	167.9	168.5	164.8	173.9	177.0	181.2	180.8	183.6	185.5	188.2	192.5 ^P
Implicit price deflator	187.2	203.8	176.0	178.6	180.9	185.8	188.9	192.9	197.2	202.0	206.1	209.7	214.7 ^P
Nonfarm business sector:													
Output per hour of all persons	117.0	115.7	116.9	116.4	116.1	116.7	117.5	117.7	116.8	115.5	115.1	115.4	115.3 ^P
Compensation per hour	227.6	248.0	211.5	215.1	220.9	225.0	229.8	234.7	240.5	245.1	250.2	255.9	261.9 ^P
Real compensation per hour	116.5	114.1	115.6	115.9	116.9	116.3	116.2	116.1	115.8	114.6	113.3	112.3	110.5 ^P
Unit labor cost	194.6	214.4	181.0	184.8	190.2	192.8	195.6	199.4	206.0	212.2	217.3	221.8	227.2 ^P
Unit nonlabor payments	169.9	178.6	167.1	165.9	161.1	169.1	173.0	176.0	174.3	177.6	180.4	182.5	188.4 ^P
Implicit price deflator	186.1	202.1	176.2	178.3	180.2	184.7	187.8	191.4	195.1	200.3	204.7	208.4	213.9 ^P
Nonfinancial corporations:													
Output per hour of all employees	118.1	117.7	117.7	116.9	116.9	118.1	118.7	119.0	118.4	117.5	117.4	117.3 ^P	(¹)
Compensation per hour	225.2	245.2	209.9	213.2	218.9	222.8	227.3	231.7	237.9	242.5	247.6	252.6 ^P	(¹)
Real compensation per hour	115.3	112.8	114.7	114.9	115.8	115.2	115.0	114.6	114.6	113.3	112.1	110.8 ^P	(¹)
Total unit costs	193.3	210.3	182.4	186.3	190.8	191.6	194.0	196.8	202.3	208.0	213.2	218.0 ^P	(¹)
Unit labor cost	190.6	208.4	178.4	182.3	187.3	188.7	191.5	194.8	201.0	206.4	210.8	215.3 ^P	(¹)
Unit nonlabor costs	201.8	216.6	194.8	198.7	201.5	200.8	201.6	203.1	206.5	213.2	220.5	226.1 ^P	(¹)
Unit profits	127.2	128.4	130.9	122.2	107.1	129.2	132.7	138.7	130.3	129.2	127.5	124.0 ^P	(¹)
Implicit price deflator	183.5	198.1	174.7	176.8	178.3	182.3	184.9	188.2	191.6	196.3	200.4	204.0 ^P	(¹)
Manufacturing:													
Output per hour for all persons	128.3	130.3	128.9	128.3	126.2	127.7	129.6	130.1	129.2	130.0	131.0	130.6	130.0 ^P
Compensation per hour	230.2	251.3	214.8	218.3	223.8	227.3	232.0	237.2	243.2	248.9	253.7	259.0	265.1 ^P
Real compensation per hour	117.8	115.6	117.4	117.6	118.4	117.5	117.4	117.3	117.1	116.3	114.9	113.6	111.8 ^P
Unit labor cost	179.4	192.4	166.7	170.2	177.4	178.0	179.1	182.4	188.2	191.4	193.7	198.3	204.0 ^P

¹ Not available.

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

[1967=100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	III 1978 to IV 1978	IV 1978 to I 1979	I 1979 to II 1979	II 1979 to III 1979	III 1979 to IV 1979	IV 1979 to I 1980 ^P	IV 1977 to IV 1978	I 1978 to I 1979	II 1978 to II 1979	III 1978 to III 1979	IV 1978 to IV 1979	I 1979 to I 1980 ^P
Private business sector:												
Output per hour of all persons	0.3	-3.0	-2.2	r -1.4	r -0.3	0.6 ^P	0.8	0.4	-0.6	-1.6	r -1.7	-0.8 ^P
Compensation per hour	8.5	11.1	9.3	8.8	7.4	10.7 ^P	9.1	9.2	9.5	9.4	r 9.2	9.1 ^P
Real compensation per hour	r -9	r -1	r -3.1	r -4.0	-5.4	-5.3 ^P	.1	-6	-1.0	-2.0	-3.2	-4.5 ^P
Unit labor cost	8.1	14.6	11.8	10.3	7.8	10.0 ^P	8.3	8.7	10.2	11.2	11.1	10.0 ^P
Unit nonlabor payments	9.9	-1.0	r 6.6	r 4.2	r 5.9	9.4 ^P	7.5	9.7	5.6	4.8	r 3.9	6.5 ^P
Implicit price deflator	8.7	9.3	10.1	8.3	r 7.2	9.8 ^P	8.0	9.0	8.7	9.1	r 8.7	8.9 ^P
Nonfarm business sector:												
Output per hour of all persons	.8	-3.2	-4.1	-1.4	r .7	-0.2 ^P	1.1	.5	-1.0	-2.0	-2.0	-1.2 ^P
Compensation per hour	8.8	10.4	7.9	8.5	9.4	9.7 ^P	9.1	8.9	9.0	8.9	9.0	8.9 ^P
Real compensation per hour	r -6	r -7	r -4.4	r -4.3	r -3.6	-6.2 ^P	.1	r -9	-1.5	-2.5	-3.3	-4.6 ^P
Unit labor cost	8.0	14.0	12.5	10.1	8.6	9.9 ^P	7.9	8.3	10.1	11.1	11.3	10.3 ^P
Unit nonlabor payments	7.3	r -3.9	7.8	6.6	r 4.6	13.6 ^P	6.1	8.2	5.0	4.3	r 3.7	8.1 ^P
Implicit price deflator	7.8	8.1	11.0	9.0	r 7.4	11.0 ^P	7.3	8.3	8.5	9.0	r 8.9	9.6 ^P
Nonfinancial corporations:												
Output per hour of all employees	1.1	-2.1	r -2.9	-0.2	-0.5 ^P	(¹)	1.8	1.3	-5	-1.0	-1.4 ^P	(¹)
Compensation per hour	8.1	11.0	8.0	8.6	8.3 ^P	(¹)	8.7	8.7	8.9	8.9	9.0 ^P	(¹)
Real compensation per hour	-1.3	-1	-4.3	-4.3	-4.6 ^P	(¹)	-2	-1.1	-1.6	-2.5	3.3 ^P	(¹)
Total unit costs	5.9	11.7	11.8	10.2	9.3 ^P	(¹)	5.6	6.1	8.6	9.9	10.8 ^P	(¹)
Unit labor costs	6.9	13.4	11.2	8.8	8.9 ^P	(¹)	6.8	7.3	9.4	10.1	10.6 ^P	(¹)
Unit nonlabor costs	2.9	6.8	13.5	14.6	10.6 ^P	(¹)	2.2	2.5	6.2	9.4	11.3 ^P	(¹)
Unit profits	19.5	-22.1	-3.4	-5.3	10.4 ^P	(¹)	13.6	21.7	0	-3.9	-10.6 ^P	(¹)
Implicit price deflator	7.3	7.6	10.2	8.6	7.3 ^P	(¹)	6.4	7.5	7.7	8.4	8.4 ^P	(¹)
Manufacturing:												
Output per hour of all persons	r 1.7	r -2.7	r 2.5	r 3.2	-1.3	-1.9 ^P	r 1.4	r 2.4	r 1.8	r 1.1	r 0.4	0.6 ^P
Compensation per hour	9.3	r 10.4	9.8	r 8.0	r 8.6	9.8 ^P	8.7	8.6	9.5	r 9.3	9.2	9.0 ^P
Real compensation per hour	r -2	r -7	r -2.7	r -4.8	-4.4	-6.1 ^P	-3	-1.1	r -1.1	-2.1	r -3.2	-4.5 ^P
Unit labor cost	r 7.5	r 13.4	r 7.1	r 4.7	r 10.0	11.9 ^P	r 7.2	r 6.1	r 7.5	r 8.1	r 8.8	8.4 ^P

¹ Not available.

LABOR-MANAGEMENT DATA

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

Definitions

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

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

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

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

35. Wage and benefit settlements in major collective bargaining units, 1975 to date

[In percent]

Sector and measure	Annual average					Quarterly average							
	1975	1976	1977	1978	1979	1978		1979				1980 ^P	
						III	IV	I	II	III	IV		I
Wage and benefit settlements, all industries:													
First-year settlements	11.4	8.5	9.6	8.3	9.0	7.2	6.1	2.8	10.5	9.0	8.5	8.6	
Annual rate over life of contract	8.1	6.6	6.2	6.3	6.6	5.9	5.2	5.3	7.8	6.1	6.0	6.4	
Wage rate settlements, all industries:													
First-year settlements	10.2	8.4	7.8	7.6	7.4	7.5	7.4	5.7	8.9	6.8	6.3	7.8	
Annual rate over life of contract	7.8	6.4	5.8	6.4	6.0	6.4	5.9	6.6	7.2	5.1	5.3	6.3	
Manufacturing:													
First-year settlements	9.8	8.9	8.4	8.3	6.9	8.4	9.5	8.7	9.7	6.3	5.6	7.0	
Annual rate over life of contract	8.0	6.0	5.5	6.6	5.4	7.2	7.4	7.7	8.1	4.7	4.2	5.6	
Nonmanufacturing (excluding construction):													
First-year settlements	11.9	8.6	8.0	8.0	7.6	7.4	6.4	3.2	8.5	9.4	7.8	9.1	
Annual rate over life of contract	8.0	7.2	5.9	6.5	6.2	5.9	5.1	5.6	5.8	6.5	7.4	7.1	
Construction:													
First-year settlements	8.0	6.1	6.3	6.5	8.8	7.0	8.4	9.7	8.7	9.7	7.5	9.6	
Annual rate over life of contract	7.5	6.2	6.3	6.2	8.3	7.2	7.1	8.2	8.3	8.5	7.6	9.3	

36. Effective wage adjustments going into effect in major collective bargaining units, 1975 to date

[In percent]

Sector and measure	Average annual changes					Average quarterly changes								
	1975	1976	1977	1978	1979	1978				1979				1980 ^P
						I	II	III	IV	I	II	III	IV		I
Total effective wage rate adjustment, all industries	8.7	8.1	8.0	8.2	9.1	1.3	2.6	2.7	1.4	1.4	2.6	3.3	1.6	1.3
Change resulting from—														
Current settlement	2.8	3.2	3.0	2.0	3.0	.5	.6	.5	.4	.2	1.1	1.0	.5	.3
Prior settlement	3.7	3.2	3.2	3.7	3.0	.6	1.4	1.2	.5	.6	1.0	1.0	.4	.5
Escalator provision	2.2	1.6	1.7	2.4	3.1	.3	.6	1.0	.5	.6	.5	1.2	.7	.6
Manufacturing	8.5	8.5	8.4	8.6	9.6	1.4	2.2	2.9	1.9	1.5	2.3	3.2	2.4	1.6
Nonmanufacturing	8.9	7.7	7.6	7.9	8.8	1.3	2.9	2.5	1.1	1.4	2.8	3.4	1.0	1.1

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

37. Work stoppages, 1947 to date

Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (thousands)	In effect during month (thousands)	Number (thousands)	Percent of estimated working time
1947	3,693		2,170		34,600	.30
1948	3,419		1,960		34,100	.28
1949	3,606		3,030		50,500	.44
1950	4,843		2,410		38,800	.33
1951	4,737		2,220		22,900	.18
1952	5,117		3,540		59,100	.48
1953	5,091		2,400		28,300	.22
1954	3,468		1,530		22,600	.18
1955	4,320		2,650		28,200	.22
1956	3,825		1,900		33,100	.24
1957	3,673		1,390		16,500	.12
1958	3,694		2,060		23,900	.18
1959	3,708		1,880		69,000	.50
1960	3,333		1,320		19,100	.14
1961	3,367		1,450		16,300	.11
1962	3,614		1,230		18,600	.13
1963	3,362		941		16,100	.11
1964	3,655		1,640		22,900	.15
1965	3,963		1,550		23,300	.15
1966	4,405		1,960		25,400	.15
1967	4,595		2,870		42,100	.25
1968	5,045		2,649		49,018	.28
1969	5,700		2,481		42,869	.24
1970	5,716		3,305		66,414	.37
1971	5,138		3,280		47,589	.26
1972	5,010		1,714		27,066	.15
1973	5,353		2,251		27,948	.14
1974	6,074		2,778		47,991	.24
1975	5,031		1,746		31,237	.16
1976	5,648		2,420		37,859	.19
1977	5,506		2,040		35,822	.17
1978	4,230		1,623		36,922	.17
1979: April	512		426		5,126	.27
May	556		132		3,682	.19
June	536		137		2,989	.16
July	471		168		3,001	.16
August	463		119		3,152	.15
September	464		135		2,319	.13
October	443		230		2,968	.15
November	257		91		2,720	.15
December	134		42		1,976	.11
1980: January P	352	441	207	292	3,142	.16
February P	354	590	114	332	3,025	.17
March P	396	631	123	310	2,705	.14
April	425	663	116	231	2,786	.14

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